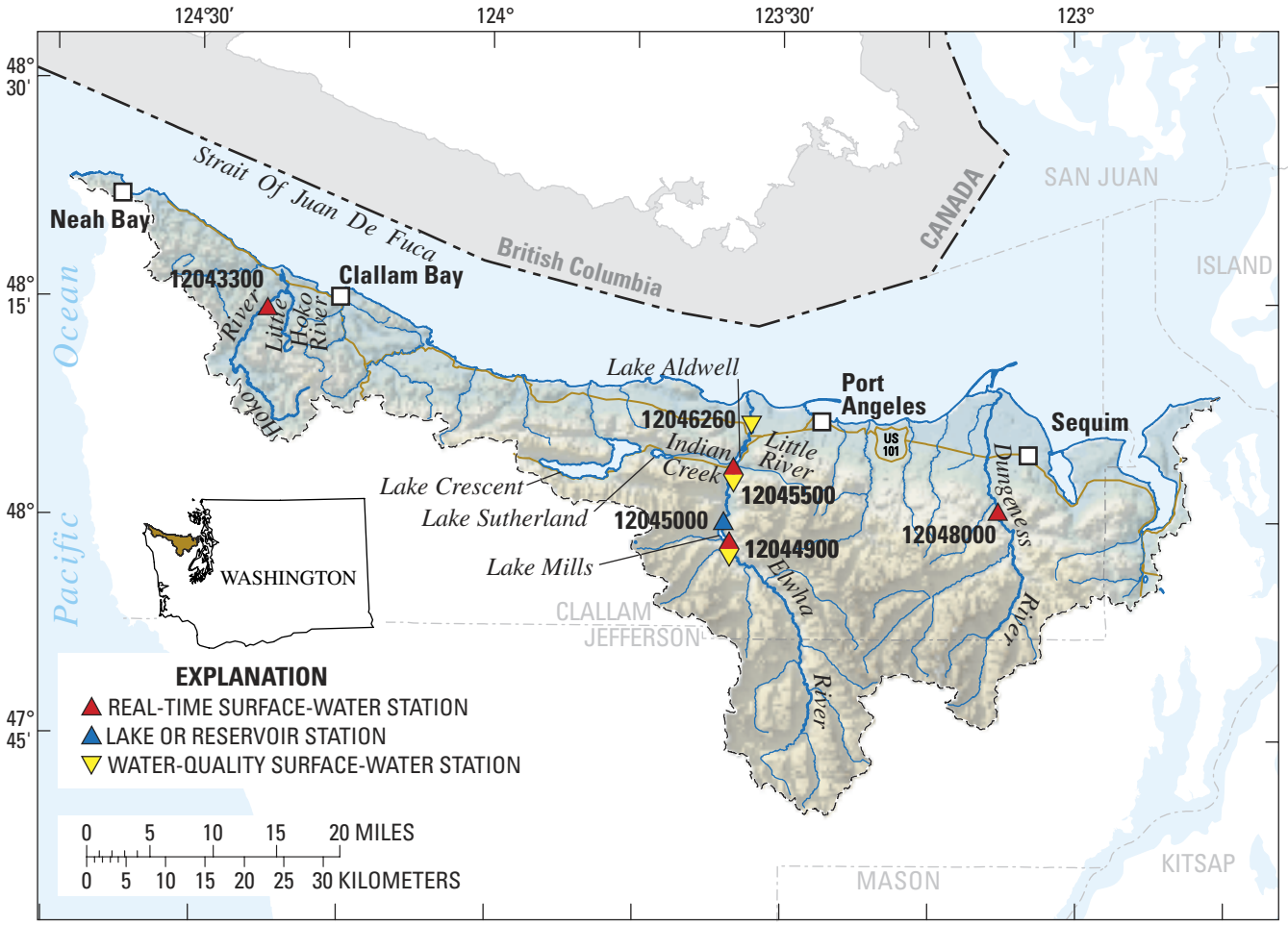

Figure 11. Location of surface-water stations in the Hoko, Elwha, and Dungeness River Basins.

12043300 HOKO RIVER NEAR SEKIU, WA

LOCATION.--Lat 48°14'30", long 124°22'57", in NE ¼ SW ¼ sec.28, T.32 N., R.13 W., Clallam County, Hydrologic Unit 17110021, on right bank 2.2 mi upstream from Little Hoko River, 4.0 mi southwest of Sekiu, and at mile 5.3.

DRAINAGE AREA.--51.2 mi^2.

PERIOD OF RECORD.--July 1962 to September 1974, water years 1976-78 (annual maximum), June 1983 to September 1995 (seasonal records), October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--21 years (water years 1963-74, 1996-2004), 403 ft^3/s, 106.93 in/yr, 291,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,400 ft^3/s Dec. 15, 1999, gage height, 16.75 ft, from rating curve extended above 2,100 ft^3/s, on basis of slope-area measurement at gage height, 12.49 ft; minimum discharge, 10 ft^3/s Sept. 5, 6, 2003.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 16	2300	*14,400	*14.40	Nov 19	0315	5,110	8.45
Oct 19	0315	4,800	8.19	Nov 28	1845	5,620	8.86

Minimum discharge, 13 ft^3/s, Oct. 1-6, gage height, 0.69 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	197	506	360	932	185	249	58	90	40	19	65
2	13	185	498	305	910	169	217	57	76	40	18	59
3	13	167	621	270	814	197	195	56	66	41	21	52
4	13	152	463	227	708	267	175	57	58	38	23	48
5	13	141	520	203	534	416	160	63	64	37	20	46
6	20	130	1,020	195	546	411	147	56	142	42	28	42
7	63	121	832	397	541	1,440	138	53	145	42	36	40
8	75	113	622	776	432	1,030	128	58	106	37	27	47
9	135	106	472	770	361	616	118	61	90	36	22	76
10	110	154	382	1,030	307	442	110	53	83	35	20	89
11	79	311	342	699	266	350	103	51	76	37	18	410
12	330	199	483	546	234	290	99	48	72	34	18	195
13	224	170	439	509	212	248	95	47	184	31	18	181
14	132	153	564	556	215	228	94	46	171	30	17	186
15	146	287	610	836	233	204	98	44	138	29	17	540
16	5,420	784	567	622	265	185	96	46	114	29	16	387
17	5,910	1,180	526	477	276	178	90	46	100	28	16	591
18	1,890	3,470	412	557	446	243	84	43	88	26	16	437
19	2,760	3,250	341	620	430	289	88	42	77	28	15	363
20	2,460	1,130	373	488	350	265	119	41	70	36	15	262
21	1,720	658	373	389	293	227	102	41	64	32	23	210
22	1,030	470	310	330	251	205	89	42	60	28	42	183
23	952	434	280	335	227	187	90	41	57	25	32	191
24	606	525	362	327	219	227	87	38	57	24	41	157
25	438	857	464	295	258	353	80	40	55	22	147	136
26	345	729	439	394	237	659	74	63	52	21	187	121
27	286	536	493	624	217	792	71	71	48	21	95	110
28	354	2,320	490	1,200	219	530	68	93	46	21	88	102
29	318	1,540	395	1,390	203	397	64	86	44	20	120	95
30	252	732	333	2,140	---	337	61	104	42	20	94	89
31	218	---	363	1,200	---	286	---	115	---	19	73	---
TOTAL	26,339	21,201	14,895	19,067	11,136	11,853	3,389	1,760	2,535	949	1,342	5,510
MEAN	850	707	480	615	384	382	113	56.8	84.5	30.6	43.3	184
MAX	5,910	3,470	1,020	2,140	932	1,440	249	115	184	42	187	591
MIN	13	106	280	195	203	169	61	38	42	19	15	40
AC-FT	52,240	42,050	29,540	37,820	22,090	23,510	6,720	3,490	5,030	1,880	2,660	10,930
CFSM	16.6	13.8	9.38	12.0	7.50	7.47	2.21	1.11	1.65	0.60	0.85	3.59
IN.	19.14	15.40	10.82	13.85	8.09	8.61	2.46	1.28	1.84	0.69	0.98	4.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2004, BY WATER YEAR (WY)

MEAN	317	716	853	875	651	548	321	175	108	66.3	43.7	71.8
MAX	907	1,706	1,376	1,414	1,410	1,140	625	383	373	296	288	322
(WY)	(1968)	(1996)	(1967)	(1997)	(1999)	(1997)	(1970)	(1974)	(1997)	(1997)	(1991)	(1968)
MIN	13.0	200	464	427	251	177	113	56.8	35.3	22.0	14.6	14.6
(WY)	(1988)	(2001)	(2001)	(1963)	(2001)	(1965)	(2004)	(2004)	(1972)	(1967)	(1967)	(1998)

12043300 HOKO RIVER NEAR SEKIU, WA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1962 - 2004	
ANNUAL TOTAL	139,972		119,976			
ANNUAL MEAN	383		328		403	
HIGHEST ANNUAL MEAN					585	1974
LOWEST ANNUAL MEAN					231	2001
HIGHEST DAILY MEAN	5,910	Oct 17	5,910	Oct 17	9,320	Dec 15, 1999
LOWEST DAILY MEAN	11	Sep 3	13	Oct 2	11	Oct 10, 1987
ANNUAL SEVEN-DAY MINIMUM	12	Aug 31	16	Aug 14	11	Oct 10, 1987
ANNUAL RUNOFF (AC-FT)	277,600		238,000		291,900	
ANNUAL RUNOFF (CFSM)	7.49		6.40		7.87	
ANNUAL RUNOFF (INCHES)	101.70		87.17		106.93	
10 PERCENT EXCEEDS	853		671		981	
50 PERCENT EXCEEDS	158		158		198	
90 PERCENT EXCEEDS	18		28		29	

12044900 ELWHA RIVER ABOVE LAKE MILLS, NEAR PORT ANGELES, WA

LOCATION.--Lat 47°58'21", long 123°35'25", in NE¼NE¼, sec.32, T.29 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Park, on right bank 30 ft upstream from Cat Creek, 2.5 mi above Glines Canyon Dam, 12.5 mi southwest of Port Angeles, and at mile 16.2.

DRAINAGE AREA.--198 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1994 to May 1998, February to September 2004.

GAGE.--Water-stage recorder. Elevation of gage 580 ft NGVD of 1929 from topographic map. Prior to February 2004, gage on left bank 0.2 mi upstream, at different datum, 580.00 ft above NGVD of 1929.

