

14211550 JOHNSON CREEK AT MILWAUKIE, OR

Willamette Basin
Lower Willamette Subbasin

LOCATION.--Lat 45°27'11", long 122°38'31" referenced to North American Datum of 1927, in NE ¼ SE ¼ sec.26, T.1 S., R.1 E., Clackamas County, OR, Hydrologic Unit 17090012, on right bank, upstream side of Milport Road bridge, in city limits of Milwaukie and at mile 0.7.

DRAINAGE AREA.--53.17 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929, from State of Oregon.

REMARKS.--No estimated daily discharges. Records good. Small diversions for irrigation upstream from station. Significant portion of summer flow is from Crystal Springs, through Crystal Springs Creek, which enters 0.5 mi upstream from gage.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--22 years (water years 1990-2011), 77.5 ft³/s, 19.80 in/yr, 56,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,170 ft³/s Feb. 8, 1996, gage height 30.27 ft; maximum gage height, 34.43 ft, Feb. 9, 1996, backwater from Willamette River; minimum discharge, 9.3 ft³/s Aug. 8, 13, Sept. 22, 2005.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 18	0815	917	28.28
Dec 10	0115	*1,250	*29.11
Dec 11	2115	1,110	28.78
Dec 28	2315	1,060	28.65
Jan 16	1615	976	28.44
Mar 1	1345	884	28.19
Mar 10	1145	924	28.30
Mar 15	2030	809	27.97

Minimum discharge, 15 ft³/s, Oct. 7, gage height, 24.02 ft.

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

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	17	78	260	119	44	792	132	71	60	23	21	18
2	18	152	183	94	41	366	178	64	51	23	19	17
3	18	69	124	76	40	242	134	58	46	23	19	17
4	17	50	95	65	37	201	152	52	39	22	20	17
5	16	42	75	65	37	208	237	49	36	22	20	17
6	17	50	80	64	43	150	190	52	38	21	20	17
7	16	186	73	60	58	121	167	60	37	20	20	18
8	16	110	162	73	57	111	131	70	34	20	20	18
9	39	137	609	66	50	147	106	103	32	20	20	17
10	153	213	714	61	46	575	98	72	30	20	20	18
11	53	108	587	54	44	264	133	71	30	21	20	18
12	30	82	485	90	50	188	97	80	29	26	20	18
13	24	70	260	216	85	203	88	60	31	26	19	18
14	22	198	561	145	87	280	164	55	29	23	19	19
15	20	153	434	201	295	396	545	133	28	22	19	19
16	19	118	213	735	220	474	450	116	28	22	19	19
17	19	136	146	615	178	409	218	87	26	60	19	19
18	18	618	133	338	130	247	150	72	29	43	19	21
19	18	218	112	322	108	192	115	60	37	29	19	26
20	18	174	150	182	86	156	95	52	31	28	19	23
21	17	129	120	263	74	134	86	48	28	26	18	20
22	17	167	99	210	69	112	80	45	26	25	19	19
23	21	182	84	148	65	99	67	43	25	25	19	19
24	188	110	73	118	70	133	67	42	24	23	20	19
25	129	86	70	96	62	134	175	44	24	23	19	20
26	70	82	93	81	54	159	123	48	23	24	19	21
27	41	118	124	71	52	149	98	72	24	22	19	33
28	41	95	569	65	394	145	93	74	25	22	20	28
29	56	80	726	62	---	204	108	52	25	21	20	21
30	44	145	271	55	---	269	81	48	25	21	19	20
31	125	---	165	49	---	169	---	44	---	21	18	---
Total	1,317	4,156	7,850	4,859	2,576	7,429	4,558	1,997	950	767	601	594
Mean	42.5	139	253	157	92.0	240	152	64.4	31.7	24.7	19.4	19.8
Max	188	618	726	735	394	792	545	133	60	60	21	33
Min	16	42	70	49	37	99	67	42	23	20	18	17
Ac-ft	2,610	8,240	15,570	9,640	5,110	14,740	9,040	3,960	1,880	1,520	1,190	1,180
Cfs/m	0.80	2.61	4.76	2.95	1.73	4.51	2.86	1.21	0.60	0.47	0.36	0.37
In.	0.92	2.91	5.49	3.40	1.80	5.20	3.19	1.40	0.66	0.54	0.42	0.42

