12208000 MIDDLE FORK NOOKSACK RIVER NEAR DEMING, WA

Puget Sound Basin
Nooksack Subbasin

LOCATION.--Lat 48°46′46″, long 122°06′19″ referenced to North American Datum of 1927, in SW ¼ sec.13, T.38 N., R.5 E., Whatcom County, WA, Hydrologic Unit 17110004, on left bank 0.5 mi upstream from Heislers Creek, 6.0 mi southeast of Deming, and at mile 5.6.

DRAINAGE AREA.--73.3 mi², Area at site 1910-11, 1920-21, 1954, 75.4 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1910 to March 1911 (fragmentary gage heights and discharge measurements only), August 1920 to September 1921, February 1934 to September 1935, June to October 1954, October 1964 to November 1968, July 1969 to July 1970, January 1992 to current year.

REVISED RECORDS.--WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 580 ft above NGVD of 1929, from river-profile map. Oct. 11, 1910, to Mar. 14, 1911, Aug. 28, 1920, to Sept. 30, 1921, June 3 to Oct. 31, 1954, nonrecording gages at site 0.8 mi downstream at different datums. Feb. 18 to Apr. 6, 1934, Nov. 16, 1934, to Sept. 30, 1935, nonrecording gage at present site and datum. Prior to January 1992 at same site, different datum.

COOPERATION.--Records for the 1992-97 water years were provided by the City of Bellingham and were reviewed by the U.S. Geological Survey.

REMARKS.--Records fair except for discharges above 4,000 ft³/s, which are poor. Since February 1962, the City of Bellingham sometimes diverts up to about 100 ft³/s for municipal use at dam 1.8 mi upstream. Some regulation. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--22 years (water years 1921, 1935, 1965-68, 1993-2008), 513 ft³/s, 95.07 in/yr, 371,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, probably occurred Nov. 5, 1934, gage height, 15.0 ft, from floodmarks, present site at different datum; minimum discharge, 30 ft³/s, Oct. 3, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,800 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct 7	1830	5,940	6.09
Dec 3	1745	*5,970	*6.26
Aug 21	0145	4,710	5.72

Minimum discharge, 103 ft³/s, Feb. 4, 5, gage height, 1.34 ft.

12208000 MIDDLE FORK NOOKSACK RIVER NEAR DEMING, 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	1,760	244	191	162	119	662	139	346	1,280	1,830	541	459
2	2,310	224	212	203	113	374	135	325	1,000	1,620	415	375
3	1,350	435	3,720	283	108	318	134	357	981	1,810	337	331
4	1,140	654	3,720	451	104	291	140	410	1,450	1,340	361	303
5	544	356	1,380	501	117	249	138	625	1,070	1,030	390	303
6	333	311	757	313	116	221	148	684	1,420	1,020	423	306
7	1,850	333	516	241	161	223	179	668	1,050	775	451	295
8	1,180	367	382	214	236	303	183	520	884	824	438	285
9	645	526	352	204	231	303	167	403	906	890	410	269
10	588	732	309	280	394	578	169	420	1,050	752	806	249
11	547	417	281	481	336	1,070	171	684	831	636	370	259
12	367	625	259	377	294	545	245	489	795	685	357	263
13	342	488	243	380	318	361	560	451	1,150	724	368	243
14	305	366	236	423	234	347	446	1,020	1,020	683	416	238
15	332	708	318	382	202	318	332	1,530	845	587	522	256
16	391	2,050	287	285	196	279	288	2,040	932	570	520	249
17	342	954	296	236	179	261	274	2,830	922	561	548	256
18	561	638	310	206	171	256	274	2,650	763	525	499	261
19	1,690	454	423	194	186	228	238	2,210	709	501	460	249
20	758	360	367	175	210	223	210	2,850	897	514	1,060	230
21	648	342	269	156	214	206	190	2,020	1,180	540	3,240	287
22	1,940	304	286	148	209	187	177	1,420	1,150	513	905	294
23	1,180	278	417	143	229	263	179	1,180	883	463	585	221
24	1,080	259	434	139	219	266	203	1,460	784	442	708	192
25	760	239	299	130	199	209	197	1,920	761	503	751	247
26	449	241	256	129	203	200	183	1,890	772	465	496	214
27	361	244	221	127	233	180	253	1,810	826	485	895	189
28	348	221	216	120	283	168	535	1,750	1,380	415	783	177
29	333	209	198	122	409	162	736	1,580	1,840	425	1,440	181
30	293	197	187	118	---	151	432	1,190	1,950	605	1,140	192
31	262	---	170	121	---	149	---	1,120	---	381	621	---
Total	24,989	13,776	17,512	7,444	6,223	9,551	7,655	38,852	31,481	23,114	21,256	7,873
Mean	806	459	565	240	215	308	255	1,253	1,049	746	686	262
Max	2,310	2,050	3,720	501	409	1,070	736	2,850	1,950	1,830	3,240	459
Min	262	197	170	118	104	149	134	325	709	381	337	177
Ac-ft	49,570	27,320	34,740	14,770	12,340	18,940	15,180	77,060	62,440	45,850	42,160	15,620
Cfsm	11.0	6.26	7.71	3.28	2.93	4.20	3.48	17.1	14.3	10.2	9.35	3.58
In.	12.68	6.99	8.89	3.78	3.16	4.85	3.88	19.72	15.98	11.73	10.79	4.00