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

AVERAGE DISCHARGE.--3 years (water years 1995-97), 1,486 ft^3/s, 101.95 in/yr, 1,076,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft^3/s, Nov. 8, 1995, gage height, 21.16 ft; minimum discharge, 205 ft^3/s, Oct. 12, 13, 19, 1995, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,960 ft^3/s, Sept. 11, gage height, 13.11 ft; minimum discharge, 311 ft^3/s, Sept. 10, gage height, 10.56 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	e970	1,370	1,800	1,630	1,450	431	492
2	---	---	---	---	---	e940	1,290	2,030	1,660	1,390	418	486
3	---	---	---	---	---	939	1,280	2,020	1,700	1,330	414	414
4	---	---	---	---	---	925	1,320	1,990	1,920	1,250	439	391
5	---	---	---	---	---	973	1,300	1,860	2,110	1,200	366	367
6	---	---	---	---	---	911	1,280	1,670	2,040	1,280	847	342
7	---	---	---	---	---	1,240	1,300	1,620	1,770	1,180	857	333
8	---	---	---	---	---	1,520	1,310	1,620	1,700	1,030	596	338
9	---	---	---	---	---	1,650	1,310	1,560	1,870	1,010	553	387
10	---	---	---	---	---	1,470	1,350	1,530	1,850	953	550	353
11	---	---	---	---	---	1,320	1,510	1,470	1,670	902	538	1,450
12	---	---	---	---	---	1,270	1,700	1,490	1,540	863	522	623
13	---	---	---	---	---	1,220	1,640	1,490	1,870	866	521	941
14	---	---	---	---	---	1,180	1,560	1,480	1,700	885	518	926
15	---	---	---	---	---	1,160	1,460	1,560	1,520	862	523	1,080
16	---	---	---	---	---	1,130	1,380	1,570	1,480	831	503	861
17	---	---	---	---	---	1,160	1,310	1,590	1,550	773	482	1,310
18	---	---	---	---	1,910	1,270	1,260	1,690	1,710	776	463	997
19	---	---	---	---	1,690	1,240	1,240	1,890	1,710	734	447	810
20	---	---	---	---	1,530	1,130	1,260	1,930	1,620	664	440	694
21	---	---	---	---	1,410	1,140	1,170	2,030	1,720	603	459	619
22	---	---	---	---	1,320	1,250	1,130	1,990	1,830	570	716	611
23	---	---	---	---	1,250	1,360	1,170	1,770	1,920	573	479	616
24	---	---	---	---	1,270	1,550	1,150	1,660	1,910	600	741	548
25	---	---	---	---	1,250	1,570	1,140	1,660	1,820	591	1,740	514
26	---	---	---	---	e1,150	1,590	1,370	2,120	1,670	526	1,280	487
27	---	---	---	---	e1,100	1,480	1,690	2,240	1,530	498	738	459
28	---	---	---	---	e1,050	1,380	1,550	2,100	1,450	509	613	439
29	---	---	---	---	e1,000	1,410	1,450	1,780	1,440	502	567	421
30	---	---	---	---	---	1,590	1,520	1,810	1,480	491	522	397
31	---	---	---	---	---	1,480	---	1,770	---	454	488	---
TOTAL	---	---	---	---	---	39,418	40,770	54,790	51,390	26,146	18,771	18,706
MEAN	---	---	---	---	---	1,272	1,359	1,767	1,713	843	606	624
MAX	---	---	---	---	---	1,650	1,700	2,240	2,110	1,450	1,740	1,450
MIN	---	---	---	---	---	911	1,130	1,470	1,440	454	366	333
AC-FT	---	---	---	---	---	78,190	80,870	108,700	101,900	51,860	37,230	37,100
CFSM	---	---	---	---	---	6.42	6.86	8.93	8.65	4.26	3.06	3.15
IN.	---	---	---	---	---	7.41	7.66	10.29	9.66	4.91	3.53	3.51

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2004, BY WATER YEAR (WY)

MEAN	1,021	1,730	2,074	2,140	2,028	1,497	1,216	1,697	1,598	1,045	545	506
MAX	2,179	3,636	3,039	2,787	2,843	2,286	1,597	2,572	2,294	1,628	755	915
(WY)	(1998)	(1996)	(1996)	(1997)	(1995)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)	(1997)
MIN	438	684	1,354	1,921	1,405	1,071	763	1,171	1,164	821	400	319
(WY)	(1995)	(1995)	(1997)	(1996)	(1997)	(1996)	(1998)	(1996)	(1994)	(1994)	(1994)	(1996)

12044900 ELWHA RIVER ABOVE LAKE MILLS, NEAR PORT ANGELES, WA—Continued

SUMMARY STATISTICS	WATER YEARS 1994 - 2004	
ANNUAL MEAN	1,486	
HIGHEST ANNUAL MEAN	1,610	1997
LOWEST ANNUAL MEAN	1,330	1995
HIGHEST DAILY MEAN	14,300	Mar 19, 1997
LOWEST DAILY MEAN	206	Oct 19, 1994
ANNUAL SEVEN-DAY MINIMUM	214	Oct 7, 1994
ANNUAL RUNOFF (AC-FT)	1,076,000	
ANNUAL RUNOFF (CFSM)	7.50	
ANNUAL RUNOFF (INCHES)	101.95	
10 PERCENT EXCEEDS	2,810	
50 PERCENT EXCEEDS	1,120	
90 PERCENT EXCEEDS	382	

e Estimated

12044900 ELWHA RIVER ABOVE LAKE MILLS, NEAR PORT ANGELES, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: April 1994 to May 1998, February 2004 to September 2004.
TURBIDITY: December 2003 to September 2004.
SUSPENDED SEDIMENT DISCHARGE: March 1994 to December 1997.

INSTRUMENTATION.--Water-quality monitor since December 2003. Temperature and turbidity sensors interfaced with an electronic data logger, with 15-minute logging interval.

REMARKS.--
WATER TEMPERATURE: Records excellent except Feb. 18-20 and June 6-10, which are good, Feb. 22-27, which are fair, and Feb. 28 to Mar. 16, which are poor.
TURBIDITY: Records good except Dec. 22 to Jan. 3, which are fair.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum 16.1°C, Aug. 19, 2004; minimum, 0.0°C, Jan. 30, 31, Dec. 26, 27, 29, 30, 1996, Jan. 11, 12, 1998.
TURBIDITY: Maximum 1,020 FNU, Dec. 19, 2003; minimum 0.0 FNU, July 21, 2004.
SUSPENDED SEDIMENT CONCENTRATION (March 1994 to December 1997): Maximum daily, 4,130 mg/L, Nov. 8, 1995; minimum, 1 mg/L on many days during each year.
SUSPENDED SEDIMENT DISCHARGE (April 1994 to September 1995): Maximum daily, 158,000 tons, Nov. 8, 1995; minimum daily, 0.56 tons, Oct. 13, 16, 1994 (estimated).

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 16.1°C, Aug. 9; minimum, 3.3°C, Mar. 7.
TURBIDITY: Maximum, 1,020 FNU, Dec. 19; minimum, 0.0 FNU, July 21.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR FEBRUARY 2004 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	6.5	5.2	5.9	---	---	---	8.5	6.3	7.4
2	---	---	---	5.8	4.2	5.1	---	---	---	8.7	6.5	7.6
3	---	---	---	6.3	5.0	5.6	---	---	---	7.8	6.2	7.0
4	---	---	---	6.5	5.2	5.8	---	---	---	7.4	6.3	6.9
5	---	---	---	5.6	4.4	5.0	---	---	---	6.9	5.0	6.1
6	---	---	---	5.9	4.0	4.7	---	---	---	8.0	5.4	6.7
7	---	---	---	6.0	3.2	5.1	---	---	---	7.3	6.0	6.7
8	---	---	---	6.7	4.7	5.7	---	---	---	7.3	5.5	6.5
9	---	---	---	7.1	5.1	5.8	---	---	---	8.0	5.2	6.6
10	---	---	---	6.1	3.9	5.0	---	---	---	7.3	6.0	6.6
11	---	---	---	6.5	4.3	5.4	---	---	---	9.0	6.2	7.4
12	---	---	---	7.1	5.7	6.3	---	---	---	9.1	6.0	7.5
13	---	---	---	6.9	4.9	6.0	---	---	---	8.3	6.0	7.2
14	---	---	---	7.7	5.9	6.8	---	---	---	9.0	6.0	7.5
15	---	---	---	6.6	4.9	5.9	---	---	---	7.9	6.6	7.3
16	---	---	---	7.6	5.8	6.7	---	---	---	8.5	6.5	7.5
17	---	---	---	---	---	---	---	---	---	9.2	6.3	7.7
18	5.2	4.5	4.9	---	---	---	---	---	---	10.0	6.7	8.2
19	5.2	4.4	4.9	---	---	---	---	---	---	9.4	6.8	8.1
20	5.3	4.6	5.0	---	---	---	---	---	---	9.8	6.5	8.2
21	4.7	3.9	4.4	---	---	---	---	---	---	9.1	6.8	8.0
22	5.4	4.1	4.7	---	---	---	---	---	---	8.1	6.5	7.1
23	5.8	4.8	5.3	---	---	---	---	---	---	8.5	6.1	7.2
24	5.6	4.8	5.1	---	---	---	---	---	---	9.3	6.0	7.6
25	4.9	4.4	4.6	---	---	---	---	---	---	8.1	6.5	7.3
26	6.0	4.5	5.2	---	---	---	---	---	---	8.5	7.0	7.6
27	6.4	5.2	5.8	---	---	---	---	---	---	7.8	6.7	7.0
28	6.3	5.1	5.7	---	---	---	---	---	---	7.8	6.0	6.9
29	6.2	4.9	5.6	---	---	---	8.1	5.0	6.6	7.5	6.2	6.9
30	---	---	---	---	---	---	8.9	5.7	7.3	8.8	6.5	7.5
31	---	---	---	---	---	---	---	---	---	7.9	6.4	7.2
MONTH	---	---	---	---	---	---	---	---	---	10.0	5.0	7.3

12044900 ELWHA RIVER ABOVE LAKE MILLS NEAR PORT ANGELES, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR FEBRUARY 2004 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.2	6.5	7.4	12.6	9.3	11.0	15.0	11.9	13.5	12.9	11.2	12.0
2	10.0	7.1	8.4	11.4	9.5	10.3	14.9	12.1	13.6	12.4	10.3	11.2
3	10.4	7.1	8.7	12.5	9.6	10.8	13.5	12.4	12.9	13.5	10.1	11.4
4	10.8	7.6	9.1	12.2	8.8	10.6	13.6	12.0	12.6	---	---	---
5	9.5	7.8	8.4	12.5	9.2	10.9	12.9	11.2	12.1	---	---	---
6	8.6	6.9	7.7	12.3	10.0	11.1	12.0	10.9	11.5	---	---	---
7	8.6	7.2	7.8	11.3	9.1	10.2	13.3	10.4	11.7	---	---	---
8	10.9	7.2	8.9	11.5	8.6	10.1	13.9	10.7	12.4	---	---	---
9	9.8	7.7	8.7	10.6	9.4	9.9	14.5	11.5	13.0	---	---	---
10	9.9	7.9	9.0	10.1	8.9	9.6	14.9	11.9	13.4	---	---	---
11	9.2	7.0	8.0	12.3	9.0	10.5	15.2	12.3	13.7	11.6	10.7	11.1
12	8.4	6.9	7.8	12.3	9.3	10.8	14.9	12.3	13.6	11.2	10.1	10.7
13	9.0	7.3	8.1	13.5	10.0	11.7	15.2	12.3	13.7	10.5	9.8	10.2
14	8.7	6.8	7.7	12.6	10.5	11.7	15.3	12.7	14.0	10.2	9.2	9.7
15	10.0	6.5	8.3	13.6	10.5	12.0	15.5	13.0	14.2	10.3	9.2	9.7
16	10.5	6.8	8.7	13.8	10.7	12.3	15.4	12.8	14.1	9.9	9.1	9.5
17	11.3	7.6	9.5	13.9	10.6	12.4	15.8	12.9	14.3	9.8	8.8	9.3
18	11.3	8.1	9.7	14.2	11.2	12.7	15.6	12.9	14.2	9.4	8.2	8.8
19	10.4	7.9	9.2	12.9	11.4	12.2	16.1	13.0	14.4	9.8	8.3	8.9
20	11.6	7.9	9.7	12.9	10.6	11.7	15.8	12.9	14.3	9.2	7.4	8.4
21	11.8	8.4	10.1	13.7	10.5	11.7	14.2	13.2	13.5	9.3	7.6	8.6
22	12.1	8.7	10.4	14.2	10.7	12.5	13.7	12.3	12.9	9.6	8.7	9.1
23	11.8	9.0	10.4	14.7	11.2	13.0	13.5	12.1	12.8	10.7	9.2	9.9
24	11.8	8.8	10.3	15.1	11.7	13.4	12.7	11.7	12.2	10.7	8.9	9.8
25	11.7	9.1	10.4	14.8	11.9	13.4	11.7	10.8	11.2	10.6	8.9	9.7
26	11.2	8.8	10.1	14.6	11.4	13.1	12.2	10.6	11.4	11.0	9.2	10.0
27	11.7	8.5	10.1	14.8	11.6	13.3	12.1	11.0	11.6	10.9	9.0	9.9
28	12.1	8.6	10.3	14.9	11.9	13.5	12.8	11.0	11.9	11.1	9.0	9.9
29	12.4	9.0	10.7	15.2	12.2	13.7	13.5	11.1	12.3	11.1	9.1	9.9
30	12.6	9.3	11.0	15.0	12.2	13.7	13.9	11.8	12.8	11.5	8.6	9.6
31	---	---	---	14.8	11.9	13.4	13.9	11.3	12.6	---	---	---
MONTH	12.6	6.5	9.2	15.2	8.6	11.8	16.1	10.4	13.0	---	---	---