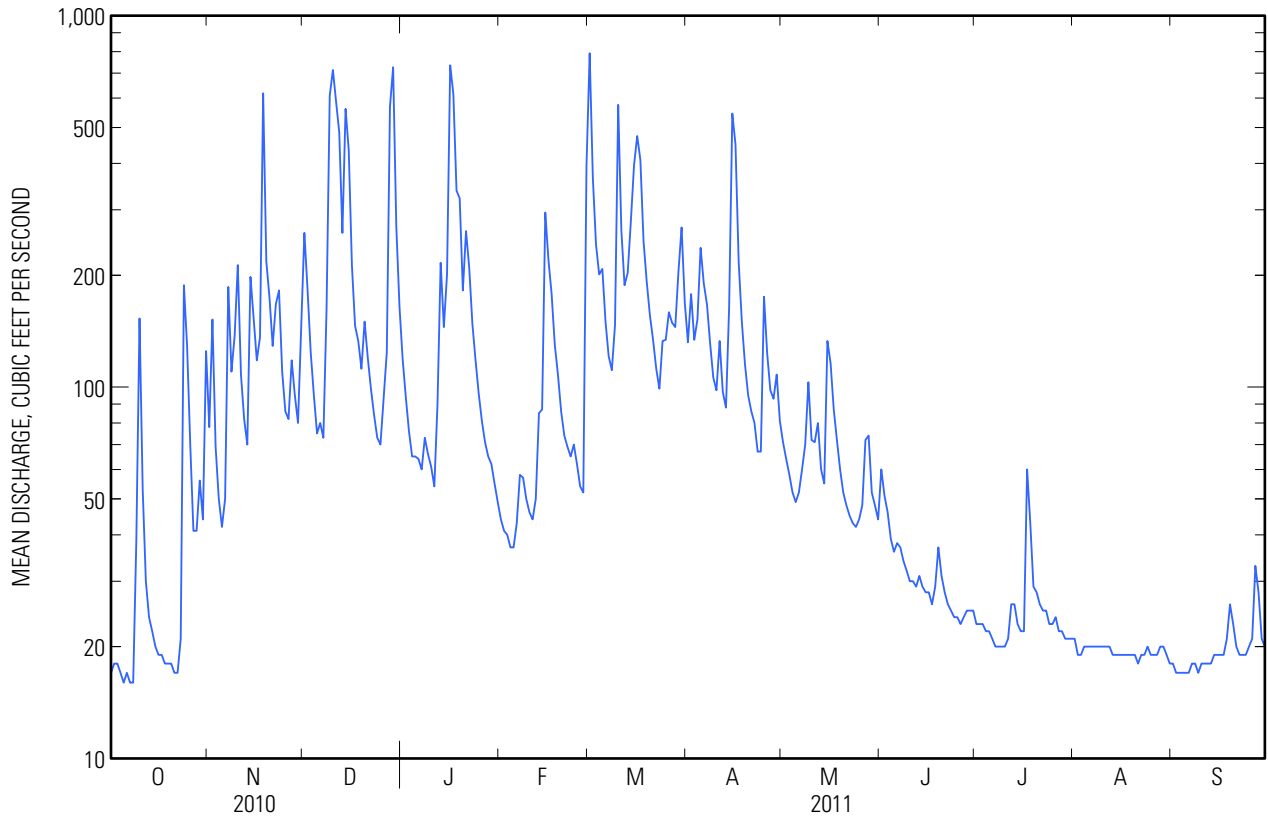
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	33.9	97.4	160	167	138	113	78.2	52.6	33.6	20.1	18.9	20.6
Max	73.2	244	411	305	386	240	152	111	106	36.6	31.5	39.3
(WY)	(1998)	(1997)	(1997)	(2006)	(1996)	(2011)	(2011)	(1998)	(2010)	(1997)	(1997)	(1997)
Min	14.8	18.5	65.7	42.7	34.0	44.1	25.7	20.4	15.5	11.3	11.0	13.4
(WY)	(2003)	(1994)	(2001)	(2001)	(1993)	(1992)	(2004)	(2004)	(2003)	(2003)	(2003)	(2005)