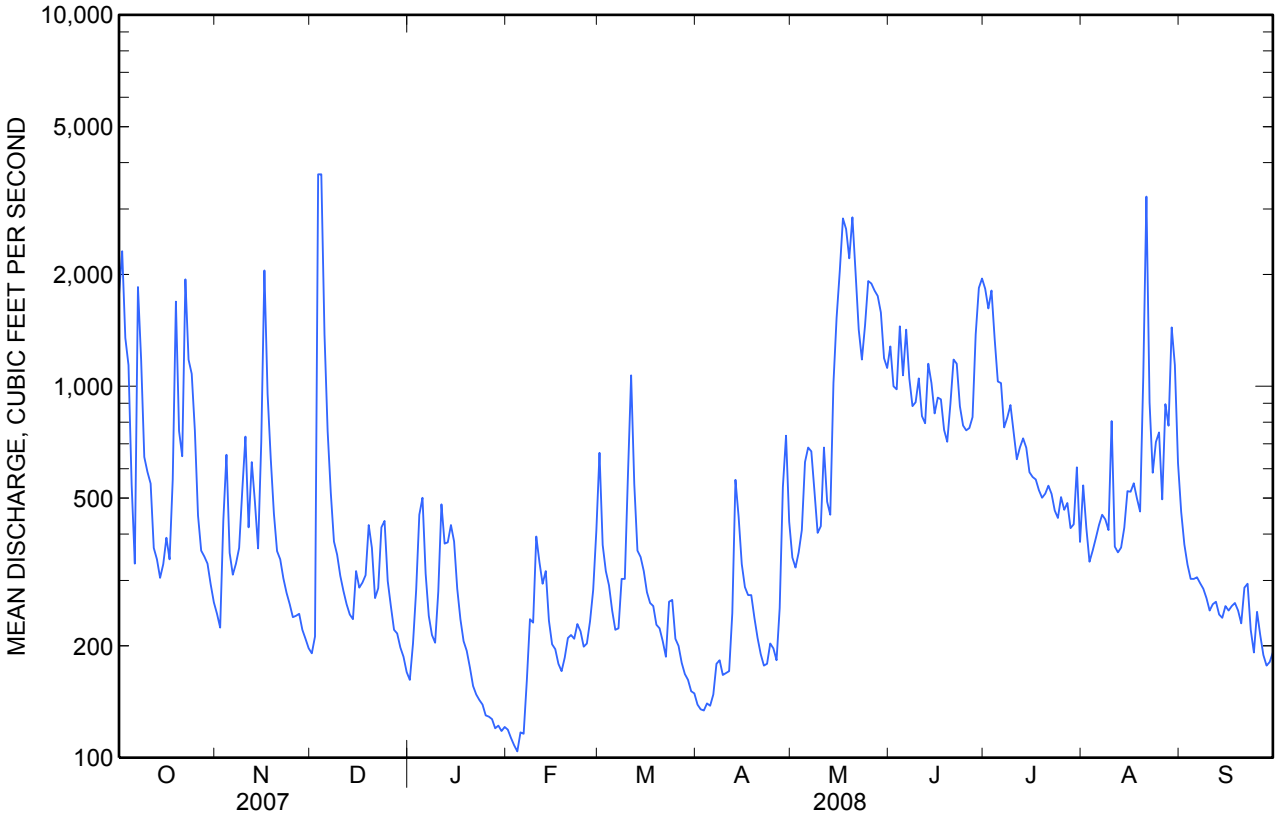
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	531	641	571	585	436	409	442	638	683	494	334	337
Max	1,379	1,162	940	965	855	998	739	1,253	1,202	839	686	796
(WY)	(2004)	(2007)	(1999)	(1997)	(1921)	(2007)	(1966)	(2008)	(1921)	(1954)	(2008)	(1920)
Min	156	215	237	240	175	218	127	385	327	311	174	120
(WY)	(2003)	(1994)	(1993)	(2008)	(2001)	(2006)	(1967)	(1992)	(1996)	(1970)	(1994)	(1965)

