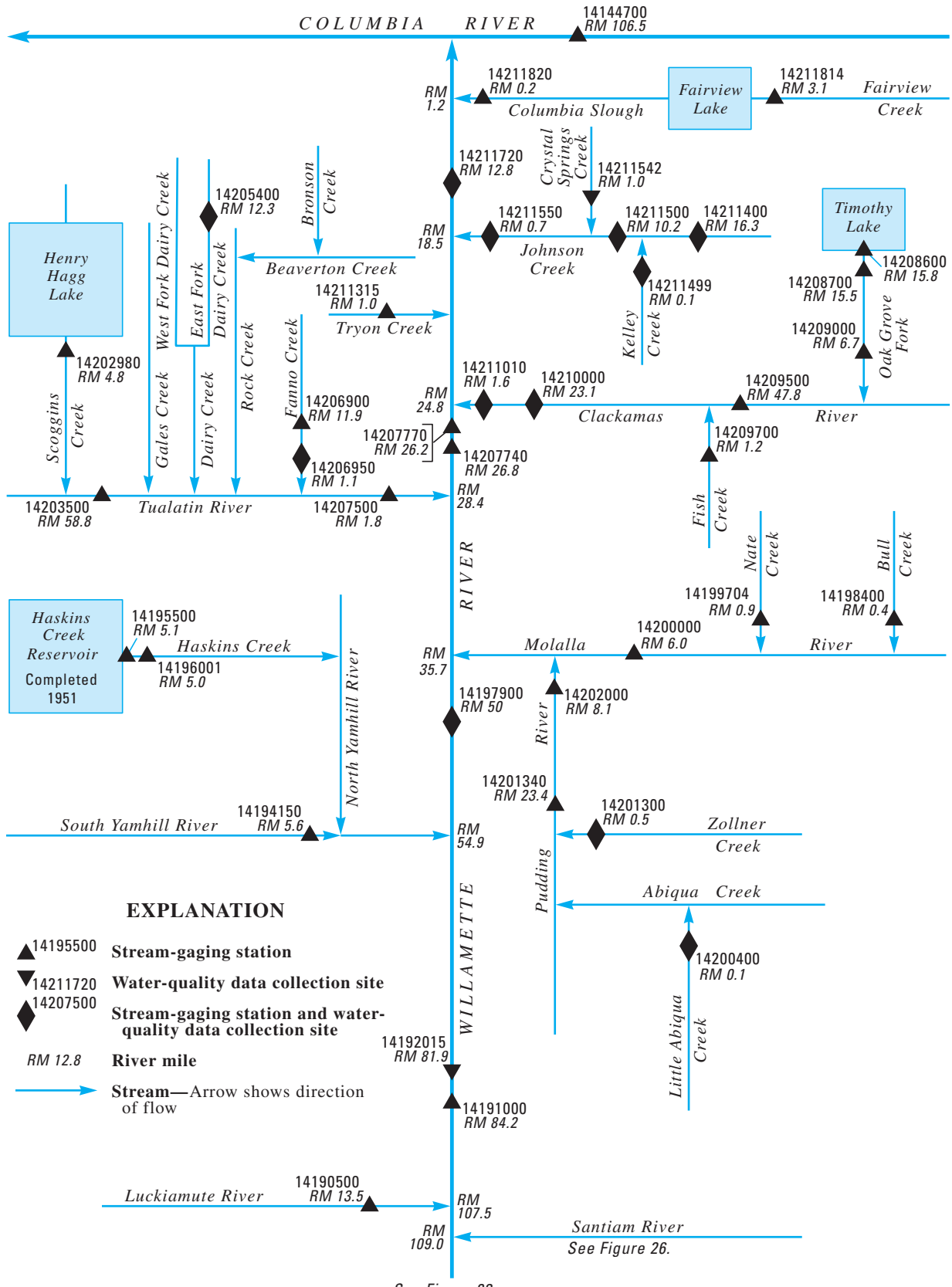


**Figure 25.** Location of surface-water and water-quality stations in the Willamette River Basin, downstream from the Luckiamute River.



**Figure 27.** Schematic diagram showing gaging stations in the Willamette River Basin, from the Luckiamute River downstream to the mouth.

14190500 LUCKIAMUTE RIVER NEAR SUVER, OR

LOCATION.--Lat 44°47'00", long 123°14'00", in SW ¼ SW ¼ sec.18, T.9 S., R.4 W., Polk County, Hydrologic Unit 17090003, on right bank 10 ft upstream from highway bridge at Helmick State Park, 3.0 mi northwest of Suver, 4.7 mi downstream from Little Luckiamute River, and at mile 13.5.

DRAINAGE AREA.--240 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1905 to October 1911, July 1940 to current year.

REVISED RECORDS.--WSP 1044: Drainage area. WSP 1094: 1945-46. WSP 1248: 1905-11.

GAGE.--Water-stage recorder. Datum of gage is 171.92 ft above NGVD of 1929. Aug. 18, 1905, to Oct. 31, 1911, nonrecording gage at present site at different datum, Aug. 20 to Oct. 15, 1940, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Some diurnal fluctuation during periods of low flow caused by millpond upstream from station. A few small diversions for irrigation upstream from station. Continuous water-quality records for the period October 1963 to September 1987 have been collected at this location.

AVERAGE DISCHARGE.--70 years (water years 1906-11, 1941-2004), 883 ft<sup>3</sup>/s, 49.99 in/yr, 639,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,900 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 34.52 ft; minimum discharge, 0.65 ft<sup>3</sup>/s Aug. 13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan 30	1830	*9,260	*28.31	No other peak greater than base discharge.			

Minimum discharge, 22 ft<sup>3</sup>/s, Aug. 21.

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	24	59	790	2,020	5,100	1,720	471	388	252	100	e39	74
2	27	57	609	2,140	3,580	1,440	441	365	225	98	e38	68
3	27	62	627	2,070	2,630	1,260	418	346	213	98	35	70
4	27	64	581	2,010	2,090	1,200	398	329	193	98	36	69
5	28	62	638	1,670	1,730	1,190	381	321	183	96	37	64
6	31	60	1,100	1,430	1,550	1,200	368	314	200	86	38	60
7	34	59	1,240	1,570	1,620	1,090	355	313	285	82	49	56
8	49	58	1,580	2,000	1,420	1,000	344	316	300	81	61	53
9	52	59	1,210	2,630	1,280	916	330	302	313	79	45	50
10	54	59	1,380	2,500	1,150	835	318	291	281	78	36	51
11	53	58	1,230	2,360	1,050	773	307	278	268	82	34	53
12	62	112	1,280	2,060	955	718	296	276	249	78	33	67
13	92	99	1,910	1,860	879	666	290	260	234	71	33	65
14	80	84	3,840	1,880	845	624	332	246	240	66	31	74
15	64	78	3,280	2,140	860	582	470	235	208	66	29	81
16	68	109	2,090	2,170	1,010	549	466	231	191	64	29	141
17	76	399	1,770	1,970	1,500	519	453	236	174	63	28	146
18	65	433	1,420	1,810	1,880	497	417	237	163	64	30	217
19	64	753	1,190	1,780	1,810	497	409	258	153	61	28	326
20	121	855	1,080	1,650	1,540	465	546	231	148	56	25	290
21	130	555	1,070	1,430	1,320	436	1,070	212	143	58	24	223
22	117	406	951	1,260	1,170	417	1,100	205	134	e55	25	180
23	98	320	850	1,280	1,050	399	870	216	138	e53	42	155
24	91	306	978	1,810	1,020	400	736	215	142	e51	75	137
25	81	371	1,590	1,790	1,160	408	645	199	139	e52	202	125
26	71	725	1,470	1,650	1,230	503	576	185	131	e46	280	116
27	66	671	1,410	1,710	1,650	751	521	195	123	e43	238	110
28	62	517	2,370	2,110	2,150	725	476	258	118	e40	161	102
29	60	852	3,120	4,270	1,770	617	445	334	109	e38	119	94
30	65	1,170	2,830	8,820	---	552	416	298	104	e37	98	90
31	64	---	2,050	7,380	---	508	---	279	---	e38	84	---
TOTAL	2,003	9,472	47,534	73,230	46,999	23,457	14,665	8,369	5,754	2,078	2,062	3,407
MEAN	64.6	316	1,533	2,362	1,621	757	489	270	192	67.0	66.5	114
MAX	130	1,170	3,840	8,820	5,100	1,720	1,100	388	313	100	280	326
MIN	24	57	581	1,260	845	399	290	185	104	37	24	50
AC-FT	3,970	18,790	94,280	145,300	93,220	46,530	29,090	16,600	11,410	4,120	4,090	6,760
CFSM	0.27	1.32	6.39	9.84	6.75	3.15	2.04	1.12	0.80	0.28	0.28	0.47
IN.	0.31	1.47	7.37	11.35	7.28	3.64	2.27	1.30	0.89	0.32	0.32	0.53

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 2004, BY WATER YEAR (WY)

MEAN	175	1,054	2,085	2,236	2,038	1,419	846	422	203	80.7	42.9	53.3
MAX	1,241	4,574	5,112	4,727	4,769	3,002	1,847	1,026	512	184	85.0	190
(WY)	(1948)	(1910)	(1965)	(1956)	(1949)	(1961)	(1955)	(1963)	(1984)	(1906)	(1906)	(1959)
MIN	20.2	49.4	106	151	253	391	312	190	74.3	30.0	9.45	17.0
(WY)	(1953)	(1994)	(1977)	(1977)	(1977)	(1941)	(1977)	(1966)	(1992)	(1967)	(1967)	(1967)

## WILLAMETTE RIVER BASIN

14190500 LUCKIAMUTE RIVER NEAR SUVER, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1906 - 2004	
ANNUAL TOTAL	275,119		239,030			
ANNUAL MEAN	754		653		883	
HIGHEST ANNUAL MEAN					1,464	1974
LOWEST ANNUAL MEAN					230	1977
HIGHEST DAILY MEAN	6,910	Feb 1	8,820	Jan 30	25,200	Dec 23, 1964
LOWEST DAILY MEAN	14	Aug 29	24	Oct 1	2.6	Aug 20, 1967
ANNUAL SEVEN-DAY MINIMUM	16	Aug 28	27	Aug 16	4.3	Aug 17, 1967
ANNUAL RUNOFF (AC-FT)	545,700		474,100		639,700	
ANNUAL RUNOFF (CFSM)	3.14		2.72		3.68	
ANNUAL RUNOFF (INCHES)	42.64		37.05		49.99	
10 PERCENT EXCEEDS	1,900		1,780		2,330	
50 PERCENT EXCEEDS	371		283		348	
90 PERCENT EXCEEDS	29		50		36	

e Estimated



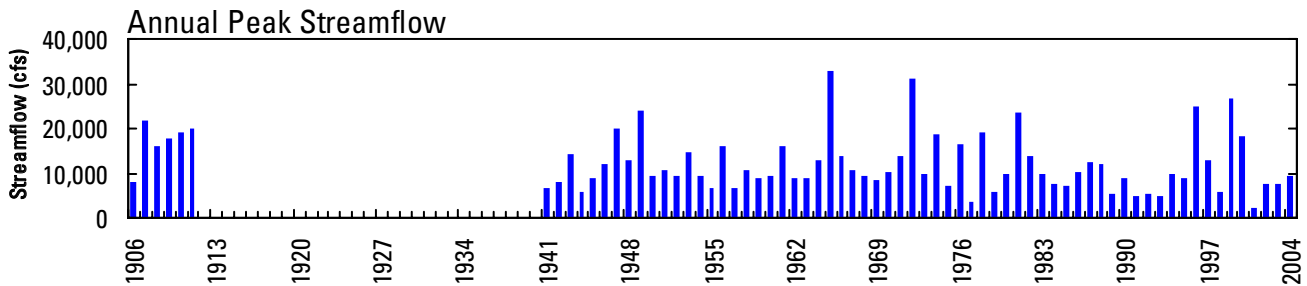
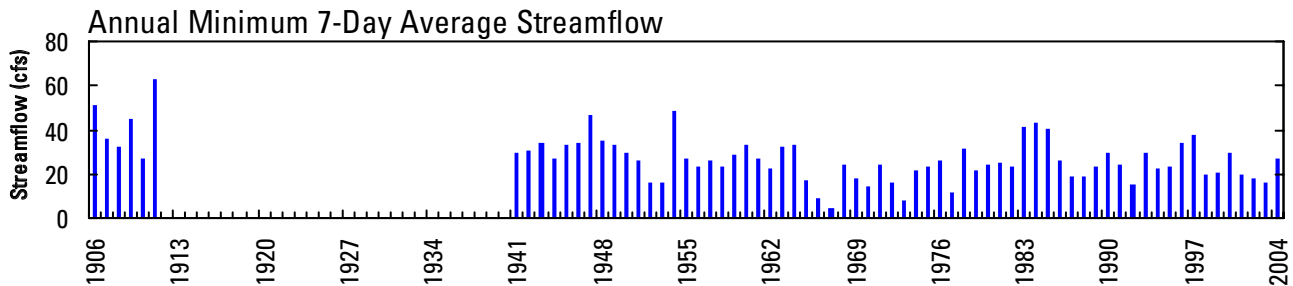
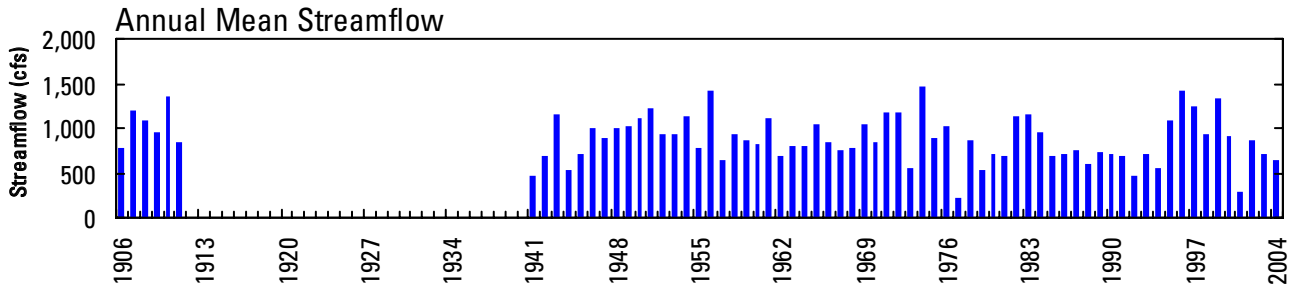
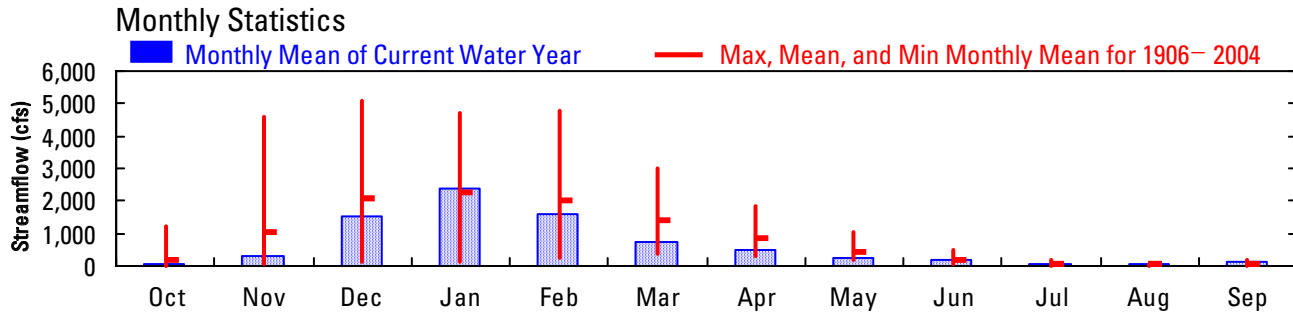
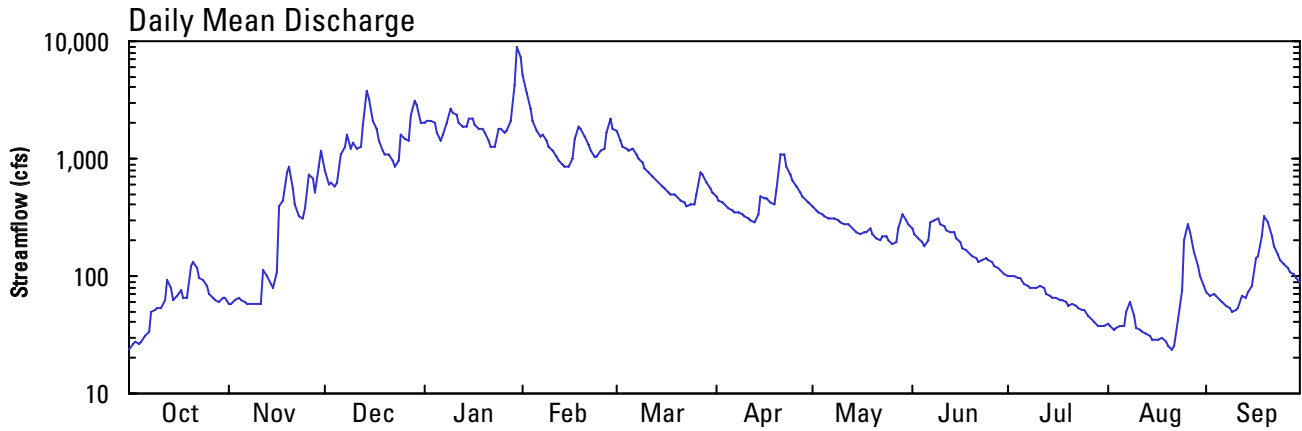
2004 Water Year  
WILLAMETTE RIVER BASIN

14190500 LUCKIAMUTE RIVER NEAR SUVER, OR

Latitude: 44° 47' 00"  
Polk County

Longitude: 123° 14' 00"  
Datum: 171.92 feet

Hydrologic Unit Code: 17090003  
Drainage Area: 240 square miles



## 14191000 WILLAMETTE RIVER AT SALEM, OR

LOCATION.--Lat 44°56'40", long 123°02'30", in SE ¼ SW ¼ sec. 22, T.7 S., R.3 W., Marion County, Hydrologic Unit 17090007, on right bank 300 ft upstream from Center Street Bridge in Salem and at mile 84.16.

DRAINAGE AREA.--7,280 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1909 to December 1916, January 1923 to current year. Monthly discharge only January 1923 to September 1927, published in WSP 1318. Gage-height records collected at about the same site since 1892 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1318: 1915(M).

GAGE.--Water-stage recorder. Datum of gage is 106.14 ft above NGVD of 1929. Oct. 1, 1909 to Dec. 31, 1916, nonrecording gage at site 0.5 mi upstream at datum 8.00 ft higher. Jan. 1, 1923 to Nov. 26, 1934, nonrecording gage at Center Street Bridge at datum 8.00 ft higher. Nov. 27, 1934 to Sept. 30, 1962, water-stage recorder at present site at datum 8.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by 12 reservoirs upstream from station (see elsewhere in this report). Many small diversions for irrigation upstream from station; part of flow of Salem Canal, which diverts water from North Santiam River, returns to Willamette River downstream from station, through Mill Creek at Salem. Periodic suspended sediment data are available for the period October 1991 to September 1993.

AVERAGE DISCHARGE.--36 years (water years 1910-16, 1924-1952), 22,590 ft<sup>3</sup>/s, 42.14 in/yr, 16,370,000 acre-ft/yr. 52 years (water years 1953-2004) 23,870 ft<sup>3</sup>/s, 44.55 in/yr, 17,290,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 348,000 ft<sup>3</sup>/s Jan. 8, 1923, gage height, 38.3 ft, present datum; minimum discharge, 2,470 ft<sup>3</sup>/s Aug. 27, 1940, gage height, 3.55 ft, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 500,000 ft<sup>3</sup>/s Dec. 4, 1861, gage height, about 47 ft present datum, from rating curve extended above 250,000 ft<sup>3</sup>/s in 1916. Floods of Jan. 16, 1881 and Feb. 5, 1890, reached stages of 44.3 ft, discharge, 428,000 ft<sup>3</sup>/s, and 45.1 ft, discharge, 448,000 ft<sup>3</sup>/s, respectively, from floodmarks and information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 91,200 ft<sup>3</sup>/s Dec. 15, gage height, 21.38 ft; minimum discharge, 6,580 ft<sup>3</sup>/s July 24.

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	6,990	7,310	29,200	52,300	81,900	25,800	17,900	14,600	18,900	7,680	7,050	7,600
2	6,930	7,290	25,400	53,300	76,700	25,100	18,200	14,900	16,300	7,520	7,150	7,770
3	6,950	7,300	25,800	54,300	69,900	22,600	17,700	15,100	14,400	7,550	7,050	8,020
4	6,940	7,420	27,700	47,900	61,300	21,700	17,200	15,000	13,000	7,490	7,040	8,100
5	6,980	7,160	28,700	40,500	55,200	24,100	17,000	15,300	12,200	7,480	7,030	8,200
6	7,030	7,190	37,200	34,600	50,000	26,700	17,200	15,500	12,100	7,340	7,050	8,190
7	7,230	7,270	42,000	34,200	47,300	26,400	17,600	15,400	12,900	7,220	7,200	8,160
8	7,160	7,310	43,000	44,700	45,100	24,500	16,400	15,500	14,600	7,190	7,260	8,020
9	7,220	7,330	40,800	54,900	40,000	22,600	15,600	15,000	16,900	7,110	7,230	7,940
10	7,320	7,260	37,300	58,500	34,700	21,400	15,500	14,700	19,300	7,110	7,020	8,040
11	7,440	7,210	37,300	57,800	28,900	20,900	15,000	14,700	21,600	7,230	6,830	8,310
12	7,660	7,570	35,600	52,300	25,900	20,000	14,900	15,400	20,900	7,270	7,030	8,560
13	8,270	7,830	43,400	47,600	22,200	19,100	14,900	15,800	18,900	7,170	7,030	8,780
14	8,060	7,850	78,200	45,800	20,000	18,300	15,200	15,400	16,600	7,090	6,990	9,240
15	7,750	7,820	89,900	47,700	18,900	17,600	16,300	14,700	14,600	7,000	6,980	9,640
16	7,850	8,230	86,300	50,300	20,300	17,000	17,000	14,200	13,100	6,880	7,010	9,840
17	8,030	9,830	75,000	48,600	29,500	15,700	16,500	14,000	12,100	6,890	7,070	10,000
18	7,780	12,300	66,700	43,100	40,900	14,500	15,100	13,800	11,400	7,040	7,050	11,200
19	7,790	13,400	61,000	42,400	43,400	14,500	14,700	14,200	10,800	7,060	6,950	12,800
20	7,700	14,500	56,200	43,100	39,600	14,500	16,000	15,200	10,400	7,050	6,870	12,700
21	7,700	14,300	53,100	42,500	33,900	13,400	19,500	14,900	9,920	6,970	6,880	12,000
22	7,610	12,600	48,600	39,500	29,700	12,900	24,200	14,600	9,450	6,810	7,170	11,400
23	7,600	11,200	40,100	37,100	26,000	12,700	23,400	14,600	9,170	6,690	7,830	10,900
24	7,730	10,600	35,200	52,100	23,900	12,800	19,400	14,900	9,210	6,610	8,030	10,500
25	7,710	10,700	35,900	63,700	24,100	13,100	17,100	14,400	9,360	6,770	7,650	10,200
26	7,540	11,800	36,100	61,100	24,300	13,300	15,500	13,800	9,210	6,950	9,020	9,980
27	7,550	12,600	33,600	56,700	24,400	14,700	15,000	13,800	9,030	6,900	10,100	9,870
28	7,500	12,100	38,400	58,500	26,600	16,100	15,200	15,000	8,860	6,890	9,350	9,770
29	7,570	14,400	55,500	71,000	26,200	15,700	14,800	22,900	8,630	6,880	8,500	9,820
30	7,730	29,600	68,300	86,500	---	15,400	14,700	27,200	8,210	6,890	8,210	9,880
31	7,640	---	61,100	84,300	---	16,500	---	23,100	---	6,870	7,950	---
TOTAL	232,960	309,280	1,472,600	1,606,900	1,090,800	569,600	504,700	487,600	392,050	219,600	231,580	285,430
MEAN	7,515	10,310	47,500	51,840	37,610	18,370	16,820	15,730	13,070	7,084	7,470	9,514
MAX	8,270	29,600	89,900	86,500	81,900	26,700	24,200	27,200	21,600	7,680	10,100	12,800
MIN	6,930	7,160	25,400	34,200	18,900	12,700	14,700	13,800	8,210	6,610	6,830	7,600
AC-FT	462,100	613,500	2,921,000	3,187,000	2,164,000	1,130,000	1,001,000	967,200	777,600	435,600	459,300	566,200
CFSM	1.03	1.42	6.53	7.12	5.17	2.52	2.31	2.16	1.80	0.97	1.03	1.31
IN.	1.19	1.58	7.52	8.21	5.57	2.91	2.58	2.49	2.00	1.12	1.18	1.46

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

MEAN	12,870	28,370	47,450	48,430	38,090	30,320	24,600	19,920	13,570	7,431	6,922	9,072
MAX	24,390	70,400	116,700	95,930	91,350	73,670	46,440	38,610	30,910	12,410	9,540	13,340
(WY)	(1969)	(1974)	(1965)	(1965)	(1961)	(1972)	(1993)	(1963)	(1984)	(1983)	(1971)	(1978)
MIN	4,422	3,993	6,780	6,377	5,313	11,180	10,260	7,701	5,657	5,415	5,342	5,958
(WY)	(1953)	(1953)	(1977)	(1977)	(1977)	(2001)	(1977)	(1973)	(1992)	(1966)	(1966)	(1953)

## 14191000 WILLAMETTE RIVER AT SALEM, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1953 - 2004	
ANNUAL TOTAL	8,265,500		7,403,100			
ANNUAL MEAN	22,650		20,230		23,870	
HIGHEST ANNUAL MEAN					37,960	
LOWEST ANNUAL MEAN					9,792	
HIGHEST DAILY MEAN	92,300	Feb 1	89,900	Dec 15	304,000	Dec 24, 1964
LOWEST DAILY MEAN	5,940	Aug 14	6,610	Jul 24	3,500	Nov 29, 1952
ANNUAL SEVEN-DAY MINIMUM	6,020	Aug 10	6,800	Jul 22	3,560	Nov 25, 1952
ANNUAL RUNOFF (AC-FT)	16,390,000		14,680,000		17,290,000	
ANNUAL RUNOFF (CFSM)	3.11		2.78		3.28	
ANNUAL RUNOFF (INCHES)	42.24		37.83		44.55	
10 PERCENT EXCEEDS	52,600		47,800		55,000	
50 PERCENT EXCEEDS	14,700		14,400		15,000	
90 PERCENT EXCEEDS	6,230		7,050		6,580	



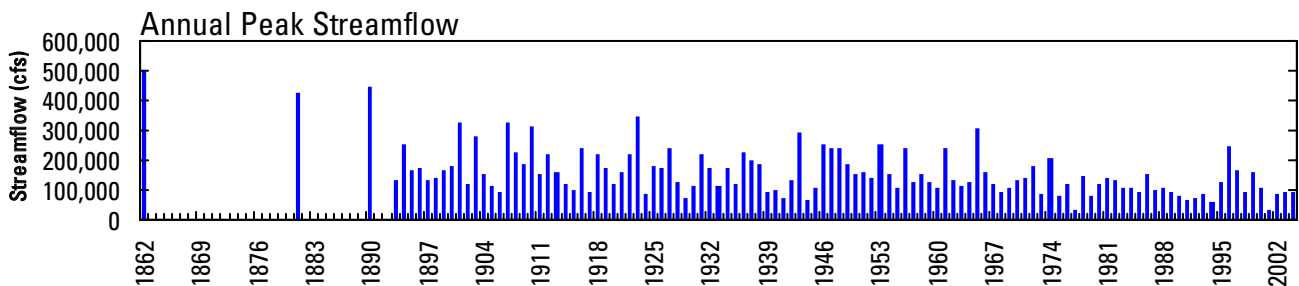
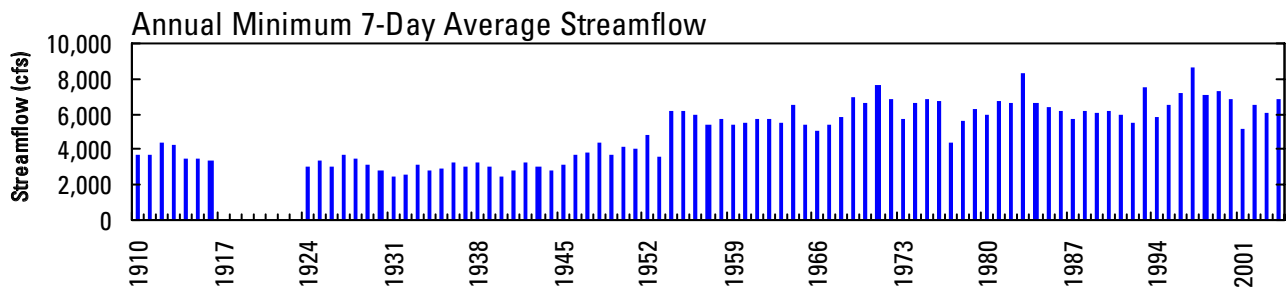
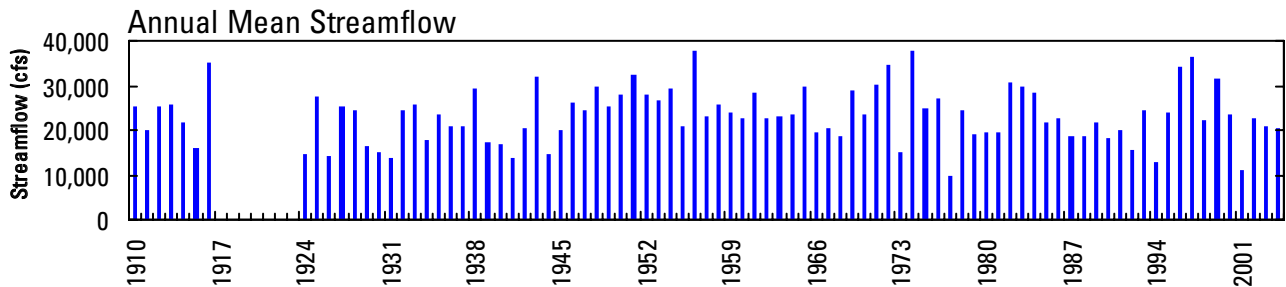
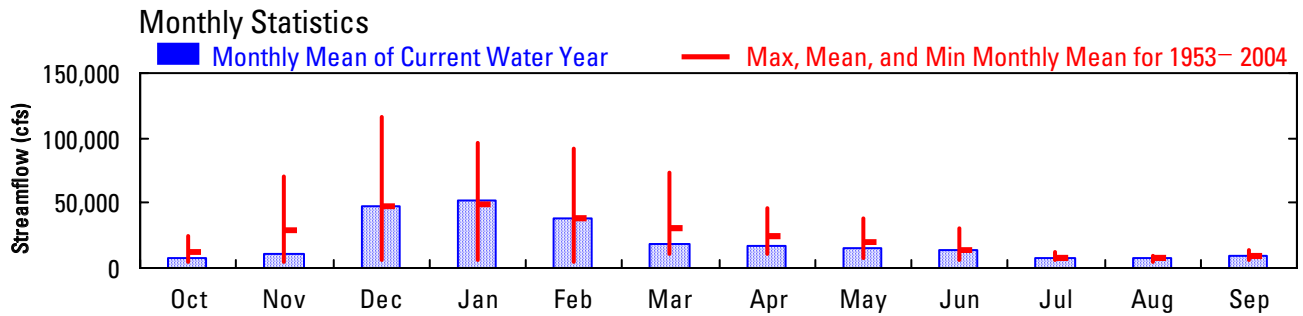
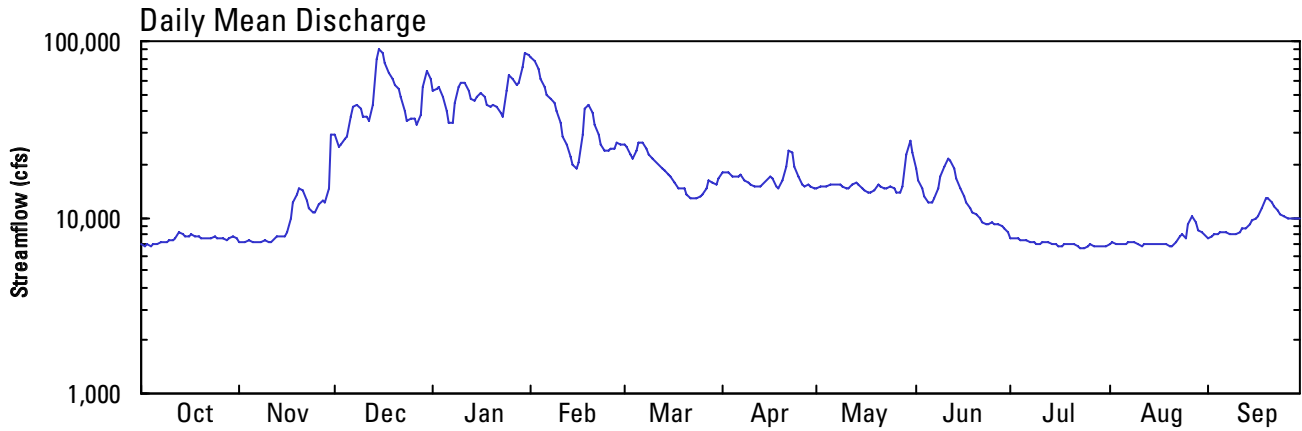
2004 Water Year  
WILLAMETTE RIVER BASIN

14191000 WILLAMETTE RIVER AT SALEM, OR

Latitude: 44° 56 ' 40"  
Marion County

Longitude: 123° 02 ' 30"  
Datum: 106.14 feet

Hydrologic Unit Code: 17090007  
Drainage Area: 7,280 square miles





## 14192015 WILLAMETTE RIVER AT KEIZER, OR

## WATER-QUALITY RECORDS

LOCATION.--Lat 44°58'26", long 123°02'10", Marion County, Hydrologic Unit 17090007, downstream from Mill Creek, and approximately at mile 82.2.

DRAINAGE AREA.--Approximately 7,390 mi<sup>2</sup>.

PERIOD OF DAILY RECORD.--October 2000 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum, 24.9°C July 24, 2004; minimum, 3.7°C Jan. 6, 7, 2004.

EXTREMES FOR CURRENT YEAR.--Maximum, 24.9°C July 24; minimum, 3.7°C Jan. 6, 7.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.9	16.8	17.3	10.0	9.0	9.3	9.0	8.6	8.8	6.1	5.5	5.9
2	17.3	16.8	17.1	9.2	8.3	8.7	9.4	8.7	9.1	5.6	5.0	5.3
3	17.3	16.5	16.9	9.3	7.6	8.5	9.6	8.9	9.3	5.6	5.1	5.3
4	16.8	16.4	16.6	9.2	8.0	8.6	9.2	8.4	8.7	5.9	5.5	5.6
5	16.7	16.1	16.4	9.1	8.3	8.8	9.3	8.5	8.8	5.6	4.7	5.2
6	16.7	15.8	16.2	9.1	8.4	8.8	9.3	8.8	9.1	4.9	3.7	4.2
7	17.2	16.2	16.7	9.5	8.7	9.1	9.0	8.4	8.7	4.5	3.7	4.1
8	17.0	16.4	16.7	9.8	9.2	9.5	8.7	8.3	8.5	5.4	4.5	5.0
9	16.5	15.5	15.9	10.2	9.4	9.8	8.6	8.2	8.4	6.0	5.3	5.6
10	15.5	14.8	15.1	10.4	9.8	10.0	8.4	8.0	8.2	6.7	5.8	6.2
11	14.9	14.0	14.5	10.9	10.0	10.5	8.7	8.2	8.4	7.1	6.5	6.8
12	14.6	13.7	14.1	10.9	10.3	10.6	8.9	8.4	8.7	6.9	6.6	6.7
13	14.2	13.6	13.9	10.5	9.7	10.0	9.1	8.7	8.9	7.2	6.6	6.8
14	14.4	13.5	14.0	10.2	9.4	9.8	8.9	7.8	8.2	7.7	7.0	7.3
15	14.2	13.8	14.0	10.8	10.0	10.5	8.1	7.2	7.6	8.0	7.3	7.6
16	14.6	13.7	14.1	10.6	10.2	10.4	7.6	7.2	7.4	8.2	7.6	7.9
17	15.6	14.4	15.0	10.3	9.8	10.1	8.0	7.5	7.7	8.1	7.7	7.9
18	16.2	15.2	15.7	10.6	10.0	10.3	8.0	7.5	7.7	8.1	7.6	7.8
19	16.2	15.6	15.9	10.8	9.8	10.4	7.8	7.2	7.5	8.4	7.8	8.1
20	16.8	15.8	16.2	9.9	8.7	9.3	7.9	7.3	7.6	8.3	7.8	8.0
21	17.2	16.2	16.8	8.7	7.9	8.4	8.4	7.8	8.1	7.8	7.1	7.4
22	17.3	16.8	17.0	8.1	7.3	7.6	8.3	7.8	8.1	7.2	6.7	7.0
23	16.8	15.6	16.2	8.0	7.4	7.6	8.0	7.3	7.6	7.4	6.8	7.1
24	15.6	14.3	14.9	8.3	7.5	7.9	7.8	7.4	7.6	7.6	7.2	7.5
25	14.5	13.7	14.1	8.2	7.7	8.0	7.8	7.5	7.7	7.3	6.8	7.0
26	14.1	13.3	13.8	8.5	7.8	8.1	7.7	7.0	7.3	7.3	6.8	7.0
27	14.5	13.3	13.8	8.1	7.6	7.9	7.1	6.7	6.9	7.6	7.0	7.3
28	15.1	13.8	14.4	8.1	7.5	7.8	7.2	6.7	7.0	8.0	7.4	7.7
29	14.8	13.6	14.2	9.1	8.0	8.7	7.1	5.8	6.3	8.4	7.8	8.1
30	13.7	12.1	13.0	9.0	8.4	8.7	5.8	5.2	5.6	8.4	8.0	8.2
31	12.4	9.9	10.9	---	---	---	6.1	5.4	5.7	8.1	7.1	7.5
MONTH	17.9	9.9	15.2	10.9	7.3	9.1	9.6	5.2	7.9	8.4	3.7	6.7



## 14194150 SOUTH YAMHILL RIVER AT MCMINNVILLE, OR

LOCATION.--Lat 45°12'21", long 123°10'53", in SE ¼ sec. 21, T.4 S., R.4 W., Yamhill County, Hydrologic Unit 17090008, on left bank 0.3 mi downstream from Cozine Creek, at Highway 18 McMinnville Spur bridge, in McMinnville, and at mile 5.6.

DRAINAGE AREA.--528 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1994 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 fair. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--10 years (water years 1995-2004), 1,898 ft<sup>3</sup>/s, 48.83 in/yr, 1,375,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,100 ft<sup>3</sup>/s Feb. 9, 1996, gage height, 59.33; minimum discharge, 0.58 ft<sup>3</sup>/s Sept. 4, 2003.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan 31	1515	*14,400	*43.16	No other peak greater than base discharge.			

Minimum discharge, 19 ft<sup>3</sup>/s, Oct. 1.

