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magnitude of floods vancouver island

February 1979

Inland Waters Directorate
Pacific and Yukon Region
Vancouver, B.C.

magnitude of floods vancouver island

Planning and Studies Section
Water Survey of Canada
Vancouver, February 1979

MAGNITUDE OF FLOODS - VANCOUVER ISLAND

P R E F A C E

This report is a compilation of annual flood series from 47 stream gauging stations on Vancouver and Queen Charlotte Islands. As an aid to forecasting the probability of occurrence of high flows, the historical annual flood series have been plotted on log-extremal paper.

At the back of the report is a table giving the 50-year, 100-year and 200-year flood estimates obtained by fitting five probability distributions to those stations with at least 10 years of record. The distributions used are: Gumbel I, log-normal, three parameter log-normal, power transformation-normal and log-Pearson III. Unless otherwise noted, the first three distributions have been fitted by the method of maximum likelihood only, while the log-Pearson III distribution has been fitted by both the method of maximum likelihood and by the method of moments. The user is referred to reference (1) for a description of the method used to fit the power transformation-normal distribution. A summary of the period of record, the highest peak flow, and corresponding runoff at each station is also included. Envelope curves of the extreme maximum daily and instantaneous flows and a map showing the location of most of the stream gauging stations complete the report.

Source of data: Most of the data were obtained from listings of streamflows and stations descriptions that were produced from the magnetic tape files maintained by the Water Survey of Canada. These listings provide the latest, revised version of data originally published in the Surface Water Data papers.

Selection of streams: Included in the report are streams having at least five years or more of flood record. There are 44 stations from Vancouver Island and three from the Queen Charlotte Islands.

Compilation of data: One flow is given for each year of record of a stream. This flow is the highest daily mean flow of the year; it is not the instantaneous peak flow. Where incomplete records were used, the records of neighbouring streams indicated that the partial record period coincided with the time of highest flow.

The flows of some streams have been modified either by storage dams or by diversions. Brief notes about known modifications are given below the tables of flows.

Accuracy of the data: The flows are not all of equal quality. First, no distinction has been made between those flows obtained by daily staff gauge readings and those obtained by continuous recorders. Second, the highest peak flows are necessarily estimates that are obtained by extending the upper end of a rating curve. Of course, some rating curves are better defined than others.

The drainage areas have been redetermined since the last publication of this report. There have been several revisions.

Calculations: The mean flow and the standard deviation given below the tables of flows are the arithmetic mean and the unbiased standard deviation respectively. The plotting positions are determined by the Weibull formula: $T = (N + 1)/M$.

Flood frequency estimates, obtained by fitting the log-Pearson III distribution by the method of moments, are presented on the frequency plots.

A note of caution: The user is cautioned not to infer from the uniform format used for data presentation, that short records can be used with the same assurance as the longer records in predicting the probability of high flows.

Reference (1)

Chander, S., S.K. Spolia, and A. Kumar, Flood Frequency Analysis by Power Transformation, Journal of the Hydraulics Division, A.S.C.E., November 1978.

L'ETENDUE DES CRUES - L'ILE DE VANCOUVER

P R E F A C E

Ce compte rendu est une compilation d'une série annuelle des 47 stations de jaugeage à l'Ile de Vancouver et à les Iles de la Reine Charlotte. Pour prédire la probabilité de rencontre des débits de pointe au maximum, la série des crues annuelles et chronologiques était developée sur papier log-extrémal de probabilité.

Au dos de ce compte rendu une table donne les estimations des crues pour 50 ans, 100 ans et 200 ans, obtenues par établir cinq distributions de probabilité pour celles stations ayant observations portent sur une période de 10 ans au moins. Les distributions utilisées sont: Gumbel I, log-normal, log-normal à trois paramètres, la conversion de la puissance-normale et log-Pearson III. Au moins de noter autrement, les trois premières (distributions) ont été établies par la méthode de probabilité maximal seulement, tandis que la distribution log-Pearson III a été établie par la méthode de probabilité maximal et aussi par la méthode des moments. En faisant usage de celui-ci il faut qu'on lise la référence (1), au dessous, pour une description de la méthode employée pour utiliser la distribution puissance d'agrandissement-normale. Aussi compris est un sommaire de la durée des registres, le débit de pointe le plus élevé et l'intensité de l'écoulement correspondant à chaque station. Courbes d'enveloppes au maximum extrême de débit quotidien et débits maximum instantanés aussi bien qu'une carte donnant l'emplacement des stations de jaugeage compléttent le compte rendu.

Source des données: La plupart des données sont obtenues d'après listes des débits des courants et par les descriptions des stations, produit par la collection des rubans magnétiques, maintenue par la Division des relevés hydrologiques du Canada. Ces listes pourvoient la version la plus récente et révisée des données, publiée originairement et intitulée Données sur les eaux de surface.

La selection des cours d'eaux: Ce compte rendu rapporte sur les cours d'eaux ayant cinq ans au moins, ou plus, d'enregistrement. Il y a 44 stations à l'Ile de Vancouver et trois des Iles de la Reine Charlotte.

La compilation des données: Un débit seul (le plus haute de la moyenne du débit quotidien) sert pour chaque an de recueillir des données; ce n'est pas le débit maximal instantané. Quand on a utilisé relevés imparfaits, les relevés des courants voisins montraient que la période d'enregistrement, en partie, s'accordait avec le temps du débit maximal. Les barrages et les diversions pourvoient un effet modifiant sur les débits de quelques courants. Il y a quelques notes brèves au sujet des modifications spécifiques - sous les tables des débits.

L'exactitude des données: Tous débits ne nous donnent une qualité égale. D'abord, aucune distinction n'est fait entre débits obtenus par interpretations quotidiennes par les jauges manuelles et ceux obtenus par enregistreur continu. Deuxième les débits de pointe maximale, sont de nécessité, les données estimatives, déterminées par extrapolation. Bien sûr, quelles telles courbes soient plus définissables que les autres.

Les superficies des bassins versant ont été déterminée de nouveau depuis la dernière publication de ce compte rendu. Les révisions avaient été fait à plusieurs reprises.

Les calculs: La moyenne du débit et la déviation normale (au-dessous des tables des débits) sont, respectivement, la moyenne arithmétique et la déviation normale sans biais. L'emplacement des points du graphique s'établit par la formule Weibull: $T = (N + 1)/M$.

Les évaluations de la fréquence des crues obtenues par utiliser la distribution log-Pearson III par la méthode des moments, se présentent sur le graphique.

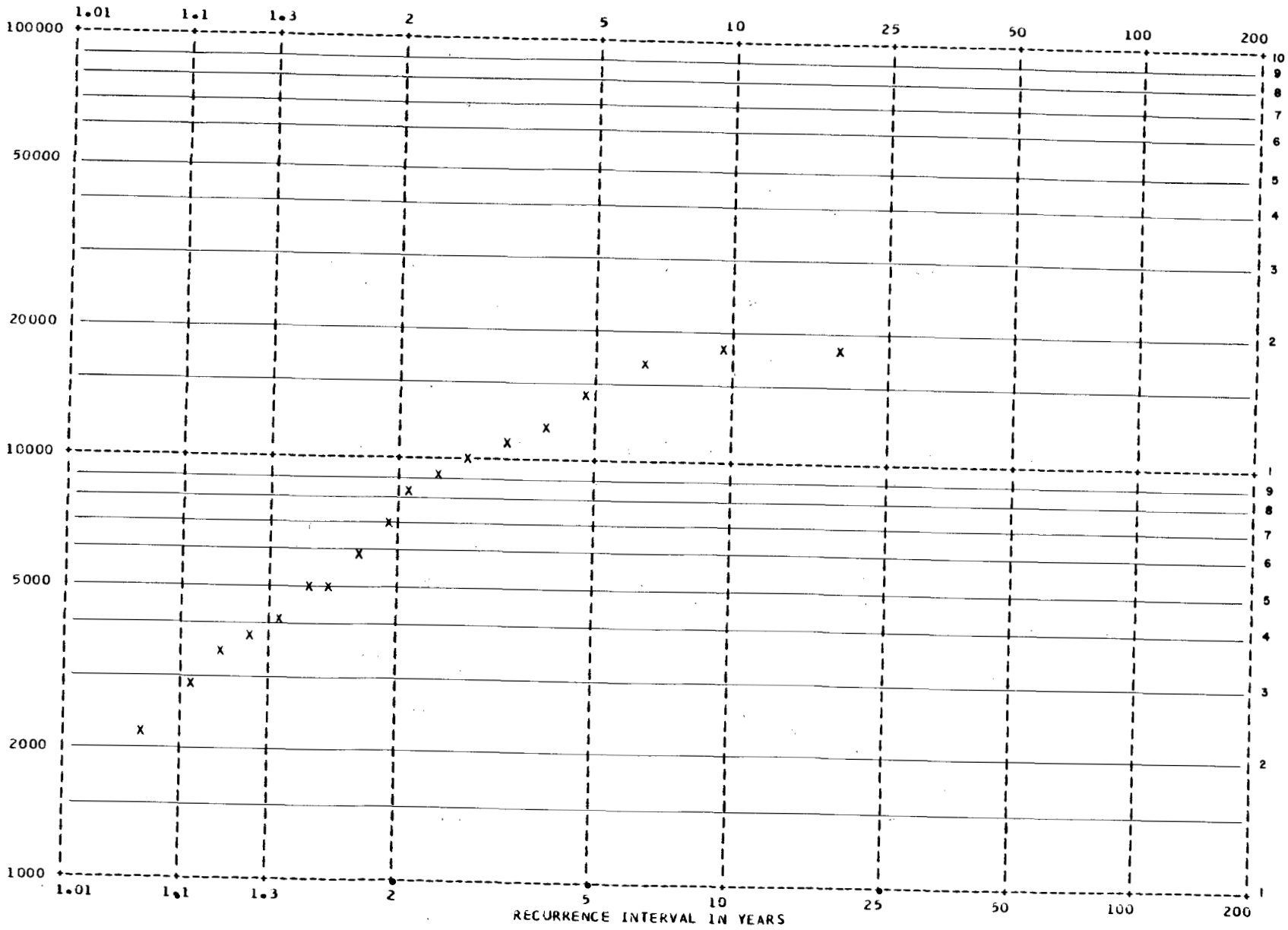
Avis: On est obligé de prendre garde à ne pas inférer, du format uniforme de présenter les données, que les relevés de durée brève pourvoient à la même assurance que les relevés pendant longtemps pour prédire la probabilité des débits au maximum.

Référence (1)

Chander, S., S.K. Spolia, et A. Kumar, Flood Frequency Analysis by Power Transformation, Journal of the Hydraulics Division, A.S.C.E., November 1978.

ALPHABETIC INDEX

ASH RIVER BELOW MORAN CREEK - STATION NO. 08HB023



ASH RIVER BELOW MORAN CREEK - STATION NO. 08H8023

DATE	MAXIMUM DAILY FLOW IN CFS
13 DEC 1960	9600
15 JAN 1961	18600
15 DEC 1962	11800
6 FEB 1963	17100
6 DEC 1964	4880
21 OCT 1965	5130
19 DEC 1966	8510
25 DEC 1967	3660
15 JAN 1968	14500
29 MAY 1969	3500
10 APR 1970	2310
10 NOV 1971	9160
18 MAR 1972	7000
16 DEC 1973	5860
16 JAN 1974	10500
4 NOV 1975	18800
27 DEC 1976	2990
14 NOV 1977	4110

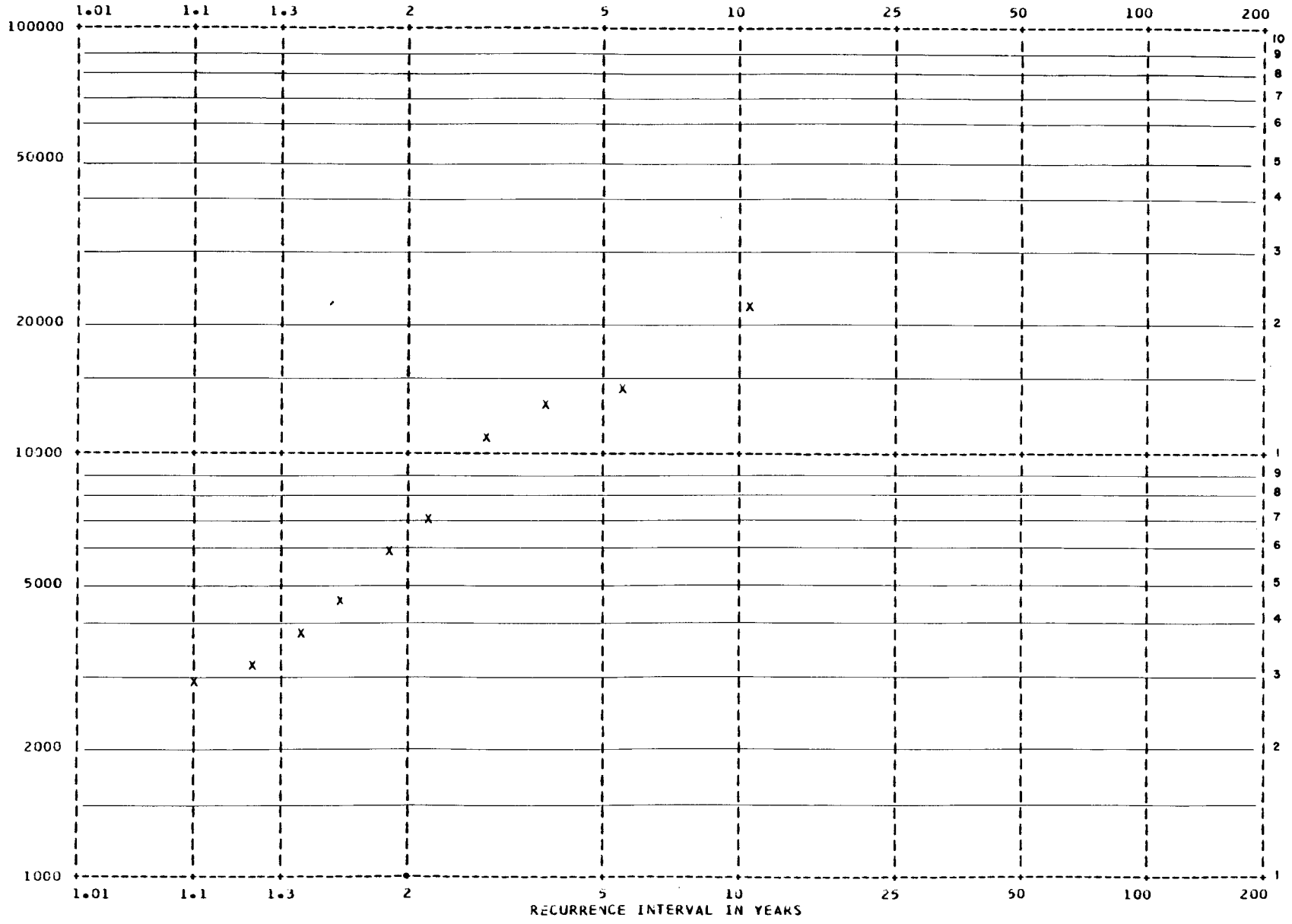
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	19.0	18800	1975
2	9.5	18600	1961
3	6.3	17100	1963
4	4.75	14500	1968
5	3.80	11800	1962
6	3.17	10500	1974
7	2.71	9600	1960
8	2.38	9160	1971
9	2.11	8510	1966
10	1.90	7000	1972
11	1.73	5860	1973
12	1.58	5130	1965
13	1.46	4880	1964
14	1.36	4110	1977
15	1.27	3660	1967
16	1.188	3500	1969
17	1.118	2990	1976
18	1.056	2310	1970

MEAN ANNUAL FLOOD: 8780 CFS DRAINAGE AREA: ...

STANDARD DEVIATION: 5440 CFS

REMARKS: STORAGE AND DIVERSION SINCE 1956 (ASH RIVER DAM)

ASH RIVER NEAR GREAT CENTRAL - STATION NO. 08HB016



ASH RIVER NEAR GREAT CENTRAL - STATION NO. 08HB016

DATE	MAXIMUM DAILY FLOW IN CFS
10 DEC 1956	3900
9 DEC 1957	3100
1 DEC 1958	22000
30 APR 1959	5740
13 DEC 1960	7300
15 JAN 1961	14200
15 DEC 1962	11400
6 FEB 1963	13600
1 JAN 1964	3020
22 OCT 1965	4570

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	11.0	22000	1958
2	5.5	14200	1961
3	3.67	13600	1963
4	2.75	11400	1962
5	2.20	7300	1960
6	1.83	5740	1959
7	1.57	4570	1965
8	1.38	3900	1956
9	1.22	3100	1957
10	1.100	3020	1964

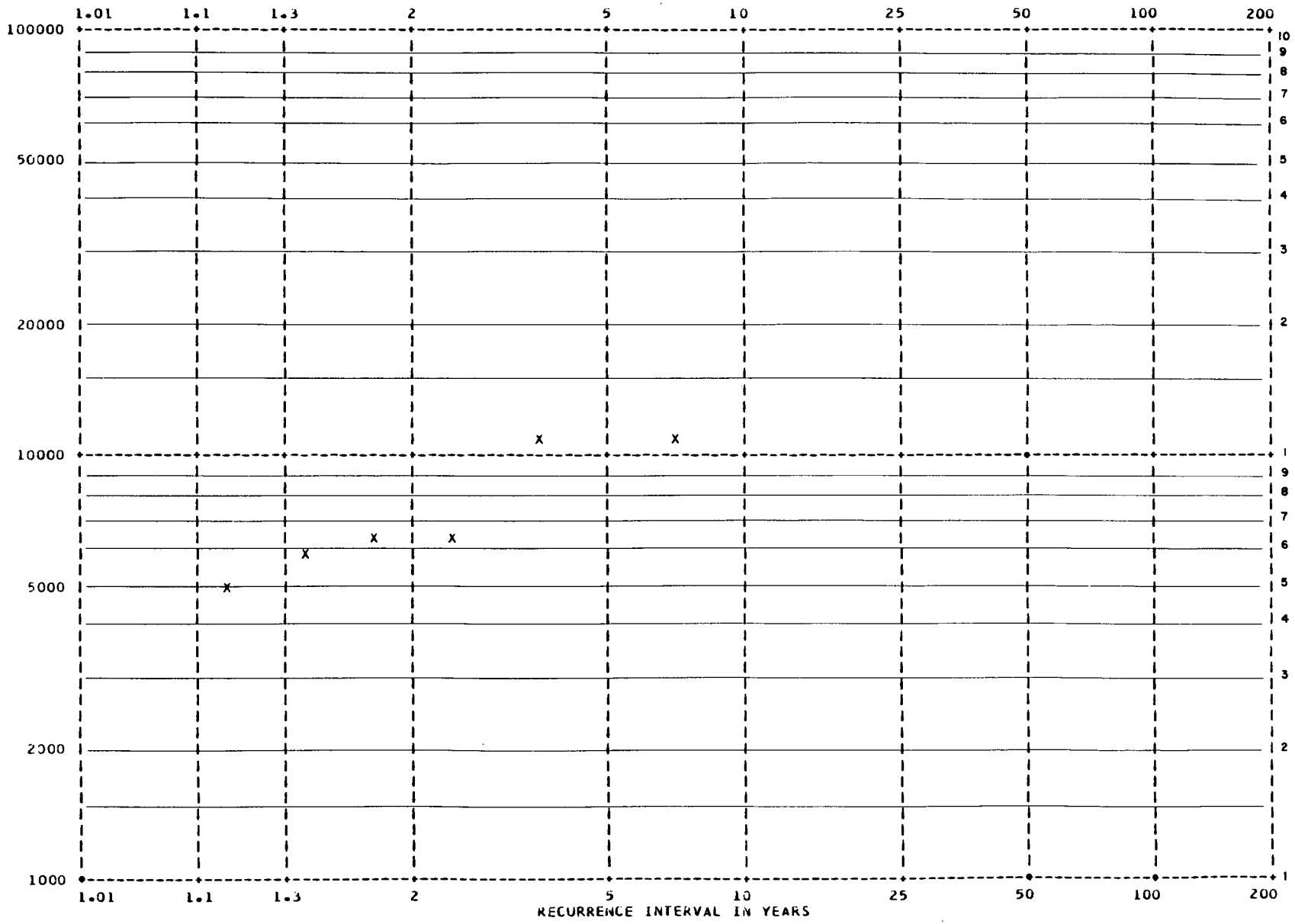
MEAN ANNUAL FLOOD: 8880 CFS

DRAINAGE AREA: ...

STANDARD DEVIATION: 6260 CFS

REMARKS: STORAGE AND DIVERSION SINCE 1958 (ASH RIVER DAM)

BENSON RIVER NEAR PORT ALICE - STATION NO. 08HE003



MAXIMUM DAILY MEAN FLOWS

BENSON RIVER NEAR PORT ALICE - STATION NO. 08HE003

DATE	MAXIMUM DAILY FLOW IN CFS
16 DEC 1925	6240
30 DEC 1926	11000
20 OCT 1927	5100
8 JAN 1928	5930
24 DEC 1929	6420
17 FEB 1930	11000

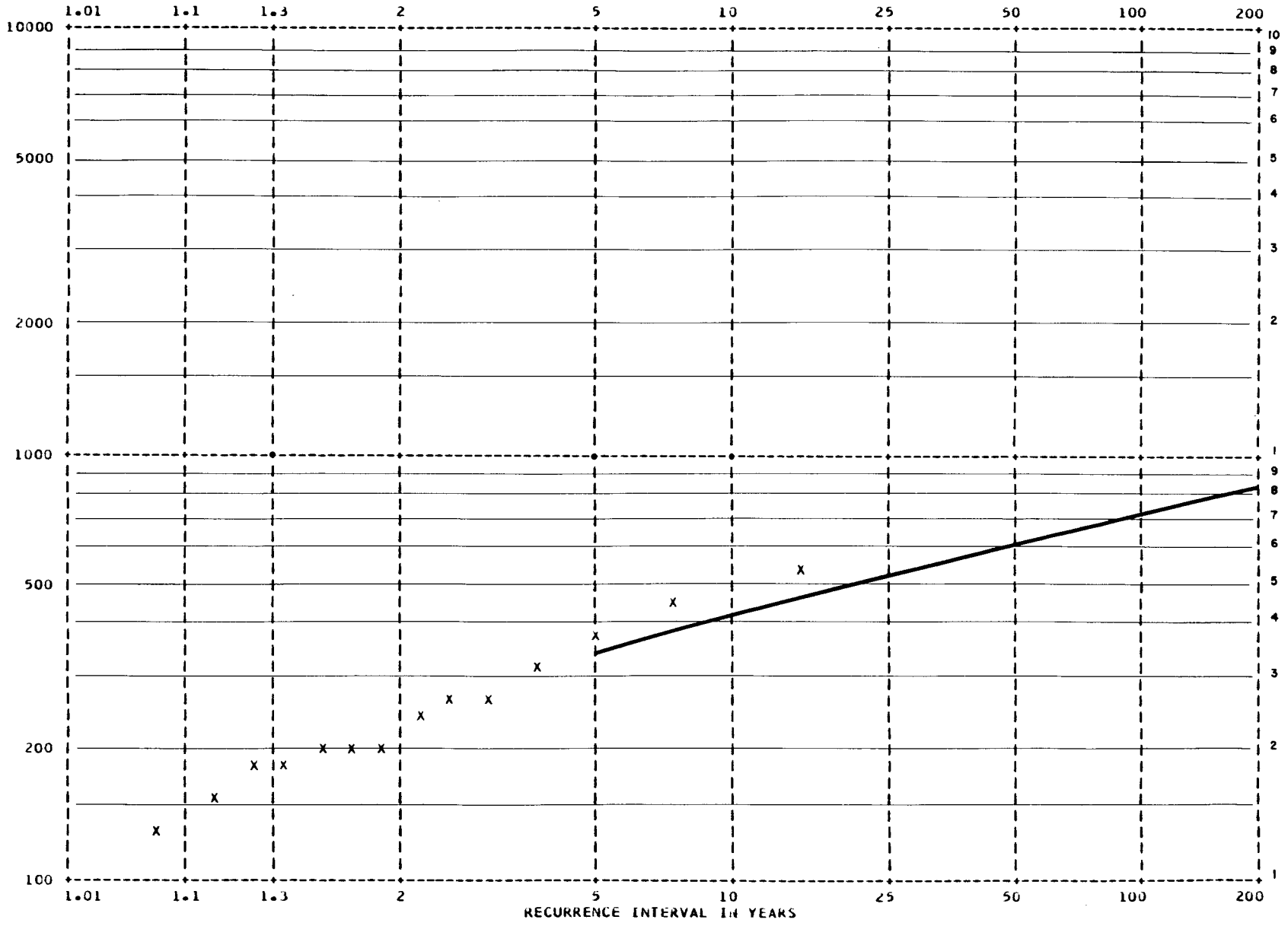
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	7.0	11000	1926
2	3.50	11000	1930
3	2.33	6420	1929
4	1.75	6240	1925
5	1.40	5930	1928
6	1.167	5100	1927

MEAN ANNUAL FLOOD: 7610 CFS

STANDARD DEVIATION: 2660 CFS

DRAINAGE AREA: 88.0 SQ MI

BINGS CREEK NEAR THE MOUTH - STATION NO. 08HA016



BINGS CREEK NEAR THE MOUTH - STATION NO. 08HA016

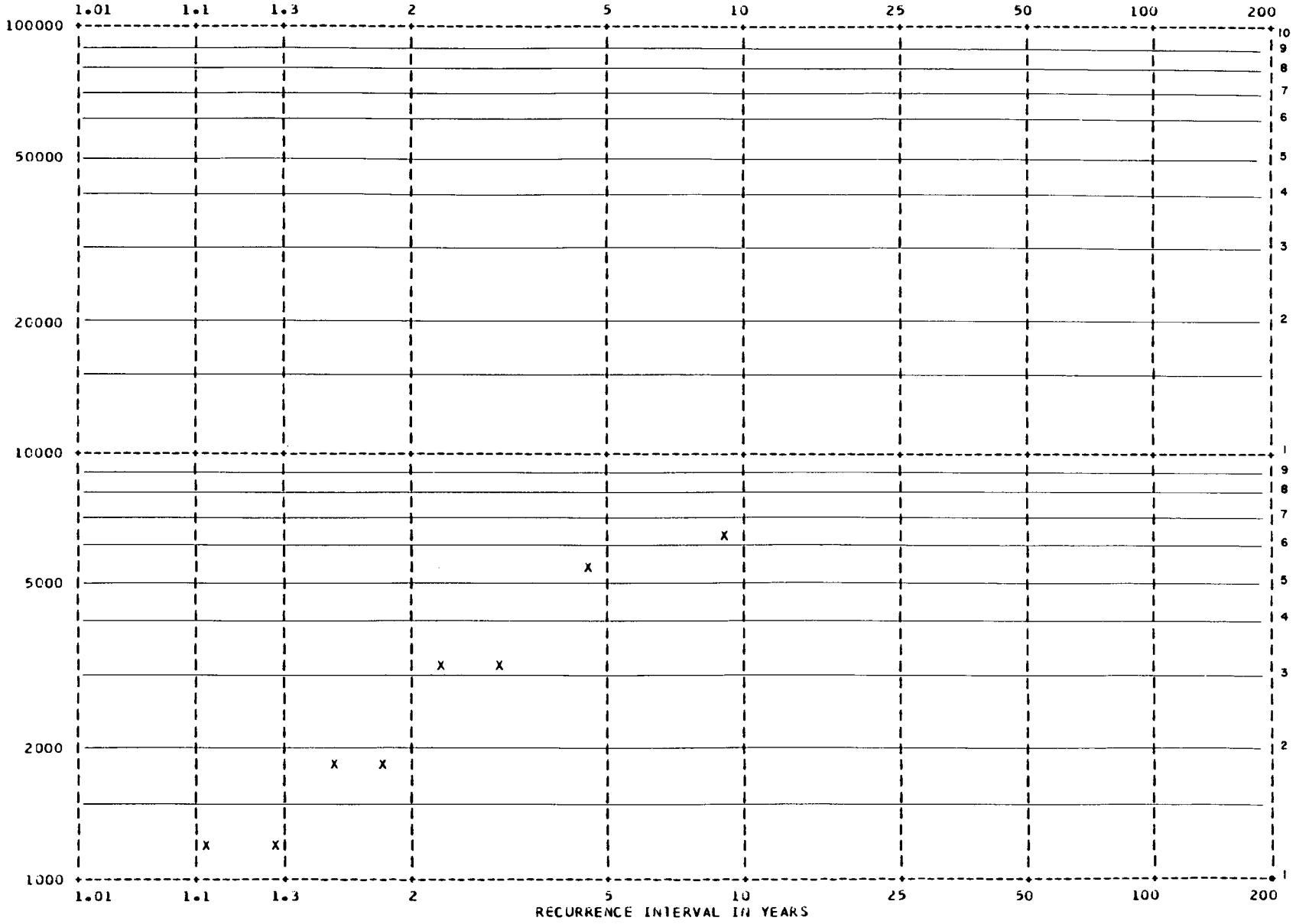
DATE	MAXIMUM DAILY FLOW IN CFS
22 NOV 1962	209
23 DEC 1963	250
16 JAN 1964	180
8 FEB 1965	188
14 JAN 1968	523
22 DEC 1969	126
16 DEC 1970	151
12 MAR 1971	256
26 DEC 1972	372
14 JAN 1973	201
14 JAN 1974	327
3 DEC 1975	267
4 JAN 1976	197
8 MAR 1977	453

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	15.0	523	1968
2	7.5	453	1977
3	5.0	372	1972
4	3.75	327	1974
5	3.00	267	1975
6	2.50	256	1971
7	2.14	250	1963
8	1.88	209	1962
9	1.67	201	1973
10	1.50	197	1976
11	1.36	188	1965
12	1.25	180	1964
13	1.154	151	1970
14	1.071	126	1969

MEAN ANNUAL FLOOD: 264 CFS

STANDARD DEVIATION: 116 CFS

DRAINAGE AREA: 6.0 SQ MI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RECURRENCE INTERVAL IN YEARS

MAXIMUM DAILY MEAN FLOWS

BROWNS RIVER NEAR COURTENAY - STATION NO. 08HB025

DATE	MAXIMUM DAILY FLOW IN CFS
13 DEC 1960	1900
11 JAN 1961	3200
6 FEB 1963	5180
11 DEC 1966	3060
6 OCT 1967	1170
29 OCT 1968	6450
7 NOV 1969	1780
21 OCT 1970	1210

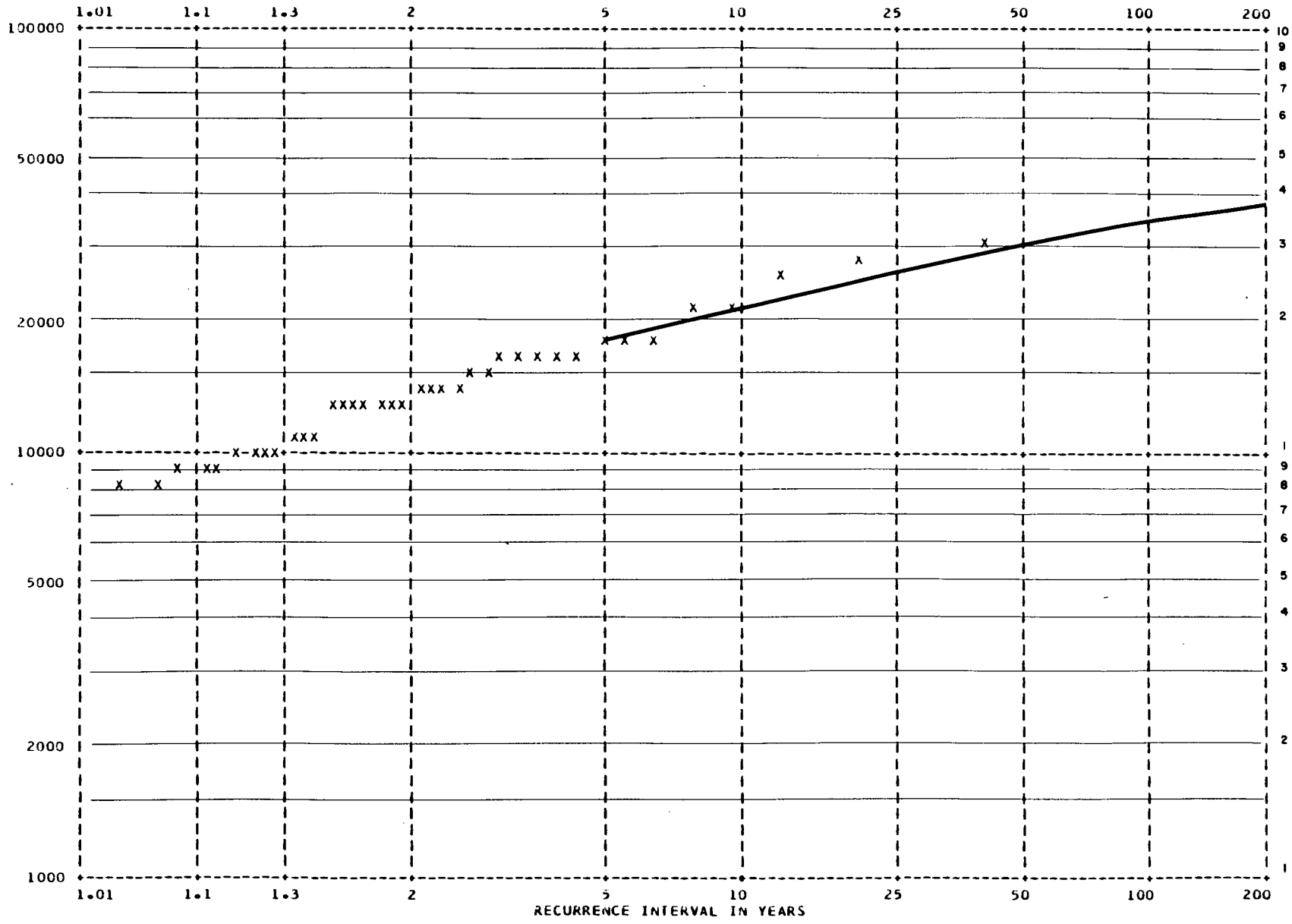
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	9.0	6450	1968
2	4.50	5180	1963
3	3.00	3200	1961
4	2.25	3060	1966
5	1.80	1900	1960
6	1.50	1780	1969
7	1.29	1210	1970
8	1.125	1170	1967