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SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1990 - 2011	
Annual total	33,396		37,654			
Annual mean	91.5		103		77.5	
Highest annual mean					137	1997
Lowest annual mean					38.7	2001
Highest daily mean	726	Dec 29	792	Mar 1	1,730	Dec 3, 2007
Lowest daily mean	14	Aug 15	16	Oct 5	9.7	Sep 22, 2005
Annual seven-day minimum	15	Aug 14	17	Oct 2	10	Sep 20, 2005
Annual runoff (ac-ft)	66,240		74,690		56,140	
Annual runoff (cfsm)	1.72		1.94		1.46	
Annual runoff (inches)	23.37		26.34		19.80	
10 percent exceeds	185		217		174	
50 percent exceeds	57		60		38	
90 percent exceeds	16		19		15	



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WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 1998 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--

WATER TEMPERATURE: Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.8°C July 29, 2009; minimum, 0.0°C Jan. 6, 7, 2004.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 22.5°C July 6; minimum, 1.8°C Feb. 26.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	17.3	15.7	16.5	14.3	11.6	12.5	8.7	8.0	8.4	4.1	3.6	3.8
2	17.3	15.6	16.3	13.7	12.9	13.3	8.9	8.6	8.7	3.8	2.8	3.4
3	16.1	15.1	15.5	13.6	12.4	12.9	8.7	7.2	8.2	3.1	2.2	2.7
4	15.3	13.9	14.5	13.3	11.8	12.6	7.2	6.1	6.7	3.7	2.3	3.0
5	15.8	13.1	14.3	12.9	11.6	12.3	6.7	5.8	6.2	5.3	3.7	4.6
6	16.3	12.8	14.4	12.9	12.0	12.4	6.6	5.6	6.1	7.0	5.3	6.2
7	15.2	14.1	14.7	12.8	11.7	12.3	7.0	6.5	6.7	7.8	6.7	7.2
8	16.1	14.1	15.0	11.7	10.5	11.2	8.5	6.8	7.7	6.9	5.9	6.3
9	15.9	14.7	15.3	10.5	9.8	10.1	9.2	8.5	8.8	6.5	5.8	6.1
10	16.5	14.8	15.7	10.4	9.6	9.9	9.0	8.5	8.7	6.1	4.1	5.5
11	14.8	13.1	13.9	10.0	9.3	9.6	8.6	8.0	8.3	4.1	3.3	3.6
12	14.1	11.8	13.0	10.5	9.4	9.9	10.7	8.5	9.9	6.0	3.4	4.9
13	14.6	11.9	13.2	9.8	9.4	9.6	11.1	10.6	10.9	8.5	6.0	7.6
14	14.4	11.7	13.1	11.1	9.7	10.5	11.0	8.7	9.7	9.7	8.5	9.2
15	13.6	11.8	12.7	12.1	11.1	11.7	8.8	8.4	8.6	10.3	9.5	9.8
16	13.0	10.8	11.9	12.1	11.2	11.6	8.8	7.7	8.3	10.3	9.8	10.1
17	12.6	10.2	11.4	11.2	9.5	10.6	7.7	6.6	7.2	10.0	9.2	9.6
18	12.8	10.1	11.4	9.5	8.8	9.1	7.4	6.3	6.9	9.2	8.3	8.8
19	13.5	10.7	12.0	9.3	8.9	9.1	7.2	6.4	6.8	8.3	7.5	7.8
20	14.1	11.4	12.7	9.3	8.5	8.9	6.8	6.2	6.5	7.5	7.0	7.1
21	13.3	11.3	12.4	8.5	7.3	7.7	7.0	6.6	6.8	7.9	7.2	7.5
22	14.2	12.5	13.2	7.5	7.0	7.3	7.9	6.8	7.3	8.4	7.4	8.0
23	13.7	12.6	13.1	7.0	4.6	5.8	7.9	7.2	7.5	7.9	7.3	7.5
24	12.7	11.2	12.0	4.6	4.0	4.4	7.6	7.1	7.4	8.8	7.9	8.3
25	11.8	10.7	11.1	6.1	4.6	5.4	8.4	7.2	7.7	9.4	8.3	8.7
26	10.9	10.2	10.5	7.3	5.8	6.6	8.0	7.1	7.6	8.7	7.8	8.2
27	11.2	9.6	10.5	7.7	6.9	7.3	7.8	7.0	7.4	8.7	7.4	7.9
28	11.7	10.8	11.2	8.0	7.3	7.6	8.4	7.7	8.1	9.1	7.1	8.1
29	12.5	11.0	11.6	8.1	7.1	7.6	8.0	6.9	7.2	10.0	8.7	9.2
30	11.5	10.6	11.0	8.0	7.2	7.6	6.9	6.0	6.6	9.8	8.6	9.1
31	11.7	10.8	11.3	---	---	---	6.0	4.1	5.1	9.0	6.7	8.1
Month	17.3	9.6	13.1	14.3	4.0	9.6	11.1	4.1	7.7	10.3	2.2	7.0