12044900 ELWHA RIVER ABOVE LAKE MILLS NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	20	15	17
2	---	---	---	---	---	---	---	---	---	17	13	15
3	---	---	---	---	---	---	---	---	---	15	11	13
4	---	---	---	---	---	---	---	---	---	13	10	12
5	---	---	---	---	---	---	---	---	---	12	9.6	11
6	---	---	---	---	---	---	---	---	---	20	8.6	9.6
7	---	---	---	---	---	---	---	---	---	130	9.0	21
8	---	---	---	---	---	---	---	---	---	150	50	80
9	---	---	---	---	---	---	---	---	---	150	48	58
10	---	---	---	---	---	---	---	---	---	150	79	110
11	---	---	---	---	---	---	---	---	---	86	51	62
12	---	---	---	---	---	---	---	---	---	76	44	51
13	---	---	---	---	---	---	---	---	---	150	65	73
14	---	---	---	---	---	---	---	---	---	840	150	670
15	---	---	---	---	---	---	---	---	---	650	360	490
16	---	---	---	---	---	---	340	53	160	380	190	270
17	---	---	---	---	---	---	160	76	100	200	120	150
18	---	---	---	---	---	---	84	55	69	130	94	120
19	---	---	---	---	---	---	1,020	51	120	110	69	89
20	---	---	---	---	---	---	130	80	99	81	52	66
21	---	---	---	---	---	---	89	50	65	68	40	49
22	---	---	---	---	---	---	70	38	49	62	34	40
23	---	---	---	---	---	---	68	34	42	43	30	34
24	---	---	---	---	---	---	300	56	130	43	24	30
25	---	---	---	---	---	---	100	56	73	27	19	23
26	---	---	---	---	---	---	61	39	49	39	17	20
27	---	---	---	---	---	---	96	37	46	20	13	16
28	---	---	---	---	---	---	52	28	35	67	14	24
29	---	---	---	---	---	---	31	23	27	540	18	44
30	---	---	---	---	---	---	26	19	21	900	220	440
31	---	---	---	---	---	---	25	18	20	240	98	150
MAX	---	---	---	---	---	---	---	---	---	900	360	670
MIN	---	---	---	---	---	---	---	---	---	12	8.6	9.6
	FEBRUARY			MARCH			APRIL			MAY		
1	120	56	87	7.4	3.1	4.6	5.6	3.6	4.5	26	9.3	13
2	80	43	58	6.4	2.6	4.4	4.5	3.0	3.9	38	21	26
3	52	31	38	11	2.3	3.4	4.6	2.6	3.7	38	20	27
4	41	19	30	4.5	2.1	3.1	4.7	3.2	3.9	28	19	24
5	28	15	22	63	1.8	4.7	5.1	2.6	3.6	25	15	19
6	47	14	30	21	2.0	3.4	4.3	2.7	3.4	17	9.4	13
7	32	15	20	54	6.4	12	4.2	2.9	3.4	13	8.5	11
8	19	10	14	15	6.6	9.4	4.0	2.7	3.4	12	7.6	10
9	17	8.3	12	16	8.2	12	4.2	2.7	3.4	10	6.7	8.5
10	16	8.1	12	11	4.8	7.6	5.4	2.9	3.6	9.5	5.9	7.8
11	15	6.8	12	8.2	3.8	6.5	12	4.8	5.9	8.8	4.8	7.0
12	13	6.4	10	6.8	3.3	5.6	16	8.5	11	12	4.9	6.6
13	11	6.7	9.3	6.3	3.1	4.7	11	6.9	8.7	7.6	5.4	6.5
14	11	7.1	9.0	5.2	2.8	4.2	8.9	5.9	7.0	7.5	5.1	6.2
15	24	8.3	11	4.9	2.5	4.0	6.9	3.2	5.7	8.5	6.1	7.4
16	36	7.1	20	4.1	2.6	3.5	6.5	2.9	4.7	8.8	5.9	7.2
17	---	---	---	4.1	2.3	3.6	5.9	2.7	4.6	8.7	6.2	7.4
18	---	---	---	22	2.5	5.5	5.1	2.7	4.1	21	7.3	8.8
19	---	---	---	10	2.7	4.9	5.5	2.2	4.0	24	13	18
20	15	6.9	11	4.5	2.4	3.6	6.6	2.4	4.3	28	13	18
21	11	5.9	8.4	4.6	2.0	3.4	4.3	2.3	3.4	33	17	22
22	200	4.5	7.6	6.9	2.3	3.9	5.0	1.6	3.1	25	17	21
23	29	6.5	14	7.2	3.3	5.3	3.7	1.9	3.2	19	12	14
24	59	5.3	11	26	4.7	11	3.5	1.9	2.9	13	8.9	11
25	19	4.9	9.3	15	5.8	8.8	4.2	1.5	2.9	40	8.5	11
26	20	4.9	8.6	26	5.2	9.2	10	2.4	4.2	120	32	38
27	8.2	4.5	6.5	8.9	4.3	6.4	13	6.1	8.6	83	22	32
28	6.6	3.8	5.4	7.2	3.7	5.7	9.5	4.6	6.9	69	25	36
29	6.4	3.3	5.0	8.4	3.1	5.4	7.7	4.2	5.7	26	14	19
30	---	---	---	10	5.4	7.5	10	4.1	6.0	21	15	17
31	---	---	---	7.6	4.4	5.9	---	---	---	22	12	16
MAX	---	---	---	63	8.2	12	16	8.5	11	120	32	38
MIN	---	---	---	4.1	1.8	3.1	3.5	1.5	2.9	7.5	4.8	6.2

12044900 ELWHA RIVER ABOVE LAKE MILLS NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14	9.7	12	11	5.3	7.5	2.2	0.8	1.4	6.0	1.3	2.6
2	13	9.0	11	9.1	4.6	7.1	2.5	1.2	1.7	3.9	0.7	2.6
3	19	8.8	11	7.7	4.2	6.1	2.0	0.7	1.3	2.5	1.4	2.1
4	120	18	30	7.4	4.3	6.0	2.6	0.8	1.6	2.2	1.0	1.7
5	34	24	27	130	3.8	5.3	1.5	0.5	1.0	2.0	1.2	1.5
6	38	20	29	7.4	4.1	5.7	73	0.7	11	2.0	0.9	1.3
7	81	18	29	7.2	2.6	4.2	28	2.6	6.6	1.5	0.7	1.2
8	140	8.0	12	4.1	2.2	3.3	3.3	1.3	1.8	2.3	0.7	1.2
9	21	12	16	3.7	1.5	2.5	3.2	1.0	1.7	3.2	1.0	1.6
10	19	11	15	3.4	1.6	2.3	2.4	0.9	1.6	12	0.7	1.2
11	14	8.2	11	3.1	1.6	2.3	4.2	0.8	1.6	1,000	12	250
12	10	6.5	8.2	2.9	1.3	2.2	4.2	0.8	1.6	46	12	22
13	26	6.7	16	2.9	1.3	2.1	3.5	1.1	2.1	210	4.4	11
14	15	7.6	12	3.7	1.4	2.4	4.9	2.2	2.8	58	5.9	17
15	11	6.0	7.8	4.7	1.3	2.1	5.7	1.3	4.2	31	7.1	19
16	11	4.7	6.9	3.2	1.6	2.2	5.0	1.8	3.0	16	4.4	8.1
17	12	5.3	6.9	4.8	1.6	2.5	4.2	1.6	2.4	61	9.6	24
18	17	6.7	11	3.4	1.5	2.3	3.3	1.3	2.3	12	3.9	7.6
19	17	7.7	10	2.8	1.3	2.1	2.8	1.2	2.0	6.3	3.2	4.3
20	11	5.9	8.5	2.6	1.2	2.1	3.7	1.0	2.2	4.2	2.2	3.1
21	16	7.5	11	2.7	0.0	2.1	8.6	1.8	2.8	3.5	1.6	2.4
22	23	10	16	2.9	1.5	2.1	110	8.6	26	4.0	1.4	2.3
23	30	15	22	2.7	1.2	2.0	13	3.1	6.3	2.8	1.5	2.2
24	34	16	23	3.0	1.4	2.1	110	2.5	10	2.5	1.1	2.0
25	28	13	19	3.4	1.4	2.2	270	40	83	2.3	1.2	1.8
26	18	8.9	13	2.4	1.3	1.8	120	12	39	2.4	1.1	1.6
27	13	6.6	9.4	2.5	1.0	1.8	17	3.6	7.3	2.0	1.2	1.6
28	9.2	6.1	7.6	2.6	1.1	1.8	6.2	2.4	4.4	2.1	1.2	1.5
29	150	5.1	7.2	2.2	1.1	1.6	5.5	2.3	3.6	2.0	1.1	1.4
30	11	5.4	7.7	2.8	1.1	1.7	4.0	2.2	3.0	1.8	1.0	1.3
31	---	---	---	2.3	0.8	1.5	3.6	1.8	2.6	---	---	---
MAX	150	24	30	130	5.3	7.5	270	40	83	1,000	12	250
MIN	9.2	4.7	6.9	2.2	0.0	1.5	1.5	0.5	1.0	1.5	0.7	1.2

12045000 LAKE MILLS AT GLINES CANYON, NEAR PORT ANGELES, WA

LOCATION.--Lat 48°00'08", long 123°35'55", in SW ¼ SE ¼ sec.17, T.29 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Park, at Glines Canyon Dam on Elwha River, 2 mi upstream from Griff Creek, 4.1 mi south of Elwha, and 11 mi southwest of Port Angeles.

DRAINAGE AREA.--245 mi^2.

PERIOD OF RECORD.--April 1927 to current year. Prior to October 1950, monthly change in contents only, published in WSP 1316.

GAGE.--Nonrecording gage. Datum of gage is 19.67 ft below NGVD of 1929.