MEAN ANNUAL FLOOD: 2990 CFS

STANDARD DEVIATION: 1930 CFS

DRAINAGE AREA: 33.2 SQ MI

CAMPBELL RIVER AT OUTLET OF CAMPBELL LAKE - STATION NO. 08HD001



CAMPBELL RIVER AT OUTLET OF CAMPBELL LAKE - STATION NO. 08HD001

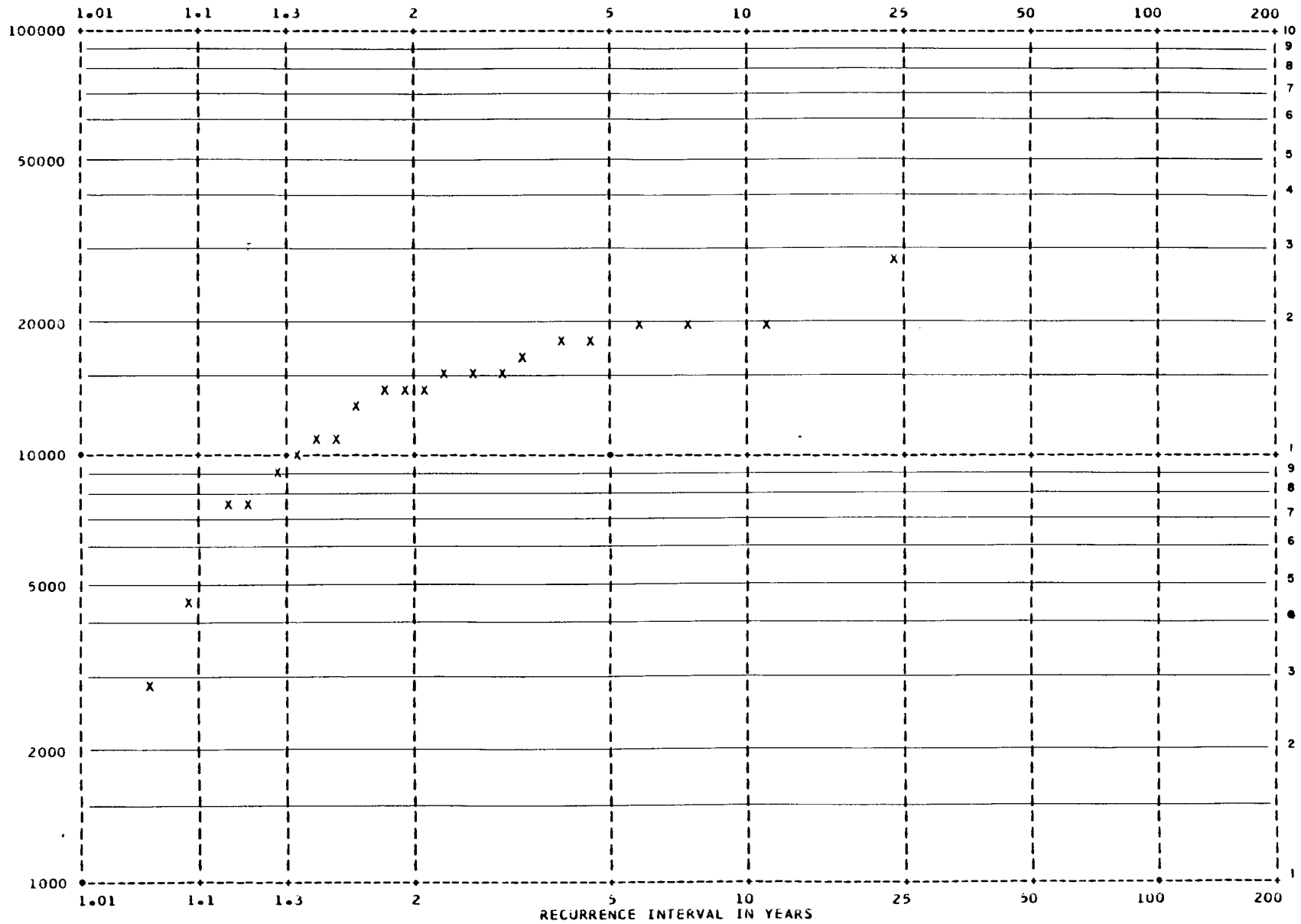
DATE	MAXIMUM DAILY FLOW IN CFS
26 NOV 1911	10700
23 NOV 1912	12600
29 NOV 1913	9300
18 OCT 1914	18100
29 OCT 1915	19200
13 MAR 1916	14800
31 DEC 1917	14600
3 JAN 1918	28200
28 DEC 1919	15600
5 DEC 1920	13500
30 OCT 1921	17300
29 DEC 1922	11200
19 DEC 1923	16800
14 DEC 1924	16600
13 DEC 1925	13700
31 DEC 1926	13600
2 JAN 1927	17800
10 JAN 1928	16300
30 DEC 1929	12800
19 FEB 1930	13700
31 JAN 1931	10300
29 FEB 1932	12900
30 OCT 1933	10500
16 NOV 1934	13500
2 FEB 1935	26900
23 DEC 1936	9630
29 OCT 1937	14900
10 DEC 1938	9540
16 NOV 1939	30300
21 OCT 1940	17100
3 DEC 1941	22700
12 OCT 1942	8630
22 APR 1943	8310
20 JAN 1944	22200
15 JAN 1945	10100
13 MAY 1946	9040
15 FEB 1947	10200
30 MAY 1948	12500

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	39.0	30300	1939
2	19.5	28200	1918
3	13.0	26900	1935
4	9.8	22700	1941
5	7.8	22200	1944
6	6.5	19200	1915
7	5.6	18100	1914
8	4.88	17800	1927
9	4.33	17300	1921
10	3.90	17100	1940
11	3.55	16800	1923
12	3.25	16600	1924
13	3.00	16300	1928
14	2.79	15600	1919
15	2.60	14900	1937
16	2.44	14600	1916
17	2.29	14600	1917
18	2.17	13700	1925
19	2.05	13700	1930
20	1.95	13600	1926
21	1.86	13500	1920
22	1.77	13500	1934
23	1.70	12900	1932
24	1.63	12800	1929
25	1.56	12600	1912
26	1.50	12500	1948
27	1.44	11200	1922
28	1.39	10700	1911
29	1.34	10500	1933
30	1.30	10300	1931
31	1.26	10200	1947
32	1.22	10100	1945
33	1.182	9630	1936
34	1.147	9540	1938
35	1.114	9300	1913
36	1.083	9040	1946
37	1.054	8630	1942
38	1.026	8310	1943

MEAN ANNUAL FLOOD: 14900 CFS

STANDARD DEVIATION: 5400 CFS

DRAINAGE AREA: 542 SQ MI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RECURRENCE INTERVAL IN YEARS

CAMPBELL RIVER NEAR CAMPBELL RIVER - STATION NO. 08HD003

DATE	MAXIMUM DAILY FLOW IN CFS
3 DEC 1949	17900
24 JAN 1950	7820
19 OCT 1951	7350
22 MAY 1952	8820
15 NOV 1953	28200
20 NOV 1954	20500
5 NOV 1955	17800
23 MAY 1956	10100
14 JAN 1957	2900
3 DEC 1958	15900
14 JUN 1959	13000
13 DEC 1960	16100
17 JAN 1961	20300
20 NOV 1962	16900
25 DEC 1963	14800
4 JAN 1964	10900
5 DEC 1965	14500
21 DEC 1966	14900
1 NOV 1967	14300
22 JAN 1968	20500
11 JUN 1969	11100
1 JAN 1970	4500

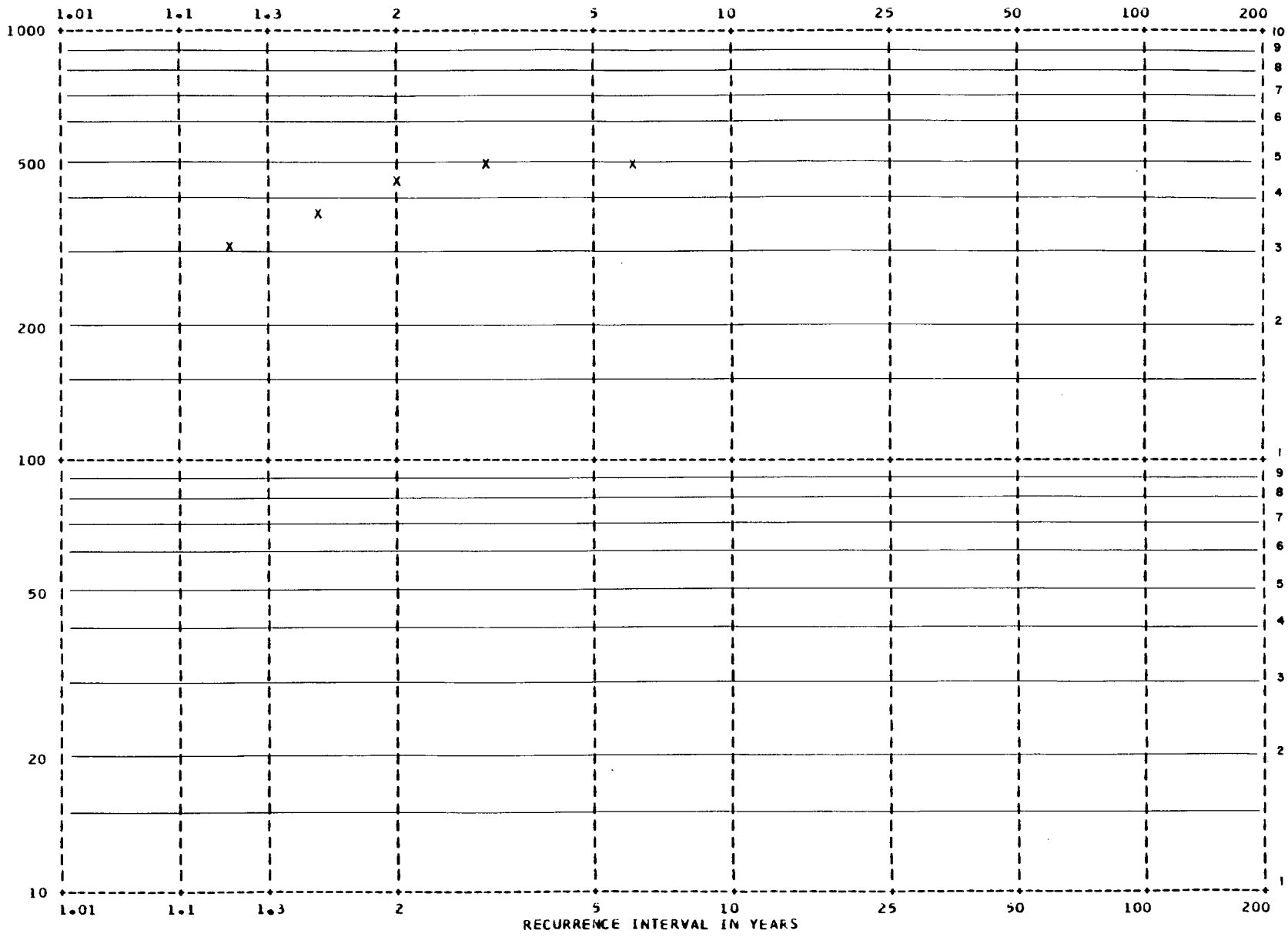
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	23.0	28200	1953
2	11.5	20500	1954
3	7.7	20500	1968
4	5.8	20300	1961
5	4.60	17900	1949
6	3.83	17800	1955
7	3.29	16900	1962
8	2.88	16100	1960
9	2.56	15900	1958
10	2.30	14900	1966
11	2.09	14800	1963
12	1.92	14500	1965
13	1.77	14300	1967
14	1.64	13000	1959
15	1.53	11100	1969
16	1.44	10900	1964
17	1.35	10100	1956
18	1.28	8820	1952
19	1.21	7820	1950
20	1.150	7350	1951
21	1.095	4500	1970
22	1.045	2900	1957

MEAN ANNUAL FLOOD: 14000 CFS

DRAINAGE AREA: ...

STANDARD DEVIATION: 5900 CFS

REMARKS: STORAGE SINCE 1947
FLOW DIVERTED INTO BASIN SINCE 1957


1.01
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RECURRENCE INTERVAL IN YEARS

CARNATION CREEK AT THE MOUTH - STATION NO. 08HB048

DATE	MAXIMUM DAILY FLOW IN CFS
15 JAN 1973	389
24 NOV 1974	473
3 NOV 1975	490
11 FEB 1976	330
12 FEB 1977	462

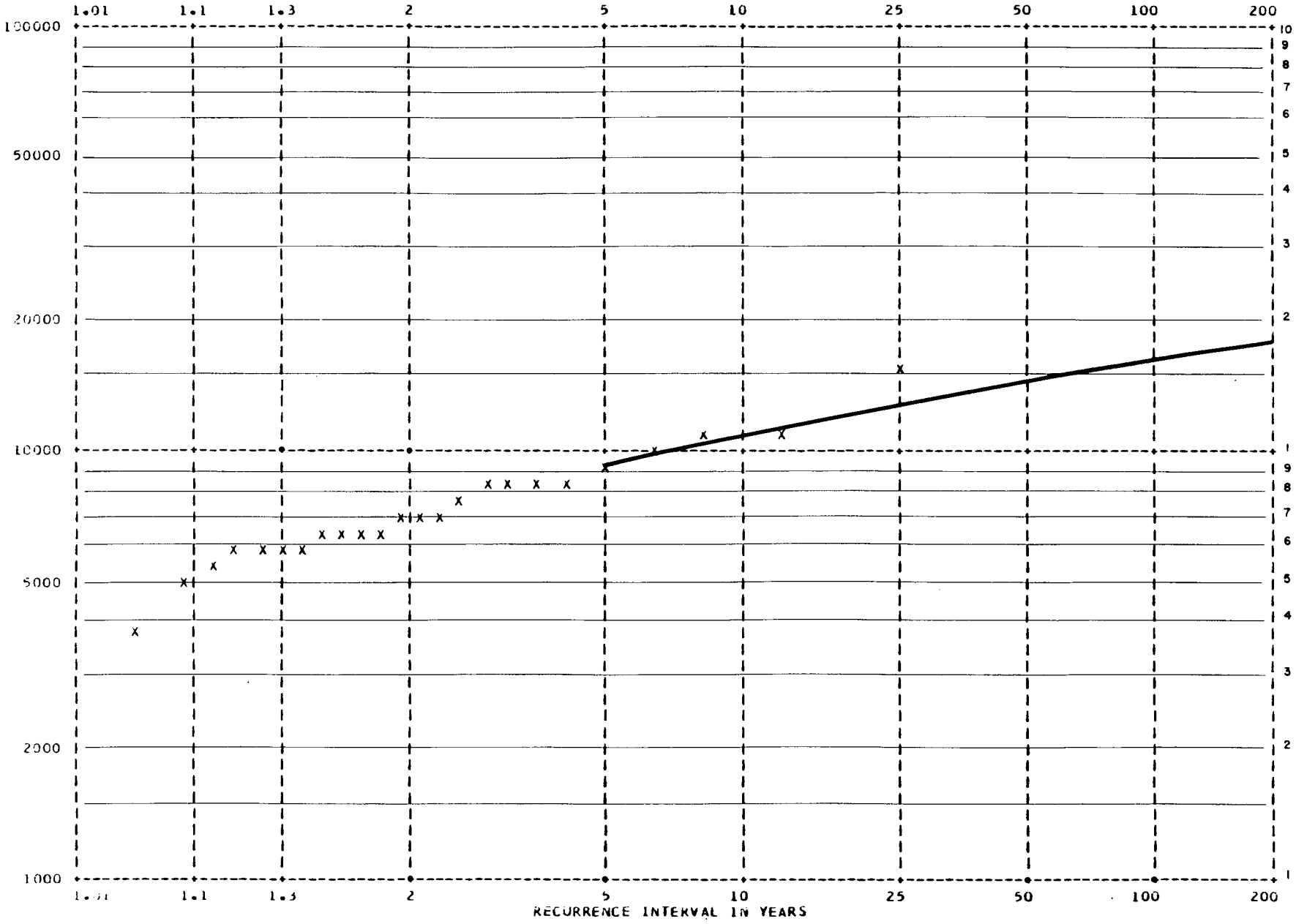
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	6.0	490	1975
2	3.00	473	1974
3	2.00	462	1977
4	1.50	389	1973
5	1.20	330	1976

MEAN ANNUAL FLOOD: 429 CFS

STANDARD DEVIATION: 67.4 CFS

DRAINAGE AREA: 3.9 SQ MI

CHEMAINUS RIVER NEAR WESTHOLME - STATION NO. 08HA001



CHEMAINUS RIVER NEAR WESTHOLME - STATION NO. 08HA001

DATE	MAXIMUM DAILY FLOW IN CFS
8 DEC 1915	6130
15 FEB 1916	6080
9 JAN 1953	6980
19 NOV 1954	6860
3 NOV 1955	11300
9 DEC 1956	6180
24 FEB 1957	6320
1 DEC 1958	5400
17 DEC 1959	5660
29 JAN 1960	9100
15 JAN 1961	9700
19 NOV 1962	8560
21 OCT 1963	8500
30 NOV 1964	5960
4 FEB 1965	6650
13 DEC 1966	7900
28 JAN 1967	6690
19 JAN 1968	16100
17 DEC 1969	3680
9 APR 1970	7130
14 FEB 1971	8510
27 DEC 1975	10800
26 DEC 1976	4960
1 NOV 1977	8480

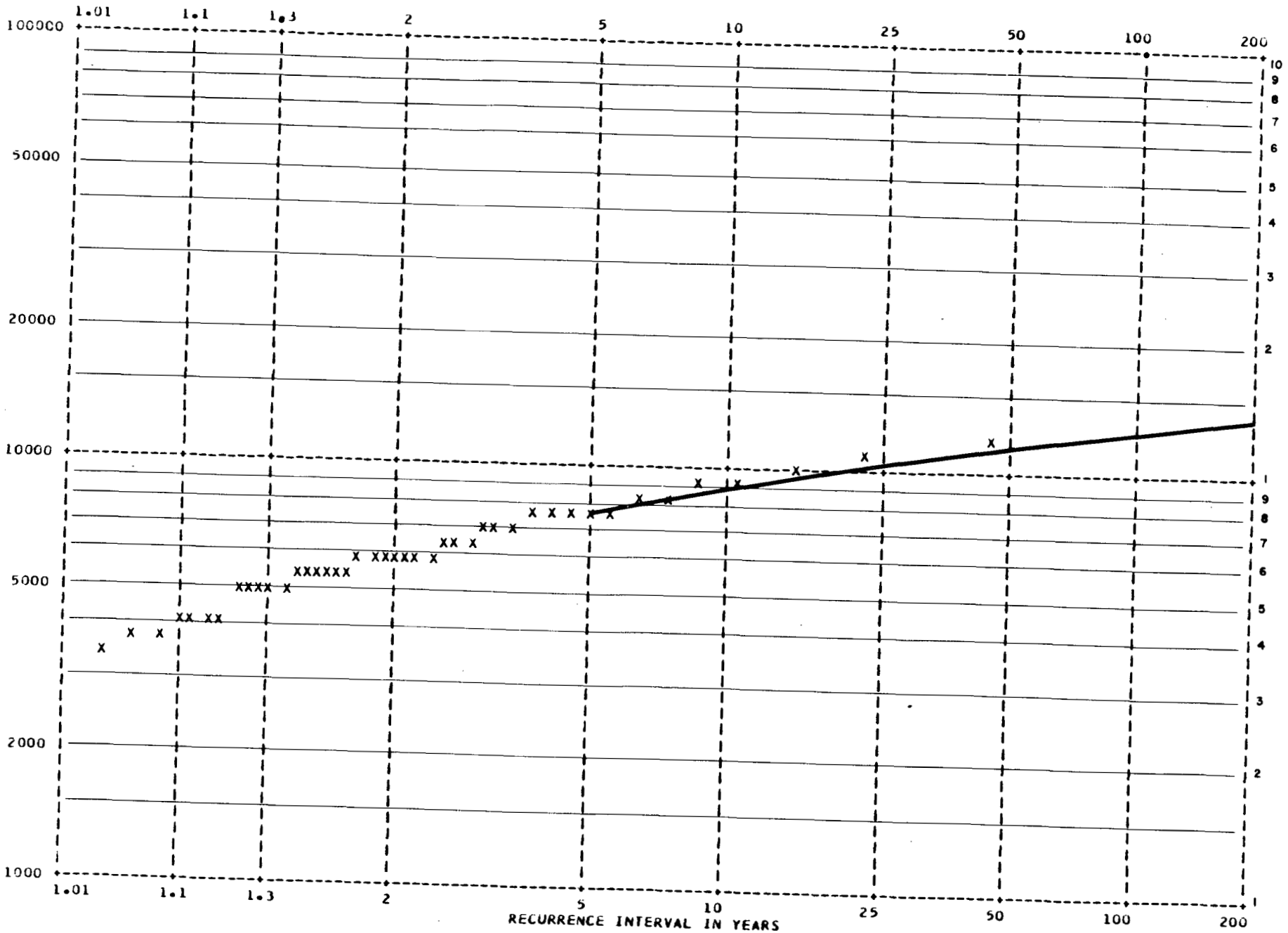
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	25.0	16100	1968
2	12.5	11300	1955
3	8.3	10800	1975
4	6.3	9700	1961
5	5.0	9100	1960
6	4.17	8560	1962
7	3.57	8510	1971
8	3.13	8500	1963
9	2.78	8480	1977
10	2.50	7900	1966
11	2.27	7130	1970
12	2.08	6980	1953
13	1.92	6860	1954
14	1.79	6690	1967
15	1.67	6650	1965
16	1.56	6320	1957
17	1.47	6180	1956
18	1.39	6130	1915
19	1.32	6080	1916
20	1.25	5960	1964
21	1.190	5660	1959
22	1.136	5400	1958
23	1.087	4960	1976
24	1.042	3680	1969

MEAN ANNUAL FLOOD: 7650 CFS

STANDARD DEVIATION: 2560 CFS

DRAINAGE AREA: 137 SQ MI

COWICHAN RIVER AT LAKE COWICHAN - STATION NO. 08HA002



COWICHAN RIVER AT LAKE COWICHAN - STATION NO. 08HA002

DATE	MAXIMUM DAILY FLOW IN CFS
7 JAN 1914	7300
9 DEC 1915	4980
13 MAR 1916	4040
31 DEC 1917	6440
4 JAN 1918	7920
26 DEC 1940	4130
3 DEC 1941	5550
23 DEC 1942	3330
3 APR 1943	4280
19 JAN 1944	5360
9 FEB 1945	5630
11 DEC 1946	6120
15 FEB 1947	6390
2 DEC 1948	5320
2 DEC 1949	9000
25 DEC 1950	5950
11 FEB 1951	6330
11 FEB 1952	5550
16 JAN 1953	8940
22 FEB 1954	7600
4 NOV 1955	7520
20 DEC 1956	4870
29 DEC 1957	5250
25 JAN 1958	6850
1 MAY 1959	4740
31 JAN 1960	4920
16 JAN 1961	10900
27 NOV 1962	6040
25 DEC 1963	7000
4 JAN 1964	5970
7 DEC 1965	5410
19 DEC 1966	10100
4 FEB 1967	5820
21 JAN 1968	11500
24 DEC 1969	3970
12 DEC 1970	3780
31 JAN 1971	4800
27 DEC 1972	8260
16 DEC 1973	7610
17 JAN 1974	7770
15 NOV 1975	8350
1 JAN 1976	3840
15 DEC 1977	5660

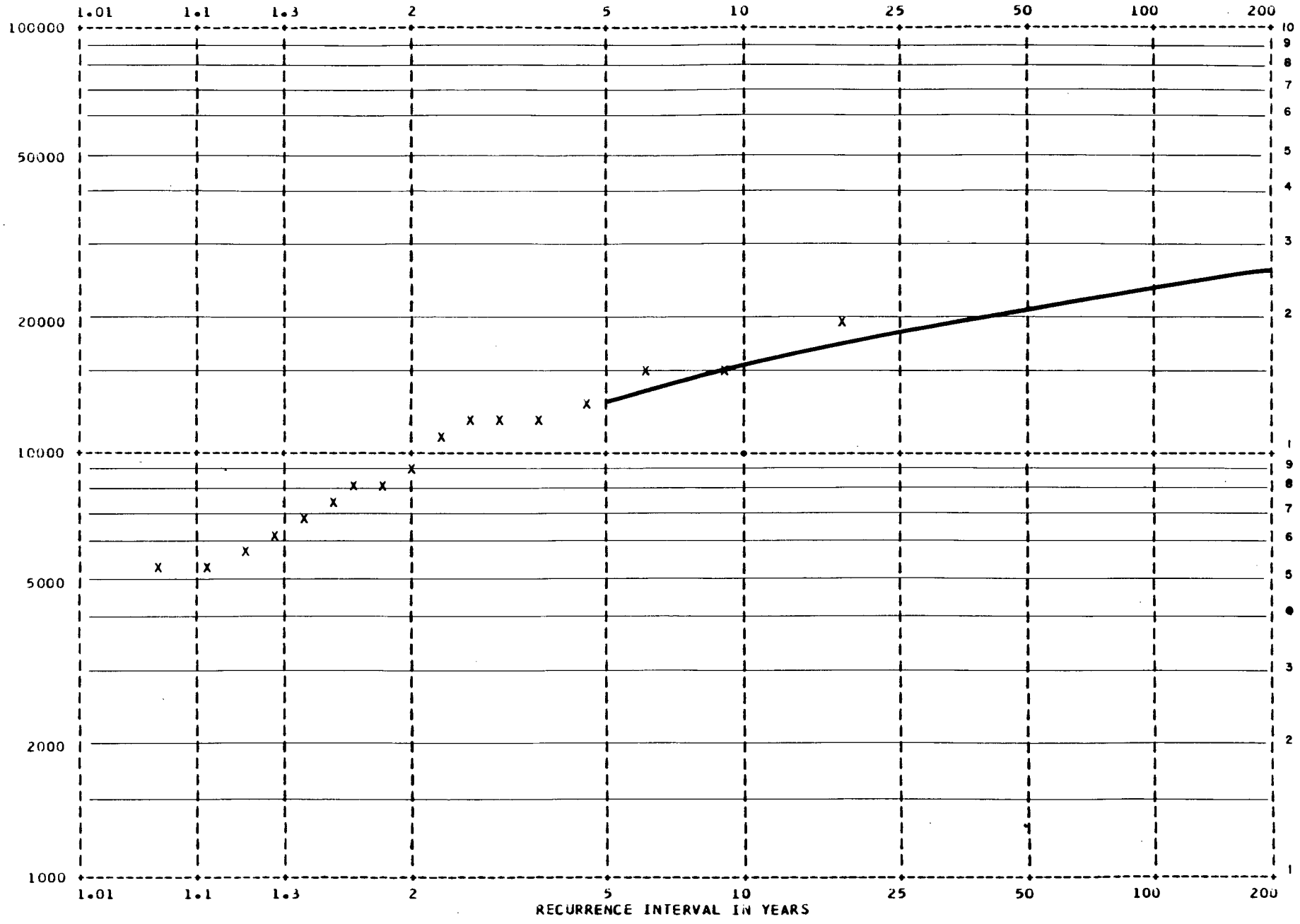
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	44.0	11500	1968
2	22.0	10900	1961
3	14.7	10100	1966
4	11.0	9000	1949
5	8.8	8940	1953
6	7.3	8350	1975
7	6.3	8260	1972
8	5.5	7920	1918
9	4.89	7770	1974
10	4.40	7610	1973
11	4.00	7600	1954
12	3.67	7520	1955
13	3.38	7300	1914
14	3.14	7000	1963
15	2.93	6850	1958
16	2.75	6440	1917
17	2.59	6390	1947
18	2.44	6330	1951
19	2.32	6120	1946
20	2.20	6040	1962
21	2.10	5970	1964
22	2.00	5950	1950
23	1.91	5820	1967
24	1.83	5660	1977
25	1.76	5630	1945
26	1.69	5550	1941
27	1.63	5550	1952
28	1.57	5410	1965
29	1.52	5360	1944
30	1.47	5320	1948
31	1.42	5250	1957
32	1.38	4980	1915
33	1.33	4920	1960
34	1.29	4870	1956
35	1.26	4800	1971
36	1.22	4740	1959
37	1.189	4280	1943
38	1.158	4130	1940
39	1.128	4040	1916
40	1.100	3970	1969
41	1.073	3840	1976
42	1.048	3780	1970
43	1.023	3330	1942

MEAN ANNUAL FLOOD: 6300 CFS

DRAINAGE AREA: 230 SQ MI

STANDARD DEVIATION: 1910 CFS

REMARKS: FLOW REGULATED SINCE 1963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RECURRENCE INTERVAL IN YEARS

COWICHAN RIVER NEAR DUNCAN - STATION NO. 08HA011

DATE	MAXIMUM DAILY FLOW IN CFS
29 JAN 1960	9020
15 JAN 1961	19700
25 NOV 1962	8530
1 JAN 1963	10800
4 FEB 1965	6920
18 DEC 1966	12800
20 JAN 1967	7530
19 JAN 1968	15900
13 DEC 1969	5300
11 DEC 1970	5420
15 FEB 1971	6620
26 DEC 1972	15000
16 DEC 1973	11900
15 JAN 1974	12100
15 NOV 1975	12200
15 JAN 1976	5820
12 DEC 1977	8240

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	18.0	19700	1961
2	9.0	15900	1968
3	6.0	15000	1972
4	4.50	12800	1966
5	3.60	12200	1975
6	3.00	12100	1974
7	2.57	11900	1973
8	2.25	10800	1963
9	2.00	9020	1960
10	1.80	8530	1962
11	1.64	8240	1977
12	1.50	7530	1967
13	1.38	6920	1965
14	1.29	6620	1971
15	1.20	5820	1976
16	1.125	5420	1970
17	1.059	5300	1969

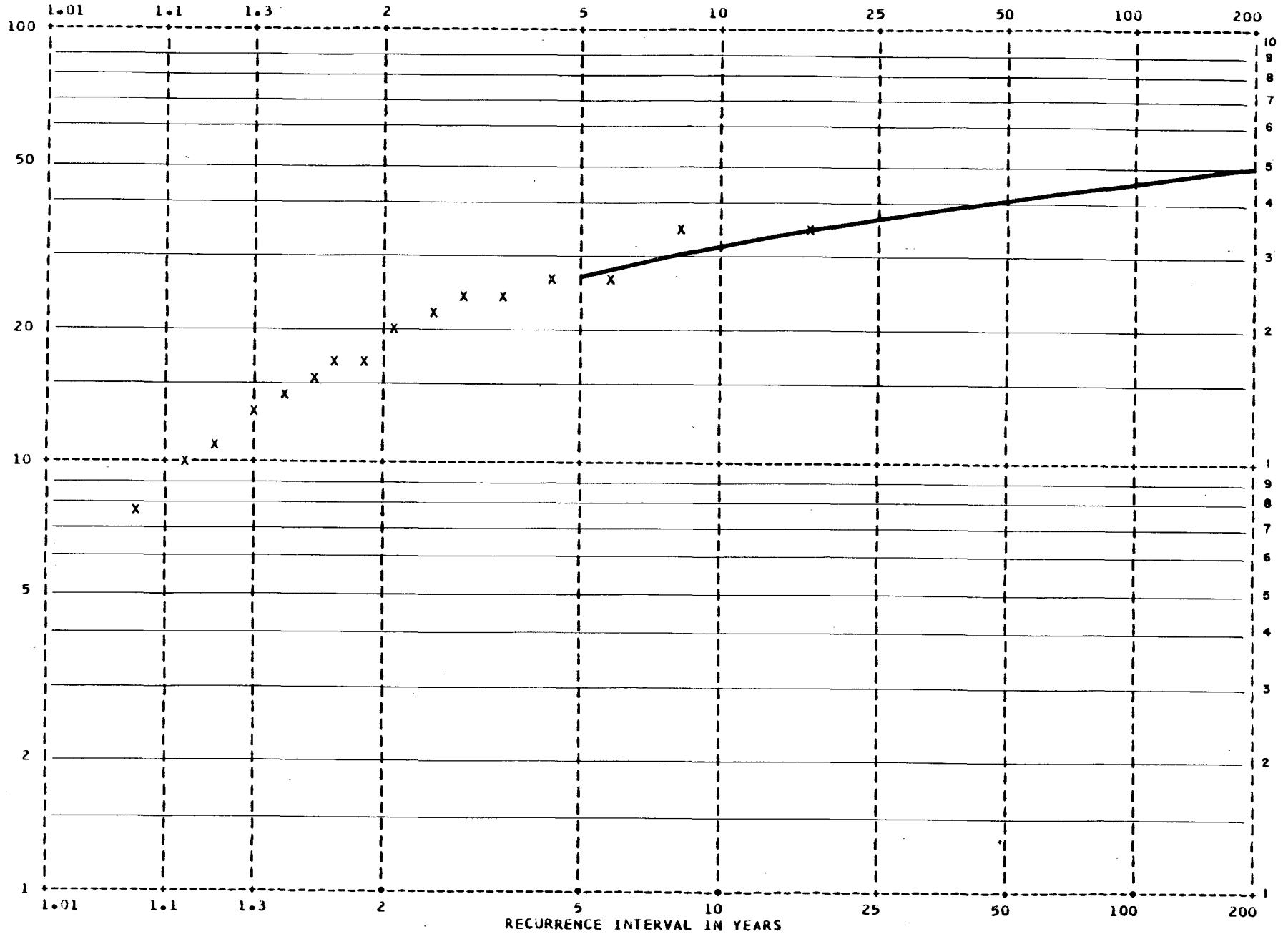
MEAN ANNUAL FLOOD: 10200 CFS

DRAINAGE AREA: 319 SQ MI

STANDARD DEVIATION: 4090 CFS

REMARKS: FLOW REGULATED SINCE 1963

ENOS CREEK AT OUTLET OF ENOS LAKE - STATION NO. 08HB030



ENOS CREEK AT OUTLET OF ENOS LAKE - STATION NO. 08HB030

DATE	MAXIMUM DAILY FLOW IN CFS
30 NOV 1962	13.3
31 DEC 1963	10.7
1 JAN 1964	10.0
5 FEB 1965	14.5
7 JAN 1966	35.0
20 JAN 1967	21.0
18 JAN 1968	34.5
13 DEC 1969	16.4
11 DEC 1970	26.3
17 DEC 1971	16.1
29 FEB 1972	22.2
16 DEC 1973	25.1
11 MAR 1974	23.2
15 NOV 1975	26.4
26 FEB 1976	16.4
16 DEC 1977	7.9

