



Water-Data Report 2008

12213100 NOOKSACK RIVER AT FERNDALE, WA

Puget Sound Basin
Nooksack Subbasin

LOCATION.--Lat 48°50'42", long 122°35'17" referenced to North American Datum of 1927, in NE ¼ NW ¼ sec.29, T.39 N., R.2 E., Whatcom County, WA, Hydrologic Unit 17110004, on right bank 300 ft downstream from Main Street bridge at Ferndale, and at mile 5.8.

DRAINAGE AREA.--786 mi², of which 48.9 mi² is in Canada.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--Annual maximum stage only, water years 1918, 1922, 1932, 1935, and annual maximum, water years 1946, 1950-66. October 1966 to current year.

REVISED RECORDS.--WDR WA-83-1: 1971(M), 1976(M), WDR WA-94-1: 1976(M), 1980(M), 1984(M), 1990(M), 1991, 1991(M).

GAGE.--Water-stage recorder. Datum of gage is 4.61 ft above NGVD of 1929. Prior to July 18, 1968, at site 220 ft upstream at datum 4.21 ft higher.

REMARKS.--Records good. No estimated daily discharges. City of Bellingham diverts up to about 100 ft³/s at times from Middle Fork Nooksack River for municipal use. Cities of Ferndale and Lynden divert about 10 ft³/s for municipal use. Numerous small diversions located upstream for irrigation. Chemical analyses October 1961 to September 1970. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--42 years (water years 1967-2008), 3,836 ft³/s, 66.30 in/yr, 2,779,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 57,000 ft³/s, Nov. 10, 1990, gage height, 23.56 ft; minimum discharge, 463 ft³/s, Oct. 26, Nov. 9, 10, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec 4	2145	*21,100	*16.16
May 18	0900	16,700	14.15
May 21	0115	18,200	14.89

Minimum discharge, 854 ft³/s, Sept. 30, gage height, 3.99 ft.