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	20	68	1,430	4,480	12,800	4,360	1,200	628	504	121	37	95
2	21	60	1,180	4,220	9,690	3,850	1,060	577	442	112	39	86
3	22	59	1,310	4,130	7,120	3,220	961	533	401	112	37	77
4	23	60	1,730	3,940	5,280	2,870	886	495	361	112	40	79
5	26	59	1,680	3,390	4,170	2,790	811	455	326	110	41	77
6	28	56	3,190	2,880	3,420	2,670	759	455	335	101	45	74
7	32	55	3,600	2,700	3,280	2,420	723	462	479	95	50	74
8	32	53	3,480	3,790	3,050	2,180	681	466	563	90	55	75
9	47	53	2,860	6,030	2,700	1,960	649	415	510	88	69	74
10	47	52	2,610	6,490	2,390	1,740	604	383	436	91	58	71
11	52	54	2,470	6,270	2,120	1,550	566	366	420	89	45	74
12	60	96	2,320	5,380	1,900	1,410	524	390	398	90	41	77
13	68	137	3,170	4,670	1,720	1,270	479	386	362	78	39	114
14	88	105	6,500	4,340	1,570	1,150	511	352	370	70	37	107
15	67	95	7,380	4,550	1,620	1,050	879	334	340	66	37	189
16	54	107	5,850	4,670	1,750	959	936	325	299	63	34	206
17	53	549	4,570	4,290	3,120	892	910	327	269	62	30	245
18	65	934	3,570	3,850	4,190	835	818	351	241	58	30	235
19	67	1,010	2,790	3,740	4,680	806	769	351	220	59	27	311
20	56	1,630	2,340	3,510	4,140	782	977	321	216	56	26	399
21	101	1,250	2,240	3,110	3,390	722	1,830	289	205	50	35	298
22	182	908	2,130	2,670	2,780	675	2,470	280	188	54	45	235
23	119	653	1,850	2,460	2,360	637	1,990	283	179	53	51	207
24	97	536	2,020	2,920	2,140	621	1,570	305	181	51	65	187
25	85	719	4,470	3,250	2,680	737	1,280	299	182	49	109	170
26	72	1,540	5,380	3,250	3,590	1,030	1,070	258	174	50	354	156
27	63	1,810	4,430	3,120	4,290	2,350	931	258	161	43	298	146
28	57	1,340	5,180	3,550	5,660	2,610	843	360	151	41	215	139
29	56	1,280	6,540	7,580	4,900	2,030	763	715	137	37	154	134
30	55	1,880	6,800	11,900	---	1,640	689	620	127	35	125	127
31	76	---	5,400	14,100	---	1,390	---	545	---	34	108	---
TOTAL	1,891	17,208	110,470	145,230	112,500	53,206	29,139	12,584	9,177	2,220	2,376	4,538
MEAN	61.0	574	3,564	4,685	3,879	1,716	971	406	306	71.6	76.6	151
MAX	182	1,880	7,380	14,100	12,800	4,360	2,470	715	563	121	354	399
MIN	20	52	1,180	2,460	1,570	621	479	258	127	34	26	71
AC-FT	3,750	34,130	219,100	288,100	223,100	105,500	57,800	24,960	18,200	4,400	4,710	9,000
CFSM	0.12	1.09	6.75	8.87	7.35	3.25	1.84	0.77	0.58	0.14	0.15	0.29
IN.	0.13	1.21	7.78	10.23	7.93	3.75	2.05	0.89	0.65	0.16	0.17	0.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

MEAN	323	2,232	5,135	4,862	4,508	2,878	1,607	786	335	100	46.0	79.7
MAX	1,491	3,683	9,904	6,162	9,541	4,573	3,832	1,669	530	163	76.6	281
(WY)	(1998)	(1997)	(1997)	(1999)	(1996)	(2003)	(1996)	(1996)	(1997)	(1997)	(2004)	(1997)
MIN	47.4	222	1,250	784	1,082	854	660	406	135	50.4	26.4	24.9
(WY)	(2003)	(2001)	(2001)	(2001)	(2001)	(2001)	(2000)	(2004)	(2003)	(2003)	(1996)	(2003)

## WILLAMETTE RIVER BASIN

14194150 SOUTH YAMHILL RIVER AT MCMINNVILLE, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	605,043.5		500,539			
ANNUAL MEAN	1,658		1,368		1,898	
HIGHEST ANNUAL MEAN					2,796	1996
LOWEST ANNUAL MEAN					515	2001
HIGHEST DAILY MEAN	13,700	Feb 2	14,100	Jan 31	40,300	Feb 9, 1996
LOWEST DAILY MEAN	1.4	Sep 4	20	Oct 1	1.4	Sep 4, 2003
ANNUAL SEVEN-DAY MINIMUM	3.9	Sep 1	25	Oct 1	3.9	Sep 1, 2003
ANNUAL RUNOFF (AC-FT)	1,200,000		992,800		1,375,000	
ANNUAL RUNOFF (CFSM)	3.14		2.59		3.59	
ANNUAL RUNOFF (INCHES)	42.63		35.27		48.83	
10 PERCENT EXCEEDS	4,910		4,150		5,420	
50 PERCENT EXCEEDS	536		428		652	
90 PERCENT EXCEEDS	26		50		38	



2004 Water Year  
WILLAMETTE RIVER BASIN

14194150 SOUTH YAMHILL RIVER AT MCMINNVILLE, OR

Latitude: 45° 12' 21"

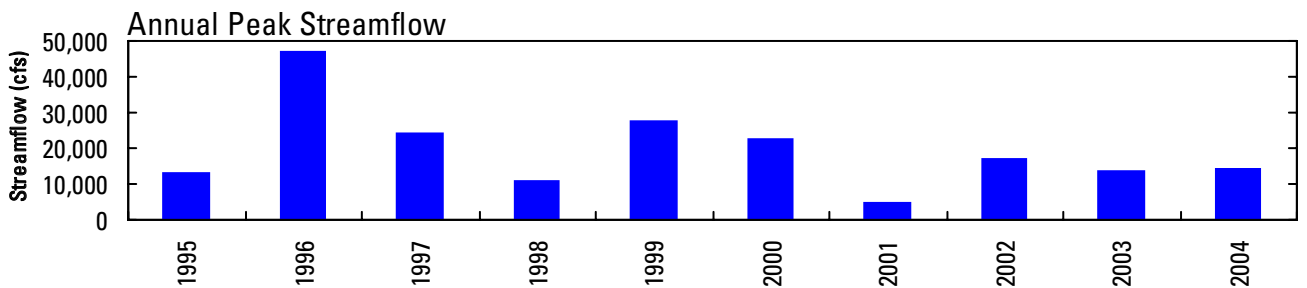
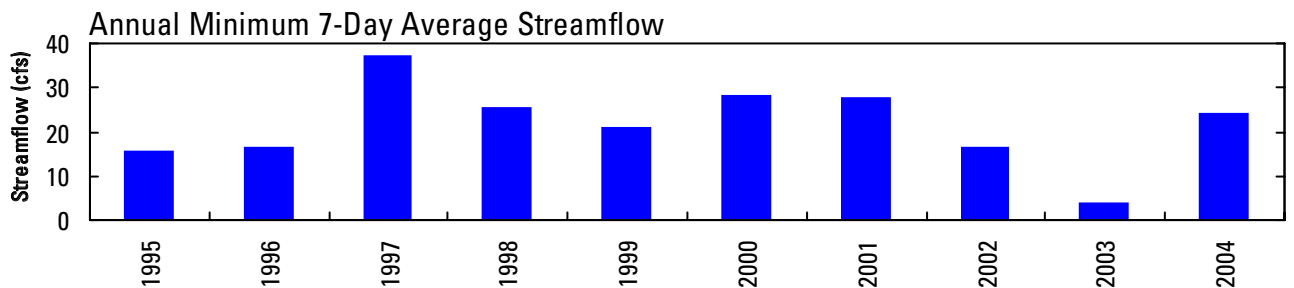
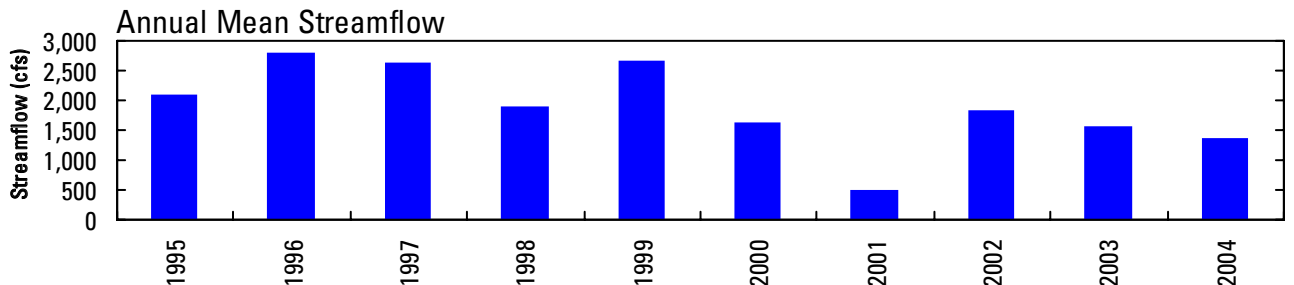
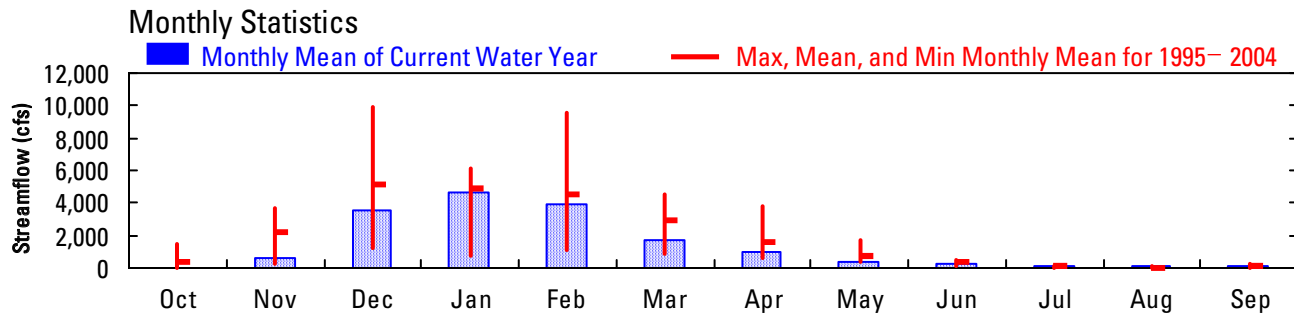
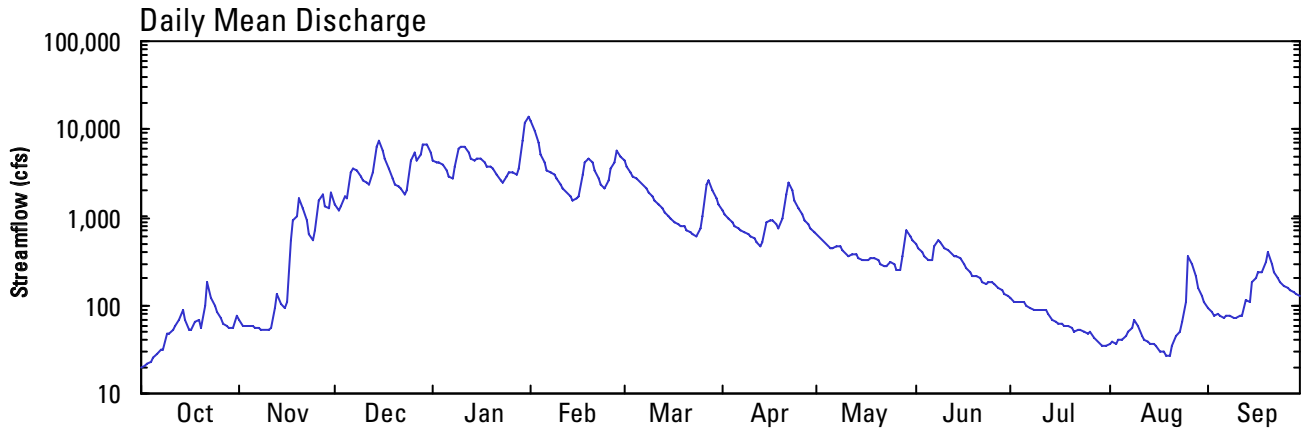
Longitude: 123° 10' 53"

Hydrologic Unit Code: 17090008

Yamhill County

Datum: 50.0 feet

Drainage Area: 528 square miles



## 14195500 HASKINS CREEK RESERVOIR NEAR MCMINNVILLE, OR

LOCATION.--Lat 45°18'43", long 123°21'23", in SW ¼ NW ¼ sec.18, T.3 S., R.5 W., Yamhill County, Hydrologic Unit 17090008, on control tower 250 ft upstream from dam on Haskins Creek, 11 mi northwest of McMinnville, and at mile 5.1.

DRAINAGE AREA.--6.88 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1738: Drainage area. WDR OR-79-1: 1978 (maximum contents).

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by city of McMinnville). Prior to February 1981, at datum 20.0 ft lower.

REMARKS.--Reservoir is formed by earthfill dam equipped with five siphon spillways which act as overflow weirs until priming occurs, approximately 815.0 ft elevation. Capacity of reservoir (based on May 1992 resurvey, new capacity table put into use Oct. 1, 1991), 721 acre-ft between elevations 741.5 ft, invert of outlet tunnel, and 815.0 ft, crest of siphon spillways. Dead storage negligible. Rated capacity of three siphons is 700 ft<sup>3</sup>/s each and remaining two siphons 350 ft<sup>3</sup>/s each. Water is used for municipal supply of city of McMinnville.

COOPERATION.--Elevation and capacity table furnished by City of McMinnville Water and Light Department. Elevations based on once-daily staff gage readings.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed contents, 748 acre-ft Nov. 17, 1954, elevation, 815.65 ft, present datum; no contents at times during winter months.

EXTREMES FOR CURRENT YEAR.--Maximum observed contents, 727 acre-ft Jan. 30, elevation, 815.2 ft; minimum contents, 150 acre-ft Apr. 5, elevation 777.9 ft.

MONTH END ELEVATION AND CONTENTS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30	805.8	524	-
Oct. 31	813.9	692	+168
Nov. 30	813.5	683	-9
Dec. 31	811.2	632	-51
CAL YR 2003	-	-	-28
Jan. 31	814.2	699	+67
Feb. 28	812.7	665	-34
Mar. 31	785.8	230	-435
Apr. 30	812.7	665	+435
May 31	814.9	717	+52
June 30	811.2	632	-85
July 31	807.2	551	-81
Aug. 31	812.3	656	+105
Sept.30	812.1	651	-5
WTR YR 2004	-	-	+127

## 14196001 HASKINS CREEK BELOW RESERVOIR, NEAR MCMINNVILLE, OR

LOCATION.--Lat 45°18'40", long 123°20'55", in SE ¼ NW ¼ sec.18, T.3 S., R.5 W., Yamhill County, Hydrologic Unit 17090008, on right bank 800 ft downstream from Haskins Creek Reservoir, 11 mi northwest of McMinnville, and at mile 5.0.

DRAINAGE AREA.--6.90 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1738: Drainage area. Maximum discharge for water year 1957, published in WSP 1518, has been found to be unreliable and should not be used.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 707 ft above NGVD of 1929, topographic survey of 1955. Prior to Aug. 5, 1952, water-stage recorder at site 600 ft upstream at different datum.

REMARKS.--Records fair. All records given herein include flow in pipeline which diverts 600 ft upstream from station for municipal supply of McMinnville. Flow regulated by Haskins Creek Reservoir (station 14195500). Water from McGuire Lake (station 14302800) on the Nestucca River is diverted through a tunnel to Haskins Creek Reservoir to augment summer flows.

COOPERATION.--Meter readings for diversion and elevations of Haskins Creek Reservoir furnished by city of McMinnville.

AVERAGE DISCHARGE.--53 years (water years 1952-2004), 30.9 ft<sup>3</sup>/s, 60.81 in/yr, 22,390 acre-ft/yr, adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,050 ft<sup>3</sup>/s Feb. 8, 1996, gage height, 6.01 ft, from floodmark, from rating curve extended above 140 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum daily discharge, 615 ft<sup>3</sup>/s Feb. 8, 1996; minimum daily, 0.10 ft<sup>3</sup>/s Oct. 27, 28, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 228 ft<sup>3</sup>/s Jan. 30; minimum daily, 6.5 ft<sup>3</sup>/s Sept. 24-26.

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	9.0	7.0	27	29	141	73	36	9.4	12	13	14	11
2	9.0	7.0	27	36	112	63	36	11	9.7	13	13	11
3	9.0	6.4	28	39	98	50	35	15	9.3	11	13	9.9
4	9.1	6.2	27	28	68	45	33	17	9.7	10	14	9.6
5	9.1	6.7	33	24	58	45	20	17	9.2	11	14	10
6	9.1	7.3	67	34	64	46	8.9	14	8.4	13	12	11
7	8.6	7.2	62	40	68	42	6.8	9.7	12	12	11	11
8	5.2	7.3	61	44	58	36	6.4	8.2	12	12	14	9.9
9	5.8	7.2	60	58	51	36	6.4	6.7	11	12	16	8.9
10	6.6	7.2	49	62	42	28	7.2	7.7	11	12	17	8.8
11	6.7	7.3	24	58	37	26	7.8	8.3	11	12	16	9.3
12	6.8	6.6	23	54	43	29	7.6	8.3	9.9	12	15	9.0
13	6.8	6.4	79	53	45	29	6.8	8.9	10	14	13	7.7
14	6.7	6.7	92	55	37	28	6.4	9.9	10	14	14	6.7
15	6.8	6.9	74	74	32	36	5.6	9.7	9.7	14	14	6.6
16	6.8	7.3	64	88	33	46	5.0	10	11	14	14	6.7
17	7.0	38	51	80	41	37	5.2	11	12	14	14	6.8
18	6.8	32	38	68	51	39	5.8	11	12	14	14	7.2
19	6.7	22	34	62	55	36	6.3	10	12	14	14	6.9
20	6.3	22	34	68	55	32	7.4	e9.2	12	14	14	6.7
21	6.8	22	34	65	55	32	9.9	e8.1	12	14	13	6.7
22	7.3	15	34	47	49	32	11	e8.2	11	14	11	6.7
23	7.3	5.5	21	42	40	27	12	e9.1	9.3	15	10	6.6
24	7.4	6.0	30	56	43	28	12	8.6	9.5	16	8.4	6.5
25	7.4	28	43	64	49	41	12	8.4	9.9	16	7.0	6.5
26	7.6	43	48	64	49	47	16	8.3	10	15	8.6	6.5
27	7.2	33	47	65	58	66	18	8.6	11	13	8.4	6.7
28	6.8	27	49	86	66	63	18	14	13	14	7.3	6.7
29	6.9	27	65	213	74	47	19	14	14	15	9.4	6.8
30	6.5	27	68	228	---	43	13	13	13	16	11	7.4
31	6.7	---	47	195	---	37	---	12	---	15	11	---
TOTAL	225.8	458.2	1,440	2,179	1,672	1,265	400.5	324.3	326.6	418	385.1	241.8
MEAN	7.28	15.3	46.5	70.3	57.7	40.8	13.3	10.5	10.9	13.5	12.4	8.06
MAX	9.1	43	92	228	141	73	36	17	14	16	17	11
MIN	5.2	5.5	21	24	32	26	5.0	6.7	8.4	10	7.0	6.5
AC-FT	448	909	2,860	4,320	3,320	2,510	794	643	648	829	764	480
MEAN†	-11.3	16.8	48.3	72.7	62.2	48.0	29.9	16.0	11.3	4.20	3.72	5.46
CFSN†	-1.64	2.44	6.70	10.5	9.02	6.96	4.33	2.32	1.64	0.61	0.54	0.79
IN.†	-1.89	2.71	8.07	12.2	9.73	8.03	4.84	2.68	1.83	0.70	0.62	0.88
AC-FT†	-694	1,000	2,969	4,472	3,581	2,955	1,779	985	673	258	229	325

CAL YR2003 TOTAL 11,547.6 MEAN 31.6 MAX 225 MIN 5.2 AC-FT 22900 MEAN† 32.1 CFSM† 4.66 IN.† 63.23 AC-FT† 23262  
WTR YR2004 TOTAL 9,336.3 MEAN 25.5 MAX 228 MIN 5.0 AC-FT 18520 MEAN† 25.5 CFSM† 3.70 IN.† 50.36 AC-FT† 18527

e estimated.

† Adjusted for change in contents, in Haskins Creek Reservoir and diversion from McGuire Lake.



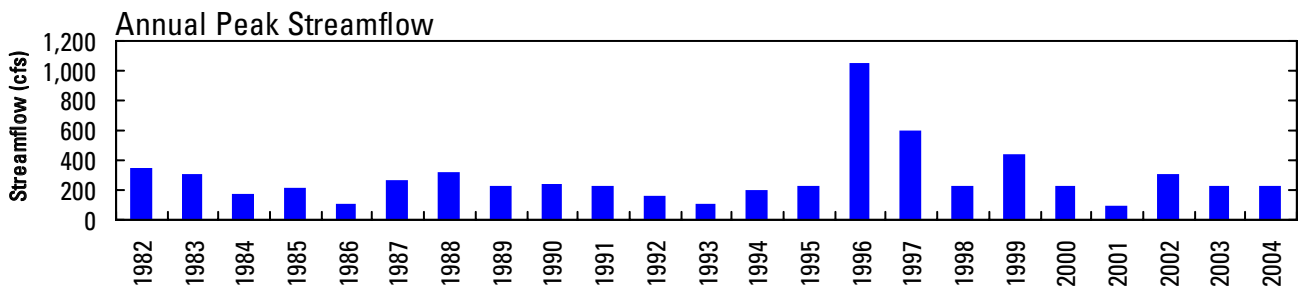
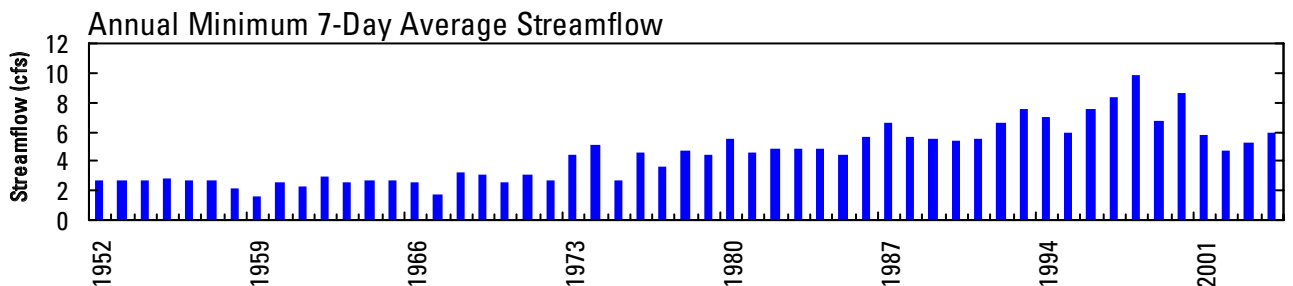
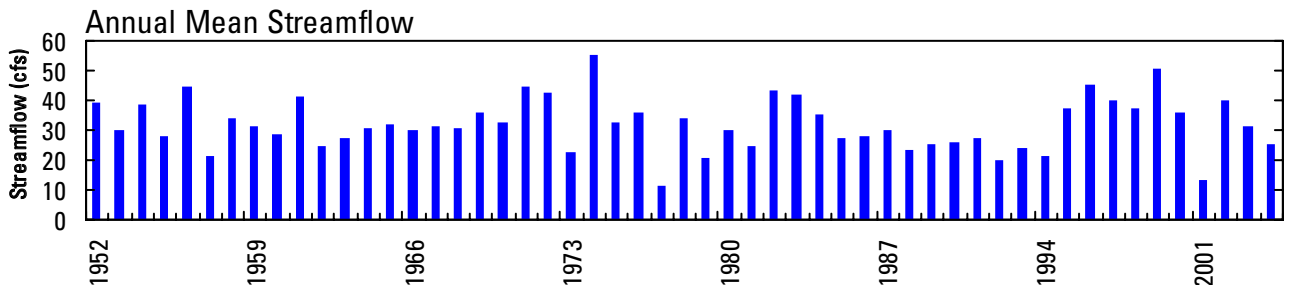
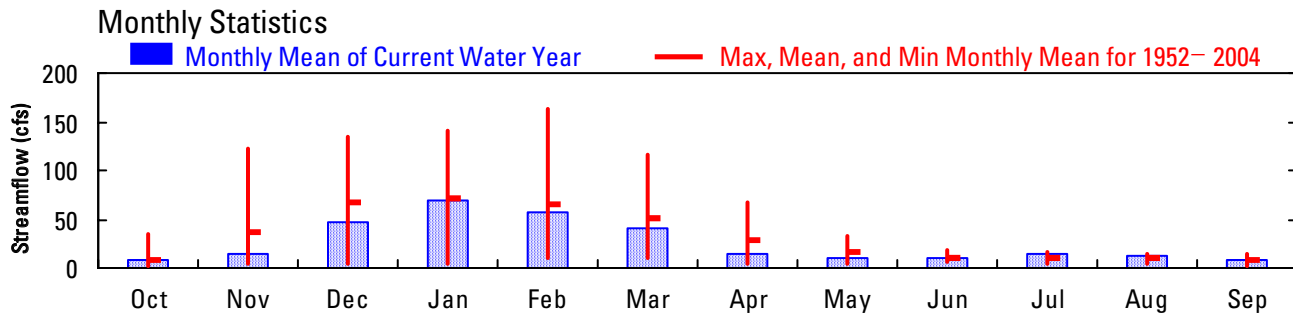
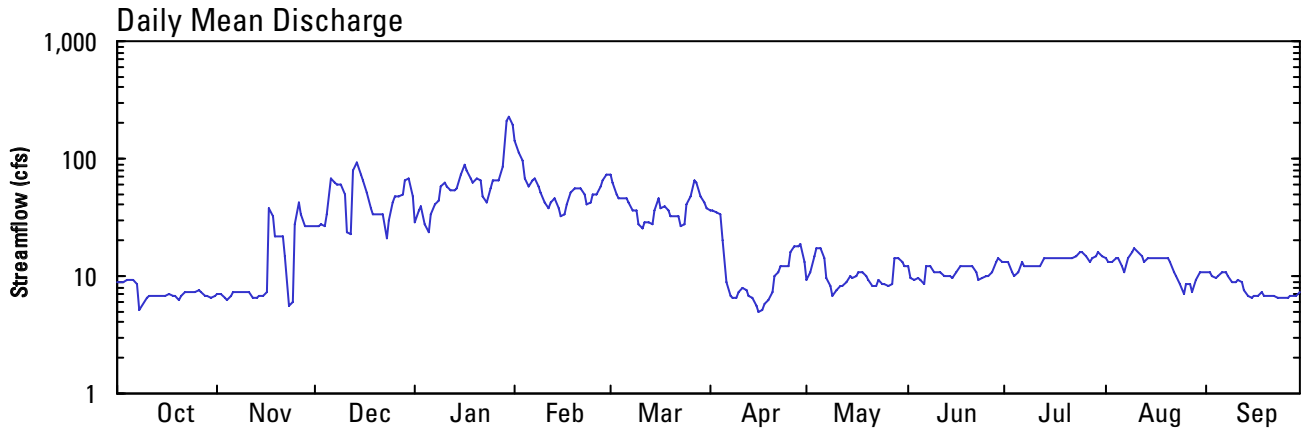
2004 Water Year  
WILLAMETTE RIVER BASIN

14196001 HASKINS CR BLW RESERVOIR, NEAR MCMINNVILLE, OR

Latitude: 45° 18' 40"  
Yamhill County

Longitude: 123° 20' 55"  
Datum: 707.0 feet

Hydrologic Unit Code: 17090008  
Drainage Area: 6.90 square miles





## 14197900 WILLAMETTE RIVER AT NEWBERG, OR

LOCATION.--45°17'05", long 122°57'37", in sec.68, T.3 S., R.2 W., Yamhill County, Hydrologic Unit 17090007, on left bank at Newberg, and at mile 50.

DRAINAGE AREA.--Approximately 8,350 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 2001 to current year.

GAGE.--Acoustic velocity meter with water-stage and velocity-index recorder. Datum of gage is NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good, except those for the period Dec. 28 to Jan. 7, which are fair. Flow regulated by many reservoirs upstream.

Gage pool elevations possibly affected, during summer months, by U. S. Army Corps of Engineers Willamette Falls locks operations. Portland General Electric powerplant and paper mill operations at Willamette Falls.

AVERAGE DISCHARGE.--3 years (2002-04), 23,950 ft<sup>3</sup>/s, 38.98 in./yr, 17,350,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 109,000 ft<sup>3</sup>/s Feb. 2, 2003, gage height, 76.31 ft; minimum daily discharge, 5,490 ft<sup>3</sup>/s July 25, 2004.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 108,000 ft<sup>3</sup>/s Jan. 31, Feb. 1; maximum gage height, 75.20 ft Jan. 31; minimum discharge, 5,490 ft<sup>3</sup>/s July 25.

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	7,410	7,680	34,800	65,000	102,000	34,900	21,300	16,900	22,900	8,010	6,790	7,700
2	7,150	7,540	29,900	60,700	98,400	33,500	21,900	17,200	19,700	7,590	6,990	7,540
3	7,160	7,590	29,100	63,400	86,500	30,500	21,400	17,200	17,100	7,690	6,830	7,960
4	7,220	7,920	31,900	59,700	76,200	28,100	20,700	17,200	15,400	7,600	6,810	7,930
5	7,350	7,610	31,600	52,100	68,200	29,600	20,200	17,300	14,200	7,680	6,770	8,180
6	7,180	7,700	39,600	43,900	60,500	32,000	20,200	17,600	13,600	7,580	6,790	8,300
7	7,780	7,750	47,600	39,800	56,900	32,800	20,800	17,600	14,000	7,190	6,990	8,260
8	7,750	7,880	49,500	47,600	53,500	31,000	20,000	17,600	16,000	7,160	7,160	8,170
9	7,660	7,890	49,200	61,900	49,100	28,600	18,900	17,300	18,100	7,060	7,240	7,890
10	7,710	7,960	44,200	68,000	43,000	26,700	18,400	16,600	20,800	6,990	6,930	7,950
11	7,790	7,790	43,700	68,900	37,000	25,800	17,900	16,500	23,500	7,210	6,690	8,280
12	8,320	8,030	41,900	64,600	33,300	24,800	17,400	16,900	24,100	7,460	6,590	8,290
13	8,610	8,520	45,200	57,800	28,900	23,700	17,300	17,600	22,300	7,350	6,830	8,740
14	8,890	8,500	70,700	55,100	25,700	22,600	17,700	17,600	19,800	7,180	6,650	8,780
15	8,670	8,520	94,200	55,300	23,900	21,600	18,800	16,800	17,300	7,020	6,780	9,960
16	8,520	8,880	94,900	58,700	24,800	20,800	20,200	16,100	15,300	6,840	6,720	10,200
17	8,750	9,900	89,500	58,900	33,000	19,600	19,900	15,600	13,900	6,710	6,770	10,800
18	8,650	13,700	78,900	53,100	46,200	18,000	18,800	15,600	13,000	6,970	6,800	11,100
19	8,510	15,400	70,600	50,600	52,700	17,400	17,600	15,400	12,100	6,960	6,700	13,000
20	8,520	17,100	64,100	50,500	50,300	17,600	18,500	16,500	11,600	6,910	6,460	14,000
21	8,490	17,400	60,400	50,400	43,800	16,500	21,900	16,900	11,100	6,910	6,500	13,400
22	8,470	15,500	57,600	47,300	37,900	15,700	28,400	16,200	10,300	6,690	6,720	12,500
23	8,320	13,600	49,100	43,500	33,400	15,300	29,200	16,300	9,420	6,690	7,110	11,900
24	8,030	12,600	42,600	50,300	29,900	15,000	25,300	16,400	9,400	6,520	8,040	11,500
25	7,890	12,400	44,600	66,500	31,000	15,500	21,700	16,200	9,750	6,280	7,830	11,100
26	8,030	14,000	46,400	69,000	32,000	16,000	19,500	15,500	10,000	6,610	9,050	10,600
27	8,260	15,700	43,200	65,300	32,800	18,400	18,100	15,000	9,650	6,640	10,500	10,400
28	8,170	15,100	45,900	64,200	36,000	21,100	18,300	15,900	9,370	6,580	10,400	10,400
29	8,080	14,900	59,600	75,400	36,000	20,500	17,700	21,400	9,160	6,730	9,300	10,300
30	7,940	28,900	75,000	94,500	---	19,300	17,400	29,500	8,790	6,590	8,660	10,100
31	7,680	---	75,200	103,000	---	19,600	---	27,700	---	6,690	8,270	---
TOTAL	248,960	343,960	1,680,700	1,865,000	1,362,900	712,500	605,400	544,100	441,640	218,090	228,670	295,230
MEAN	8,031	11,470	54,220	60,160	47,000	22,980	20,180	17,550	14,720	7,035	7,376	9,841
MAX	8,890	28,900	94,900	103,000	102,000	34,900	29,200	29,500	24,100	8,010	10,500	14,000
MIN	7,150	7,540	29,100	39,800	23,900	15,000	17,300	15,000	8,790	6,280	6,460	7,540
AC-FT	493,800	682,200	3,334,000	3,699,000	2,703,000	1,413,000	1,201,000	1,079,000	876,000	432,600	453,600	585,600
CFSM	0.96	1.37	6.49	7.20	5.63	2.75	2.42	2.10	1.76	0.84	0.88	1.18
IN.	1.11	1.53	7.49	8.31	6.07	3.17	2.70	2.42	1.97	0.97	1.02	1.32

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2002 - 2004, BY WATER YEAR (WY)

MEAN	8,374	15,090	50,080	55,570	40,930	35,180	30,230	17,790	12,610	6,990	6,855	8,237
MAX	9,480	22,320	68,450	60,160	47,000	48,770	38,950	19,260	14,720	7,364	7,376	9,841
(WY)	(2003)	(2002)	(2002)	(2004)	(2004)	(2003)	(2003)	(2003)	(2004)	(2002)	(2004)	(2004)
MIN	7,610	11,470	27,590	50,720	33,560	22,980	20,180	16,570	11,210	6,571	6,054	7,104
(WY)	(2002)	(2004)	(2003)	(2003)	(2002)	(2004)	(2004)	(2002)	(2003)	(2003)	(2003)	(2003)

## WILLAMETTE RIVER BASIN

14197900 WILLAMETTE RIVER AT NEWBERG, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2002 - 2004	
ANNUAL TOTAL	9,240,700		8,547,150		23,950	
ANNUAL MEAN	25,320		23,350		25,330	
HIGHEST ANNUAL MEAN					23,180	
LOWEST ANNUAL MEAN					107,000	
HIGHEST DAILY MEAN	107,000	Feb 2	103,000	Jan 31	107,000	Feb 2, 2003
LOWEST DAILY MEAN	5,700	Aug 23	6,280	Jul 25	5,700	Aug 23, 2003
ANNUAL SEVEN-DAY MINIMUM	5,980	Aug 10	6,560	Jul 24	5,980	Aug 10, 2003
ANNUAL RUNOFF (AC-FT)	18,330,000		16,950,000		17,350,000	
ANNUAL RUNOFF (CFSM)	3.03		2.80		2.87	
ANNUAL RUNOFF (INCHES)	41.17		38.08		38.98	
10 PERCENT EXCEEDS	58,500		57,100		57,300	
50 PERCENT EXCEEDS	15,800		16,200		15,900	
90 PERCENT EXCEEDS	6,210		6,990		6,800	



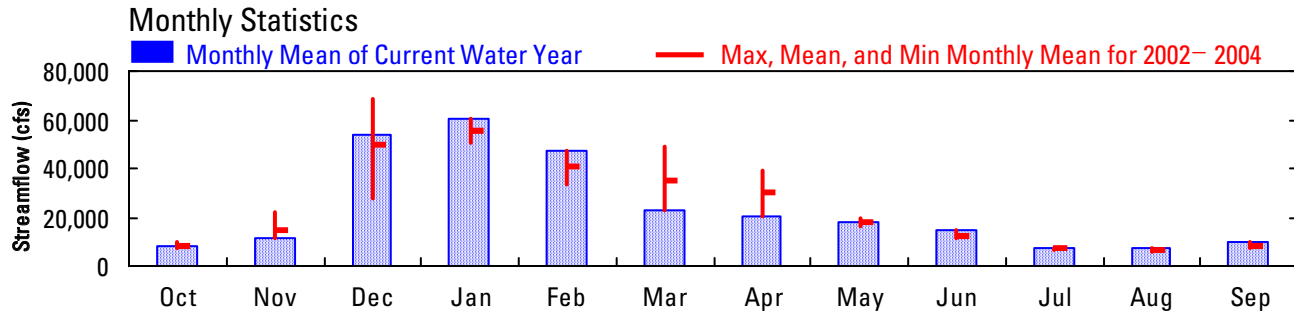
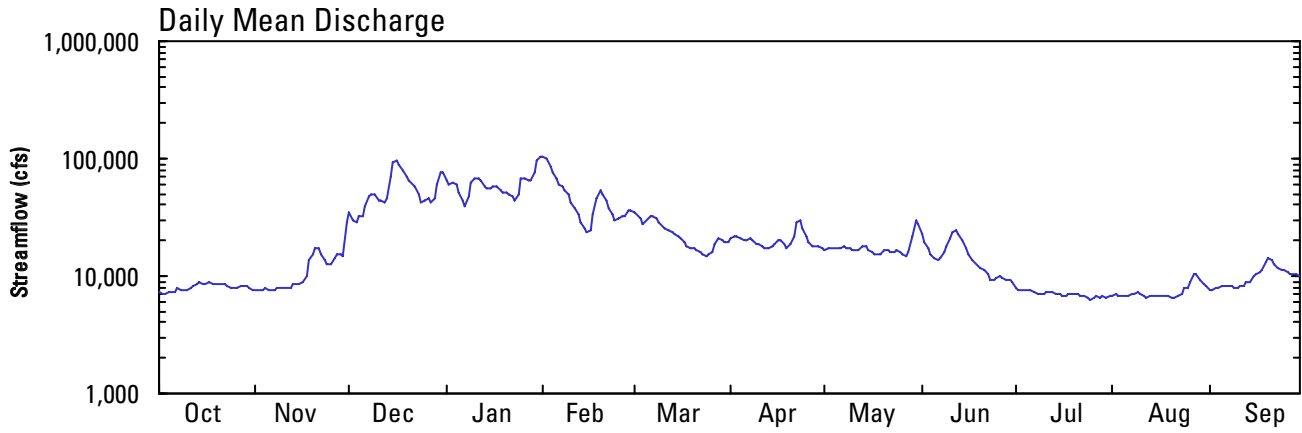
2004 Water Year  
WILLAMETTE RIVER BASIN

14197900 WILLAMETTE RIVER AT NEWBERG, OR

Latitude: 45° 17 ' 05"  
Yamhill County

Longitude: 122° 57 ' 37"  
Datum: 0.0 feet

Hydrologic Unit Code: 17090007  
Drainage Area: 8,350 square miles



## 14197900 WILLAMETTE RIVER AT NEWBERG, OR—Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--October 2001 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--