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	17.0	35.0	1966
2	8.5	34.5	1968
3	5.7	26.4	1975
4	4.25	26.3	1970
5	3.40	25.1	1973
6	2.83	23.2	1974
7	2.43	22.2	1972
8	2.13	21.0	1967
9	1.89	16.4	1969
10	1.70	16.4	1976
11	1.55	16.1	1971
12	1.42	14.5	1965
13	1.31	13.3	1962
14	1.21	10.7	1963
15	1.133	10.0	1964
16	1.063	7.9	1977

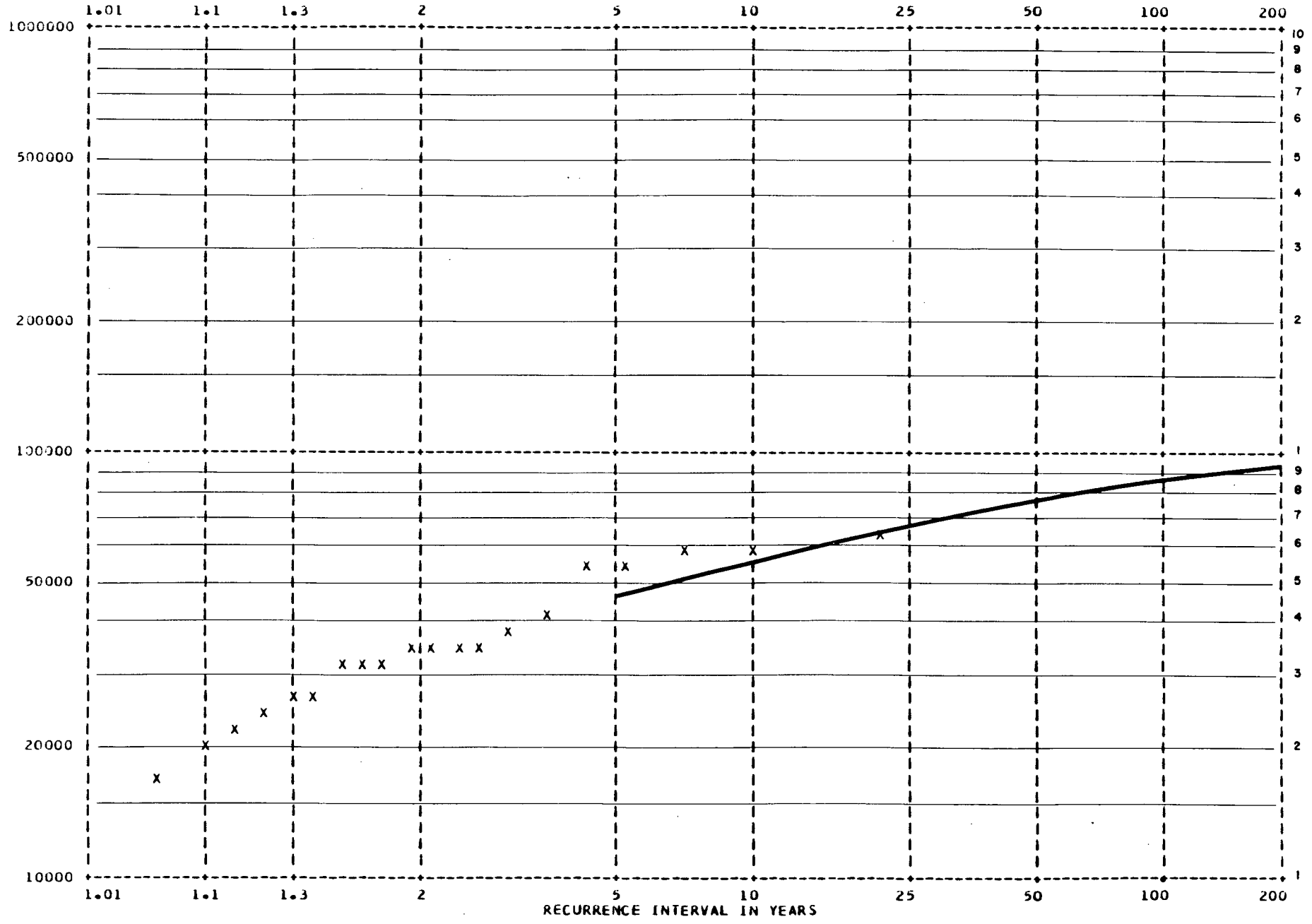
MEAN ANNUAL FLOOD: 19.9 CFS

DRAINAGE AREA: 0.65 SQ MI

STANDARD DEVIATION: 8.2 CFS

REMARKS: FLOW REGULATED AND DIVERTED SINCE 1966

GOLD RIVER BELOW UCUNA RIVER - STATION NO. 08HC001



GOLD RIVER BELOW UCUNA RIVER - STATION NO. 08HC001

DATE	MAXIMUM DAILY FLOW IN CFS
19 DEC 1956	26000
6 SEP 1957	33400
1 DEC 1958	59500
24 NOV 1959	33200
13 DEC 1960	33300
11 JAN 1961	53600
30 NOV 1964	19900
22 OCT 1965	33400
19 DEC 1966	40800
10 DEC 1967	37800
19 JAN 1968	60000
19 NOV 1969	30600
5 APR 1970	16700
9 NOV 1971	32700
17 MAR 1972	32400
27 OCT 1973	26600
15 JAN 1974	54600
13 NOV 1975	66700
16 DEC 1976	21600
23 OCT 1977	24300

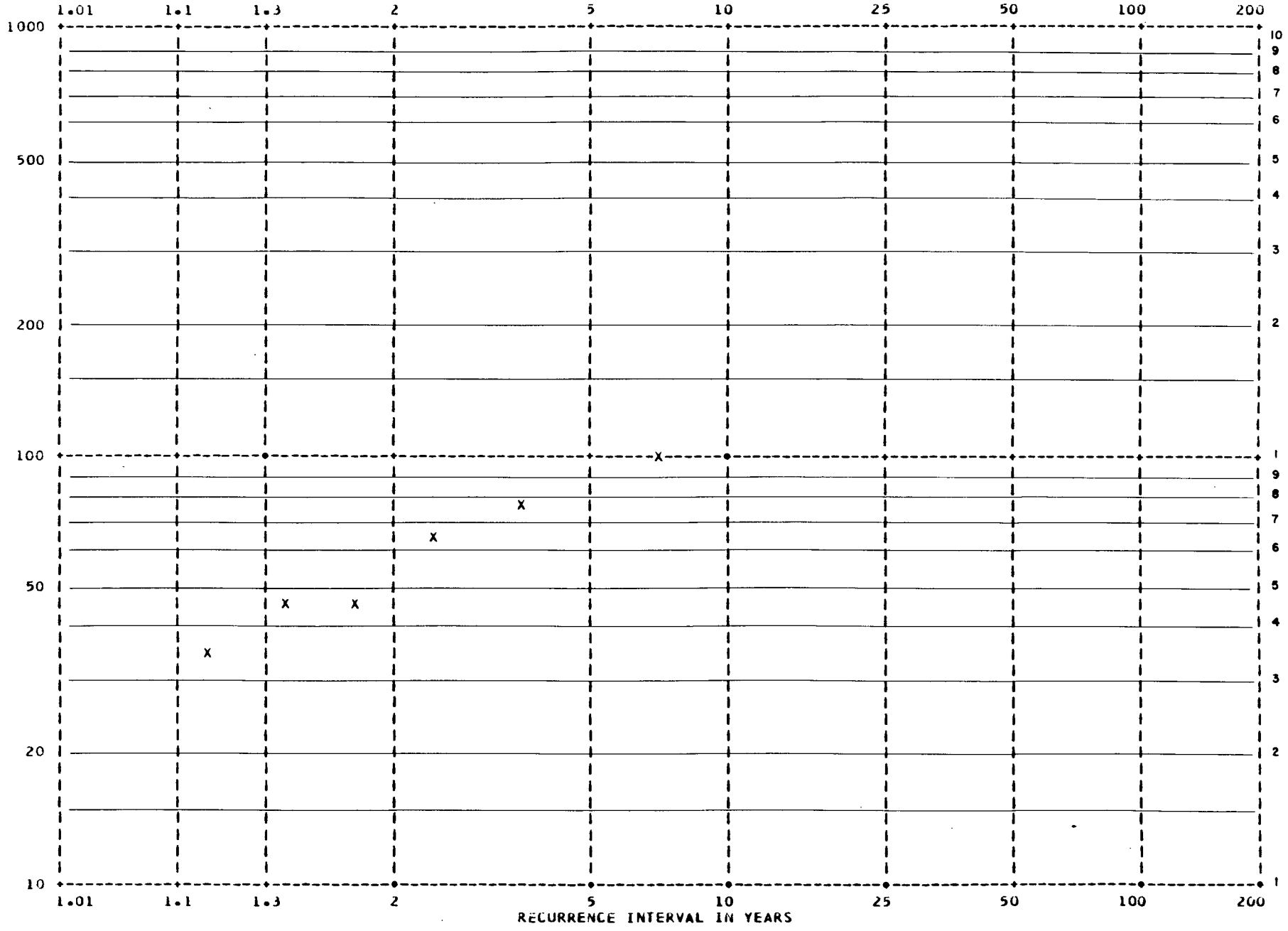
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	21.0	66700	1975
2	10.5	60000	1968
3	7.0	59500	1958
4	5.3	54600	1974
5	4.20	53600	1961
6	3.50	40800	1966
7	3.00	37800	1967
8	2.63	33400	1957
9	2.33	33400	1965
10	2.10	33300	1960
11	1.91	33200	1959
12	1.75	32700	1971
13	1.62	32400	1972
14	1.50	30600	1969
15	1.40	26600	1973
16	1.31	26000	1956
17	1.24	24300	1977
18	1.167	21600	1976
19	1.105	19900	1964
20	1.050	16700	1970

MEAN ANNUAL FLOOD: 36900 CFS

DRAINAGE AREA: 389 SQ MI

STANDARD DEVIATION: 14500 CFS

REMARKS: FLOW DIVERTED SINCE 1957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RECURRENCE INTERVAL IN YEARS

GRAHAM CREEK AT THE MOUTH - STATION NO. 03HB045

DATE	MAXIMUM DAILY FLOW IN CFS
27 DEC 1972	34.5
16 JAN 1973	61.8
24 NOV 1974	47.0
13 NOV 1975	97.9
22 DEC 1976	44.5
11 DEC 1977	74.8

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	7.0	97.9	1975
2	3.50	74.8	1977
3	2.33	61.8	1973
4	1.75	47.0	1974
5	1.40	44.5	1976
6	1.167	34.5	1972

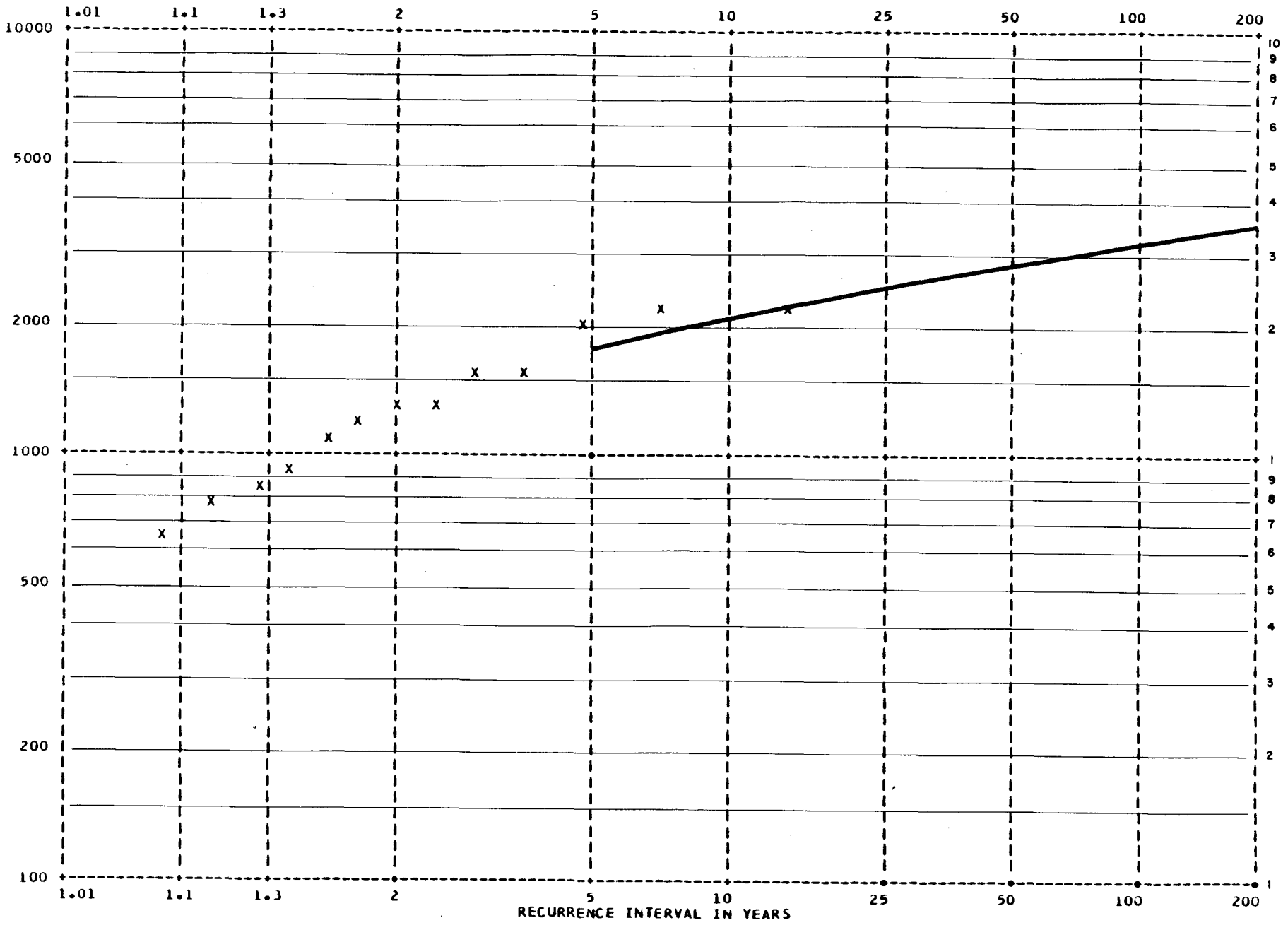
MEAN ANNUAL FLOOD: 60.1 CFS

DRAINAGE AREA: 1.3 SQ MI

STANDARD DEVIATION: 23.3 CFS

REMARKS: FLOW REGULATED SINCE 1972

HASLAM CREEK NEAR CASSIDY - STATION NO. 08HB003



HASLAM CREEK NEAR CASSIDY - STATION NO. 08HB003

DATE	MAXIMUM DAILY FLOW IN CFS
3 APR 1915	660
26 NOV 1949	1330
27 NOV 1950	800
25 JAN 1951	1050
30 JAN 1952	870
9 JAN 1953	1180
19 NOV 1954	2210
4 NOV 1955	2300
9 DEC 1956	920
26 FEB 1957	1260
1 DEC 1958	1570
29 JAN 1960	1590
10 JAN 1961	1990

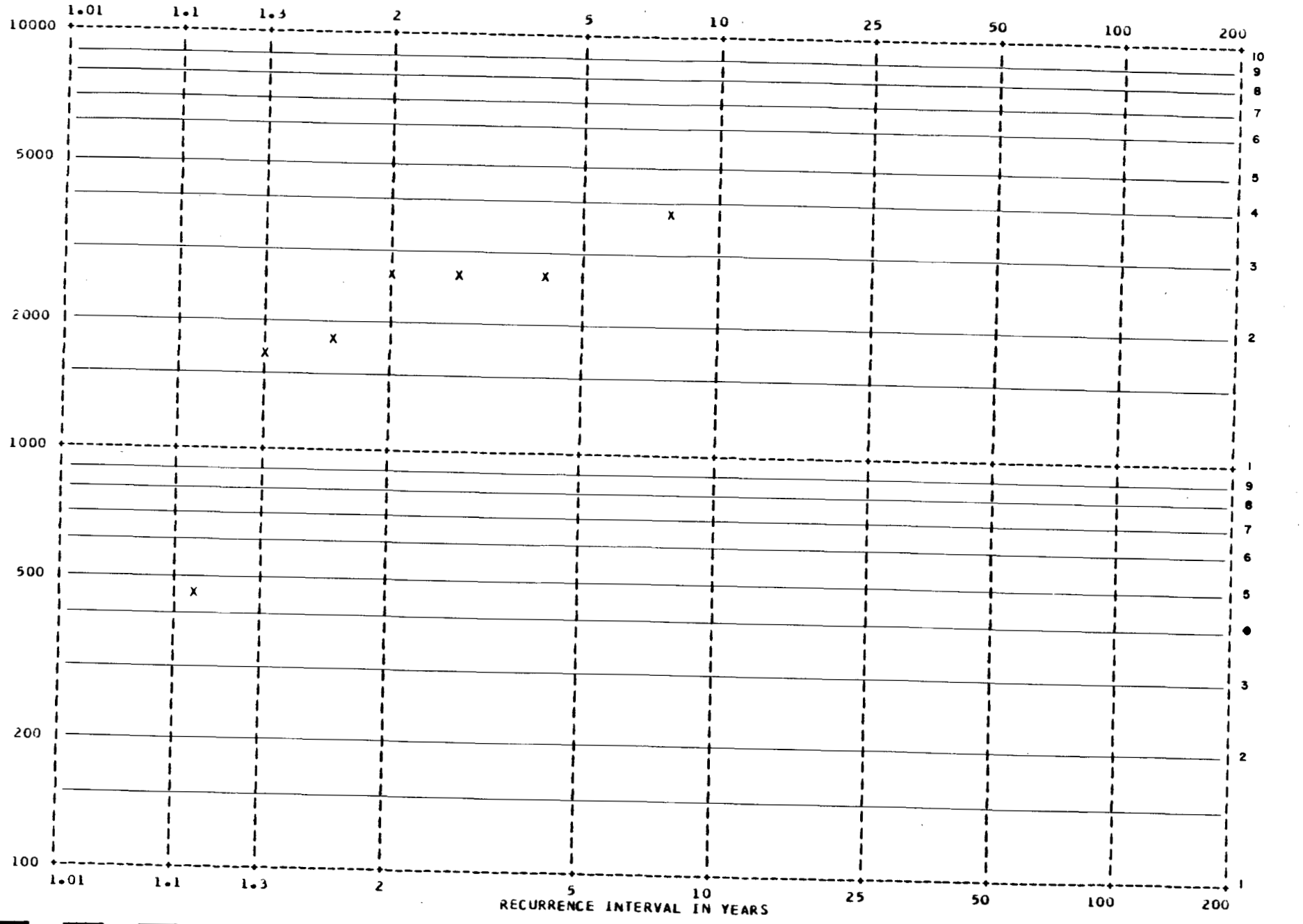
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	14.0	2300	1955
2	7.0	2210	1954
3	4.67	1990	1961
4	3.50	1590	1960
5	2.80	1570	1958
6	2.33	1330	1949
7	2.00	1260	1957
8	1.75	1180	1953
9	1.56	1050	1951
10	1.40	920	1956
11	1.27	870	1952
12	1.167	800	1950
13	1.077	660	1915

MEAN ANNUAL FLOOD: 1360 CFS

STANDARD DEVIATION: 538 CFS

DRAINAGE AREA: 36.9 SQ MI

JUMP CREEK AT THE MOUTH - STATION NO. 08HB041



JUMP CREEK AT THE MOUTH - STATION NO. 08H8041

DATE	MAXIMUM DAILY FLOW IN CFS
14 FEB 1971	2620
25 DEC 1972	2640
15 JAN 1973	2620
15 JAN 1974	3840
4 NOV 1975	1820
27 MAY 1976	445
11 DEC 1977	1690

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	8.0	3840	1974
2	4.00	2640	1972
3	2.67	2620	1971
4	2.00	2620	1973
5	1.60	1820	1975
6	1.33	1690	1977
7	1.143	445	1976

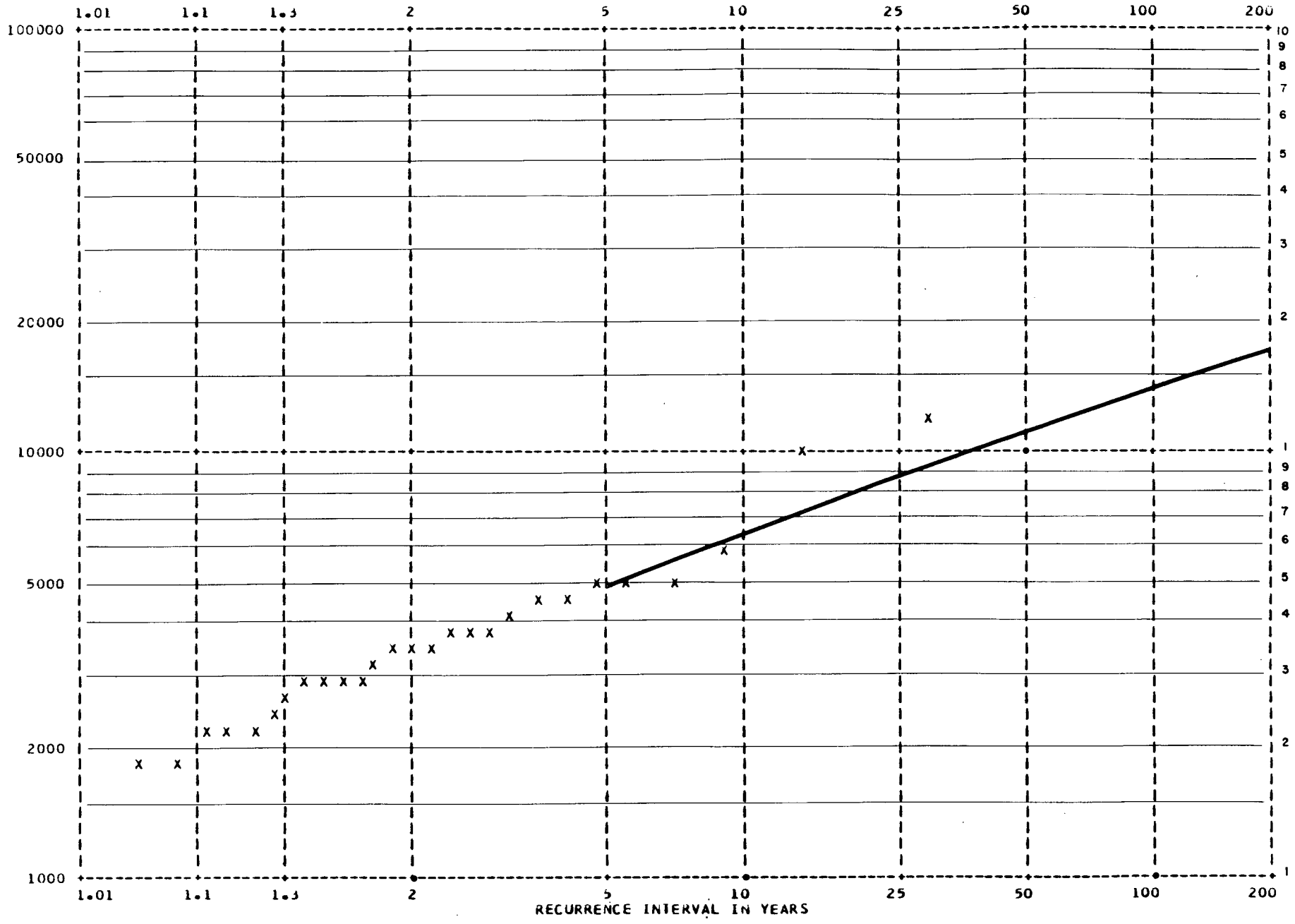
MEAN ANNUAL FLOOD: 2240 CFS

DRAINAGE AREA: 24.0 SQ MI

STANDARD DEVIATION: 1060 CFS

REMARKS: FLOW REGULATED SINCE 1974

KOKISH RIVER BELOW BONANZA RIVER - STATION NO. 08HF003



KUKISH RIVER BELOW BONANZA RIVER - STATION NO. 08HF003

DATE	MAXIMUM DAILY FLOW IN CFS
15 OCT 1927	4730
8 JAN 1928	10100
27 MAR 1929	3930
8 DEC 1930	5940
3 MAR 1931	2220
28 NOV 1932	2890
24 OCT 1933	5080
5 MAY 1934	2770
31 JAN 1935	11800
19 NOV 1936	2790
26 OCT 1937	2280
27 OCT 1938	3360
19 NOV 1939	3340
4 MAR 1940	1840
18 OCT 1958	3660
24 NOV 1959	1900
25 OCT 1960	2760
15 JAN 1961	3020
5 DEC 1962	4520
6 FEB 1963	4740
4 FEB 1964	2230
21 OCT 1965	3500
29 MAR 1966	3800
4 SEP 1967	4250
28 OCT 1968	4610
20 NOV 1969	3050
16 MAY 1970	2400

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	28.0	11800	1935
2	14.0	10100	1928
3	9.33	5940	1930
4	7.0	5080	1933
5	5.6	4740	1963
6	4.67	4730	1927
7	4.00	4610	1968
8	3.50	4520	1962
9	3.11	4250	1967
10	2.80	3930	1929
11	2.55	3800	1966
12	2.33	3660	1958
13	2.15	3500	1965
14	2.00	3360	1938
15	1.87	3340	1939
16	1.75	3050	1969
17	1.65	3020	1961
18	1.56	2890	1932
19	1.47	2790	1936
20	1.40	2770	1934
21	1.33	2760	1960
22	1.27	2400	1970
23	1.22	2280	1937
24	1.167	2230	1964
25	1.120	2220	1931
26	1.077	1900	1959
27	1.037	1840	1940

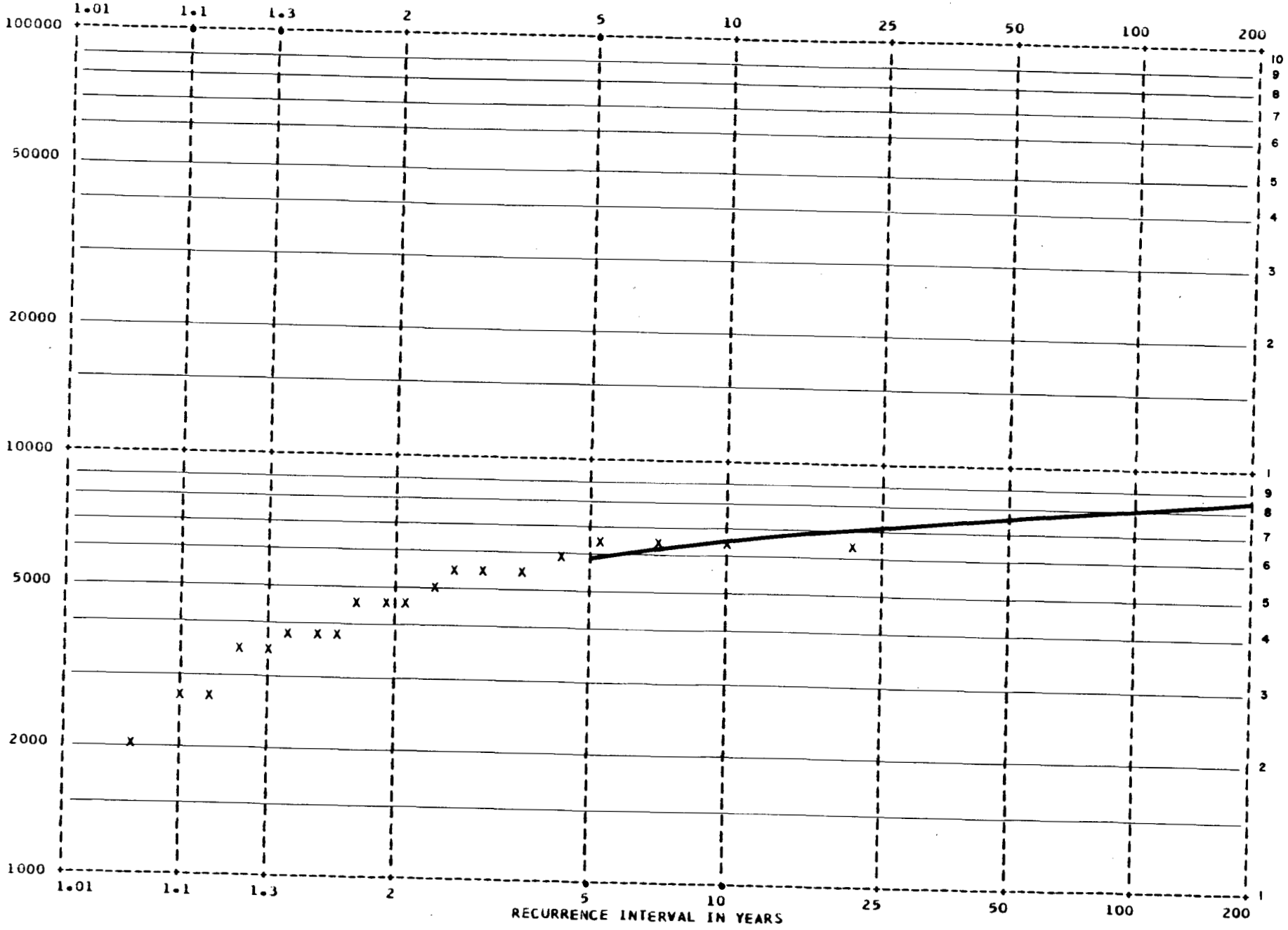
MEAN ANNUAL FLOOD: 3980 CFS

STANDARD DEVIATION: 2270 CFS

DRAINAGE AREA: 104 SQ MI

REMARKS: RECORDS BEFORE 1958 OBTAINED FROM:
STATION NO. 08HF001, DRAINAGE AREA = 112 SQ. MI.

