

**14220500 LEWIS RIVER AT ARIEL, WA**

Lower Columbia Basin  
Lewis Subbasin

LOCATION.--Lat 45°57'07", long 122°33'46" referenced to North American Datum of 1927, in NW ¼ NE ¼ sec.4, T.5 N., R.2 E., Cowlitz County, WA, Hydrologic Unit 17080002, on right bank 0.4 mi southeast of Ariel, 0.5 mi downstream from Merwin Dam and powerplant, 3.3 mi upstream from Cedar Creek, and at mile 19.0.

DRAINAGE AREA.--731 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--July to October 1909, November 1909 (gage heights only), July to October 1922, July 1923 to current year. Published as "near Ariel" water years 1922-29. Prior to October 1952, discharge measurements made at site 0.5 mi downstream; low discharges not equivalent due to local inflow.

REVISED RECORDS.--WSP 884: 1938. WSP 984: 1936-37, 1940-42. WSP 1318: 1924-30(M).

GAGE.--Water-stage recorder. Datum of gage is 44.0 ft above NGVD of 1929 (levels by Pacificorp). July to November 1909, nonrecording gage at site 4 mi upstream at different datum. July 27 to Oct. 29, 1922, and July 31, 1923, to Apr. 20, 1930, nonrecording gages at site 0.5 mi downstream at datums 3.90 ft and 0.90 ft higher respectively, than present datum.

REMARKS.--No estimated daily discharges. Records good. No diversion upstream from station. Flow regulated by Swift and Yale Reservoirs, and Lake Merwin (stations 14217600, 14218500, 14220000). Chemical analyses July 1959 to June 1960, April 1979 to September 1986. Additional data from April to August 1980 are published in U.S. Geological Survey Open-File Report 81-1007. Water temperatures October 1950 to September 1963.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--84 years (water years 1924-2007), 4,785 ft<sup>3</sup>/s, 88.89 in/yr, 3,467,000 acre-ft/yr, adjusted for storage in Lake Merwin Reservoir since March 1931, Yale Reservoir since August 1952, and Swift Reservoir since October 1958.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 129,000 ft<sup>3</sup>/s, Dec. 22, 1933, gage height, 35.0 ft, from floodmarks, from rating curve extended above 56,000 ft<sup>3</sup>/s on basis of computation of peak flow over dam; no flow at times June 30, July 1-3, 6-9, 1931 (caused by regulation during construction of Merwin Dam); minimum daily discharge, 1 ft<sup>3</sup>/s, July 6, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39,900 ft<sup>3</sup>/s, Nov. 6, 7, gage height, 16.54 ft; minimum discharge, 1,190 ft<sup>3</sup>/s, Aug. 14, gage height, 1.52 ft.