WATER TEMPERATURE: Records fair.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 25.3°C July 22, 2003; minimum, 3.1°C Jan. 7, 2004.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.1°C July 25; minimum, 3.1°C Jan. 7.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	18.0	17.6	17.9	10.8	9.3	9.9	8.6	8.1	8.4	5.5	5.1	5.3
2	17.8	17.3	17.6	9.4	8.5	9.0	8.9	8.3	8.5	5.4	4.8	5.1
3	17.4	17.0	17.2	8.6	7.9	8.1	9.0	8.6	8.8	5.0	4.6	4.8
4	17.3	16.8	17.0	8.4	8.1	8.3	8.9	8.2	8.5	5.2	4.8	5.1
5	17.0	16.6	16.8	8.4	8.2	8.3	8.6	8.0	8.3	5.2	---	---
6	16.9	16.2	16.5	8.5	8.2	8.3	8.9	8.4	8.6	4.6	3.4	3.9
7	16.7	16.3	16.5	8.7	8.4	8.5	8.7	8.2	8.5	3.6	3.1	3.4
8	16.7	16.4	16.5	9.1	8.6	8.8	8.4	8.0	8.2	4.4	3.4	3.9
9	16.5	16.0	16.2	9.7	8.9	9.2	8.3	8.0	8.2	5.2	4.4	4.8
10	16.1	15.4	15.8	9.7	9.4	9.6	8.1	7.8	7.9	5.9	5.0	5.5
11	15.4	14.2	14.9	10.2	9.5	9.8	8.3	7.8	8.0	6.5	5.6	6.1
12	14.3	13.9	14.1	10.2	9.9	10	8.5	8.0	8.3	6.4	6.0	6.2
13	14.2	13.8	14.0	10.2	9.8	10	8.6	8.3	8.4	6.6	6.0	6.3
14	14.0	13.6	13.8	10.1	9.6	9.9	8.6	7.7	8.3	7.0	6.3	6.7
15	13.9	13.4	13.7	9.8	9.4	9.6	7.8	7.0	7.5	7.4	6.8	7.1
16	13.9	13.6	13.7	10.1	9.6	9.9	7.3	6.9	7.1	7.7	7.2	7.5
17	15.1	13.9	14.3	10.0	9.6	9.8	7.6	7.0	7.3	7.8	7.4	7.6
18	15.3	14.8	15.0	10.2	9.6	9.9	7.7	7.3	7.5	7.6	7.3	7.4
19	15.9	15.3	15.6	10.2	9.8	10.0	7.6	7.0	7.3	8.0	7.3	7.6
20	16.2	15.8	16.0	9.9	9.1	9.4	7.4	6.9	7.2	8.0	7.6	7.8
21	16.9	16.1	16.6	9.2	8.0	8.6	8.0	7.2	7.6	7.8	7.0	7.4
22	17.0	16.7	16.9	8.1	7.2	7.5	8.0	7.7	7.9	7.1	6.6	6.8
23	16.9	16.2	16.6	7.5	7.0	7.1	7.8	7.2	7.5	7.1	6.5	6.8
24	16.4	15.3	15.8	7.5	7.0	7.3	7.5	7.1	7.3	7.5	6.8	7.2
25	15.4	14.3	14.8	7.5	7.1	7.3	7.5	7.1	7.3	7.4	6.9	7.1
26	14.5	13.9	14.1	7.6	7.2	7.4	7.3	6.8	7.1	7.2	6.7	6.9
27	14.0	13.7	13.9	7.5	7.1	7.3	7.0	6.3	6.6	7.1	6.7	6.9
28	14.4	13.8	14.2	7.5	7.1	7.3	6.6	6.3	6.5	7.6	6.8	7.2
29	14.4	13.8	14.1	8.0	7.2	7.6	6.6	5.7	6.2	8.3	7.4	7.8
30	13.9	12.8	13.4	8.6	7.9	8.3	5.8	4.9	5.3	8.3	7.8	8.1
31	12.8	10.8	11.7	---	---	---	5.4	4.8	5.1	8.2	7.1	7.7
MONTH	18.0	10.8	15.3	10.8	7.0	8.7	9.0	4.8	7.6	8.3	---	---

## 14197900 WILLAMETTE RIVER AT NEWBERG, OR—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.4	6.8	7.1	8.9	8.2	8.5	11.4	10.4	10.8	16.2	15.1	15.6
2	7.4	6.7	7.1	9.3	8.3	8.8	11.2	10.0	10.6	16.6	15.4	16.0
3	7.5	7.1	7.3	9.0	8.4	8.7	11.9	10.4	11.1	16.7	15.8	16.3
4	7.9	7.2	7.5	8.8	8.4	8.6	12.4	11.0	11.6	16.7	15.8	16.2
5	7.8	7.4	7.6	8.7	8.2	8.4	12.5	11.6	12.0	16.2	15.4	15.7
6	7.5	7.1	7.3	8.5	8.0	8.3	12.0	11.3	11.7	15.4	14.3	14.8
7	7.6	7.1	7.4	9.5	8.3	8.8	11.8	10.9	11.3	15.1	14.3	14.7
8	7.6	7.0	7.3	10.6	9.2	9.8	12.4	11.0	11.5	14.9	14.2	14.6
9	7.5	6.8	7.2	11.1	10.3	10.6	13.0	11.6	12.2	15.1	13.9	14.5
10	7.2	6.6	6.9	11.0	10.3	10.6	13.6	12.4	12.9	15.1	14.0	14.4
11	7.1	6.4	6.7	10.8	10.0	10.4	14.4	13.1	13.6	14.3	13.7	14.0
12	7.1	6.3	6.8	10.6	9.7	10.2	14.3	13.5	13.9	14.2	13.0	13.5
13	7.0	6.4	6.6	10.6	10.0	10.2	13.9	13.0	13.4	14.4	13.0	13.6
14	6.8	6.3	6.5	10.8	10.2	10.5	13.3	12.1	12.5	15.0	13.7	14.2
15	7.6	6.6	7.0	11.1	10.2	10.6	12.3	11.6	11.9	14.9	14.3	14.6
16	8.1	7.4	7.7	11.3	10.3	10.8	11.9	11.1	11.4	15.0	14.2	14.6
17	8.2	7.8	8.0	11.5	10.8	11.1	12.1	11.2	11.6	15.5	14.3	14.8
18	8.3	7.8	8.1	11.5	10.7	11.1	12.1	11.4	11.8	16.2	15.0	15.5
19	8.8	8.1	8.4	11.0	10.3	10.7	12.1	11.4	11.7	16.1	14.8	15.4
20	8.6	8.0	8.3	10.8	10.0	10.5	11.5	10.8	11.1	15.6	14.7	15.1
21	8.3	7.7	8.0	11.1	10.2	10.6	11.2	10.3	10.7	15.2	14.6	14.9
22	8.3	7.6	7.9	12.0	10.7	11.3	11.5	10.1	10.8	15.3	14.8	15.1
23	8.6	7.8	8.2	12.4	11.5	11.9	11.6	10.6	11.1	15.2	14.6	14.9
24	9.2	8.3	8.7	12.6	12.2	12.4	12.1	11.0	11.5	15.8	14.3	14.9
25	9.0	8.5	8.8	12.6	11.7	12.1	13.0	11.4	12.0	16.6	15.2	15.7
26	8.8	8.2	8.5	11.8	10.4	11.0	14.3	12.5	13.2	16.5	15.7	16.2
27	8.8	8.3	8.5	10.6	9.8	10.1	15.5	13.9	14.5	16.6	15.7	16.1
28	8.9	8.3	8.6	10.7	9.3	10	15.9	14.6	15.2	15.9	15.0	15.4
29	8.7	8.3	8.5	11.7	10.1	10.8	15.6	14.7	15.2	15.4	13.6	14.4
30	---	---	---	11.8	11.1	11.5	15.8	14.6	15.2	13.6	12.5	12.9
31	---	---	---	11.8	11.0	11.4	---	---	---	13.8	12.4	13.0
MONTH	9.2	6.3	7.7	12.6	8.0	10.3	15.9	10.0	12.3	16.7	12.4	14.9
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.2	13.2	13.9	22.0	21.4	21.7	23.9	23.5	23.7	22.1	21.4	21.8
2	16.6	14.7	15.3	22.1	21.4	21.7	23.7	23.2	23.5	21.6	20.4	21.0
3	17.6	16.1	16.7	21.7	21.3	21.5	23.5	22.6	23.1	20.5	19.8	20.1
4	18.4	16.9	17.5	21.5	20.9	21.2	23.1	22.3	22.8	20.1	19.3	19.7
5	18.4	17.9	18.1	21.8	21.4	21.6	22.4	21.7	22.1	19.5	18.8	19.2
6	18.1	17.1	17.6	22.1	21.8	21.9	22.0	20.7	21.4	19.4	19.0	19.2
7	17.4	16.6	16.9	22.1	21.5	21.8	21.0	20.7	20.8	19.6	19.1	19.3
8	16.8	15.4	15.9	21.6	20.7	21.1	21.4	21.0	21.2	19.7	19.3	19.5
9	15.6	14.7	15.2	21.3	20.8	21.1	22.3	21.4	21.9	19.7	19.1	19.4
10	14.9	13.8	14.2	21.0	20.6	20.8	22.8	22.2	22.5	19.1	18.6	18.9
11	14.2	13.2	13.7	20.8	20.3	20.5	23.4	22.8	23.2	19.2	18.9	19.1
12	14.2	13.2	13.7	21.5	20.8	21.1	23.9	23.4	23.7	19.1	18.6	18.8
13	14.9	13.7	14.2	22.3	21.5	22.0	24.0	23.5	23.8	18.8	18.2	18.4
14	15.2	14.1	14.6	23.0	22.3	22.7	23.8	23.3	23.6	18.5	17.8	18.0
15	16.1	14.4	15.2	23.2	22.8	23.0	23.5	23.1	23.3	18.0	17.6	17.8
16	17.5	15.6	16.3	23.3	22.9	23.1	23.4	23.1	23.3	17.8	17.2	17.5
17	18.9	17.2	17.8	23.6	22.8	23.3	23.4	23.0	23.3	17.5	16.9	17.2
18	20.0	18.6	19.1	23.0	22.7	22.8	23.5	23.2	23.3	17.1	15.8	16.5
19	20.7	19.6	20.0	23.4	22.7	23.1	23.4	23.2	23.3	15.8	14.6	15.2
20	21.3	20.3	20.7	23.0	22.6	22.8	23.6	23.2	23.4	14.8	14.1	14.5
21	21.6	20.8	21.2	23.1	22.7	22.8	23.6	22.9	23.3	15.3	14.5	14.8
22	21.7	20.4	21.0	23.3	23.1	23.2	23.1	22.2	22.8	15.7	14.9	15.3
23	20.5	19.2	19.8	23.9	23.3	23.7	22.2	20.9	21.5	16.4	15.4	15.8
24	19.4	18.5	18.8	24.8	23.9	24.5	21.0	19.7	20.4	16.4	15.8	16.2
25	18.6	17.9	18.2	25.1	24.6	25.0	19.8	19.1	19.4	17.1	16.2	16.5
26	20.0	18.5	19.0	24.7	24.1	24.4	19.2	18.8	19.0	17.2	16.7	16.9
27	20.8	19.6	20.0	24.4	23.8	24.0	19.4	18.7	18.9	17.2	16.5	16.9
28	21.2	20.4	20.7	24.1	23.7	23.9	19.8	18.8	19.1	17.3	16.8	17.0
29	21.6	20.8	21.2	24.1	23.7	23.9	20.4	19.6	19.9	17.3	16.7	16.9
30	21.7	20.9	21.4	24.2	23.7	23.9	21.4	20.4	20.7	16.9	16.3	16.6
31	---	---	---	23.9	23.6	23.8	22.0	21.2	21.4	---	---	---
MONTH	21.7	13.2	17.6	25.1	20.3	22.6	24.0	18.7	22.1	22.1	14.1	17.8

## 14198400 BULL CREEK NEAR WILHOIT, OR

LOCATION.--Lat 44°57'42", long 122°22'59", in NW ¼ SE ¼ sec.13, T.7 S., R.3 E., Clackamas County, Hydrologic Unit 17090009, on left bank 0.5 mi upstream from mouth, 11 mi southeast of Wilhoit, and at mile 0.43.

DRAINAGE AREA.--0.66 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1993 to current year.

REVISED RECORDS.--WDR OR-97-1. Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,680 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records poor. No regulation or diversion.

AVERAGE DISCHARGE.--11 years (water years 1994-2004), 2.02 ft<sup>3</sup>/s, 41.51 in/yr, 1,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 250 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 7.55 ft, from rating curve extended above 70 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 0.02 ft<sup>3</sup>/s Sept. 25-28, 1994, Sept. 21-24, 1995, Sept. 28-30, Oct. 1-4, 7-12, 1996, Sept. 15-17, 1998, Oct. 4, 21-23, 1999, Oct. 4-6, 2001, Sept. 2-6, 27-29, 2003.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 18 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec 13	1615	*23	*5.39	Jan 24	1300	19	5.27
Jan 9	1830	21	5.34				

Minimum discharge, 0.03 ft<sup>3</sup>/s, Oct. 1-6, Aug. 16-22.

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	0.03	0.06	2.1	1.9	5.4	3.9	0.95	0.53	1.1	0.30	0.06	0.15
2	0.03	0.07	1.6	1.7	4.1	3.6	0.89	0.47	0.91	0.29	0.06	0.15
3	0.03	0.06	2.3	1.6	3.8	3.1	0.85	0.43	0.77	0.27	0.06	0.10
4	0.03	0.06	2.0	1.5	3.8	2.9	0.80	0.41	0.67	0.26	0.06	0.08
5	0.03	0.06	2.7	1.4	3.8	3.1	0.76	0.38	0.65	0.25	0.07	0.07
6	0.04	0.06	4.8	1.7	3.6	3.2	0.72	0.33	0.68	0.25	0.08	0.07
7	0.06	0.06	3.7	7.7	4.8	2.9	0.65	0.35	0.85	0.27	0.07	0.06
8	0.06	0.06	3.8	14	5.1	2.5	0.60	0.35	3.0	0.24	0.06	0.06
9	0.11	0.06	3.1	19	4.0	2.1	0.56	0.30	4.0	0.22	0.05	0.06
10	0.08	0.06	2.4	17	3.4	1.8	0.52	0.33	3.3	0.21	0.05	0.06
11	0.07	0.10	2.0	11	2.9	1.7	0.47	0.45	3.0	0.19	0.04	0.17
12	0.10	0.08	1.9	9.5	2.5	1.5	0.44	0.34	2.4	0.18	0.04	0.10
13	0.06	0.07	12	7.5	2.2	1.4	0.48	0.29	1.8	0.17	0.04	0.30
14	0.05	0.06	13	5.6	2.0	1.3	0.76	0.27	1.4	0.17	0.04	0.36
15	0.10	0.08	5.8	4.2	1.9	1.2	0.83	0.27	1.2	0.17	0.04	0.32
16	0.07	0.26	3.6	3.5	2.4	1.2	0.84	0.31	1.0	0.16	0.04	0.35
17	0.05	0.43	3.7	3.1	5.1	1.1	0.80	0.27	0.89	0.15	0.04	0.57
18	0.04	0.25	4.1	2.9	9.5	1.1	0.82	0.34	0.80	0.14	0.03	0.98
19	0.05	0.59	4.0	3.1	8.4	1.1	0.91	0.38	0.72	0.14	0.03	1.0
20	0.04	0.49	3.2	3.3	6.0	0.96	1.4	0.38	0.66	0.12	0.03	1.3
21	0.04	0.36	2.6	3.1	4.0	0.90	1.9	0.38	0.62	0.11	0.03	0.97
22	0.05	0.26	2.1	2.6	3.2	0.87	1.9	0.38	0.59	0.09	0.55	0.73
23	0.08	0.27	1.9	4.3	2.6	0.83	1.6	0.41	0.56	0.08	0.21	0.58
24	0.05	0.61	2.1	16	2.2	0.88	1.3	0.39	0.51	0.07	0.17	0.48
25	0.04	0.77	2.9	11	2.0	0.93	1.1	0.37	0.45	0.07	0.37	0.40
26	0.04	0.77	2.7	5.8	2.1	1.1	0.97	0.43	0.41	0.07	0.26	0.34
27	0.04	0.62	2.3	5.3	2.5	1.2	0.83	0.54	0.38	0.07	0.19	0.29
28	0.06	1.1	3.1	8.7	3.9	1.1	0.74	1.0	0.36	0.07	0.14	0.25
29	0.13	4.6	3.7	13	4.0	1.0	0.67	1.9	0.34	0.07	0.11	0.23
30	0.11	3.2	2.6	16	---	1.0	0.60	1.6	0.33	0.07	0.09	0.21
31	0.07	---	2.1	9.8	---	1.00	---	1.3	---	0.07	0.07	---
TOTAL	1.84	15.58	109.9	216.8	111.2	52.47	26.66	15.88	34.35	4.99	3.18	10.79
MEAN	0.06	0.52	3.55	6.99	3.83	1.69	0.89	0.51	1.15	0.16	0.10	0.36
MAX	0.13	4.6	13	19	9.5	3.9	1.9	1.9	4.0	0.30	0.55	1.3
MIN	0.03	0.06	1.6	1.4	1.9	0.83	0.44	0.27	0.33	0.07	0.03	0.06
AC-FT	3.6	31	218	430	221	104	53	31	68	9.9	6.3	21
CFSM	0.09	0.79	5.37	10.6	5.81	2.56	1.35	0.78	1.73	0.24	0.16	0.54
IN.	0.10	0.88	6.19	12.22	6.27	2.96	1.50	0.90	1.94	0.28	0.18	0.61

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

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
MEAN	0.43	2.51	5.02	4.52	4.61	3.05	1.81	1.40	0.58	0.20	0.09	0.11
MAX	1.73	5.85	12.0	6.99	10.8	6.49	3.11	3.63	1.15	0.30	0.10	0.36
(WY)	(1998)	(1997)	(1997)	(2004)	(1996)	(1997)	(1996)	(1998)	(2004)	(1998)	(1999)	(2004)
MIN	0.06	0.13	0.91	0.48	0.53	0.87	0.78	0.32	0.25	0.11	0.05	0.04
(WY)	(2004)	(1994)	(1994)	(2001)	(2001)	(2001)	(2000)	(1994)	(2003)	(2003)	(1994)	(1999)

## 14198400 BULL CREEK NEAR WILHOIT, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1994 - 2004	
ANNUAL TOTAL	622.01		603.64		2.02	
ANNUAL MEAN	1.70		1.65		3.10	
HIGHEST ANNUAL MEAN					0.53	
LOWEST ANNUAL MEAN					100	
HIGHEST DAILY MEAN	38	Mar 8	19	Jan 9	0.02	
LOWEST DAILY MEAN	0.02	Sep 3	0.03	Oct 1	0.02	
ANNUAL SEVEN-DAY MINIMUM	0.02	Aug 31	0.03	Aug 15	0.02	
ANNUAL RUNOFF (AC-FT)	1,230		1,200		1,460	
ANNUAL RUNOFF (CFSM)	2.58		2.50		3.06	
ANNUAL RUNOFF (INCHES)	35.06		34.02		41.51	
10 PERCENT EXCEEDS	3.4		4.0		4.5	
50 PERCENT EXCEEDS	0.62		0.60		0.62	
90 PERCENT EXCEEDS	0.04		0.06		0.06	



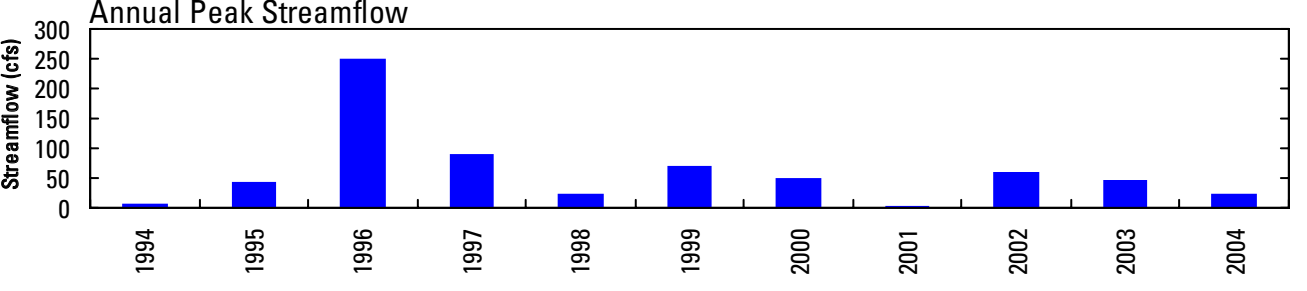
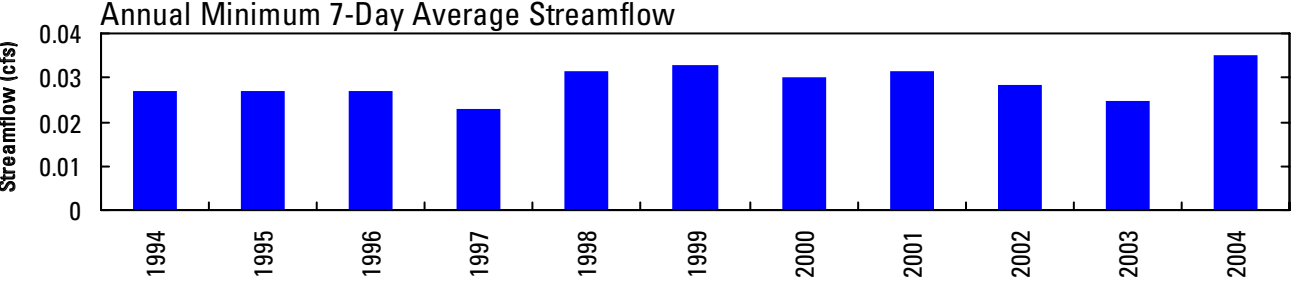
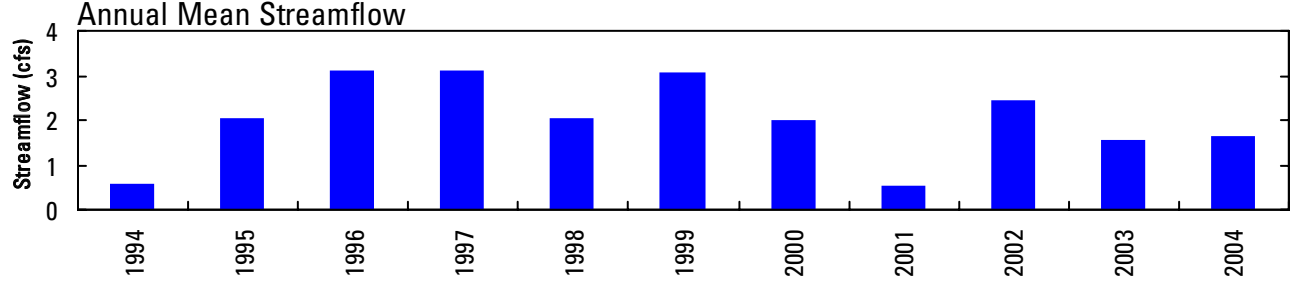
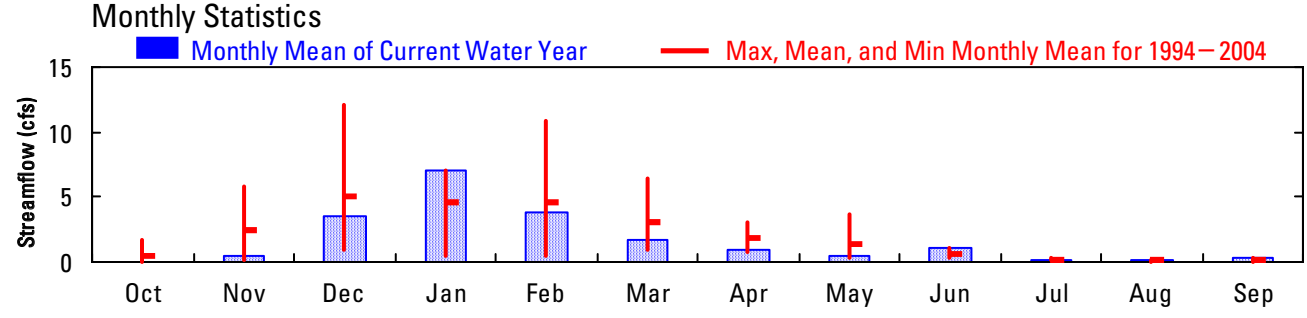
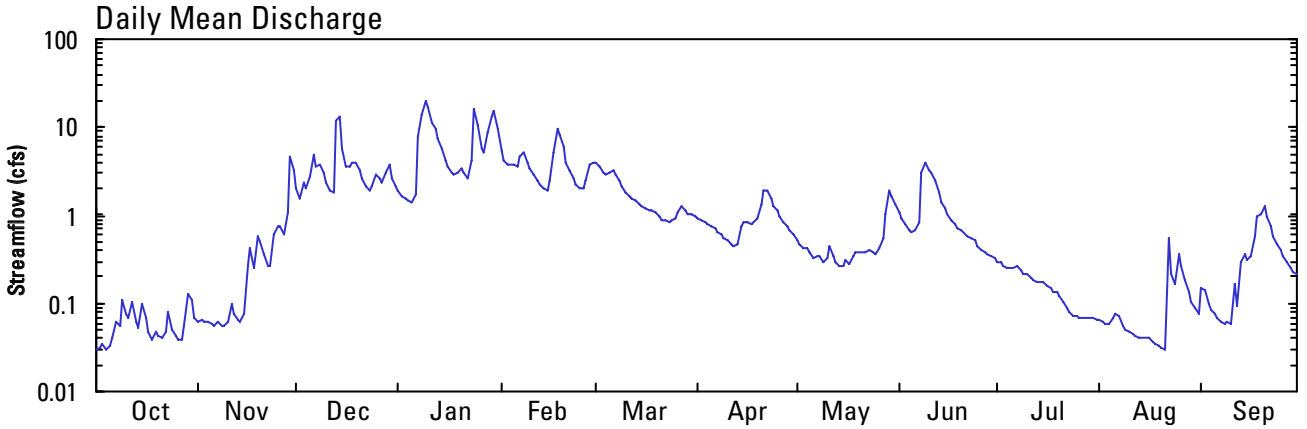
2004 Water Year  
WILLAMETTE RIVER BASIN

14198400 BULL CREEK NEAR WILHOIT, OR

Latitude: 44° 57 ' 42"  
Clackamas County

Longitude: 122° 22 ' 59"  
Datum: 1,680 feet

Hydrologic Unit Code: 17090009  
Drainage Area: 0.66 square miles





## 14199704 NATE CREEK TRIBUTARY NEAR COLTON, OR

LOCATION.--Lat 45°12'19", long 122°24'38", in SW  $\frac{1}{4}$  SW  $\frac{1}{4}$ , sec.23, T.4 S, R.3 E, Clackamas County, Hydrologic Unit 17090009, on left bank at south Unger Road, 0.9 upstream from mouth, 2.5 mi northeast of Colton.

DRAINAGE AREA.--0.61 mi<sup>2</sup>.

PERIOD OF RECORD.--June 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage is 950 ft above NGVD of 1929.

REMARKS.--Records poor.

AVERAGE DISCHARGE.--2 years (water years 2003-04), 1.33 ft<sup>3</sup>/s, 29.58 in/yr, 962 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33 ft<sup>3</sup>/s Feb. 1, 2003, gage height, 3.59 ft, but may have been higher Jan. 31, during period of backwater, when debris clogged culvert, maximum gage height, 5.41 ft Jan. 31, 2003 (backwater from debris clogged culvert); minimum discharge, 0.07 ft<sup>3</sup>/s Oct. 13-15, Dec. 1-5, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10 ft<sup>3</sup>/s Jan. 30, gage height, 2.65 ft; minimum discharge, 0.20 ft<sup>3</sup>/s on several days.

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	0.25	0.35	0.92	2.9	6.1	2.4	0.83	0.51	0.50	0.48	0.29	0.29
2	0.26	0.38	0.83	2.7	5.3	2.2	0.79	0.50	0.50	0.47	0.29	0.26
3	0.26	0.37	1.1	2.6	4.5	2.2	0.80	0.49	0.50	0.46	0.28	0.23
4	0.26	0.38	1.1	2.6	4.4	2.5	0.80	0.50	0.50	0.46	0.27	0.20
5	0.26	0.37	1.9	2.5	4.0	2.5	0.75	0.46	0.50	0.50	0.28	0.22
6	0.28	0.38	2.2	2.6	3.8	2.5	0.74	0.45	0.56	0.50	0.25	0.22
7	e0.33	0.41	1.6	3.4	3.6	2.4	0.71	0.48	0.60	0.50	0.25	0.22
8	e0.42	0.41	1.4	3.7	3.4	2.2	0.71	0.47	1.3	0.49	0.23	0.22
9	e0.40	0.41	1.3	4.4	3.2	2.1	0.64	0.41	1.4	0.47	0.23	0.23
10	e0.65	0.41	1.3	5.0	3.0	1.9	0.65	0.42	1.2	0.45	0.23	0.22
11	e0.47	0.47	1.2	4.8	2.8	1.8	0.64	0.41	1.1	0.41	0.25	0.25
12	e0.44	0.41	1.4	4.3	2.6	1.7	0.64	0.41	0.95	0.41	0.25	0.23
13	e0.58	0.41	4.6	4.0	2.4	1.6	0.64	0.39	0.94	0.43	0.26	0.23
14	e0.37	0.41	7.2	3.9	2.4	1.6	0.64	0.40	0.86	0.41	0.26	0.23
15	e0.34	0.45	5.2	3.9	2.3	1.5	0.65	0.40	0.81	0.41	0.25	0.25
16	e0.50	0.49	4.2	3.8	2.5	1.4	0.61	0.41	0.79	0.41	0.24	0.23
17	e0.31	0.55	3.4	3.7	2.6	1.4	0.58	0.39	0.75	0.40	0.23	0.39
18	e0.27	0.53	2.8	3.8	3.1	1.3	0.58	0.41	0.72	0.39	0.20	0.41
19	e0.34	0.83	2.5	3.8	3.6	1.3	0.57	0.41	0.69	0.38	0.21	0.38
20	e0.30	0.45	2.3	3.8	3.3	1.3	0.59	0.40	0.67	0.37	0.20	0.39
21	e0.29	0.38	2.1	3.6	3.0	1.2	0.63	0.41	0.65	0.37	0.21	0.37
22	e0.32	0.34	1.9	3.4	2.8	1.2	0.63	0.40	0.64	0.34	0.37	0.37
23	e0.46	0.38	1.8	4.3	2.7	1.2	0.64	0.45	0.64	0.33	0.24	0.37
24	e0.34	0.59	1.8	7.1	2.5	1.1	0.58	0.42	0.63	0.33	0.24	0.37
25	e0.31	0.62	2.0	6.1	2.4	1.0	0.59	0.42	0.60	0.33	0.36	0.37
26	e0.28	0.80	1.9	5.3	2.4	0.98	0.59	0.46	0.56	0.30	0.28	0.31
27	e0.28	0.69	1.9	5.1	2.3	0.97	0.59	0.47	0.54	0.29	0.26	0.26
28	e0.34	0.73	2.4	5.7	2.4	0.93	0.55	0.49	0.54	0.29	0.26	0.28
29	e0.75	1.4	3.9	8.4	2.4	0.92	0.54	0.50	0.51	0.29	0.26	0.28
30	e0.65	1.1	3.4	9.3	---	0.93	0.54	0.52	0.50	0.29	0.26	0.26
31	0.37	---	3.1	7.6	---	0.86	---	0.53	---	0.29	0.26	---
TOTAL	11.68	15.90	74.65	138.1	91.8	49.09	19.44	13.79	21.65	12.25	7.95	8.54
MEAN	0.38	0.53	2.41	4.45	3.17	1.58	0.65	0.44	0.72	0.40	0.26	0.28
MAX	0.75	1.4	7.2	9.3	6.1	2.5	0.83	0.53	1.4	0.50	0.37	0.41
MIN	0.25	0.34	0.83	2.5	2.3	0.86	0.54	0.39	0.50	0.29	0.20	0.20
AC-FT	23	32	148	274	182	97	39	27	43	24	16	17
CFSM	0.62	0.87	3.95	7.30	5.19	2.60	1.06	0.73	1.18	0.65	0.42	0.47
IN.	0.71	0.97	4.55	8.42	5.60	2.99	1.19	0.84	1.32	0.75	0.48	0.52

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

MEAN	0.26	0.48	1.49	3.65	3.48	2.77	1.86	0.74	0.54	0.32	0.21	0.23
MAX	0.38	0.53	2.41	4.45	3.81	3.96	3.07	1.03	0.72	0.40	0.26	0.28
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2004)
MIN	0.15	0.43	0.57	2.85	3.17	1.58	0.65	0.44	0.36	0.25	0.17	0.17
(WY)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)

## WILLAMETTE RIVER BASIN

14199704 NATE CREEK TRIBUTARY NEAR COLTON, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2003 - 2004	
ANNUAL TOTAL	572.98		464.84		1.33	
ANNUAL MEAN	1.57		1.27		1.39	
HIGHEST ANNUAL MEAN					2003	
LOWEST ANNUAL MEAN					2004	
HIGHEST DAILY MEAN	32	Feb 1	9.3	Jan 30	32	Feb 1, 2003
LOWEST DAILY MEAN	0.14	Aug 29	0.20	Aug 18	0.07	Oct 14, 2002
ANNUAL SEVEN-DAY MINIMUM	0.14	Aug 29	0.22	Sep 4	0.09	Oct 10, 2002
ANNUAL RUNOFF (AC-FT)	1,140		922		962	
ANNUAL RUNOFF (CFSM)	2.57		2.08		2.18	
ANNUAL RUNOFF (INCHES)	34.94		28.35		29.58	
10 PERCENT EXCEEDS	3.4		3.5		3.3	
50 PERCENT EXCEEDS	0.62		0.55		0.51	
90 PERCENT EXCEEDS	0.17		0.26		0.17	

e Estimated



2004 Water Year  
WILLAMETTE RIVER BASIN

14199704 NATE CREEK TRIBUTARY NEAR COLTON, OR

Latitude: 45° 12' 19"

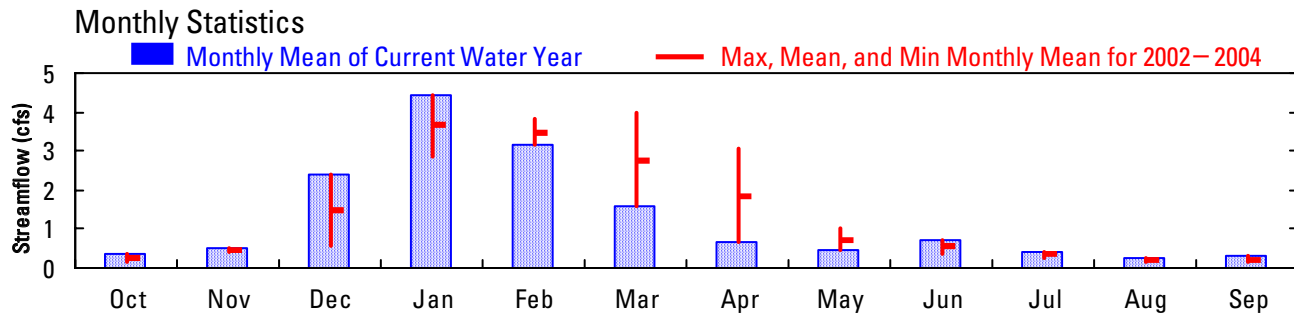
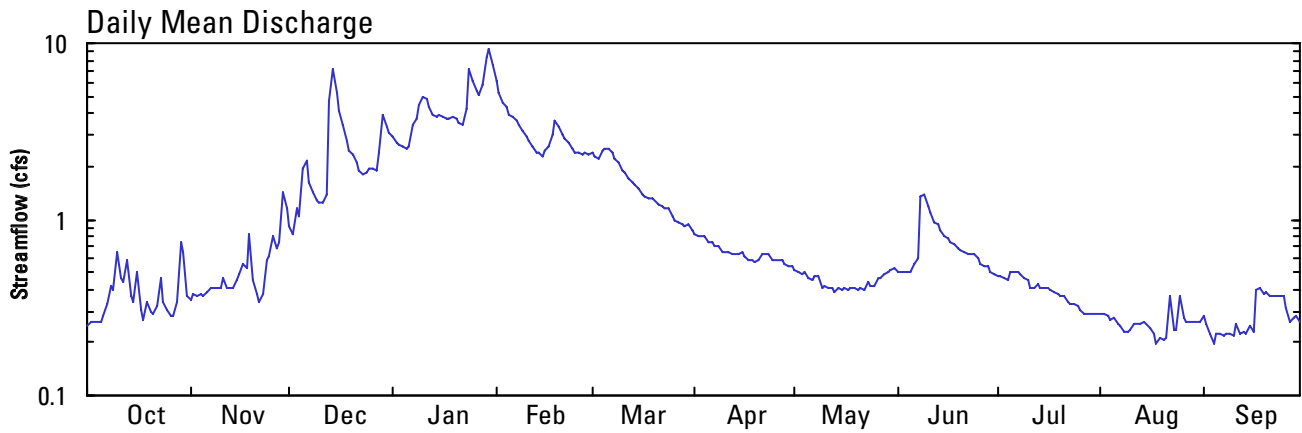
Longitude: 122° 24' 38"

Hydrologic Unit Code: 17090009

Clackamas County

Datum: 950 feet

Drainage Area: 0.61 square miles



14200000 MOLALLA RIVER NEAR CANBY, OR

LOCATION.--Lat 45°14'40", long 122°41'10", in NW ¼ NE ¼ sec.9, T.4 S., R.1 E., Clackamas County, Hydrologic Unit 17090009, on left bank, at upstream side of Goods bridge, 1.5 mi south of Canby, and at mile 6.01.

DRAINAGE AREA.--323 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1928 to September 1959, October 1963 to September 1978, October 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 94 ft above NGVD of 1929. Prior to Oct. 24, 1933 nonrecording gage and Oct. 24, 1933 to Sept. 26, 1955, water-stage recorder at present site and datum 11.00 ft higher. Sept. 27, 1955 to June 3, 1956, water-stage recorder at site 145 ft downstream at datum 10 ft higher. June 4, 1956 to Sept. 30, 1959, water-stage recorder at site 0.3 mi downstream at datum 8.02 ft higher. Oct. 1, 1963 to Sept. 30, 1978, Oct. 1, 2000 to Oct. 31 2001 water-stage recorder at present site and at datum 10 ft higher.

REMARKS.--No estimated daily discharges. Records fair. No regulation. Numerous small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--50 years (water years 1929-59, 1964-78, 2001-04), 1,144 ft<sup>3</sup>/s, 48.11 in/yr, 828,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,600 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 26.76 ft, at current datum; minimum discharge, 20 ft<sup>3</sup>/s Aug. 24, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec 13	2130	*13,000	*18.82	Jan 29	1630	9,790	17.53
Jan 24	1130	8,640	17.04				

Minimum discharge, 39 ft<sup>3</sup>/s, Oct. 1.

