Water-Data Report 2011

14137000 SANDY RIVER NEAR MARMOT, OR

Lower Columbia Basin
Lower Columbia-Sandy Subbasin

LOCATION.--Lat 45°23′59″, long 122°08′10″ referenced to North American Datum of 1927, in NW ¼ sec.18, T.2 S., R.6 E., Clackamas County, OR, Hydrologic Unit 17080001, on right bank, 0.6 mi west/northwest of Marmot, 7.7 mi downstream from Salmon River and at mile 29.8.

DRAINAGE AREA.--264 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August 1911 to current year. Monthly discharges only, January to September 1916, October 1918 to June 1919, published in WSP 1318. Published as "at Marmot" October 1912 to September 1913. Records for January 1916 to June 1919, published as "below dam, near Marmot," obtained by combining records for Sandy River below dam, near Marmot, with records for Sandy River Canal near Marmot. Records for Oct. 1, 2002 to Oct. 18, 2007, obtained by combining records for Sandy River Diversion above Marmot Dam (14137001) with records for Sandy River below Marmot Dam, near Marmot (14137002).

REVISED RECORDS.--WSP 594: Drainage area. WSP 1288: 1912(M), 1915, 1922, 1924, 1934(M). WSP 1318: 1932(M), WDR OR-97-1: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Portland General Electric Co.). Aug. 15, 1911 to Dec. 20, 1915 and July 2, 1919 to Oct. 19, 1933, nonrecording gage at site 1.5 mi upstream at different datum. Oct. 20, 1933 to Sept. 30, 1958, water-stage recorder at site 1.1 mi upstream at different datum. Oct. 1, 1958 to Mar. 10, 1997, water-stage recorder at site 0.6 mi upstream at different datum. March 11, 1997 to Sept. 30, 2002 water-stage recorder at site 0.5 mi upstream, at same datum.

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

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--98 years (water years 1912-15, 1917-18, 1920-2011), 1,345 ft^3/s, 69.24 in/yr, 974,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,400 ft^3/s Dec. 22, 1964, gage height, 17.05 ft, site and datum then in use, from rating curve extended above 7,000 ft^3/s; maximum gage height, 20.40 ft, Feb. 7, 1996, site and datum then in use; minimum discharge, 190 ft^3/s Oct. 13, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,700 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 13	0415	12,500	697.33
Jan 16	1230	*39,000	*700.20
Apr 5	0345	8,670	695.12

Minimum discharge, 260 ft^3/s, Oct. 20, 21, 22.

Suggested citation: U.S. Geological Survey, 2012, Water-resources data for the United States, Water Year 2011: U.S. Geological Survey Water-Data Report WDR-US-2011, site 14137000, accessed at http://wdr.water.usgs.gov/wy2011/pdfs/14137000.2011.pdf

