12175500 THUNDER CREEK NEAR NEWHALEM, WA

Puget Sound Basin
Upper Skagit Subbasin

LOCATION.--Lat 48°40′22″, long 121°04′18″ referenced to North American Datum of 1927, in SE ¼ sec.23, T.37 N., R.13 E., Whatcom County, WA, Hydrologic Unit 17110005, (unsurveyed) Ross Lake National Recreation Area, on right bank 0.4 mi upstream from high-water line of Diablo Reservoir, 9.0 mi east of Newhalem, and at mile 3.4.

DRAINAGE AREA.--105 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1930 to current year. Published as "above Colonial Creek, near Marblemount" 1930-31.

REVISED RECORDS.--WSP 1012: 1943. WSP 1286: 1931(M), 1932, 1933(M), 1935(M), 1938-39(M), 1941-42(M), 1944-46(M), 1950(M), 1952 (annual runoff in acre-ft). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft above NGVD of 1929, from river-profile map.

REMARKS.--Records fair, except for period May 16 to June 2, July 17 to August 8 and discharges above 3,000 ft^3/s and estimated discharges, which are poor. No regulation or diversion upstream from station. Large diurnal fluctuations caused by snowmelt during summer months. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--77 years (water years 1931-2007), 619 ft^3/s, 80.10 in/yr, 448,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft^3/s, Oct. 20, 2003, gage height, 15.90 ft, from rating curve extended above 3,500 ft^3/s and slope-area measurement at gage height of 15.90 ft; minimum discharge not determined, probably less than 50 ft^3/s during period of ice effect or no gage-height record in February 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Records for floods, prior to establishment of station, are given in WSP 1527.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 6	1200	*10,600	*13.73
Mar 12	0545	3,420	9.05
Jun 3	2345	3,100	8.75
Jul 6	0045	2,440	8.37

Minimum discharge, 111 ft^3/s, Feb. 4, gage height, 3.69 ft.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	279	129	229	127	119	144	465	563	1,790	1,090	1,010	e640
2	237	127	e210	614	116	136	434	586	1,960	1,160	1,130	e600
3	212	695	e190	804	114	132	401	590	e2,000	1,250	1,120	e560
4	206	1,350	e195	520	115	128	378	529	e2,050	1,430	1,020	e600
5	231	924	e200	405	121	130	358	485	e1,700	1,860	1,070	e580
6	228	e6,500	e195	351	136	136	357	463	e1,300	1,970	1,130	e520
7	193	e3,500	e200	340	149	157	427	617	e1,100	1,590	1,090	e480
8	178	e1,500	e210	338	165	182	604	1,060	941	1,350	e1,000	e460
9	165	e900	e220	311	172	182	771	1,250	1,100	1,290	e881	e440
10	159	e800	e225	282	171	186	680	1,150	1,320	1,370	e767	e410
11	180	665	e240	247	175	659	577	1,120	1,190	1,650	e705	e400
12	203	583	295	216	176	2,760	512	1,170	943	1,830	e756	e410
13	225	566	317	209	172	1,410	479	1,270	915	1,930	e689	e380
14	224	490	342	193	169	849	498	1,160	959	1,950	e814	e320
15	254	885	421	181	209	605	475	1,190	916	1,850	e820	e320
16	228	1,340	330	176	287	557	444	1,400	871	1,530	e820	e320
17	181	788	270	165	261	728	419	1,440	910	1,410	e760	e270
18	158	558	233	157	288	837	394	1,350	840	1,590	e700	e270
19	266	565	217	153	276	714	372	1,340	866	1,620	e820	e240
20	284	601	204	147	291	661	354	1,220	1,090	1,350	e820	214
21	187	506	218	140	272	535	340	1,180	1,270	1,350	e860	201
22	163	449	197	138	251	473	334	1,070	1,230	1,810	e840	362
23	151	408	182	147	222	442	345	1,080	1,100	1,830	e800	228
24	148	371	171	149	200	1,320	388	1,130	961	1,710	e760	186
25	144	334	172	149	186	1,630	422	1,250	849	1,410	e740	181
26	141	304	160	145	174	1,100	416	1,310	793	1,410	e1,000	194
27	321	274	155	140	162	853	495	1,420	910	1,370	e800	224
28	250	235	141	134	154	696	1,040	1,280	1,110	1,300	e700	378
29	195	228	135	131	---	597	782	1,270	1,210	1,260	e680	216
30	158	230	130	127	---	540	624	1,480	1,160	1,130	e660	236
31	138	---	126	123	---	502	---	1,700	---	1,020	e660	---
Total	6,287	26,805	6,730	7,459	5,303	19,981	14,585	34,123	35,354	46,670	26,422	10,840
Mean	203	894	217	241	189	645	486	1,101	1,178	1,505	852	361
Max	321	6,500	421	804	291	2,760	1,040	1,700	2,050	1,970	1,130	640
Min	138	127	126	123	114	128	334	463	793	1,020	660	181
Ac-ft	12,470	53,170	13,350	14,790	10,520	39,630	28,930	67,680	70,120	92,570	52,410	21,500
Cfsm	1.93	8.51	2.07	2.29	1.80	6.14	4.63	10.5	11.2	14.3	8.12	3.44
In.	2.23	9.50	2.38	2.64	1.88	7.08	5.17	12.09	12.53	16.53	9.36	3.84