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	40	103	1,960	1,640	3,910	1,890	891	544	845	209	89	162
2	42	94	1,550	1,450	3,160	1,700	791	517	701	204	85	177
3	43	91	2,310	1,330	2,660	1,560	730	491	601	202	82	169
4	45	86	1,920	1,230	2,390	1,660	704	464	524	196	82	154
5	45	81	2,470	1,080	2,120	1,780	680	456	483	188	88	143
6	47	79	3,620	1,040	1,960	2,030	646	419	534	179	99	134
7	55	76	2,650	1,940	2,170	1,750	613	389	886	183	100	126
8	65	77	2,110	2,720	2,020	1,610	586	413	1,770	181	99	120
9	61	77	1,680	3,480	1,780	1,640	562	400	2,100	170	86	116
10	111	75	1,410	3,630	1,590	1,560	543	371	1,860	167	77	114
11	118	83	1,180	3,120	1,440	1,360	546	574	1,760	161	75	119
12	129	210	1,380	2,630	1,320	1,240	560	545	1,420	153	73	172
13	190	166	5,490	2,420	1,210	1,150	552	468	1,160	147	72	158
14	139	140	8,140	2,530	1,140	1,060	649	421	1,010	140	72	256
15	120	126	4,190	3,250	1,250	1,000	838	389	844	135	73	264
16	155	153	2,880	3,170	1,480	930	876	400	720	131	71	427
17	139	885	2,600	2,530	2,660	874	854	405	615	127	69	505
18	106	960	2,200	2,310	3,780	860	857	412	530	125	66	1,350
19	98	1,120	1,950	2,650	3,770	926	854	468	468	125	67	1,440
20	96	1,040	1,870	2,680	2,990	832	1,130	456	425	125	66	1,240
21	87	692	1,860	2,210	2,340	766	1,600	423	382	118	65	903
22	82	497	1,720	1,830	1,920	744	1,530	402	354	112	113	661
23	87	384	1,510	2,520	1,630	764	1,300	557	346	107	381	506
24	115	420	1,490	7,470	1,530	826	1,120	611	331	99	211	410
25	98	444	1,790	4,980	1,420	856	951	538	313	96	468	348
26	86	571	1,600	3,400	1,420	922	843	494	286	96	669	306
27	79	491	1,450	2,920	1,640	1,220	796	659	268	94	496	274
28	75	421	1,790	4,150	2,020	1,210	742	1,330	249	97	341	244
29	96	2,810	3,210	8,490	1,880	1,050	662	1,830	233	93	257	223
30	148	2,900	2,380	8,390	---	1,030	590	1,380	220	89	209	211
31	125	---	1,860	5,600	---	1,020	---	1,060	---	88	179	---
TOTAL	2,922	15,352	74,220	98,790	60,600	37,820	24,596	18,286	22,238	4,337	4,980	11,432
MEAN	94.3	512	2,394	3,187	2,090	1,220	820	590	741	140	161	381
MAX	190	2,900	8,140	8,490	3,910	2,030	1,600	1,830	2,100	209	669	1,440
MIN	40	75	1,180	1,040	1,140	744	543	371	220	88	65	114
AC-FT	5,800	30,450	147,200	196,000	120,200	75,020	48,790	36,270	44,110	8,600	9,880	22,680
CFSM	0.29	1.58	7.41	9.87	6.47	3.78	2.54	1.83	2.29	0.43	0.50	1.18
IN.	0.34	1.77	8.55	11.38	6.98	4.36	2.83	2.11	2.56	0.50	0.57	1.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	422	1,436	2,255	2,405	1,897	1,715	1,468	1,083	610	201	103	142
MAX	2,201	3,864	5,835	5,124	4,265	3,559	2,954	2,376	1,687	491	378	555
(WY)	(1948)	(1974)	(1965)	(1953)	(1949)	(1972)	(1937)	(1945)	(1933)	(1952)	(1968)	(1978)
MIN	59.9	52.7	211	303	271	505	383	275	164	73.2	38.1	46.0
(WY)	(1953)	(1937)	(1977)	(1977)	(1977)	(1941)	(1941)	(1931)	(1940)	(2003)	(2003)	(2003)

## 14200000 MOLALLA RIVER NEAR CANBY, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	411,830		375,573		1,144	
ANNUAL MEAN	1,128		1,026		1,822	
HIGHEST ANNUAL MEAN					511	
LOWEST ANNUAL MEAN					1956	
HIGHEST DAILY MEAN	12,500	Feb 1	8,490	Jan 29	34,100	Dec 22, 1964
LOWEST DAILY MEAN	26	Sep 5	40	Oct 1	22	Aug 27, 1959
ANNUAL SEVEN-DAY MINIMUM	28	Aug 31	45	Oct 1	28	Aug 31, 2003
ANNUAL RUNOFF (AC-FT)	816,900		744,900		828,500	
ANNUAL RUNOFF (CFSM)	3.49		3.18		3.54	
ANNUAL RUNOFF (INCHES)	47.43		43.25		48.11	
10 PERCENT EXCEEDS	2,600		2,520		2,650	
50 PERCENT EXCEEDS	609		561		680	
90 PERCENT EXCEEDS	42		86		80	



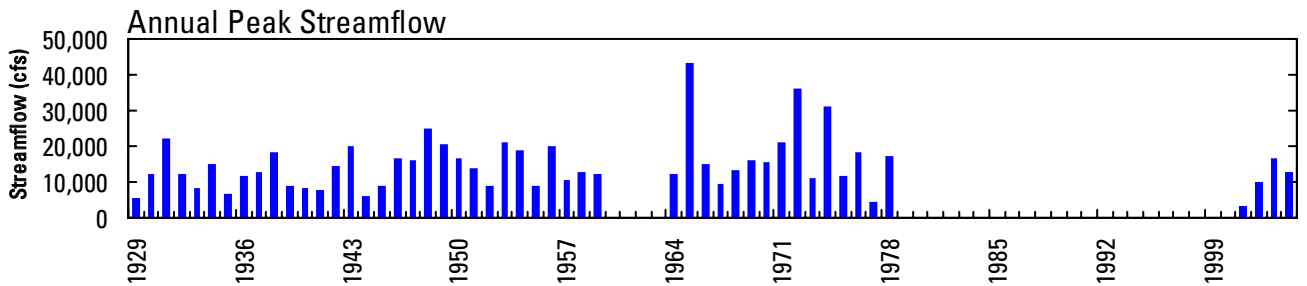
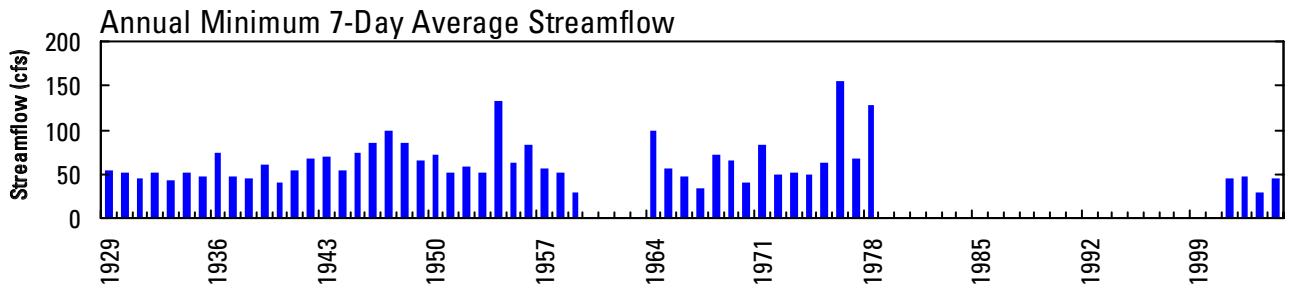
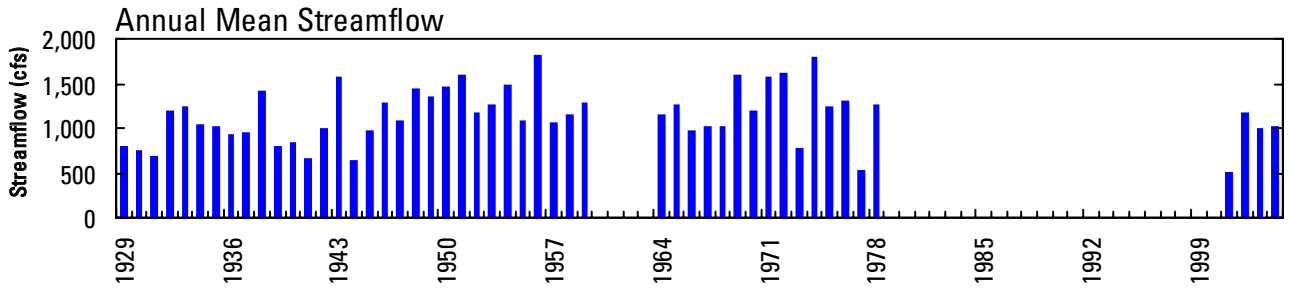
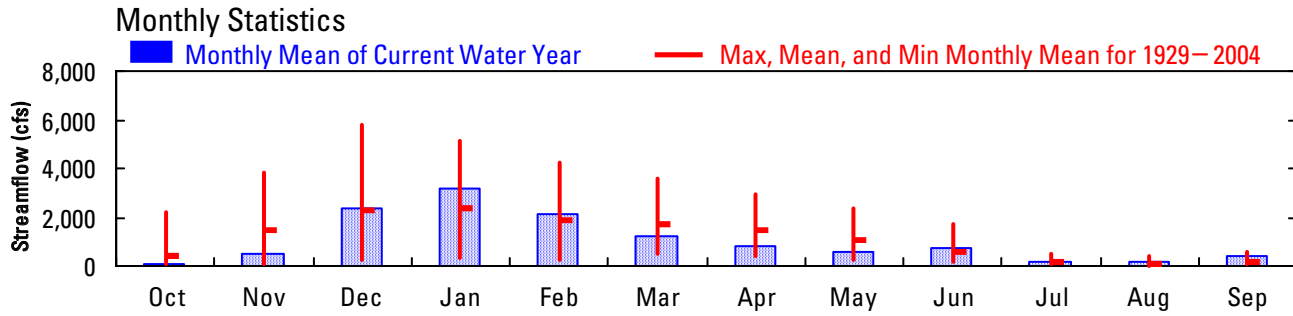
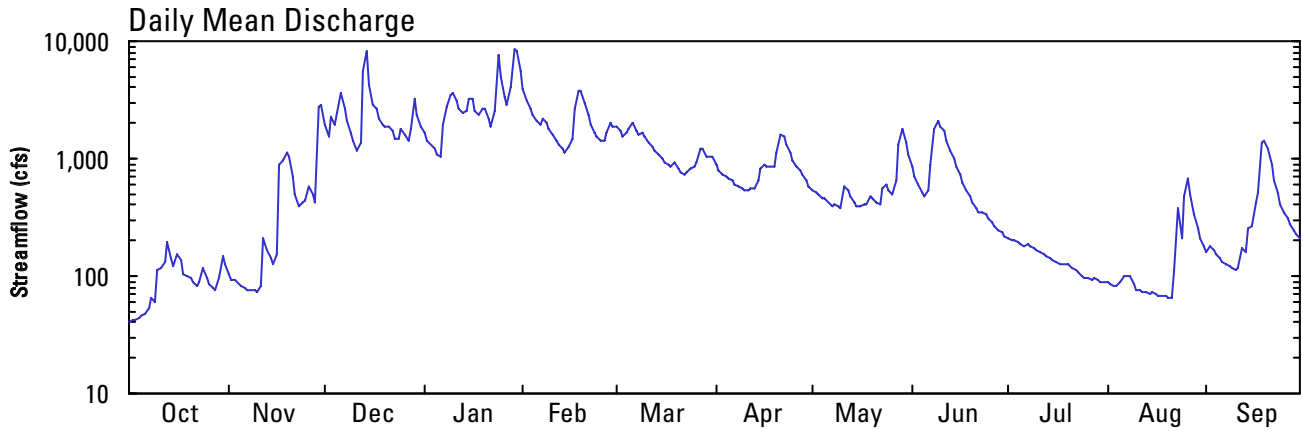
2004 Water Year  
WILLAMETTE RIVER BASIN

14200000 MOLALLA RIVER NEAR CANBY, OR

Latitude: 45° 14 ' 40"  
Clackamas County

Longitude: 122° 41 ' 10"  
Datum: 94.00 feet

Hydrologic Unit Code: 17090009  
Drainage Area: 323 square miles



## 14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR

LOCATION.--Lat 44°57'21", long 122°37'38", in SW ¼ SE ¼ sec.13, T.7 S., R.1 E, Marion County, Hydrologic Unit 17090009, on left bank, 4 mi south of Scotts Mills, and 0.1 mi upstream from mouth.

DRAINAGE AREA.--9.81 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1993 to September 2004 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 800 ft above NGVD of 1929, from topographic map.

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

AVERAGE DISCHARGE.--11 years (water years 1994-2004), 37.0 ft<sup>3</sup>/s, 51.18 in/yr, 26,770 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,500 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 6.19 ft from rating curve extended above 340 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow, maximum gage height, 6.57 ft Feb. 7, 1996, from crest-stage gage; minimum discharge, 1.3 ft<sup>3</sup>/s Sept. 26, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec 13	1600	*444	*4.42	Jan 29	0800	417	4.35

Minimum discharge, 2.0 ft<sup>3</sup>/s, Oct 1-6.

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	2.0	3.1	36	87	175	63	17	e17	16	9.3	3.3	4.6
2	2.0	3.2	28	69	141	e56	16	e15	14	9.0	3.2	5.1
3	2.1	3.3	41	60	113	e58	15	e14	13	8.8	3.1	4.3
4	2.1	3.1	32	53	95	e60	14	14	12	8.4	3.2	3.7
5	2.0	3.0	59	45	75	e62	14	14	13	7.8	3.6	3.4
6	2.2	2.9	69	49	78	e62	14	13	19	7.4	4.2	3.2
7	3.4	3.0	64	89	82	e63	13	12	21	7.6	4.5	3.1
8	2.9	3.1	57	122	71	59	12	14	53	7.2	3.4	2.9
9	4.5	3.0	53	159	65	52	12	13	51	7.0	3.0	2.9
10	3.7	3.1	51	158	61	45	11	13	61	6.8	2.8	3.0
11	3.2	8.3	42	135	55	40	11	16	53	6.3	2.7	6.2
12	4.7	4.7	52	112	48	36	10	12	45	6.0	2.7	4.6
13	3.6	3.5	226	96	42	31	10	11	47	7.1	2.6	9.8
14	3.1	3.1	218	94	39	28	14	10	40	6.0	2.6	9.2
15	4.5	3.9	143	96	37	25	17	10	33	5.6	2.5	7.7
16	4.5	11	118	79	49	23	17	11	28	5.3	2.5	7.4
17	3.0	13	108	68	54	22	16	9.6	25	5.2	2.4	20
18	2.6	15	90	72	73	23	15	9.9	22	5.0	2.4	34
19	3.1	26	76	69	74	23	18	9.6	20	5.2	2.4	22
20	3.0	18	64	61	67	19	37	8.9	18	4.9	2.3	17
21	2.7	13	56	55	62	17	60	8.6	17	4.7	2.3	12
22	2.9	10	48	49	56	16	52	9.3	16	4.4	17	10
23	5.1	8.7	42	103	51	15	42	9.7	16	4.1	7.3	9.0
24	3.2	20	49	205	52	19	35	8.3	15	3.8	6.3	8.1
25	2.9	29	62	152	47	19	31	7.4	14	3.7	15	7.5
26	2.7	32	53	126	49	26	27	8.6	12	3.6	10	7.0
27	2.6	25	59	122	58	25	24	13	11	3.6	7.1	6.5
28	2.7	22	136	171	69	20	22	28	11	3.5	5.1	5.9
29	4.3	81	179	330	64	19	e21	28	10	3.4	4.3	5.7
30	4.6	49	124	327	---	21	e19	21	9.9	3.3	3.8	5.6
31	3.2	---	102	235	---	19	---	18	---	3.3	3.4	---
TOTAL	99.1	427.0	2,537	3,648	2,002	1,066	636	406.9	735.9	177.3	141.0	251.4
MEAN	3.20	14.2	81.8	118	69.0	34.4	21.2	13.1	24.5	5.72	4.55	8.38
MAX	5.1	81	226	330	175	63	60	28	61	9.3	17	34
MIN	2.0	2.9	28	45	37	15	10	7.4	9.9	3.3	2.3	2.9
AC-FT	197	847	5,030	7,240	3,970	2,110	1,260	807	1,460	352	280	499
CFSM	0.33	1.45	8.34	12.0	7.04	3.51	2.16	1.34	2.50	0.58	0.46	0.85
IN.	0.38	1.62	9.62	13.83	7.59	4.04	2.41	1.54	2.79	0.67	0.53	0.95

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

MEAN	12.5	43.7	79.7	78.1	76.3	58.7	40.5	28.1	14.5	5.81	3.47	4.02
MAX	43.0	89.1	141	118	143	96.0	70.8	46.1	24.5	7.34	4.61	8.38
(WY)	(1998)	(1996)	(1997)	(2004)	(1996)	(2003)	(2003)	(1998)	(2004)	(1999)	(1999)	(2004)
MIN	2.33	5.09	27.4	23.1	21.6	29.3	20.1	12.7	7.66	3.32	2.15	2.08
(WY)	(2003)	(1994)	(1994)	(2001)	(2001)	(2001)	(2000)	(1994)	(2003)	(2003)	(2003)	(2002)

## WILLAMETTE RIVER BASIN

14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1994 - 2004	
ANNUAL TOTAL	14,272.3		12,127.6			
ANNUAL MEAN	39.1		33.1		37.0	
HIGHEST ANNUAL MEAN					50.5	1996
LOWEST ANNUAL MEAN					18.1	2001
HIGHEST DAILY MEAN	424	Feb 1	330	Jan 29	850	Feb 7, 1996
LOWEST DAILY MEAN	1.6	Sep 5	2.0	Oct 1	1.4	Sep 26, 2002
ANNUAL SEVEN-DAY MINIMUM	1.7	Aug 31	2.3	Oct 1	1.5	Sep 22, 2002
ANNUAL RUNOFF (AC-FT)	28,310		24,060		26,770	
ANNUAL RUNOFF (CFSM)	3.99		3.38		3.77	
ANNUAL RUNOFF (INCHES)	54.12		45.99		51.18	
10 PERCENT EXCEEDS	98		78		94	
50 PERCENT EXCEEDS	18		15		19	
90 PERCENT EXCEEDS	2.1		3.1		3.0	

e Estimated





2004 Water Year  
WILLAMETTE RIVER BASIN

14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR

Latitude: 44° 57 ' 21"

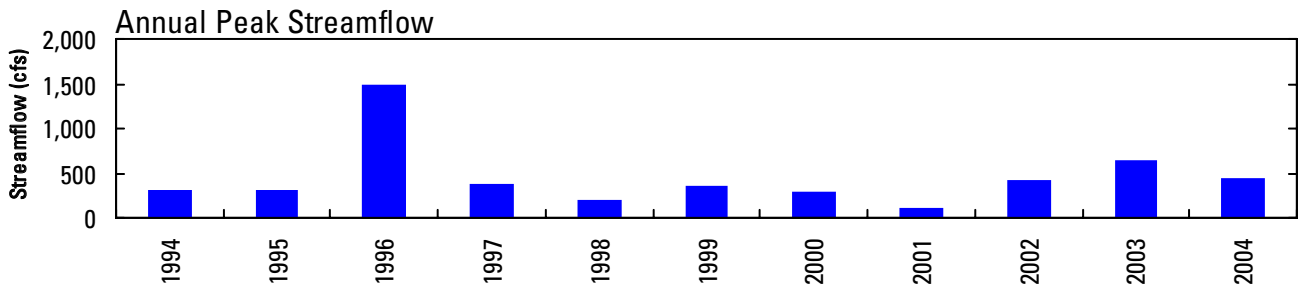
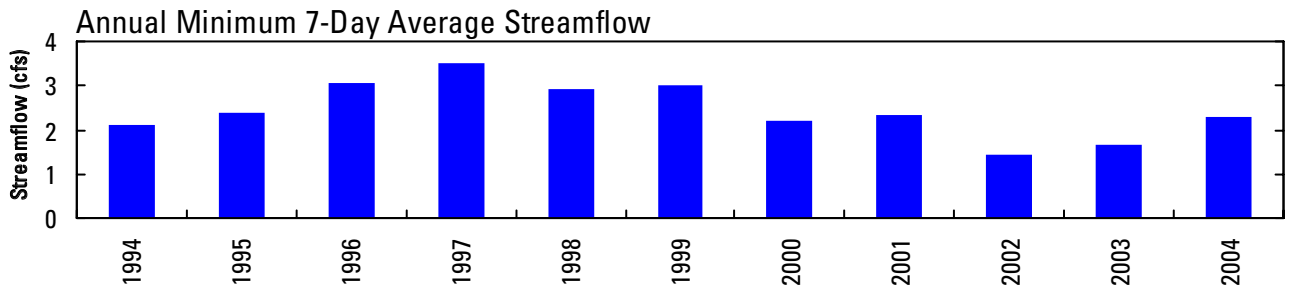
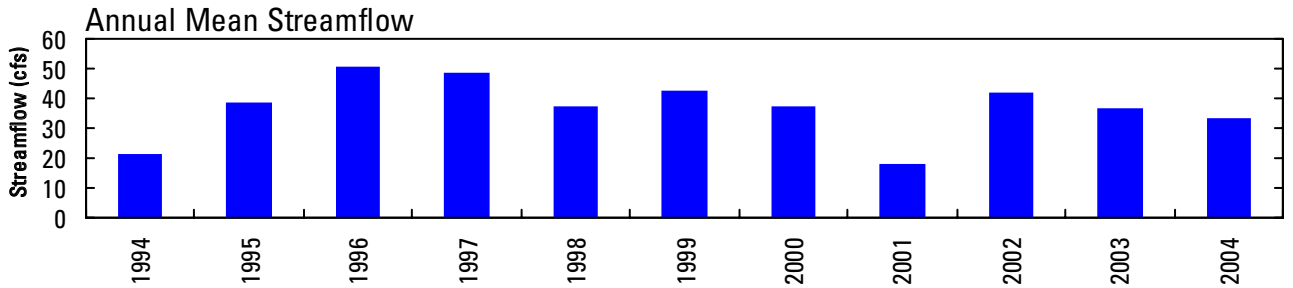
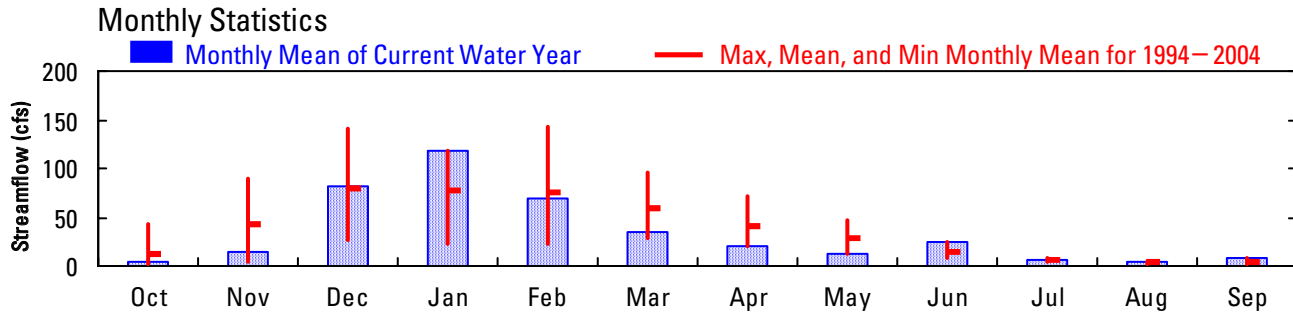
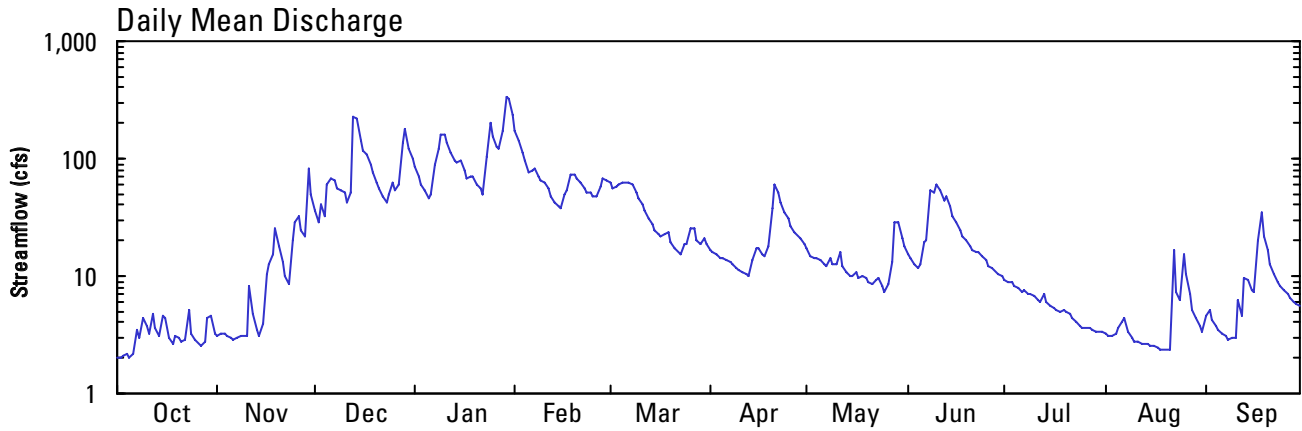
Longitude: 122° 37 ' 38"

Hydrologic Unit Code: 17090009

Marion County

Datum: 800 feet

Drainage Area: 9.81 square miles



## 14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR—Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1993 to September 1997, January 2002 to September 2004 (discontinued).

WATER TEMPERATURE: July 1993 to September 2004 (discontinued).

INSTRUMENTATION.--Water-quality monitor.

## REMARKS.--

SPECIFIC CONDUCTANCE: Records fair.

WATER TEMPERATURE: Records excellent except those for the period June 21-23, which are fair.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 94 microsiemens Jan. 10, 2004; minimum recorded, 8 microsiemens Feb. 5-7, 1996.

WATER TEMPERATURE: Maximum, 19.0°C July 23, 1994; minimum, 0.0°C Nov. 24-26, 1993.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 94 microsiemens Jan. 10, but may have been greater during periods of missing record; minimum, 20 microsiemens Jan. 29, but may have been less during periods of missing record.

WATER TEMPERATURE: Maximum, 18.2°C July 24; minimum, 3.1°C Jan. 6.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	56	54	55	49	48	49	37	35	36	70	64	67
2	56	54	55	49	48	49	37	36	37	70	68	69
3	56	54	55	49	48	48	40	35	37	71	69	70
4	58	53	54	49	48	48	41	29	35	73	71	72
5	59	53	54	49	48	48	30	29	30	72	70	71
6	56	53	54	49	48	49	30	29	30	75	66	71
7	57	53	54	50	48	49	30	27	28	75	65	70
8	57	53	54	50	48	49	28	28	28	80	75	76
9	---	---	---	50	49	50	28	27	28	81	74	76
10	---	---	---	50	49	50	28	27	28	94	60	84
11	---	---	---	50	44	46	29	28	28	66	60	63
12	---	---	---	48	46	47	28	27	28	77	64	70
13	---	---	---	49	48	48	63	25	28	83	75	80
14	---	---	---	49	48	49	28	27	27	85	81	83
15	---	---	---	50	47	49	27	27	27	84	78	82
16	---	---	---	47	42	45	27	26	27	84	74	79
17	---	---	---	45	42	44	28	26	27	86	80	83
18	---	---	---	45	41	43	31	27	27	83	77	80
19	---	---	---	44	40	43	33	29	29	86	80	82
20	---	---	---	43	41	42	30	29	29	86	72	76
21	---	---	---	42	41	42	31	30	30	80	70	75
22	---	---	---	42	41	41	31	30	30	84	78	80
23	---	---	---	41	39	41	31	30	31	86	60	80
24	---	---	---	39	36	37	31	29	30	68	29	52
25	---	---	---	38	35	36	31	29	30	38	25	29
26	---	---	---	36	35	36	33	31	32	25	25	25
27	---	---	---	35	34	35	33	31	32	26	24	25
28	---	---	---	35	32	34	69	30	45	24	22	23
29	---	---	---	34	30	33	72	28	42	23	20	22
30	---	---	---	35	34	34	54	42	48	24	22	23
31	49	48	49	---	---	---	64	54	58	---	---	---
MONTH	---	---	---	50	30	44	72	25	32	---	---	---

## 14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	29	27	28	34	32	33	34	32	33
2	---	---	---	29	28	28	34	32	33	35	33	34
3	---	---	---	29	28	28	35	33	34	35	34	34
4	---	---	---	28	26	27	35	33	34	35	33	34
5	---	---	---	28	25	27	35	33	34	35	34	34
6	---	---	---	28	26	27	35	33	35	36	34	35
7	---	---	---	28	27	28	35	34	35	36	35	36
8	---	---	---	29	28	28	36	34	35	36	34	35
9	---	---	---	29	28	29	36	34	35	36	35	35
10	---	---	---	30	28	29	37	35	36	36	35	36
11	29	28	28	30	29	29	37	35	36	35	33	34
12	29	28	29	31	29	30	37	35	36	36	35	35
13	30	29	29	31	30	30	37	35	36	37	36	36
14	30	29	29	32	30	31	36	33	34	38	37	37
15	30	29	29	32	30	31	33	32	33	38	37	38
16	30	27	28	32	31	31	34	32	33	38	36	37
17	29	27	28	32	31	32	34	32	33	38	37	37
18	28	27	27	32	31	32	34	33	34	39	37	38
19	28	27	28	32	31	32	33	31	32	37	36	37
20	28	27	28	34	32	32	31	28	29	38	36	37
21	29	28	28	34	33	33	29	28	28	38	36	37
22	29	28	28	35	33	34	30	29	29	38	36	37
23	29	28	29	35	34	34	30	29	30	37	35	36
24	29	28	28	35	32	33	30	29	30	38	36	37
25	29	28	29	34	32	33	31	30	30	39	37	38
26	29	28	29	32	30	31	32	30	31	40	36	38
27	29	26	28	33	31	31	32	31	32	36	32	35
28	28	26	28	33	32	32	32	31	32	32	28	31
29	29	27	28	34	32	33	33	31	32	31	29	30
30	---	---	---	34	31	32	34	32	33	31	30	31
31	---	---	---	33	32	33	---	---	---	32	30	31
MONTH	---	---	---	35	25	31	37	28	33	40	28	35
	JUNE			JULY			AUGUST			SEPTEMBER		
1	32	31	32	46	43	44	56	54	55	50	43	48
2	33	31	32	48	45	46	56	54	55	46	44	45
3	34	32	33	48	46	47	55	52	54	47	46	46
4	34	33	34	48	45	46	56	53	54	50	47	48
5	34	32	33	51	48	48	56	53	55	50	48	49
6	34	30	32	52	48	50	56	54	56	50	49	49
7	32	30	31	50	48	49	56	54	55	50	49	50
8	31	28	30	51	49	50	56	55	56	51	49	50
9	30	29	30	52	50	51	56	50	53	52	50	51
10	30	28	28	51	49	50	51	50	51	52	50	51
11	30	28	29	51	47	49	52	50	51	52	45	49
12	30	29	29	50	46	48	52	51	52	49	47	48
13	30	28	29	48	45	46	53	51	52	49	40	45
14	30	29	29	49	46	47	53	51	52	45	43	44
15	31	30	30	51	49	49	53	51	52	45	42	43
16	32	30	31	51	48	50	54	52	53	44	42	43
17	33	31	32	51	49	50	55	52	53	44	35	38
18	33	32	32	53	50	51	54	52	53	36	34	36
19	34	32	33	53	48	50	54	52	54	35	34	34
20	34	32	33	52	50	51	54	53	54	35	34	34
21	---	---	---	53	50	52	56	53	54	36	34	35
22	---	---	---	53	50	51	56	43	49	37	35	36
23	---	---	---	53	50	52	48	45	47	38	36	37
24	37	36	36	56	53	54	49	47	48	39	37	38
25	38	36	37	56	51	54	47	40	44	39	38	39
26	39	37	38	54	50	52	44	41	43	40	38	39
27	40	38	39	54	46	51	46	44	44	41	39	40
28	42	39	40	51	49	50	47	45	46	42	40	40
29	43	41	42	53	50	51	48	46	47	42	40	41
30	44	42	43	54	52	53	50	48	48	42	40	41
31	---	---	---	54	53	54	50	49	49	---	---	---
MONTH	---	---	---	56	43	50	56	40	51	52	34	43

## 14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR—Continued

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	13.2	11.5	12.3	5.5	4.0	4.8	8.8	7.8	8.2	6.2	4.7	5.5
2	12.7	12.0	12.4	5.8	5.0	5.4	9.3	8.1	8.8	5.9	5.4	5.7
3	13.3	12.1	12.6	5.3	4.2	4.7	9.1	6.3	7.4	5.7	4.8	5.4
4	12.5	11.6	12.2	6.0	4.3	5.1	8.7	6.2	7.5	5.4	4.8	5.1
5	12.8	12.0	12.4	5.6	4.0	4.8	8.8	8.5	8.7	4.8	3.6	4.1
6	13.3	11.6	12.3	5.7	4.3	5.1	8.8	6.9	7.7	4.5	3.1	3.7
7	13.4	12.2	12.9	6.9	5.6	6.3	7.6	6.9	7.4	5.7	4.5	5.2
8	12.2	11.3	11.8	6.9	6.0	6.5	8.0	6.7	7.6	6.4	5.7	6.1
9	11.5	10.4	11.0	7.2	6.3	6.8	7.6	6.6	7.1	6.8	6.2	6.5
10	11.2	10.1	10.6	7.8	6.8	7.3	8.0	7.3	7.5	7.2	6.5	6.8
11	10.6	9.8	10.2	8.6	7.5	8.1	7.9	7.2	7.5	7.3	6.2	6.6
12	10.9	10.1	10.5	7.5	6.0	6.6	8.3	7.6	7.9	7.2	6.2	6.6
13	10.4	9.1	9.9	6.3	5.2	5.8	8.8	6.9	8.0	7.6	6.7	7.1
14	10.9	9.8	10.3	7.8	6.2	7.1	7.3	6.5	7.0	8.0	7.1	7.5
15	10.0	9.2	9.6	8.0	7.3	7.6	7.6	6.8	7.1	8.2	7.6	7.8
16	11.4	9.9	10.6	7.7	7.3	7.5	7.6	6.8	7.2	7.8	6.4	7.2
17	12.8	11.1	11.9	8.0	7.4	7.6	8.0	6.9	7.4	7.8	6.4	7.2
18	11.9	10.4	11.1	9.2	8.0	8.8	7.2	6.5	6.7	8.1	7.3	7.7
19	12.2	11.1	11.6	9.2	5.7	7.3	7.9	6.4	7.2	8.2	7.1	7.7
20	14.0	11.8	12.9	5.9	5.6	5.7	8.6	7.8	8.1	7.1	5.8	6.4
21	14.0	12.9	13.5	5.6	4.9	5.3	8.8	7.1	8.2	6.3	5.3	5.8
22	13.9	12.9	13.4	4.9	4.2	4.5	7.4	6.4	6.8	6.7	5.2	5.8
23	12.9	10.4	11.5	5.6	4.4	5.0	7.8	6.2	7.0	7.8	6.7	7.5
24	10.4	8.6	9.5	5.8	5.1	5.4	8.0	6.8	7.5	7.8	6.3	7.0
25	10.1	8.4	9.3	5.9	5.1	5.5	6.8	5.8	6.4	7.0	6.2	6.6
26	10.5	8.9	9.7	6.6	5.6	6.1	6.4	5.8	6.1	7.4	6.7	7.0
27	10.9	9.3	10.1	6.2	5.0	5.6	6.2	5.7	5.9	8.0	7.0	7.5
28	12.0	10.6	11.3	7.7	6.1	7.0	6.8	6.2	6.5	7.9	7.3	7.6
29	11.3	8.9	9.9	8.2	7.7	7.9	6.7	5.6	6.0	8.4	7.9	8.2
30	8.9	6.4	8.0	8.2	7.4	7.8	6.2	5.3	5.8	8.3	6.8	7.2
31	6.4	4.9	5.7	---	---	---	6.5	5.9	6.1	7.3	6.7	6.9
MONTH	14.0	4.9	11.0	9.2	4.0	6.3	9.3	5.3	7.2	8.4	3.1	6.5
	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	7.4	6.3	6.9	8.5	6.6	7.5	9.3	5.7	7.2	12.8	9.6	11.2
2	8.1	7.3	7.7	8.2	6.1	7.0	10.3	5.4	7.7	13.1	9.7	11.4
3	8.1	7.2	7.6	6.9	5.8	6.3	11.9	7.4	9.4	13.1	10.2	11.6
4	7.8	6.9	7.4	7.6	6.7	7.1	11.1	7.4	9.1	11.7	10.5	11.0
5	7.7	6.0	6.8	7.5	6.6	6.9	9.2	7.6	8.4	11.5	9.6	10.5
6	7.7	7.0	7.3	8.1	6.2	7.2	10.6	8.0	9.1	11.4	8.8	10.3
7	7.4	6.6	7.0	10.1	7.8	8.7	10.4	7.9	9.1	11.6	10.5	11.1
8	7.2	6.2	6.7	10.3	7.2	8.5	11.6	8.0	9.6	11.4	9.7	10.6
9	6.7	5.7	6.1	9.5	7.6	8.7	11.8	7.1	9.3	11.0	9.2	10.2
10	6.8	5.3	5.9	9.1	6.0	7.4	12.6	7.8	10.2	10.1	9.3	9.7
11	7.3	5.5	6.2	9.7	6.3	7.8	13.2	8.9	11.0	10.5	9.0	9.7
12	6.7	5.0	5.7	9.6	6.7	7.9	11.5	9.2	10.5	10.8	9.5	10.0
13	6.9	5.0	5.9	9.5	6.1	7.9	10.8	9.0	10	11.5	8.3	9.9
14	8.1	6.8	7.3	10.1	8.1	8.9	9.8	8.7	9.2	11.6	9.6	10.5
15	8.0	6.5	7.2	10.0	6.8	8.2	8.9	7.7	8.3	10.5	9.7	10.0
16	7.9	7.1	7.5	10.0	6.3	8.0	10.1	7.2	8.6	11.4	9.8	10.5
17	8.1	6.9	7.5	10.0	6.5	8.1	9.8	8.2	9.0	12.2	9.1	10.6
18	8.1	7.5	7.8	8.8	7.3	8.2	9.7	7.7	8.7	11.2	10.5	10.8
19	7.9	6.2	7.2	8.8	6.6	7.5	9.5	7.6	8.6	11.4	10.2	10.8
20	7.6	5.6	6.4	9.8	5.6	7.6	8.7	7.6	8.0	11.6	9.2	10.5
21	8.1	5.9	6.9	10.7	7.3	9.0	9.0	7.3	8.1	11.5	10.7	11.0
22	8.3	6.6	7.4	11.3	8.0	9.6	10.9	7.0	8.7	11.1	10.2	10.5
23	8.6	7.4	7.8	11.0	8.8	9.8	9.6	8.0	8.8	11.6	9.9	10.7
24	7.9	6.2	7.3	9.7	8.2	9.0	10.4	6.5	8.4	12.7	9.2	10.9
25	8.0	6.1	7.1	9.0	7.4	8.1	12.1	7.1	9.4	13.1	10.1	11.7
26	8.0	6.9	7.4	8.1	6.9	7.5	13.3	8.8	10.9	12.3	11.6	11.9
27	7.6	7.1	7.3	8.9	7.4	8.1	12.9	9.8	11.1	11.8	10.9	11.5
28	8.0	6.9	7.3	10.5	6.0	8.1	11.1	8.4	9.7	10.9	9.4	10.2
29	7.8	6.6	7.3	11.9	7.4	9.4	12.1	7.8	9.9	10.2	9.1	9.7
30	---	---	---	10.0	7.1	8.9	12.9	8.8	10.8	10.9	9.7	10.3
31	---	---	---	8.9	6.0	7.4	---	---	---	11.5	9.8	10.5
MONTH	8.6	5.0	7.0	11.9	5.6	8.1	13.3	5.4	9.2	13.1	8.3	10.6



14201300 ZOLLNER CREEK NEAR MOUNT ANGEL, OR

LOCATION.--Lat 45°06'02", long 122°49'14", in SW ¼ SW ¼ sec. 28, T.5 S., R.1 W., Marion County, Hydrologic Unit 17090009, on left bank downstream corner of Monitor-McKee Road bridge, 2.3 mi north-northwest of Mount Angel, and at mile 0.4.

DRAINAGE AREA.--15.0 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1993 to current year.

REVISED RECORD.--WDR OR-96-1: 1994 (M).

GAGE.--Water-stage recorder and velocity meter. Elevation of gage is 120 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flows subject to backwater from the Pudding River. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--11 years (water years 1994-2004), 23.4 ft<sup>3</sup>/s, 21.22 in/yr, 16,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,890 ft<sup>3</sup>/s Nov. 19, 1996, gage height 16.93 ft; maximum gage height, 21.33 ft, Feb. 8, 1996, from floodmark (backwater from Pudding River); minimum discharge, 0.02 ft<sup>3</sup>/s Sept. 22, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec 13	2200	*373	12.63	Jan 31	1030	(a)124	*15.69

Minimum daily discharge, 0.04 ft<sup>3</sup>/s, Aug. 21, Sept 5-13.

a) From backwater.

