14211820 COLUMBIA SLOUGH AT PORTLAND, OR

Willamette Basin
Lower Willamette Subbasin

LOCATION.--Lat 45°38′21″, long 122°45′43″ referenced to North American Datum of 1927, in NE ¼ SE ¼ sec.23, T.2 N., R.1 W., Multnomah County, OR, Hydrologic Unit 17090012, on right bank, 0.6 mi upstream from mouth and 1.25 mi upstream from confluence of Willamette and Columbia Rivers.

DRAINAGE AREA.--Indeterminate.

SURFACE-WATER RECORDS

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

GAGE.--Water-stage recorder and acoustic velocity meter. Datum of gage is 1.53 ft above NGVD of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow affected by astronomical tide, which can cause reverse flow during tidal cycle. Daily mean discharge figures since water year 2007 are produced from "Godin filtered" instantaneous discharges to remove daily tidal cycle. The Godin process resamples the series to hourly increments, on the hour, using linear interpolation, and then applies three moving averages.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--8 years (water years 1990-93, 2000, 2006, 2008-09), 93.8 ft³/s, 67,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,400 ft³/s Dec. 5, 1995, but may have been higher during periods of missing record Dec. 2-4, 1995, Feb. 10-14, 1996; maximum gage height, 27.26 ft Feb. 9, 1996, from floodmark; minimum daily discharge, -6,700 ft³/s Feb. 7, 1996, but may have been lower during periods of missing record Nov. 29 to Dec. 3, 1995, Feb. 8, 9, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 875 ft³/s Apr. 8, but may have been higher during period of missing record; maximum gage height, 17.37 ft June 2; minimum daily discharge, -1,160 ft³/s May 16, but may have been lower during period of missing record.

14211820 COLUMBIA SLOUGH AT PORTLAND, OR—Continued

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

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	---	---	---	---	174	248	-0.64	96	80	-201	81	145
2	---	---	---	---	192	171	-162	130	134	-289	160	153
3	---	---	---	---	163	214	-456	125	57	12	188	106
4	---	---	---	---	131	254	-515	90	23	178	131	99
5	---	---	---	---	176	259	-454	158	55	570	166	86
6	---	---	---	---	165	222	158	140	62	365	187	117
7	---	---	---	---	130	170	747	181	48	105	126	e140
8	---	---	---	e252	85	179	875	175	14	e40	129	e153
9	---	---	---	213	114	160	524	50	15	41	216	e157
10	---	---	---	233	140	149	265	3.0	35	72	191	e192
11	---	---	---	134	108	164	257	63	61	113	117	e177
12	---	---	---	47	103	178	281	95	-11	252	104	e187
13	---	---	---	127	166	271	246	-40	-85	227	178	e153
14	---	---	---	167	65	161	290	-84	-56	113	213	132
15	---	---	---	67	7.1	127	318	-322	-42	65	147	103
16	---	---	---	-294	78	192	254	-1,160	-39	199	124	110
17	---	---	---	-617	158	169	158	-1,100	35	248	161	131
18	---	---	---	-915	184	148	105	-266	373	237	165	123
19	---	---	---	-995	236	201	123	83	623	253	147	119
20	---	---	---	110	220	257	209	70	572	247	199	102
21	---	---	---	691	196	243	245	32	209	220	181	90
22	---	---	---	502	174	209	227	22	-9.4	200	175	93
23	---	---	---	338	140	135	281	-134	-44	196	146	67
24	---	---	---	293	204	182	242	-52	-457	145	91	45
25	---	---	---	369	237	205	238	-60	-26	140	85	37
26	---	---	---	443	176	206	199	56	865	144	120	36
27	---	---	---	309	120	161	90	-159	618	144	100	69
28	---	---	---	304	226	189	133	-145	147	110	94	112
29	---	---	---	364	---	157	241	-144	29	103	124	108
30	---	---	---	307	---	30	225	-71	-1.3	85	118	82
31	---	---	---	163	---	-8.5	---	22	---	81	114	---
Total	---	---	---	---	4,268.1	5,602.5	5,343.36	-2,146.0	3,284.3	4,415	4,478	3,424
Mean	---	---	---	---	152	181	178	-69.2	109	142	144	114
Max	---	---	---	---	237	271	875	181	865	570	216	192
Min	---	---	---	---	7.1	-8.5	-515	-1,160	-457	-289	81	36
Ac-ft	---	---	---	---	8,470	11,110	10,600	-4,260	6,510	8,760	8,880	6,790

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	96.7	109	119	163	146	133	82.5	34.7	63.8	82.9	74.8	64.7
Max	142	170	185	326	241	330	180	105	209	134	113	123
(WY)	(1991)	(1997)	(2000)	(1997)	(1997)	(1999)	(1999)	(2000)	(1998)	(1998)	(1996)	(1996)
Min	39.4	49.9	11.3	91.9	44.1	73.9	6.20	-97.6	-13.2	9.91	6.45	16.0
(WY)	(2005)	(2003)	(2006)	(2009)	(2005)	(2004)	(1997)	(2008)	(1990)	(2003)	(2003)	(2005)

14211820 COLUMBIA SLOUGH AT PORTLAND, OR—Continued

SUMMARY STATISTICS

	Water Years 1990 - 2009	
Annual mean	93.8	
Highest annual mean	138	2000
Lowest annual mean	59.4	2006
Highest daily mean	2,400	Dec 5, 1995
Lowest daily mean	-6,700	Feb 7, 1996
Annual seven-day minimum	-894	Dec 27, 1996
Annual runoff (ac-ft)	67,980	
10 percent exceeds	215	
50 percent exceeds	90	
90 percent exceeds	-9.2	