12213100 NOOKSACK RIVER AT FERNDALE, WA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	8,550	2,040	1,700	2,460	2,030	3,940	2,240	3,360	7,670	10,300	2,860	3,080
2	6,670	1,890	1,660	2,450	2,060	3,580	2,090	2,930	7,250	9,690	3,000	2,530
3	9,090	1,880	7,360	2,650	1,960	2,990	1,990	2,820	6,440	9,280	2,660	2,190
4	6,310	3,150	20,300	3,140	1,810	2,910	1,950	3,090	8,240	9,380	2,330	1,970
5	4,720	2,880	15,900	3,820	1,900	2,670	1,970	3,740	7,480	7,090	2,310	1,820
6	3,310	2,260	9,370	3,350	2,320	2,440	1,960	4,350	8,610	6,660	2,350	1,800
7	3,380	2,090	6,610	2,820	2,460	2,310	2,240	4,580	7,900	5,500	2,490	1,740
8	9,610	2,280	5,050	2,540	2,920	2,480	2,400	4,290	6,930	4,990	2,550	1,600
9	4,560	2,750	4,060	2,520	3,300	2,790	2,280	3,750	6,250	5,190	2,440	1,520
10	3,770	3,790	3,530	2,920	3,850	2,710	2,150	3,520	7,630	5,190	3,340	1,410
11	3,950	3,590	3,110	5,250	4,390	5,230	2,110	4,290	6,560	4,300	2,840	1,310
12	3,200	2,910	2,870	5,300	3,820	4,950	2,060	4,290	6,110	3,960	2,200	1,330
13	2,610	3,650	2,690	5,160	3,900	3,760	2,910	3,670	6,290	4,050	2,070	1,280
14	2,270	2,840	2,820	4,970	3,360	3,400	3,490	4,770	7,250	4,110	2,080	1,190
15	2,060	2,770	3,040	5,950	2,940	3,370	3,150	7,670	6,240	3,790	2,330	1,150
16	2,290	9,290	3,270	4,450	2,930	3,200	2,790	9,380	6,320	3,570	2,470	1,170
17	2,280	8,760	3,050	3,740	2,710	3,120	2,540	12,000	6,620	3,460	2,560	1,140
18	2,160	5,880	2,910	3,280	2,510	3,100	2,510	15,300	5,910	3,340	2,670	1,180
19	5,550	4,370	3,680	3,070	2,410	2,820	2,470	13,600	5,520	3,150	2,570	1,190
20	5,950	3,610	3,900	3,020	2,400	2,740	2,260	15,000	5,360	3,050	3,200	1,130
21	3,800	3,100	3,230	2,650	2,430	2,700	2,110	15,200	6,560	3,050	10,700	1,220
22	7,020	2,740	2,980	2,400	2,370	2,510	1,970	10,300	7,120	3,080	7,540	1,240
23	8,550	2,480	3,470	2,260	2,370	2,560	1,910	8,380	6,620	2,920	3,640	1,330
24	6,350	2,280	4,430	2,160	2,380	3,300	1,910	8,090	5,860	2,660	3,070	1,050
25	6,230	2,110	3,530	2,050	2,260	2,810	2,000	9,740	5,580	2,670	4,250	1,090
26	4,200	1,990	3,290	1,970	2,180	2,630	1,900	11,300	5,590	2,790	3,160	1,250
27	3,420	2,250	3,100	1,980	2,210	2,590	1,930	10,400	5,300	2,660	3,290	1,070
28	2,990	2,130	3,210	1,890	2,370	2,380	2,490	10,400	6,300	2,660	3,740	967
29	2,710	1,980	3,460	1,830	2,570	2,400	4,560	10,000	8,650	2,440	4,360	900
30	2,480	1,820	3,070	1,830	---	2,520	4,190	8,450	10,100	3,000	6,810	895
31	2,220	---	2,740	1,890	---	2,360	---	7,520	---	2,650	4,080	---
Total	142,260	95,560	143,390	95,770	77,120	93,270	72,530	236,180	204,260	140,630	105,960	42,742
Mean	4,589	3,185	4,625	3,089	2,659	3,009	2,418	7,619	6,809	4,536	3,418	1,425
Max	9,610	9,290	20,300	5,950	4,390	5,230	4,560	15,300	10,100	10,300	10,700	3,080
Min	2,060	1,820	1,660	1,830	1,810	2,310	1,900	2,820	5,300	2,440	2,070	895
Ac-ft	282,200	189,500	284,400	190,000	153,000	185,000	143,900	468,500	405,100	278,900	210,200	84,780
Cfsm	5.84	4.05	5.88	3.93	3.38	3.83	3.08	9.69	8.66	5.77	4.35	1.81
In.	6.73	4.52	6.79	4.53	3.65	4.41	3.43	11.18	9.67	6.66	5.01	2.02