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TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	6.7	4.3	5.5	5.9	4.3	4.9	12.9	10.3	11.3	14.6	9.7	12.0
2	5.1	3.2	4.2	7.0	5.9	6.5	11.4	9.7	10.6	14.1	11.7	12.7
3	6.8	4.2	5.4	7.2	6.3	6.8	10.2	8.8	9.5	14.2	11.5	12.7
4	8.0	6.3	7.1	7.3	6.6	6.9	9.9	9.2	9.5	16.0	10.4	13.1
5	9.3	7.9	8.6	8.3	7.2	7.7	10.2	8.8	9.4	14.0	12.3	13.1
6	10.4	8.8	9.6	8.0	6.9	7.6	9.6	8.6	9.1	13.2	11.9	12.6
7	9.8	8.6	9.2	8.0	6.3	7.1	9.4	8.0	8.6	13.5	11.2	12.2
8	9.0	7.4	8.4	9.3	7.1	8.2	10.8	7.3	8.9	13.3	11.4	12.3
9	7.9	6.1	7.0	9.7	8.8	9.2	11.4	9.0	10.0	12.6	11.2	11.9
10	7.4	5.2	6.3	9.4	8.2	8.7	10.9	9.6	10.2	14.9	11.2	12.7
11	7.8	5.7	6.7	8.8	7.4	8.1	11.0	9.3	10.1	13.6	11.9	12.8
12	8.5	6.6	7.5	8.8	8.2	8.4	11.8	8.7	10.1	14.9	10.7	12.7
13	9.0	7.2	8.1	9.2	8.4	8.6	11.1	9.6	10.2	15.8	11.7	13.6
14	9.3	7.8	8.3	8.9	7.8	8.4	9.7	8.5	9.2	15.2	13.1	14.1
15	7.8	7.0	7.3	9.0	8.2	8.8	9.7	8.6	9.0	13.8	12.0	12.7
16	7.0	6.3	6.6	8.2	7.5	7.8	10.0	9.6	9.8	13.4	11.3	12.3
17	7.1	6.1	6.6	8.2	7.1	7.6	10.3	8.6	9.5	14.0	11.2	12.5
18	7.1	6.1	6.6	8.2	7.9	8.0	10.3	8.5	9.4	16.2	11.8	13.8
19	7.4	5.9	6.5	8.6	6.9	7.8	11.9	8.4	9.9	17.3	12.6	14.8
20	6.9	5.3	6.1	8.5	7.4	7.9	11.7	9.2	10.3	17.9	13.0	15.4
21	7.9	6.0	6.9	9.6	8.2	8.7	11.4	9.4	10.3	16.2	14.0	15.1
22	8.0	6.3	7.0	9.6	8.0	8.7	13.2	8.7	10.7	14.6	13.4	13.9
23	7.1	5.9	6.4	9.7	7.3	8.5	14.9	9.8	12.1	15.0	12.5	13.7
24	6.6	4.6	5.6	9.2	8.0	8.5	13.0	11.6	12.2	17.2	12.3	14.6
25	5.2	2.8	4.0	8.9	7.4	8.1	11.8	10.4	10.9	15.3	13.1	14.2
26	3.9	1.8	2.9	9.2	8.0	8.5	11.9	9.9	10.8	13.9	11.5	12.8
27	5.9	3.4	4.6	9.2	8.2	8.6	12.1	10.3	11.0	13.6	12.0	12.8
28	5.7	4.4	4.9	9.8	8.0	8.8	11.1	9.7	10.4	15.2	11.6	13.1
29	---	---	---	9.6	8.9	9.2	11.3	9.1	10.0	13.4	12.0	12.5
30	---	---	---	10.3	9.3	9.7	12.8	9.6	11.0	15.2	11.9	13.4
31	---	---	---	11.8	10.0	10.7	---	---	---	15.5	12.9	14.0
Month	10.4	1.8	6.6	11.8	4.3	8.2	14.9	7.3	10.1	17.9	9.7	13.2