14137000 SANDY RIVER NEAR MARMOT, 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	337	811	4,880	1,350	e1,200	1,060	4,440	1,800	2,550	1,160	628	431
2	329	1,860	3,350	1,190	e1,100	1,270	4,310	1,780	3,050	1,090	632	422
3	322	1,350	2,420	1,050	975	1,320	3,410	1,730	2,760	1,080	612	418
4	306	1,010	1,890	968	975	1,230	3,610	1,620	2,510	1,020	597	417
5	294	828	1,560	907	1,260	1,400	6,710	1,690	2,570	956	587	427
6	287	734	1,340	870	1,690	1,420	4,350	1,740	2,750	962	568	419
7	288	1,030	1,190	899	2,040	1,310	3,370	2,140	2,440	961	559	419
8	288	1,280	1,400	1,070	1,960	1,310	2,690	2,580	2,110	898	547	430
9	384	1,340	2,720	947	1,710	1,670	2,270	2,590	1,880	837	543	435
10	628	1,590	4,380	855	1,540	3,620	1,960	2,380	1,800	809	528	427
11	465	1,380	5,120	791	1,470	3,130	2,200	2,360	1,750	804	523	422
12	379	1,310	7,390	1,290	1,440	2,320	2,030	2,400	1,660	805	518	420
13	343	1,130	9,540	3,390	1,770	2,110	1,860	2,140	1,740	815	515	417
14	324	1,570	6,890	3,720	1,760	2,270	1,850	2,170	1,640	773	506	413
15	309	2,160	4,180	3,670	1,970	2,430	3,090	2,860	1,640	746	502	409
16	297	3,330	2,840	e21,100	1,810	2,950	5,620	3,110	1,530	788	497	399
17	287	2,850	2,200	e10,000	1,590	2,380	4,870	2,660	1,400	883	488	389
18	279	3,550	1,840	6,170	1,420	2,040	3,350	2,280	1,450	831	481	405
19	272	2,480	1,560	4,680	1,300	1,810	2,520	2,100	1,850	797	480	484
20	268	1,960	1,370	3,440	1,210	1,650	2,070	2,010	1,680	767	484	432
21	263	1,620	1,210	3,300	1,130	1,570	1,840	2,060	1,590	728	484	401
22	273	1,480	1,090	3,270	1,110	1,470	1,620	1,970	1,580	751	490	393
23	292	1,270	995	2,620	1,060	1,370	1,510	1,870	1,510	699	496	395
24	740	1,090	943	e2,400	1,020	1,420	1,560	1,820	1,340	698	498	400
25	1,250	1,010	952	e2,200	936	1,380	2,210	1,860	1,230	748	483	411
26	1,390	1,230	939	e2,000	889	1,410	2,730	1,890	1,160	705	494	400
27	1,230	1,680	944	e2,000	925	1,450	2,610	2,160	1,130	659	495	430
28	929	1,470	3,450	e1,900	1,010	1,420	2,410	2,500	1,170	638	482	416
29	892	1,280	3,300	e1,700	---	2,080	2,140	2,180	1,170	633	472	386
30	778	2,490	2,080	e1,500	---	4,480	1,980	2,250	1,320	627	456	392
31	861	---	1,600	e1,400	---	5,000	---	2,370	---	618	445	---
Total	15,584	48,173	85,563	92,647	38,270	61,750	87,190	67,070	53,960	25,286	16,090	12,459
Mean	503	1,606	2,760	2,989	1,367	1,992	2,906	2,164	1,799	816	519	415
Max	1,390	3,550	9,540	21,100	2,040	5,000	6,710	3,110	3,050	1,160	632	484
Min	263	734	939	791	889	1,060	1,510	1,620	1,130	618	445	386
Ac-ft	30,910	95,550	169,700	183,800	75,910	122,500	172,900	133,000	107,000	50,150	31,910	24,710
Cfsm	1.90	6.08	10.5	11.3	5.18	7.55	11.0	8.20	6.81	3.09	1.97	1.57
In.	2.20	6.79	12.06	13.05	5.39	8.70	12.29	9.45	7.60	3.56	2.27	1.76