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	0.93	1.4	14	33	94	e55	2.5	2.7	1.1	0.37	0.16	e0.10
2	0.51	1.3	10	26	67	e45	2.4	2.3	0.94	0.26	0.20	e0.08
3	0.35	1.1	21	28	52	30	2.5	1.9	1.1	0.24	0.18	e0.07
4	0.49	0.92	16	26	40	28	2.3	2.1	0.86	0.47	0.16	e0.06
5	0.48	1.3	89	e32	34	24	2.1	2.2	0.67	0.45	0.24	e0.04
6	0.42	1.1	77	40	e33	26	2.3	1.8	0.82	0.33	0.18	e0.04
7	1.2	1.8	e50	54	e31	22	1.9	2.3	1.0	e0.35	0.16	e0.04
8	3.0	1.2	36	51	e28	17	2.2	2.4	11	0.50	0.16	e0.04
9	8.7	0.95	19	56	e21	e16	1.9	3.0	13	0.36	0.17	e0.04
10	2.6	0.95	28	76	e18	e13	1.8	3.7	7.8	0.40	0.12	e0.04
11	1.3	0.98	21	46	15	e12	1.9	3.5	5.5	0.39	0.11	e0.04
12	2.1	1.1	49	43	13	e11	1.7	3.1	4.4	0.34	0.12	e0.05
13	3.5	1.2	98	37	12	e11	1.8	2.3	3.7	0.60	0.13	e0.04
14	1.9	1.3	140	29	11	e9.5	2.7	1.9	3.1	0.87	0.13	e0.05
15	0.88	1.9	104	29	12	e8.5	2.9	2.1	2.7	0.88	0.10	e0.19
16	1.1	2.8	71	24	37	e8.0	3.1	2.1	2.7	0.62	0.09	e0.15
17	0.78	3.1	60	21	65	e7.5	3.1	e2.2	2.3	0.45	0.08	e0.34
18	0.70	2.2	45	33	87	7.7	3.0	e3.0	1.3	0.37	0.07	e0.28
19	1.6	9.7	29	40	62	7.1	3.0	2.4	1.3	0.32	0.07	e0.22
20	0.96	4.6	e23	35	39	6.1	5.6	1.5	1.1	0.27	0.05	e0.20
21	0.59	2.7	e18	e25	31	5.3	5.9	1.6	1.1	0.29	0.04	e0.80
22	0.81	1.9	15	18	e25	5.3	4.4	1.3	1.1	0.32	e0.05	2.2
23	1.9	1.7	14	49	18	4.9	3.5	1.4	0.70	0.31	e0.06	0.69
24	0.91	2.9	16	e60	22	4.9	3.0	1.5	0.38	0.28	e0.07	0.45
25	0.57	3.6	46	e80	e35	4.9	3.4	1.9	0.48	0.29	e0.80	0.51
26	0.53	4.1	37	e75	e50	5.3	3.2	1.9	0.45	0.26	e0.40	0.33
27	0.80	4.6	32	e85	e65	5.4	2.6	1.4	0.44	0.29	e0.25	0.28
28	0.85	5.0	99	e100	80	4.7	2.1	1.6	0.40	0.26	e0.17	0.26
29	0.83	49	85	110	e65	4.5	1.8	1.5	0.38	0.22	e0.11	0.37
30	1.1	48	41	120	---	5.9	1.8	1.4	0.39	0.16	e0.07	0.33
31	0.84	---	41	112	---	8.2	---	1.3	---	0.15	e0.14	---
TOTAL	43.23	164.40	1,444	1,593	1,162	423.7	82.4	65.3	72.21	11.67	4.84	8.33
MEAN	1.39	5.48	46.6	51.4	40.1	13.7	2.75	2.11	2.41	0.38	0.16	0.28
MAX	8.7	49	140	120	94	55	5.9	3.7	13	0.88	0.80	2.2
MIN	0.35	0.92	10	18	11	4.5	1.7	1.3	0.38	0.15	0.04	0.04
AC-FT	86	326	2,860	3,160	2,300	840	163	130	143	23	9.6	17
CFSM	0.09	0.37	3.11	3.43	2.67	0.91	0.18	0.14	0.16	0.03	0.01	0.02
IN.	0.11	0.41	3.58	3.95	2.88	1.05	0.20	0.16	0.18	0.03	0.01	0.02

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

MEAN	6.65	39.2	65.1	58.8	52.9	34.9	13.3	6.47	2.98	0.83	0.45	0.84
MAX	23.1	121	187	103	114	91.5	38.5	21.8	6.60	1.66	0.93	2.54
(WY)	(1997)	(1997)	(1997)	(1996)	(1996)	(1997)	(2003)	(1996)	(1997)	(1997)	(1997)	(1997)
MIN	0.80	1.51	10.9	7.47	9.28	10.4	2.75	2.05	0.95	0.24	0.14	0.19
(WY)	(2003)	(2003)	(2001)	(2001)	(2001)	(2001)	(2004)	(1994)	(2002)	(1994)	(2001)	(2001)

## 14201300 ZOLLNER CREEK NEAR MOUNT ANGEL, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1994 - 2004	
ANNUAL TOTAL	7,562.23		5,075.08			
ANNUAL MEAN	20.7		13.9		23.4	
HIGHEST ANNUAL MEAN					48.8	
LOWEST ANNUAL MEAN					4.83	
HIGHEST DAILY MEAN	233	Jan 30	140	Dec 14	1,510	Nov 19, 1996
LOWEST DAILY MEAN	0.15	Jul 15	0.04	Aug 21	0.03	Sep 11, 2001
ANNUAL SEVEN-DAY MINIMUM	0.22	Jul 10	0.04	Sep 5	0.04	Sep 5, 2004
ANNUAL RUNOFF (AC-FT)	15,000		10,070		16,970	
ANNUAL RUNOFF (CFSM)	1.38		0.924		1.56	
ANNUAL RUNOFF (INCHES)	18.75		12.59		21.22	
10 PERCENT EXCEEDS	63		48		65	
50 PERCENT EXCEEDS	5.0		2.2		5.0	
90 PERCENT EXCEEDS	0.42		0.16		0.36	

e Estimated



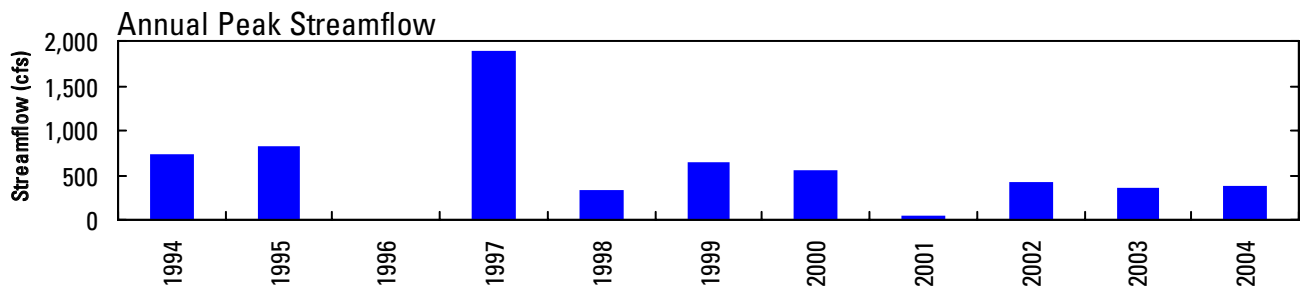
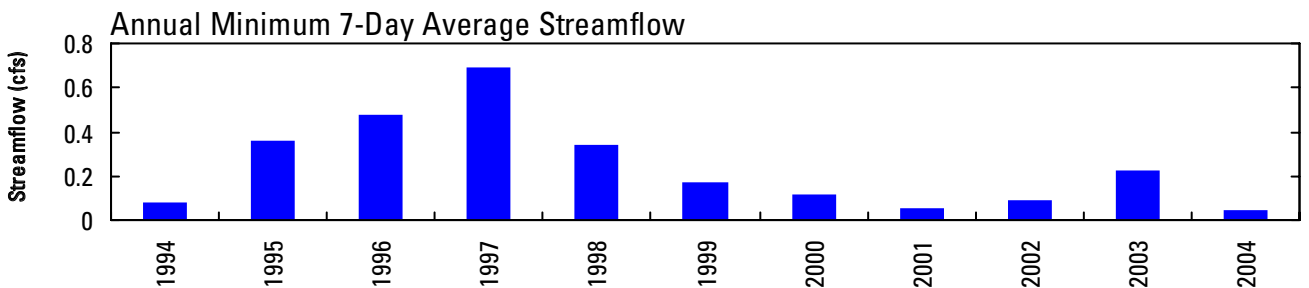
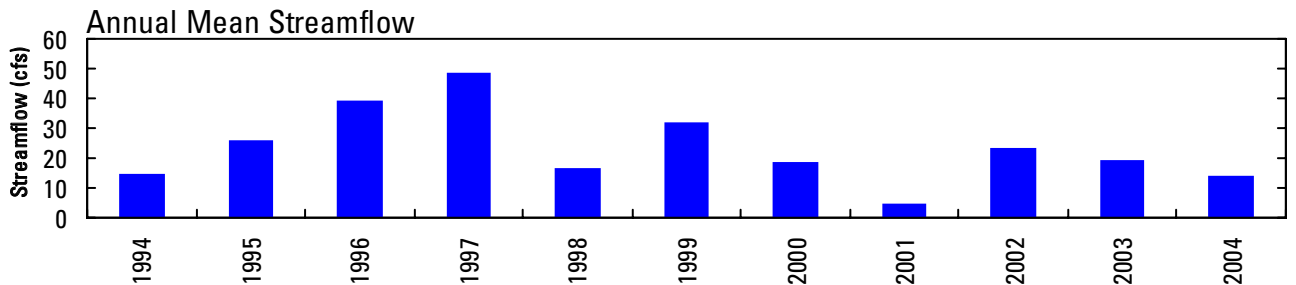
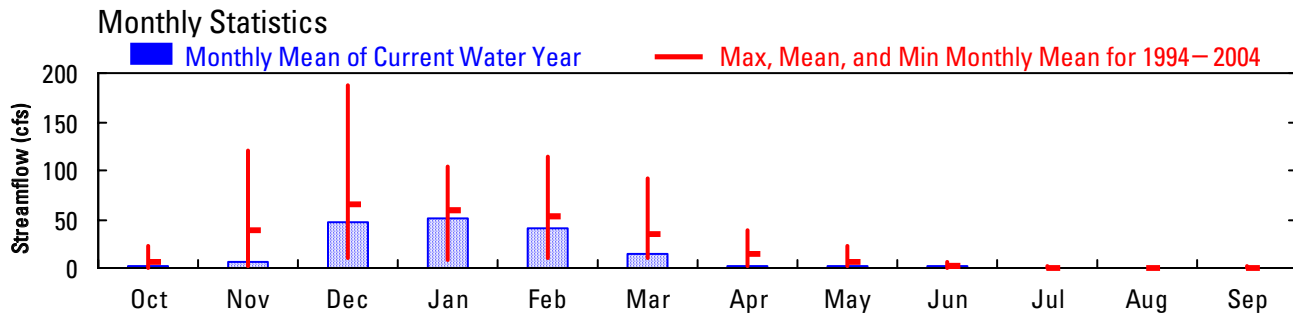
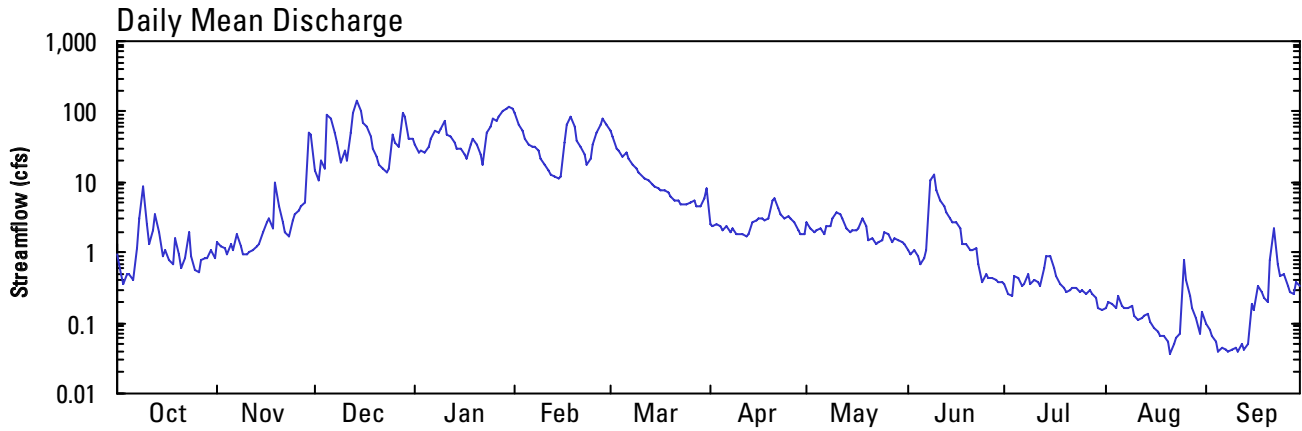
2004 Water Year  
WILLAMETTE RIVER BASIN

14201300 ZOLLNER CREEK NEAR MT ANGEL, OR

Latitude: 45°06'02"  
Marion County

Longitude: 122°49'14"  
Datum: 120 feet

Hydrologic Unit Code: 17090009  
Drainage Area: 15 square miles





14201300 ZOLLNER CREEK NEAR MOUNT ANGEL, OR—Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1993 to September 1997, September 2002 to September 2004 (discontinued).

WATER TEMPERATURE: July 1993 to September 2004 (discontinued).

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Specific conductance records poor. Water temperature records good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 825 microsiemens Oct. 3, 2002; minimum recorded, 77 microsiemens Feb. 6, 1996, but may have been lower during periods of missing record.

WATER TEMPERATURE: Maximum, 24.5°C July 21-23, 1994, July 26, 1996, July 28, 1998, but may have been higher during periods of missing record during the 1996 water year; minimum, 0.5°C Nov. 25, 26, 1993, Dec. 22, 23, 1998.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 784 microsiemens Oct. 24, 25; minimum, 216 microsiemens Feb. 27.

WATER TEMPERATURE: Maximum, 22.5°C July 24; minimum, 3.1°C Jan. 6.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	420	396	408	410	403	408	510	501	507	320	304	314
2	458	418	438	405	398	401	516	480	511	328	304	314
3	476	457	470	415	396	403	520	426	483	309	296	304
4	476	473	476	436	415	427	515	470	506	325	309	316
5	479	472	476	445	436	442	---	---	---	---	---	---
6	513	479	493	443	441	442	457	427	447	334	324	330
7	520	439	496	464	435	444	449	430	440	328	320	326
8	---	---	---	473	457	465	---	---	---	324	296	313
9	---	---	---	462	436	451	---	---	---	301	280	290
10	660	523	569	436	419	426	---	---	---	284	275	278
11	673	595	663	419	408	414	423	410	417	293	279	286
12	619	576	605	418	397	408	440	379	413	307	293	299
13	640	337	589	---	---	---	440	302	369	312	303	308
14	337	286	293	441	436	440	362	295	324	316	307	311
15	330	287	297	440	395	431	409	356	387	316	298	309
16	433	330	376	397	348	386	420	409	416	316	295	302
17	441	428	435	386	351	379	424	400	413	321	312	317
18	429	398	421	381	359	371	406	383	399	321	307	315
19	398	303	360	---	---	---	408	402	405	328	320	325
20	364	354	359	410	305	379	406	402	405	327	322	324
21	367	344	362	415	383	404	417	398	405	330	327	328
22	349	339	344	403	394	398	419	416	417	333	326	332
23	---	---	---	407	398	405	427	418	422	327	293	315
24	784	409	654	414	368	406	424	406	414	295	264	276
25	784	736	761	448	403	427	421	393	412	279	266	272
26	736	623	687	441	376	409	414	407	410	293	278	287
27	624	491	564	509	432	464	407	383	394	295	278	288
28	494	440	461	---	---	---	393	332	372	296	268	282
29	442	427	436	523	392	454	332	243	273	268	224	245
30	427	372	404	514	499	506	295	248	272	226	218	222
31	410	401	408	---	---	---	312	295	306	245	220	231
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

## 14201300 ZOLLNER CREEK NEAR MOUNT ANGEL, OR—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	260	245	252	265	243	256	290	280	285	---	---	---
2	269	260	264	273	265	268	300	282	294	364	333	347
3	279	269	275	281	266	274	387	300	338	372	346	361
4	282	266	278	296	281	289	388	377	383	366	334	349
5	293	277	286	303	293	299	377	337	362	366	332	342
6	289	277	285	312	294	306	379	341	367	359	329	346
7	---	---	---	315	308	311	374	346	354	372	339	352
8	298	286	294	308	301	303	401	347	358	362	312	331
9	301	289	296	304	299	301	414	388	399	355	317	341
10	300	291	298	301	299	300	410	381	389	337	303	315
11	307	300	302	306	301	303	442	410	421	311	298	307
12	310	302	307	313	300	304	454	427	442	313	305	308
13	316	310	314	313	299	304	427	401	412	313	307	309
14	322	312	319	312	300	303	453	426	445	317	308	312
15	330	312	324	334	307	317	453	350	402	350	305	321
16	330	262	310	307	304	305	397	354	378	358	334	347
17	321	257	285	341	305	319	363	345	352	407	337	384
18	261	228	240	334	303	319	372	337	352	404	319	349
19	248	228	238	312	306	309	372	314	346	410	335	357
20	264	248	257	335	307	316	314	293	302	435	410	427
21	273	263	268	309	296	305	301	280	294	416	367	391
22	285	273	279	335	287	314	303	293	300	367	353	359
23	288	282	285	337	310	328	308	299	304	353	337	344
24	289	260	279	310	282	294	329	304	313	356	340	345
25	291	272	283	284	277	281	328	310	315	---	---	---
26	281	274	278	285	273	281	---	---	---	339	326	332
27	279	216	267	284	276	281	392	328	363	362	339	354
28	247	221	241	330	282	290	347	327	333	435	361	407
29	254	239	247	---	---	---	337	331	335	440	420	434
30	---	---	---	365	283	316	333	326	328	436	385	416
31	---	---	---	300	280	286	---	---	---	385	364	369
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	366	351	357	382	375	379	425	411	417	438	429	435
2	351	340	344	381	377	379	442	423	432	433	425	431
3	342	333	338	380	376	378	449	434	444	432	427	429
4	346	342	344	385	378	382	449	439	445	430	426	428
5	347	342	344	378	363	367	444	438	441	427	420	426
6	353	342	348	382	364	371	445	441	443	425	422	425
7	345	336	342	422	381	398	444	437	440	424	419	422
8	---	---	---	440	422	434	447	442	444	420	412	416
9	394	345	353	---	---	---	456	443	449	413	406	409
10	360	354	358	428	424	425	465	451	459	406	397	402
11	360	358	358	---	---	---	465	455	463	398	388	395
12	360	359	360	431	427	429	462	451	457	393	367	381
13	376	356	369	428	417	424	451	433	443	392	371	378
14	366	359	362	417	401	405	435	422	428	392	381	387
15	361	357	358	---	---	---	423	414	420	394	383	391
16	360	351	356	---	---	---	423	418	420	395	372	379
17	388	360	378	479	464	473	430	420	425	390	336	368
18	373	364	367	464	445	457	439	426	434	376	354	365
19	375	359	370	451	445	449	443	436	440	371	339	350
20	371	363	366	447	438	443	442	437	441	371	358	366
21	389	370	375	439	424	433	440	436	438	380	368	369
22	397	388	394	427	413	421	436	430	434	389	370	379
23	405	393	400	414	404	410	433	410	428	393	389	391
24	405	398	404	406	400	403	417	392	400	393	390	391
25	404	390	398	---	---	---	---	---	---	403	393	398
26	390	366	374	412	406	409	408	370	383	405	403	404
27	366	358	363	414	408	411	430	395	416	404	402	403
28	363	354	359	413	407	411	434	429	432	404	402	402
29	363	352	357	413	410	412	441	431	437	404	401	403
30	376	362	368	412	408	410	446	440	443	401	395	398
31	---	---	---	415	406	411	444	437	441	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	438	336	397

## 14201300 ZOLLNER CREEK NEAR MOUNT ANGEL, OR—Continued

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.3	14.0	14.7	7.0	5.6	6.1	9.0	8.4	8.7	6.4	5.5	5.9
2	15.0	14.3	14.6	5.7	5.2	5.5	9.6	8.8	9.1	5.9	5.5	5.7
3	15.5	14.6	14.9	5.4	4.5	5.0	9.6	8.5	9.2	6.1	5.6	5.8
4	15.1	14.2	14.5	5.4	4.5	4.9	8.8	8.0	8.3	5.9	5.3	5.8
5	14.9	14.4	14.6	5.1	4.2	4.7	9.7	8.8	9.3	5.3	4.2	4.7
6	14.8	13.5	14.2	5.4	4.3	4.9	9.8	8.9	9.4	4.2	3.1	3.5
7	15.0	14.2	14.6	6.3	5.1	5.6	9.2	8.8	9.0	4.2	3.8	4.0
8	15.6	13.6	14.0	6.5	5.9	6.2	9.2	8.8	9.1	4.8	4.1	4.5
9	15.8	14.5	15.0	6.8	5.9	6.4	8.8	8.4	8.5	5.6	4.7	5.1
10	14.9	13.5	14.4	7.4	6.6	6.9	8.8	8.4	8.5	6.1	5.4	5.7
11	13.5	12.4	12.9	8.4	7.4	7.9	8.9	8.6	8.7	6.4	5.8	6.0
12	12.6	12.2	12.4	7.9	7.0	7.4	9.2	8.8	9.0	6.3	5.5	5.9
13	13.0	11.6	12.1	7.1	6.1	6.6	9.9	8.8	9.3	6.7	6.0	6.3
14	13.5	12.7	13.2	7.2	6.4	6.8	8.8	7.6	7.9	7.1	6.7	6.9
15	12.7	12.0	12.3	7.8	7.1	7.4	7.9	7.4	7.6	7.9	7.1	7.4
16	12.8	12.0	12.4	8.3	7.8	8.0	8.2	7.6	7.8	7.9	7.6	7.8
17	14.2	12.7	13.4	8.7	8.2	8.4	8.6	8.2	8.4	8.0	7.7	7.9
18	13.9	12.6	13.3	9.9	8.7	9.4	8.2	7.5	7.8	8.1	7.5	7.8
19	14.0	13.2	13.6	10.1	8.2	9.5	7.9	7.3	7.6	8.4	7.9	8.1
20	15.2	13.8	14.5	8.2	7.2	7.6	8.6	7.9	8.2	8.1	7.4	7.8
21	16.0	14.9	15.4	7.2	6.2	6.9	8.8	8.4	8.6	7.4	7.0	7.2
22	16.2	15.4	15.7	6.2	5.4	5.6	8.4	7.6	8.0	7.2	6.7	7.0
23	15.4	13.4	14.3	6.2	5.5	5.8	7.8	7.1	7.4	8.1	7.1	7.6
24	14.0	12.9	13.4	6.6	6.2	6.3	8.0	7.8	7.9	8.2	7.5	7.9
25	13.2	11.9	12.5	6.9	6.3	6.6	7.8	7.3	7.6	7.5	7.0	7.3
26	12.2	11.0	11.6	7.3	6.8	7.0	7.3	7.0	7.1	7.6	7.2	7.4
27	11.3	10.3	10.9	7.0	6.3	6.6	7.1	6.7	6.9	8.0	7.3	7.6
28	12.3	11.0	11.7	7.6	6.5	7.0	7.5	7.1	7.3	8.6	7.7	8.1
29	12.0	10.7	11.3	8.9	7.6	8.3	7.2	5.2	5.9	9.5	8.6	9.1
30	10.7	9.1	10.1	8.5	8.2	8.3	5.6	5.1	5.3	9.4	8.0	8.7
31	9.1	7.0	8.1	---	---	---	6.4	5.5	5.9	8.0	7.5	7.7
MONTH	16.2	7.0	13.2	10.1	4.2	6.8	9.9	5.1	8.0	9.5	3.1	6.7
	FEBRUARY			MARCH			APRIL			MAY		
1	7.6	7.0	7.3	9.8	8.4	9.1	11.6	9.1	10.3	15.8	13.7	14.9
2	8.2	7.4	7.8	9.6	8.2	9.0	12.1	9.1	10.5	16.8	14.8	15.7
3	8.4	7.7	8.0	9.1	8.5	8.8	13.5	10.4	11.8	17.4	15.0	16.1
4	8.6	8.1	8.4	9.5	8.6	9.0	13.6	11.3	12.2	16.7	15.3	15.9
5	8.5	7.7	8.1	9.0	8.5	8.7	12.1	10.6	11.4	16.0	14.7	15.2
6	8.5	8.0	8.2	9.3	8.0	8.7	12.6	10.6	11.6	15.6	13.6	14.6
7	8.5	7.9	8.2	11.1	9.2	10.0	12.6	10.9	11.7	15.9	13.9	14.8
8	8.3	7.6	8.0	11.5	9.6	10.6	13.9	10.8	12.2	15.5	14.2	14.8
9	8.0	7.4	7.6	11.9	10.9	11.3	14.4	10.7	12.5	15.2	13.6	14.4
10	7.5	6.5	7.1	10.9	9.3	10.1	15.0	11.1	13.0	14.4	13.5	13.8
11	7.6	6.3	7.1	10.9	9.0	10.1	15.6	12.0	13.8	14.1	13.5	13.8
12	7.2	6.0	6.6	11.2	9.7	10.6	14.6	12.6	13.7	14.4	13.5	13.8
13	6.5	5.7	6.0	11.3	9.7	10.6	13.8	12.1	13.0	15.2	12.5	13.8
14	8.1	6.4	7.2	12.3	10.8	11.5	13.0	11.8	12.3	15.0	13.0	13.9
15	8.4	7.5	8.0	11.9	10.2	11.1	11.9	10.9	11.4	14.3	13.1	13.7
16	8.4	8.0	8.2	11.8	9.6	10.8	12.2	10.4	11.2	15.2	13.5	14.3
17	8.5	7.8	8.1	12.3	10.6	11.4	12.8	11.0	11.8	15.8	13.2	14.5
18	9.3	8.2	8.7	11.7	10.4	11.3	12.4	11.3	11.8	15.8	14.3	15.1
19	9.5	8.3	8.8	11.0	9.6	10.2	11.8	11.2	11.5	16.1	15.2	15.5
20	9.0	7.6	8.3	11.1	8.9	10.0	11.3	10.8	11.1	15.9	13.9	15.0
21	8.9	7.6	8.3	12.3	9.8	11.1	11.8	10.4	11.0	15.4	14.5	14.9
22	9.4	8.0	8.8	13.7	11.3	12.4	13.2	10.6	11.9	14.8	14.1	14.4
23	10.0	8.9	9.4	14.0	12.1	13.0	12.7	11.7	12.2	15.1	13.7	14.4
24	9.6	8.8	9.3	13.4	11.9	12.6	12.8	11.0	11.9	15.7	13.3	14.5
25	9.1	8.3	8.7	11.9	10.6	11.4	13.6	11.3	12.4	16.2	13.8	15.0
26	9.0	8.4	8.7	10.6	9.7	10.1	15.2	12.6	14.0	16.2	15.2	15.7
27	9.1	8.2	8.7	11.1	9.6	10.3	15.8	14.5	15.0	16.0	15.1	15.5
28	9.2	8.3	8.7	11.9	9.1	10.6	15.1	13.6	14.2	15.5	14.4	14.9
29	9.0	8.4	8.7	13.3	9.8	11.7	15.4	12.3	13.7	14.7	13.9	14.1
30	---	---	---	13.1	11.3	12.3	16.1	12.5	14.2	14.9	13.7	14.2
31	---	---	---	11.6	10.0	10.9	---	---	---	15.3	13.9	14.5
MONTH	10.0	5.7	8.1	14.0	8.0	10.6	16.1	9.1	12.3	17.4	12.5	14.7



## 14201340 PUDDING RIVER NEAR WOODBURN, OR

LOCATION.--Lat 45°09'05", long 122°48'11", in NW ¼ SW ¼ sec. 10, T.5 S., R.1 W., Marion County, Hydrologic Unit 17090009, on left bank 1.0 mile east of Woodburn, and at mile 23.4.

DRAINAGE AREA.--314 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1997 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 130 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--7 years (water years 1998-2004), 809 ft<sup>3</sup>/s, 35.00 in/yr, 586,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,500 ft<sup>3</sup>/s Dec. 29, 1998, gage height, 29.05 ft; minimum discharge, 5.5 ft<sup>3</sup>/s Aug. 24, 2003.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 8, 1996 reached a stage of 32.76 ft, from floodmark, discharge about 29,000 ft<sup>3</sup>/s, on basis of runoff comparison with nearby station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan 31	2130	*5,040	*26.93	No other peak greater than base discharge.			

Minimum discharge, 8.5 ft<sup>3</sup>/s, Aug. 15, 16, 17, gage height, 4.45 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	23	91	1,440	2,600	4,740	1,840	560	377	491	126	30	76
2	24	79	1,120	2,490	3,900	1,760	500	342	401	117	32	67
3	25	76	1,010	2,450	3,350	1,580	464	313	334	97	31	76
4	26	76	1,140	2,300	2,990	1,470	443	289	290	105	27	72
5	28	77	1,220	2,100	2,690	1,470	419	273	251	107	20	67
6	29	69	1,720	1,900	2,410	1,580	399	271	253	99	18	61
7	32	68	1,810	1,810	2,290	1,650	377	248	351	91	19	54
8	36	67	1,710	2,080	2,190	1,550	354	243	596	89	22	51
9	46	77	1,590	2,450	2,020	1,400	333	285	974	85	41	50
10	46	70	1,460	2,750	1,800	1,260	314	275	1,020	95	50	47
11	60	69	1,370	2,820	1,580	1,140	300	258	981	69	33	52
12	65	74	1,310	2,670	1,370	1,030	284	285	862	79	25	56
13	73	125	1,720	2,480	1,210	937	275	248	736	70	21	92
14	96	98	3,290	2,310	1,110	857	274	219	683	73	14	92
15	77	89	3,830	2,270	1,080	790	357	203	612	68	9.6	151
16	68	90	3,690	2,290	1,130	730	444	194	519	63	9.1	130
17	89	186	3,160	2,190	1,610	679	491	211	443	57	12	164
18	85	405	2,770	2,030	2,100	642	449	209	384	55	18	318
19	72	609	2,440	2,000	2,380	633	417	204	327	58	18	681
20	69	791	2,160	1,990	2,320	619	483	209	291	56	15	667
21	67	672	1,920	1,860	2,130	565	781	187	264	50	13	546
22	65	499	1,670	1,680	1,890	530	1,090	177	230	37	17	406
23	61	369	1,410	1,560	1,650	505	1,040	181	217	29	42	311
24	64	302	1,260	2,200	1,470	489	886	216	215	36	132	247
25	86	395	1,440	2,870	1,480	523	756	199	203	42	114	209
26	70	526	1,610	2,790	1,550	546	659	180	189	45	240	179
27	61	618	1,560	2,480	1,620	632	580	183	169	34	232	162
28	57	543	1,720	2,490	1,840	712	512	280	163	24	179	146
29	56	694	2,500	3,040	1,900	643	458	541	146	21	134	131
30	60	1,530	3,000	3,960	---	588	415	710	136	22	105	119
31	87	---	2,820	4,880	---	604	---	610	---	27	87	---
TOTAL	1,803	9,434	60,870	75,790	59,800	29,954	15,114	8,620	12,731	2,026	1,759.7	5,480
MEAN	58.2	314	1,964	2,445	2,062	966	504	278	424	65.4	56.8	183
MAX	96	1,530	3,830	4,880	4,740	1,840	1,090	710	1,020	126	240	681
MIN	23	67	1,010	1,560	1,080	489	274	177	136	21	9.1	47
AC-FT	3,580	18,710	120,700	150,300	118,600	59,410	29,980	17,100	25,250	4,020	3,490	10,870
CFSM	0.19	1.00	6.25	7.79	6.57	3.08	1.60	0.89	1.35	0.21	0.18	0.58
IN.	0.21	1.12	7.21	8.98	7.08	3.55	1.79	1.02	1.51	0.24	0.21	0.65

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2004, BY WATER YEAR (WY)

	1998	1999	2000	2001	2002	2003	2004	1998	1998	1998	2004	2004
MEAN	155	690	1,734	1,974	1,822	1,478	863	585	290	75.9	33.6	52.0
MAX (WY)	600	1,394	2,845	2,842	2,835	2,117	1,670	846	459	112	56.8	183
MIN (WY)	28.5	173	717	478	460	582	504	278	145	34.5	13.5	19.9
	(2003)	(2003)	(2001)	(2001)	(2001)	(2001)	(2004)	(2004)	(2003)	(2003)	(2003)	(2001)

## WILLAMETTE RIVER BASIN

14201340 PUDDING RIVER NEAR WOODBURN, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1998 - 2004	
ANNUAL TOTAL	328,883.6		283,381.7			
ANNUAL MEAN	901		774		809	
HIGHEST ANNUAL MEAN					1,191	1999
LOWEST ANNUAL MEAN					334	2001
HIGHEST DAILY MEAN	5,790	Feb 2	4,880	Jan 31	7,210	Dec 30, 1998
LOWEST DAILY MEAN	6.0	Aug 24	9.1	Aug 16	6.0	Aug 24, 2003
ANNUAL SEVEN-DAY MINIMUM	9.6	Aug 19	14	Aug 15	9.6	Aug 19, 2003
ANNUAL RUNOFF (AC-FT)	652,300		562,100		586,100	
ANNUAL RUNOFF (CFSM)	2.87		2.47		2.58	
ANNUAL RUNOFF (INCHES)	38.96		33.57		35.00	
10 PERCENT EXCEEDS	2,340		2,280		2,260	
50 PERCENT EXCEEDS	414		330		407	
90 PERCENT EXCEEDS	16		40		29	



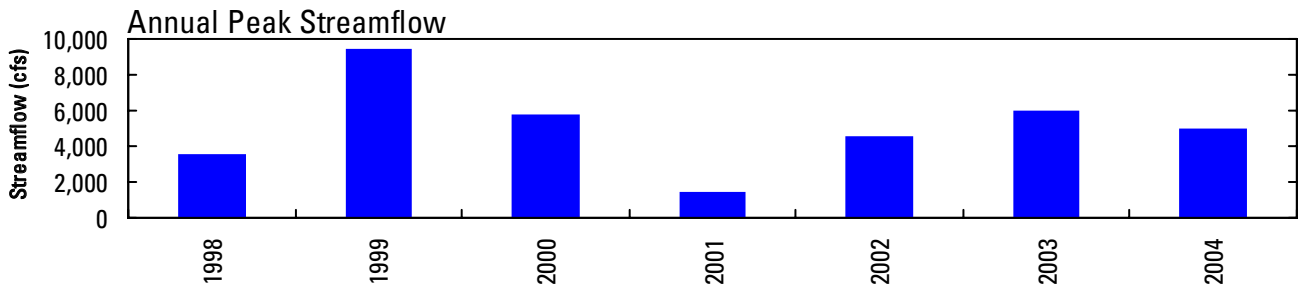
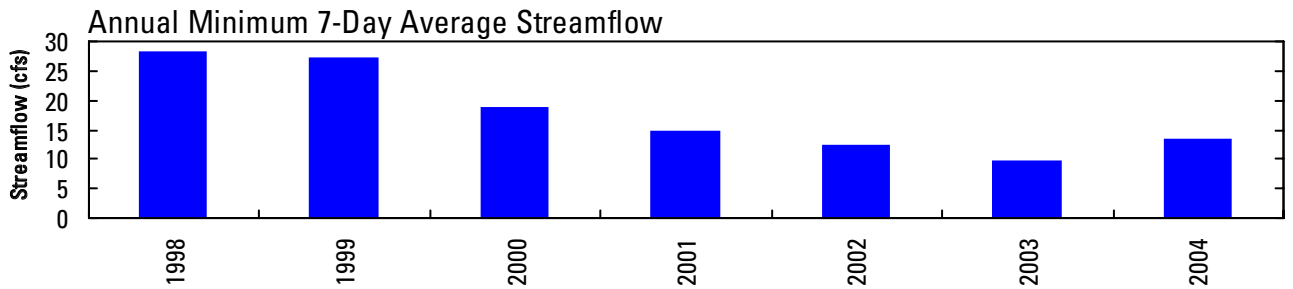
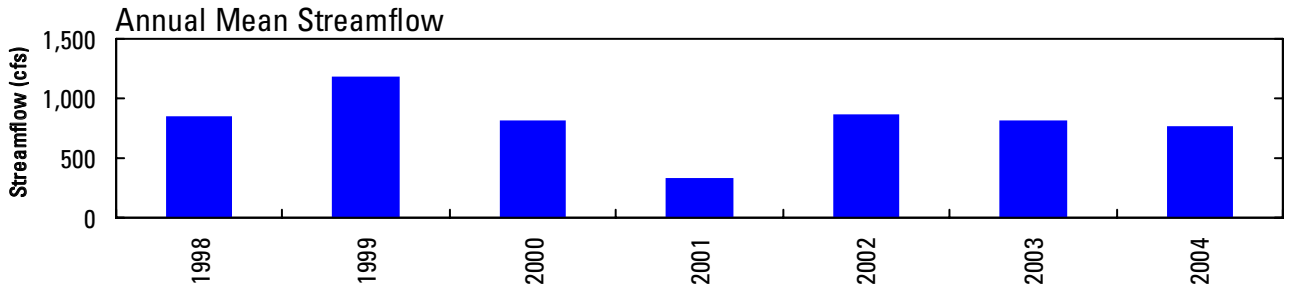
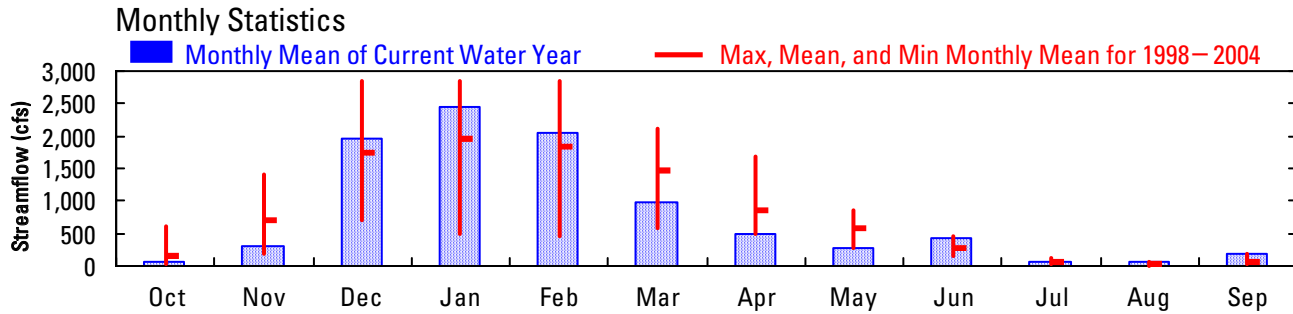
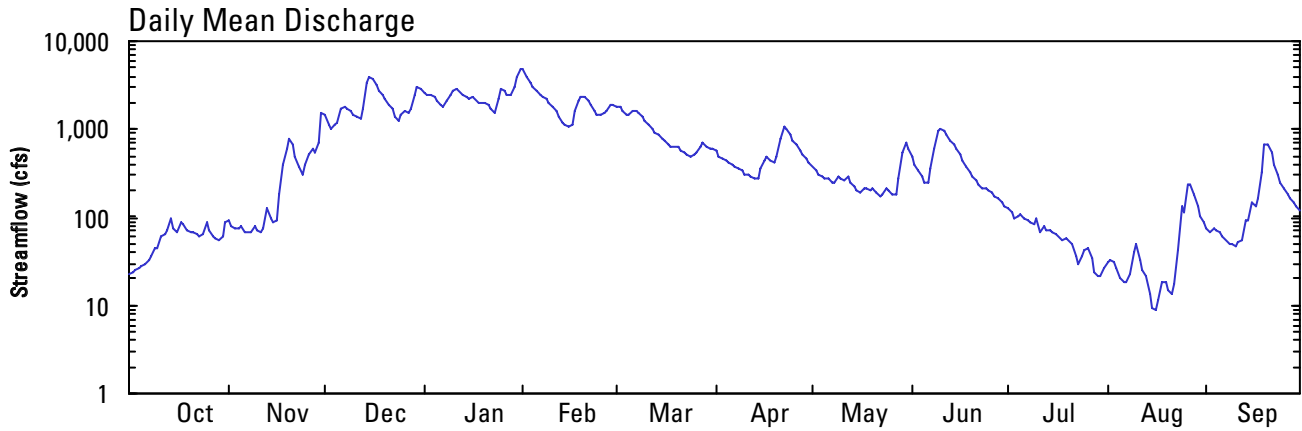
2004 Water Year  
WILLAMETTE RIVER BASIN

14201340 PUDDING RIVER NEAR WOODBURN, OR

Latitude: 45° 09 ' 05"  
Marion County

Longitude: 122° 48 ' 11"  
Datum: 130 feet

Hydrologic Unit Code: 17090009  
Drainage Area: 314 square miles



## 14202000 PUDDING RIVER AT AURORA, OR

LOCATION.--Lat 45°14'00", long 122°44'56", in SW ¼ SE ¼ sec.12, T.4 S., R.1 W., Clackamas County, Hydrologic Unit 17090009, upstream side of bridge on U.S. Highway 99E at Aurora, 0.9 mi upstream from Mill Creek and at mile 8.11.

DRAINAGE AREA.--479 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to September 1964, October 1993 to October 1997, October 2002 to current year.

REVISED RECORDS.--WDR OR-95-1: 1994(M). WDR OR-96-1: 1938(M), 1949(M).