KOKSILAH RIVER AT COWICHAN STATION - STATION NO. 08HA003



KOKSILAH RIVER AT COWICHAN STATION - STATION NO. 08HA003

DATE	MAXIMUM DAILY FLOW IN CFS
7 DEC 1915	5530
8 MAR 1916	1980
29 JAN 1960	5540
15 JAN 1961	6700
19 NOV 1962	3820
23 DEC 1963	4740
16 JAN 1964	3380
30 JAN 1965	2710
13 DEC 1966	5220
10 DEC 1967	4600
19 JAN 1968	6440
13 DEC 1969	3680
23 JAN 1970	3540
19 JAN 1971	3810
25 DEC 1972	6450
28 NOV 1973	5870
15 JAN 1974	6470
26 DEC 1975	4380
15 JAN 1976	2740
1 NOV 1977	4420

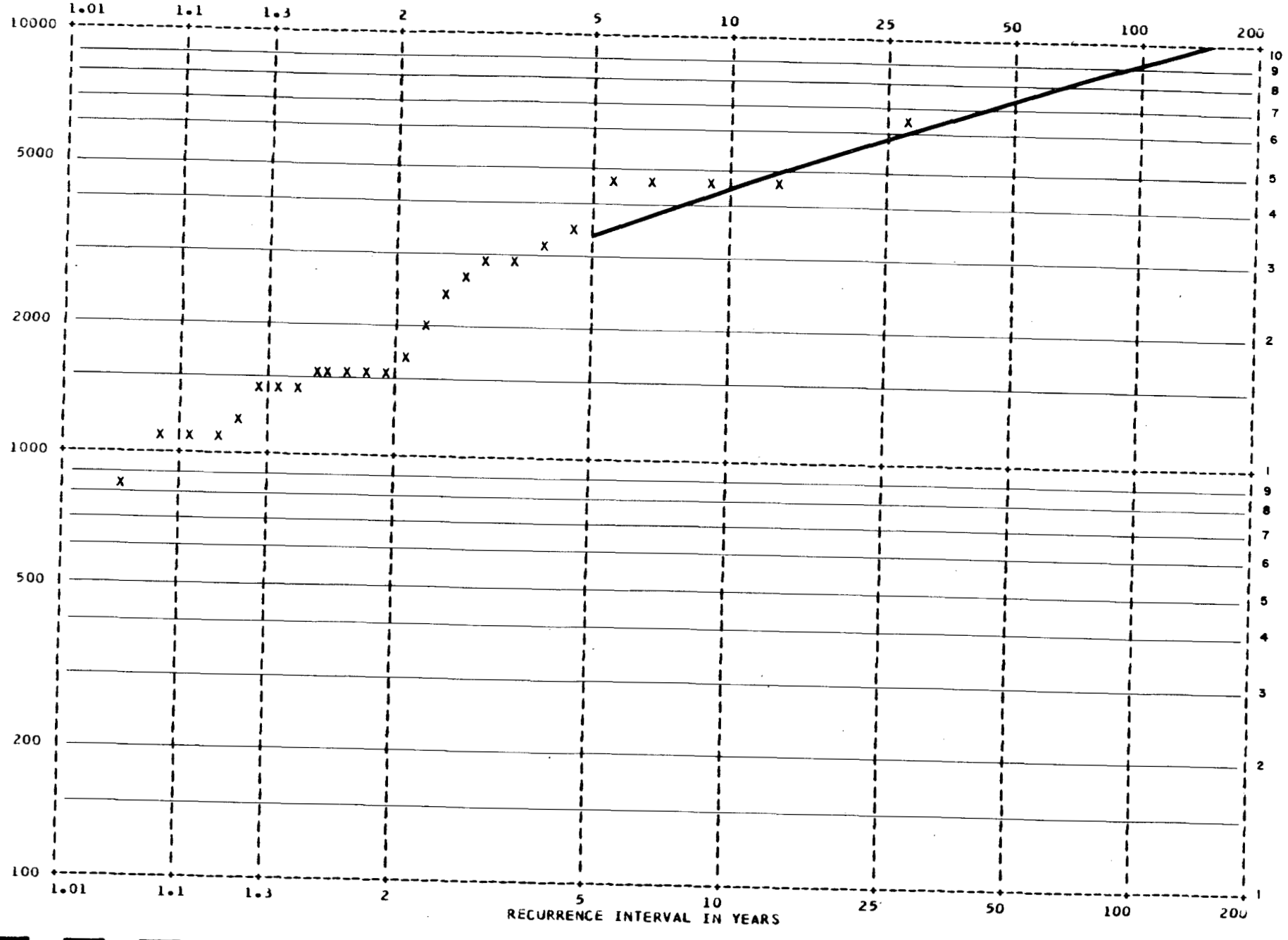
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	21.0	6700	1961
2	10.5	6470	1974
3	7.0	6450	1972
4	5.3	6440	1968
5	4.20	5870	1973
6	3.50	5540	1960
7	3.00	5530	1915
8	2.63	5220	1966
9	2.33	4740	1963
10	2.10	4600	1967
11	1.91	4420	1977
12	1.75	4380	1975
13	1.62	3820	1962
14	1.50	3810	1971
15	1.40	3680	1969
16	1.31	3540	1970
17	1.24	3380	1964
18	1.167	2740	1976
19	1.105	2710	1965
20	1.050	1980	1916

MEAN ANNUAL FLOOD: 4600 CFS

STANDARD DEVIATION: 1400 CFS

DRAINAGE AREA: 80.8 SQ MI

LITTLE QUALICUM RIVER AT OUTLET OF CAMERON LAKE - STATION NO. 08HB004



LITTLE QUALICUM RIVER AT OUTLET OF CAMERON LAKE - STATION NO. 08HB004

DATE	MAXIMUM DAILY FLOW IN CFS
27 NOV 1913	1480
18 OCT 1914	2030
28 OCT 1915	1530
17 FEB 1916	1120
30 DEC 1917	1470
10 FEB 1918	2600
16 NOV 1919	1620
4 DEC 1920	1180
29 OCT 1921	3000
16 JAN 1961	6690
15 DEC 1962	2440
25 DEC 1963	4410
1 DEC 1964	1500
4 DEC 1965	1470
18 DEC 1966	3080
9 OCT 1967	1650
20 JAN 1968	4640
14 DEC 1969	1060
25 JAN 1970	818
20 JAN 1971	1510
26 DEC 1972	3000
15 JAN 1973	3550
15 JAN 1974	4660
4 NOV 1975	4510
26 DEC 1976	1120
2 NOV 1977	1610

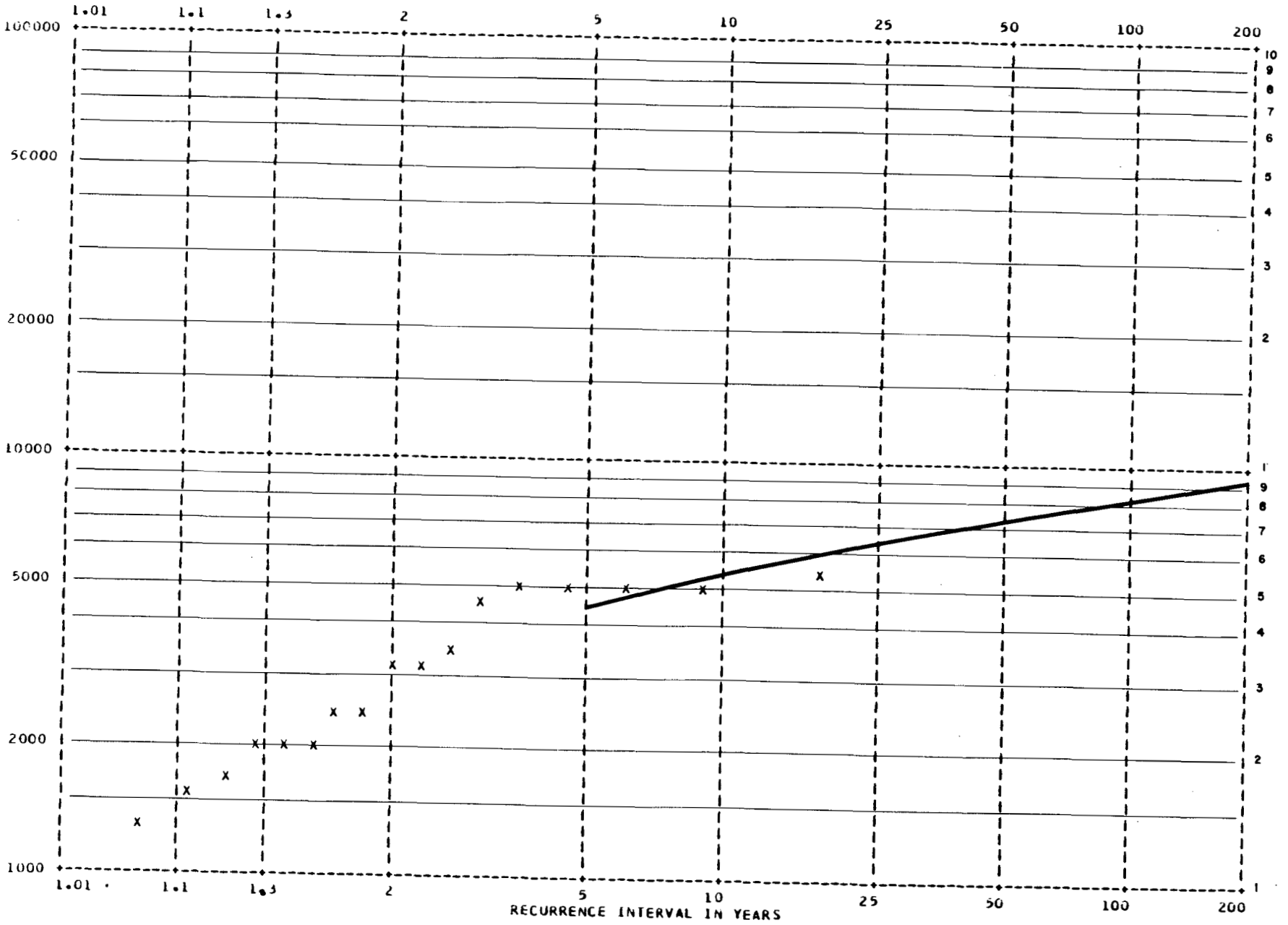
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	27.0	6690	1961
2	13.5	4660	1974
3	9.0	4640	1968
4	6.8	4510	1975
5	5.4	4410	1963
6	4.50	3550	1973
7	3.86	3080	1966
8	3.38	3000	1921
9	3.00	3000	1972
10	2.70	2600	1918
11	2.45	2440	1962
12	2.25	2030	1914
13	2.08	1650	1967
14	1.93	1620	1919
15	1.80	1610	1977
16	1.69	1530	1915
17	1.59	1510	1971
18	1.50	1500	1964
19	1.42	1480	1913
20	1.35	1470	1917
21	1.29	1470	1965
22	1.23	1180	1920
23	1.174	1120	1916
24	1.125	1120	1976
25	1.080	1060	1969
26	1.038	818	1970

MEAN ANNUAL FLOOD: 2450 CFS

STANDARD DEVIATION: 1490 CFS

DRAINAGE AREA: 52.0 SQ MI

LITTLE QUALICUM RIVER NEAR QUALICUM BEACH - STATION NO. 08HB029



LITTLE QUALICUM RIVER NEAR QUALICUM BEACH - STATION NO. 08HB029

DATE	MAXIMUM DAILY FLOW IN CFS
13 DEC 1960	4640
3 JAN 1962	3220
23 DEC 1963	4940
30 NOV 1964	2400
4 DEC 1965	1980
28 NOV 1966	3260
24 DEC 1967	2040
19 JAN 1968	5430
14 DEC 1969	1630
11 DEC 1970	1310
19 JAN 1971	2360
26 DEC 1972	3520
15 JAN 1973	4890
16 JAN 1974	4810
4 NOV 1975	4950
26 DEC 1976	1570
11 DEC 1977	2080

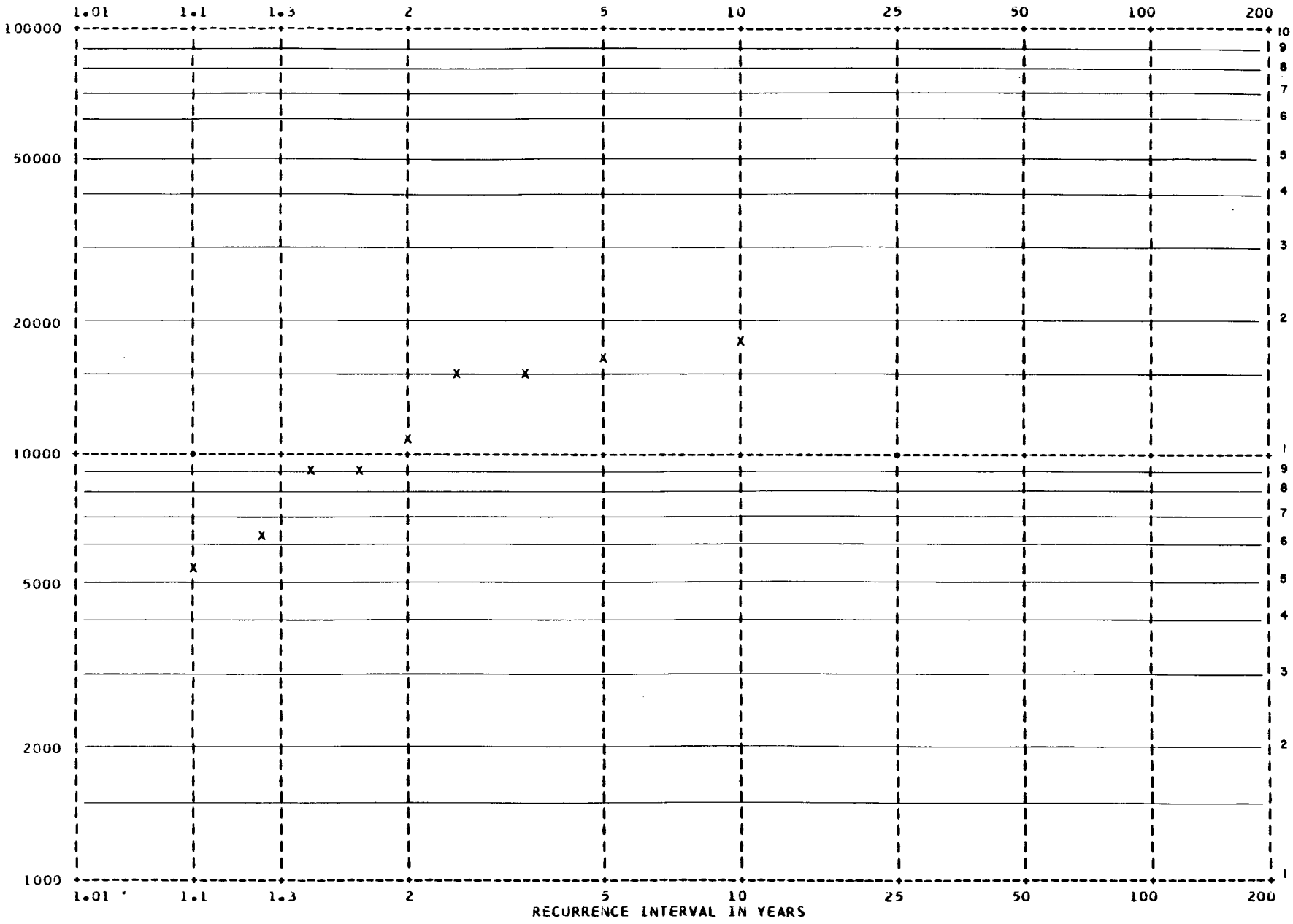
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	18.0	5430	1968
2	9.0	4950	1975
3	6.0	4940	1963
4	4.50	4890	1973
5	3.60	4810	1974
6	3.00	4640	1960
7	2.57	3520	1972
8	2.25	3260	1966
9	2.00	3220	1962
10	1.80	2400	1964
11	1.64	2360	1971
12	1.50	2080	1977
13	1.38	2040	1967
14	1.29	1980	1965
15	1.20	1630	1969
16	1.125	1570	1976
17	1.059	1310	1970

MEAN ANNUAL FLOOD: 3240 CFS

STANDARD DEVIATION: 1430 CFS

DRAINAGE AREA: 91.5 SQ MI

MARBLE RIVER AT OUTLET OF ALICE LAKE - STATION NO. 08HE001



MARBLE RIVER AT OUTLET OF ALICE LAKE - STATION NO. 08HE001

DATE	MAXIMUM DAILY FLOW IN CFS
16 DEC 1925	6440
31 DEC 1926	15000
1 JAN 1927	17900
9 JAN 1928	15300
31 DEC 1929	10800
8 DEC 1930	16700
24 JAN 1931	8820
25 FEB 1932	8890
24 JAN 1970	5250

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	10.0	17900	1927
2	5.0	16700	1930
3	3.33	15300	1928
4	2.50	15000	1926
5	2.00	10800	1929
6	1.67	8890	1932
7	1.43	8820	1931
8	1.25	6440	1925
9	1.111	5250	1970

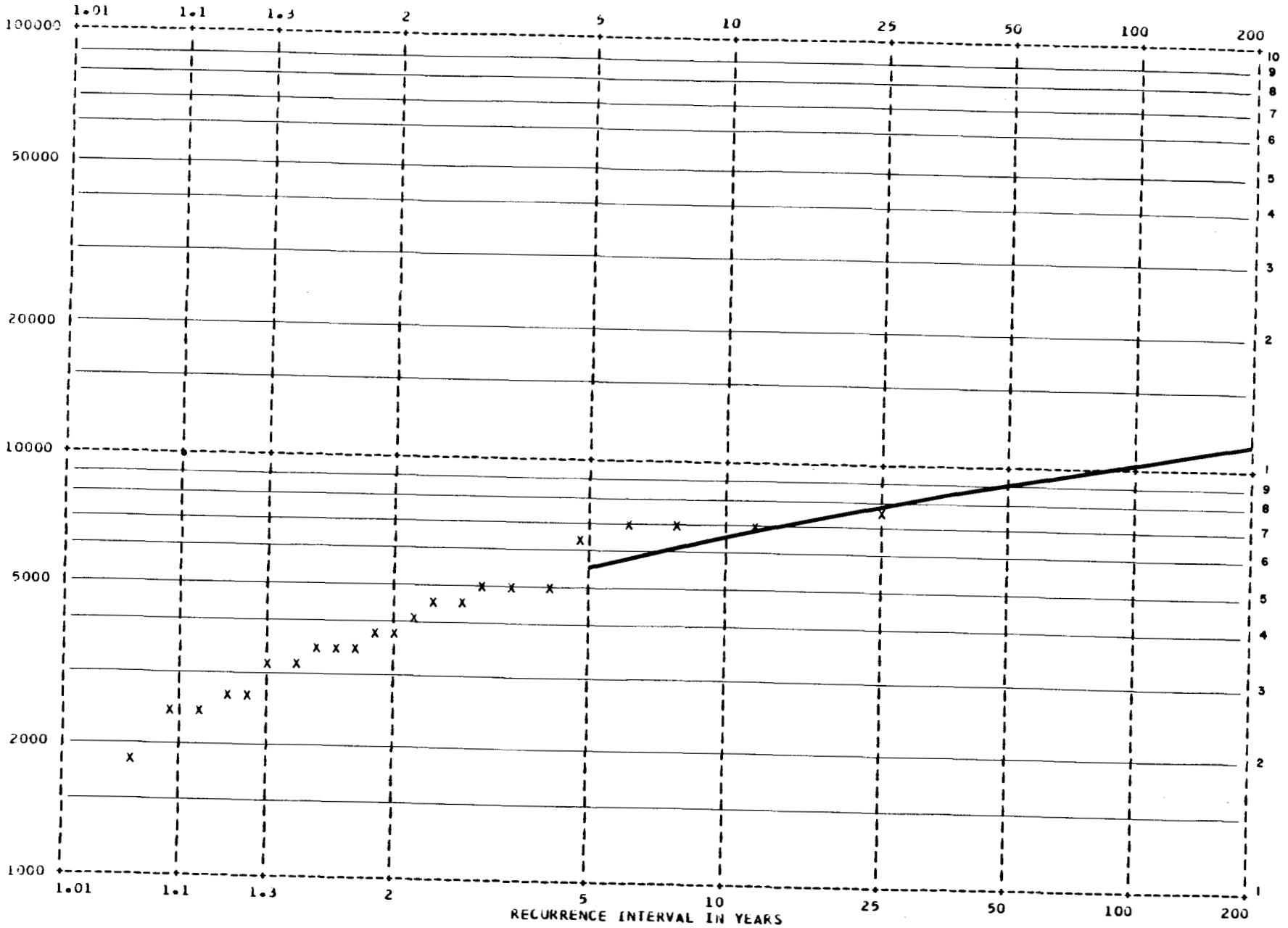
MEAN ANNUAL FLOOD: 11700 CFS

DRAINAGE AREA: 200 SQ MI

STANDARD DEVIATION: 4660 CFS

REMARKS: FLOW DIVERTED SINCE 1917

MARBLE RIVER AT OUTLET OF VICTORIA LAKE - STATION NO. 08HE002



MARBLE RIVER AT OUTLET OF VICTORIA LAKE - STATION NO. 08HE002

DATE	MAXIMUM DAILY FLOW IN CFS
16 DEC 1925	3570
31 DEC 1926	5070
1 JAN 1927	3980
9 JAN 1928	4550
28 MAR 1929	3920
17 FEB 1930	4920
1 NOV 1931	2390
27 FEB 1932	3430
29 SEP 1933	2570
9 OCT 1934	3100
1 FEB 1935	6680
19 NOV 1936	4680
28 OCT 1937	3120
30 OCT 1938	2370
5 DEC 1939	7280
20 OCT 1940	7170
5 FEB 1941	7290
25 OCT 1947	5010
3 SEP 1948	2650
26 NOV 1949	3640
22 DEC 1950	3340
1 DEC 1951	1880
14 DEC 1952	7350

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	24.0	7350	1952
2	12.0	7290	1941
3	8.0	7280	1939
4	6.0	7170	1940
5	4.80	6680	1935
6	4.00	5070	1926
7	3.43	5010	1947
8	3.00	4920	1930
9	2.67	4680	1936
10	2.40	4550	1923
11	2.18	3980	1927
12	2.00	3920	1929
13	1.85	3640	1949
14	1.71	3570	1925
15	1.60	3430	1932
16	1.50	3340	1950
17	1.41	3120	1937
18	1.33	3100	1934
19	1.26	2650	1948
20	1.20	2570	1933
21	1.143	2390	1931
22	1.091	2370	1938
23	1.043	1880	1951

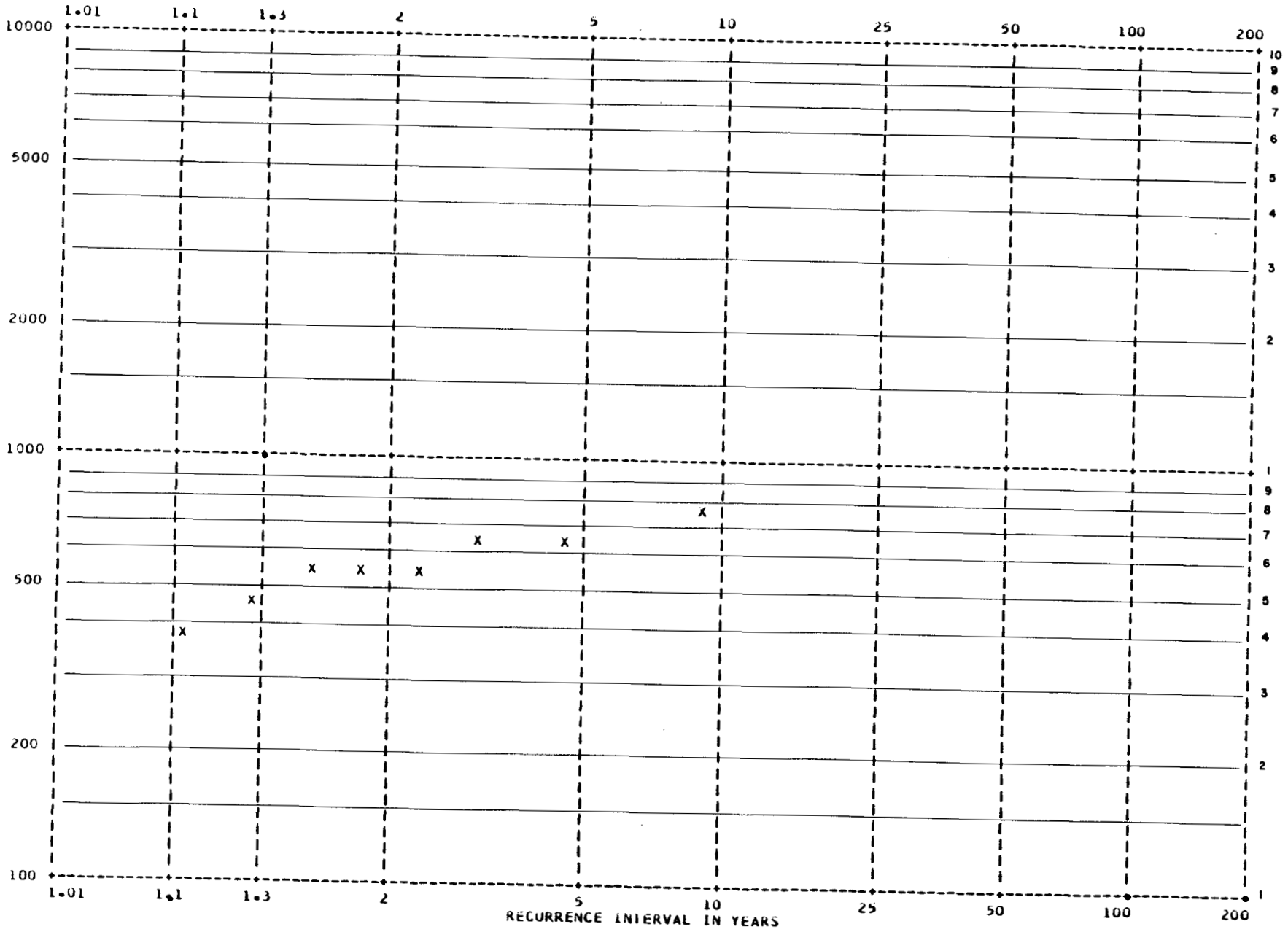
MEAN ANNUAL FLOOD: 4350 CFS

DRAINAGE AREA: 47.1 SQ MI

STANDARD DEVIATION: 1750 CFS

REMARKS: FLOW DIVERTED SINCE 1917

MILLSTONE RIVER NEAR WELLINGTON - STATION NO. 08HB027



MILLSTONE RIVER NEAR WELLINGTON - STATION NO. 08HB027

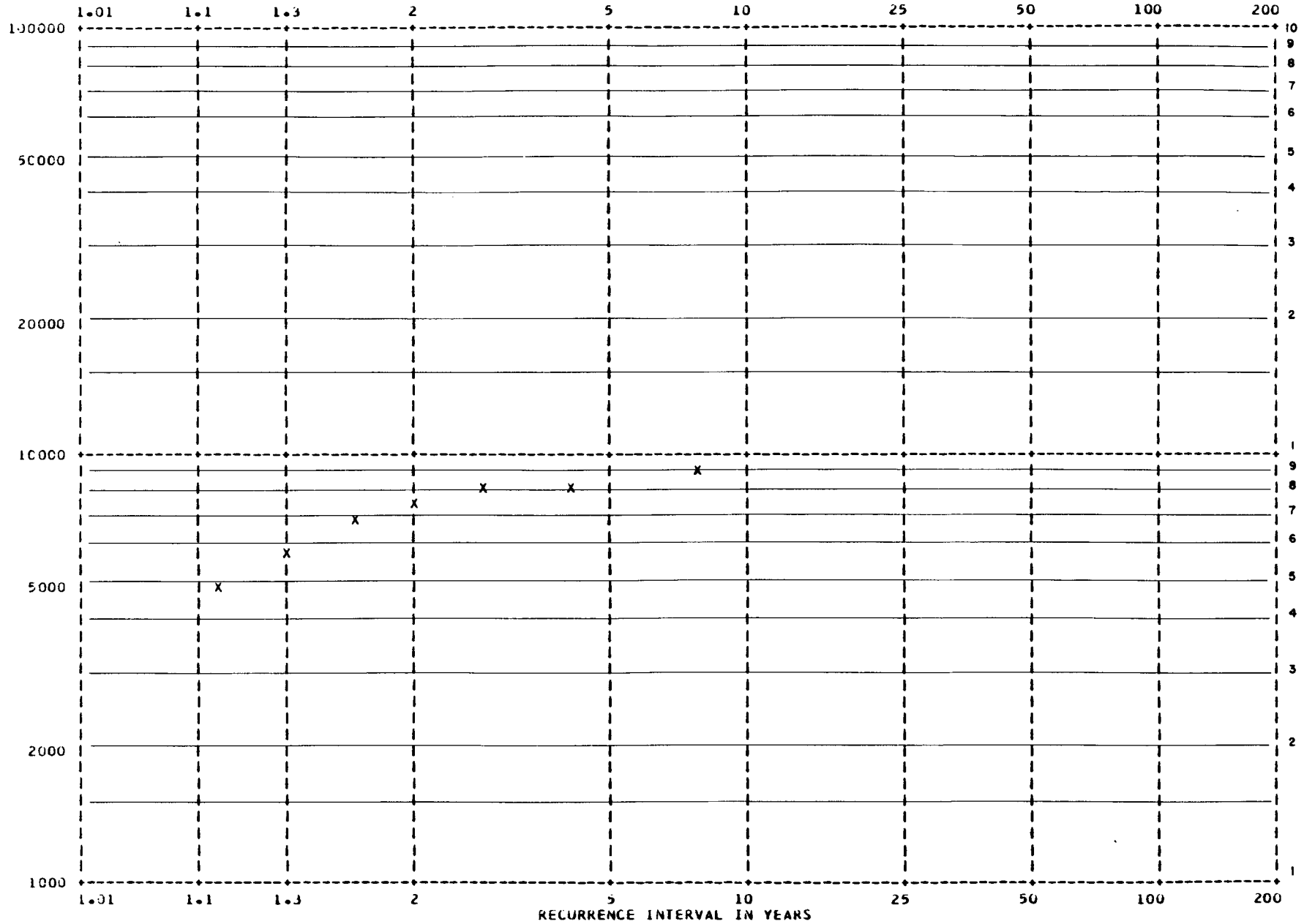
DATE	MAXIMUM DAILY FLOW IN CFS
3 JAN 1962	385
24 DEC 1963	550
14 DEC 1969	660
17 DEC 1970	528
12 MAR 1971	464
19 DEC 1972	670
16 DEC 1973	791
16 JAN 1974	538

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	9.0	791	1973
2	4.50	670	1972
3	3.00	660	1969
4	2.25	550	1963
5	1.80	538	1974
6	1.50	528	1970
7	1.29	464	1971
8	1.125	385	1962

MEAN ANNUAL FLOOD: 573 CFS

STANDARD DEVIATION: 128 CFS

DRAINAGE AREA: 17.8 SQ MI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RECURRENCE INTERVAL IN YEARS

NAHMINI RIVER NEAR PORT ALBERNI - STATION NO. 08HB012

DATE	MAXIMUM DAILY FLOW IN CFS
16 OCT 1924	8430
11 DEC 1925	4870
31 DEC 1926	8760
1 JAN 1927	8160
9 JAN 1928	6750
25 DEC 1929	7760
18 FEB 1930	5930

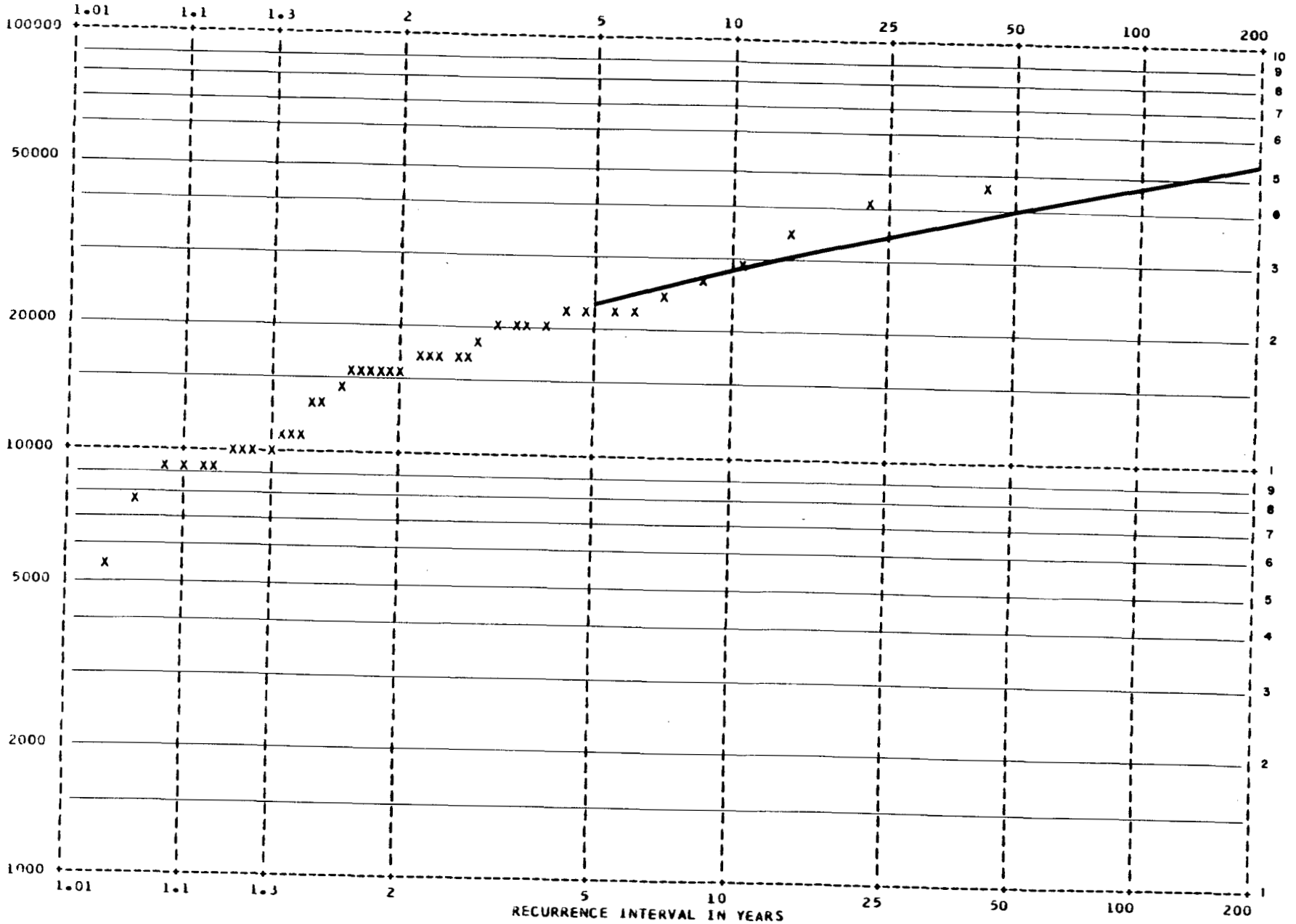
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	8.0	8760	1926
2	4.00	8430	1924
3	2.67	8160	1927
4	2.00	7760	1929
5	1.60	6750	1928
6	1.33	5930	1930
7	1.143	4870	1925