REMARKS.--Reservoir is formed by concrete dam, completed in 1927; storage began Apr. 1, 1927. Usable capacity, 6,150 acre-ft between gage heights 592.0 ft, normal minimum operation level, and 610.0 ft, top of spillway gates. Storage below gage height 592.0 ft, 25,240 acre-ft. Figures given herein represent total contents. Water is used for power production.

COOPERATION.--Gage-height record furnished by Daishowa America Co., Ltd., Oct. 1 to Feb. 28, 2000 and by the Bureau of Reclamation since Mar. 1, 2000. Capacity table, revised Oct. 1, 1989, was furnished by Hosey and Associates to be used starting in the 1990 water year.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,940 acre-ft Dec. 22, 1936, gage height, 613.0 ft; minimum contents observed since reservoir first filled in May 1927, 24,290 acre-ft Nov. 14, 1929, gage height, 574.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 31,864 acre-ft Oct. 20, gage height, 611.4 ft; minimum contents observed, 29,472 acre-ft Oct.. 6, gage height, 604.4 ft.

MONTH-END GAGE HEIGHT AND CONTENTS AT 2400
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Gage height (feet)	Contents (acre-feet)	Change in contents (acre-feet)
September 30	605.6	29,882	
October 31	609.4	31,180	+1,298
November 30	609.5	31,215	+35
December 31	609.4	31,180	-35
Calender Year 2003	--	--	-35
January 31	609.5	31,215	+35
February 29	609.6	31,249	+34
March 31	609.6	31,249	0
April 30	609.7	31,283	+34
May 31	609.6	31,249	-34
June 30	609.7	31,283	+34
July 31	609.7	31,283	0
August 31	609.7	31,283	0
September 30	609.7	31,283	0
Water Year 2004	--	--	+1,401

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA

LOCATION.--Lat 48°03'18", long 123°34'55", in NE¼NW¼, sec.33, T.30 N., R.7 W., Clallam County, Hydrologic Unit 17110020, Olympic National Forest, on right bank near the site of the McDonald Bridge (removed), 0.7 mi upstream from Little River, 1.1 mi upstream of highway 101 Bridge, 4.9 mi below Glines Canyon Dam, 8 mi southwest of Port Angeles, and at mile 8.6.

DRAINAGE AREA.--269 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1897 to December 1901, October 1918 to current year. Published as "at McDonald" October 1897 to December 1901.

REVISED RECORDS.--WSP 1246: Drainage area. WSP 1286: 1898, 1899(M), 1900-1902, 1919, 1920-31(M), 1932, 1933(M). WSP 1566: 1957(M).

GAGE.--Water-stage recorder. Datum of gage is 200.00 ft above NGVD of 1929. Oct. 1, 1897, to Dec. 31, 1901, nonrecording gage at McDonald Bridge at different datum. Dec. 9, 1918, to May 1, 1936, water-stage recorder under McDonald Bridge at datum 7.4 ft higher.

REMARKS.--Records good except for Apr. 1-29, which is fair. Water is diverted through Glines Canyon powerhouse and returned to river upstream from gage. Flow partly regulated by Lake Mills 4.9 mi upstream (station 12045000). Chemical analyses July 1959 to June 1960, July 1960 to September 1970 (partial-record station), October 1971 to September 1986. Water temperatures April 1976 to August 1977, October 1994 to April 1998. Suspended sediment discharge April 1994 to September 1995. Miscellaneous sediment measurements October 1995 to September 1997. Prior to 1962, published as Elwha River near Port Angeles. October 1971 to September 1974 published as Elwha River below Little River, near Port Angeles. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--90 years (water years 1898-1901, 1919-2004), 1,511 ft^3/s, 76.28 in/yr, 1,095,000 acre-ft/yr, adjusted for storage since April 1927.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,600 ft^3/s, Nov. 18, 1897, gage height, 14.5 ft, from graph based on gage readings, site and datum then in use, from rating curve extended above 3,300 ft^3/s on basis of two determinations of flow over dam at discharge 26,700 ft^3/s and 30,100 ft^3/s, referred to 1897 datum; minimum daily discharge, 10 ft^3/s, Oct. 3, 1938.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,700 ft^3/s, Oct. 17, gage height, 23.86 ft; minimum discharge, 294 ft^3/s, Oct. 4.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	379	1,430	2,620	1,120	2,300	922	1,230	1,650	1,480	1,230	615	582
2	350	1,350	2,570	1,090	2,070	852	1,190	1,880	1,500	1,190	622	532
3	339	1,240	2,790	1,020	1,780	883	1,160	1,940	1,520	1,150	592	472
4	307	1,170	2,380	871	1,780	832	1,170	1,880	1,770	1,060	619	477
5	317	1,080	3,510	877	1,510	902	1,160	1,730	1,990	988	567	458
6	319	1,050	4,660	916	1,750	846	1,150	1,530	1,900	1,080	799	443
7	412	1,020	3,180	1,150	1,620	1,130	1,150	1,450	1,640	1,030	801	425
8	423	998	2,630	1,810	1,480	1,470	1,170	1,460	1,520	871	591	434
9	528	975	2,250	1,760	1,380	1,630	1,140	1,390	1,730	862	562	477
10	516	980	2,060	2,450	1,250	1,440	1,200	1,360	1,690	857	559	452
11	432	1,460	1,800	2,030	1,260	1,220	1,330	1,330	1,490	841	554	1,350
12	1,680	1,060	1,800	1,910	1,220	1,180	1,520	1,300	1,390	827	541	637
13	1,270	919	1,690	2,230	1,190	1,130	1,500	1,330	1,680	812	541	893
14	622	875	1,730	4,370	1,180	1,050	1,390	1,290	1,570	855	541	916
15	561	923	1,520	4,440	1,290	1,060	1,310	1,350	1,330	852	541	1,030
16	11,200	1,220	2,210	3,240	1,360	1,010	1,240	1,380	1,290	852	541	864
17	15,600	1,850	2,190	2,570	1,480	1,040	1,150	1,420	1,310	805	519	1,200
18	5,750	10,400	1,830	2,580	1,830	1,170	1,120	1,470	1,510	835	503	931
19	4,960	10,200	1,720	1,910	1,600	1,140	1,100	1,710	1,540	812	503	751
20	15,600	4,080	1,960	1,930	1,470	1,020	1,150	1,780	1,400	775	483	693
21	13,300	2,920	1,850	1,660	1,330	1,000	1,030	1,850	1,490	714	504	625
22	6,430	2,370	1,540	1,610	1,220	1,100	994	1,880	1,610	708	698	616
23	4,990	2,310	1,600	1,540	1,180	1,240	1,010	1,600	1,700	706	537	632
24	3,240	2,110	2,200	1,520	1,150	1,440	1,040	1,480	1,710	736	646	572
25	2,890	2,020	1,920	1,390	1,190	1,430	995	1,450	1,620	724	1,660	558
26	2,550	1,770	1,740	1,320	1,090	1,480	1,160	2,010	1,470	691	1,300	538
27	2,170	1,630	1,610	1,260	1,030	1,370	1,590	2,160	1,330	656	709	517
28	2,240	4,770	1,440	1,480	980	1,250	e1,600	2,070	1,200	656	611	498
29	1,940	5,450	1,350	2,070	931	1,250	e1,300	1,650	1,220	667	593	499
30	1,680	3,300	1,210	4,880	---	1,460	1,310	1,670	1,250	665	573	477
31	1,550	---	1,210	2,900	---	1,390	---	1,670	---	608	516	---
TOTAL	104,545	72,930	64,770	61,904	40,901	36,337	36,559	50,120	45,850	26,115	19,941	19,549
MEAN	3,372	2,431	2,089	1,997	1,410	1,172	1,219	1,617	1,528	842	643	652
MAX	15,600	10,400	4,660	4,880	2,300	1,630	1,600	2,160	1,990	1,230	1,660	1,350
MIN	307	875	1,210	871	931	832	994	1,290	1,200	608	483	425
AC-FT	207,400	144,700	128,500	122,800	81,130	72,070	72,510	99,410	90,940	51,800	39,550	38,780
MEAN†	3,393	2,432	2,089	1,997	1,411	1,172	1,219	1,616	1,529	842	643	652
CFSM†	12.61	9.04	7.77	7.42	5.25	4.36	4.53	6.01	5.68	3.13	2.39	2.42
IN.†	14.55	10.09	8.96	8.56	5.66	5.02	5.06	6.93	6.34	3.61	2.76	2.70
AC-FT†	208,700	144,700	128,500	122,800	81,160	72,070	72,540	99,380	90,970	51,800	39,550	38,780

CAL YR 2003 TOTAL 665,025 MEAN 1,822 MAX 15,600 MIN 307 AC-FT 1,319,000 MEAN† 1,822 CFSM† 6.77 IN.† 91.94 AC-FT† 1,319,000
WTR YR 2004 TOTAL 579,521 MEAN 1,583 MAX 15,600 MIN 307 AC-FT 1,149,000 MEAN† 1,585 CFSM† 5.89 IN.† 80.16 AC-FT† 1,150,000

† Adjusted for change in contents in Lake Mills.
e Estimated

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
WATER TEMPERATURE: October 1994 to April 1998, April to September 2004.
TURBIDITY: August 2003 to current year.
SUSPENDED SEDIMENT DISCHARGE: April 1994 to September 1995. Miscellaneous sediment measurements October 1995 to September 1997.

INSTRUMENTATION.--Water-quality monitor since October 1994 to April 1998, July 2003. Temperature and McVann Instruments Analite 395 turbidity sensors interfaced to an electronic data logger, with 15-minute logging interval.