GAGE.--Datum of gage is 72.23 ft above sea level. Prior to Sept. 30, 1961 staff or wire-weight gage at same site at datum 5.00 ft higher. All gage heights given herein are at present datum.

REMARKS.--No estimated daily discharges. Records fair except for those below 50 ft<sup>3</sup>/s, which are poor. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--42 years (water years 1929-64, 1994-97, 2002-04), 1,242 ft<sup>3</sup>/s, 35.24 in/yr, 900,000 acre-ft/yr.

EXTREMES FOR PERIOD RECORD.--Maximum discharge, 43,700 ft<sup>3</sup>/s Feb. 8, 1996, gage height, 30.72 ft, from rating curve extended above 23,000 ft<sup>3</sup>/s; minimum daily discharge, 3.5 ft<sup>3</sup>/s Aug. 6, 20, 28, 1994, but may have been lower during period of missing record.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 7, 1923 reached a stage of 30.0 ft, present datum, from floodmarks, discharge, 37,000 ft<sup>3</sup>/s (revised), from rating curve extended above 23,000 ft<sup>3</sup>/s. Flood of Dec. 23, 1964 reached a stage of 29.57 ft, discharge, 34,000 ft<sup>3</sup>/s, from rating curve extended above 23,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,130 ft<sup>3</sup>/s Feb. 1, gage height, 22.78 ft; minimum daily discharge, 6.6 ft<sup>3</sup>/s Aug. 18.

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	38	136	1,840	3,920	7,000	2,510	824	601	741	233	20	213
2	34	121	1,480	3,580	6,280	2,420	761	562	641	214	30	193
3	35	106	1,260	3,530	5,350	2,140	714	530	559	190	39	187
4	41	101	1,450	3,300	4,560	1,970	686	496	500	180	33	198
5	47	102	1,540	2,870	3,940	1,910	663	471	452	193	31	187
6	54	99	2,230	2,480	3,400	1,960	634	464	434	184	14	176
7	60	92	2,450	2,250	3,120	2,070	610	441	497	166	13	158
8	66	104	2,230	2,560	2,950	1,970	585	426	751	163	18	141
9	78	99	2,000	3,190	2,680	1,790	562	460	1,170	145	45	135
10	92	109	1,820	3,790	2,360	1,610	538	480	1,260	158	92	128
11	108	102	1,720	4,130	2,040	1,460	520	463	1,230	131	90	137
12	122	101	1,610	3,960	1,770	1,330	502	483	1,130	118	42	151
13	136	158	1,970	3,540	1,560	1,230	490	468	998	118	24	197
14	161	177	4,320	3,200	1,410	1,140	485	418	904	96	17	227
15	155	153	5,610	3,090	1,360	1,070	551	392	842	97	9.3	295
16	126	151	5,430	3,130	1,400	998	650	374	752	83	8.3	311
17	129	203	4,970	2,970	1,980	939	712	390	673	74	7.1	331
18	156	474	4,270	2,690	2,850	894	691	408	601	61	6.6	408
19	127	687	3,500	2,650	3,560	876	656	392	538	58	19	750
20	113	931	2,950	2,670	3,450	869	687	393	481	69	29	879
21	103	884	2,590	2,490	3,010	824	890	379	447	55	28	788
22	93	721	2,240	2,210	2,570	779	1,220	361	404	34	33	655
23	88	576	1,870	2,010	2,180	754	1,260	359	374	12	88	549
24	86	471	1,640	2,820	1,900	737	1,140	386	367	11	237	468
25	112	480	1,820	4,040	1,900	756	1,000	393	353	31	281	413
26	116	601	2,120	4,160	1,990	784	892	363	330	61	355	374
27	89	719	2,030	3,640	2,070	845	813	357	310	61	451	343
28	78	691	2,180	3,500	2,400	938	748	437	299	35	384	319
29	74	749	3,390	4,150	2,590	905	694	664	274	16	331	295
30	74	1,710	4,760	5,330	---	844	646	898	251	9.8	279	275
31	102	---	4,580	6,440	---	840	---	851	---	9.9	238	---
TOTAL	2,893	11,808	83,870	104,290	83,630	40,162	21,824	14,560	18,563	3,066.7	3,292.3	9,881
MEAN	93.3	394	2,705	3,364	2,884	1,296	727	470	619	98.9	106	329
MAX	161	1,710	5,610	6,440	7,000	2,510	1,260	898	1,260	233	451	879
MIN	34	92	1,260	2,010	1,360	737	485	357	251	9.8	6.6	128
AC-FT	5,740	23,420	166,400	206,900	165,900	79,660	43,290	28,880	36,820	6,080	6,530	19,600
CFSM	0.19	0.82	5.65	7.02	6.02	2.70	1.52	0.98	1.29	0.21	0.22	0.69
IN.	0.22	0.92	6.51	8.10	6.49	3.12	1.69	1.13	1.44	0.24	0.26	0.77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	333	1,402	2,461	2,774	2,756	2,116	1,547	874	421	148	69.8	96.4
MAX	1,774	4,643	6,090	5,722	6,948	4,235	3,355	2,192	1,101	364	120	329
(WY)	(1948)	(1951)	(1997)	(1956)	(1996)	(1961)	(1963)	(1963)	(1933)	(1952)	(1943)	(2004)
MIN	63.8	78.9	436	766	832	599	456	242	158	53.2	11.3	32.8
(WY)	(1953)	(1937)	(1945)	(1937)	(1941)	(1941)	(1941)	(1939)	(1940)	(2003)	(1994)	(1994)



## 14202000 PUDDING RIVER AT AURORA, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	472,769.1		397,840.0			
ANNUAL MEAN	1,295		1,087		1,242	
HIGHEST ANNUAL MEAN					2,037	
LOWEST ANNUAL MEAN					695	
HIGHEST DAILY MEAN	8,680	Feb 2	7,000	Feb 1	36,100	Feb 8, 1996
LOWEST DAILY MEAN	8.0	Aug 24	6.6	Aug 18	3.5	Aug 6, 1994
ANNUAL SEVEN-DAY MINIMUM	10	Jul 28	13	Aug 13	6.4	Aug 17, 1994
ANNUAL RUNOFF (AC-FT)	937,700		789,100		900,000	
ANNUAL RUNOFF (CFSM)	2.70		2.27		2.59	
ANNUAL RUNOFF (INCHES)	36.72		30.90		35.24	
10 PERCENT EXCEEDS	3,360		3,100		3,450	
50 PERCENT EXCEEDS	685		534		632	
90 PERCENT EXCEEDS	15		59		65	



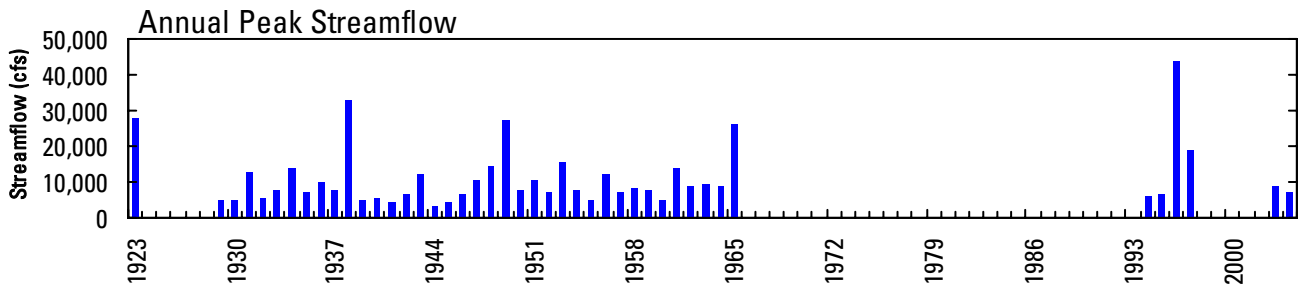
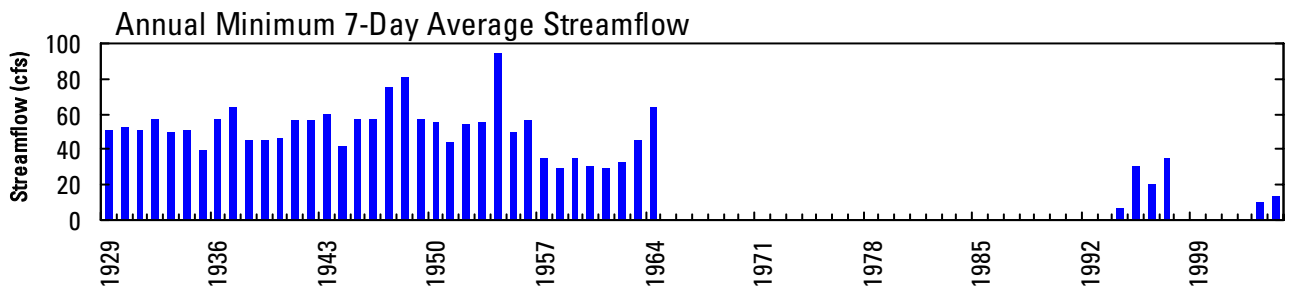
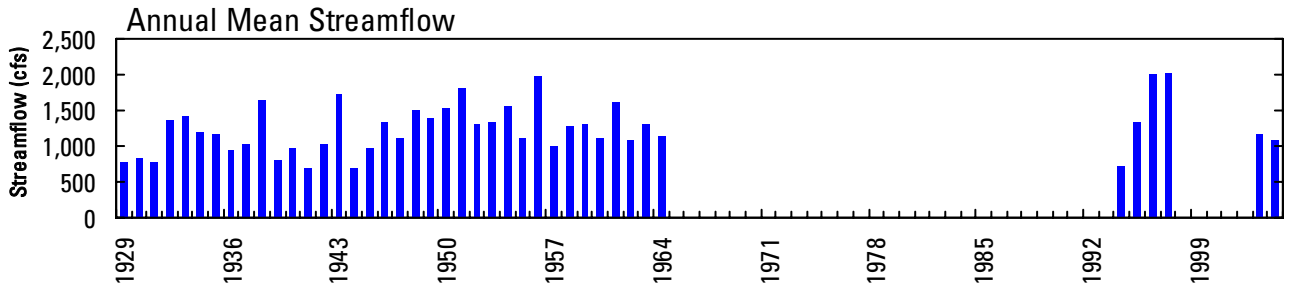
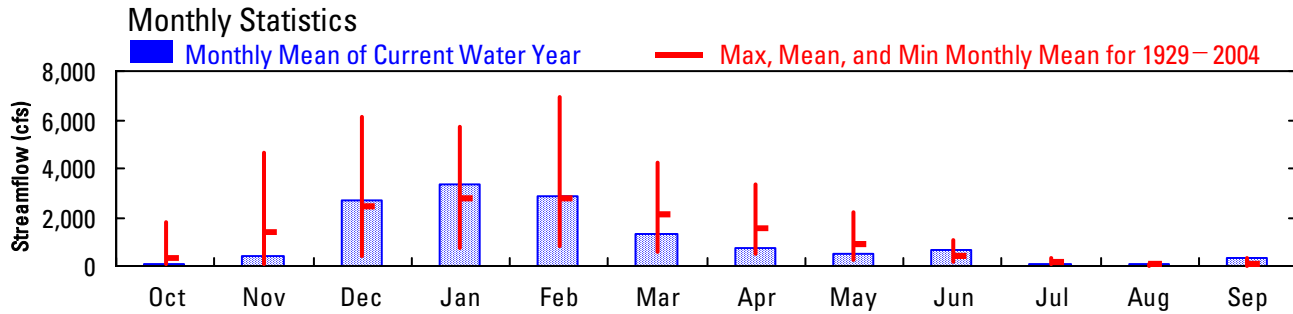
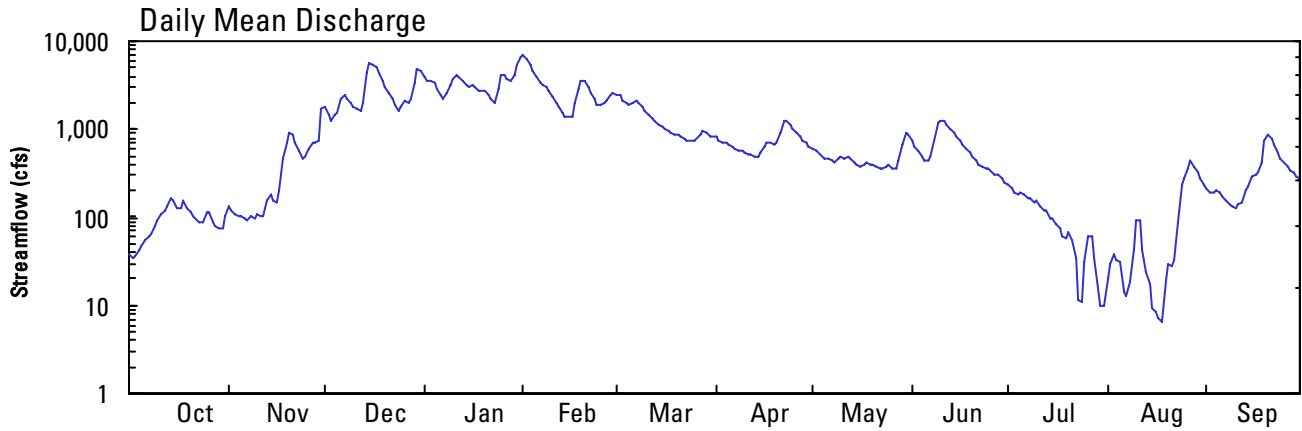
2004 Water Year  
WILLAMETTE RIVER BASIN

14202000 PUDDING RIVER AT AURORA, OR

Latitude: 45° 14 ' 00"  
Clackamas County

Longitude: 122° 44 ' 56"  
Datum: 72.23 feet

Hydrologic Unit Code: 17090009  
Drainage Area: 479 square miles



## 14202980 SCOGGINS CREEK BELOW HENRY HAGG LAKE, NEAR GASTON, OR

LOCATION.--Lat 45°28'10", long 123°11'56", in SE ¼ NE ¼ sec.20, T.1 S., R.4 W., Washington County, Hydrologic Unit 17090010, on left bank 600 ft downstream from Scoggins Dam, 800 ft upstream from small left bank tributary, 3.7 mi northwest of Gaston, and at mile 48.

DRAINAGE AREA.--38.8 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 187.48 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records fair. Flow completely regulated by Henry Hagg Lake since January 1975. Discharge not adjusted for storage or release from Henry Hagg Lake as evaporation from reservoir at times exceeds natural flow.

AVERAGE DISCHARGE.--29 years (water years 1976-2004), 113 ft<sup>3</sup>/s, 81,910 acre-ft, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,210 ft<sup>3</sup>/s Apr. 23, 1996, gage height, 16.88 ft; minimum discharge, 0.72 ft<sup>3</sup>/s Nov. 4, 5, 1996, Dec. 16, 1997.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 413 ft<sup>3</sup>/s Feb. 8, gage height, 7.81 ft; minimum discharge, 4.9 ft<sup>3</sup>/s Dec. 3.

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	180	135	15	11	10	30	51	50	28	140	203	120
2	179	135	11	11	11	74	43	50	21	138	195	110
3	162	121	11	11	11	101	37	57	50	136	187	110
4	147	105	11	10	145	102	37	49	90	136	196	114
5	146	100	11	10	286	101	45	51	86	136	197	114
6	142	96	11	10	285	101	50	57	86	136	203	114
7	128	96	11	10	355	100	52	52	45	129	209	119
8	115	96	11	11	411	100	51	52	10	118	208	125
9	98	96	11	11	408	101	51	52	10	115	213	128
10	79	95	11	11	406	68	51	48	10	117	221	126
11	60	94	9.9	11	345	50	51	38	9.9	117	230	123
12	60	91	10	11	247	50	42	35	10	136	231	123
13	65	93	11	11	206	50	23	35	10	157	220	115
14	72	93	11	11	206	50	31	37	37	161	216	107
15	68	90	10	11	206	44	50	40	81	155	215	104
16	64	91	10	11	207	40	50	40	96	158	215	101
17	71	52	10	11	185	29	50	39	111	164	218	101
18	81	24	10	11	90	20	50	40	133	164	218	101
19	81	24	10	11	50	20	81	37	146	159	216	101
20	78	24	10	11	50	20	102	35	140	152	209	70
21	76	24	10	11	50	20	144	35	127	163	204	40
22	98	24	10	11	50	20	156	35	114	189	205	38
23	117	24	11	12	50	20	156	35	112	226	163	45
24	117	24	11	12	50	21	156	30	100	244	117	54
25	116	23	11	11	50	36	118	27	91	243	102	57
26	116	23	11	53	40	52	52	34	91	219	95	57
27	116	23	11	102	31	52	52	44	91	199	98	77
28	128	23	11	147	30	51	65	41	112	206	103	88
29	136	23	12	9.7	30	51	76	41	133	214	103	90
30	136	23	11	11	---	51	61	41	132	209	103	97
31	135	---	11	10	---	51	---	41	---	203	115	---
TOTAL	3,367	1,985	335.9	605.7	4,501	1,676	2,034	1,298	2,312.9	5,139	5,628	2,869
MEAN	109	66.2	10.8	19.5	155	54.1	67.8	41.9	77.1	166	182	95.6
MAX	180	135	15	147	411	102	156	57	146	244	231	128
MIN	60	23	9.9	9.7	10	20	23	27	9.9	115	95	38
AC-FT	6,680	3,940	666	1,200	8,930	3,320	4,030	2,570	4,590	10,190	11,160	5,690

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2004, BY WATER YEAR (WY)

	95.2	63.6	149	172	135	128	80.5	57.1	64.1	127	153	129
MEAN	95.2	63.6	149	172	135	128	80.5	57.1	64.1	127	153	129
MAX	155	233	571	700	720	326	272	122	121	201	216	206
(WY)	(1980)	(1985)	(1996)	(1997)	(1999)	(1983)	(1996)	(1996)	(1992)	(1994)	(1996)	(1993)
MIN	26.2	16.7	10.2	9.69	9.50	9.98	9.91	19.9	14.3	52.3	83.4	72.9
(WY)	(1978)	(1988)	(2001)	(2001)	(1977)	(2001)	(2001)	(1977)	(1977)	(1993)	(1977)	(1977)

## SUMMARY STATISTICS

	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1976 - 2004	
ANNUAL TOTAL	42,746.5		31,751.5			
ANNUAL MEAN	117		86.8		113	
HIGHEST ANNUAL MEAN					217	
LOWEST ANNUAL MEAN					40.4	
HIGHEST DAILY MEAN	1,000	Mar 25	411	Feb 8	1,940	Jan 3, 1997
LOWEST DAILY MEAN	9.0	Jan 1	9.7	Jan 29	3.4	Dec 2, 2001
ANNUAL SEVEN-DAY MINIMUM	9.2	Jan 5	10	Dec 15	5.5	Dec 1, 2001
ANNUAL RUNOFF (AC-FT)	84,790		62,980		81,910	
10 PERCENT EXCEEDS	188		203		214	
50 PERCENT EXCEEDS	105		65		78	
90 PERCENT EXCEEDS	11		11		12	



2004 Water Year  
TUALATIN RIVER BASIN

14202980 SCOGGINS CK BLW HENRY HAGG LAKE, NR GASTON, OR

Latitude: 45° 28 ' 10"

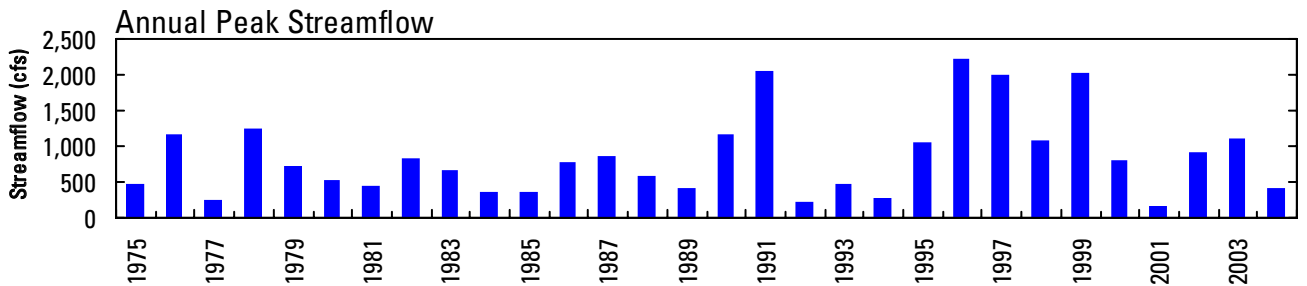
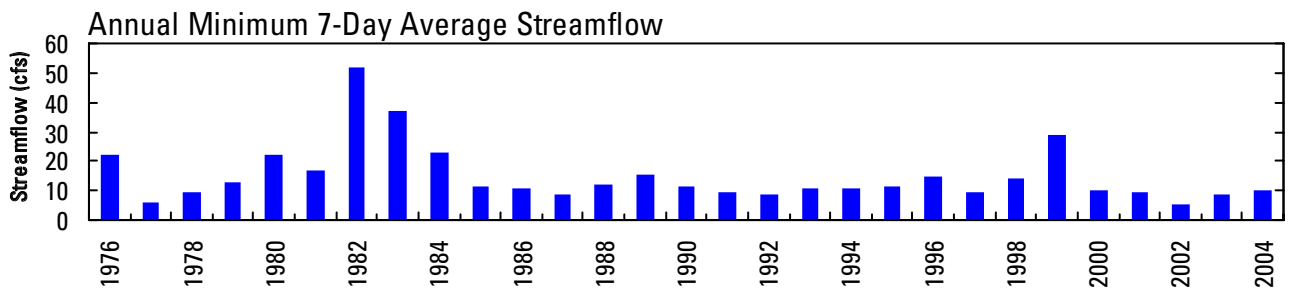
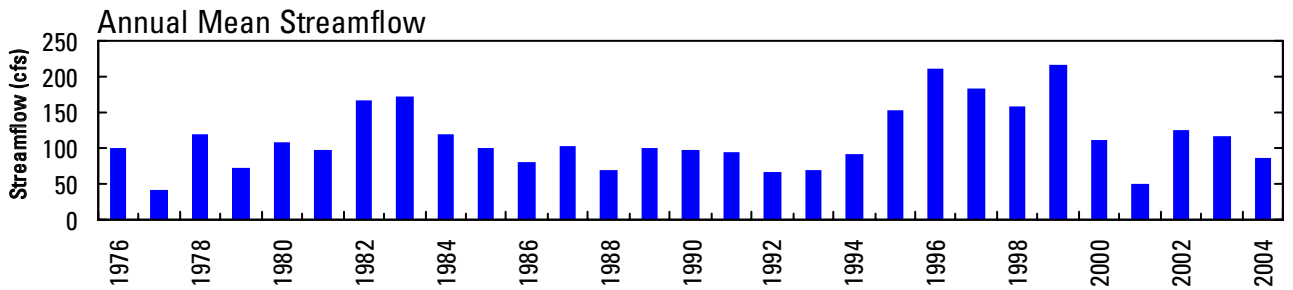
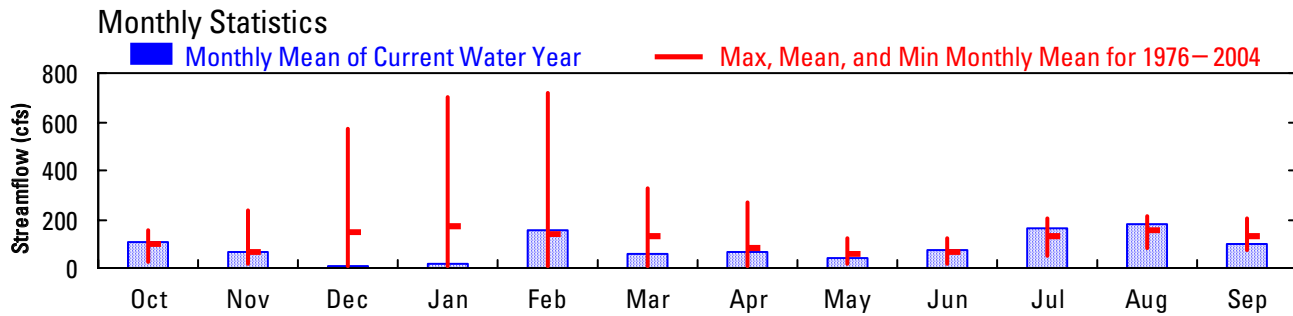
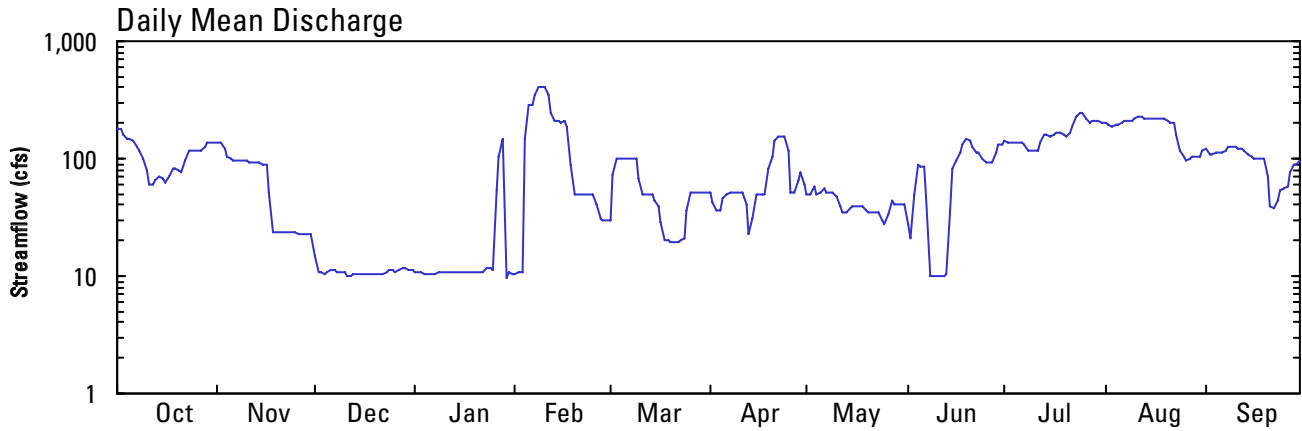
Longitude: 123° 11 ' 56"

Hydrologic Unit Code: 17090010

Washington County

Datum: 187.48 feet

Drainage Area: 38.8 square miles



## 14203500 TUALATIN RIVER NEAR DILLEY, OR

LOCATION.--Lat 45°28'30", long 123°07'23", in NE ¼ NW ¼ sec.24, T.1 S., R.4 W., Washington County, Hydrologic Unit 17090010, on right bank 5 ft upstream from highway bridge, 1.0 mi south of Dilley, 1.2 mi downstream from Scoggins Creek, and at mile 58.8.

DRAINAGE AREA.--125 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 147.57 ft above NGVD of 1929. Prior to June 16, 1950, nonrecording gage at several sites within 200 ft of present site at datum 4.00 ft higher. June 16, 1950, to Aug. 10, 1966, water-stage recorder at present site at datum 4.00 ft higher.

REMARKS.--Records fair except for estimated daily discharges and those above 500 ft<sup>3</sup>/s, which are poor. Diurnal fluctuation caused by operation of millpond on Scoggins Creek upstream from station and regulation by Henry Hagg Lake since January 1975. Diversions upstream from station of approximately 3,000 acre-ft from J. W. Barney Reservoir on the Middle Fork of North Fork Trask River for municipal water supply and irrigation in Wapato Lake area. Continuous water-quality records for the period November 1963 to September 1968 have been collected at this location. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--35 years (water years 1940-1974), 415 ft<sup>3</sup>/s, 300,800 acre-ft/yr. 30 years (water years 1975-2004), 362 ft<sup>3</sup>/s, 262,100 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 19.34 ft, from rating curve extended above 6,000 ft<sup>3</sup>/s; minimum discharge, 0.08 ft<sup>3</sup>/s Sept. 3, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,250 ft<sup>3</sup>/s Jan. 30, gage height, 17.78 ft; minimum discharge, 72 ft<sup>3</sup>/s June 14.

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	210	180	198	434	1,790	597	244	161	125	199	240	162
2	211	180	155	435	1,450	567	221	155	101	199	235	154
3	207	175	184	426	1,230	559	197	154	104	196	223	150
4	182	150	173	397	998	531	186	146	159	197	229	153
5	182	150	220	327	1,090	509	180	140	155	196	237	152
6	180	139	394	294	981	490	180	148	173	196	240	149
7	183	137	411	271	941	462	175	143	177	193	255	149
8	165	131	340	371	968	426	173	144	104	182	251	157
9	160	131	263	516	908	392	164	140	93	174	248	159
10	148	129	243	588	839	345	156	134	87	178	252	159
11	124	132	230	644	763	294	152	124	82	178	e260	156
12	139	139	271	616	651	273	143	e120	77	185	e260	157
13	145	134	406	563	537	256	125	110	77	206	251	155
14	129	135	698	578	487	241	143	107	81	208	246	156
15	122	130	750	667	478	223	199	e110	130	205	246	159
16	118	155	586	720	504	205	184	e110	136	202	245	165
17	135	285	489	698	597	191	181	e110	168	213	247	164
18	122	222	402	636	628	173	174	e100	184	212	251	182
19	115	247	328	624	589	170	193	e100	203	207	247	246
20	121	259	284	602	547	159	307	96	195	198	245	180
21	120	182	265	534	488	152	457	95	187	201	237	112
22	131	133	233	444	424	146	504	98	166	225	246	90
23	160	108	207	468	376	140	449	94	168	252	231	82
24	155	114	284	548	372	147	397	104	161	277	172	86
25	151	171	456	572	426	187	351	87	148	279	207	87
26	149	294	441	545	497	293	239	84	144	265	191	84
27	148	234	408	577	564	429	215	110	158	238	168	92
28	154	172	518	639	639	412	205	148	166	238	159	109
29	179	265	659	2,120	611	341	209	160	196	250	154	105
30	186	272	624	3,010	---	296	194	153	187	248	149	115
31	180	---	500	2,390	---	266	---	147	---	240	152	---
TOTAL	4,811	5,285	11,620	22,254	21,373	9,872	6,897	3,832	4,292	6,637	6,974	4,226
MEAN	155	176	375	718	737	318	230	124	143	214	225	141
MAX	211	294	750	3,010	1,790	597	504	161	203	279	260	246
MIN	115	108	155	271	372	140	125	84	77	174	149	82
AC-FT	9,540	10,480	23,050	44,140	42,390	19,580	13,680	7,600	8,510	13,160	13,830	8,380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2004, BY WATER YEAR (WY)

MEAN	145	310	728	790	723	546	328	169	120	152	177	166
MAX	320	882	2,062	1,615	2,250	1,086	974	424	189	214	269	370
(WY)	(1998)	(1985)	(1996)	(1999)	(1999)	(1983)	(1991)	(1996)	(2000)	(2004)	(1975)	(1975)
MIN	6.03	47.2	41.1	31.8	62.0	125	99.8	80.8	65.9	91.0	93.0	82.6
(WY)	(1975)	(1988)	(1977)	(1977)	(1977)	(2001)	(1977)	(1977)	(1979)	(1977)	(1977)	(1985)

## WILLAMETTE RIVER BASIN

14203500 TUALATIN RIVER NEAR DILLEY, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1975 - 2004	
ANNUAL TOTAL	136,513		108,073			
ANNUAL MEAN	374		295		362	
HIGHEST ANNUAL MEAN					695	
LOWEST ANNUAL MEAN					104	
HIGHEST DAILY MEAN	2,870	Feb 1	3,010	Jan 30	8,620	Feb 8, 1996
LOWEST DAILY MEAN	85	Jun 1	77	Jun 12	3.3	Oct 20, 1974
ANNUAL SEVEN-DAY MINIMUM	94	May 27	86	Jun 8	3.9	Oct 17, 1974
ANNUAL RUNOFF (AC-FT)	270,800		214,400		262,100	
10 PERCENT EXCEEDS	803		580		894	
50 PERCENT EXCEEDS	221		196		187	
90 PERCENT EXCEEDS	139		115		87	

e Estimated



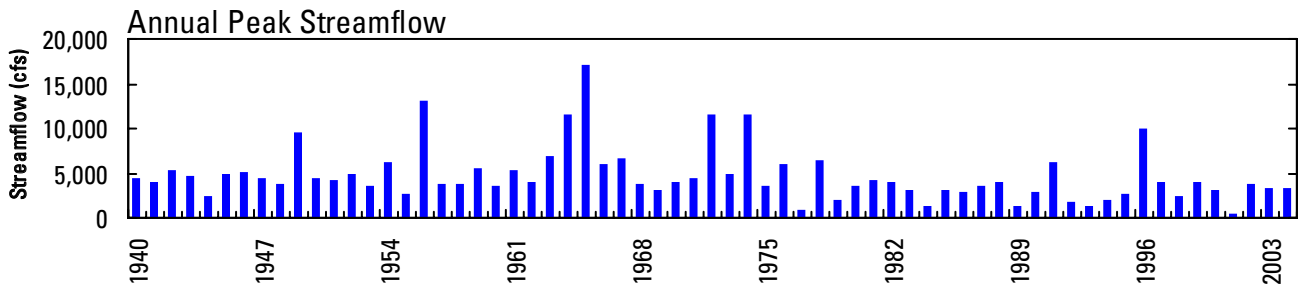
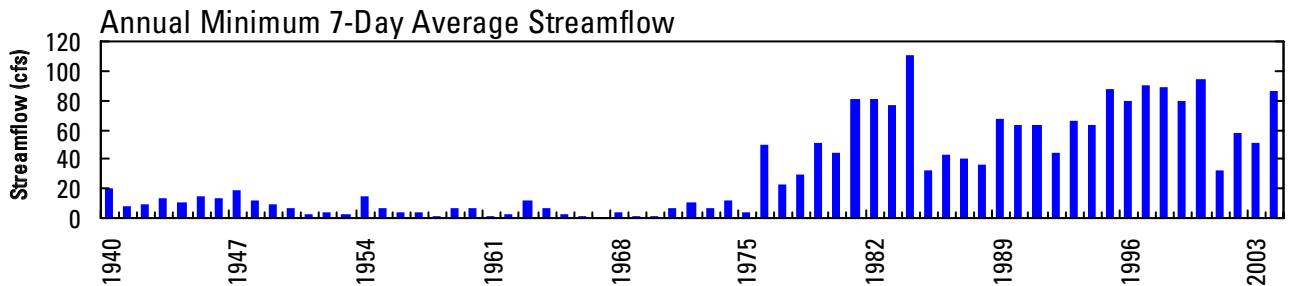
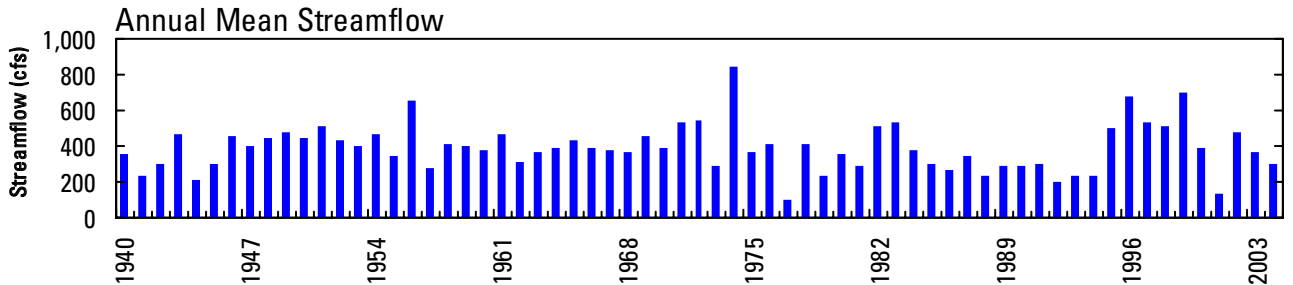
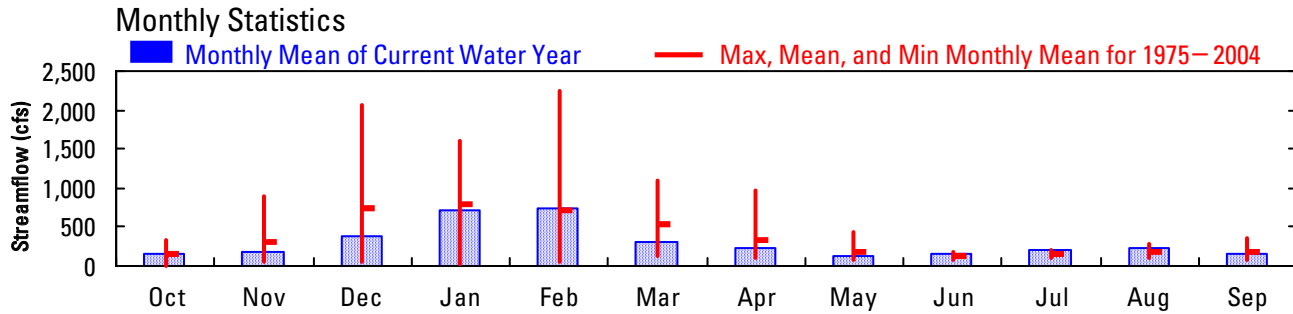
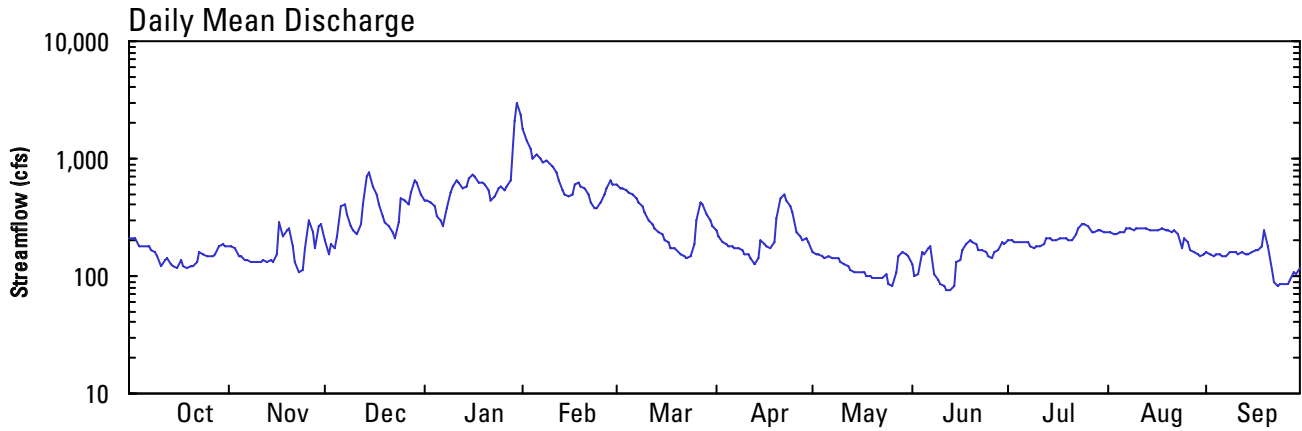
2004 Water Year  
WILLAMETTE RIVER BASIN

14203500 TUALATIN RIVER NEAR DILLEY, OR

Latitude: 45° 28 ' 30"  
Washington County

Longitude: 123° 07 ' 23"  
Datum: 147.57 feet

Hydrologic Unit Code: 17090010  
Drainage Area: 125 square miles



## 14205400 EAST FORK DAIRY CREEK NEAR MEACHAM CORNER, OR

LOCATION.--Lat 45°40'51", long 123°04'12", in SW ¼ SW ¼ sec.4, T.2 N., R.3 W., Washington County, Hydrologic Unit 17090010, on right bank of private drive, 0.9 mi downstream from Murtaugh Creek, and at mile 12.3.

DRAINAGE AREA.-- 33.8 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 2002 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 290 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--2 years (2003-04), 71.0 ft<sup>3</sup>/s, 28.53 in/yr, 51,420 ac-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,580 ft<sup>3</sup>/s Jan. 31, 2003, gage height, 7.88 ft; minimum discharge, 7.3 ft<sup>3</sup>/s Oct. 16, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan 30	0700	*807	*7.14	No other peak greater than base discharge.			

Minimum discharge, 8.7 ft<sup>3</sup>/s Oct. 1-4, 6, Aug. 20.