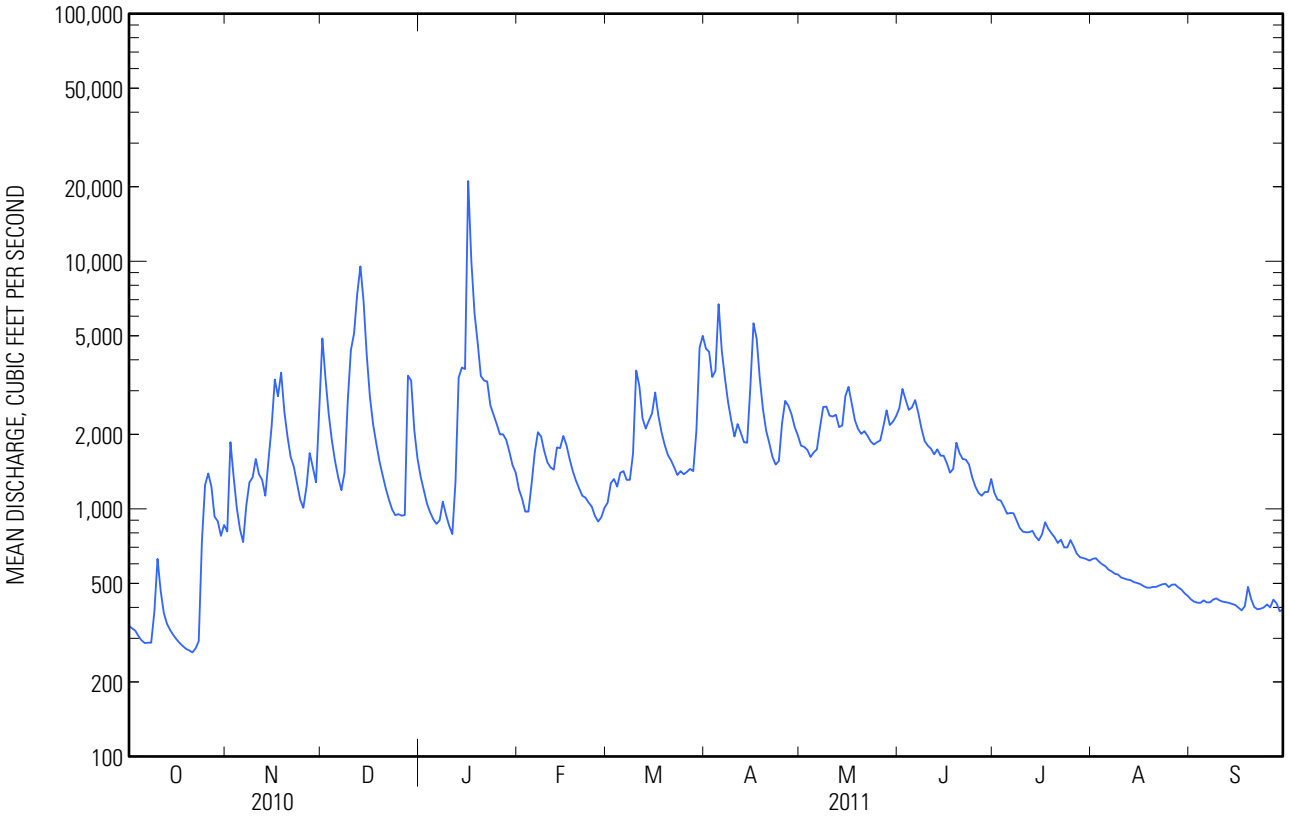
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	638	1,581	2,058	2,045	1,831	1,647	1,861	1,805	1,243	644	429	412
Max	2,168	4,777	6,278	4,752	4,971	3,983	3,134	3,674	3,457	1,385	709	1,056
(WY)	(1960)	(1996)	(1965)	(1953)	(1996)	(1972)	(1962)	(2008)	(1917)	(1917)	(2008)	(1959)
Min	239	236	445	498	464	631	658	743	420	354	268	244
(WY)	(1988)	(1937)	(1977)	(1937)	(1977)	(1941)	(1941)	(1992)	(1992)	(1992)	(1940)	(1994)

14137000 SANDY RIVER NEAR MARMOT, OR—Continued

SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1912 - 2011	
Annual total	517,159		604,042			
Annual mean	1,417		1,655		1,345	
Highest annual mean					2,018	1996
Lowest annual mean					766	1977
Highest daily mean	9,540	Dec 13	21,100	Jan 16	41,400	Dec 22, 1964
Lowest daily mean	263	Oct 21	263	Oct 21	193	Oct 13, 1994
Annual seven-day minimum	276	Oct 17	276	Oct 17	196	Oct 7, 1994
Annual runoff (ac-ft)	1,026,000		1,198,000		974,600	
Annual runoff (cfsm)	5.37		6.27		5.10	
Annual runoff (inches)	72.87		85.12		69.24	
10 percent exceeds	2,500		3,120		2,600	
50 percent exceeds	1,210		1,340		998	
90 percent exceeds	369		417		350	



14137000 SANDY RIVER NEAR MARMOT, OR—Continued

CLIMATOLOGICAL RECORDS

PERIOD OF RECORD.--
PRECIPITATION: October 2009 to current year.

INSTRUMENTATION.--Unshielded, 8-in diameter, tipping-bucket precipitation gage, mounted atop mast about 100 ft north of gage house with top of collector 10 ft above land surface.