## 14220500 LEWIS RIVER AT ARIEL, WA—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**  
**DAILY MEAN VALUES**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,600	2,050	9,060	9,590	2,730	8,530	7,570	2,750	2,050	2,040	1,530	1,520
2	1,600	4,250	9,090	9,630	4,300	8,540	5,740	2,750	2,050	2,040	1,540	1,520
3	1,610	4,930	9,100	10,800	5,190	8,090	5,500	2,740	2,050	2,040	1,540	1,520
4	1,610	7,350	9,120	11,300	5,200	7,890	5,530	2,760	2,050	2,040	1,250	1,530
5	1,610	13,700	8,260	11,300	5,180	7,890	5,540	2,770	2,050	2,050	1,240	1,530
6	1,610	32,700	4,900	11,200	4,350	6,340	5,050	2,760	2,050	2,050	1,230	1,520
7	1,620	35,200	5,890	9,280	2,820	5,570	2,900	2,750	2,060	2,040	1,230	1,520
8	1,630	21,700	5,940	8,830	2,810	5,570	2,800	2,760	2,050	2,030	1,250	1,520
9	1,630	16,100	6,030	8,720	2,820	5,560	4,180	2,750	2,050	2,030	1,250	1,530
10	1,640	15,100	7,530	7,550	2,390	5,560	5,530	2,750	2,050	2,030	1,240	1,530
11	1,640	14,500	9,830	9,370	2,070	5,550	5,500	2,760	2,050	1,800	1,240	1,530
12	1,640	13,600	10,600	9,720	4,270	5,540	5,500	2,760	2,050	1,560	1,240	1,530
13	1,640	16,400	7,840	9,760	5,370	6,920	5,350	2,760	2,060	1,520	1,250	1,530
14	1,640	15,500	11,200	9,420	5,360	9,080	5,010	2,750	2,070	1,530	1,250	1,530
15	1,730	12,000	12,400	8,890	5,360	9,590	5,010	2,760	2,080	1,530	1,240	1,540
16	2,760	11,100	11,500	8,890	5,350	9,580	5,000	2,750	2,090	1,540	1,240	1,540
17	2,760	11,100	10,300	8,590	5,350	8,340	5,000	2,460	2,100	1,530	1,230	1,540
18	2,450	8,250	10,800	8,110	5,390	8,150	5,000	2,040	2,070	1,530	1,230	1,540
19	2,730	11,100	11,500	6,940	5,400	7,640	4,980	2,040	2,040	1,530	1,230	1,540
20	2,720	10,600	11,400	8,140	7,030	5,550	4,980	2,040	2,060	1,530	1,230	1,540
21	2,720	9,700	11,300	7,250	7,810	5,550	4,970	2,030	2,060	1,530	1,230	1,540
22	2,720	9,400	7,450	5,470	7,800	5,600	4,630	2,040	2,060	1,540	1,230	1,550
23	2,750	9,730	9,540	5,470	8,310	5,620	3,760	2,050	2,070	1,540	1,230	1,550
24	2,710	10,300	9,550	4,810	8,610	5,620	3,510	2,040	2,070	1,540	1,240	1,550
25	2,430	10,200	8,760	2,850	8,600	9,220	3,530	2,040	2,060	1,530	1,250	1,540
26	2,740	9,060	9,050	2,740	8,390	11,200	3,060	2,040	2,050	1,540	1,240	1,550
27	2,740	9,050	9,590	2,740	6,740	11,200	2,780	2,040	2,040	1,530	1,240	1,550
28	2,760	9,040	9,590	2,750	8,330	11,100	2,770	2,040	2,040	1,530	1,230	1,850
29	2,760	9,050	9,560	2,730	---	9,320	2,790	2,040	2,050	1,530	1,230	2,030
30	2,760	9,050	9,550	2,710	---	9,190	2,770	2,050	2,040	1,530	1,410	2,050
31	2,740	---	9,570	2,710	---	8,210	---	2,050	---	1,530	1,510	---
<b>Total</b>	67,700	371,810	285,800	228,260	153,330	237,310	136,240	75,120	61,720	52,860	39,720	47,360
<b>Mean</b>	2,184	12,390	9,219	7,363	5,476	7,655	4,541	2,423	2,057	1,705	1,281	1,579
<b>Max</b>	2,760	35,200	12,400	11,300	8,610	11,200	7,570	2,770	2,100	2,050	1,540	2,050
<b>Min</b>	1,600	2,050	4,900	2,710	2,070	5,540	2,770	2,030	2,040	1,520	1,230	1,520
<b>Ac-ft</b>	134,300	737,500	566,900	452,800	304,100	470,700	270,200	149,000	122,400	104,800	78,780	93,940
<b>Mean adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	877	13,450	8,457	6,448	6,079	9,220	4,527	3,394	1,961	1,166	915	829
<b>CFSM adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	1.20	18.40	11.57	8.82	8.32	12.61	6.19	4.64	2.68	1.6	1.25	1.13
<b>In. adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	1.38	20.53	13.34	10.17	8.66	14.55	6.91	5.35	2.99	1.84	1.44	1.27
<b>Ac- ft adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	53,900	800,100	520,000	396,500	337,600	566,900	269,400	208,700	116,700	71,700	56,280	49,340

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	Calendar Year 2006	Water Year 2007
<b>Total</b>	2,003,450	1,757,230
<b>Mean</b>	5,489	4,814
<b>Max</b>	35,200	35,200
<b>Min</b>	1,200	1,230
<b>Ac-ft</b>	3,974,000	3,485,000
<b>Mean adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	5,521	4,761
<b>CFSM adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	7.55	6.51
<b>In. adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	102.55	88.43
<b>Ac- ft adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir</b>	3,997,000	3,447,000