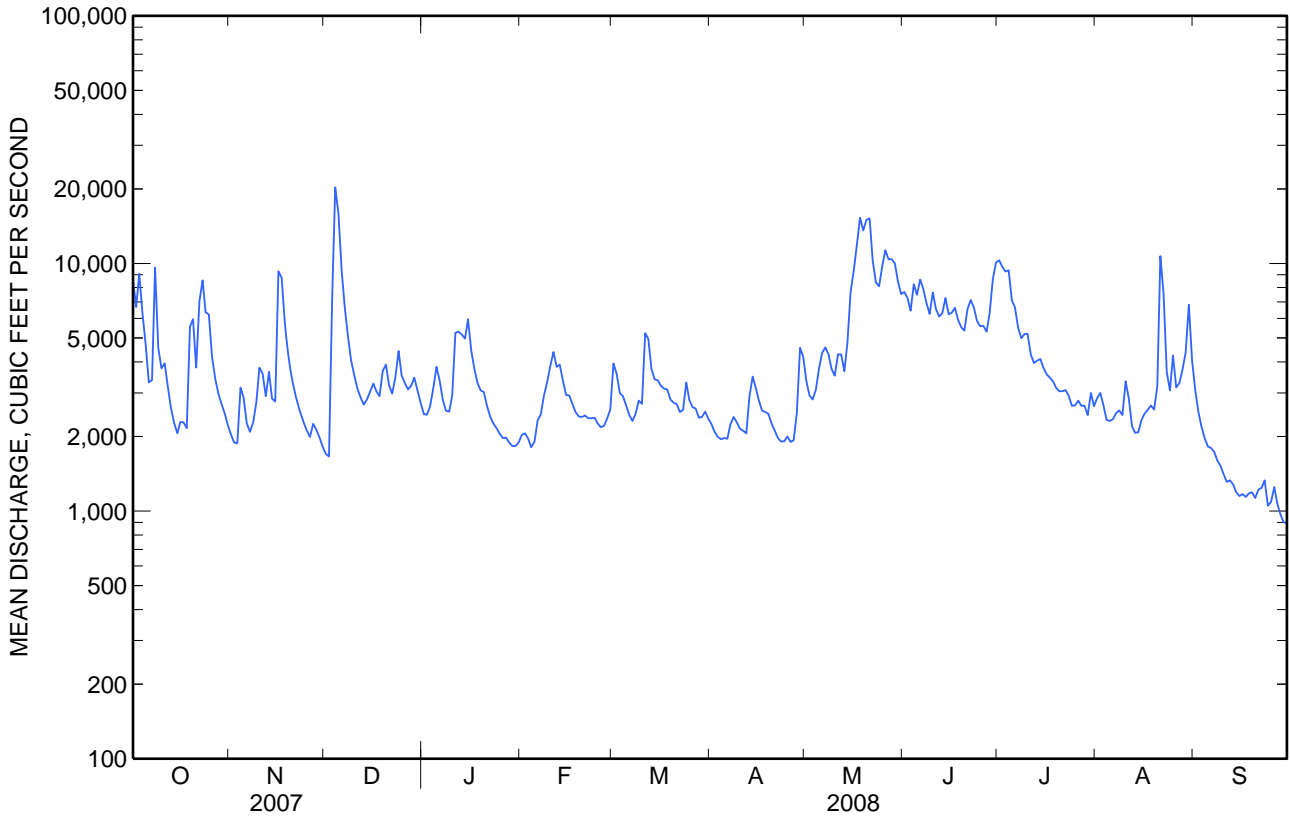
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2,756	5,027	5,136	4,914	4,204	3,800	3,721	4,585	4,844	3,473	2,095	1,808
Max	7,593	13,980	9,992	8,720	8,197	9,339	5,723	7,619	8,285	6,218	4,006	4,099
(WY)	(2004)	(1991)	(1976)	(1984)	(1982)	(1972)	(1988)	(2008)	(1974)	(1999)	(1999)	(2004)
Min	629	1,276	1,539	1,149	1,719	1,864	1,746	2,998	2,411	1,988	1,338	917
(WY)	(1988)	(1988)	(1986)	(1979)	(2001)	(1985)	(1975)	(1978)	(1992)	(1977)	(1987)	(1989)

12213100 NOOKSACK RIVER AT FERNDALE, WA—Continued

SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1967 - 2008	
Annual total	1,557,330		1,449,672			
Annual mean	4,267		3,961		3,836	
Highest annual mean					5,152	1991
Lowest annual mean					2,536	2001
Highest daily mean	23,700	Mar 25	20,300	Dec 4	48,200	Nov 11, 1990
Lowest daily mean	677	Sep 25	895	Sep 30	466	Nov 9, 1987
Annual seven-day minimum	733	Sep 21	1,030	Sep 24	483	Oct 23, 1987
Annual runoff (ac-ft)	3,089,000		2,875,000		2,779,000	
Annual runoff (cfsm)	5.43		5.04		4.88	
Annual runoff (inches)	73.71		68.61		66.30	
10 percent exceeds	7,430		7,640		6,790	
50 percent exceeds	3,800		3,010		3,110	
90 percent exceeds	1,300		1,900		1,370	



12213100 NOOKSACK RIVER AT FERNDALE, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: December 2007 to September 2008.

