

STREAMS TRIBUTARY TO LAKE SUPERIOR

04010500 PIGEON RIVER AT MIDDLE FALLS, NEAR GRAND PORTAGE, MN

(International gaging station)

LOCATION.--Lat 4800'44", long 8936'58", in SW 1 / 4 NE 1 / 4 sec. 24, T.64 N., R.6 E., Cook County, Hydrologic Unit 04010101, on the Grand Portage Indian Reservation, on right bank 400 ft upstream from Middle Falls, 2.5 mi upstream from Grand Portage Port of Entry, 3.5 mi upstream from mouth, and 4.7 mi northeast of city of Grand Portage.

DRAINAGE AREA.--609 mi² (revised).

PERIOD OF RECORD.--June to October 1921, April to November 1922, March 1923 to current year. Published as "at International Bridge" April 1924 to September 1940; as "below International Bridge" October 1940 to September 1965. Monthly discharge only for some periods, published in WSP 1307.

REVISED RECORDS.--WSP 744:1927-28. WSP 804: 1934(M). WSP 974: Drainage area. WSP 1337:1924(M), 1925, 1926-28(M), 1931(M), 1938(M), 1941(M), 1945-46(M), 1947, 1948(M), 1950(M).

GAGE.--Water-stage recorder. Datum of gage is 787.58 ft above sea level. Prior to Sept. 30, 1940, nonrecording gage at International Bridge, 5.8 mi upstream at datum 102.24 ft higher. Oct. 1, 1940 to Dec. 31, 1975, at present site at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite telemeter at station.

COOPERATION.--This station is one of the international gaging stations maintained by the United States under agreement with Canada.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft³ / s and maximum (*):

Discharge			Discharge		
Date	Time	Gage height (ft)	Date	Time	Gage height (ft)
(ft ³ / s)			(ft ³ / s)		
Apr. 03	1800	ae980 *7.27	Apr. 14	1800	*2130 7.20

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	197	e110	e74	e69	e140	e1200	484	229	267	62	43
2	48	515	e108	e74	e69	e142	e1000	463	273	217	60	41
3	46	707	e105	e73	e69	e142	e980	453	291	189	57	39

4	46	603	e103	e73	e69	e140	e1000	428	280	170	55	37
5	45	487	e100	e72	e69	e135	e1050	435	255	157	52	36
6	42	411	e99	e72	e69	e132	e1150	465	230	154	49	36
7	41	359	e98	e71	e69	e130	e1180	444	215	145	48	37
8	40	331	e97	e71	e69	e128	e1150	413	210	137	48	38
9	45	306	e96	e71	e69	e125	e1250	394	203	126	47	37
10	45	e280	e95	e71	e69	e120	e1300	373	190	119	45	35
11	54	e265	e94	e70	e69	e125	e1320	358	181	116	44	35
12	76	e250	e93	e70	e69	e130	e1400	346	200	122	44	35
13	339	e240	e92	e70	e69	e130	1760	345	256	121	43	33
14	339	e205	e91	e70	e69	e125	2080	388	260	114	42	41
15	275	e195	e90	e70	e69	e120	2010	532	227	108	39	42
16	232	e200	e90	e70	e70	e120	1720	537	201	103	38	41
17	202	e190	e90	e70	e70	e120	1420	493	184	95	40	38
18	182	e180	e89	e70	e70	e120	1250	466	175	89	39	36
19	165	e150	e89	e70	e70	e120	1110	417	267	85	39	56
20	149	e130	e88	e70	e70	e120	1020	377	237	80	42	76
21	144	e126	e87	e70	e71	e120	960	360	200	77	43	79
22	135	e122	e85	e70	e72	e120	892	332	175	76	41	77
23	130	e120	e84	e70	e74	e120	824	309	160	74	45	65
24	123	e122	e82	e70	e80	e125	765	284	228	72	44	54
25	116	e125	e81	e70	e102	e130	711	267	364	71	45	47
26	110	e123	e80	e70	e115	e145	658	260	363	69	44	44
27	104	e121	e79	e70	e125	e160	599	247	315	69	49	44
28	104	e120	e78	e70	e130	e250	563	252	428	66	53	46
29	101	e117	e77	e70	---	e500	534	256	374	65	52	49
30	103	e114	e76	e70	---	e1000	503	255	327	66	47	46
31	107	---	e75	e70	---	e1300	---	242	---	65	46	---
TOTAL	3735	7411	2801	2192	2154	6534	33359	11675	7498	3484	1442	1363

MEAN	120	247	90.4	70.7	76.9	211	1112	377	250	112	46.5	45.4
MAX	339	707	110	74	130	1300	2080	537	428	267	62	79
MIN	40	114	75	70	69	120	503	242	160	65	38	33
AC-FT	7410	14700	5560	4350	4270	12960	66170	23160	14870	6910	2860	2700
CFSM	.20	.41	.15	.12	.13	.35	1.83	.62	.41	.18	.08	.07
IN.	.23	.45	.17	.13	.13	.40	2.04	.71	.46	.21	.09	.08

a Daily-mean discharge, backwater from ice.

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	357	348	202	150	125	174	1187	1618	846	416	239	292
MAX	2095	1461	720	431	300	1169	2701	4016	2801	1127	1029	2985
(WY)	1978	1971	1978	1975	1969	1945	1976	1950	1947	1968	1950	1977
MIN	17.4	11.4	2.85	2.18	8.02	60.0	290	138	125	78.0	46.5	40.2
(WY)	1977	1977	1977	1977	1977	1941	1977	1977	1977	1958	1998	1976

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1921 - 1998				
ANNUAL TOTAL	167056	83648					
ANNUAL MEAN	458	229		499			
HIGHEST ANNUAL MEAN				840			1971
LOWEST ANNUAL MEAN				158			1958
HIGHEST DAILY MEAN	3400	Jul 3	2080	Apr 14	10700	May 5	1934
LOWEST DAILY MEAN	40	Oct 8	33	Sep 13	1.0a	Jan 15-21	1977

ANNUAL SEVEN-DAY MINIMUM	43	Oct 4	36	Sep 7	1.0	Jan 15	1977
INSTANTANEOUS PEAK FLOW			2130	Apr 14	11000	May 5	1934
INSTANTANEOUS PEAK STAGE			7.27b	Apr 3	7.60c	May 5	1934
INSTANTANEOUS LOW FLOW			33	Sep 12			
ANNUAL RUNOFF (AC-FT)	331400		165900		361500		
ANNUAL RUNOFF (CFSM)	.75		.38		.82		
ANNUAL RUNOFF (INCHES)	10.20		5.11		11.13		
10 PERCENT EXCEEDS	1340		508		1290		
50 PERCENT EXCEEDS	200		110		220		
90 PERCENT EXCEEDS	65		44		84		

a Minimum observed.

b Backwater from ice.

c Site and datum then in use.