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	449	409	314	268	233	223	384	886	1,312	1,322	987	615
Max	1,564	1,652	1,023	842	683	663	1,057	1,601	2,072	1,935	1,502	906
(WY)	(2004)	(1996)	(1981)	(1984)	(1991)	(1972)	(1934)	(1993)	(1948)	(1975)	(1999)	(1997)
Min	192	110	95.2	78.4	57.3	91.1	172	432	706	784	704	361
(WY)	(2003)	(1936)	(1931)	(1979)	(1936)	(1956)	(1975)	(1977)	(2005)	(1993)	(1993)	(2007)

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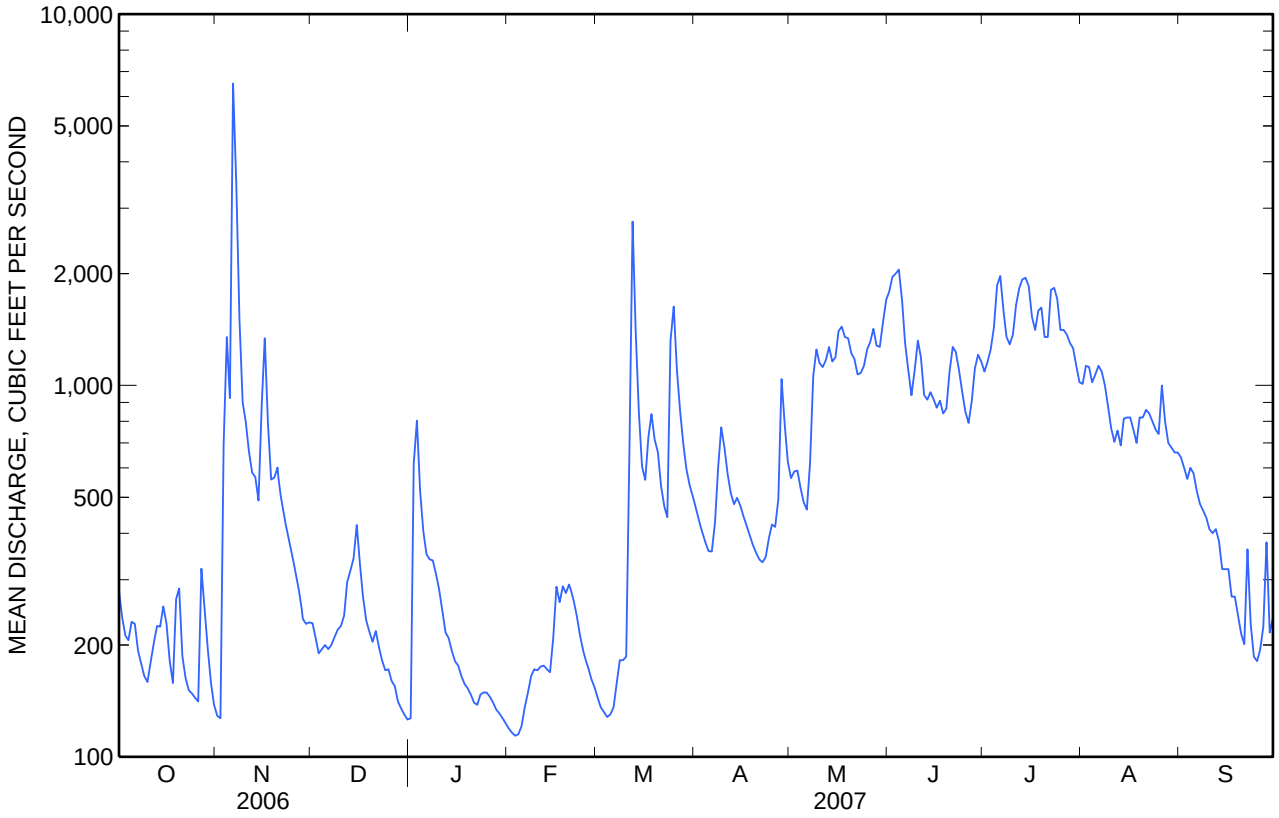
SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1931 - 2007	
Annual total	224,980		240,559			
Annual mean	616		659		619	
Highest annual mean					863	1934
Lowest annual mean					452	1944
Highest daily mean	6,500	Nov 6	6,500	Nov 6	9,030	Oct 21, 2003
Lowest daily mean	126	Dec 31	114	Feb 3	50	Feb 7, 1936
Annual seven-day minimum	131	Mar 17	119	Jan 30	52	Feb 15, 1936
Annual runoff (ac-ft)	446,200		477,100		448,500	
Annual runoff (cfsm)	5.87		6.28		5.90	
Annual runoff (inches)	79.71		85.23		80.10	
10 percent exceeds	1,420		1,360		1,360	
50 percent exceeds	396		473		422	
90 percent exceeds	152		150		136