MEAN ANNUAL FLOOD: 7240 CFS

STANDARD DEVIATION: 1440 CFS

DRAINAGE AREA: 54.0 SQ MI

NANAIMO RIVER NEAR CASSIDY - STATION NO. 08HB034



NANAIMO RIVER NEAR CASSIDY - STATION NO. 08HB034

DATE	MAXIMUM DAILY FLOW IN CFS
25 NOV 1913	11400
4 JAN 1914	25300
2 APR 1915	9660
15 FEB 1916	13100
16 DEC 1917	16400
9 FEB 1918	33400
16 NOV 1919	15900
16 SEP 1920	9360
29 OCT 1921	40800
27 DEC 1922	15400
11 DEC 1923	21600
31 JAN 1924	22700
3 FEB 1925	15400
31 DEC 1926	21200
1 JAN 1927	15200
26 NOV 1949	26000
27 NOV 1950	13200
25 JAN 1951	17000
31 JAN 1952	9490
12 JAN 1953	16400
19 NOV 1954	16900
4 NOV 1955	22000
26 FEB 1957	10200
30 NOV 1958	19900
30 APR 1959	8980
13 DEC 1960	20200
15 JAN 1961	44000
30 DEC 1962	17400
6 FEB 1963	18800
4 DEC 1965	10100
13 DEC 1966	15200
23 DEC 1967	11200
19 JAN 1968	21200
13 DEC 1969	7870
23 JAN 1970	9240
19 JAN 1971	11100
26 DEC 1972	16000
15 JAN 1973	22100
15 JAN 1974	27700
14 NOV 1975	14200
27 DEC 1976	5270
11 DEC 1977	10400

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	43.0	44000	1961
2	21.5	40800	1921
3	14.3	33400	1918
4	10.8	27700	1974
5	8.6	26000	1949
6	7.2	25300	1914
7	6.1	22700	1924
8	5.4	22100	1973
9	4.78	22000	1955
10	4.30	21600	1923
11	3.91	21200	1926
12	3.58	21200	1968
13	3.31	20200	1960
14	3.07	19900	1958
15	2.87	18800	1963
16	2.69	17400	1962
17	2.53	17000	1951
18	2.39	16900	1954
19	2.26	16400	1917
20	2.15	16400	1953
21	2.05	16000	1972
22	1.95	15900	1919
23	1.87	15400	1922
24	1.79	15400	1925
25	1.72	15200	1927
26	1.65	15200	1966
27	1.59	14200	1975
28	1.54	13200	1950
29	1.48	13100	1916
30	1.43	11400	1913
31	1.39	11200	1967
32	1.34	11100	1971
33	1.30	10400	1977
34	1.26	10200	1957
35	1.23	10100	1965
36	1.194	9660	1915
37	1.162	9490	1952
38	1.132	9360	1920
39	1.103	9240	1970
40	1.075	8980	1959
41	1.049	7870	1969
42	1.024	5270	1976

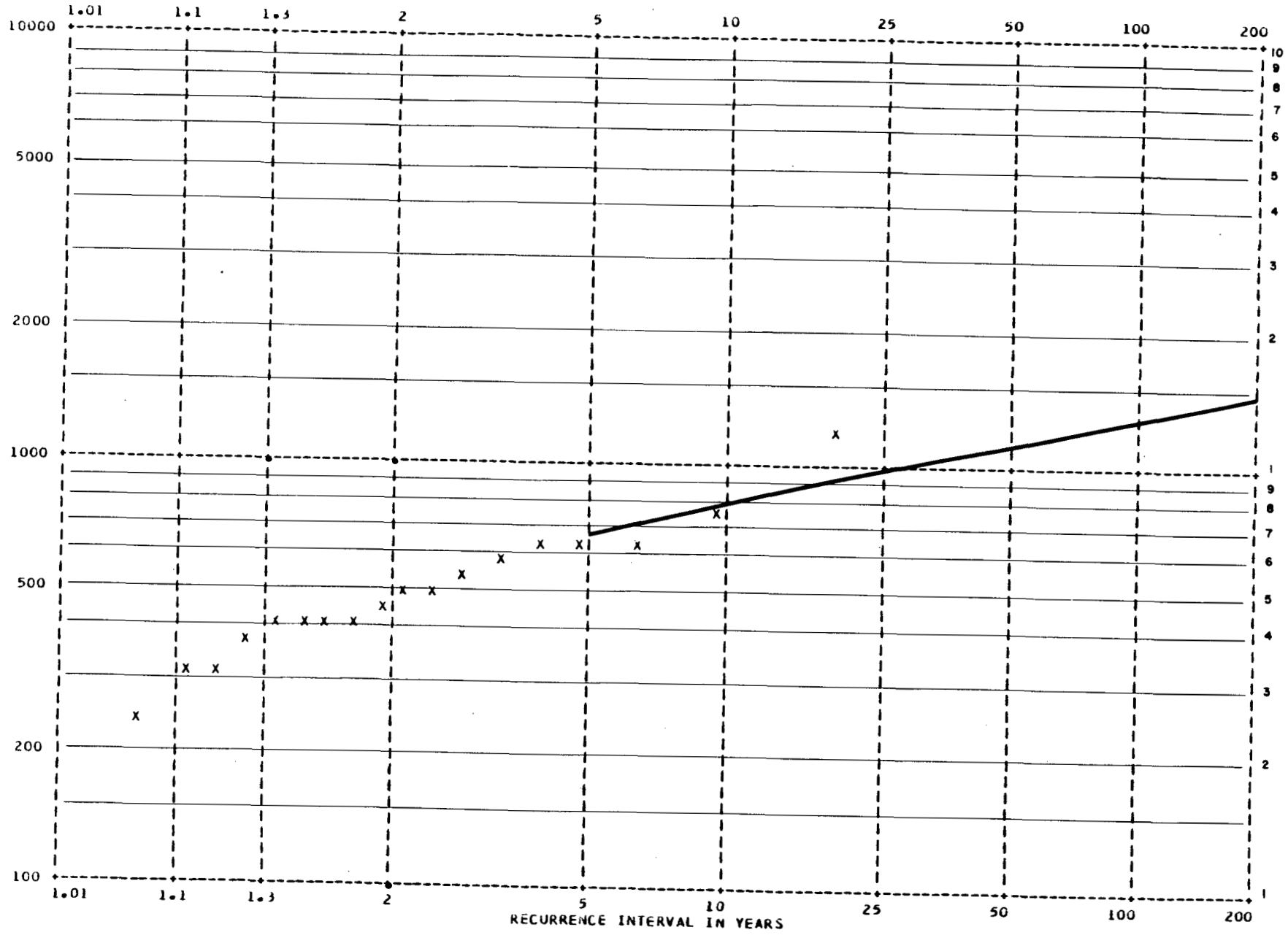
MEAN ANNUAL FLOOD: 17400 CFS

DRAINAGE AREA: 264 SQ MI

STANDARD DEVIATION: 8250 CFS

REMARKS: FLOW REGULATED AND DIVERTED SINCE 1963
RECORDS BEFORE 1965 OBTAINED FROM:
STATION NO. 08HB005, DRAINAGE AREA = 249 SQ. MI.

NILE CREEK NEAR BOWSER - STATION NO. 08HB022



NILE CREEK NEAR BOWSER - STATION No. 08HB022

DATE	MAXIMUM DAILY FLOW IN CFS
12 DEC 1960	409
15 JAN 1961	615
24 NOV 1962	512
3 FEB 1963	659
30 NOV 1964	373
20 OCT 1965	543
13 JAN 1966	464
10 DEC 1967	418
19 JAN 1968	625
23 NOV 1969	238
9 APR 1970	418
9 NOV 1971	324
25 DEC 1972	592
14 JAN 1973	797
15 JAN 1974	1180
13 NOV 1975	505
26 DEC 1976	303
11 DEC 1977	414

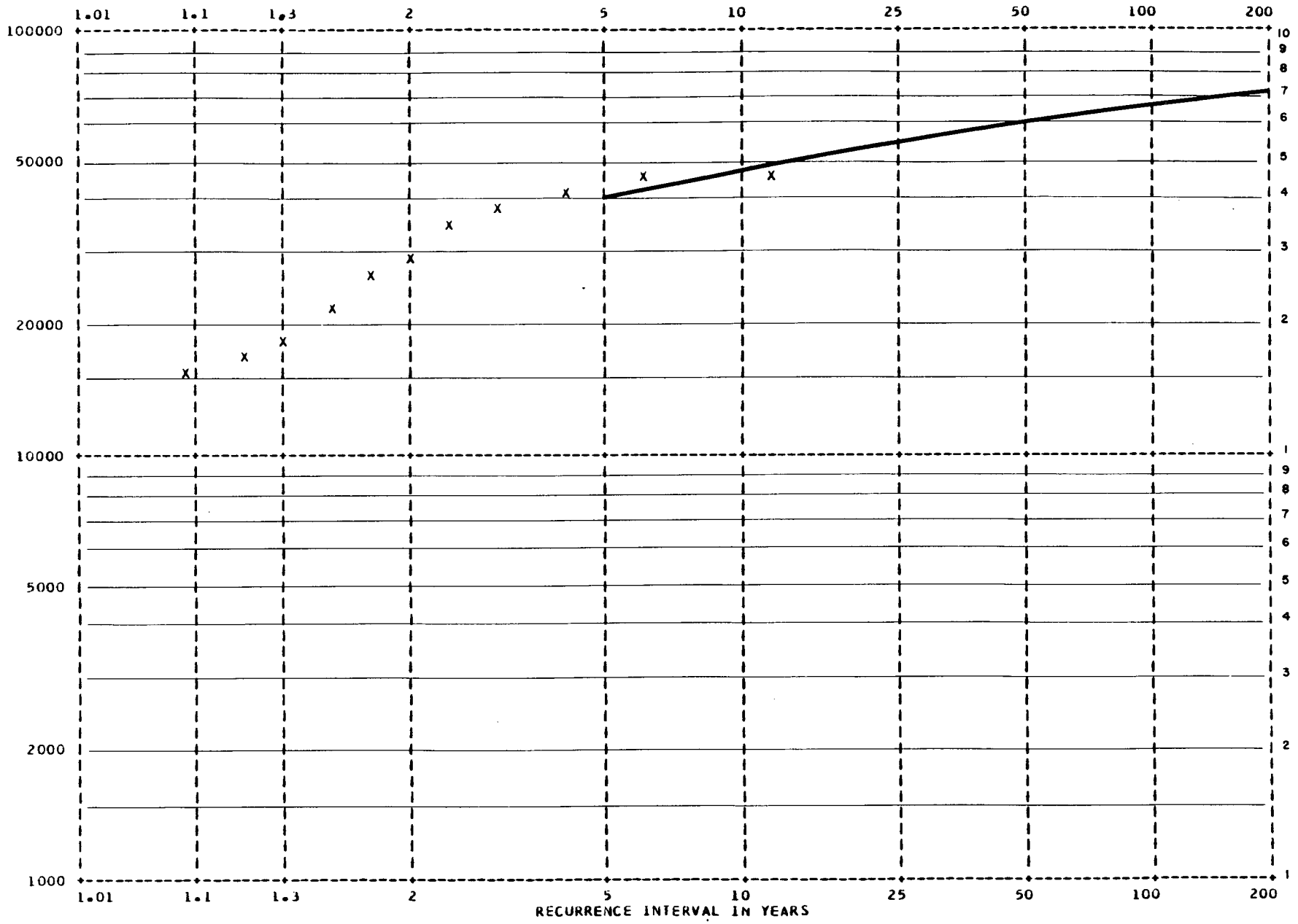
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	19.0	1180	1974
2	9.5	797	1973
3	6.3	659	1963
4	4.75	625	1968
5	3.80	615	1961
6	3.17	592	1972
7	2.71	543	1965
8	2.38	512	1962
9	2.11	505	1975
10	1.90	464	1966
11	1.73	418	1967
12	1.58	418	1970
13	1.46	414	1977
14	1.36	409	1960
15	1.27	373	1964
16	1.188	324	1971
17	1.118	303	1976
18	1.056	238	1969

MEAN ANNUAL FLOOD: 522 CFS

STANDARD DEVIATION: 216 CFS

DRAINAGE AREA: 5.8 SQ MI

REMARKS: FLOW DIVERTED SINCE 1969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RECURRENCE INTERVAL IN YEARS

NIMPKISH RIVER NEAR ENGLEWOOD - STATION NO. 08HE002

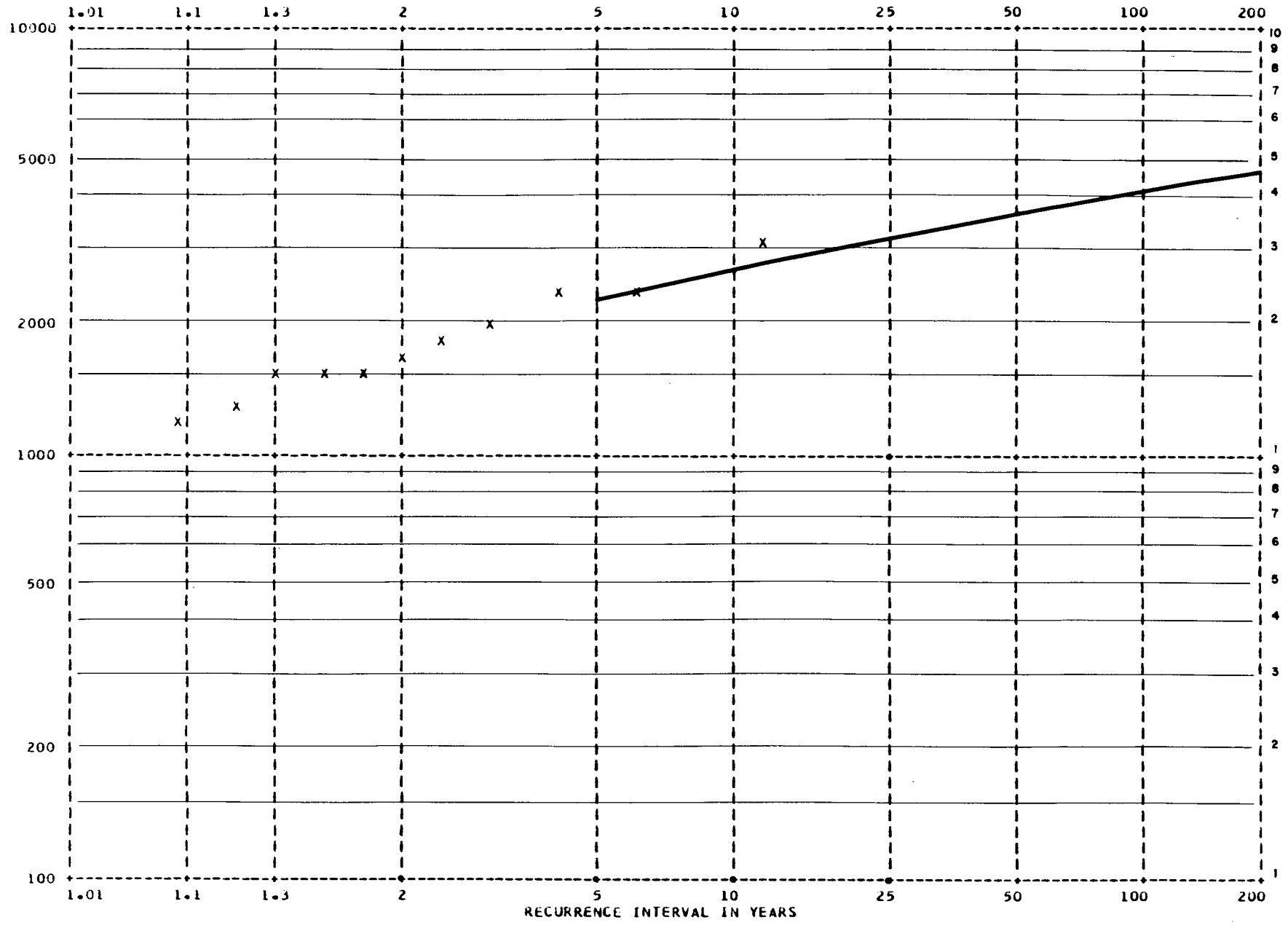
DATE	MAXIMUM DAILY FLOW IN CFS
31 DEC 1926	45000
1 JAN 1927	39300
9 JAN 1928	42500
31 DEC 1929	15200
18 FEB 1930	34800
5 OCT 1931	16300
27 FEB 1932	29600
25 OCT 1933	22400
7 NOV 1934	17900
31 JAN 1935	44300
28 OCT 1937	27100

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	12.0	45000	1926
2	6.0	44300	1935
3	4.00	42500	1928
4	3.00	39300	1927
5	2.40	34800	1930
6	2.00	29600	1932
7	1.71	27100	1937
8	1.50	22400	1933
9	1.33	17900	1934
10	1.20	16300	1931
11	1.091	15200	1929

MEAN ANNUAL FLOOD: 30400 CFS

STANDARD DEVIATION: 11500 CFS

DRAINAGE AREA: 680 SQ MI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RECURRENCE INTERVAL IN YEARS

PALLANT CREEK NEAR QUEEN CHARLOTTE - STATION NO. 08OB002

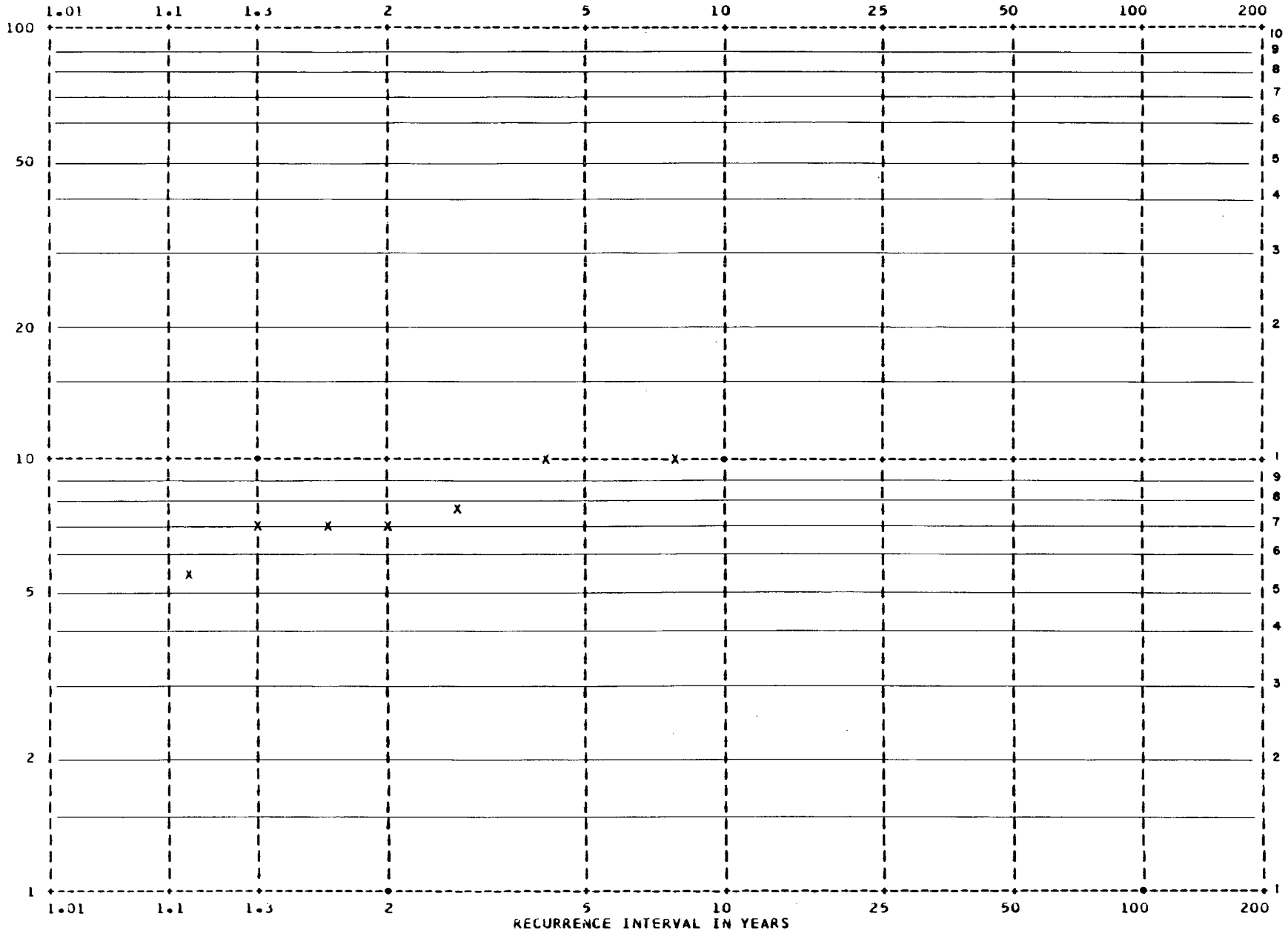
DATE	MAXIMUM DAILY FLOW IN CFS
23 SEP 1967	1880
23 OCT 1968	1640
28 NOV 1969	2390
23 JAN 1970	1180
12 SEP 1971	1350
24 OCT 1972	1570
22 JAN 1973	1990
8 OCT 1974	3300
31 OCT 1975	1520
3 NOV 1976	2350
27 OCT 1977	1560

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	12.0	3300	1974
2	6.0	2390	1969
3	4.00	2350	1976
4	3.00	1990	1973
5	2.40	1880	1967
6	2.00	1640	1968
7	1.71	1570	1972
8	1.50	1560	1977
9	1.33	1520	1975
10	1.20	1350	1971
11	1.091	1180	1970

MEAN ANNUAL FLOOD: 1880 CFS

STANDARD DEVIATION: 605 CFS

DRAINAGE AREA: 32.8 SQ MI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RECURRENCE INTERVAL IN YEARS

PREMIER CREEK NEAR QUEEN CHARLOTTE - STATION NO. 08UA003

DATE	MAXIMUM DAILY FLOW IN CFS
5 OCT 1971	7.2
30 OCT 1972	7.7
26 OCT 1973	6.9
8 OCT 1974	9.6
15 NOV 1975	9.6
3 NOV 1976	7.2
14 FEB 1977	5.3

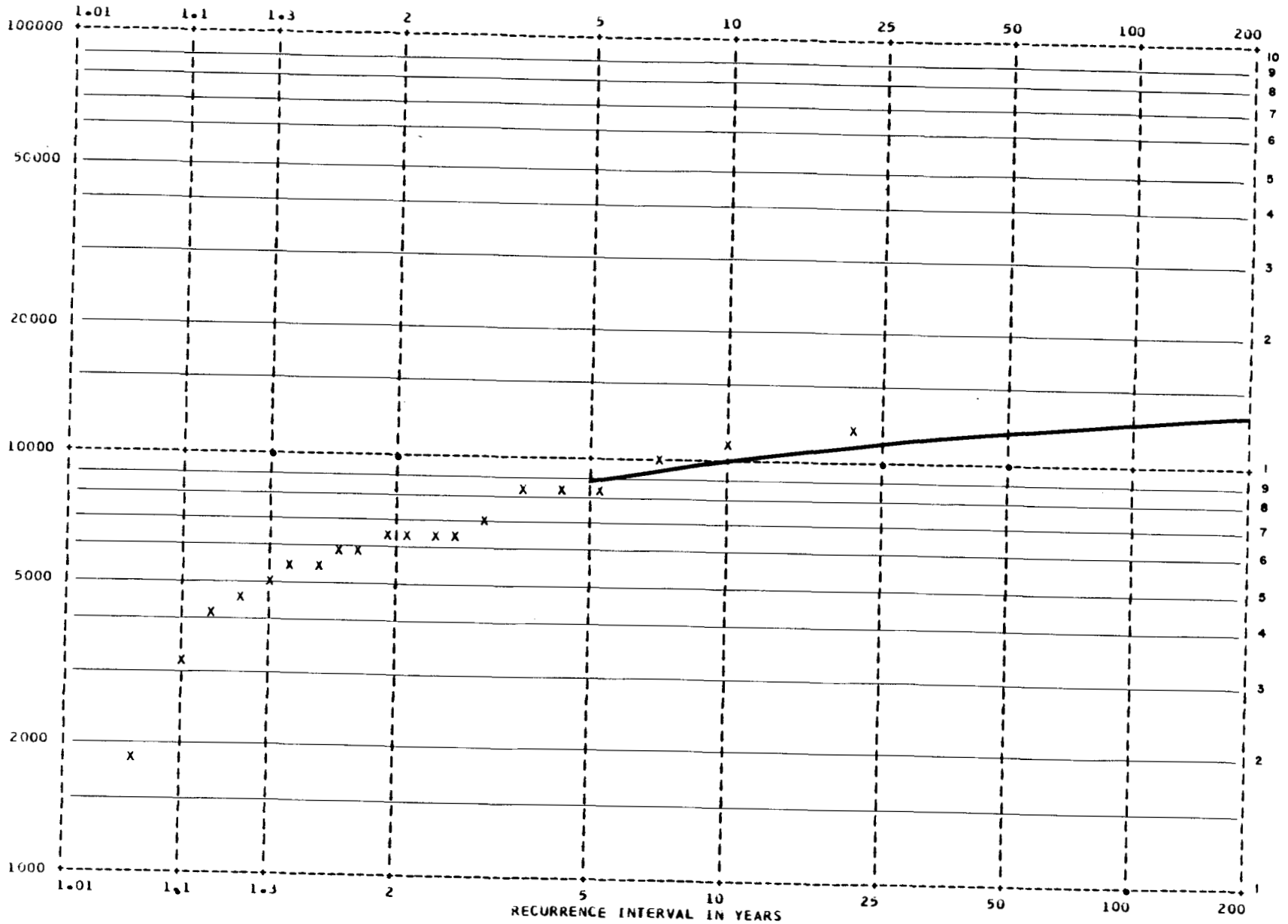
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	8.0	9.6	1974
2	4.00	9.6	1975
3	2.67	7.7	1972
4	2.00	7.2	1971
5	1.60	7.2	1976
6	1.33	6.9	1973
7	1.143	5.3	1977

MEAN ANNUAL FLOOD: 7.6 CFS

STANDARD DEVIATION: 1.5 CFS

DRAINAGE AREA: 0.63 SQ MI

PUNTLEDGE RIVER AT COURTENAY - STATION NO. 08HB006



PUNTLEDGE RIVER AT COURTENAY - STATION NO. 08HB006

DATE	MAXIMUM DAILY FLOW IN CFS
28 OCT 1915	4440
18 JUN 1916	4190
30 DEC 1917	6670
9 FEB 1918	9910
25 DEC 1919	6220
3 NOV 1955	8330
8 JUN 1956	5360
22 OCT 1965	6040
19 DEC 1966	8670
7 OCT 1967	6270
20 JAN 1968	11100
10 MAY 1969	5550
14 MAR 1970	1870
15 FEB 1971	4800
18 MAR 1972	6860
16 JAN 1973	8480
16 JAN 1974	6250
5 NOV 1975	11800
9 JUL 1976	3070
11 DEC 1977	5990

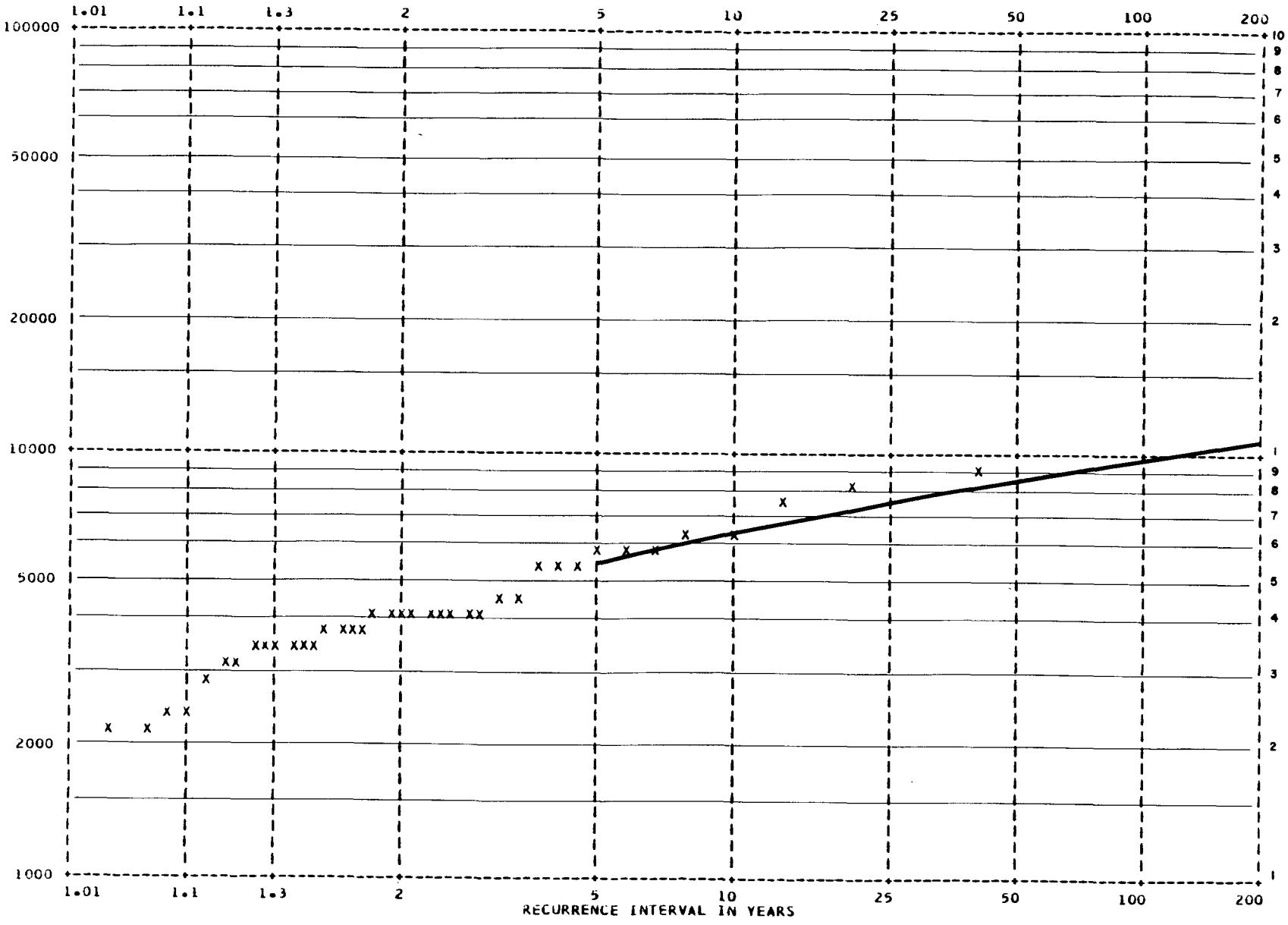
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	21.0	11800	1975
2	10.5	11100	1968
3	7.0	9910	1918
4	5.3	8670	1966
5	4.20	8480	1973
6	3.50	8330	1955
7	3.00	6860	1972
8	2.63	6670	1917
9	2.33	6270	1967
10	2.10	6250	1974
11	1.91	6220	1919
12	1.75	6040	1965
13	1.62	5990	1977
14	1.50	5550	1969
15	1.40	5360	1956
16	1.31	4800	1971
17	1.24	4440	1915
18	1.167	4190	1916
19	1.105	3070	1976
20	1.050	1870	1970

MEAN ANNUAL FLOOD: 6590 CFS

DRAINAGE AREA: 225 SQ MI

STANDARD DEVIATION: 2530 CFS

REMARKS: FLOW REGULATED SINCE 1913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RECURRENCE INTERVAL IN YEARS

MAXIMUM DAILY MEAN FLOWS

PUNTLEDGE RIVER NEAR CUMBERLAND - STATION NO. 08HB007

DATE	MAXIMUM DAILY FLOW IN CFS
16 OCT 1914	6100
27 OCT 1915	3960
13 MAR 1916	3700
31 DEC 1917	3570
3 JAN 1918	6180
27 DEC 1919	4120
4 DEC 1920	4260
18 OCT 1921	4550
28 DEC 1922	3840
18 DEC 1923	6180
1 FEB 1924	3980
18 DEC 1925	3310
17 OCT 1926	3880
2 JAN 1927	5400
10 JAN 1928	4310
30 DEC 1929	3610
19 FEB 1930	3600
28 JAN 1931	3470
28 FEB 1932	3220
1 NOV 1933	2350
16 NOV 1934	4290
1 FEB 1935	7840
6 MAY 1936	2820
29 OCT 1937	5230
1 NOV 1938	2130
8 DEC 1939	8470
27 DEC 1940	5230
2 DEC 1941	8920
21 DEC 1942	2130
21 APR 1943	3590
19 JAN 1944	5890
8 FEB 1945	4020
21 MAY 1946	3070
14 FEB 1947	3730
29 MAY 1948	4300
28 NOV 1949	6080
24 DEC 1950	4450
28 NOV 1951	2470
15 DEC 1952	4160

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	40.0	8920	1941
2	20.0	8470	1939
3	13.3	7840	1935
4	10.0	6180	1918
5	8.0	6180	1923
6	6.7	6100	1914
7	5.7	6080	1949
8	5.0	5890	1944
9	4.44	5400	1927
10	4.00	5230	1937
11	3.64	5230	1940
12	3.33	4550	1921
13	3.08	4450	1950
14	2.86	4310	1928
15	2.67	4300	1948
16	2.50	4290	1934
17	2.35	4260	1920
18	2.22	4160	1952
19	2.11	4120	1919
20	2.00	4020	1945
21	1.90	3980	1924
22	1.82	3960	1915
23	1.74	3880	1926
24	1.67	3840	1922
25	1.60	3730	1947
26	1.54	3700	1916
27	1.48	3610	1929
28	1.43	3600	1930
29	1.38	3590	1943
30	1.33	3570	1917
31	1.29	3470	1931
32	1.25	3310	1925
33	1.21	3220	1932
34	1.176	3070	1946
35	1.143	2820	1936
36	1.111	2470	1951
37	1.081	2350	1933
38	1.053	2130	1938
39	1.026	2130	1942