12208000 MIDDLE FORK NOOKSACK RIVER NEAR DEMING, WA—Continued

SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1920 - 2008	
Annual total	194,741		209,726			
Annual mean	534		573		513	
Highest annual mean					665	1921
Lowest annual mean					362	1994
Highest daily mean	4,040	Mar 12	3,720	Dec 3	8,650	Nov 6, 2006
Lowest daily mean	74	Sep 24	104	Feb 4	32	Sep 29, 1965
Annual seven-day minimum	90	Sep 20	114	Jan 31	36	Sep 27, 1965
Annual runoff (ac-ft)	386,300		416,000		371,600	
Annual runoff (cfsm)	7.28		7.82		7.00	
Annual runoff (inches)	98.83		106.44		95.07	
10 percent exceeds	954		1,220		972	
50 percent exceeds	400		364		375	
90 percent exceeds	185		177		172	



12208000 MIDDLE FORK NOOKSACK RIVER NEAR DEMING, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
WATER TEMPERATURE: July 2006 to current year (seasonal record).

INSTRUMENTATION.--Water-temperature sensor with a 15-minute logging interval, interfaced with a data collection platform for satellite telemetry.

REMARKS.--Record is good.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum recorded, 14.2 °C, July 24, 26, 2006; minimum recorded, 1.1 °C, Apr. 1, 2008.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum recorded, 12.1 °C, Aug. 23; minimum recorded, 1.1 °C, Apr. 1.

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	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	---	---	---	---	---	---	---	---

12208000 MIDDLE FORK NOOKSACK RIVER NEAR DEMING, 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	---	---	---	---	---	---	3.9	1.1	2.5	5.8	3.3	4.3
2	---	---	---	---	---	---	4.4	1.4	2.8	6.8	3.1	4.8
3	---	---	---	---	---	---	4.9	1.9	3.3	5.8	4.3	5.0
4	---	---	---	---	---	---	4.6	2.9	3.7	8.3	4.1	5.7
5	---	---	---	---	---	---	5.1	3.0	4.0	7.0	4.1	5.2
6	---	---	---	---	---	---	5.8	3.5	4.5	7.4	3.9	5.3
7	---	---	---	---	---	---	5.1	3.5	4.3	5.6	4.3	4.8
8	---	---	---	---	---	---	4.8	3.4	4.1	5.7	4.0	4.7
9	---	---	---	---	---	---	5.5	3.2	4.2	7.6	3.5	5.4
10	---	---	---	---	---	---	5.6	3.2	4.4	5.5	4.6	5.0
11	---	---	---	---	---	---	6.1	3.4	4.6	5.5	4.0	4.8
12	---	---	---	---	---	---	8.0	3.5	5.3	6.2	3.9	5.0
13	---	---	---	---	---	---	5.1	4.0	4.5	5.7	4.5	5.0
14	---	---	---	---	---	---	4.6	3.4	4.0	5.9	4.4	5.0
15	---	---	---	---	---	---	4.0	2.7	3.4	8.1	4.0	5.3
16	---	---	---	---	---	---	5.4	3.3	4.2	7.5	3.8	5.0
17	---	---	---	---	---	---	6.0	4.0	4.9	6.7	4.0	4.8
18	---	---	---	---	---	---	5.0	3.1	3.8	6.4	4.0	4.8
19	---	---	---	---	---	---	3.6	2.5	3.1	5.6	4.5	4.9
20	---	---	---	---	---	---	4.2	1.9	3.0	4.7	4.4	4.5
21	---	---	---	---	---	---	4.4	2.0	3.1	5.0	4.4	4.6
22	---	---	---	---	---	---	6.3	1.9	3.9	5.2	4.7	4.9
23	---	---	---	---	---	---	5.7	3.8	4.8	5.8	4.8	5.2
24	---	---	---	---	---	---	5.0	4.1	4.4	6.8	5.0	5.7
25	---	---	---	---	---	---	5.9	3.3	4.4	6.6	5.2	5.8
26	---	---	---	---	---	---	7.9	2.7	5.0	6.0	5.0	5.5
27	---	---	---	---	---	---	6.4	4.6	5.5	6.6	5.1	5.7
28	---	---	---	---	---	---	6.1	4.4	5.1	7.0	5.1	5.8
29	---	---	---	---	---	---	4.9	1.7	3.7	6.3	5.3	5.5
30	---	---	---	---	---	---	5.0	2.8	3.8	6.5	5.0	5.5
31	---	---	---	---	---	---	---	---	---	6.9	5.1	5.9
Month	---	---	---	---	---	---	8.0	1.1	4.1	8.3	3.1	5.1