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	8.9	10	30	74	469	240	74	51	29	18	11	11
2	8.9	10	28	69	436	211	71	49	28	18	11	11
3	8.9	10	37	62	359	196	69	47	27	18	11	11
4	8.9	10	33	57	300	181	66	46	27	17	12	11
5	9.1	10	48	e50	243	166	64	45	28	17	12	11
6	9.6	10	70	e55	232	148	61	43	41	e17	13	11
7	12	10	63	55	204	137	59	46	36	e16	13	10
8	10	10	54	78	176	129	57	43	32	e16	12	10
9	11	10	49	116	158	119	55	41	32	e16	11	10
10	11	10	48	154	147	110	53	40	31	e16	11	10
11	14	12	43	160	135	105	52	40	30	e15	10	11
12	24	11	56	151	e120	99	51	38	28	e15	10	11
13	13	11	101	142	e110	93	50	37	29	e15	10	12
14	11	10	142	166	110	87	61	36	27	e14	10	12
15	12	12	119	223	107	82	62	36	26	e14	10	13
16	13	22	103	242	130	78	56	35	25	e14	10	12
17	11	28	88	227	136	75	53	33	23	e13	10	14
18	10	25	76	224	159	78	51	33	23	e13	10	31
19	13	44	69	229	163	76	57	32	23	e13	9.9	29
20	12	34	68	222	158	71	82	32	22	e12	9.5	17
21	12	26	61	e190	147	68	116	31	21	12	10	14
22	11	20	55	e160	135	66	107	32	21	12	15	13
23	11	18	53	e160	122	64	97	32	22	12	14	12
24	11	24	74	193	122	67	87	31	22	11	16	12
25	9.9	46	88	206	127	80	78	29	21	11	25	12
26	9.7	46	83	199	151	90	71	31	20	11	17	12
27	9.7	37	93	192	221	111	66	39	19	11	14	11
28	9.6	32	99	216	259	96	61	39	19	11	12	11
29	11	36	98	410	249	91	58	34	18	11	12	11
30	11	30	84	742	---	85	54	32	18	11	11	11
31	10	---	77	604	---	79	---	30	---	11	11	---
TOTAL	347.2	624	2,190	6,028	5,585	3,378	1,999	1,163	768	431	373.4	387
MEAN	11.2	20.8	70.6	194	193	109	66.6	37.5	25.6	13.9	12.0	12.9
MAX	24	46	142	742	469	240	116	51	41	18	25	31
MIN	8.9	10	28	50	107	64	50	29	18	11	9.5	10
AC-FT	689	1,240	4,340	11,960	11,080	6,700	3,970	2,310	1,520	855	741	768
CFSM	0.33	0.62	2.09	5.75	5.70	3.22	1.97	1.11	0.76	0.41	0.36	0.38
IN.	0.38	0.69	2.41	6.63	6.15	3.72	2.20	1.28	0.85	0.47	0.41	0.43

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2003 - 2004, BY WATER YEAR (WY)

MEAN	10.1	17.1	68.0	186	202	163	95.6	49.2	27.4	16.0	12.4	11.5
MAX	11.2	20.8	70.6	194	212	216	125	60.9	29.1	18.0	12.7	12.9
(WY)	(2004)	(2004)	(2004)	(2004)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(2004)
MIN	8.92	13.5	65.4	178	193	109	66.6	37.5	25.6	13.9	12.0	10.1
(WY)	(2003)	(2003)	(2003)	(2003)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2003)



## 14205400 EAST FORK DAIRY CREEK NEAR MEACHAM CORNER, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2003 - 2004	
ANNUAL TOTAL	29,067.4		23,273.6			
ANNUAL MEAN	79.6		63.6		71.0	
HIGHEST ANNUAL MEAN					78.4	2003
LOWEST ANNUAL MEAN					63.6	2004
HIGHEST DAILY MEAN	1,140	Jan 31	742	Jan 30	1,140	Jan 31, 2003
LOWEST DAILY MEAN	8.6	Sep 27	8.9	Oct 1	7.7	Oct 16, 2002
ANNUAL SEVEN-DAY MINIMUM	8.8	Sep 25	9.5	Oct 1	8.1	Oct 14, 2002
ANNUAL RUNOFF (AC-FT)	57,660		46,160		51,420	
ANNUAL RUNOFF (CFSM)	2.36		1.88		2.10	
ANNUAL RUNOFF (INCHES)	31.99		25.61		28.53	
10 PERCENT EXCEEDS	192		159		176	
50 PERCENT EXCEEDS	37		32		32	
90 PERCENT EXCEEDS	10		10		10	

e Estimated



2004 Water Year  
WILLAMETTE RIVER BASIN

**14205400 EAST FORK DAIRY CREEK NEAR MEACHAM CORNER, OR**

Latitude: 45° 40 ' 51"

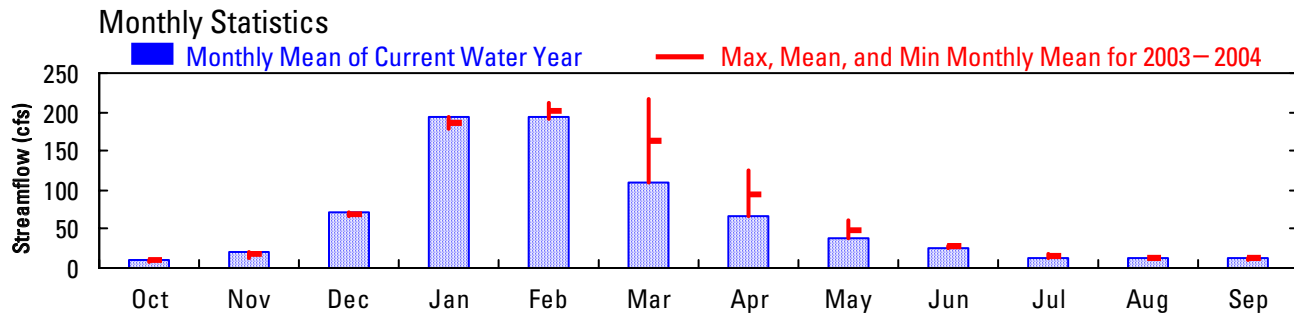
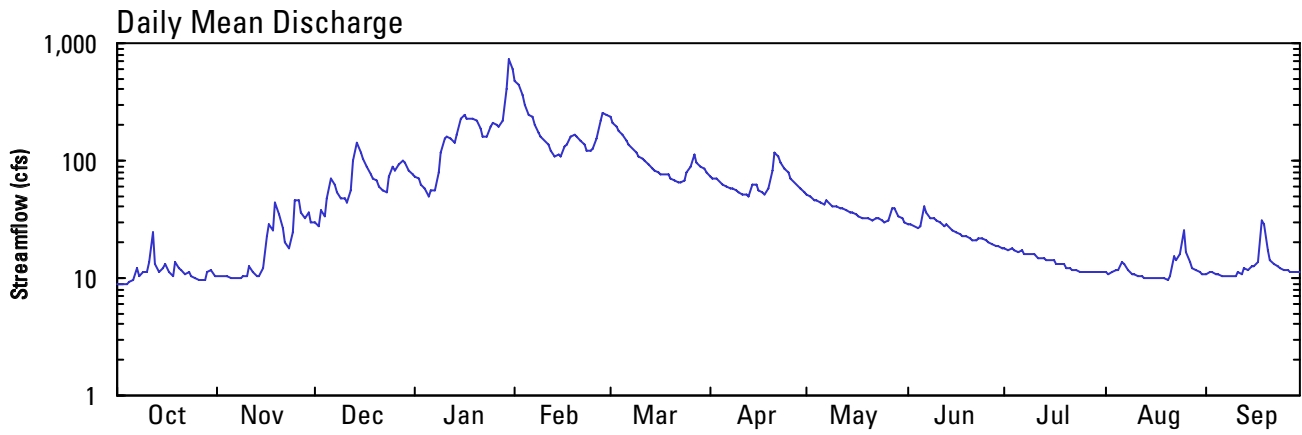
Longitude: 123° 04 ' 12"

Hydrologic Unit Code: 17090010

Washington County

Datum: 290 feet

Drainage Area: 33.8 square miles



## 14205400 EAST FORK DAIRY CREEK NEAR MEACHAM, OR—Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 2002 to current year.

WATER TEMPERATURE: September 2002 to current year.

INSTRUMENTATION.--Water-quality monitor.

## REMARKS.--

SPECIFIC CONDUCTANCE: Records good, except those for the period June 27-29, which are poor.

WATER TEMPERATURE: Records good.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 108 microsiemens Sept. 16, 2002; minimum, 36 microsiemens Jan. 31, 2003.

WATER TEMPERATURE: Maximum, 21.8°C July 24, 2004; minimum, 0.0°C Jan. 6, 7, 2004.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 78 microsiemens Aug. 16, 17; minimum, 37 microsiemens Jan. 30.

WATER TEMPERATURE: Maximum, 21.8°C July 24; minimum, 0.0°C Jan. 6, 7.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	70	68	69	70	68	69	59	57	58	48	46	47
2	70	68	69	70	68	69	59	58	59	48	45	46
3	70	68	69	69	68	69	58	57	57	48	47	48
4	71	68	70	69	68	69	58	55	57	50	48	49
5	70	68	69	69	68	69	56	55	56	50	49	50
6	70	68	70	69	68	69	55	53	54	50	48	49
7	71	70	70	70	68	69	53	50	51	48	46	47
8	73	69	70	70	68	70	52	51	52	47	44	45
9	71	68	70	71	69	70	52	51	52	44	44	44
10	70	68	69	71	69	70	52	50	51	44	43	44
11	70	67	68	72	70	71	52	51	52	44	43	43
12	71	68	69	72	70	71	53	51	52	43	42	43
13	71	69	70	71	69	70	53	48	50	42	42	42
14	71	69	70	71	69	70	49	46	47	42	41	41
15	71	68	69	71	70	70	47	46	46	41	40	40
16	70	68	69	71	68	70	46	46	46	40	40	40
17	71	69	70	71	70	71	47	46	47	41	40	40
18	71	68	70	71	70	70	48	47	47	42	40	41
19	71	66	69	70	63	67	48	47	47	42	41	41
20	72	70	72	67	64	66	49	47	48	42	41	41
21	73	71	72	66	65	65	50	49	50	42	41	41
22	74	72	73	65	64	65	50	49	50	43	42	42
23	73	70	71	65	64	65	51	50	50	42	42	42
24	72	70	71	65	62	63	50	48	48	42	42	42
25	72	70	71	64	58	61	49	48	48	43	42	42
26	72	70	71	61	57	59	48	47	48	43	42	43
27	72	71	72	59	58	59	48	45	46	43	42	43
28	73	71	72	59	57	58	48	47	47	43	41	42
29	73	71	72	60	57	58	48	47	47	41	38	40
30	72	70	71	60	58	59	48	47	48	39	37	38
31	71	69	70	---	---	---	48	47	47	40	39	39
MONTH	74	66	70	72	57	67	59	45	50	50	37	43



## 14205400 EAST FORK DAIRY CREEK NEAR MEACHAM, OR—Continued

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	15.3	12.8	14.1	4.5	2.9	3.9	7.7	6.9	7.2	4.6	3.7	4.2
2	14.6	13.7	14.1	5.1	4.2	4.7	8.0	6.8	7.3	3.9	2.9	3.3
3	15.2	13.3	14.1	4.7	3.2	4.0	7.9	5.4	6.5	4.1	3.7	3.8
4	14.1	13.1	13.5	5.0	3.8	4.3	6.6	5.4	5.9	4.0	2.8	3.7
5	14.3	13.0	13.6	4.4	2.8	3.8	8.1	6.6	7.3	2.8	1.0	1.8
6	13.3	12.4	12.9	4.2	2.6	3.5	8.1	6.7	7.2	1.0	0.0	0.2
7	13.7	12.8	13.2	5.7	3.5	4.7	7.2	6.6	6.9	1.7	0.0	0.5
8	12.8	11.9	12.3	6.3	4.9	5.7	7.6	6.3	7.1	3.3	1.7	2.7
9	11.9	10.7	11.1	7.1	5.8	6.4	6.7	5.9	6.3	4.6	3.3	4.0
10	11.6	10.3	10.8	7.3	6.1	6.6	6.5	5.8	6.3	5.3	4.3	4.8
11	10.6	9.9	10.1	8.9	7.3	8.0	6.9	6.4	6.7	5.7	4.6	5.0
12	11.0	9.9	10.4	7.6	6.1	6.8	7.8	6.9	7.3	5.6	4.7	5.1
13	11.3	9.9	10.7	6.4	5.0	5.8	7.8	6.9	7.5	6.0	5.1	5.5
14	11.4	10.2	10.8	7.6	6.0	6.9	6.9	6.4	6.6	5.9	5.5	5.7
15	10.2	9.3	9.7	7.8	7.3	7.5	6.8	6.1	6.5	6.3	5.8	6.0
16	11.4	9.9	10.6	7.9	7.5	7.7	7.0	6.1	6.5	6.8	5.9	6.2
17	13.6	11.4	12.5	8.3	7.0	7.5	7.8	6.3	7.2	6.9	5.8	6.2
18	12.6	11.2	12.0	9.7	8.3	9.0	6.3	5.3	5.8	6.7	6.1	6.3
19	12.9	12.0	12.3	9.8	6.4	7.8	6.7	5.1	5.8	7.1	6.3	6.6
20	13.9	12.4	13.0	6.4	5.1	5.9	7.4	6.7	7.1	6.6	5.5	6.1
21	14.9	13.3	14.1	5.6	4.1	5.0	8.2	7.3	7.7	6.0	4.9	5.4
22	14.3	13.0	13.9	4.1	3.4	3.8	7.3	5.6	6.2	5.4	4.6	5.0
23	13.0	10.3	11.4	5.3	4.0	4.6	6.7	5.3	6.0	6.5	5.4	6.0
24	10.8	9.2	10.1	5.5	4.6	5.0	7.2	6.6	6.9	6.5	5.5	6.2
25	10.8	9.0	9.9	6.1	4.8	5.4	6.9	5.5	6.5	6.3	5.4	5.8
26	11.3	9.3	10.4	6.2	5.2	5.6	5.5	5.1	5.3	7.0	6.0	6.5
27	11.7	9.9	10.9	6.1	4.8	5.5	5.5	4.6	5.1	7.3	6.6	6.9
28	12.8	11.4	12.0	7.2	5.9	6.4	5.5	4.7	5.1	7.8	6.9	7.4
29	11.5	8.8	10.1	8.2	7.2	7.7	5.2	4.2	4.9	8.5	7.8	8.2
30	8.8	6.3	8.0	7.4	6.0	6.9	4.3	3.7	4.0	8.4	6.6	7.3
31	6.3	4.0	5.1	---	---	---	4.6	3.7	4.3	6.8	6.4	6.6
MONTH	15.3	4.0	11.5	9.8	2.6	5.9	8.2	3.7	6.4	8.5	0.0	5.1
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	6.9	6.1	6.5	8.7	7.0	7.7	9.8	5.5	7.5	13.5	9.9	11.8
2	7.5	6.8	7.1	8.5	6.3	7.3	11.0	6.0	8.4	14.2	10.6	12.1
3	7.6	6.6	7.1	7.5	6.5	7.0	12.6	7.6	9.8	13.8	10.6	12.1
4	7.7	6.4	7.2	8.3	6.8	7.6	11.8	8.4	9.9	12.3	10.8	11.6
5	7.3	5.9	6.6	8.2	6.7	7.2	9.9	7.7	8.8	11.3	9.2	10.4
6	7.6	6.6	7.0	8.0	6.3	7.2	11.3	8.0	9.5	12.5	9.0	10.8
7	7.6	6.1	7.0	9.9	7.6	8.6	10.5	8.4	9.4	12.3	10.7	11.4
8	7.6	5.9	6.6	10.8	7.5	9.0	12.2	7.7	9.8	11.9	10.0	10.9
9	7.2	5.4	6.2	10.4	7.6	9.2	12.8	8.0	10.3	11.8	8.9	10.2
10	7.3	5.2	6.1	9.5	6.3	7.8	13.4	8.7	11.0	10.7	9.1	10.0
11	7.3	5.3	6.2	10.2	6.8	8.4	13.9	8.8	11.3	10.5	8.9	9.8
12	6.9	4.8	5.7	9.6	7.0	8.3	12.0	9.5	10.8	10.6	8.7	9.6
13	6.3	4.4	5.4	9.4	6.5	8.0	11.2	8.2	9.8	11.9	8.4	10.2
14	7.8	6.2	6.9	10.0	8.0	8.9	9.9	8.7	9.3	12.4	9.6	10.9
15	8.4	7.1	7.6	10.5	7.2	8.7	9.4	8.3	8.8	11.2	10.1	10.6
16	7.5	7.1	7.3	10.3	6.4	8.4	10.3	8.5	9.2	12.2	10.0	11.0
17	7.7	7.0	7.4	10.4	7.5	8.8	10.5	7.8	9.0	13.3	9.9	11.6
18	8.6	7.5	8.0	9.4	7.5	8.4	9.2	7.2	8.3	13.4	11.2	12.2
19	8.2	6.4	7.3	8.9	6.5	7.6	9.2	8.1	8.6	12.1	10.7	11.5
20	7.9	5.8	6.7	9.8	5.7	7.7	8.6	7.9	8.3	13.2	10.6	11.7
21	8.0	5.7	6.9	10.6	7.1	8.9	10.0	7.9	8.8	11.9	10.8	11.4
22	8.4	6.6	7.4	11.7	8.3	10.0	11.5	7.2	9.2	11.6	10.0	10.8
23	8.3	6.7	7.4	10.3	8.0	9.3	10.0	8.3	9.1	12.2	10.2	11.2
24	8.0	6.7	7.5	10.2	8.2	9.0	10.9	6.9	8.9	13.5	9.6	11.5
25	7.6	6.3	6.9	8.7	7.7	8.1	12.4	7.8	10.0	13.9	10.1	12.1
26	7.6	6.9	7.2	8.0	7.2	7.6	13.5	9.2	11.3	13.4	12.0	12.6
27	8.2	7.2	7.6	9.8	7.5	8.5	12.7	10.1	11.2	12.3	11.0	11.6
28	8.4	7.3	7.7	10.8	6.4	8.4	12.0	8.5	10.2	12.3	10.4	11.2
29	7.8	7.2	7.5	12.2	7.6	9.7	12.6	8.3	10.4	10.8	9.3	10.1
30	---	---	---	10.6	7.3	9.5	13.4	9.1	11.3	12.8	10.2	11.2
31	---	---	---	8.8	6.0	7.4	---	---	---	11.8	10.0	10.9
MONTH	8.6	4.4	7.0	12.2	5.7	8.3	13.9	5.5	9.6	14.2	8.4	11.1



## 14206900 FANNO CREEK AT 56TH AVENUE, PORTLAND, OR

LOCATION.--Lat 45°29'17", long 122°44'01", in NE ¼ NW ¼ sec.18, T.1 S., R.1 E., Multnomah County, Hydrologic Unit 17090010, on bridge at SW 56th Ave., in Portland, and at mile 11.9.

DRAINAGE AREA.--2.37 mi<sup>2</sup>.

PERIOD OF RECORD.--Annual maximums, 1975-77. October 1990 to current year.

REVISED RECORDS.--WDR OR-92-1: 1991, 1991(m).

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--14 years (water years 1991-2004), 3.29 ft<sup>3</sup>/s, 18.86 in/yr, 2,380 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 733 ft<sup>3</sup>/s Feb. 8, 1996, gage height, 13.2 ft, from floodmark, from rating curve extended above 200 ft<sup>3</sup>/s; minimum discharge, 0.01 ft<sup>3</sup>/s Sept. 4, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Aug. 22	1245	*134	*10.86				

Minimum discharge, 0.03 ft<sup>3</sup>/s, July 12, 13.

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	0.20	0.20	4.1	5.4	5.8	5.5	0.82	0.49	0.17	0.14	0.11	0.31
2	0.26	0.24	6.0	9.3	10	3.0	0.73	0.32	0.15	0.13	0.10	1.7
3	0.20	0.24	4.5	7.4	5.2	5.0	0.71	0.32	0.13	0.15	0.11	0.24
4	0.19	0.24	7.2	3.9	4.4	3.9	0.63	0.34	0.14	0.13	0.12	0.20
5	0.19	0.24	19	e2.6	3.7	3.2	0.58	0.37	0.73	0.13	1.4	0.20
6	1.9	0.21	7.4	e3.6	6.5	2.7	0.57	0.29	2.7	0.13	2.5	0.21
7	0.47	0.28	11	e3.0	3.5	2.6	0.53	1.1	0.37	0.13	0.21	0.20
8	0.27	0.45	3.4	3.4	3.1	2.4	0.51	0.75	2.9	0.15	0.15	0.21
9	3.9	0.29	3.3	7.3	2.3	1.9	0.46	0.33	3.2	0.15	0.15	0.30
10	0.87	0.32	6.8	11	1.9	1.8	0.43	1.3	0.60	0.16	0.16	0.27
11	2.0	0.58	4.9	9.1	1.7	1.6	0.43	0.94	0.41	0.17	0.20	1.3
12	0.65	0.26	5.6	8.0	1.7	1.8	0.43	0.29	0.33	0.14	0.11	1.3
13	0.24	0.22	48	8.9	1.5	1.7	0.49	0.24	0.32	0.13	0.10	3.4
14	0.46	0.22	15	16	4.1	1.4	2.4	0.23	0.29	0.13	0.11	0.43
15	1.4	1.4	4.5	8.4	3.6	1.1	6.0	0.35	0.27	0.13	0.11	1.2
16	1.1	4.2	4.0	4.7	15	0.89	1.1	0.27	0.26	0.12	0.11	0.24
17	0.19	0.95	2.6	3.5	14	0.82	7.2	0.19	0.25	0.11	0.11	5.7
18	0.18	1.7	1.8	6.5	8.3	1.6	1.1	0.19	0.22	0.11	0.11	1.5
19	2.1	24	1.8	6.6	3.8	1.2	2.9	0.17	0.20	0.13	0.12	2.3
20	0.29	6.9	5.6	3.3	3.0	0.94	2.9	0.18	0.18	0.12	0.12	0.47
21	0.31	2.7	5.8	2.7	2.5	1.0	4.3	0.16	0.11	0.11	4.0	0.22
22	0.73	1.4	2.3	2.4	2.2	0.94	0.99	0.16	0.15	0.11	22	0.26
23	0.44	1.9	2.0	2.1	2.1	0.95	0.89	0.16	0.19	0.11	1.6	0.20
24	0.23	3.0	13	12	4.3	2.2	0.71	0.17	0.17	0.12	2.0	0.16
25	0.23	7.1	13	5.2	6.7	4.0	0.72	0.14	0.17	0.12	22	0.15
26	0.22	3.9	3.5	4.0	8.3	7.4	0.67	0.15	0.15	0.11	6.6	0.14
27	0.23	1.8	14	3.3	17	2.1	0.51	5.9	0.11	0.11	0.61	0.15
28	0.28	7.2	18	19	7.0	1.3	0.55	1.3	0.11	0.11	0.36	0.22
29	0.35	18	17	26	6.2	1.2	0.55	0.25	0.12	0.11	0.32	0.19
30	0.28	3.8	4.6	20	---	1.3	0.51	0.23	0.13	0.11	0.30	0.18
31	0.19	---	8.0	8.6	---	0.83	---	0.18	---	0.12	0.25	---
TOTAL	20.55	93.94	267.7	256.1	159.4	68.27	41.32	17.46	15.23	3.93	66.25	23.55
MEAN	0.66	3.13	8.64	8.26	5.50	2.20	1.38	0.56	0.51	0.13	2.14	0.79
MAX	3.9	24	48	26	17	7.4	7.2	5.9	3.2	0.17	22	5.7
MIN	0.18	0.20	1.8	2.4	1.5	0.82	0.43	0.14	0.11	0.11	0.10	0.14
AC-FT	41	186	531	508	316	135	82	35	30	7.8	131	47
CFSM	0.28	1.32	3.64	3.49	2.32	0.93	0.58	0.24	0.21	0.05	0.90	0.33
IN.	0.32	1.47	4.20	4.02	2.50	1.07	0.65	0.27	0.24	0.06	1.04	0.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2004, BY WATER YEAR (WY)

MEAN	1.63	4.96	6.98	7.27	6.80	4.36	3.01	2.05	1.07	0.49	0.50	0.53
MAX	4.11	14.3	20.1	11.8	16.6	9.47	6.17	4.79	1.94	0.89	2.14	1.18
(WY)	(1995)	(1997)	(1997)	(1999)	(1996)	(1997)	(2003)	(1998)	(1997)	(1997)	(2004)	(1996)
MIN	0.28	0.86	2.67	1.06	1.22	1.73	1.31	0.56	0.31	0.13	0.13	0.12
(WY)	(2003)	(2003)	(2001)	(2001)	(2001)	(1994)	(1998)	(2004)	(1992)	(2004)	(1992)	(1999)

## WILLAMETTE RIVER BASIN

14206900 FANNO CREEK AT 56TH AVENUE, PORTLAND, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1991 - 2004	
ANNUAL TOTAL	1,291.47		1,033.70			
ANNUAL MEAN	3.54		2.82		3.29	
HIGHEST ANNUAL MEAN					5.95	
LOWEST ANNUAL MEAN					1.21	
HIGHEST DAILY MEAN	95	Jan 31	48	Dec 13	202	Nov 19, 1996
LOWEST DAILY MEAN	0.16	Sep 25	0.10	Aug 2	0.06	Sep 12, 1999
ANNUAL SEVEN-DAY MINIMUM	0.18	Sep 23	0.11	Aug 12	0.07	Oct 1, 1991
ANNUAL RUNOFF (AC-FT)	2,560		2,050		2,380	
ANNUAL RUNOFF (CFSM)	1.49		1.19		1.39	
ANNUAL RUNOFF (INCHES)	20.27		16.23		18.86	
10 PERCENT EXCEEDS	8.0		7.3		7.8	
50 PERCENT EXCEEDS	1.5		0.73		1.1	
90 PERCENT EXCEEDS	0.22		0.13		0.19	

e Estimated





2004 Water Year  
WILLAMETTE RIVER BASIN

14206900 FANNO CREEK AT 56TH AVE, AT PORTLAND, OR

Latitude: 45° 29 ' 17"

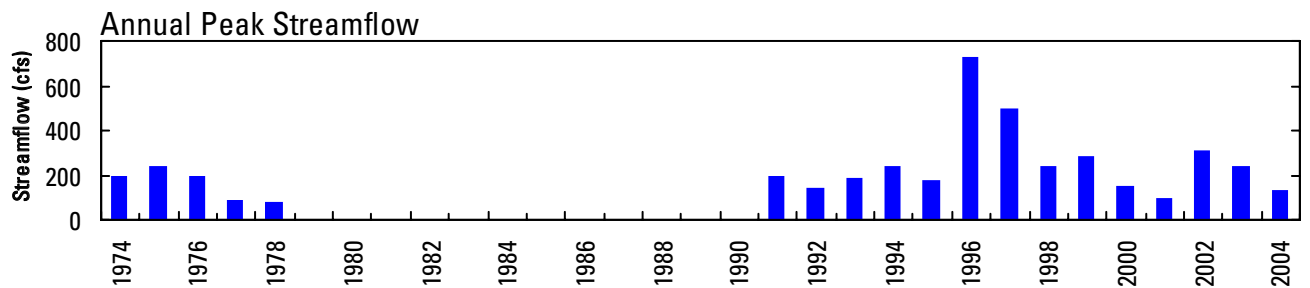
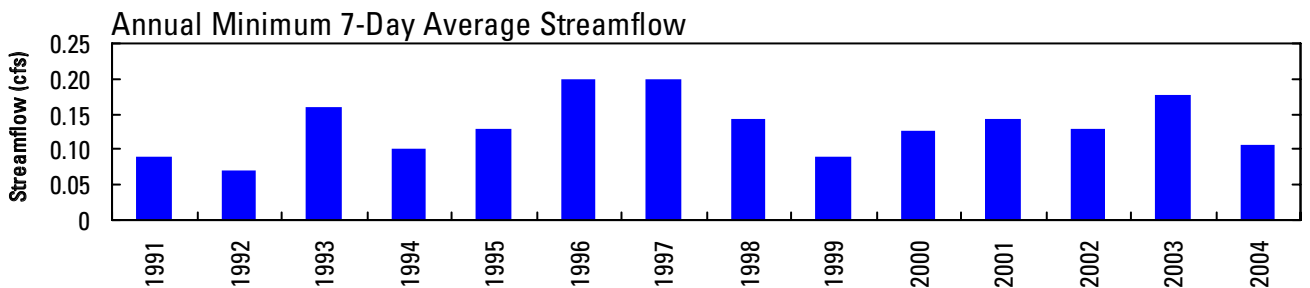
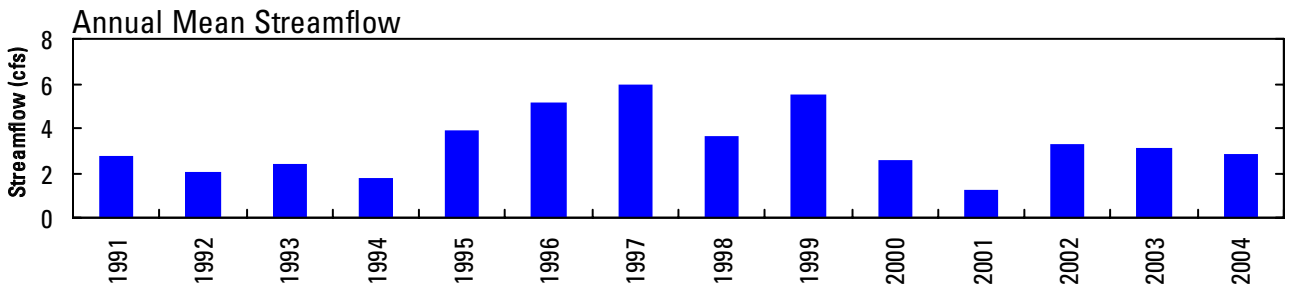
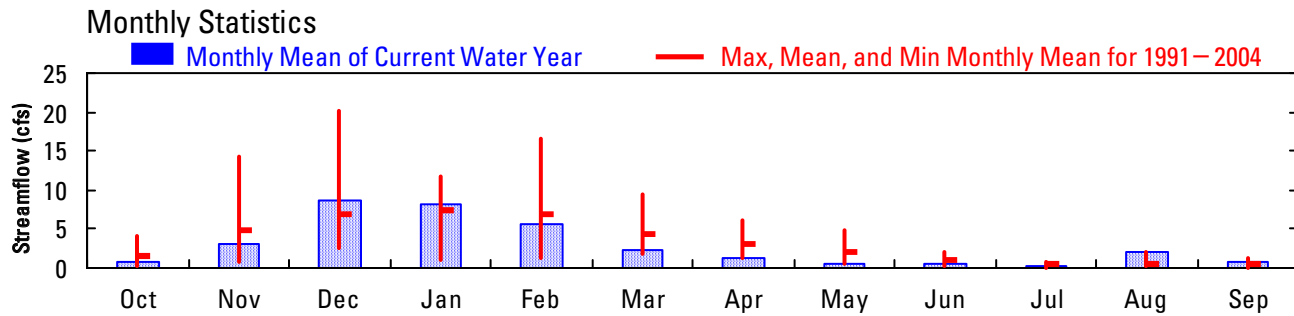
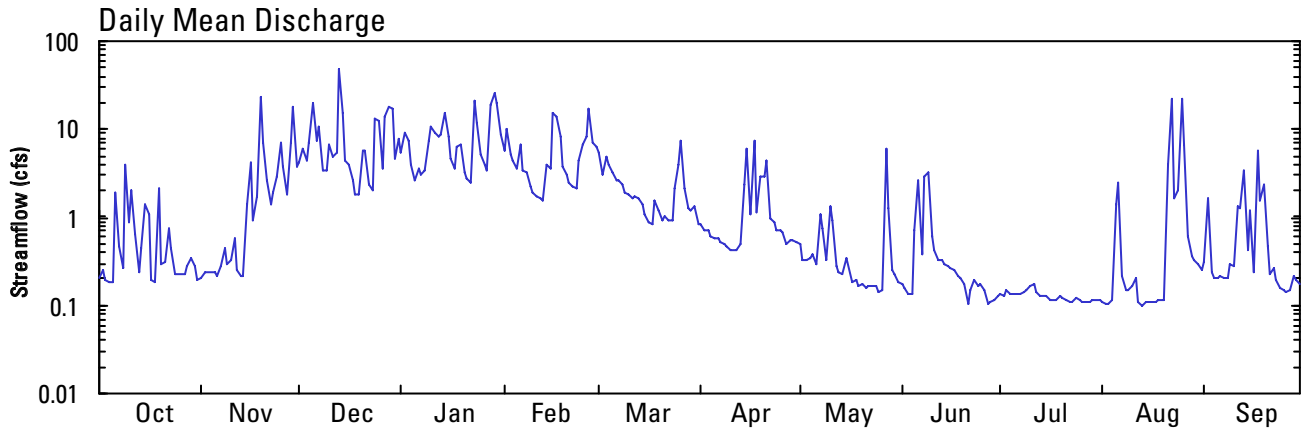
Longitude: 122° 44 ' 01"

Hydrologic Unit Code: 17090010

Multnomah County

Datum: 250 feet

Drainage Area: 2.37 square miles



## 14206950 FANNO CREEK AT DURHAM, OR

LOCATION.--Lat 45°24'13", long 122°45'13", in NE ¼ NW ¼ sec.13, T.2 S., R.1 W., Washington County, Hydrologic Unit 17090010, on right bank under Durham Road bridge, at Durham, and at mile 1.13.

DRAINAGE AREA.--31.5 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September to November 1966, September 1972 to September 1977 (discharge measurements only), October 1993 to February 1996, October 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 116.83 ft above NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Records good except for those above 100 ft<sup>3</sup>/s, which are fair and estimated daily discharges, which are poor. No regulation or diversion upstream from station.

COOPERATION.--Gage height record collected and low-flow discharge measurements made by Oregon Water Resources Department.

AVERAGE DISCHARGE.--6 years (water years 1994-95, 2001-04), 41.4 ft<sup>3</sup>/s, 17.88 in/yr, 30,030 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,090 ft<sup>3</sup>/s Feb. 6, 1996, gage height, 9.45 ft (from outside high-water mark); minimum discharge, 1.0 ft<sup>3</sup>, Sept. 13, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec 14	0345	*623	*7.06	No other peak greater than base discharge.			

Minimum discharge, 2.1 ft<sup>3</sup>/s, Aug. 21.