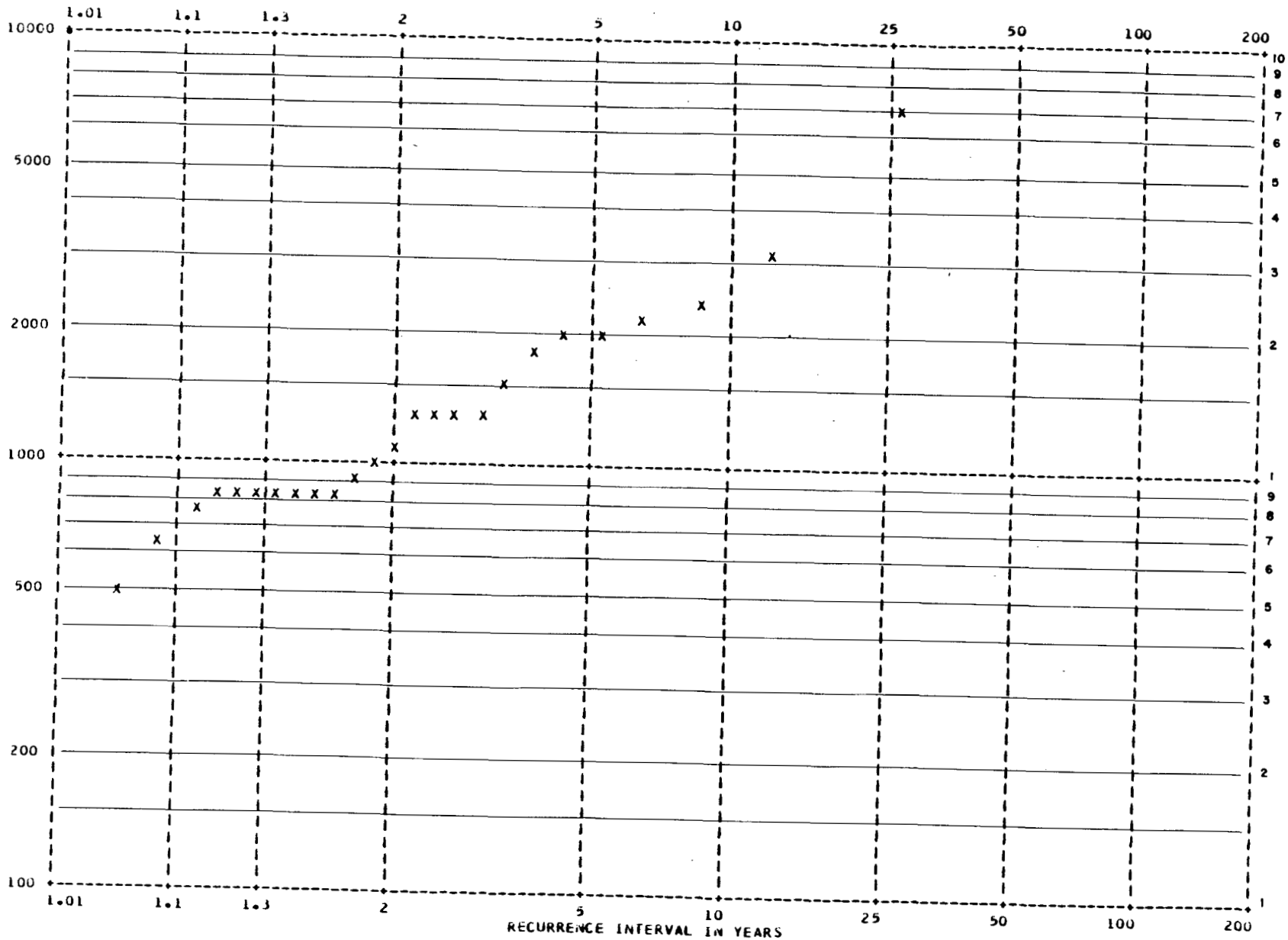
MEAN ANNUAL FLOOD: 4420 CFS

STANDARD DEVIATION: 1590 CFS

DRAINAGE AREA: 175 SQ MI

REMARKS: FLOW REGULATED SINCE 1913

QUALICUM RIVER NEAR BOWSER - STATION NO. 08HB001



QUALICUM RIVER NEAR BOWSER - STATION NO. 08HB001

DATE	MAXIMUM DAILY FLOW IN CFS
28 NOV 1913	1120
13 OCT 1914	2350
28 OCT 1915	1300
10 MAR 1916	2020
31 DEC 1917	1800
10 FEB 1918	7080
26 DEC 1919	1280
4 DEC 1920	1020
29 OCT 1921	1990
10 JAN 1959	2150
30 JAN 1960	1300
15 JAN 1961	3200
31 DEC 1962	1340
7 FEB 1963	1490
11 JAN 1964	805
24 DEC 1965	665
19 DEC 1966	850
1 JAN 1967	850
28 AUG 1968	818
4 SEP 1969	842
26 SEP 1970	504
12 NOV 1971	835
24 SEP 1972	764
20 DEC 1973	946
18 SEP 1974	828

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	26.0	7080	1918
2	13.0	3200	1961
3	8.7	2350	1914
4	6.5	2150	1959
5	5.2	2020	1916
6	4.33	1990	1921
7	3.71	1800	1917
8	3.25	1490	1963
9	2.89	1340	1962
10	2.60	1300	1915
11	2.36	1300	1960
12	2.17	1280	1919
13	2.00	1120	1913
14	1.86	1020	1920
15	1.73	946	1973
16	1.63	850	1966
17	1.53	850	1967
18	1.44	842	1969
19	1.37	835	1971
20	1.30	828	1974
21	1.24	818	1968
22	1.182	805	1964
23	1.130	764	1972
24	1.083	665	1965
25	1.040	504	1970

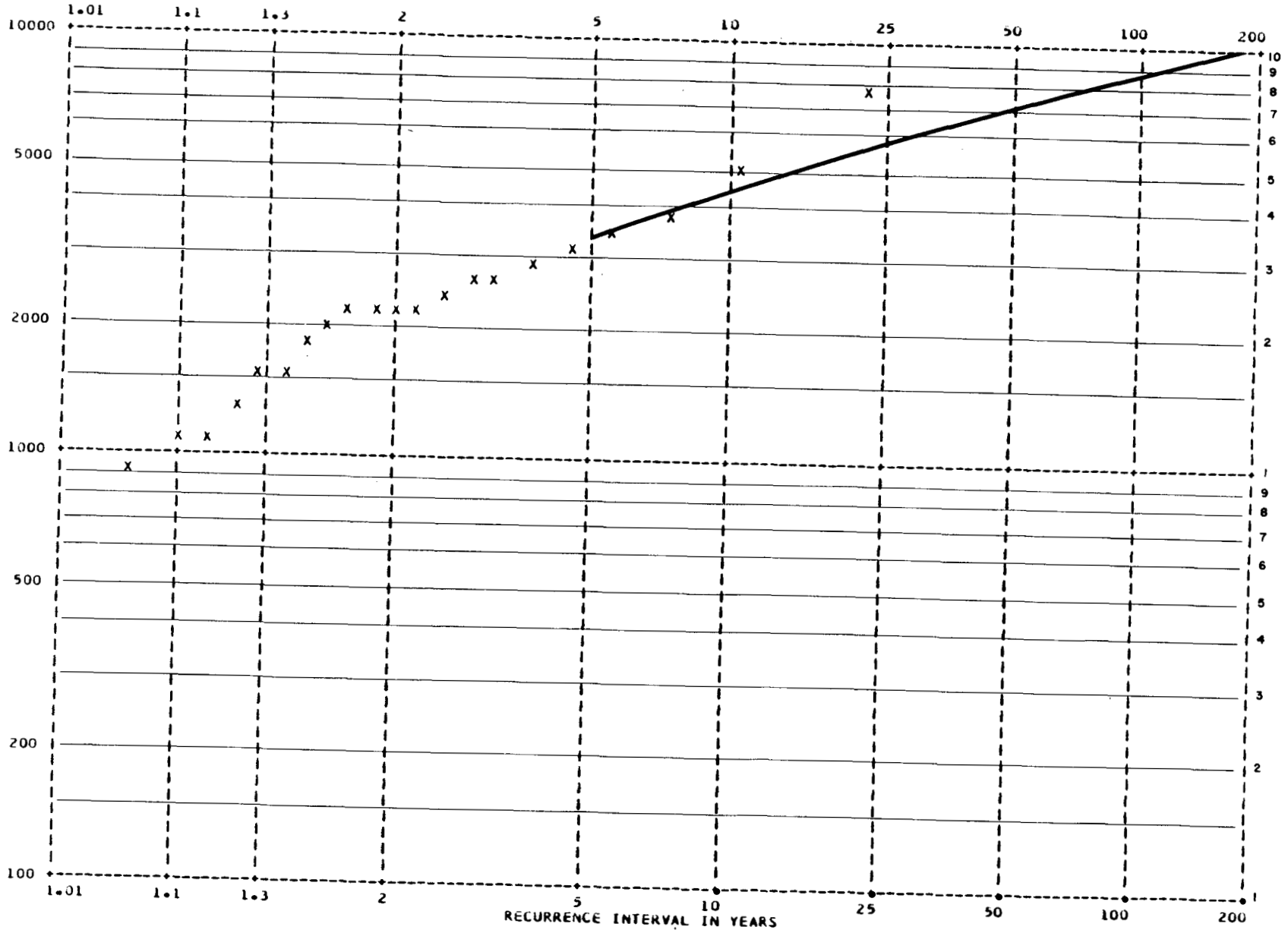
MEAN ANNUAL FLOOD: 1530 CFS

STANDARD DEVIATION: 1320 CFS

DRAINAGE AREA: 57.0 SQ MI

REMARKS: FLOW REGULATED SINCE 1963

QUINSAM RIVER NEAR CAMPBELL RIVER - STATION NO. 08HD005



MAXIMUM DAILY MEAN FLOWS

QUINSAM RIVER NEAR CAMPBELL RIVER - STATION NO. 08HD005

DATE	MAXIMUM DAILY FLOW IN CFS
26 DEC 1957	1070
2 DEC 1958	2280
12 JAN 1959	1540
14 DEC 1960	2020
12 JAN 1961	3900
6 DEC 1962	2380
24 DEC 1963	2540
4 JAN 1964	1080
4 DEC 1965	1920
4 DEC 1966	2640
7 DEC 1967	1350
19 JAN 1968	7700
11 DEC 1969	2180
14 DEC 1970	1560
10 NOV 1971	3400
16 MAR 1972	2820
16 JAN 1973	3240
16 JAN 1974	2310
14 NOV 1975	5100
31 JAN 1976	930
3 DEC 1977	2230

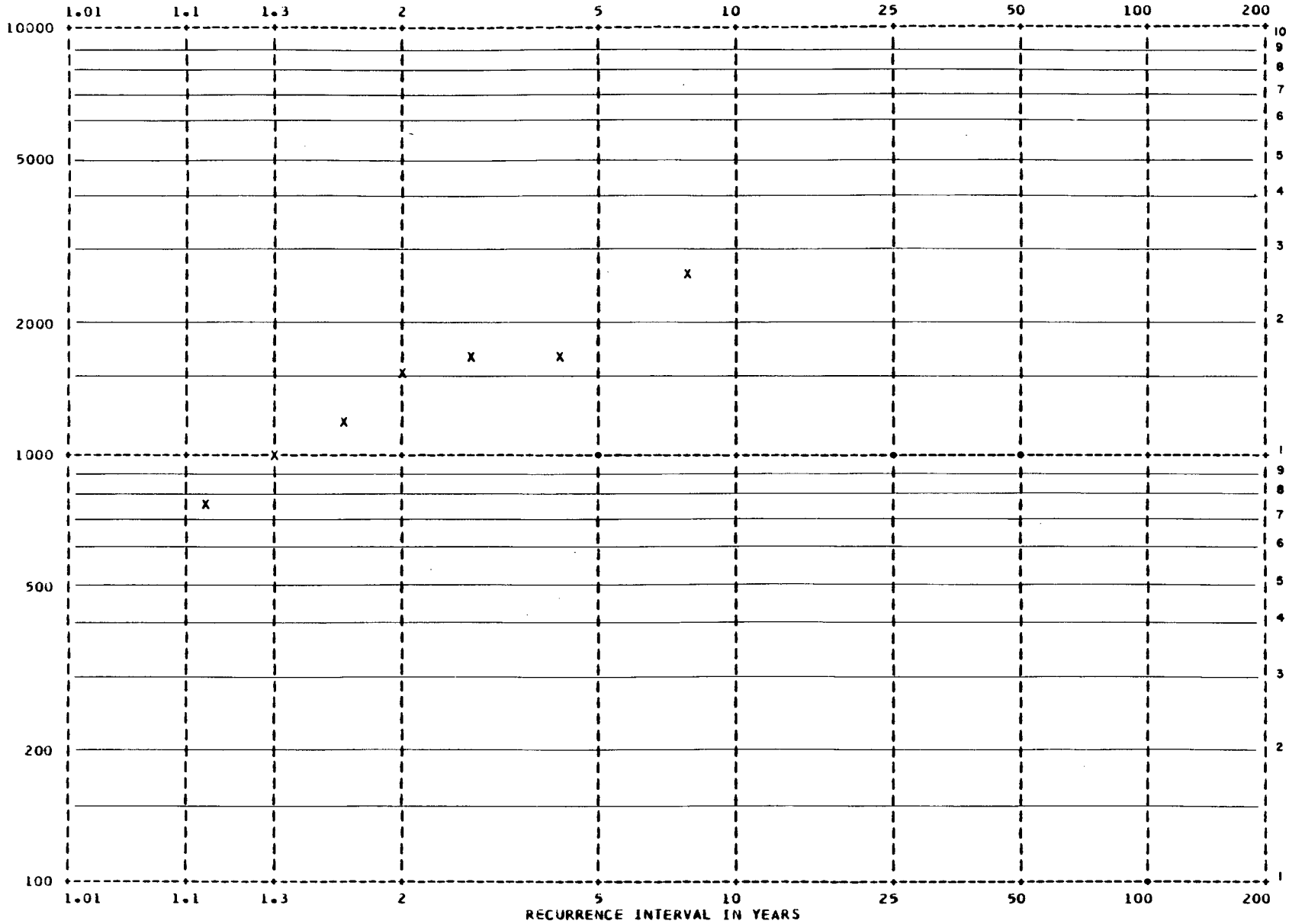
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	22.0	7700	1968
2	11.0	5100	1975
3	7.3	3900	1961
4	5.5	3400	1971
5	4.40	3240	1973
6	3.67	2820	1972
7	3.14	2640	1966
8	2.75	2540	1963
9	2.44	2380	1962
10	2.20	2310	1974
11	2.00	2280	1958
12	1.83	2230	1977
13	1.69	2180	1969
14	1.57	2020	1960
15	1.47	1920	1965
16	1.38	1560	1970
17	1.29	1540	1959
18	1.22	1350	1967
19	1.158	1080	1964
20	1.100	1070	1957
21	1.048	930	1976

MEAN ANNUAL FLOOD: 2580 CFS

DRAINAGE AREA: 108 SQ MI

STANDARD DEVIATION: 1540 CFS

REMARKS: FLOW DIVERTED SINCE 1957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RECURRENCE INTERVAL IN YEARS

ROSEWALL CREEK AT THE MOUTH - STATION NO. 08HB037

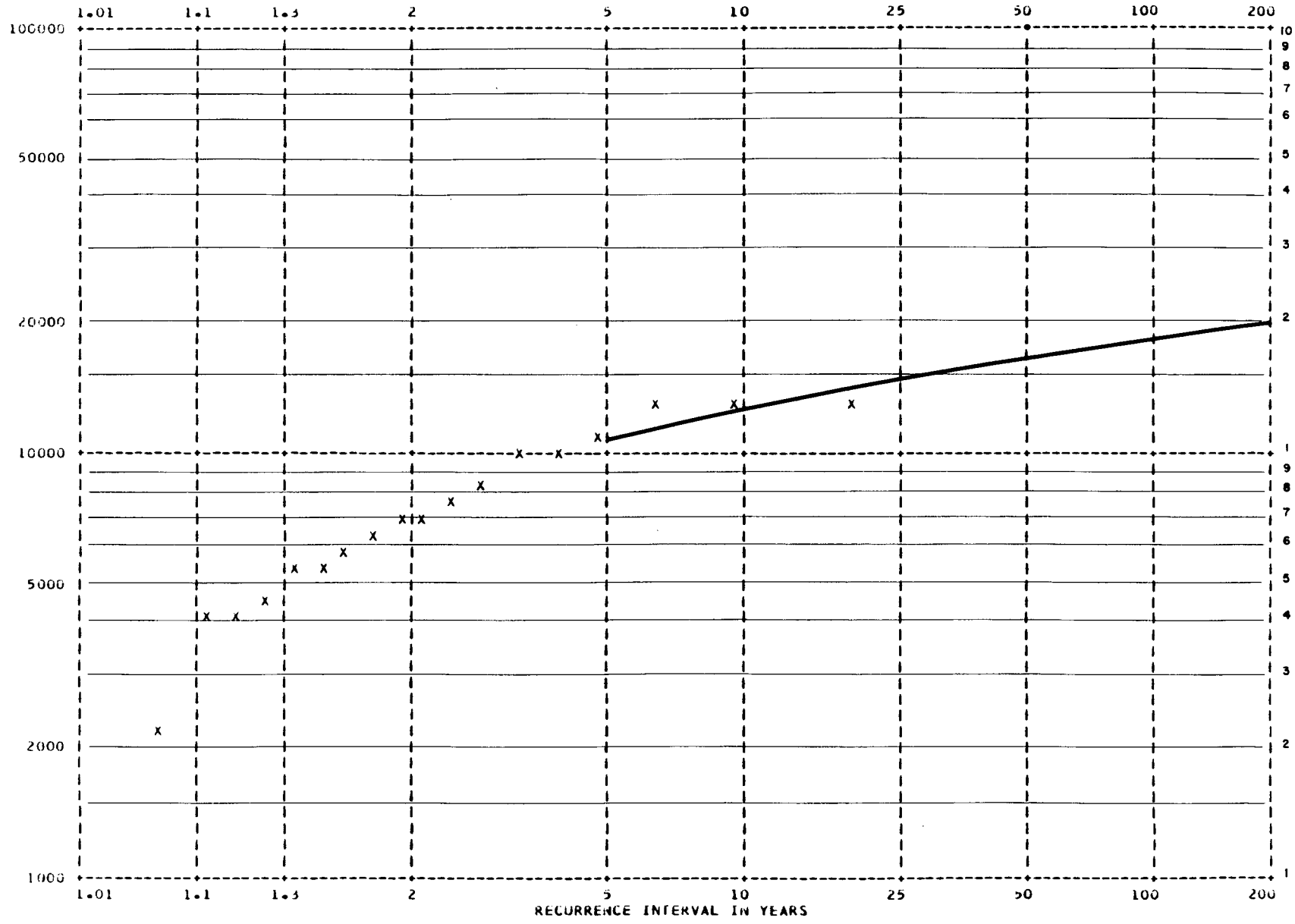
DATE	MAXIMUM DAILY FLOW IN CFS
15 DEC 1968	2540
29 MAY 1969	745
9 APR 1970	1040
9 NOV 1971	1660
19 DEC 1972	1540
26 DEC 1976	1180
28 OCT 1977	1670

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	8.0	2540	1968
2	4.00	1670	1977
3	2.67	1660	1971
4	2.00	1540	1972
5	1.60	1180	1976
6	1.33	1040	1970
7	1.143	745	1969

MEAN ANNUAL FLOOD: 1480 CFS DRAINAGE AREA: 16.7 SQ MI

STANDARD DEVIATION: 580 CFS

REMARKS: 1968 FLOW ESTIMATED FROM PARTIAL RECORDS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RECURRENCE INTERVAL IN YEARS

SALMON RIVER ABOVE MEMEKAY RIVER - STATION NO. 08HD007

DATE	MAXIMUM DAILY FLOW IN CFS
13 DEC 1960	7940
15 JAN 1961	13600
19 NOV 1962	13300
6 FEB 1963	9720
4 FEB 1964	4240
21 OCT 1965	10100
28 NOV 1966	7100
10 DEC 1967	6810
29 OCT 1968	11100
20 NOV 1969	4170
15 MAY 1970	2310
9 NOV 1971	8580
18 MAR 1972	5650
15 JAN 1973	5560
15 JAN 1974	6150
13 NOV 1975	13500
26 DEC 1976	4400
23 OCT 1977	5270

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	19.0	13600	1961
2	9.5	13500	1975
3	6.3	13300	1962
4	4.75	11100	1968
5	3.80	10100	1965
6	3.17	9720	1963
7	2.71	8580	1971
8	2.38	7940	1960
9	2.11	7100	1966
10	1.90	6810	1967
11	1.73	6150	1974
12	1.58	5650	1972
13	1.46	5560	1973
14	1.36	5270	1977
15	1.27	4400	1976
16	1.188	4240	1964
17	1.118	4170	1969
18	1.056	2310	1970

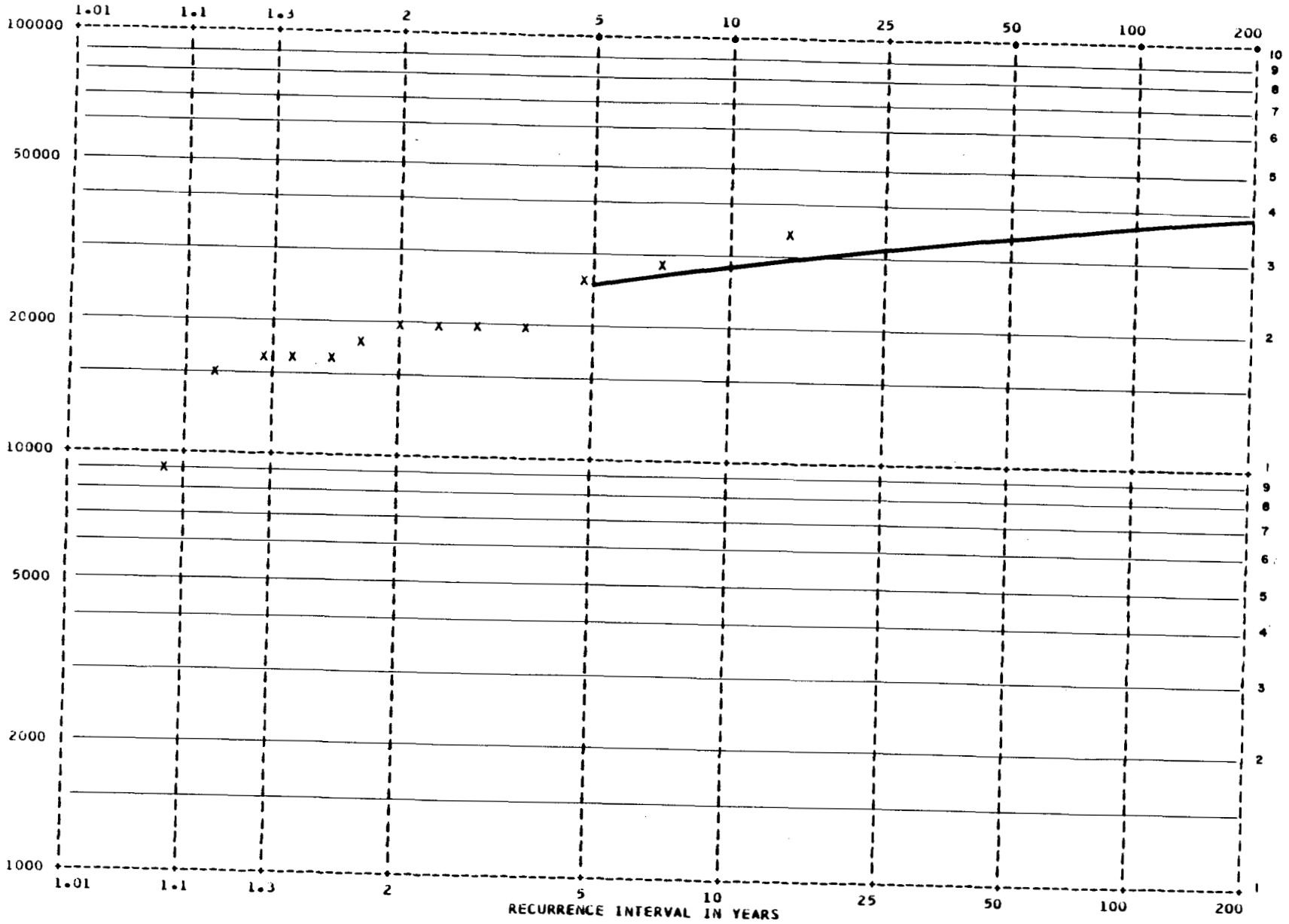
MEAN ANNUAL FLOOD: 7750 CFS

DRAINAGE AREA: 173 SQ MI

STANDARD DEVIATION: 3470 CFS

REMARKS: FLOW DIVERTED SINCE 1957

SALMON RIVER NEAR SAYWARD - STATION NO. 08HD006



SALMON RIVER NEAR SAYWARD - STATION NO. 08HD006

DATE	MAXIMUM DAILY FLOW IN CFS
21 OCT 1965	28700
19 DEC 1966	18600
10 DEC 1967	17400
29 OCT 1968	26800
7 NOV 1969	16200
15 MAY 1970	9000
9 NOV 1971	20100
17 MAR 1972	17600
15 DEC 1973	20500
15 JAN 1974	20100
13 NOV 1975	35100
26 DEC 1976	16300
23 OCT 1977	20200

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	14.0	35100	1975
2	7.0	28700	1965
3	4.67	26800	1968
4	3.50	20500	1973
5	2.80	20200	1977
6	2.33	20100	1971
7	2.00	20100	1974
8	1.75	18600	1966
9	1.56	17600	1972
10	1.40	17400	1967
11	1.27	16300	1976
12	1.167	16200	1969
13	1.077	9000	1970

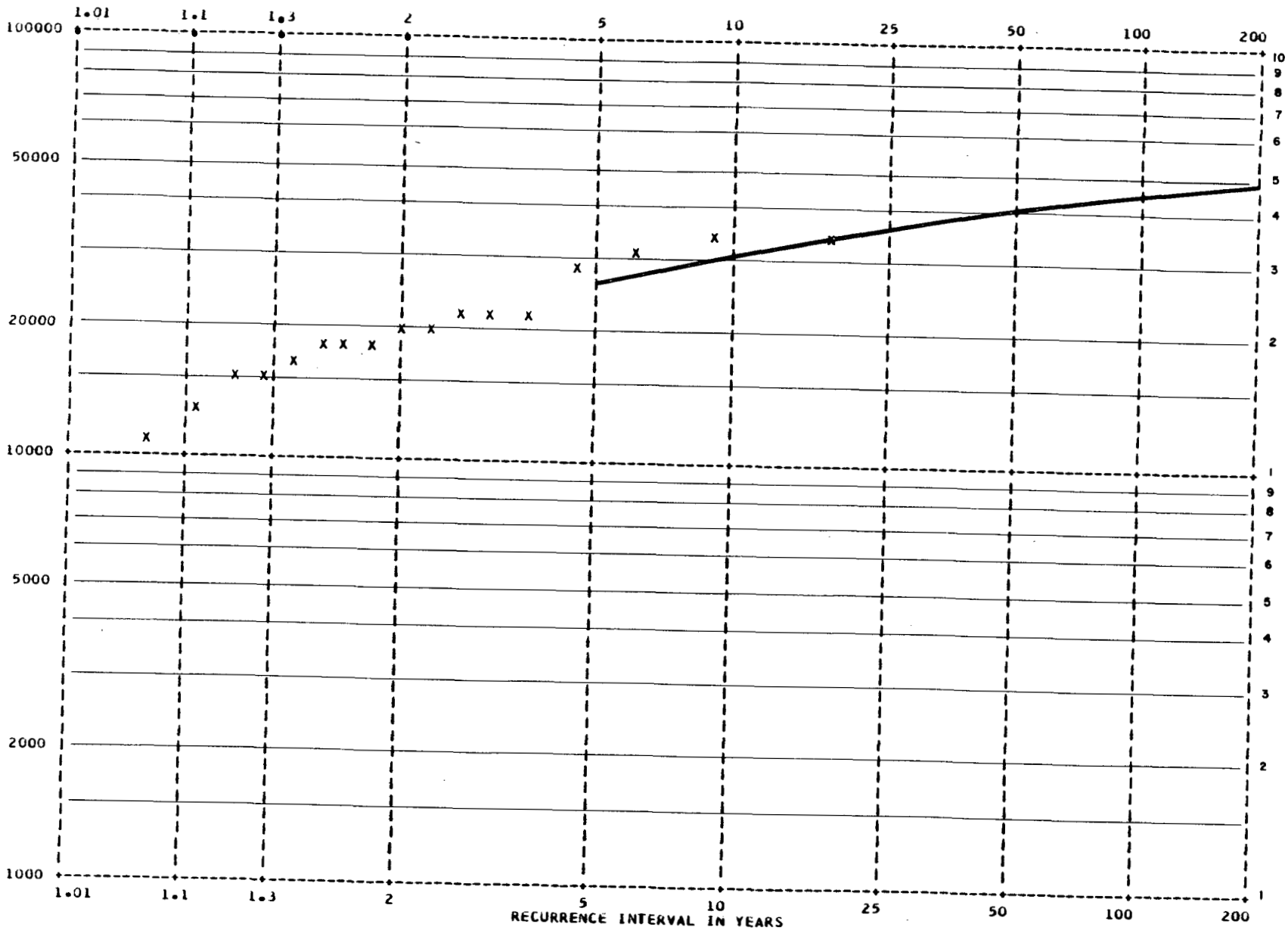
MEAN ANNUAL FLOOD: 20500 CFS

DRAINAGE AREA: 463 SQ MI

STANDARD DEVIATION: 6520 CFS

REMARKS: FLOW DIVERTED SINCE 1957
1957-1964 RECORDS ARE BEING REVIEWED

SAN JUAN RIVER NEAR PORT RENFREW - STATION NO. 08HA010



SAN JUAN RIVER NEAR PORT RENFREW - STATION NO. 08HA010

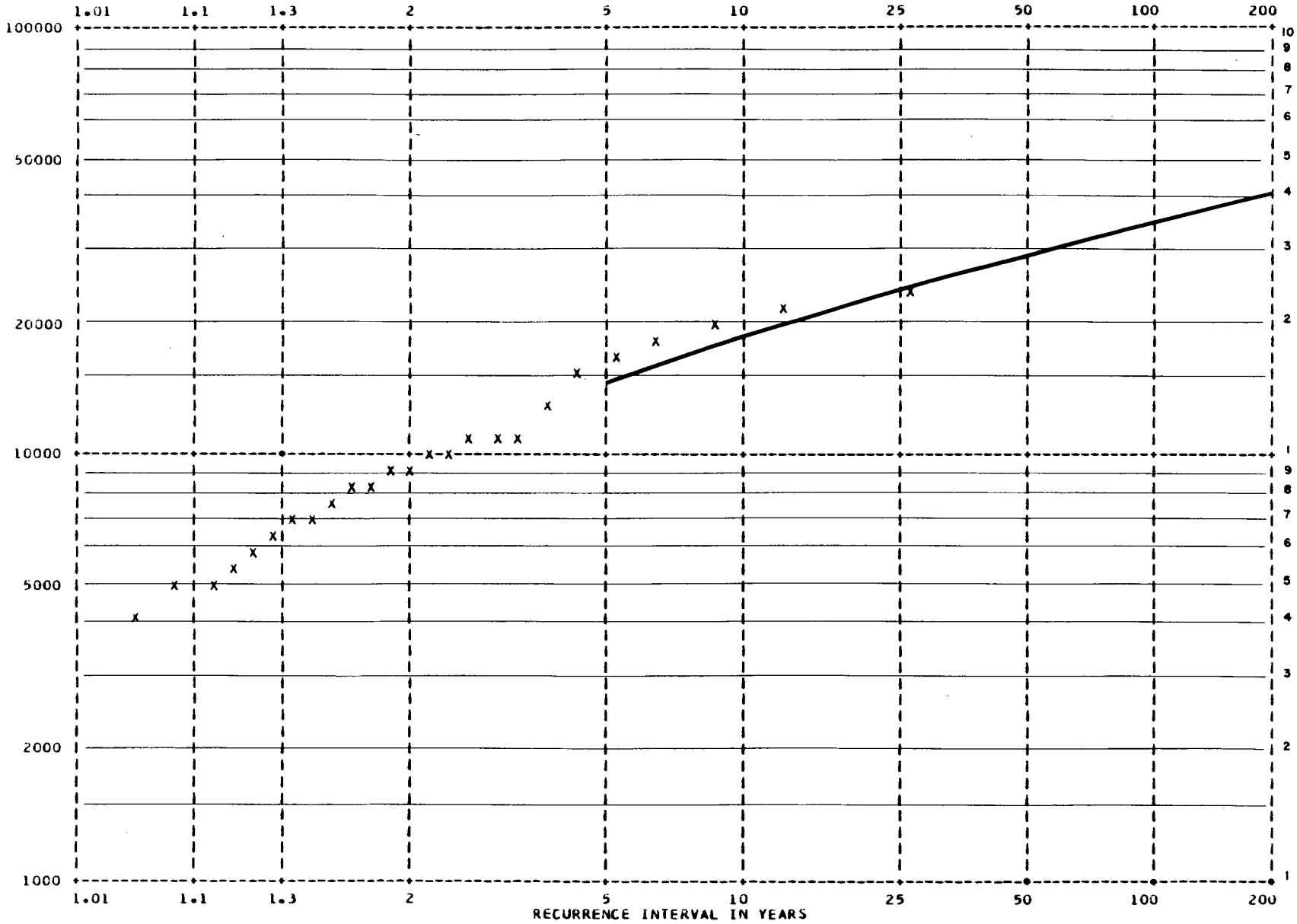
DATE	MAXIMUM DAILY FLOW IN CFS
29 JAN 1960	18300
15 JAN 1961	34000
23 DEC 1963	28800
30 NOV 1964	19900
4 FEB 1965	16300
13 JAN 1966	22300
10 DEC 1967	20300
19 JAN 1968	33700
17 MAR 1969	11300
22 JAN 1970	18100
19 JAN 1971	15000
19 DEC 1972	22200
28 NOV 1973	19200
15 JAN 1974	33000
3 DEC 1975	21600
27 JAN 1976	13200
11 DEC 1977	15700