REMARKS.--
WATER TEMPERATURE: Records good.
TURBIDITY: For water year 2003, records good except Aug. 13-19, which are fair. For water year 2004, records good except Oct. 24-27, Nov. 21-25, Dec. 29 to Jan. 3, Mar. 5-9, 16, 18, 19, May 6-9, which are fair, Jan. 4-13, Mar. 17, 20-30, May 10-13, which are poor.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum 18.5°C, Aug. 8-10, 1996.
TURBIDITY: Maximum, 1,030 FNU, Nov. 19, 2003; minimum, 0.2 FNU, Aug. 6, 2004.
SUSPENDED SEDIMENT CONCENTRATION (April 1994 to September 1995): Maximum daily, 233 mg/L, Dec. 20, 1994; minimum 1 mg/L, Oct. 3, 14, June 30, 1995.
SUSPENDED SEDIMENT DISCHARGE (April 1994 to September 1995): Maximum daily, 7,960 tons, Dec. 20, 1994; minimum daily, 0.76 tons, Sept. 28-30, Oct. 3, 14, June 30, 1995.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 17.8°C, Aug. 10, but may have been higher during periods of missing record; minimum, 7.4°C, Apr. 29.
TURBIDITY: Maximum, 1,040 FNU, Oct. 21-23; minimum, 0.2 FNU, Aug. 6.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR APRIL TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	9.1	8.0	8.6
2	---	---	---	---	---	---	---	---	---	9.3	8.1	8.5
3	---	---	---	---	---	---	---	---	---	9.2	8.3	8.6
4	---	---	---	---	---	---	---	---	---	9.1	8.2	8.5
5	---	---	---	---	---	---	---	---	---	9.6	7.8	8.5
6	---	---	---	---	---	---	---	---	---	9.4	7.8	8.5
7	---	---	---	---	---	---	---	---	---	8.7	7.9	8.4
8	---	---	---	---	---	---	---	---	---	9.4	7.8	8.4
9	---	---	---	---	---	---	---	---	---	9.6	7.8	8.4
10	---	---	---	---	---	---	---	---	---	8.6	7.8	8.2
11	---	---	---	---	---	---	---	---	---	9.9	7.8	8.5
12	---	---	---	---	---	---	---	---	---	9.8	7.8	8.6
13	---	---	---	---	---	---	---	---	---	9.4	8.2	8.6
14	---	---	---	---	---	---	---	---	---	10.0	8.2	8.8
15	---	---	---	---	---	---	---	---	---	9.0	8.4	8.7
16	---	---	---	---	---	---	---	---	---	9.9	8.5	8.9
17	---	---	---	---	---	---	---	---	---	10.2	8.5	9.1
18	---	---	---	---	---	---	---	---	---	10.6	8.8	9.3
19	---	---	---	---	---	---	---	---	---	10.4	9.0	9.4
20	---	---	---	---	---	---	---	---	---	10.6	9.1	9.6
21	---	---	---	---	---	---	---	---	---	9.8	9.2	9.5
22	---	---	---	---	---	---	---	---	---	9.7	9.1	9.4
23	---	---	---	---	---	---	---	---	---	10.7	8.8	9.5
24	---	---	---	---	---	---	---	---	---	10.6	8.8	9.4
25	---	---	---	---	---	---	---	---	---	9.7	8.8	9.2
26	---	---	---	---	---	---	---	---	---	10.0	9.0	9.4
27	---	---	---	---	---	---	---	---	---	9.6	8.9	9.3
28	---	---	---	---	---	---	---	---	---	9.6	8.7	9.1
29	---	---	---	---	---	---	9.3	7.4	8.4	9.8	8.6	9.1
30	---	---	---	---	---	---	9.6	7.5	8.3	9.8	8.6	9.1
31	---	---	---	---	---	---	---	---	---	9.7	8.4	9.0
MONTH	---	---	---	---	---	---	---	---	---	10.7	7.8	8.9

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR APRIL TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.8	8.5	9.0	13.8	11.4	12.3	---	---	---	15.5	14.2	14.8
2	10.4	8.5	9.2	13.0	11.6	12.2	---	---	---	15.8	14.0	14.7
3	10.4	8.8	9.4	14.2	11.9	12.6	---	---	---	16.6	13.8	14.7
4	10.7	9.1	9.6	14.3	11.6	12.6	---	---	---	15.9	13.8	14.6
5	10.0	9.5	9.7	14.3	11.7	12.7	---	---	---	16.5	13.5	14.5
6	10.3	9.2	9.7	14.0	12.1	12.6	---	---	---	15.7	13.4	14.4
7	10.0	9.0	9.5	14.2	12.0	12.8	17.0	14.5	15.2	16.5	13.5	14.6
8	11.0	9.0	9.7	13.4	11.9	12.6	17.4	14.0	15.2	15.3	13.5	14.3
9	10.2	9.3	9.7	13.1	12.1	12.6	17.6	14.1	15.4	16.0	13.7	14.5
10	11.0	9.3	10.0	13.3	12.1	12.6	17.8	14.3	15.5	15.1	13.4	14.2
11	10.4	9.1	9.6	14.1	12.1	12.9	---	---	---	14.8	13.7	14.4
12	10.3	9.1	9.5	14.5	11.9	12.9	---	---	---	14.8	13.4	13.9
13	10.1	9.3	9.7	15.0	12.1	13.2	---	---	---	15.8	13.4	14.3
14	10.3	9.1	9.6	13.9	12.2	12.9	---	---	---	15.0	14.0	14.4
15	11.0	8.9	9.7	14.8	12.3	13.1	---	---	---	14.3	13.4	13.9
16	11.1	9.1	9.8	15.2	12.4	13.4	---	---	---	14.1	13.4	13.6
17	11.3	9.2	10.0	15.6	12.4	13.5	---	---	---	14.2	12.3	13.2
18	11.7	9.7	10.4	15.3	12.5	13.5	---	---	---	12.7	12.0	12.3
19	11.9	9.9	10.6	14.7	12.7	13.5	---	---	---	13.2	11.5	12.1
20	12.1	9.9	10.7	14.7	12.8	13.7	---	---	---	13.3	11.3	11.9
21	12.2	10.0	10.9	16.0	12.7	13.9	---	---	---	13.4	11.2	12.0
22	12.4	10.5	11.2	---	---	---	---	---	---	12.3	11.7	11.9
23	12.2	10.6	11.3	---	---	---	17.1	15.0	15.9	13.2	11.5	12.1
24	12.6	11.1	11.6	---	---	---	16.4	15.2	15.6	13.4	11.2	11.9
25	12.2	11.2	11.5	---	---	---	16.5	15.5	15.9	13.5	11.1	11.9
26	12.9	11.1	11.8	---	---	---	15.9	14.9	15.5	13.6	11.3	12.0
27	13.2	10.9	11.8	---	---	---	16.7	14.6	15.6	13.6	11.2	12.0
28	13.4	10.9	11.9	---	---	---	16.0	14.6	15.1	13.7	11.2	12.0
29	13.6	11.1	12.0	---	---	---	16.7	14.3	15.2	13.2	11.3	11.9
30	13.7	11.2	12.2	---	---	---	17.0	14.4	15.3	13.3	11.0	11.7
31	---	---	---	---	---	---	17.5	14.4	15.4	---	---	---
MONTH	13.7	8.5	10.4	---	---	---	---	---	---	16.6	11.0	13.3

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS
WATER YEAR AUGUST TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	1.0	0.5	0.7	1.6	0.5	0.7
2	---	---	---	---	---	---	1.0	0.5	0.7	1.0	0.5	0.8
3	---	---	---	---	---	---	1.0	0.5	0.6	1.0	0.5	0.7
4	---	---	---	---	---	---	1.0	0.4	0.6	1.0	0.5	0.7
5	---	---	---	---	---	---	0.8	0.4	0.6	0.8	0.3	0.6
6	---	---	---	---	---	---	1.1	0.3	0.6	0.9	0.4	0.6
7	---	---	---	---	---	---	0.9	0.4	0.6	0.9	0.3	0.6
8	---	---	---	---	---	---	0.8	0.5	0.6	1.9	0.4	0.7
9	---	---	---	---	---	---	0.8	0.4	0.6	2.3	0.4	0.7
10	---	---	---	---	---	---	0.7	0.3	0.6	1.3	0.4	0.6
11	---	---	---	---	---	---	0.9	0.4	0.6	1.0	0.5	0.7
12	---	---	---	---	---	---	0.7	0.4	0.5	1.1	0.5	0.8
13	---	---	---	---	---	---	0.7	0.4	0.5	1.3	0.6	0.9
14	---	---	---	---	---	---	0.8	0.4	0.5	1.1	0.6	0.8
15	---	---	---	---	---	---	0.7	0.4	0.6	1.1	0.6	0.8
16	---	---	---	---	---	---	0.9	0.4	0.6	4.1	0.7	0.8
17	---	---	---	---	---	---	0.8	0.5	0.7	1.2	0.6	0.8
18	---	---	---	---	---	---	0.8	0.5	0.7	1.8	0.6	0.9
19	---	---	---	---	---	---	0.9	0.4	0.7	1.3	0.6	0.9
20	---	---	---	---	---	---	1.0	0.5	0.7	1.1	0.4	0.7
21	---	---	---	---	---	---	2.5	0.6	0.8	1.0	0.4	0.6
22	---	---	---	---	---	---	2.2	0.7	0.9	0.9	0.4	0.6
23	---	---	---	---	---	---	13	0.7	0.9	1.1	0.5	0.6
24	---	---	---	---	---	---	2.7	0.7	0.9	1.0	0.4	0.6
25	---	---	---	---	---	---	2.3	0.6	0.9	2.3	0.4	0.6
26	---	---	---	---	---	---	1.1	0.6	0.8	0.9	0.3	0.6
27	---	---	---	---	---	---	0.9	0.5	0.7	0.9	0.4	0.6
28	---	---	---	---	---	---	1.0	0.6	0.8	1.0	0.5	0.6
29	---	---	---	---	---	---	1.2	0.6	0.8	1.2	0.5	0.6
30	---	---	---	---	---	---	1.1	0.5	0.7	1.0	0.4	0.6
31	---	---	---	---	---	---	1.0	0.5	0.7	---	---	---
MAX	---	---	---	---	---	---	13	0.7	0.9	4.1	0.7	0.9
MIN	---	---	---	---	---	---	0.7	0.3	0.5	0.8	0.3	0.6