INSTRUMENTATION.--A Design Analysis H-500XL data logger, H-330 shaft encoder, an H-310 (0-15psi) submersible pressure transducer (backup), an H-377 temperature probe, and an H-222DASE (HDR) housed in a concrete blockhouse over a concrete well. The H-310 and H377 are housed in 1 ½ inch galvanized steel pipe 10 feet downstream from the intakes for the well.

REMARKS.--Temperature records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded 17.6°C, Aug. 15, 2008; Minimum recorded 1.0°C, Dec. 2, 2007.

EXTREMES FOR CURRENT YEAR.--Maximum recorded 17.6°C, Aug. 15; Minimum recorded 1.0°C, Dec. 2.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	---	---	---	---	---	---	3.2	1.8	2.6	3.9	3.4	3.6
2	---	---	---	---	---	---	2.3	1.0	1.5	5.0	3.8	4.4
3	---	---	---	---	---	---	5.7	2.3	4.2	5.2	4.8	5.0
4	---	---	---	---	---	---	6.1	5.7	5.9	5.3	5.1	5.2
5	---	---	---	---	---	---	6.1	5.9	6.0	5.4	4.7	5.2
6	---	---	---	---	---	---	5.9	4.7	5.1	4.7	4.1	4.3
7	---	---	---	---	---	---	4.7	3.4	3.8	4.2	3.9	4.0
8	---	---	---	---	---	---	3.4	2.3	2.6	4.0	3.6	3.8
9	---	---	---	---	---	---	2.8	2.2	2.4	4.4	3.9	4.2
10	---	---	---	---	---	---	3.1	2.7	2.9	4.6	4.3	4.4
11	---	---	---	---	---	---	3.5	2.9	3.1	5.0	4.6	4.8
12	---	---	---	---	---	---	4.4	3.5	4.0	5.2	4.7	4.9
13	---	---	---	---	---	---	4.4	4.2	4.2	5.6	5.2	5.4
14	---	---	---	---	---	---	4.7	4.2	4.4	5.5	5.0	5.2
15	---	---	---	---	---	---	5.1	4.7	5.0	5.0	3.6	4.0
16	---	---	---	---	---	---	5.1	4.9	5.0	3.8	3.3	3.4
17	---	---	---	---	---	---	5.2	4.8	5.1	3.9	3.6	3.7
18	---	---	---	---	---	---	4.8	3.9	4.2	4.3	3.7	3.9
19	---	---	---	---	---	---	5.0	4.2	4.7	4.5	4.0	4.2
20	---	---	---	---	---	---	5.0	4.3	4.7	4.1	2.9	3.7
21	---	---	---	---	---	---	4.3	3.6	3.8	2.9	1.8	2.2
22	---	---	---	---	---	---	4.5	3.7	4.0	2.3	1.9	2.0
23	---	---	---	---	---	---	4.8	4.4	4.5	2.0	1.8	1.9
24	---	---	---	---	---	---	4.8	4.5	4.6	2.1	1.9	2.0
25	---	---	---	---	---	---	4.6	4.0	4.2	2.2	1.7	1.9
26	---	---	---	---	---	---	4.2	3.7	4.0	2.5	2.1	2.2
27	---	---	---	---	---	---	3.7	3.2	3.6	3.1	2.5	2.8
28	---	---	---	---	---	---	3.9	3.4	3.7	2.9	2.2	2.7
29	---	---	---	---	---	---	3.9	3.7	3.8	2.2	1.3	1.7
30	---	---	---	---	---	---	4.1	3.9	4.0	3.2	1.7	2.3
31	---	---	---	---	---	---	4.1	3.8	3.9	4.0	3.2	3.6
Month	---	---	---	---	---	---	6.1	1.0	4.0	5.6	1.3	3.6