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	18.0	34000	1961
2	9.0	33700	1968
3	6.0	33000	1974
4	4.50	28800	1963
5	3.60	22300	1966
6	3.00	22200	1972
7	2.57	21600	1975
8	2.25	20300	1967
9	2.00	19900	1964
10	1.80	19200	1973
11	1.64	18300	1960
12	1.50	18100	1970
13	1.38	16300	1965
14	1.29	15700	1977
15	1.20	15000	1971
16	1.125	13200	1976
17	1.059	11300	1969

MEAN ANNUAL FLOOD: 21300 CFS

STANDARD DEVIATION: 7060 CFS

DRAINAGE AREA: 224 SQ MI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RECURRENCE INTERVAL IN YEARS

MAXIMUM DAILY MEAN FLOWS

SARITA RIVER NEAR HAMFIELD - STATION NO. 08HB014

DATE	MAXIMUM DAILY FLOW IN CFS
29 DEC 1949	5030
3 MAR 1950	6780
27 NOV 1951	10700
12 DEC 1952	7350
11 JAN 1953	8180
16 FEB 1954	11300
28 MAY 1955	4300
15 DEC 1956	8180
26 FEB 1957	5820
1 DEC 1958	17300
14 DEC 1959	15100
29 JAN 1960	23900
15 JAN 1961	22800
19 NOV 1962	18900
21 OCT 1963	21000
30 NOV 1964	5120
1 NOV 1965	7060
28 NOV 1966	9520
9 DEC 1967	8780
13 JAN 1968	12600
22 DEC 1969	11200
7 DEC 1970	6620
8 NOV 1971	10100
25 DEC 1972	10000
12 FEB 1977	5340

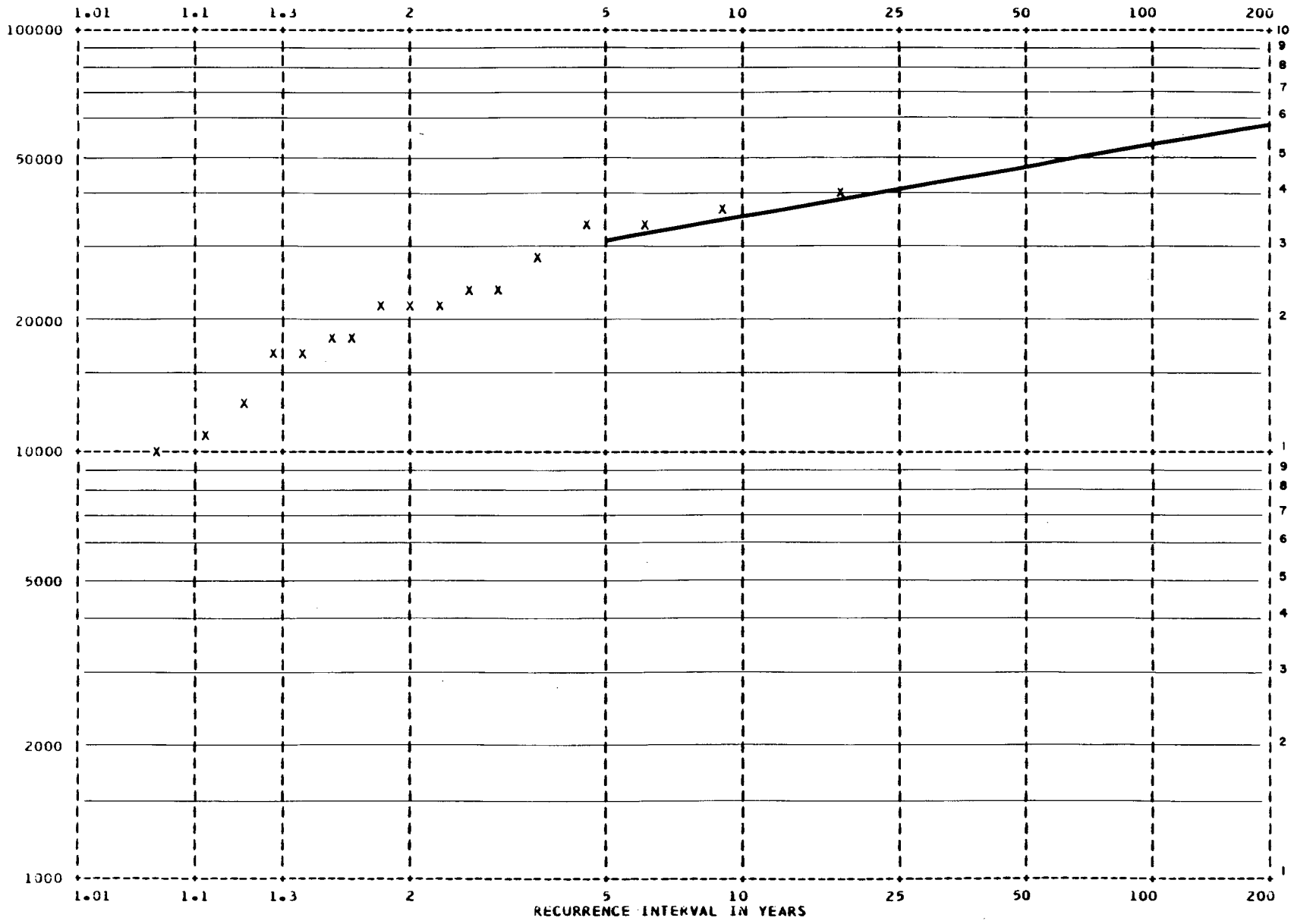
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	26.0	23900	1960
2	13.0	22800	1961
3	8.7	21000	1963
4	6.5	18900	1962
5	5.2	17300	1958
6	4.33	15100	1959
7	3.71	12600	1968
8	3.25	11300	1954
9	2.89	11200	1969
10	2.60	10700	1951
11	2.36	10100	1971
12	2.17	10000	1972
13	2.00	9520	1966
14	1.86	8780	1967
15	1.73	8180	1953
16	1.63	8180	1956
17	1.53	7350	1952
18	1.44	7060	1965
19	1.37	6780	1950
20	1.30	6620	1970
21	1.24	5820	1957
22	1.182	5340	1977
23	1.130	5120	1964
24	1.083	5030	1949
25	1.040	4300	1955

MEAN ANNUAL FLOOD: 10900 CFS

STANDARD DEVIATION: 5740 CFS

DRAINAGE AREA: 62.7 SQ MI

SOMASS RIVER NEAR ALBERNI - STATION NO. 08HB017



MAXIMUM DAILY MEAN FLOWS

SOMASS RIVER NEAR ALBERNI - STATION NO. 08HB017

DATE	MAXIMUM DAILY FLOW IN CFS
22 DEC 1957	10900
2 DEC 1958	29500
30 APR 1959	13200
13 DEC 1960	21900
15 DEC 1962	40000
6 FEB 1963	38000
1 JAN 1964	16800
4 DEC 1965	18500
19 DEC 1966	23000
11 OCT 1967	17800
20 JAN 1968	36000
10 NOV 1971	23700
18 MAR 1972	21400
15 JAN 1974	25000
5 NOV 1975	34600
27 DEC 1976	10200
2 NOV 1977	16900

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	18.0	40000	1962
2	9.0	38000	1963
3	6.0	36000	1968
4	4.50	34600	1975
5	3.60	29500	1958
6	3.00	25000	1974
7	2.57	23700	1971
8	2.25	23000	1966
9	2.00	21900	1960
10	1.80	21400	1972
11	1.64	18500	1965
12	1.50	17800	1967
13	1.38	16900	1977
14	1.29	16800	1964
15	1.20	13200	1959
16	1.125	10900	1957
17	1.059	10200	1976

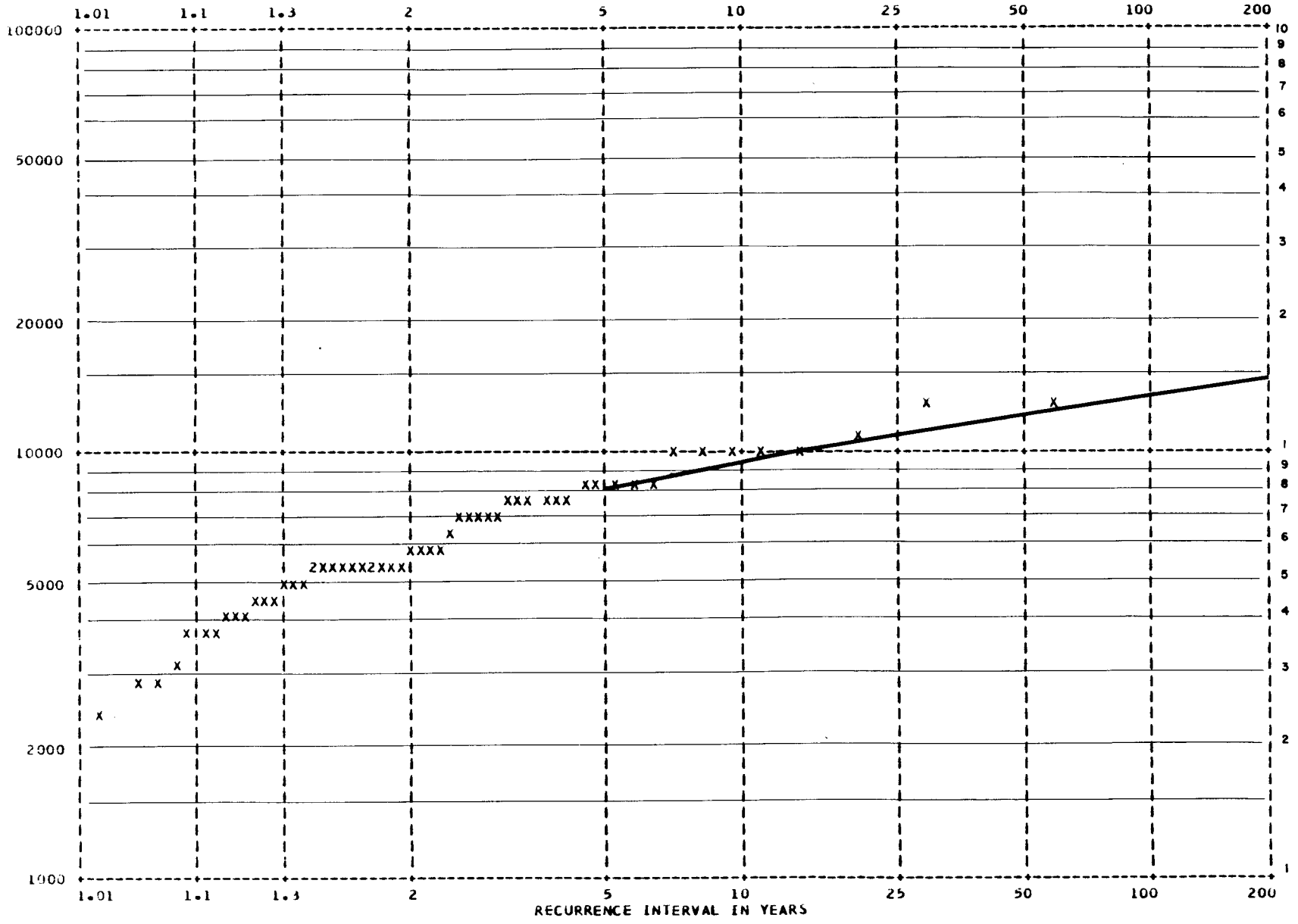
MEAN ANNUAL FLOOD: 23400 CFS

DRAINAGE AREA: 496 SQ MI

STANDARD DEVIATION: 9340 CFS

REMARKS: FLOW REGULATED AND DIVERTED SINCE 1956

SPROAT RIVER NEAR ALBERNI - STATION NO. 08HB008



SPROAT RIVER NEAR ALBERNI - STATION NO. 08HB008

DATE	MAXIMUM DAILY FLOW IN CFS
28 NOV 1913	5980
19 OCT 1914	8100
31 OCT 1915	5520
12 MAR 1916	4810
31 DEC 1917	5320
9 FEB 1918	10000
26 DEC 1919	7190
4 DEC 1920	7250
29 OCT 1921	7730
28 DEC 1922	6900
18 DEC 1923	10200
1 FEB 1924	7360
18 DEC 1925	4730
31 DEC 1926	9720
2 JAN 1927	12500
9 JAN 1928	6100
29 DEC 1929	4380
18 FEB 1930	4500
27 JAN 1931	5450
16 NOV 1939	8730
2 DEC 1941	8590
22 DEC 1942	2790
21 APR 1943	3870
19 JAN 1944	6740
6 DEC 1945	5500
11 DEC 1946	4180
14 FEB 1947	5770
2 JAN 1948	4020
2 DEC 1949	7570
24 DEC 1950	5490
1 DEC 1951	5190
12 FEB 1952	4400
15 NOV 1953	8650
21 NOV 1954	7800
4 NOV 1955	5170
20 DEC 1956	3160
26 DEC 1957	3660
2 DEC 1958	8310
12 JAN 1959	4080
13 DEC 1960	5200
15 JAN 1961	10600
16 DEC 1962	7180
6 FEB 1963	7800
1 JAN 1964	5190
5 DEC 1965	5430
19 DEC 1966	9820
13 OCT 1967	5450
20 JAN 1968	12900
29 MAY 1969	3700
12 NOV 1970	2410
10 NOV 1971	5610
19 MAR 1972	5990
16 DEC 1973	6480
17 JAN 1974	7490
15 NOV 1975	10300
1 JAN 1976	2830
2 NOV 1977	4930

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	58.0	12900	1968
2	29.0	12500	1927
3	19.3	10600	1961
4	14.5	10300	1975
5	11.6	10200	1923
6	9.7	10000	1918
7	8.3	9820	1966
8	7.3	9720	1926
9	6.4	8730	1939
10	5.8	8650	1953
11	5.3	8590	1941
12	4.83	8310	1953
13	4.46	8100	1914
14	4.14	7800	1954
15	3.87	7800	1963
16	3.63	7730	1921
17	3.41	7570	1949
18	3.22	7490	1974
19	3.05	7360	1924
20	2.90	7250	1920
21	2.76	7190	1919
22	2.64	7180	1962
23	2.52	6900	1922
24	2.42	6740	1944
25	2.32	6480	1973
26	2.23	6100	1928
27	2.15	5990	1972
28	2.07	5980	1913
29	2.00	5770	1947
30	1.93	5610	1971
31	1.87	5520	1915
32	1.81	5500	1945
33	1.76	5490	1950
34	1.71	5450	1931
35	1.66	5450	1967
36	1.61	5430	1965
37	1.57	5320	1917
38	1.53	5200	1960
39	1.49	5190	1951
40	1.45	5190	1964
41	1.41	5170	1955
42	1.38	4930	1977
43	1.35	4810	1916
44	1.32	4730	1925
45	1.29	4500	1930
46	1.26	4400	1952
47	1.23	4380	1929
48	1.21	4180	1946
49	1.184	4080	1959
50	1.160	4020	1948
51	1.137	3870	1943
52	1.115	3700	1969
53	1.094	3660	1957
54	1.074	3160	1956
55	1.055	2830	1976
56	1.036	2790	1942
57	1.018	2410	1970

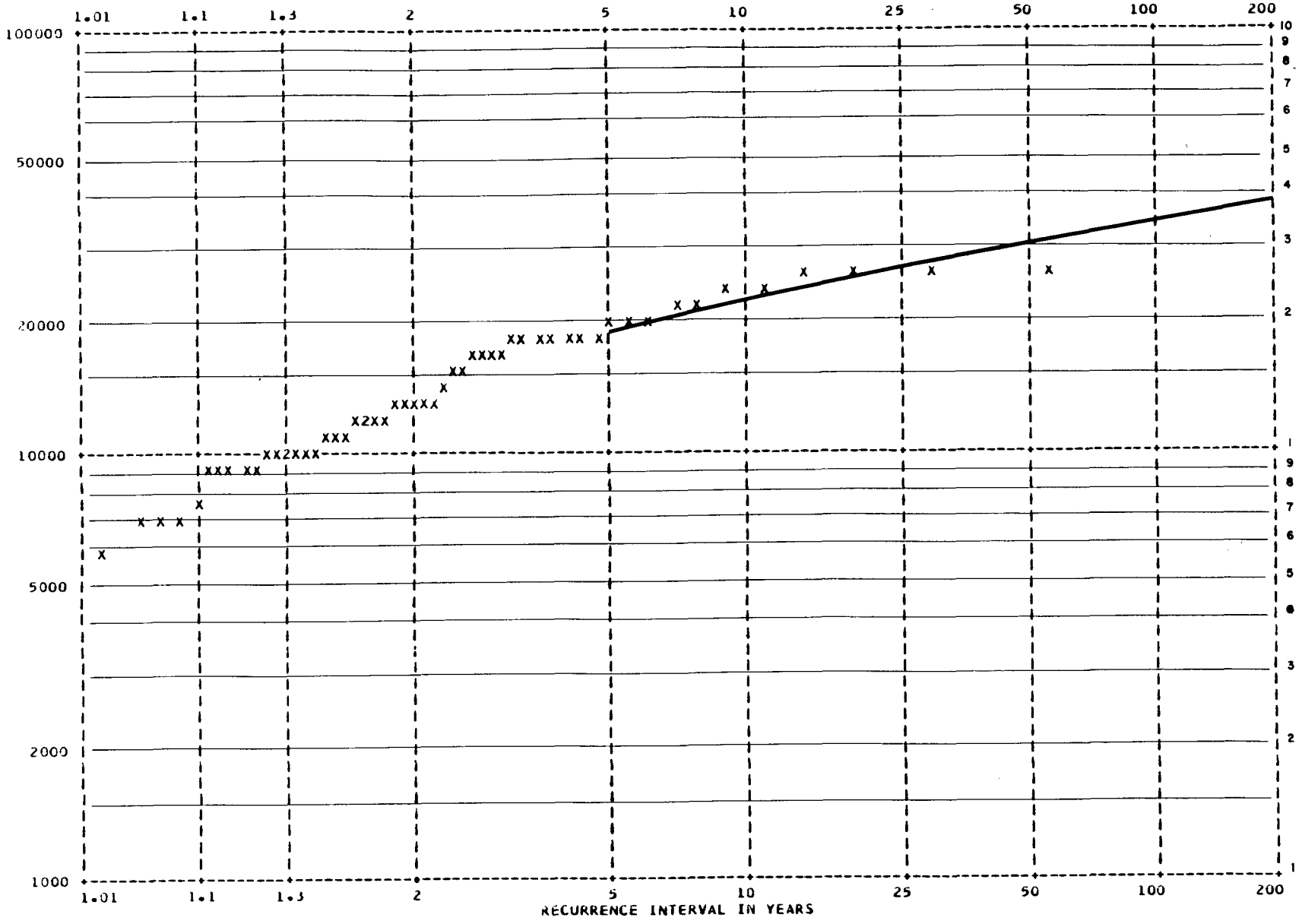
MEAN ANNUAL FLOOD: 6430 CFS

DRAINAGE AREA: 134 SQ MI

STANDARD DEVIATION: 2380 CFS

REMARKS: FLOW REGULATED AND DIVERTED SINCE 1956

STAMP RIVER NEAR ALBERNI - STATION NO. 08HB010



STAMP RIVER NEAR ALBERNI - STATION NO. 08HB010

DATE	MAXIMUM DAILY FLOW IN CFS
15 OCT 1914	15100
28 OCT 1915	19000
11 MAR 1916	10400
31 DEC 1917	17500
3 JAN 1918	27500
26 DEC 1919	18500
5 DEC 1920	11700
29 OCT 1921	20000
27 DEC 1922	12000
13 DEC 1923	18200
15 OCT 1924	11500
24 DEC 1925	9720
31 DEC 1926	13500
2 JAN 1927	18200
8 JAN 1928	11500
26 DEC 1929	9540
20 FEB 1930	8820
22 JAN 1931	9810
2 DEC 1941	21500
11 OCT 1942	8970
19 APR 1943	10700
19 JAN 1944	18500
8 FEB 1945	12900
4 DEC 1946	11400
14 FEB 1947	13400
29 MAY 1948	8820
27 NOV 1949	17800
27 NOV 1950	12900
30 NOV 1951	7300
12 NOV 1952	9760
14 NOV 1953	22000
19 NOV 1954	16800
28 OCT 1955	17300
22 OCT 1956	9800
17 DEC 1957	5680
2 DEC 1958	25100
30 APR 1959	10500
14 DEC 1960	9730
15 JAN 1961	26800
15 DEC 1962	20600
6 FEB 1963	27100
4 JAN 1964	7970
21 OCT 1965	12400
19 DEC 1966	19900
11 OCT 1967	12600
19 JAN 1968	23400
29 MAY 1969	9500
9 APR 1970	7250
10 NOV 1971	17200
18 MAR 1972	14900
16 JAN 1973	13700
16 JAN 1974	19200
5 NOV 1975	25800
26 DEC 1976	7220
14 DEC 1977	9780

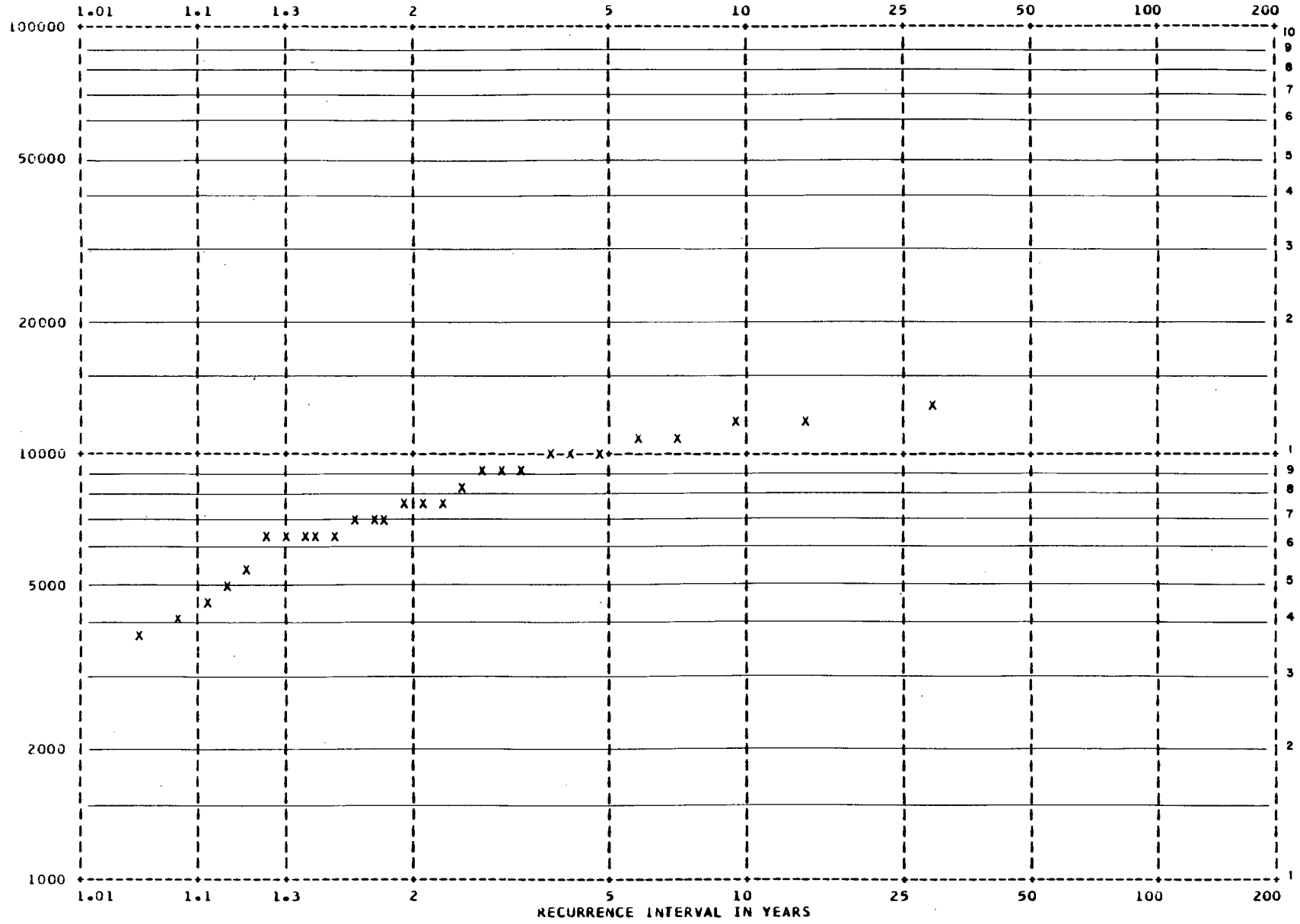
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	56.0	27500	1918
2	28.0	27100	1963
3	18.7	26800	1961
4	14.0	25800	1975
5	11.2	25100	1958
6	9.3	23400	1968
7	8.0	22000	1953
8	7.0	21500	1941
9	6.2	20600	1962
10	5.6	20000	1921
11	5.1	19900	1966
12	4.67	19200	1974
13	4.31	19000	1915
14	4.00	18500	1919
15	3.73	18500	1944
16	3.50	18200	1923
17	3.29	18200	1927
18	3.11	17800	1949
19	2.95	17500	1917
20	2.80	17300	1955
21	2.67	17200	1971
22	2.55	16800	1954
23	2.43	15100	1914
24	2.33	14900	1972
25	2.24	13700	1973
26	2.15	13500	1926
27	2.07	13400	1947
28	2.00	12900	1945
29	1.93	12900	1950
30	1.87	12600	1967
31	1.81	12400	1965
32	1.75	12000	1922
33	1.70	11700	1920
34	1.65	11500	1924
35	1.60	11500	1928
36	1.56	11400	1946
37	1.51	10700	1943
38	1.47	10500	1959
39	1.44	10400	1916
40	1.40	9810	1931
41	1.37	9800	1956
42	1.33	9780	1977
43	1.30	9760	1952
44	1.27	9730	1960
45	1.24	9720	1925
46	1.22	9540	1929
47	1.191	9500	1969
48	1.167	8970	1942
49	1.143	8820	1930
50	1.120	8820	1948
51	1.098	7970	1964
52	1.077	7300	1951
53	1.057	7250	1970
54	1.037	7220	1976
55	1.018	5680	1957

MEAN ANNUAL FLOOD: 14700 CFS

DRAINAGE AREA: 347 SQ MI

STANDARD DEVIATION: 5780 CFS

REMARKS: STORAGE SINCE 1958 (ASH RIVER DAM)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RECURRENCE INTERVAL IN YEARS

STAMP RIVER NEAR GREAT CENTRAL - STATION NO. 08HB009

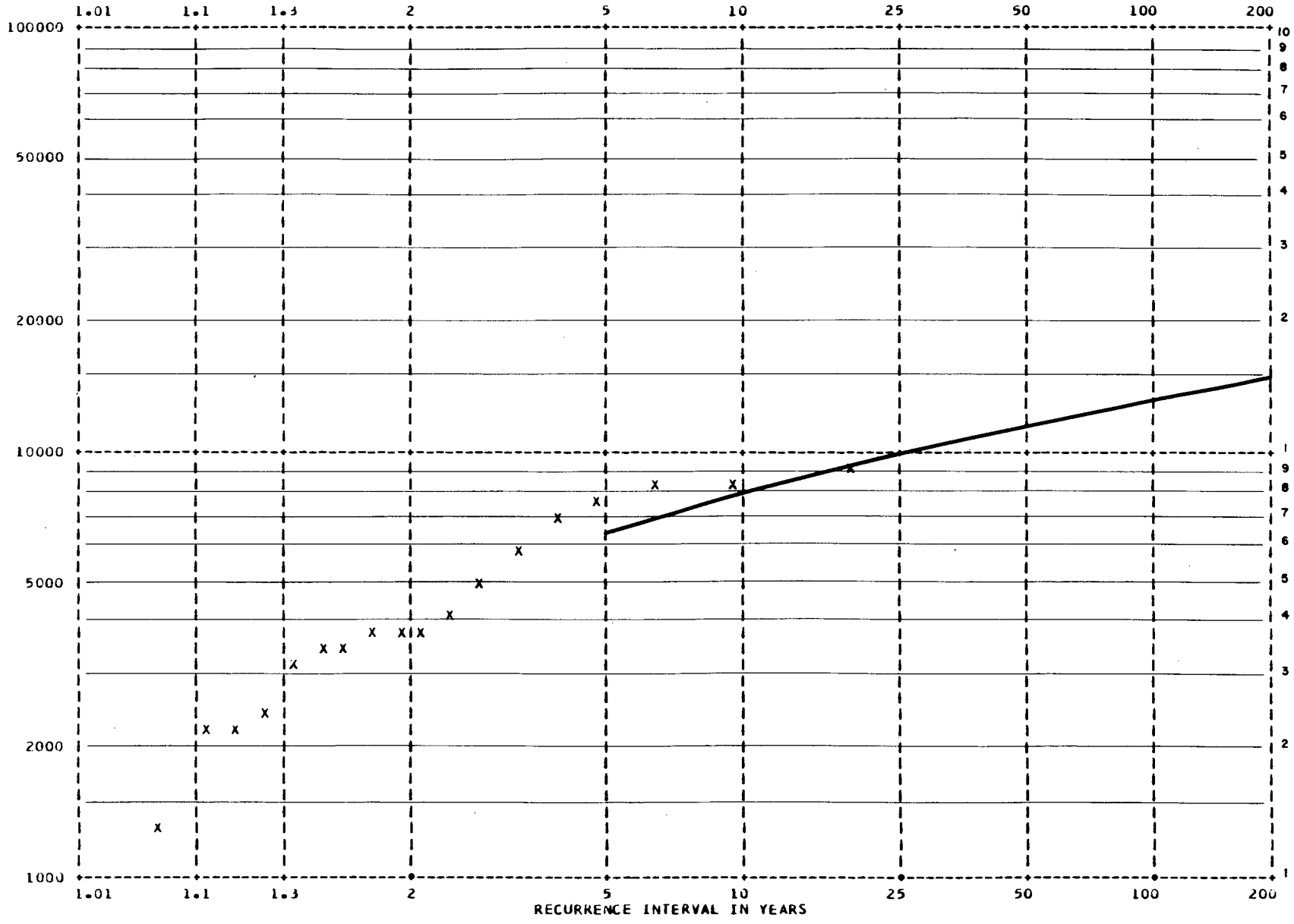
DATE	MAXIMUM DAILY FLOW IN CFS
29 NOV 1913	4340
18 OCT 1914	8300
28 OCT 1915	6360
13 MAR 1916	3810
31 DEC 1917	6370
10 FEB 1918	10700
26 DEC 1919	7290
29 OCT 1921	9220
3 DEC 1958	10100
1 JAN 1959	4280
26 OCT 1960	6870
15 JAN 1961	12400
16 DEC 1962	9180
7 FEB 1963	11000
1 JAN 1964	6620
21 OCT 1965	6670
19 DEC 1966	10300
8 OCT 1967	10200
21 JAN 1968	12200
29 MAY 1969	6390
6 APR 1970	5320
10 NOV 1971	7820
19 MAR 1972	7890
16 DEC 1973	7130
17 JAN 1974	8920
5 NOV 1975	13500
1 JAN 1976	4980
2 NOV 1977	7720

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	29.0	13500	1975
2	14.5	12400	1961
3	9.7	12200	1968
4	7.3	11000	1963
5	5.8	10700	1918
6	4.83	10300	1966
7	4.14	10200	1967
8	3.63	10100	1958
9	3.22	9220	1921
10	2.90	9180	1962
11	2.64	8920	1974
12	2.42	8300	1914
13	2.23	7890	1972
14	2.07	7820	1971
15	1.93	7720	1977
16	1.81	7290	1919
17	1.71	7130	1973
18	1.61	6870	1960
19	1.53	6670	1965
20	1.45	6620	1964
21	1.38	6390	1969
22	1.32	6370	1917
23	1.26	6360	1915
24	1.21	5320	1970
25	1.160	4980	1976
26	1.115	4340	1913
27	1.074	4280	1959
28	1.036	3810	1916

MEAN ANNUAL FLOOD: 8070 CFS DRAINAGE AREA: ...