12208000 MIDDLE FORK NOOKSACK RIVER NEAR DEMING, 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	6.7	5.4	5.7	8.9	6.9	7.7	9.0	8.5	8.6	10.0	7.2	8.5
2	5.6	5.1	5.3	8.8	7.1	7.8	9.0	8.7	8.9	9.5	7.0	8.3
3	5.6	5.2	5.4	8.5	7.4	7.6	9.4	8.6	8.9	10.4	7.4	8.8
4	5.6	5.0	5.3	7.8	7.0	7.3	9.9	9.1	9.4	10.7	8.0	9.2
5	5.6	5.2	5.3	7.8	7.1	7.4	10.2	9.4	9.7	9.5	8.4	8.8
6	5.9	4.9	5.4	7.6	7.1	7.4	10.3	9.7	10	10.7	8.7	9.5
7	5.8	5.3	5.5	8.6	6.9	7.5	10.5	9.8	10.1	10.9	8.1	9.4
8	6.4	5.2	5.7	9.1	7.6	8.2	10.5	9.9	10.2	10.9	8.0	9.3
9	6.4	5.6	5.9	9.4	8.0	8.6	10.4	9.8	10.1	10.5	8.0	9.2
10	5.8	4.9	5.2	9.3	8.0	8.4	9.9	9.6	9.7	10.2	7.3	8.6
11	5.7	5.4	5.5	9.0	7.3	8.0	10.0	9.3	9.5	10.6	7.7	8.9
12	6.9	5.5	5.9	9.5	8.0	8.6	10.1	9.6	9.8	10.8	7.9	9.2
13	7.2	6.0	6.5	9.5	8.3	8.9	10.6	9.9	10.1	10.2	7.5	8.8
14	6.8	5.5	6.1	9.5	8.3	8.9	10.8	10.1	10.4	10.5	7.7	8.9
15	7.4	5.7	6.4	9.4	8.2	8.8	10.8	10.3	10.5	10.8	8.0	9.2
16	7.8	5.8	6.7	9.6	8.4	9.0	10.7	10.2	10.5	10.7	7.9	9.2
17	7.6	6.0	6.5	9.7	8.5	9.1	10.7	10.2	10.4	10.6	8.2	9.2
18	6.9	6.0	6.4	9.7	8.7	9.2	10.5	10.1	10.2	10.0	8.2	9.0
19	6.8	5.9	6.3	10.0	8.8	9.3	10.1	9.8	9.9	9.8	8.4	9.0
20	7.7	6.1	6.7	10.1	9.0	9.5	10.0	9.9	9.9	9.3	8.5	8.9
21	7.5	6.2	6.6	10.2	9.1	9.6	10.3	9.2	9.8	9.1	8.4	8.6
22	7.0	6.0	6.4	10.2	9.3	9.7	11.3	8.2	9.5	8.8	7.7	8.4
23	7.2	5.7	6.4	9.8	8.9	9.2	12.1	9.1	10.3	8.3	6.0	7.2
24	7.7	6.2	6.9	9.7	8.5	8.9	10.8	9.6	10.2	8.7	7.6	8.0
25	8.0	6.3	7.0	10.0	9.0	9.4	10.9	9.1	9.9	8.6	8.1	8.4
26	7.9	6.5	7.1	10.0	9.1	9.5	10.3	8.6	9.4	9.5	7.6	8.5
27	8.5	6.3	7.2	9.6	9.1	9.3	9.5	8.7	9.1	9.9	8.4	9.1
28	8.9	6.6	7.6	9.6	8.6	9.0	9.8	8.8	9.2	9.0	7.1	8.1
29	8.8	6.7	7.6	9.6	9.1	9.3	10.7	9.3	9.8	9.5	7.1	8.1
30	8.8	6.9	7.7	9.1	8.6	8.8	9.5	8.0	8.8	9.9	7.8	8.7
31	---	---	---	8.7	8.3	8.5	9.7	7.2	8.2	---	---	---
Month	8.9	4.9	6.3	10.2	6.9	8.7	12.1	7.2	9.7	10.9	6.0	8.8