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	4.2	0.4	0.6	610	260	390	460	310	380	55	29	44
2	4.2	0.3	0.5	420	200	290	400	270	340	52	31	43
3	1.6	0.4	0.6	450	220	340	330	260	300	57	29	43
4	0.8	0.3	0.6	450	180	300	320	220	260	52	25	37
5	0.9	0.5	0.6	370	170	250	290	210	260	44	22	34
6	1.1	0.5	0.7	380	170	260	350	260	300	45	25	35
7	3.8	0.7	1.0	320	160	220	360	270	300	48	26	37
8	1.5	0.8	1.1	290	120	200	310	210	250	53	24	35
9	4.6	1.1	1.6	230	90	140	260	160	220	44	25	34
10	4.7	2.0	2.6	170	83	120	240	140	190	51	32	43
11	3.0	1.0	1.9	320	86	130	220	120	160	54	32	44
12	24	1.4	4.3	180	85	130	180	100	140	55	34	44
13	13	4.6	9.1	170	88	120	170	98	130	53	34	45
14	9.3	4.1	5.9	160	78	130	150	83	120	130	38	76
15	6.9	3.2	4.5	140	71	120	150	74	120	210	120	160
16	>400	3.4	44	160	68	97	150	89	120	210	130	170
17	>400	>400	>400	190	74	120	140	86	110	220	130	180
18	>400	>400	>400	1,000	160	710	130	84	110	200	120	150
19	>400	>400	>400	1,030	980	1,010	130	62	92	170	100	140
20	>400	>400	>400	1,010	870	990	110	62	90	150	90	120
21	>1,040	---	---	990	630	860	110	53	86	140	80	100
22	1,040	1,030	1,030	930	630	750	94	50	76	120	78	94
23	1,040	1,000	1,030	840	480	630	94	53	72	120	68	87
24	1,030	970	1,010	670	370	510	94	60	77	95	48	64
25	1,010	910	980	570	370	460	92	48	71	81	38	58
26	990	650	950	520	380	450	82	48	68	80	39	60
27	970	620	830	460	280	400	81	50	68	78	43	60
28	920	610	750	560	270	390	79	42	67	75	43	55
29	810	470	670	600	430	530	76	42	63	96	41	57
30	750	410	590	570	390	460	67	36	57	150	68	110
31	620	270	470	---	---	---	63	31	49	120	90	110
MAX	>1,040	---	---	1,030	980	1,010	460	310	380	220	130	180
MIN	0.8	---	---	140	68	97	63	31	49	44	22	34
	FEBRUARY			MARCH			APRIL			MAY		
1	150	93	110	13	7.7	11	4.8	2.9	3.7	7.9	4.4	5.5
2	140	75	100	12	6.7	10	4.3	2.6	3.6	10	4.9	6.1
3	110	70	87	34	7.6	11	5.0	2.8	3.4	10	6.4	7.5
4	110	60	79	12	7.3	9.9	4.0	2.4	3.1	11	7.2	9.2
5	96	54	73	13	7.4	10	4.2	2.2	2.9	11	6.9	8.4
6	93	54	71	10	6.3	8.7	4.1	2.3	2.8	10	7.0	8.4
7	80	42	59	13	6.9	10	4.0	2.3	2.8	9.5	6.8	8.0
8	78	40	58	13	7.8	10	3.8	2.2	2.6	9.5	6.8	7.9
9	68	38	53	13	7.1	9.8	3.3	2.0	2.5	8.6	5.9	7.4
10	62	32	48	10	6.1	8.4	3.3	1.7	2.4	7.9	6.1	7.2
11	55	28	41	9.6	5.7	8.1	3.8	1.6	2.6	8.1	5.8	7.1
12	47	28	38	8.6	5.4	7.5	6.8	1.8	2.7	7.4	5.2	6.6
13	43	27	36	8.3	4.6	6.9	4.4	2.1	2.7	7.3	5.2	6.2
14	39	25	33	7.7	4.4	6.4	4.8	2.2	2.6	6.2	4.4	5.4
15	38	22	30	7.1	4.0	5.7	3.6	2.2	2.9	6.0	3.8	5.3
16	35	21	26	6.7	3.8	5.6	3.6	2.4	2.9	5.8	3.8	5.1
17	31	19	26	5.7	2.8	4.9	3.6	2.2	2.8	6.3	3.4	5.0
18	42	23	28	6.4	3.3	5.3	3.4	2.1	2.6	6.3	3.8	4.9
19	30	16	25	6.0	3.3	4.7	2.9	1.8	2.5	10	4.9	6.0
20	26	18	23	5.3	2.7	4.1	2.9	1.8	2.4	27	5.6	6.8
21	24	16	20	4.6	2.6	3.9	2.7	1.9	2.3	9.0	6.0	7.3
22	24	14	19	4.7	3.0	4.0	2.6	1.7	2.2	9.1	5.8	8.0
23	22	14	18	4.8	2.4	3.8	2.5	1.6	2.1	10	6.0	7.8
24	22	13	18	7.0	2.8	4.1	2.5	1.6	2.0	8.8	5.5	7.2
25	19	12	16	5.1	2.5	3.7	2.4	1.4	2.0	8.4	5.9	6.8
26	18	11	15	5.3	2.9	3.9	2.9	1.3	2.2	11	5.7	8.4
27	17	9.8	15	4.9	2.8	4.0	75	1.8	3.2	12	6.8	8.9
28	15	8.8	13	5.4	2.8	4.5	---	---	---	12	8.5	10
29	16	8.7	13	5.5	3.0	4.4	---	---	---	14	8.9	11
30	---	---	---	9.5	3.1	4.2	5.7	3.3	4.5	12	9.1	10
31	---	---	---	5.5	3.2	4.1	---	---	---	12	7.8	10
MAX	150	93	110	34	7.8	11	---	---	---	27	9.1	11
MIN	15	8.7	13	4.6	2.4	3.7	---	---	---	5.8	3.4	4.9

12045500 ELWHA RIVER AT MCDONALD BRIDGE, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10	6.6	8.9	5.0	2.3	3.5	1.5	0.6	1.0	6.6	4.0	5.1
2	10	6.3	8.6	4.5	2.4	3.5	1.4	0.6	0.9	5.7	3.0	4.1
3	9.1	6.0	7.8	4.4	2.6	3.5	1.4	0.5	0.8	4.1	2.5	3.0
4	9.5	6.0	7.9	3.8	2.2	3.1	1.0	0.4	0.7	3.5	1.7	2.5
5	9.9	7.0	8.2	3.7	2.1	2.7	1.3	0.4	0.6	2.8	1.5	2.1
6	9.9	6.9	8.4	3.8	2.0	2.8	3.4	0.2	1.5	2.5	1.4	1.9
7	11	6.8	8.2	3.9	2.0	2.6	2.1	0.7	1.4	2.4	1.3	1.8
8	9.6	6.1	7.2	3.4	1.9	2.6	2.1	0.9	1.4	2.1	1.0	1.6
9	8.9	6.1	7.4	2.9	1.6	2.3	2.1	0.9	1.3	2.2	1.2	1.7
10	8.7	5.6	6.9	3.4	1.6	2.2	1.8	0.9	1.3	3.5	1.2	1.7
11	7.7	5.1	6.0	2.9	1.7	2.1	1.8	0.7	1.1	41	1.8	10
12	6.8	4.8	5.6	2.9	1.6	2.0	1.5	0.4	1.0	38	15	25
13	8.8	4.8	5.8	2.8	1.5	2.0	1.4	0.4	0.9	32	2.9	14
14	6.6	3.7	5.1	2.6	1.4	1.9	1.5	0.6	0.9	9.1	2.6	4.1
15	8.1	3.8	4.7	2.5	1.3	1.8	1.9	0.4	0.8	25	3.9	14
16	5.2	3.5	4.4	2.2	1.4	1.7	1.1	0.4	0.7	20	9.0	12
17	5.4	3.3	4.0	2.4	1.2	1.7	1.2	0.4	0.7	16	8.9	12
18	9.3	3.1	4.4	2.0	1.3	1.7	1.1	0.4	0.7	13	7.3	11
19	5.7	3.1	4.1	1.9	1.1	1.5	1.0	0.4	0.6	11	6.2	8.3
20	5.2	3.1	4.0	5.7	1.0	1.5	1.0	0.4	0.7	8.0	4.2	6.4
21	5.6	3.6	4.1	2.0	0.9	1.4	1.6	0.4	0.6	6.3	3.2	4.8
22	5.1	3.1	4.2	1.8	0.8	1.3	2.4	0.4	1.1	5.1	3.0	4.0
23	6.6	3.6	4.7	2.1	1.0	1.4	2.1	0.5	1.1	43	2.7	3.5
24	7.8	3.7	5.4	1.8	0.9	1.3	3.5	1.0	1.6	4.3	1.8	2.7
25	6.7	3.1	5.4	1.7	0.9	1.2	14	2.5	6.9	2.9	1.5	2.3
26	6.5	3.9	5.3	1.7	0.8	1.2	17	10	15	2.7	1.4	2.0
27	5.9	3.4	4.9	1.6	0.6	1.1	17	3.5	10	2.4	1.3	1.8
28	5.7	2.9	4.1	1.8	0.7	1.0	13	7.3	11	2.2	1.2	1.7
29	5.0	2.8	4.0	6.3	0.6	1.3	10	4.9	7.1	2.0	1.1	1.6
30	4.7	2.6	3.7	1.8	0.9	1.2	8.1	4.7	6.5	1.8	0.9	1.4
31	---	---	---	1.7	0.8	1.1	6.7	3.7	5.3	---	---	---
MAX	11	7.0	8.9	6.3	2.6	3.5	17	10	15	43	15	25
MIN	4.7	2.6	3.7	1.6	0.6	1.0	1.0	0.2	0.6	1.8	0.9	1.4

> Actual value is known to be greater than the value shown

12046260 ELWHA RIVER AT DIVERSION, NEAR PORT ANGELES, WA

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
WATER TEMPERATURE: April to September 2004.
TURBIDITY: August 2003 to current year.

INSTRUMENTATION.--Water-quality monitor since August 2003. Temperature and McVann Instruments Analite 395 turbidity sensors interfaced to an electronic data logger, with 15-minute logging interval.

REMARKS.--
WATER TEMPERATURE: Records good for the period.
TURBIDITY: For water year 2003, records good for the period. For water year 2004, records good except Oct. 17-26, Dec. 8-11, 30-Jan. 5, 26, Feb. 2, May 12, 13, 31-June 1, which are fair, and Jan. 6-13, Feb. 3-11, Mar. 18-30, which are poor.

EXTREMES FOR PERIOD OF RECORD.--
TURBIDITY: Maximum, 960 FNU, Nov. 19, 2003; minimum, 0.5 FNU, during many days in August 2004.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 19.2°C, Aug. 19; minimum, 8.5°C, Apr. 29.
TURBIDITY: Maximum, 960 FNU, Nov. 19; minimum, 0.7 FNU, during several days in August.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR APRIL TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	---	---	---	---	---	---	9.6	8.8	9.2
2	---	---	---	---	---	---	---	---	---	9.3	8.9	9.2
3	---	---	---	---	---	---	---	---	---	9.4	8.9	9.2
4	---	---	---	---	---	---	---	---	---	9.3	8.8	9.1
5	---	---	---	---	---	---	---	---	---	9.2	8.7	9.0
6	---	---	---	---	---	---	---	---	---	9.2	8.6	8.9
7	---	---	---	---	---	---	---	---	---	9.2	8.8	9.0
8	---	---	---	---	---	---	---	---	---	9.3	8.7	8.9
9	---	---	---	---	---	---	---	---	---	9.4	8.6	9.0
10	---	---	---	---	---	---	---	---	---	9.2	8.6	8.9
11	---	---	---	---	---	---	---	---	---	9.6	8.6	9.0
12	---	---	---	---	---	---	---	---	---	9.5	8.8	9.1
13	---	---	---	---	---	---	---	---	---	9.8	9.0	9.4
14	---	---	---	---	---	---	---	---	---	10.0	9.1	9.6
15	---	---	---	---	---	---	---	---	---	10.1	9.2	9.7
16	---	---	---	---	---	---	---	---	---	9.9	9.1	9.6
17	---	---	---	---	---	---	---	---	---	9.9	9.2	9.6
18	---	---	---	---	---	---	---	---	---	10.3	9.4	9.9
19	---	---	---	---	---	---	---	---	---	10.4	9.6	10.1
20	---	---	---	---	---	---	---	---	---	10.5	9.8	10.1
21	---	---	---	---	---	---	---	---	---	10.4	9.9	10.2
22	---	---	---	---	---	---	---	---	---	10.2	9.9	10.1
23	---	---	---	---	---	---	---	---	---	10.3	9.5	9.9
24	---	---	---	---	---	---	---	---	---	10.4	9.7	10.1
25	---	---	---	---	---	---	---	---	---	10.9	9.8	10.2
26	---	---	---	---	---	---	---	---	---	10.0	9.6	9.9
27	---	---	---	---	---	---	---	---	---	10.1	9.6	9.8
28	---	---	---	---	---	---	---	---	---	9.8	9.5	9.7
29	---	---	---	---	---	---	---	8.5	---	9.8	9.4	9.6
30	---	---	---	---	---	---	9.5	8.8	9.2	9.7	9.3	9.5
31	---	---	---	---	---	---	---	---	---	9.7	9.3	9.5
MONTH	---	---	---	---	---	---	---	---	---	10.9	8.6	9.5