12213100 NOOKSACK RIVER AT FERNDALE, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	4.1	3.6	3.8	6.5	5.6	6.0	6.9	5.5	6.2	8.1	6.8	7.5
2	4.0	3.4	3.7	5.9	5.0	5.4	7.5	6.2	6.8	8.1	7.3	7.6
3	3.9	3.4	3.6	5.9	5.1	5.5	7.5	6.9	7.3	8.8	8.1	8.6
4	3.6	3.1	3.3	6.0	4.9	5.4	7.5	7.0	7.4	10.3	7.9	8.9
5	4.1	3.6	3.9	6.2	5.4	5.8	8.0	7.0	7.4	10.7	9.4	10.1
6	4.0	3.4	3.5	6.1	5.2	5.7	8.0	7.6	7.8	10.4	8.2	9.2
7	4.7	3.6	4.1	6.8	6.0	6.5	8.3	7.4	7.9	9.7	8.2	8.8
8	4.7	4.4	4.5	7.4	6.8	7.0	7.9	7.4	7.7	8.3	7.3	7.8
9	5.0	4.1	4.4	7.1	6.1	6.5	7.7	6.8	7.3	10.2	7.1	8.2
10	5.3	4.8	5.2	7.2	6.4	6.8	8.6	7.6	8.0	10.4	8.0	9.1
11	4.8	4.1	4.3	7.2	5.5	6.3	8.9	7.9	8.3	8.2	7.4	7.8
12	5.1	4.6	4.9	5.5	4.3	4.8	10.7	8.4	9.4	8.7	7.2	7.9
13	5.1	4.6	4.8	5.8	5.3	5.5	10.9	7.8	9.7	8.8	7.6	8.0
14	4.8	4.0	4.3	6.3	5.7	5.9	7.8	6.7	7.3	8.7	7.9	8.2
15	4.9	4.6	4.8	6.6	6.1	6.3	7.6	6.4	6.9	11.4	7.6	8.8
16	5.4	4.8	5.1	6.3	5.8	6.1	7.3	6.2	6.7	11.5	7.5	9.7
17	5.2	4.6	5.0	6.2	5.7	6.0	8.9	7.3	8.0	11.1	7.0	8.9
18	5.0	4.3	4.7	7.2	6.0	6.4	8.7	6.9	7.8	10.6	6.3	8.3
19	5.2	4.5	4.8	7.3	6.2	6.8	7.4	6.0	6.6	10.1	7.0	8.1
20	6.0	5.2	5.6	7.0	6.6	6.8	7.4	5.6	6.5	8.3	6.6	7.1
21	6.0	5.5	5.6	7.0	6.1	6.7	7.6	6.6	7.1	7.4	5.8	6.5
22	6.2	5.5	5.8	7.0	6.0	6.5	8.5	6.6	7.5	8.2	6.8	7.3
23	6.8	6.1	6.5	7.0	6.2	6.7	9.0	8.5	8.7	9.0	7.1	7.7
24	6.7	4.8	5.7	6.9	5.1	6.0	8.8	8.3	8.6	12.0	7.8	9.2
25	6.2	4.8	5.4	6.9	5.5	5.9	8.8	7.4	8.1	12.1	9.0	10.4
26	6.3	5.9	6.2	6.7	5.5	6.2	9.9	7.6	8.6	11.5	7.6	8.9
27	6.6	6.2	6.4	6.7	5.7	6.1	10.5	9.9	10.3	11.4	7.9	9.1
28	7.4	6.5	7.0	5.9	4.3	4.9	10.1	9.1	9.5	11.4	8.3	9.8
29	7.3	6.4	6.8	4.5	4.1	4.3	9.2	7.5	8.1	11.0	7.7	8.8
30	---	---	---	6.7	4.1	5.3	7.9	6.5	7.2	9.5	7.2	7.9
31	---	---	---	6.6	5.8	6.2	---	---	---	10.8	8.3	9.3
Month	7.4	3.1	5.0	7.4	4.1	6.0	10.9	5.5	7.8	12.1	5.8	8.5

