

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 mi².

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.--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.--83 years (water years 1924-2006), 4,785 ft³/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 ft³/s, Dec. 22, 1933, gage height, 35.0 ft, from floodmarks, from rating curve extended above 56,000 ft³/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 ft³/s, July 6, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,900 ft³/s, Jan 10, 11, gage height, 13.68 ft; minimum discharge, 1,170 ft³/s, on several days, gage height, 1.49 ft.

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**TELEPHONE TELEMTRY
DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006
DAILY MEAN VALUES**

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,590	2,690	5,370	11,300	11,800	5,770	2,660	2,630	4,480	2,440	1,210	1,210
2	1,590	2,560	5,380	10,500	11,100	5,680	2,660	2,620	4,820	2,100	1,210	1,200
3	1,600	5,840	5,350	9,570	13,300	5,660	2,650	2,610	5,060	2,090	1,210	1,200
4	1,600	8,170	5,320	9,510	14,900	5,680	2,660	2,580	5,080	2,030	1,200	1,200
5	1,580	10,000	5,320	9,120	11,700	5,700	2,670	2,610	5,380	2,000	1,210	1,200
6	1,580	10,100	4,680	8,770	11,000	5,590	2,690	2,610	5,400	2,000	1,210	1,200
7	1,630	9,120	2,480	11,500	11,000	4,430	2,700	2,630	5,250	2,030	1,210	1,200
8	1,650	7,930	5,290	11,500	10,300	4,460	2,650	2,610	4,410	2,040	1,280	1,200
9	1,660	6,240	5,310	16,500	9,170	4,480	2,610	2,600	3,810	2,040	1,490	1,210
10	1,650	8,210	5,330	26,000	9,230	4,480	2,620	2,600	3,290	2,040	1,480	1,210
11	1,660	8,230	5,340	29,400	9,230	4,470	2,600	2,550	3,070	1,910	1,490	1,200
12	1,660	8,210	5,370	29,000	9,210	4,470	2,600	2,480	3,050	1,600	1,490	1,200
13	1,660	5,890	5,310	29,200	8,490	4,450	2,600	2,470	3,660	1,600	1,490	1,200
14	1,660	5,340	4,090	23,100	8,230	4,460	2,710	2,470	3,790	1,600	1,500	1,200
15	1,850	5,290	4,530	13,700	7,050	4,440	2,930	2,470	3,830	1,600	1,500	1,210
16	2,710	4,490	4,460	14,400	8,490	4,420	3,610	2,470	3,850	1,560	1,490	1,210
17	2,710	2,260	4,450	13,700	8,480	4,410	5,580	2,460	3,730	1,520	1,490	1,210
18	2,720	5,280	4,430	14,700	8,490	4,410	5,470	2,890	3,310	1,530	1,490	1,210
19	2,370	5,450	4,510	14,000	8,340	4,410	5,090	5,390	2,800	1,530	1,490	1,200
20	2,730	5,430	4,480	11,000	8,070	4,410	4,960	4,450	2,800	1,530	1,490	1,210
21	2,700	5,440	3,750	11,100	8,030	4,420	4,630	4,440	2,800	1,540	1,490	1,210
22	2,710	4,830	4,310	11,100	6,950	4,410	4,630	4,480	2,800	1,540	1,230	1,210
23	2,720	2,720	4,370	11,100	7,390	4,410	4,650	4,490	2,800	1,540	1,220	1,210
24	2,710	5,390	4,390	10,600	7,380	3,630	4,480	4,490	2,800	1,790	1,220	1,210
25	2,710	5,420	4,410	8,930	7,410	2,650	2,760	4,440	2,800	2,010	1,220	1,210
26	2,240	5,390	3,960	11,100	7,440	2,670	2,610	4,470	3,500	2,010	1,210	1,460
27	2,690	5,390	5,300	11,100	7,460	2,650	2,600	4,450	2,960	1,570	1,210	1,610
28	2,700	5,390	6,530	11,100	7,380	2,660	2,600	4,450	2,810	1,510	1,210	1,600
29	2,690	4,870	11,400	11,100	---	2,650	2,620	4,450	2,810	1,510	1,200	1,610
30	2,670	2,420	11,400	14,800	---	2,660	2,650	4,450	2,820	1,500	1,210	1,610
31	e2,700	---	11,400	12,800	---	2,660	---	4,460	---	1,490	1,210	---
Total	67,100	173,990	168,020	441,300	257,020	131,750	98,950	105,270	109,770	54,800	41,260	38,020
Mean	2,165	5,800	5,420	14,240	9,179	4,250	3,298	3,396	3,659	1,768	1,331	1,267
Max	2,730	10,100	11,400	29,400	14,900	5,770	5,580	5,390	5,400	2,440	1,500	1,610
Min	1,580	2,260	2,480	8,770	6,950	2,650	2,600	2,460	2,800	1,490	1,200	1,200
In.	3.41	8.85	8.55	22.46	13.08	6.70	5.04	5.36	5.59	2.79	2.10	1.93
Mean adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	1,493	5,304	6,333	15,480	6,365	4,079	5,739	5,087	3,601	1,444	965	837
CFSM adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	2.04	7.26	8.66	21.2	8.71	5.58	7.85	6.96	4.93	1.98	1.32	1.14
In. adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	2.36	8.10	9.99	24.42	9.07	6.43	8.76	8.03	5.50	2.28	1.52	1.28
AC-FT adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	91,800	315,600	389,400	951,700	353,500	250,800	341,500	312,800	214,300	88,800	59,340	49,810

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	Calendar Year 2005	Water Year 2006
Total	1,318,300	1,687,250
Mean	3,612	4,623
Max	13,700	29,400
Min	1,510	1,200
In.	67.09	85.86
Mean adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	3,540	4,724
CFSM adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	4.84	6.46
In. adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	65.75	87.75
AC-FT adjusted for change in contents in Lake Merwin, Swift Reservoir and Yale Reservoir	2,563,000	3,420,000