12046260 ELWHA RIVER AT DIVERSION, NEAR PORT ANGELES, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR APRIL TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.8	9.3	9.5	13.8	12.9	13.4	18.8	17.6	18.0	17.4	16.7	17.0
2	9.8	9.3	9.5	13.8	12.9	13.5	18.8	17.9	18.2	17.3	16.0	16.7
3	10.1	9.3	9.8	13.7	12.8	13.2	18.6	18.0	18.4	17.0	15.9	16.4
4	10.3	9.6	10.0	13.8	12.8	13.3	18.6	17.5	18.2	16.8	15.8	16.3
5	10.7	10.0	10.3	13.9	13.0	13.5	18.2	17.2	17.7	16.7	15.7	16.0
6	10.5	10.1	10.3	14.0	13.2	13.7	17.8	16.7	17.3	16.4	15.7	16.0
7	10.5	9.9	10.3	14.0	13.2	13.6	17.2	16.3	16.8	16.7	15.6	15.9
8	10.6	9.8	10.3	14.1	13.3	13.6	17.6	16.4	16.9	16.4	15.6	16.0
9	10.6	9.9	10.4	13.6	13.2	13.4	18.0	16.9	17.3	16.7	15.6	15.9
10	10.7	10.2	10.4	13.6	13.0	13.3	18.2	16.7	17.5	16.0	15.5	15.7
11	10.7	10.2	10.5	13.6	13.0	13.3	18.5	16.7	17.6	15.6	15.1	15.4
12	10.8	10.1	10.5	13.8	13.0	13.5	18.4	16.9	17.7	15.9	15.1	15.4
13	10.5	10.0	10.2	14.6	13.4	14.0	18.7	17.0	17.7	15.6	15.0	15.3
14	10.5	10.0	10.3	14.6	13.6	14.2	18.8	17.3	18.0	15.2	14.8	15.0
15	10.7	10.0	10.3	14.8	13.8	14.4	18.4	17.3	17.7	14.9	14.6	14.8
16	10.9	10.3	10.6	15.3	14.0	14.6	18.8	17.5	18.0	14.8	14.4	14.6
17	11.6	10.5	11.1	15.5	14.4	15.0	18.9	17.6	18.1	14.6	14.2	14.4
18	11.8	10.8	11.2	15.8	14.6	15.2	19.1	17.7	18.2	14.3	13.8	14.1
19	12.1	11.0	11.5	15.8	14.7	15.4	19.2	17.7	18.3	14.1	13.4	13.8
20	12.3	11.2	11.8	15.9	14.9	15.3	18.9	17.6	18.1	13.8	13.1	13.4
21	12.1	11.4	11.7	16.0	14.7	15.2	18.5	17.7	18.2	13.8	13.1	13.3
22	12.3	11.6	12.0	16.3	14.8	15.7	18.2	17.4	17.8	13.5	13.0	13.3
23	12.5	11.8	12.2	16.7	15.4	16.2	18.1	17.3	17.6	13.6	12.9	13.2
24	12.4	11.7	12.1	17.0	15.6	16.4	17.8	16.9	17.4	13.6	13.0	13.2
25	12.3	11.8	12.1	17.2	15.7	16.4	17.1	16.4	16.8	13.8	13.0	13.3
26	12.5	11.9	12.2	17.4	16.2	16.6	16.9	16.3	16.6	13.8	12.9	13.3
27	12.8	12.1	12.5	17.5	16.4	16.8	16.8	16.2	16.5	14.0	12.9	13.4
28	13.3	12.2	12.9	17.6	16.4	17.0	16.9	16.2	16.5	14.1	13.1	13.6
29	13.5	12.4	13.0	17.9	16.2	17.0	17.2	16.2	16.6	14.1	12.8	13.4
30	13.6	12.7	13.2	18.0	16.2	17.2	17.4	16.3	16.8	14.1	13.1	13.5
31	---	---	---	18.4	17.4	17.8	17.8	16.5	17.0	---	---	---
MONTH	13.6	9.3	11.1	18.4	12.8	14.9	19.2	16.2	17.5	17.4	12.8	14.7

12046260 ELWHA RIVER AT DIVERSION, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS
WATER YEAR AUGUST TO SEPTEMBER 2003

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	0.9	0.7	0.8	1.1	0.8	0.9
2	---	---	---	---	---	---	0.9	0.7	0.8	1.1	0.8	0.9
3	---	---	---	---	---	---	0.8	0.7	0.8	1.0	0.8	0.9
4	---	---	---	---	---	---	0.9	0.7	0.8	1.0	0.7	0.9
5	---	---	---	---	---	---	0.9	0.7	0.7	1.2	1.0	1.1
6	---	---	---	---	---	---	0.8	0.7	0.7	2.5	1.0	1.2
7	---	---	---	---	---	---	0.8	0.6	0.7	1.4	1.0	1.2
8	---	---	---	---	---	---	0.8	0.6	0.7	1.5	1.1	1.3
9	---	---	---	---	---	---	1.2	0.6	0.7	1.5	1.1	1.2
10	---	---	---	---	---	---	2.9	0.6	0.7	1.5	1.1	1.2
11	---	---	---	---	---	---	1.5	0.6	0.6	1.3	1.1	1.2
12	---	---	---	---	---	---	0.7	0.5	0.6	1.4	1.0	1.2
13	---	---	---	---	---	---	1.3	0.5	0.6	1.4	1.0	1.1
14	---	---	---	---	---	---	2.0	0.5	0.6	1.4	0.8	0.9
15	---	---	---	---	---	---	1.1	0.5	0.6	1.0	0.8	0.9
16	---	---	---	---	---	---	1.7	0.5	0.6	1.0	0.8	0.9
17	---	---	---	---	---	---	0.6	0.5	0.6	1.1	0.9	1.0
18	---	---	---	---	---	---	1.0	0.5	0.6	1.5	0.8	1.1
19	---	---	---	---	---	---	---	---	---	1.3	1.0	1.2
20	---	---	---	---	---	---	---	---	---	1.4	1.0	1.1
21	---	---	---	---	---	---	---	---	---	1.4	1.0	1.2
22	---	---	---	---	---	---	---	---	---	1.8	1.0	1.2
23	---	---	---	---	---	---	1.1	0.8	0.9	2.0	1.3	1.5
24	---	---	---	---	---	---	0.9	0.7	0.8	2.1	1.4	1.6
25	---	---	---	---	---	---	0.8	0.6	0.7	1.6	1.0	1.2
26	---	---	---	---	---	---	6.0	0.7	0.9	3.1	1.0	1.5
27	---	---	---	---	---	---	---	---	---	1.6	1.2	1.3
28	---	---	---	---	---	---	---	---	---	28	1.4	1.5
29	---	---	---	---	---	---	---	---	---	1.7	1.3	1.5
30	---	---	---	---	---	---	1.0	0.7	0.8	1.9	1.3	1.5
31	---	---	---	---	---	---	1.0	0.7	0.9	---	---	---
MAX	---	---	---	---	---	---	---	---	---	28	1.4	1.6
MIN	---	---	---	---	---	---	---	---	---	1.0	0.7	0.9

12046260 ELWHA RIVER AT DIVERSION, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	1.6	1.2	1.4	500	380	440	580	370	410	66	49	55
2	2.0	1.1	1.3	430	350	380	430	300	370	57	45	50
3	1.4	1.0	1.2	490	320	370	370	270	310	52	43	46
4	1.3	1.0	1.1	370	270	320	330	250	280	48	40	43
5	1.2	1.0	1.1	320	250	300	280	210	250	40	31	33
6	1.5	1.1	1.2	310	260	290	280	210	240	34	28	30
7	2.1	1.3	1.5	300	270	280	320	240	260	42	26	30
8	6.8	1.3	1.7	270	220	250	290	220	260	48	27	31
9	8.1	1.4	2.2	250	180	210	290	200	240	45	28	31
10	22	2.9	7.4	240	160	180	260	180	220	46	26	30
11	23	3.6	8.8	190	140	160	230	170	190	43	28	33
12	130	2.4	10	160	140	150	200	140	170	47	31	35
13	2.5	2.1	2.3	160	130	140	190	130	140	48	33	35
14	3.0	2.1	2.4	180	120	130	140	120	130	59	34	39
15	2.8	2.1	2.5	170	130	150	130	110	120	130	57	88
16	>410	2.7	9.0	150	92	130	130	97	110	170	110	140
17	>410	>410	>410	140	110	120	130	97	110	170	130	150
18	>410	>410	>410	690	100	230	130	96	110	170	130	150
19	>410	>410	>410	960	690	940	120	91	100	170	130	140
20	>410	>410	>410	950	900	930	120	84	94	150	120	130
21	>410	>410	>410	950	830	890	98	80	85	150	110	120
22	>410	>410	>410	940	720	820	92	75	81	120	96	100
23	>410	>410	>410	870	610	700	110	69	79	110	86	97
24	>410	>410	>410	760	520	630	120	71	82	100	82	89
25	>410	>410	>410	670	440	540	120	67	80	90	73	81
26	>410	>410	>410	850	370	480	120	67	75	80	62	69
27	>890	770	>410	660	380	460	120	63	74	69	55	60
28	840	630	750	640	300	380	100	60	66	64	52	57
29	780	530	650	600	360	450	88	59	64	69	50	56
30	700	540	590	610	400	440	91	54	62	88	46	64
31	700	450	550	---	---	---	75	53	59	97	73	85
MAX	>890	770	750	960	900	940	580	370	410	170	130	150
MIN	1.2	1.0	1.1	140	92	120	75	53	59	34	26	30
	FEBRUARY			MARCH			APRIL			MAY		
1	100	77	90	14	11	12	4.8	4.0	4.3	5.1	3.9	4.5
2	110	77	92	12	11	12	4.6	3.9	4.2	4.6	3.8	4.1
3	110	80	94	17	11	12	4.6	3.8	4.3	5.2	4.0	4.3
4	110	64	83	12	9.8	10	4.2	3.3	3.7	5.7	4.3	5.1
5	81	57	69	11	9.4	10	3.8	3.2	3.5	6.4	4.6	5.5
6	77	56	65	11	9.1	9.7	3.6	2.9	3.3	6.7	5.4	6.0
7	78	51	60	10	8.9	9.4	3.6	2.9	3.3	6.9	5.5	6.1
8	67	47	58	10	7.8	8.7	3.3	2.5	2.9	6.4	5.1	5.9
9	61	42	49	11	8.2	9.2	3.0	2.5	2.7	6.3	4.8	5.5
10	57	40	47	14	9.2	13	3.1	2.2	2.7	5.9	4.8	5.3
11	55	41	46	13	12	12	4.6	2.4	3.2	6.3	4.5	5.3
12	48	40	45	12	11	12	4.1	2.5	3.0	---	---	---
13	44	35	40	12	10	11	3.7	2.9	3.3	---	---	---
14	39	32	36	13	10	11	3.8	2.4	3.0	5.1	4.1	4.5
15	37	31	33	16	11	12	3.1	2.1	2.7	4.9	4.0	4.4
16	33	27	30	16	9.4	13	2.6	1.6	2.1	5.0	3.9	4.4
17	32	26	28	13	9.1	11	2.5	1.7	2.0	4.6	3.7	4.1
18	32	25	27	16	9.0	11	2.4	1.6	2.1	4.5	3.5	3.9
19	28	23	25	14	6.1	6.6	2.4	1.5	1.9	5.0	3.9	4.5
20	28	23	25	7.0	5.8	6.4	2.5	1.5	1.8	5.3	4.0	4.5
21	25	21	23	6.6	5.4	5.9	2.4	1.2	1.7	6.1	4.5	5.3
22	24	18	21	6.2	4.7	5.5	2.2	1.3	1.7	6.7	5.1	5.8
23	21	17	19	6.1	4.5	5.3	8.1	1.2	1.7	6.1	5.1	5.6
24	19	15	17	6.1	4.4	5.1	2.7	1.4	2.1	5.7	5.0	5.3
25	18	15	16	7.7	4.7	5.9	9.2	1.7	2.7	5.9	5.0	5.5
26	16	14	15	8.5	4.7	6.2	9.8	1.3	2.4	6.5	4.9	5.6
27	17	14	15	7.7	4.6	6.0	9.8	1.1	1.6	7.0	4.9	5.7
28	16	12	14	6.3	4.8	5.4	26	1.4	2.3	7.4	6.0	6.5
29	15	12	13	7.1	4.6	6.0	5.5	1.9	3.3	7.7	6.1	6.8
30	---	---	---	6.8	3.9	5.8	5.6	4.4	4.9	8.6	6.6	7.4
31	---	---	---	4.8	4.0	4.3	---	---	---	9.6	7.6	8.3
MAX	110	80	94	17	12	13	26	4.4	4.9	---	---	---
MIN	15	12	13	4.8	3.9	4.3	2.2	1.1	1.6	---	---	---