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	3.1	4.4	48	99	101	110	17	9.2	8.0	4.8	2.8	9.0
2	3.3	4.3	35	132	137	57	14	8.6	7.2	4.9	3.0	11
3	3.5	4.0	97	120	77	70	14	8.7	6.6	4.6	5.2	9.5
4	3.4	4.0	48	77	63	54	12	8.6	6.2	4.3	6.4	6.4
5	3.4	4.0	218	50	48	45	12	8.8	19	4.2	18	5.8
6	13	3.9	147	41	73	38	12	8.9	32	4.0	e22	5.6
7	36	3.9	132	41	53	32	11	17	33	5.9	15	4.9
8	12	4.6	55	57	41	29	11	19	49	7.2	5.5	4.8
9	47	4.4	39	129	35	27	9.8	14	44	5.0	4.5	4.7
10	37	4.7	72	165	32	24	9.5	15	21	4.2	3.2	4.9
11	36	5.4	46	130	29	23	11	24	12	4.0	3.0	8.0
12	48	5.3	78	114	26	21	12	13	10	3.6	3.0	6.5
13	21	4.3	312	107	25	20	12	10	8.9	3.8	3.0	12
14	19	4.0	489	159	44	18	42	9.3	7.9	4.3	3.0	11
15	27	18	124	149	86	17	79	8.6	6.8	3.9	2.7	8.8
16	34	61	72	87	176	17	32	9.9	6.2	3.5	2.8	9.2
17	15	35	62	63	178	16	53	8.8	5.4	3.5	2.7	104
18	8.1	37	38	100	194	23	22	10	5.2	3.5	2.8	59
19	45	267	31	102	93	e25	26	8.5	4.9	3.7	3.1	23
20	16	139	56	65	64	15	46	8.0	4.5	3.4	2.9	21
21	13	46	102	48	52	14	40	7.3	4.4	3.7	4.0	11
22	7.9	23	42	40	43	14	21	7.1	4.4	3.5	144	7.3
23	12	16	32	155	37	14	16	7.4	7.6	3.6	77	6.5
24	7.6	26	133	228	64	31	14	7.3	7.0	3.8	29	5.6
25	5.3	49	214	94	79	49	13	6.3	5.9	3.1	124	5.5
26	4.3	40	72	72	133	88	12	6.1	5.6	3.2	89	e4.6
27	4.3	22	165	65	177	91	12	37	4.8	3.8	46	e4.6
28	4.4	29	207	99	130	29	10	50	4.5	3.1	16	5.1
29	11	248	320	e300	76	23	9.9	16	4.3	2.9	12	4.4
30	12	56	127	e300	---	22	9.6	11	4.2	5.1	9.5	4.2
31	5.9	---	117	132	---	19	---	9.1	---	2.6	7.7	---
TOTAL	518.5	1,173.2	3,730	3,520	2,366	1,075	614.8	392.5	350.5	124.7	672.8	387.9
MEAN	16.7	39.1	120	114	81.6	34.7	20.5	12.7	11.7	4.02	21.7	12.9
MAX	48	267	489	300	194	110	79	50	49	7.2	144	104
MIN	3.1	3.9	31	40	25	14	9.5	6.1	4.2	2.6	2.7	4.2
AC-FT	1,030	2,330	7,400	6,980	4,690	2,130	1,220	779	695	247	1,330	769
CFSM	0.53	1.24	3.82	3.60	2.59	1.10	0.65	0.40	0.37	0.13	0.69	0.41
IN.	0.61	1.39	4.40	4.16	2.79	1.27	0.73	0.46	0.41	0.15	0.79	0.46

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

MEAN	22.2	53.3	104	101	80.8	58.4	41.7	19.5	13.9	6.99	9.18	9.22
MAX	49.8	115	153	147	111	91.8	90.4	29.5	22.6	12.6	21.7	12.9
(WY)	(1995)	(1996)	(2002)	(2002)	(1995)	(2003)	(2003)	(2003)	(1995)	(1995)	(2004)	(2004)
MIN	6.64	10.3	40.0	17.1	21.5	27.6	20.5	12.7	9.96	4.02	3.83	7.00
(WY)	(2003)	(1994)	(2001)	(2001)	(2001)	(2001)	(2004)	(2004)	(2003)	(2004)	(1994)	(2001)

## 14206950 FANNO CREEK AT DURHAM, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1994 - 2004	
ANNUAL TOTAL	19,012.3		14,925.9		41.4	
ANNUAL MEAN	52.1		40.8		56.2	
HIGHEST ANNUAL MEAN					19.3	
LOWEST ANNUAL MEAN					1995	
HIGHEST DAILY MEAN	841	Jan 31	489	Dec 14	841	Jan 31, 2003
LOWEST DAILY MEAN	2.5	Sep 2	2.6	Jul 31	1.3	Oct 1, 1993
ANNUAL SEVEN-DAY MINIMUM	2.7	Aug 31	2.9	Aug 12	1.9	Aug 24, 1994
ANNUAL RUNOFF (AC-FT)	37,710		29,610		30,030	
ANNUAL RUNOFF (CFSM)	1.65		1.29		1.32	
ANNUAL RUNOFF (INCHES)	22.45		17.63		17.88	
10 PERCENT EXCEEDS	132		118		103	
50 PERCENT EXCEEDS	22		15		15	
90 PERCENT EXCEEDS	4.0		3.9		3.8	

e Estimated



2004 Water Year  
WILLAMETTE RIVER BASIN

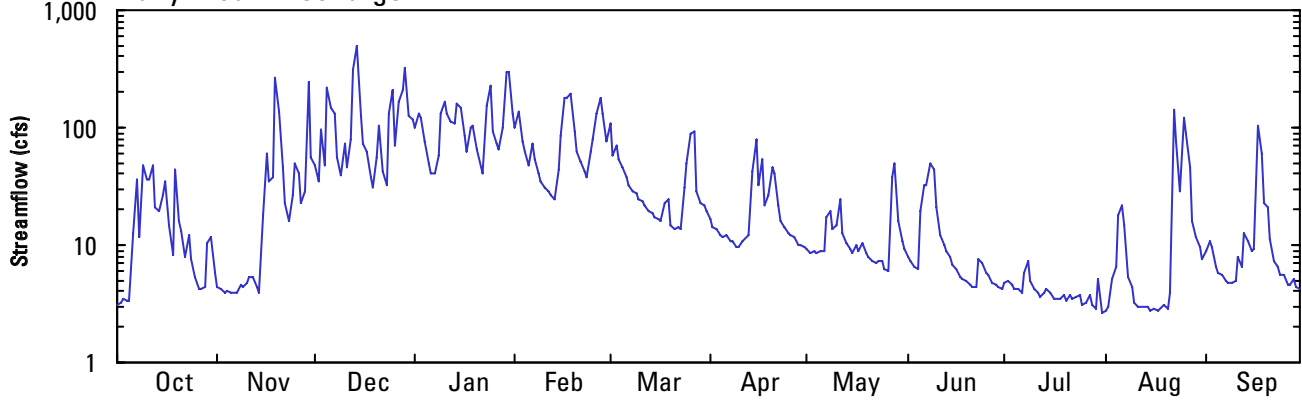
14206950 FANNO CREEK AT DURHAM, OR

Latitude: 45° 24 ' 13"  
Washington County

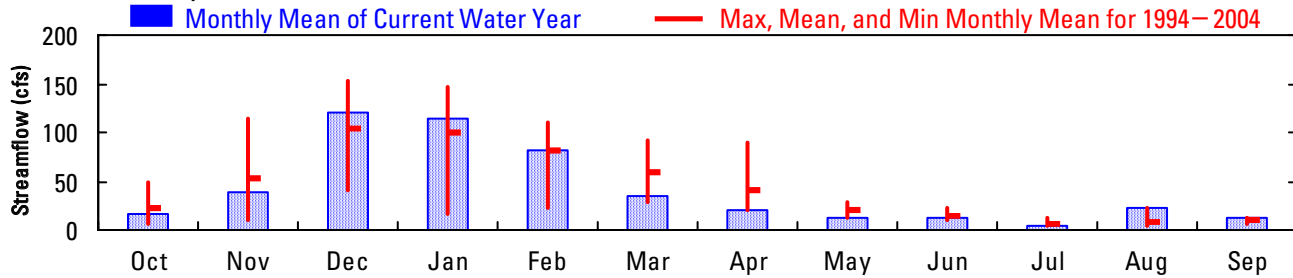
Longitude: 122° 45 ' 13"  
Datum: 116.83 feet

Hydrologic Unit Code: 17090010  
Drainage Area: 31.5 square miles

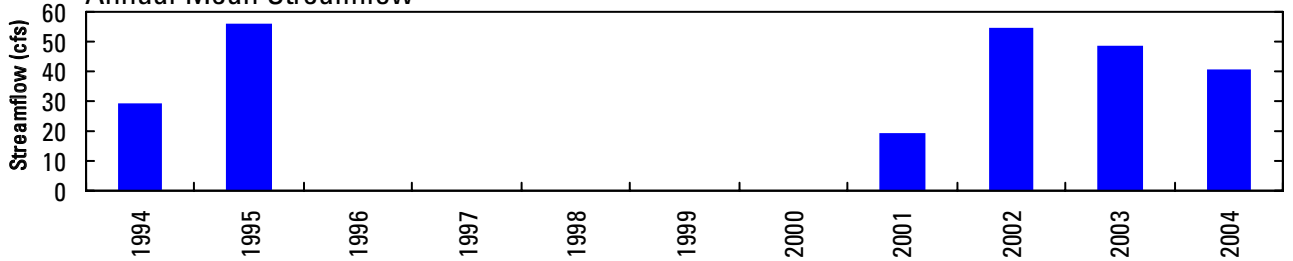
Daily Mean Discharge



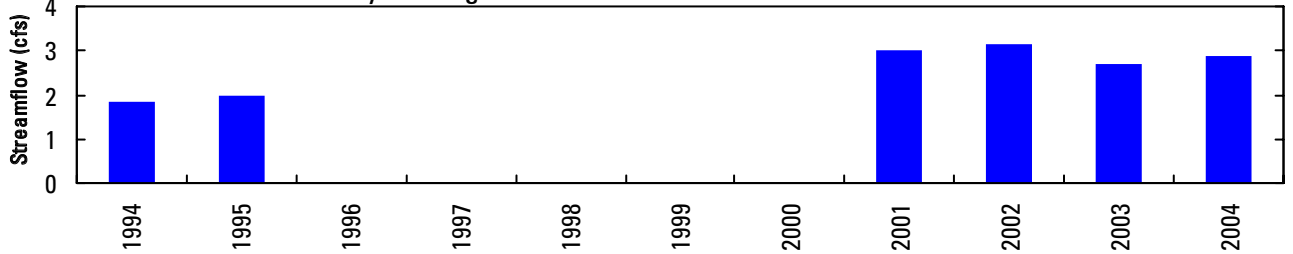
Monthly Statistics



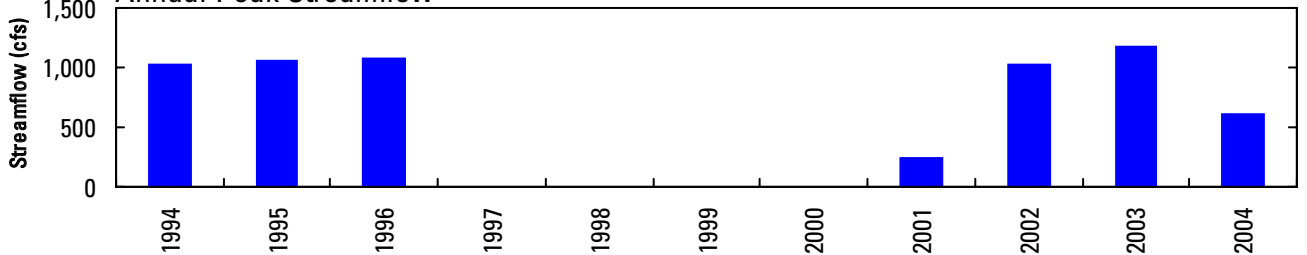
Annual Mean Streamflow



Annual Minimum 7-Day Average Streamflow



Annual Peak Streamflow



## 14206950 FANNO CREEK AT DURHAM, OR—Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1993 to February 1996, September 2002 to current year.

WATER TEMPERATURE: October 1993 to February 1996, September 2002 to current year.

INSTRUMENTATION.--Water-quality monitor.

## REMARKS.--

SPECIFIC CONDUCTANCE: Records good.

WATER TEMPERATURE: Records excellent.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 448 microsiemens Aug. 31, 2003; minimum, 47 microsiemens Dec. 1, 1994.

WATER TEMPERATURE: Maximum, 24.3°C July 24, 2004; minimum, 0.0°C Jan. 31 to Feb. 3, 1996, Jan. 6, 7, 2004.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 314 microsiemens Apr. 4; minimum, 55 microsiemens Sept. 17.

WATER TEMPERATURE: Maximum, 24.3°C July 24; minimum, 0.0°C Jan. 6, 7.

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	242	240	240	202	187	196	147	136	141	161	139	151
2	241	239	240	216	202	208	159	116	148	162	124	146
3	241	237	238	218	211	214	125	95	110	144	125	138
4	243	239	241	218	210	215	148	105	133	162	144	153
5	251	243	247	223	214	219	112	82	88	172	162	168
6	256	141	239	233	223	224	126	83	103	177	172	176
7	197	144	167	234	224	229	128	88	109	178	177	177
8	190	169	178	258	214	227	147	113	130	178	161	173
9	186	121	161	226	222	223	170	147	157	161	122	140
10	148	122	137	229	219	225	154	126	138	122	113	119
11	152	111	133	224	219	221	172	127	145	130	113	124
12	125	110	118	225	219	222	143	112	129	141	128	135
13	147	122	134	225	216	218	147	63	94	149	141	145
14	157	142	148	238	---	---	106	66	81	149	118	---
15	153	124	143	240	161	196	149	106	130	156	119	137
16	137	120	128	193	99	142	158	134	150	167	156	161
17	165	134	---	143	121	134	162	134	149	176	167	172
18	186	165	177	141	118	133	181	162	170	176	135	153
19	186	99	134	142	67	91	183	179	182	151	130	141
20	156	121	142	110	81	101	180	116	161	168	142	155
21	180	156	168	144	110	129	129	114	119	180	168	174
22	196	170	184	161	144	154	163	129	148	191	180	184
23	191	168	184	177	161	171	183	163	174	184	95	132
24	190	---	---	173	154	164	180	100	126	136	96	111
25	197	188	192	164	116	142	132	86	106	161	136	151
26	207	197	203	140	115	126	158	132	149	165	161	164
27	215	207	211	157	140	150	158	94	124	168	162	165
28	220	215	218	176	100	156	124	95	110	168	93	150
29	231	164	202	104	68	81	118	95	102	116	90	100
30	204	180	189	141	96	125	156	118	139	123	96	106
31	187	178	183	---	---	---	164	136	154	145	123	137
MONTH	256	99	182	258	67	174	183	63	132	191	90	148

## 14206950 FANNO CREEK AT DURHAM, OR—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS—CONTINUED  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	153	134	144	152	127	139	251	238	243	230	228	229
2	153	123	132	173	152	164	294	251	265	232	228	230
3	156	135	148	177	147	163	298	286	293	243	229	232
4	171	154	161	175	149	163	314	292	298	245	235	239
5	186	171	177	180	174	177	313	279	286	241	235	237
6	186	141	163	186	177	181	281	276	279	242	---	---
7	166	143	155	191	186	188	286	277	281	239	210	223
8	181	166	174	197	191	193	291	277	284	219	200	204
9	188	180	184	199	---	---	295	266	274	203	169	186
10	194	188	191	202	197	199	275	259	267	211	166	197
11	198	194	196	211	202	204	296	264	271	205	184	191
12	203	196	198	212	205	208	272	260	267	197	182	190
13	204	198	201	212	207	210	272	258	265	209	197	204
14	201	138	185	218	212	216	269	160	218	217	208	212
15	147	111	131	224	218	222	175	120	135	223	217	219
16	157	93	120	227	224	226	180	131	149	230	223	226
17	126	106	118	231	227	230	183	121	139	232	227	230
18	138	112	124	233	209	228	202	133	165	227	---	---
19	163	138	149	239	200	212	211	157	201	221	214	218
20	173	163	168	229	221	227	157	130	142	235	219	224
21	182	173	178	236	229	231	149	134	144	238	233	235
22	184	181	183	236	228	233	164	134	150	237	234	236
23	187	184	186	236	228	232	188	162	172	239	227	236
24	187	138	159	237	181	204	199	188	194	240	237	239
25	158	113	141	192	133	---	207	199	---	240	237	238
26	122	107	113	153	108	137	218	206	---	267	238	244
27	118	98	107	157	106	129	---	---	---	270	133	220
28	155	100	128	206	157	186	---	---	---	151	129	140
29	167	149	161	259	206	237	241	227	234	182	150	167
30	---	---	---	271	245	257	230	227	228	210	177	190
31	---	---	---	266	245	251	---	---	---	208	198	203
MONTH	204	93	158	271	106	202	314	120	225	270	129	215
	JUNE			JULY			AUGUST			SEPTEMBER		
1	221	208	215	312	245	266	258	252	256	209	168	198
2	231	221	225	289	249	257	252	246	249	202	180	194
3	237	---	---	254	248	251	253	243	247	191	172	179
4	244	237	240	254	248	251	257	249	253	194	189	191
5	240	122	212	257	251	253	255	168	223	205	192	198
6	170	118	148	257	251	253	296	154	237	209	204	206
7	160	70	144	256	245	250	296	218	236	211	208	209
8	145	100	130	253	242	246	259	236	244	212	210	211
9	146	130	137	249	219	233	261	244	254	218	212	214
10	173	136	154	224	218	221	254	244	249	---	213	---
11	192	173	183	233	224	227	259	254	257	255	203	224
12	204	192	199	239	231	235	258	252	256	233	221	227
13	216	204	210	240	236	238	269	252	263	223	191	211
14	218	213	215	243	238	241	266	260	263	205	192	200
15	224	218	221	246	242	245	261	255	259	198	189	194
16	226	224	224	251	246	249	259	255	257	204	190	196
17	230	226	228	251	247	249	260	256	258	213	55	108
18	238	229	233	251	245	248	260	256	258	125	82	110
19	237	235	236	253	249	252	259	257	258	156	118	134
20	241	237	238	254	250	252	273	257	266	155	133	149
21	242	240	241	256	252	254	298	228	262	166	148	158
22	245	242	244	255	252	254	298	73	146	179	166	171
23	243	231	239	253	250	252	134	92	114	195	179	186
24	253	234	241	257	250	255	159	129	151	206	195	202
25	247	230	236	257	254	256	156	72	---	212	206	209
26	238	220	233	257	254	256	136	84	114	217	211	214
27	243	237	240	265	256	260	146	113	126	220	217	219
28	243	241	242	268	263	266	171	141	158	222	220	221
29	243	241	242	269	262	266	190	171	182	226	220	224
30	285	242	257	266	263	265	199	190	195	231	225	227
31	---	---	---	264	258	261	209	199	203	---	---	---
MONTH	285	70	214	312	218	250	298	72	223	255	55	193

## 14206950 FANNO CREEK AT DURHAM, OR—Continued

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	16.5	15.6	16.1	7.1	5.8	6.4	9.0	8.6	8.8	5.5	4.5	4.9
2	16.4	15.8	16.1	6.5	5.9	6.2	9.7	8.6	8.9	4.9	4.6	4.7
3	16.5	15.6	16.0	5.9	5.0	5.5	9.7	8.4	9.1	5.7	4.9	5.3
4	16.2	15.6	15.8	6.0	5.3	5.7	8.4	7.8	8.1	5.7	4.3	5.3
5	16.1	15.6	15.8	5.8	4.9	5.4	9.3	7.8	8.3	4.3	1.6	2.8
6	16.6	14.8	15.4	5.8	5.0	5.4	9.5	8.6	9.0	1.6	0.0	0.4
7	16.5	15.8	16.1	6.5	5.4	5.9	8.6	7.8	8.1	0.9	0.0	0.3
8	15.8	14.8	15.2	6.9	6.0	6.5	8.6	8.1	8.3	2.3	0.9	1.6
9	14.8	13.4	14.1	7.7	6.7	7.2	8.2	7.6	7.9	3.2	2.3	2.8
10	13.7	13.0	13.3	8.6	7.5	8.0	7.6	7.3	7.4	4.1	3.1	3.7
11	13.0	12.2	12.6	9.5	8.6	9.0	8.2	7.4	7.6	4.9	3.9	4.3
12	13.5	12.4	12.8	9.1	8.0	8.4	8.7	8.1	8.4	5.3	4.6	4.9
13	13.5	12.8	13.1	8.3	7.6	7.9	9.4	8.3	8.9	6.2	5.1	5.5
14	13.4	12.7	13.0	9.0	8.0	8.5	8.3	7.1	7.5	6.5	6.1	6.3
15	12.7	12.0	12.4	9.6	8.7	9.2	7.7	7.4	7.6	7.5	6.5	6.8
16	13.3	12.3	12.8	9.5	9.2	9.3	7.8	7.3	7.5	7.9	7.5	7.7
17	15.1	13.2	14.2	9.6	8.9	9.2	8.2	7.8	8.0	7.8	7.4	7.5
18	14.8	13.6	14.2	10.6	9.6	10.2	7.9	7.0	7.6	7.4	6.9	7.1
19	15.1	14.2	14.6	11.1	7.6	9.1	7.2	6.9	7.0	7.8	7.3	7.6
20	16.3	15.1	15.6	7.6	7.1	7.3	8.7	7.2	7.8	7.6	6.6	7.0
21	17.3	16.0	16.5	7.3	6.6	7.1	9.0	8.5	8.8	6.6	5.4	6.0
22	17.1	16.4	16.7	6.6	5.7	5.9	8.7	7.3	8.0	5.5	5.4	5.5
23	16.5	14.1	15.1	6.7	5.6	6.0	7.4	7.2	7.3	8.0	5.5	6.5
24	14.1	12.7	13.2	7.0	6.6	6.8	7.6	7.2	7.4	7.9	7.3	7.7
25	12.7	11.6	12.2	7.0	6.5	6.8	7.4	7.0	7.2	7.3	6.6	6.8
26	12.7	11.6	12.2	7.2	6.8	7.0	7.3	6.7	6.9	7.5	6.9	7.1
27	12.9	11.4	12.1	7.0	6.6	6.8	6.7	5.9	6.1	7.9	7.5	7.7
28	14.1	12.6	13.3	8.9	6.9	7.5	7.0	6.0	6.4	9.0	7.9	8.2
29	13.7	11.7	12.5	9.5	8.6	9.1	6.4	5.1	5.3	9.6	8.9	9.2
30	11.7	9.4	10.7	9.5	8.9	9.2	5.2	4.8	4.9	9.6	8.0	8.7
31	9.4	7.1	7.9	---	---	---	5.3	4.9	5.1	8.0	7.2	7.4
MONTH	17.3	7.1	13.9	11.1	4.9	7.4	9.7	4.8	7.6	9.6	0.0	5.7
	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	7.6	6.9	7.2	9.9	8.5	9.1	11.5	9.4	10.5	17.6	15.1	16.3
2	7.6	6.8	7.2	9.9	8.6	9.2	12.2	9.2	10.8	18.3	15.4	16.8
3	7.9	6.8	7.2	9.1	8.0	8.4	14.0	10.8	12.4	18.5	15.8	17.2
4	8.1	7.6	7.9	9.2	8.2	8.6	14.1	11.9	13.1	17.7	16.3	16.8
5	8.0	7.3	7.5	9.0	8.7	8.9	13.2	11.8	12.3	16.7	15.0	15.8
6	8.0	7.4	7.7	9.1	8.4	8.8	12.8	11.5	12.1	16.7	14.1	15.5
7	8.1	7.7	7.9	11.1	9.0	10.1	13.1	11.6	12.3	16.4	14.9	15.6
8	7.8	7.4	7.6	12.0	10.5	11.2	13.8	11.5	12.7	16.6	14.9	15.7
9	7.5	6.8	7.3	12.3	11.1	11.6	14.6	11.7	13.2	17.3	14.5	15.8
10	6.8	6.1	6.5	11.3	10.2	10.7	15.6	12.7	14.2	16.0	14.2	14.7
11	7.2	6.3	6.6	11.3	9.5	10.4	16.7	13.6	15.1	14.5	13.5	14.1
12	7.0	6.1	6.5	11.5	9.9	10.7	15.9	14.3	15.0	14.7	13.4	14.0
13	6.2	5.6	6.0	11.1	9.7	10.5	14.9	13.1	14.1	16.0	12.8	14.4
14	8.1	5.9	6.7	12.0	10.2	11.0	13.9	12.3	12.7	15.7	14.2	15.0
15	8.2	7.3	7.9	12.6	10.8	11.7	12.3	11.6	11.8	15.2	14.2	14.6
16	8.4	7.7	8.0	12.5	10.3	11.5	12.9	11.5	12.2	15.5	13.9	14.6
17	8.2	7.4	7.7	12.8	10.8	11.7	12.4	11.2	11.9	16.7	13.7	15.2
18	9.1	8.1	8.5	12.0	10.8	11.5	12.8	11.8	12.3	16.3	15.0	15.7
19	9.2	8.5	8.8	11.2	10.0	10.5	12.2	11.2	11.7	16.3	15.1	15.7
20	8.6	7.3	7.9	11.3	9.1	10.2	11.8	11.1	11.3	17.0	14.3	15.6
21	8.3	7.6	8.0	12.4	9.8	11.1	11.9	10.7	11.3	16.3	15.1	15.4
22	8.9	8.2	8.6	14.1	11.5	12.8	13.7	11.0	12.3	15.3	14.2	14.8
23	9.4	8.9	8.9	14.5	12.7	13.6	13.1	11.9	12.5	16.1	13.9	14.9
24	9.1	8.7	8.9	13.7	11.9	12.9	13.3	10.6	12.0	17.4	13.8	15.7
25	8.7	8.1	8.4	12.2	11.0	11.7	14.9	11.0	12.9	18.3	14.8	16.6
26	8.7	7.9	8.3	11.0	10.1	10.4	16.8	13.0	14.9	18.1	16.1	16.6
27	8.9	8.2	8.5	10.6	9.6	10.1	17.1	14.8	16.0	16.4	15.4	15.8
28	9.3	8.4	8.8	11.9	10.0	11.0	16.3	13.5	15.0	15.8	14.7	15.3
29	9.3	8.8	9.1	13.9	11.1	12.4	16.4	13.5	15.0	15.1	14.4	14.7
30	---	---	---	13.4	12.0	12.9	17.3	14.1	15.7	15.6	14.1	14.8
31	---	---	---	12.1	10.6	11.3	---	---	---	15.9	14.3	15.0
MONTH	9.4	5.6	7.8	14.5	8.0	10.9	17.3	9.2	13.0	18.5	12.8	15.4





## 14207500 TUALATIN RIVER AT WEST LINN, OR

LOCATION.--Lat 45°21'03", long 122°40'30", in SW ¼ sec.34, T.2 S., R.1 E., Clackamas County, Hydrologic Unit 17090010, on left bank 300 ft upstream from bridge on State Highway 212, 0.4 mi west of West Linn city limits, and at mile 1.8.

DRAINAGE AREA.--706 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1928 to current year. Prior to October 1960, published as "near Willamette."

REVISED RECORDS.--WSP 1014: 1943. WSP 1184: 1947. WSP 1248: 1941. WSP 1935: Drainage area. WDR OR-75-1: 1974(M). WDR OR-77-1: 1971-73, 1975, 1976(M).

GAGE.--Water-stage recorder. Datum of gage is 85.61 ft above NGVD of 1929 (levels by Corps of Engineers). Prior to June 12, 1941, nonrecording gage at datum 1.02 ft higher.

REMARKS.--No estimated daily discharges. Records fair except those for the period Sept. 23-30, which are poor. October 1951 to September 1970, records published for this station included the daily flow in Oswego Canal, which diverts at point 5.0 mi upstream from station for development of power between outlet of Lake Oswego and Willamette River. Adjustment for diversion to Lake Oswego are published for the 1971-95 water years. Some regulation in low-water season by flashboards on crest of diversion dam for Oswego Canal and regulation by Henry Hagg Lake since January 1975. Several diversions upstream from station for irrigation. U.S. Geological Survey satellite telemeter at station. Periodic suspended sediment data are available for the period October 1974 to September 1995.

AVERAGE DISCHARGE.--29 years (water years 1976-2004), 1,440 ft<sup>3</sup>/s, 1,043,000 acre-ft/yr, river only, not adjusted for diversion to Oswego Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft<sup>3</sup>/s Feb. 10, 1996, gage height, 18.32 ft, does not include an estimated 3,600 ft<sup>3</sup>/s flowing in Oswego Canal; minimum daily discharge, 0.20 ft<sup>3</sup>/s July 30 to Aug. 2, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,210 ft<sup>3</sup>/s Feb. 4, gage height, 8.78 ft; minimum discharge, 130 ft<sup>3</sup>/s July 25.

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	217	270	1,100	3,020	4,430	3,020	1,200	700	420	182	176	248
2	214	266	949	2,770	4,860	2,990	1,080	639	378	182	181	230
3	222	253	956	2,730	5,100	2,910	998	590	324	186	188	228
4	229	259	912	2,660	5,200	2,810	919	557	271	195	183	227
5	234	266	1,220	2,410	5,120	2,660	861	531	253	213	185	219
6	239	247	1,520	2,100	4,960	2,470	802	503	315	226	211	216
7	287	232	1,740	1,820	4,680	2,270	748	497	395	211	250	217
8	339	224	1,770	1,690	4,350	2,070	711	546	545	196	264	212
9	337	217	1,590	2,000	4,010	1,900	679	580	558	181	260	201
10	381	217	1,430	2,640	3,680	1,740	653	551	468	173	228	204
11	437	220	1,310	3,050	3,370	1,600	620	523	393	178	193	218
12	436	217	1,320	3,180	3,070	1,450	588	490	337	185	181	225
13	410	216	1,700	3,150	2,740	1,330	571	466	304	188	179	235
14	383	225	2,950	3,190	2,420	1,230	588	432	285	173	177	246
15	370	245	3,360	3,370	2,210	1,150	704	385	267	161	179	251
16	374	306	3,210	3,380	2,180	1,070	879	361	244	166	184	260
17	348	377	2,890	3,330	2,560	1,010	910	363	239	178	198	381
18	313	518	2,510	3,310	3,220	959	810	363	227	174	181	459
19	343	974	2,110	3,310	3,400	929	767	363	218	182	172	395
20	340	1,220	1,780	3,210	3,310	887	819	343	233	190	180	445
21	322	1,180	1,670	3,060	3,110	841	976	320	262	174	187	490
22	285	898	1,530	2,900	2,870	791	1,290	300	264	156	327	390
23	278	671	1,350	2,900	2,590	750	1,520	294	249	148	569	294
24	275	537	1,370	3,140	2,320	742	1,500	306	221	143	601	235
25	276	491	1,970	3,010	2,120	803	1,360	307	225	146	569	212
26	263	612	2,340	2,880	2,280	997	1,220	302	215	176	614	208
27	249	783	2,510	2,780	2,640	1,340	1,060	286	207	201	612	203
28	240	837	2,790	2,710	2,900	1,570	912	361	201	194	501	196
29	250	1,140	3,470	3,290	2,910	1,620	809	417	196	173	377	185
30	263	1,140	3,530	4,070	---	1,500	745	476	179	166	306	185
31	267	---	3,300	4,240	---	1,350	---	450	---	172	268	---
TOTAL	9,421	15,258	62,157	91,300	98,610	48,759	27,299	13,602	8,893	5,569	8,881	7,915
MEAN	304	509	2,005	2,945	3,400	1,573	910	439	296	180	286	264
MAX	437	1,220	3,530	4,240	5,200	3,020	1,520	700	558	226	614	490
MIN	214	216	912	1,690	2,120	742	571	286	179	143	172	185
AC-FT	18,690	30,260	123,300	181,100	195,600	96,710	54,150	26,980	17,640	11,050	17,620	15,700

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2004, BY WATER YEAR (WY)

MEAN	290	1,112	3,134	3,452	3,569	2,642	1,543	721	363	186	162	209
MAX	995	3,062	7,035	7,845	9,490	5,625	3,758	2,437	762	292	286	420
(WY)	(1998)	(1984)	(1997)	(1997)	(1996)	(1999)	(1991)	(1996)	(1984)	(1998)	(2004)	(1997)
MIN	71.7	130	158	163	180	638	354	229	147	59.9	79.9	79.1
(WY)	(1988)	(1988)	(1977)	(1977)	(1977)	(2001)	(1977)	(1977)	(1977)	(1992)	(1986)	(1987)

## WILLAMETTE RIVER BASIN

14207500 TUALATIN RIVER AT WEST LINN, OR—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1976 - 2004	
ANNUAL TOTAL	550,826		397,664			
ANNUAL MEAN	1,509		1,087		1,440	
HIGHEST ANNUAL MEAN					2,787	
LOWEST ANNUAL MEAN					278	
HIGHEST DAILY MEAN	7,380	Feb 4	5,200	Feb 4	25,900	Feb 10, 1996
LOWEST DAILY MEAN	139	Jul 31	143	Jul 24	18	Jul 1, 1977
ANNUAL SEVEN-DAY MINIMUM	147	Jul 27	162	Jul 20	24	Jun 29, 1977
ANNUAL RUNOFF (AC-FT)	1,093,000		788,800		1,043,000	
10 PERCENT EXCEEDS	4,230		3,030		4,150	
50 PERCENT EXCEEDS	570		494		538	
90 PERCENT EXCEEDS	181		186		129	



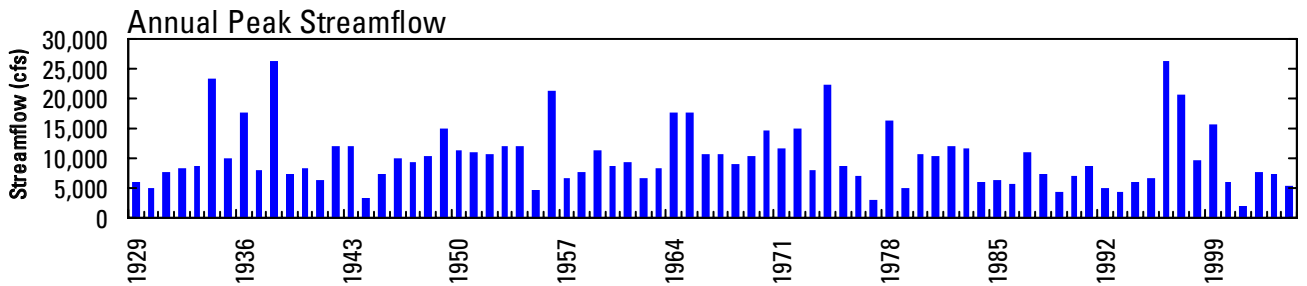
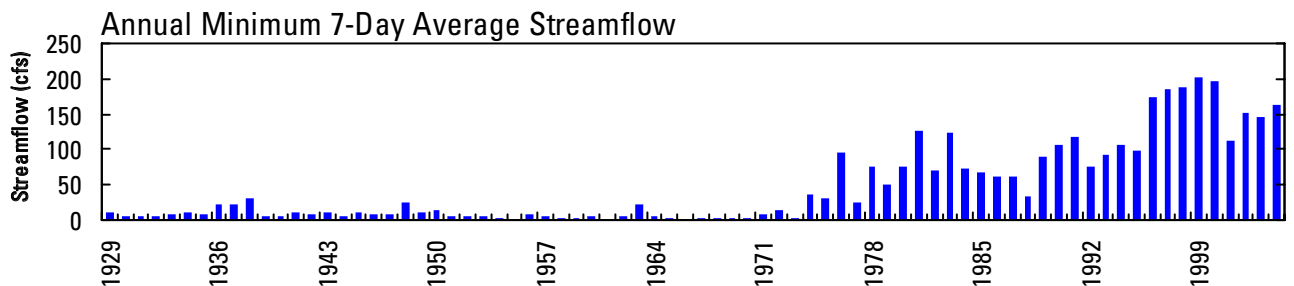
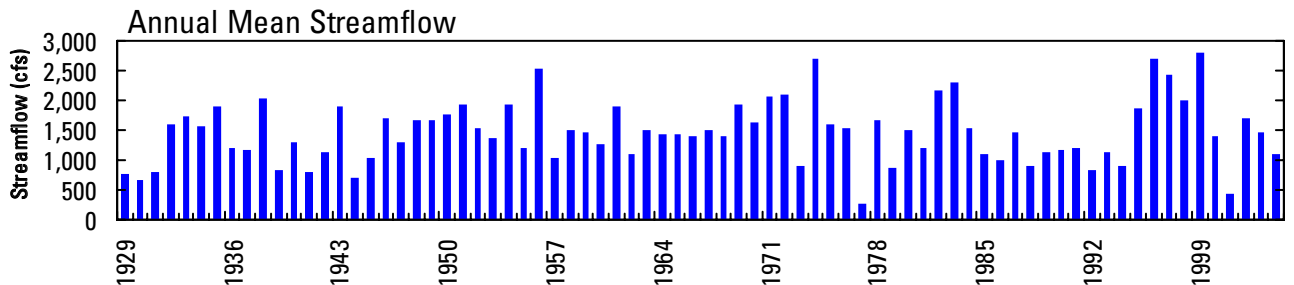
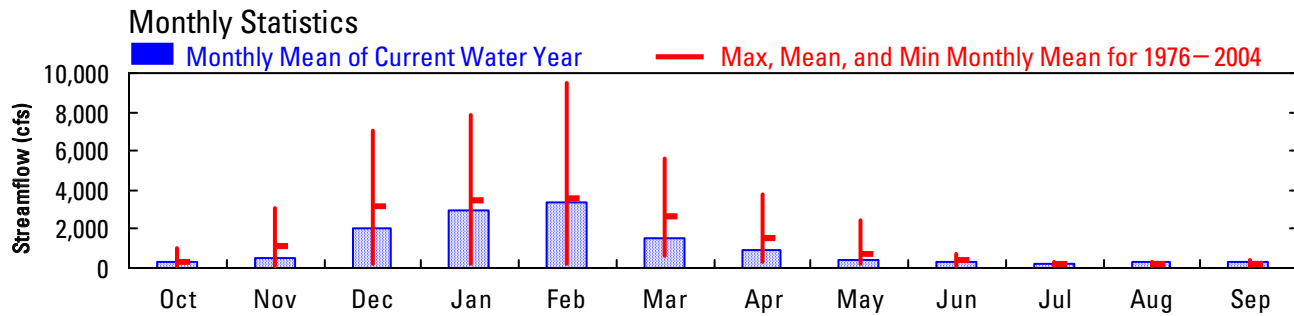
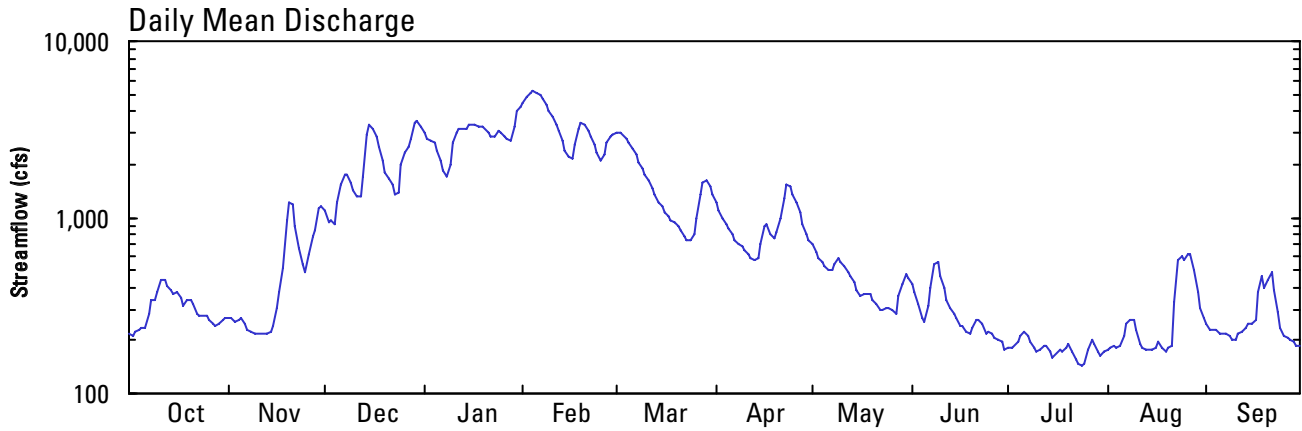
2004 Water Year  
WILLAMETTE RIVER BASIN

14207500 TUALATIN RIVER AT WEST LINN, OR

Latitude: 45° 21 ' 03"  
Clackamas County

Longitude: 122° 40 ' 30"  
Datum: 85.61 feet

Hydrologic Unit Code: 17090010  
Drainage Area: 706 square miles



## WILLAMETTE RIVER BASIN

14207740 WILLAMETTE RIVER ABOVE FALLS, AT OREGON CITY, OR

LOCATION.--Lat 45°20'55", long 122°37'08", in SW  $\frac{1}{4}$  SW  $\frac{1}{4}$  sec.31, T.2 S., R.2 E., Clackamas County, Hydrologic Unit 17090007, on right bank 0.2 mi upstream from Willamette Falls, 1.6 mi downstream from Tualatin River, and at mile 26.8.

DRAINAGE AREA.--10,000 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1976 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929.

REMARKS.--Flow regulated by many reservoirs upstream. Gage height elevations possibly affected by Portland General Electric powerplant operations throughout the year and by Army Corps of Engineers locks operation during summer months.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 69.47 ft Feb. 9, 1996; minimum, 52.51 ft July 12, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 61.52 ft Jan. 31; minimum, 53.94 ft July 25.

GAGE HEIGHT, FEET  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54.88	54.88	57.57	59.16	61.34	57.04	55.41	54.84	56.12	54.29	54.02	54.22
2	54.86	54.81	57.16	58.81	61.03	56.98	55.47	54.83	55.76	54.22	54.04	54.18
3	54.87	54.81	57.01	58.93	60.55	56.77	55.42	54.84	55.52	54.21	54.04	54.21
4	54.87	54.83	57.21	58.72	59.92	56.53	55.33	54.84	54.94	54.21	54.03	54.22
5	54.88	55.01	57.29	58.21	59.38	56.55	55.26	54.82	54.50	54.20	54.04	54.23
6	54.79	54.89	57.81	57.65	58.91	56.74	55.23	54.86	54.43	54.20	54.05	54.23
7	54.70	54.77	58.23	57.36	58.60	56.82	55.27	54.86	54.53	54.16	54.06	54.22
8	54.73	54.75	58.36	57.76	58.41	56.66	55.20	54.86	54.86	54.14	54.09	54.21
9	54.75	54.77	58.21	58.75	58.10	56.43	55.04	54.86	55.27	54.13	54.10	54.16
10	54.79	54.77	57.90	59.28	57.68	56.24	54.96	54.78	55.53	54.11	54.06	54.18
11	54.84	54.72	57.79	59.42	57.18	56.10	54.90	54.74	55.78	54.12	54.01	54.21
12	54.89	54.70	57.69	59.25	56.80	55.96	54.83	54.79	55.85	54.15	54.00	54.25
13	54.98	54.87	58.02	58.77	56.45	55.80	54.82	54.87	55.67	54.14	54.02	54.31
14	55.04	54.92	59.77	58.52	56.13	55.65	54.84	54.85	55.64	54.12	54.01	54.35
15	54.98	54.96	60.87	58.54	55.92	55.58	55.01	54.75	55.58	54.09	54.01	54.47
16	54.92	55.01	61.04	58.72	55.97	55.48	55.24	54.64	55.35	54.07	54.00	54.53
17	54.97	55.36	60.70	58.70	56.68	55.37	55.25	54.60	55.14	54.05	54.01	54.63
18	54.96	55.78	60.11	58.39	57.82	55.16	55.11	54.59	55.00	54.07	54.02	54.76
19	54.96	56.01	59.60	58.20	58.43	55.04	54.96	54.58	54.87	54.09	54.01	55.07
20	54.96	56.22	59.16	58.19	58.27	55.07	55.05	54.68	54.78	54.08	53.99	55.20
21	54.93	56.26	58.74	58.13	57.79	54.95	55.46	54.74	54.72	54.07	53.98	55.11
22	54.94	56.06	58.48	57.93	57.31	54.79	56.13	54.67	54.63	54.05	54.03	54.95
23	54.92	55.83	57.96	57.68	56.94	54.72	56.32	54.66	54.56	54.02	54.18	54.82
24	54.90	55.66	57.47	58.27	56.62	54.71	55.98	54.72	54.54	53.99	54.31	54.73
25	54.91	55.64	57.58	59.27	56.56	54.77	55.58	54.70	54.55	53.98	54.31	54.66
26	54.89	55.81	57.78	59.38	56.71	54.84	55.28	54.60	54.55	54.03	54.44	54.60
27	54.87	56.01	57.59	59.18	56.78	55.11	55.05	54.56	54.51	54.05	54.66	54.56
28	54.86	56.01	57.69	59.11	57.03	55.47	54.99	54.72	54.48	54.03	54.66	54.54
29	54.86	56.14	58.66	59.91	57.11	55.49	54.94	55.30	54.44	54.03	54.47	54.52
30	54.90	57.04	59.67	61.07	---	55.33	54.90	56.37	54.39	54.02	54.35	54.53
31	54.91	---	59.74	61.49	---	55.29	---	56.53	---	54.02	54.28	---
MEAN	54.89	55.38	58.48	58.80	57.81	55.72	55.24	54.87	55.02	54.10	54.14	54.50
MAX	55.04	57.04	61.04	61.49	61.34	57.04	56.32	56.53	56.12	54.29	54.66	55.20
MIN	54.70	54.70	57.01	57.36	55.92	54.71	54.82	54.56	54.39	53.98	53.98	54.16
CAL YR2003	MEAN 55.96	MAX 62.00	MIN 53.31									
WTR YR2004	MEAN 55.74	MAX 61.49	MIN 53.98									