12213100 NOOKSACK RIVER AT FERNDALE, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
1	10.9	8.4	9.5	14.2	10.8	12.4	14.1	11.7	12.5	12.8	11.0	11.9
2	8.6	7.4	8.0	13.9	10.8	12.3	14.2	12.4	13.3	12.5	11.2	11.8
3	8.4	7.7	8.0	13.8	10.2	11.6	14.6	12.7	13.5	13.1	11.5	12.3
4	8.6	7.3	7.9	12.5	9.6	10.6	16.2	14.6	15.3	13.9	12.7	13.3
5	8.6	7.5	7.9	12.3	10.1	10.9	16.6	15.7	16.2	13.9	13.0	13.5
6	9.1	7.2	7.8	12.3	10.4	11.1	16.9	16.0	16.5	13.8	12.2	12.9
7	9.1	8.0	8.5	14.0	10.3	11.6	16.7	15.9	16.4	14.5	13.4	13.8
8	9.2	7.6	8.4	14.9	12.1	13.4	16.7	15.3	16.0	14.4	13.6	14.0
9	9.4	8.2	8.6	15.1	12.5	13.9	16.4	14.2	15.2	13.9	13.6	13.8
10	8.3	7.0	7.6	---	---	---	14.3	13.2	13.7	13.9	13.3	13.6
11	8.7	7.8	8.2	---	---	---	15.3	12.7	13.8	14.1	13.2	13.6
12	10.9	8.0	9.0	---	---	---	15.6	14.8	15.2	14.4	13.6	14.0
13	12.1	9.9	10.7	---	---	---	16.9	15.3	16.0	14.1	13.4	13.8
14	12.1	8.8	10.1	---	---	---	17.3	16.5	16.9	14.2	13.1	13.6
15	12.5	9.6	10.7	---	---	---	17.6	16.6	17.0	14.5	13.3	13.9
16	12.8	10.0	11.2	15.5	13.6	14.6	17.1	16.0	16.6	14.5	13.7	14.1
17	12.8	9.9	10.9	15.7	13.9	14.7	17.4	15.5	16.4	14.1	13.0	13.7
18	11.5	9.1	10.1	15.4	13.2	14.1	15.5	14.3	15.0	13.1	12.2	12.8
19	11.5	8.9	9.9	15.5	13.5	14.4	14.3	13.2	13.7	12.3	12.1	12.2
20	12.1	9.7	10.6	15.8	14.3	15.1	14.3	12.7	13.5	12.1	11.7	11.9
21	12.1	9.4	10.5	16.2	14.6	15.4	12.9	11.7	12.2	12.5	11.7	12.0
22	11.6	9.2	9.9	16.4	14.7	15.5	14.0	10.9	11.9	12.7	11.8	12.2
23	11.6	9.1	10.3	15.1	13.1	14.1	15.0	12.8	13.8	11.8	10.3	10.9
24	13.1	9.7	11.1	15.0	12.6	13.5	15.4	13.0	13.9	11.5	10.9	11.2
25	13.1	10.2	11.6	15.6	14.7	15.1	14.2	12.3	13.1	11.4	10.8	11.1
26	12.8	10.3	11.4	15.8	14.4	15.0	14.3	12.6	13.4	12.2	11.1	11.6
27	13.7	9.9	11.4	14.8	14.3	14.6	13.6	12.3	12.8	13.3	12.1	12.6
28	14.6	11.7	13.0	14.6	12.5	13.4	12.4	11.5	12.0	13.2	12.0	12.6
29	14.7	11.0	12.8	15.0	12.7	14.0	13.0	11.8	12.3	12.9	11.4	12.2
30	14.4	10.8	12.6	12.9	12.0	12.5	13.0	11.0	11.9	13.0	11.6	12.3
31	---	---	---	13.0	11.3	11.9	12.6	10.7	11.6	---	---	---
Month	14.7	7.0	9.9	---	---	---	17.6	10.7	14.2	14.5	10.3	12.8