12046260 ELWHA RIVER AT DIVERSION, NEAR PORT ANGELES, WA—Continued

TURBIDITY, WATER, UNFILTERED, FIELD, FORMAZIN NEPHELOMETRIC TURBIDITY UNITS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.1	7.1	7.5	7.3	3.6	3.9	4.8	0.9	1.5	7.8	5.3	5.8
2	7.6	7.0	7.2	4.0	3.4	3.6	1.8	0.8	1.5	6.0	4.8	5.2
3	7.1	6.3	6.7	3.7	3.2	3.5	1.8	0.8	1.5	5.4	4.3	4.7
4	6.9	6.1	6.5	3.7	2.9	3.2	6.0	0.8	1.3	5.1	3.6	4.1
5	6.7	5.8	6.3	4.0	3.1	3.6	7.1	0.7	1.3	4.6	3.4	3.8
6	6.5	6.0	6.2	3.6	2.6	2.8	2.1	0.7	1.3	4.1	2.8	3.3
7	6.2	5.7	5.9	3.1	2.4	2.8	1.7	0.7	1.3	3.4	2.5	3.0
8	6.0	5.5	5.8	3.1	2.1	2.8	2.7	0.7	1.1	3.1	2.1	2.7
9	6.0	5.4	5.8	3.0	2.1	2.8	9.7	0.7	1.3	2.9	1.8	2.5
10	6.1	5.3	5.7	2.9	1.9	2.6	1.6	0.8	1.3	2.7	1.5	2.2
11	5.9	5.1	5.4	2.8	1.7	2.5	1.7	0.8	1.4	14	1.9	2.5
12	5.5	4.7	5.0	2.6	1.7	2.4	4.3	0.7	1.3	3.3	1.8	2.5
13	6.0	4.5	4.9	2.6	1.7	2.3	1.5	0.7	1.2	5.1	2.2	2.8
14	16	4.2	4.6	2.5	1.6	2.3	2.0	0.7	1.1	8.1	4.0	6.4
15	6.5	4.2	5.1	2.4	1.5	2.2	1.6	0.7	1.2	9.7	7.4	8.5
16	7.5	4.1	5.8	2.4	1.4	2.1	1.6	0.7	1.1	10	5.6	6.9
17	4.9	3.8	4.1	2.2	1.4	2.0	2.0	0.7	1.1	8.6	6.0	7.4
18	4.1	3.2	3.4	2.2	1.3	2.0	3.8	0.7	1.1	9.1	6.9	8.0
19	3.6	3.0	3.3	2.2	1.2	1.9	2.2	0.7	1.0	8.2	6.5	7.2
20	3.4	3.0	3.2	2.4	1.1	1.8	1.5	0.7	1.1	7.4	6.2	6.6
21	3.4	2.9	3.1	2.8	1.1	1.8	2.4	0.8	1.2	20	5.1	5.5
22	3.4	2.8	3.1	2.0	1.1	1.7	3.8	0.8	1.4	24	4.5	5.1
23	4.2	2.8	3.2	2.0	1.0	1.7	1.8	0.8	1.2	5.8	4.0	4.8
24	4.2	3.5	3.9	1.9	1.0	1.7	55	0.8	1.4	5.2	3.9	4.5
25	4.5	3.7	4.0	2.0	0.9	1.6	3.7	1.2	2.2	4.8	3.6	4.2
26	4.6	3.9	4.2	1.8	0.9	1.5	4.6	2.0	3.4	4.3	3.1	3.8
27	4.6	3.9	4.2	2.8	0.9	1.5	5.4	3.2	4.6	4.1	2.6	3.2
28	4.6	4.1	4.3	1.7	0.8	1.5	6.9	4.7	5.6	3.6	2.7	3.2
29	4.6	4.0	4.3	8.1	0.9	1.5	10	5.7	6.6	3.8	2.4	3.0
30	4.7	4.1	4.3	4.2	0.9	1.5	7.4	5.8	6.5	3.4	2.2	2.8
31	---	---	---	2.4	1.0	1.6	8.5	5.4	6.1	---	---	---
MAX	16	7.1	7.5	8.1	3.6	3.9	55	5.8	6.6	24	7.4	8.5
MIN	3.4	2.8	3.1	1.7	0.8	1.5	1.5	0.7	1.0	2.7	1.5	2.2

> Actual value is known to be greater than the value shown

12048000 DUNGENESS RIVER NEAR SEQUIM, WA

LOCATION.--Lat 48°00'52", long 123°07'53", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec.13, T.29 N., R.4 W., Clallam County, Hydrologic Unit 17110020, on right bank 1.0 mi upstream from Canyon Creek, 4.8 mi southwest of Sequim, and at mile 11.8.

DRAINAGE AREA.--156 mi^2.

PERIOD OF RECORD.--June 1923 to September 1930, June 1937 to current year. July 1897 to July 1898 at site downstream from Canyon Creek, published as "near Sequim," records not equivalent.

REVISED RECORDS.--WSP 1316: 1924-25(M), 1927(M). WSP 1932: 1957, 1958-59(M), 1960.

GAGE.--Water-stage recorder. Datum of gage is 569.3 ft above NGVD of 1929 (river-profile survey). June 8, 1923, to Sept. 30, 1930, nonrecording gage just above fish-hatchery diversion 0.5 mi downstream at different datum. June 19 to Aug. 12, 1937, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. Water temperatures July 1968 to September 1969, October 1970 to December 1970, January 2000 to September 2001. Suspended sediment discharge November 1999 to September 2001. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--74 years (water years 1924-30, 1938-2004), 383 ft^3/s, 33.38 in/yr, 277,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,610 ft^3/s Jan. 7, 2002, gage height, 8.37 ft; maximum gage height, 8.58 ft Nov. 27, 1949; minimum discharge, 61 ft^3/s Nov. 23, 1993, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 17	0315	3,210	6.24	Nov 19	0245	4,740	7.12
Oct 20	2115	*5,920	*7.68	Nov 28	1930	2,720	5.91

Minimum discharge, 105 ft^3/s, Oct. 4, 5, 6, gage height, 2.43 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	326	715	260	428	207	289	431	435	427	220	173
2	112	315	618	251	386	199	273	532	446	424	214	171
3	108	292	632	238	354	195	270	584	473	413	213	157
4	107	274	584	223	329	191	282	560	601	386	233	149
5	105	263	698	221	302	192	286	498	689	361	218	144
6	105	256	1,090	225	307	184	286	432	612	387	262	140
7	126	252	766	234	290	217	293	409	534	391	275	137
8	134	249	594	284	272	267	293	412	482	336	219	135
9	153	242	509	328	258	339	296	400	595	325	202	139
10	128	235	462	413	253	330	307	388	591	336	196	135
11	116	238	423	370	249	300	338	377	537	318	194	229
12	227	222	401	354	245	287	394	365	467	301	190	182
13	210	214	383	373	241	274	401	357	489	311	191	173
14	151	208	363	611	239	263	383	354	464	337	190	176
15	141	208	339	762	237	257	354	375	416	334	190	175
16	1,090	222	369	589	248	255	334	394	407	337	189	167
17	2,400	247	370	473	257	268	319	396	434	328	184	202
18	1,120	2,200	341	418	303	280	302	421	507	328	177	196
19	905	3,070	334	381	272	268	292	497	547	323	172	184
20	2,920	1,300	361	352	253	251	314	530	467	303	169	170
21	3,060	854	335	328	242	246	279	562	504	280	169	154
22	1,450	653	313	311	235	260	262	584	553	264	217	152
23	1,000	566	310	304	226	296	268	493	623	264	181	156
24	745	501	435	296	231	307	266	433	655	270	188	148
25	602	460	403	278	239	319	266	430	627	273	288	142
26	508	421	348	270	245	320	305	656	565	259	272	137
27	448	390	324	259	231	279	392	716	476	243	218	132
28	431	1,310	303	255	218	260	395	644	428	239	193	130
29	413	1,590	288	311	214	269	364	547	418	237	181	127
30	379	944	272	716	---	320	368	469	424	236	176	124
31	345	---	268	518	---	311	---	453	---	231	170	---
TOTAL	19,854	18,522	13,951	11,206	7,804	8,211	9,471	14,699	15,466	9,802	6,351	4,736
MEAN	640	617	450	361	269	265	316	474	516	316	205	158
MAX	3,060	3,070	1,090	762	428	339	401	716	689	427	288	229
MIN	105	208	268	221	214	184	262	354	407	231	169	124
AC-FT	39,380	36,740	27,670	22,230	15,480	16,290	18,790	29,160	30,680	19,440	12,600	9,390
CFSM	4.11	3.96	2.88	2.32	1.73	1.70	2.02	3.04	3.30	2.03	1.31	1.01
IN.	4.73	4.42	3.33	2.67	1.86	1.96	2.26	3.51	3.69	2.34	1.51	1.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 2004, BY WATER YEAR (WY)

MEAN	215	356	431	408	384	296	325	560	701	492	265	172
MAX	640	1,099	1,034	1,075	1,042	819	519	893	1,465	1,235	868	364
(WY)	(2004)	(1991)	(1980)	(1968)	(1924)	(1972)	(1925)	(1956)	(1999)	(1999)	(1999)	(1954)
MIN	80.6	84.9	117	74.3	106	133	171	292	289	179	129	93.8
(WY)	(1988)	(1988)	(1977)	(1979)	(1929)	(1962)	(1975)	(1977)	(1926)	(1926)	(1944)	(1928)

12048000 DUNGENESS RIVER NEAR SEQUIM, WA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1923 - 2004	
ANNUAL TOTAL	168,220		140,073			
ANNUAL MEAN	461		383		383	
HIGHEST ANNUAL MEAN					696	1999
LOWEST ANNUAL MEAN					197	1977
HIGHEST DAILY MEAN	3,070	Nov 19	3,070	Nov 19	5,280	Nov 24, 1990
LOWEST DAILY MEAN	105	Oct 5	105	Oct 5	65	Jan 31, 1979
ANNUAL SEVEN-DAY MINIMUM	110	Sep 30	111	Oct 1	65	Jan 29, 1979
ANNUAL RUNOFF (AC-FT)	333,700		277,800		277,700	
ANNUAL RUNOFF (CFSM)	2.95		2.45		2.46	
ANNUAL RUNOFF (INCHES)	40.11		33.40		33.38	
10 PERCENT EXCEEDS	845		597		729	
50 PERCENT EXCEEDS	331		303		294	
90 PERCENT EXCEEDS	151		171		133	