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TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	14.9	12.9	13.9	19.9	14.1	16.8	21.8	16.8	19.2	18.3	13.7	15.9
2	15.2	12.4	13.8	21.8	16.0	18.6	21.9	17.2	19.5	18.9	14.8	16.7
3	17.9	12.4	15.1	19.6	16.8	18.1	21.9	16.9	19.4	18.9	14.9	16.8
4	19.7	14.3	16.9	21.1	15.6	18.2	22.3	17.7	19.8	19.8	15.4	17.5
5	19.6	16.4	18.0	21.8	16.4	19.0	20.1	17.6	18.8	19.8	15.7	17.7
6	18.5	16.2	17.3	22.5	17.3	19.8	20.0	16.9	18.2	20.0	15.8	17.8
7	16.7	15.0	15.8	20.3	16.1	18.0	21.1	16.7	18.6	20.5	16.5	18.3
8	15.4	14.2	14.8	19.3	15.1	17.0	18.7	16.7	17.6	20.4	17.2	18.7
9	19.3	13.8	16.3	20.5	15.0	17.6	18.6	15.9	17.1	20.5	16.8	18.5
10	17.2	15.2	15.9	21.0	16.1	18.5	20.4	15.4	17.7	20.6	16.8	18.6
11	18.3	14.4	16.0	19.7	16.5	18.1	20.7	15.9	18.2	20.6	17.0	18.7
12	17.0	14.5	15.8	18.7	16.6	17.6	20.6	16.3	18.3	19.1	16.5	17.8
13	17.8	14.7	16.2	18.9	16.0	17.3	18.6	16.4	17.4	17.4	15.9	16.5
14	17.2	15.1	16.0	18.2	15.9	17.0	19.5	15.7	17.4	16.3	15.3	15.8
15	16.1	14.2	15.1	21.0	15.6	18.2	20.4	15.9	17.9	16.4	14.9	15.6
16	17.1	12.9	14.9	19.8	17.3	18.4	20.3	15.9	18.0	17.0	14.3	15.5
17	19.5	13.8	16.5	18.3	16.8	17.4	20.6	15.9	18.1	15.2	13.9	14.5
18	17.2	15.2	15.9	18.5	16.0	17.2	19.7	15.8	17.7	16.0	14.4	15.1
19	16.5	14.5	15.4	17.6	16.3	17.0	20.3	15.9	18.0	17.6	15.2	16.1
20	18.2	14.8	16.3	19.7	15.3	17.4	21.5	16.3	18.7	17.8	14.3	16.0
21	20.5	15.2	17.7	18.8	16.6	17.5	22.1	17.4	19.6	18.5	15.2	16.7
22	18.7	16.6	17.6	19.5	15.2	17.2	21.0	17.6	19.3	17.9	15.5	16.7
23	17.6	15.1	16.3	21.1	15.8	18.3	21.5	18.2	19.7	19.0	15.4	17.1
24	17.4	14.9	16.1	21.9	16.9	19.3	21.7	17.9	19.7	18.9	16.2	17.4
25	19.6	13.9	16.6	20.0	17.6	18.5	22.3	18.4	20.1	17.2	15.2	16.3
26	19.5	15.1	17.3	19.4	15.9	17.5	21.8	17.9	19.8	15.6	14.3	14.9
27	19.8	16.4	18.0	20.6	16.1	18.1	21.7	17.8	19.6	15.9	14.6	15.1
28	18.4	17.0	17.6	21.3	16.1	18.5	20.8	17.4	19.0	15.9	13.4	14.5
29	17.8	16.2	17.0	21.5	17.1	19.2	18.9	16.8	17.6	16.6	13.4	14.9
30	16.8	15.2	16.0	21.9	17.4	19.4	17.4	15.8	16.7	16.6	13.8	15.1
31	---	---	---	22.0	17.3	19.5	16.8	15.0	15.8	---	---	---
Month	20.5	12.4	16.2	22.5	14.1	18.1	22.3	15.0	18.5	20.6	13.4	16.6

	Max	Min	Mean
Year	22.5	1.8	12.1