REMARKS.--
PRECIPITATION: Collection, computation, and publication of precipitation data do not necessarily conform to standards used by the National Weather Service. Records published in this report are for general scientific use.

PRECIPITATION, TOTAL, INCHES
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY SUM VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.00	1.31	0.51	0.10	0.01	1.72	0.28	0.00	0.63	0.00	0.00	0.00
2	0.00	0.10	0.15	0.06	0.00	0.82	0.97	0.02	0.07	0.00	0.00	0.00
3	0.00	0.00	0.01	0.02	0.00	0.34	0.01	0.05	0.04	0.00	0.00	0.00
4	0.00	0.00	0.01	0.00	0.27	0.23	1.67	0.01	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.08	0.50	0.10	0.23	0.00	0.00	0.00	0.00	0.00
6	0.00	0.64	0.17	0.00	0.29	0.01	0.69	0.34	0.00	0.00	0.00	0.00
7	0.00	0.89	0.08	0.38	0.66	0.00	0.12	0.35	0.09	0.00	0.00	0.00
8	0.03	0.34	1.07	0.09	0.29	0.40	0.00	0.79	0.00	0.00	0.02	0.00
9	0.81	0.77	1.37	0.17	0.00	0.55	0.00	0.11	0.00	0.00	0.00	0.00
10	0.81	0.12	0.57	0.00	0.00	1.28	0.34	0.00	0.00	0.00	0.00	0.00
11	0.00	0.18	1.28	0.08	0.01	0.00	0.63	0.22	0.00	0.00	0.00	0.00
12	0.00	0.00	0.97	0.64	0.52	0.16	0.00	0.01	0.16	0.31	0.00	0.00
13	0.00	0.33	0.80	0.66	0.10	0.52	0.32	0.00	0.18	0.02	0.00	0.00
14	0.06	0.70	1.10	0.05	0.85	0.18	1.00	0.19	0.00	0.09	0.00	0.00
15	0.00	0.56	0.09	1.40	0.74	0.82	1.35	0.97	0.23	0.00	0.00	0.00
16	0.00	0.18	0.00	2.14	0.18	0.70	0.53	0.09	0.00	0.22	0.00	0.00
17	0.00	1.13	0.00	0.28	0.04	0.03	0.00	0.07	0.01	1.04	0.00	0.03
18	0.00	0.70	0.25	0.75	0.00	0.37	0.02	0.00	0.77	0.00	0.00	0.23
19	0.00	0.21	0.08	0.01	0.01	0.31	0.00	0.00	0.04	0.25	0.00	0.33
20	0.00	0.02	0.09	0.00	0.00	0.02	0.10	0.00	0.00	0.01	0.00	0.00
21	0.00	0.23	0.01	0.95	0.02	0.26	0.28	0.04	0.00	0.06	0.00	0.00
22	0.07	0.73	0.08	0.02	0.21	0.04	0.01	0.04	0.00	0.00	0.00	0.00
23	0.56	0.00	0.00	0.02	0.21	0.34	0.00	0.17	0.02	0.00	0.10	0.00
24	1.12	0.06	0.11	0.01	0.23	0.36	0.33	0.00	0.00	0.00	0.00	0.00
25	0.74	0.00	0.08	0.03	0.02	0.18	0.93	0.24	0.00	0.14	0.00	0.11
26	0.18	0.85	0.32	0.00	0.00	0.33	0.29	0.23	0.00	0.00	0.04	0.11
27	0.03	0.31	0.59	0.00	0.13	0.42	0.43	1.20	0.00	0.00	0.00	0.68
28	0.40	0.35	2.01	0.03	1.34	0.16	0.59	0.09	0.03	0.00	0.00	0.00
29	0.04	0.09	0.24	0.08	---	1.34	0.05	0.21	0.09	0.00	0.00	0.00
30	0.55	2.26	0.13	0.05	---	0.17	0.01	0.05	0.08	0.00	0.00	0.00
31	0.37	---	0.01	0.01	---	0.11	---	0.26	---	0.00	0.02	---
Total	5.77	13.06	12.18	8.11	6.63	12.27	11.18	5.75	2.44	2.14	0.18	1.49

	Calendar Year 2010	Water Year 2011
Total	76.48	81.20