STANDARD DEVIATION: 2560 CFS

REMARKS: FLOW DIVERTED INTO BASIN SINCE 1958 (ASH RIVER POWER PLANT)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RECURRENCE INTERVAL IN YEARS

TSABLE RIVER NEAR FANNY BAY - STATION NO. 08HB024

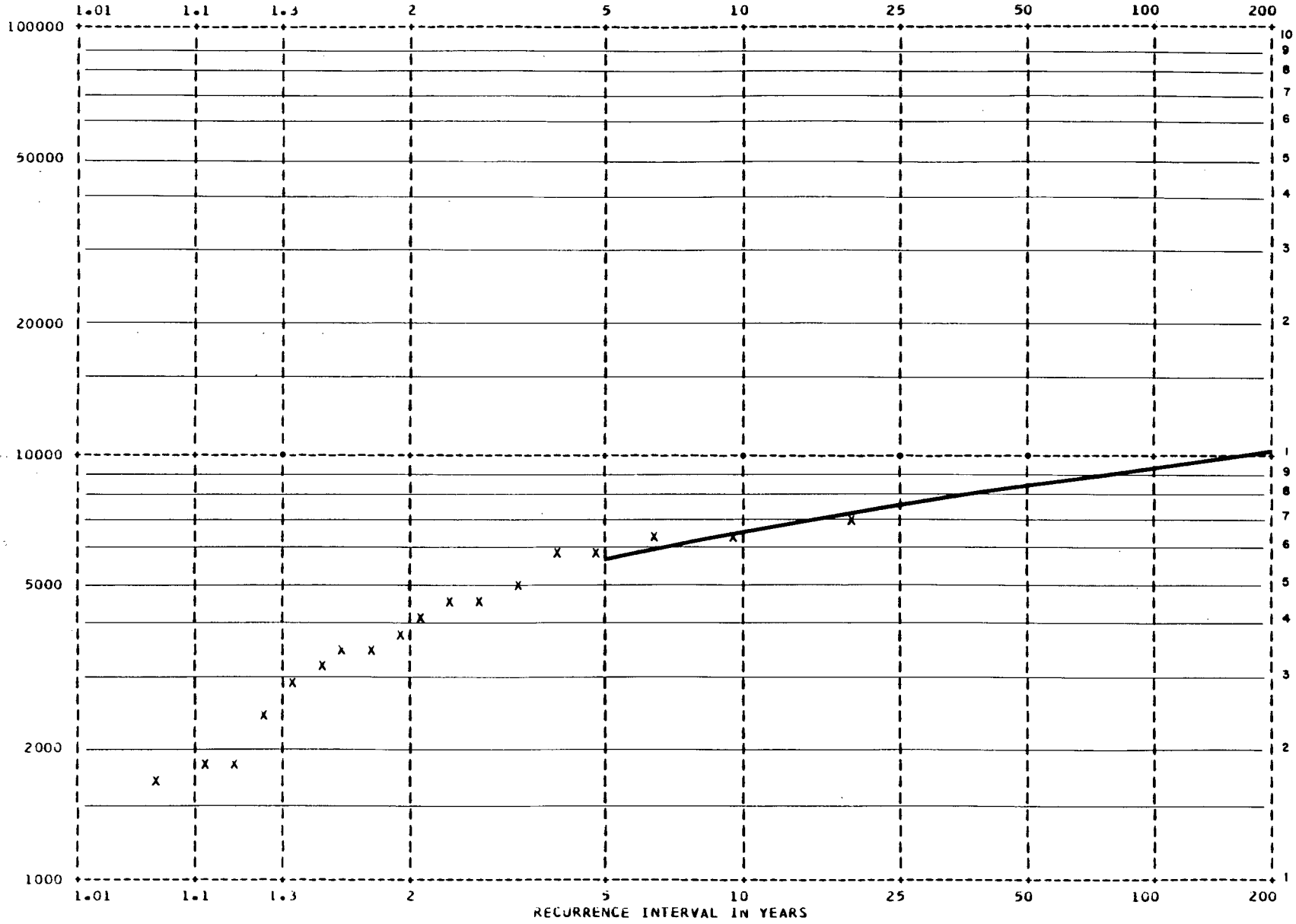
DATE	MAXIMUM DAILY FLOW IN CFS
12 DEC 1960	8100
11 JAN 1961	8100
24 NOV 1962	4150
21 OCT 1963	5630
30 NOV 1964	3260
18 NOV 1965	2220
28 NOV 1966	3400
10 DEC 1967	3480
29 OCT 1968	8000
22 NOV 1969	2350
9 APR 1970	2220
9 NOV 1971	3700
5 APR 1972	3850
15 JAN 1973	4750
15 JAN 1974	9220
13 NOV 1975	7000
31 OCT 1976	1360
28 OCT 1977	3750

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	19.0	9220	1974
2	9.5	8100	1960
3	6.3	8100	1961
4	4.75	8000	1968
5	3.80	7000	1975
6	3.17	5630	1963
7	2.71	4750	1973
8	2.38	4150	1962
9	2.11	3850	1972
10	1.90	3750	1977
11	1.73	3700	1971
12	1.58	3480	1967
13	1.46	3400	1966
14	1.36	3260	1964
15	1.27	2350	1969
16	1.188	2220	1965
17	1.118	2220	1970
18	1.056	1360	1976

MEAN ANNUAL FLOOD: 4700 CFS

STANDARD DEVIATION: 2400 CFS

DRAINAGE AREA: 43.5 SQ MI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1000
RECURRENCE INTERVAL IN YEARS

TSOLUM RIVER NEAR COURTENAY - STATION NO. 08HB011

DATE	MAXIMUM DAILY FLOW IN CFS
11 JAN 1915	1850
10 MAR 1916	1780
3 NOV 1955	4370
16 JAN 1956	3830
8 DEC 1964	2500
3 DEC 1965	3580
28 NOV 1966	5920
16 MAR 1967	3370
14 JAN 1968	6670
7 NOV 1969	4400
16 DEC 1970	3160
9 NOV 1971	6510
19 DEC 1972	4140
15 JAN 1973	6770
27 MAR 1974	4900
13 NOV 1975	6000
26 DEC 1976	1710
1 NOV 1977	2800

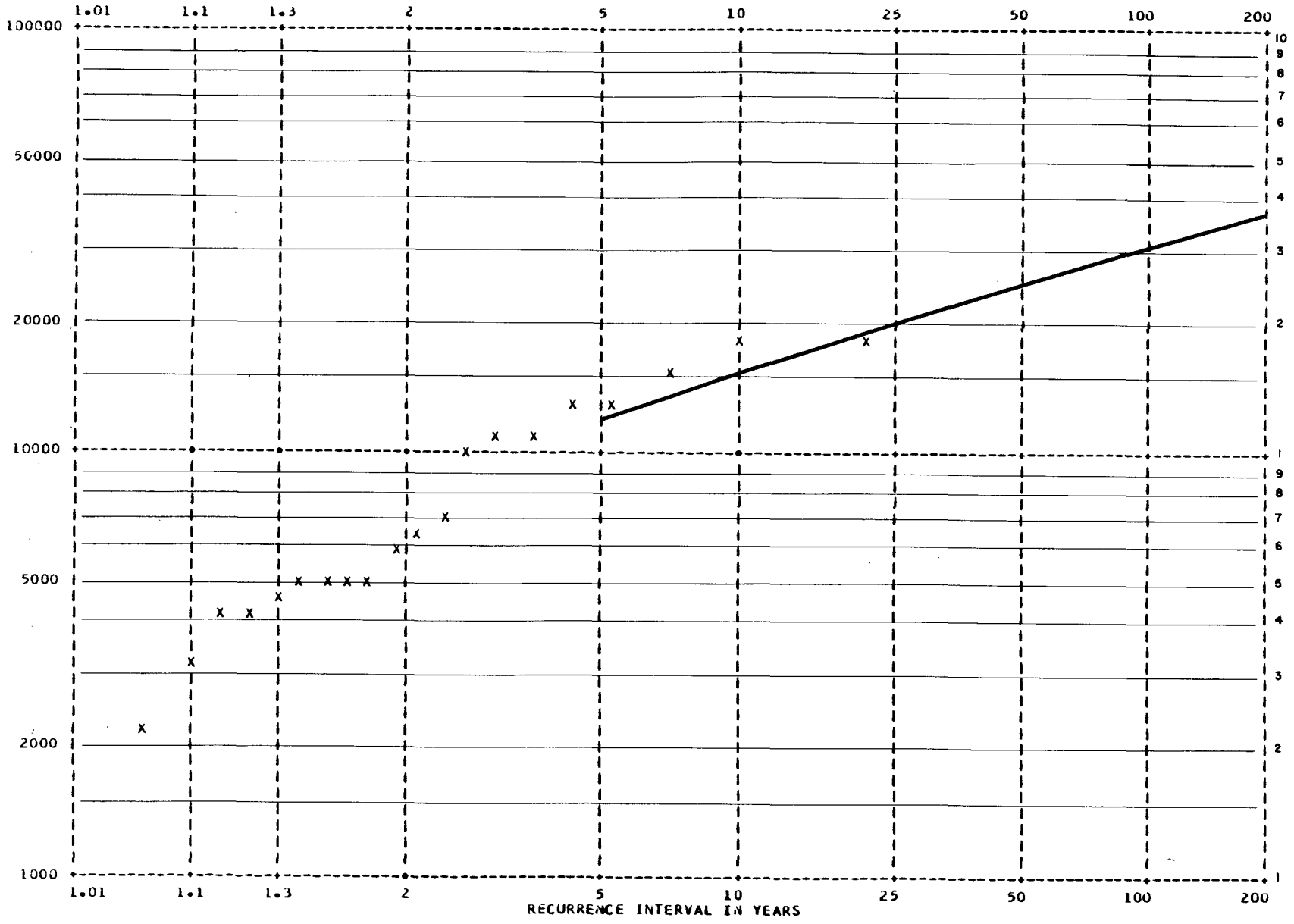
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	19.0	6770	1973
2	9.5	6670	1968
3	6.3	6510	1971
4	4.75	6000	1975
5	3.80	5920	1966
6	3.17	4900	1974
7	2.71	4400	1969
8	2.38	4370	1955
9	2.11	4140	1972
10	1.90	3830	1956
11	1.73	3580	1965
12	1.58	3370	1967
13	1.46	3160	1970
14	1.36	2800	1977
15	1.27	2500	1964
16	1.188	1850	1915
17	1.118	1780	1916
18	1.056	1710	1976

MEAN ANNUAL FLOOD: 4130 CFS

STANDARD DEVIATION: 1710 CFS

DRAINAGE AREA: 99.7 SQ MI

UCUNA RIVER AT THE MOUTH - STATION NO. 08HC002



UCONA RIVER AT THE MOUTH - STATION NO. 08HC002

DATE	MAXIMUM DAILY FLOW IN CFS
6 SEP 1957	4870
1 DEC 1958	16100
29 APR 1959	4940
15 JAN 1961	13600
19 NOV 1962	19400
6 FEB 1963	13300
30 NOV 1964	4010
21 OCT 1965	10600
29 MAR 1966	6620
10 DEC 1967	7110
20 JAN 1968	10600
20 NOV 1969	4250
23 JAN 1970	2170
9 NOV 1971	5870
17 MAR 1972	4700
15 DEC 1973	5120
15 JAN 1974	9700
13 NOV 1975	19100
17 NOV 1976	3150
23 OCT 1977	4850

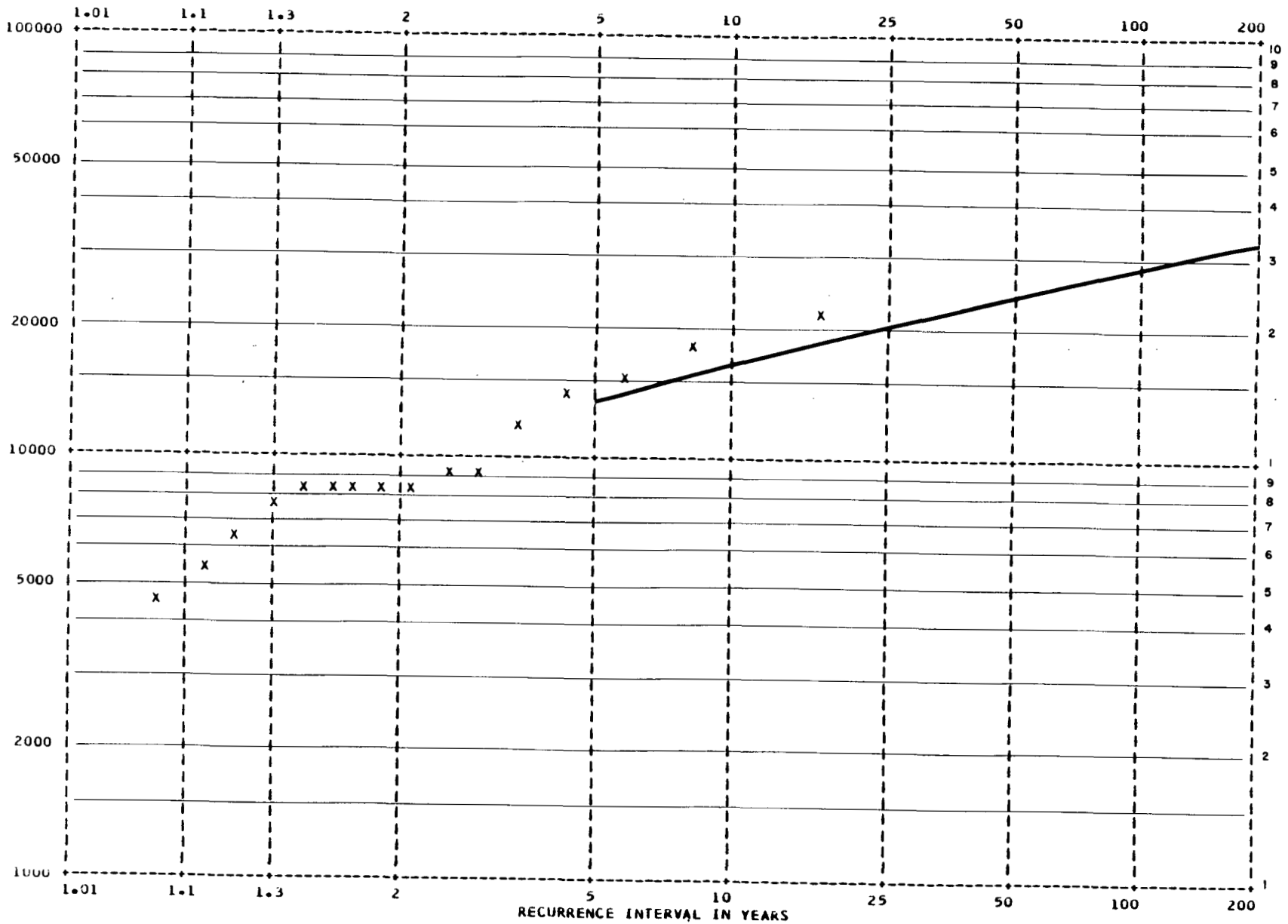
RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	21.0	19400	1962
2	10.5	19100	1975
3	7.0	16100	1958
4	5.3	13600	1961
5	4.20	13300	1963
6	3.50	10600	1965
7	3.00	10600	1968
8	2.63	9700	1974
9	2.33	7110	1967
10	2.10	6620	1966
11	1.91	5870	1971
12	1.75	5120	1973
13	1.62	4940	1959
14	1.50	4870	1957
15	1.40	4850	1977
16	1.31	4700	1972
17	1.24	4250	1969
18	1.167	4010	1964
19	1.105	3150	1976
20	1.050	2170	1970

MEAN ANNUAL FLOOD: 8500 CFS

STANDARD DEVIATION: 5290 CFS

DRAINAGE AREA: 71.5 SQ MI

YAKOUN RIVER NEAR PORT CLEMENTS - STATION NO. 08OA002



MAXIMUM DAILY MEAN FLOWS

YAKOUN RIVER NEAR PORT CLEMENTS - STATION NO. 08UA002

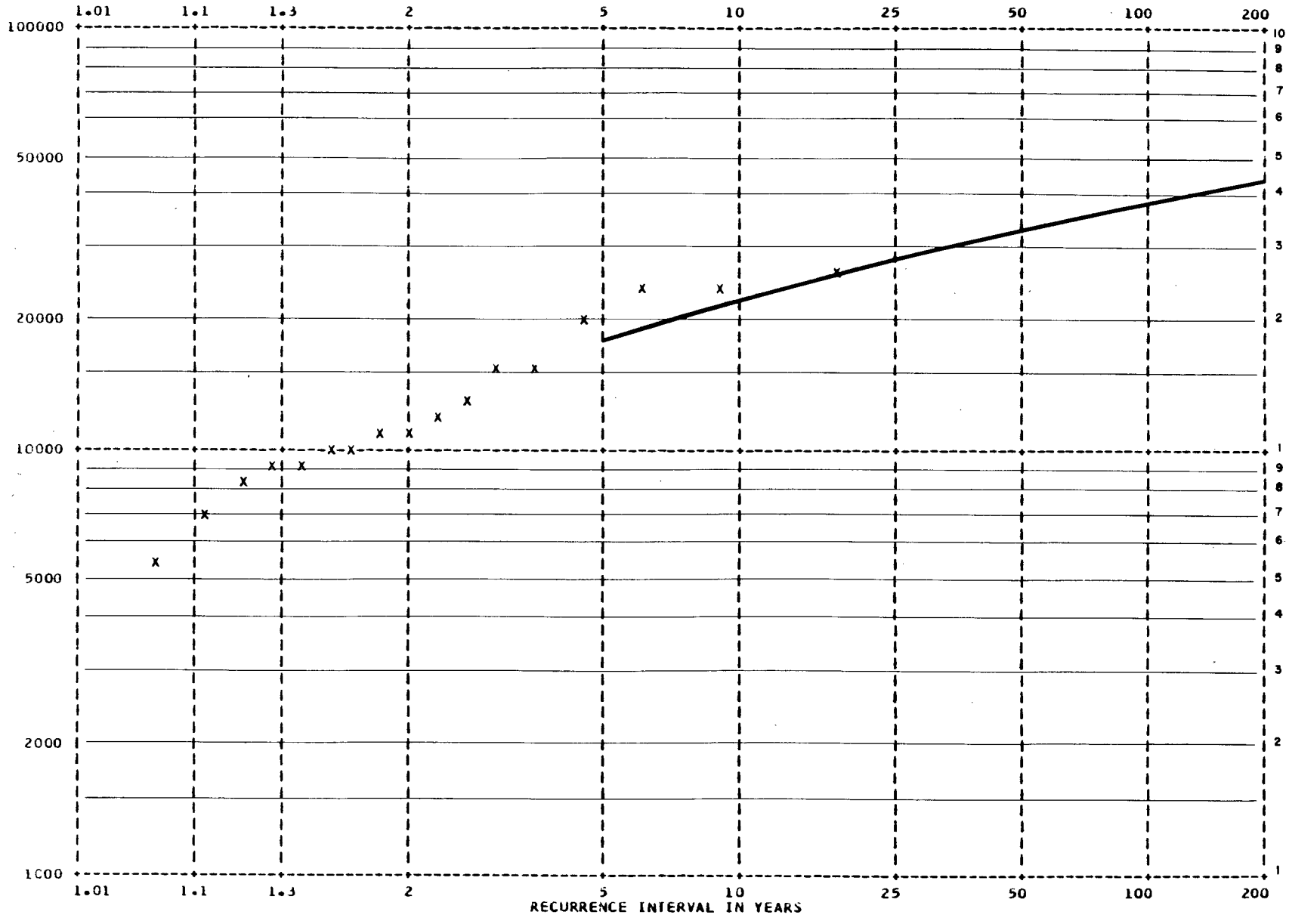
DATE	MAXIMUM DAILY FLOW IN CFS
5 DEC 1962	14000
28 NOV 1963	21600
19 OCT 1964	15300
30 NOV 1965	18000
18 OCT 1966	8070
3 DEC 1967	6190
19 NOV 1968	8600
29 NOV 1969	8910
21 JAN 1970	4640
1 DEC 1971	5240
15 JAN 1972	7810
23 JAN 1973	8140
9 OCT 1974	12200
12 NOV 1975	8250
4 NOV 1976	9140
25 OCT 1977	8220

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	17.0	21600	1963
2	8.5	18000	1965
3	5.7	15300	1964
4	4.25	14000	1962
5	3.40	12200	1974
6	2.83	9140	1976
7	2.43	8910	1969
8	2.13	8600	1968
9	1.89	8250	1975
10	1.70	8220	1977
11	1.55	8140	1973
12	1.42	8070	1966
13	1.31	7810	1972
14	1.21	6190	1967
15	1.133	5240	1971
16	1.063	4640	1970

MEAN ANNUAL FLOOD: 10300 CFS

STANDARD DEVIATION: 4720 CFS

DRAINAGE AREA: 184 SQ MI


1.01
1.1
1.3
2
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200
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50000
20000
10000
5000
2000
1000
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8
7
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3
2
1
RECURRENCE INTERVAL IN YEARS

ZEBALLOS RIVER NEAR ZEBALLOS - STATION NO. 08HE006

DATE	MAXIMUM DAILY FLOW IN CFS
12 DEC 1960	9500
11 JAN 1961	10700
5 DEC 1962	14900
6 FEB 1963	11200
30 NOV 1964	5200
29 MAR 1966	20600
2 FEB 1967	23900
24 OCT 1968	25000
19 NOV 1969	9670
15 MAY 1970	7130
8 NOV 1971	16200
16 MAR 1972	8030
15 DEC 1973	11600
15 JAN 1974	10300
13 NOV 1975	25700
15 DEC 1976	12500
22 OCT 1977	9220

RANK	RECURRENCE INTERVAL IN YEARS	MAXIMUM DAILY FLOW IN CFS	YEAR
1	18.0	25700	1975
2	9.0	25000	1968
3	6.0	23900	1967
4	4.50	20600	1966
5	3.60	16200	1971
6	3.00	14900	1962
7	2.57	12500	1976
8	2.25	11600	1973
9	2.00	11200	1963
10	1.80	10700	1961
11	1.64	10300	1974
12	1.50	9670	1969
13	1.38	9500	1960
14	1.29	9220	1977
15	1.20	8030	1972
16	1.125	7130	1970
17	1.059	5200	1964

MEAN ANNUAL FLOOD: 13600 CFS

STANDARD DEVIATION: 6450 CFS

DRAINAGE AREA: 69.8 SQ MI

EXTREME MAXIMUM DAILY FLOWS

STATION NUMBER	STATION NAME	DRAINAGE AREA IN SQ MI	DATE	MAXIMUM DAILY FLOW IN CFS	MAXIMUM RUNOFF IN CFS/SQ MI
08HB023	ASH RIVER BELOW MORAN CREEK	...	4 NOV 1975	18800	...
08HB016	ASH RIVER NEAR GREAT CENTRAL	...	1 DEC 1958	22000	...
08HE003	BENSON RIVER NEAR PORT ALICE	88.0	30 DEC 1926	11000	125
08HA016	BINGS CREEK NEAR THE MOUTH	6.0	14 JAN 1968	523	87.2
08HB025	BROWNS RIVER NEAR COURTENAY	33.2	29 OCT 1968	6450	194
08HD001	CAMPBELL RIVER AT OUTLET OF CAMPBELL LAKE	542	16 NOV 1939	30300	55.9
08HD003	CAMPBELL RIVER NEAR CAMPBELL RIVER	...	15 NOV 1953	28200	...
08HB048	CARNATION CREEK AT THE MOUTH	3.9	3 NOV 1975	490	126
08HA001	CHEMAINUS RIVER NEAR WESTHOLME	137	19 JAN 1968	16100	118
08HA002	COWICHAN RIVER AT LAKE COWICHAN	230	21 JAN 1968	11500	50.0
08HA011	COWICHAN RIVER NEAR DUNCAN	319	15 JAN 1961	19700	61.8
08HB030	ENOS CREEK AT OUTLET OF ENOS LAKE	0.65	7 JAN 1966	35.0	53.8
08HC001	GOLD RIVER BELOW UCONA RIVER	389	13 NOV 1975	66700	171
08HB045	GRAHAM CREEK AT THE MOUTH	1.3	13 NOV 1975	97.9	75.3
08HB003	HASLAM CREEK NEAR CASSIDY	36.9	4 NOV 1955	2300	62.3
08HB041	JUMP CREEK AT THE MOUTH	24.0	15 JAN 1974	3840	160
08HF003	KOKISH RIVER BELOW BONANZA RIVER	104	31 JAN 1935	11800	113
08HA003	KOKSILAH RIVER AT COWICHAN STATION	80.8	15 JAN 1961	6700	82.9
08HB004	LITTLE QUALICUM RIVER AT OUTLET OF CAMERON LAKE	52.0	16 JAN 1961	6690	129
08HB029	LITTLE QUALICUM RIVER NEAR QUALICUM BEACH	91.5	19 JAN 1968	5430	59.3
08HE001	MARBLE RIVER AT OUTLET OF ALICE LAKE	200	1 JAN 1927	17900	89.5
08HE002	MARBLE RIVER AT OUTLET OF VICTORIA LAKE	47.1	14 DEC 1952	7350	156
08HB027	MILLSTONE RIVER NEAR WELLINGTON	17.8	16 DEC 1973	791	44.4
08HB012	NAHMINT RIVER NEAR PORT ALBERNI	54.0	31 DEC 1926	8760	162
08HB034	NANAIMO RIVER NEAR CASSIDY	264	15 JAN 1961	44000	167
08HB022	NILE CREEK NEAR BOWSER	5.8	15 JAN 1974	1180	203
08HF002	NIMPKISH RIVER NEAR ENGLEWOOD	680	31 DEC 1926	45000	66.2
08QB002	PALLANT CREEK NEAR QUEEN CHARLOTTE	32.8	8 OCT 1974	3300	101
08QA003	PREMIER CREEK NEAR QUEEN CHARLOTTE	0.63	8 OCT 1974	9.6	15.2
08HB006	PUNTLEDGE RIVER AT COURTENAY	225	5 NOV 1975	11800	52.4
08HB007	PUNTLEDGE RIVER NEAR CUMBERLAND	175	2 DEC 1941	8920	51.0
08HB001	QUALICUM RIVER NEAR BOWSER	57.0	10 FEB 1918	7080	124
08HD005	QUINSAM RIVER NEAR CAMPBELL RIVER	108	19 JAN 1968	7700	71.3
08HB037	ROSEWALL CREEK AT THE MOUTH	16.7	15 DEC 1968	2540	152
08HD007	SALMON RIVER ABOVE MEMEKAY RIVER	173	15 JAN 1961	13600	78.6
08HD006	SALMON RIVER NEAR SAYWARD	463	13 NOV 1975	35100	75.8
08HA010	SAN JUAN RIVER NEAR PORT RENFREW	224	15 JAN 1961	34000	152
08HB014	SARITA RIVER NEAR BAMFIELD	62.7	29 JAN 1960	23900	381
08HB017	SOMASS RIVER NEAR ALBERNI	496	15 DEC 1962	40000	80.6
08HB008	SPROAT RIVER NEAR ALBERNI	134	20 JAN 1968	12900	96.3
08HB010	STAMP RIVER NEAR ALBERNI	347	3 JAN 1918	27500	79.3
08HB009	STAMP RIVER NEAR GREAT CENTRAL	...	5 NOV 1975	13500	...
08HB024	TSABLE RIVER NEAR FANNY BAY	43.5	15 JAN 1974	9220	212
08HB011	TSOLUM RIVER NEAR COURTENAY	99.7	15 JAN 1973	6770	67.9
08HC002	UCONA RIVER AT THE MOUTH	71.5	19 NOV 1962	19400	271
08QA002	YAKOUN RIVER NEAR PORT CLEMENTS	184	28 NOV 1963	21600	117
08HE006	ZEBALLOS RIVER NEAR ZEBALLOS	69.8	13 NOV 1975	25700	368

PERIOD OF RECORD OF MAXIMUM DAILY FLOWS

STATION NUMBER	NO. OF YEARS OF RECORD	1901234 56789	1901234 56789	1902234 56789	1903234 56789	1904234 56789	1905234 56789	1906234 56789	1907234 56789
08HB023	18	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XXXXX XXXXX	XXXXX XXX--
08HB016	10	----- -----	----- -----	----- -----	----- -----	----- -----	----- -XXXX	XXXXX X----	----- -----
08HE003	6	----- -----	----- -----	----- XXXXX	X---- -----	----- -----	----- -----	----- -----	----- -----
08HA016	14	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	--XXX X--XX	XXXXX XXX--
08HB025	8	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XX-X- -XXXX	X---- -----
08HD001	38	----- -----	-XXXX XXXXX	XXXXX XXXXX	XXXXX XXXXX	XXXXX XXXX-	----- -----	----- -----	----- -----
08HD003	22	----- -----	----- -----	----- -----	----- -----	----- ----X	XXXXX XXXXX	XXXXX XXXXX	X---- -----
08HB048	5	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	---XX XXX--
08HA001	24	----- -----	----- XX---	----- -----	----- -----	----- -----	---XX XXXXX	XXXXX XXXXX	XX--- XXX--
08HA002	43	----- -----	----X XXXX-	----- -----	----- -----	XXXXX XXXXX	XXXXX XXXXX	XXXXX XXXXX	XXXXX XXX--
08HA011	17	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XXXX- XXXXX	XXXXX XXX--
08HB030	16	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	--XXX XXXXX	XXXXX XXX--
08HC001	20	----- -----	----- -----	----- -----	----- -----	----- -----	----- -XXXX	XX--X XXXXX	XXXXX XXX--
08HB045	6	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	--XXX XXX--
08HB003	13	----- -----	----- X----	----- -----	----- -----	----- ----X	XXXXX XXXX-	XX--- -----	----- -----
08HB041	7	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	-XXXX XXX--
08HF003	27	----- -----	----- -----	----- --XXX	XXXXX XXXXX	X---- -----	----- ---XX	XXXXX XXXXX	X---- -----
08HA003	20	----- -----	----- XX---	----- -----	----- -----	----- -----	----- -----	XXXXX XXXXX	XXXXX XXX--
08HB004	26	----- -----	---XX XXXXX	XX--- -----	----- -----	----- -----	----- -----	-XXXX XXXXX	XXXXX XXX--
08HB029	17	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	X-XXX XXXXX	XXXXX XXX--
08HE001	9	----- -----	----- -----	----- XXXXX	XXX-- -----	----- -----	----- -----	----- -----	X---- -----
08HE002	23	----- -----	----- -----	----- XXXXX	XXXXX XXXXX	XX--- --XXX	XXX-- -----	----- -----	----- -----
08HB027	8	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	--XX- ----X	XXXXX -----
08HB012	7	----- -----	----- -----	----X XXXXX	X---- -----	----- -----	----- -----	----- -----	----- -----
08HB034	42	----- -----	---XX XXXXX	XXXXX XXX--	----- -----	----- ----X	XXXXX X-XXX	XXXX- XXXXX	XXXXX XXX--
08HB022	18	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XXXXX XXXXX	XXXXX XXX--
08HF002	11	----- -----	----- -----	----- -XXXX	XXXXX X-X--	----- -----	----- -----	----- -----	----- -----
08OB002	11	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- --XXX	XXXXX XXX--
08OA003	7	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	-XXXX XXX--
08HB006	20	----- -----	----- XXXXX	----- -----	----- -----	----- -----	----- XX---	----- XXXXX	XXXXX XXX--
08HB007	39	----- -----	----X XXXXX	XXXXX XXXXX	XXXXX XXXXX	XXXXX XXXXX	XXX-- -----	----- -----	----- -----
08HB001	25	----- -----	---XX XXXXX	XX--- -----	----- -----	----- -----	----- ----X	XXXXX XXXXX	XXXXX -----
08HD005	21	----- -----	----- -----	----- -----	----- -----	----- -----	----- --XXX	XXXXX XXXXX	XXXXX XXX--
08HB037	7	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- ---XX	XXX-- -XX--
08HD007	18	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XXXXX XXXXX	XXXXX XXX--
08HD006	13	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	----- XXXXX	XXXXX XXX--
08HA010	17	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XX-XX XXXXX	XXXXX XXX--
08HB014	25	----- -----	----- -----	----- -----	----- -----	----- ----X	XXXXX XXXXX	XXXXX XXXXX	XXX-- --X--
08HB017	17	----- -----	----- -----	----- -----	----- -----	----- -----	----- --XXX	X-XXX XXXX-	-XX-X XXX--
08HB008	57	----- -----	---XX XXXXX	XXXXX XXXXX	XX--- ----X	-XXXX XXXXX	XXXXX XXXXX	XXXXX XXXXX	XXXXX XXX--
08HB010	55	----- -----	----X XXXXX	XXXXX XXXXX	XX--- -----	-XXXX XXXXX	XXXXX XXXXX	XXXXX XXXXX	XXXXX XXX--
08HB009	28	----- -----	---XX XXXXX	-X--- -----	----- -----	----- -----	----- ---XX	XXXXX XXXXX	XXXXX XXX--
08HB024	18	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XXXXX XXXXX	XXXXX XXX--
08HB011	18	----- -----	----- XX---	----- -----	----- -----	----- -----	----- XX---	----X XXXXX	XXXXX XXX--
08HC002	20	----- -----	----- -----	----- -----	----- -----	----- -----	----- --XXX	-XXXX XXXXX	XXXXX XXX--
08OA002	16	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	--XXX XXXXX	XXXXX XXX--
08HE006	17	----- -----	----- -----	----- -----	----- -----	----- -----	----- -----	XXXXX -XXXX	XXXXX XXX--

FLOOD ESTIMATES FROM PROBABILITY DISTRIBUTIONS

Station Number	River or Creek	Return Period in years	Gumbel I	Lognormal	Three Parameter Lognormal	Power Transformation	Log Pearson III by the method of: Max. Likelihood	Log Pearson III by the method of: Moments
08HB023	Ash*	50	21900	27800	31900	26400	----	27100
		100	24600	33200	39600	31000	----	32100
		200	27400	39100	48200	35800	----	37400
08HB016	Ash*	50	----	----	----	43000	----	----
		100	----	----	----	62600	----	----
		200	----	----	----	92700	----	----
08HA016	Bings	50	523	565	651	673	638	617
		100	578	631	761	817	755	715
		200	633	699	880	994	886	822
08HD001	Campbell	50	27200	27800	33000	32600	33700	30400
		100	29800	30400	38200	38800	39800	34400
		200	32400	33100	43900	46800	46900	38800
08HD003	Campbell*	50	32400	37200	26700	26700	26700	25700
		100	36200	42900	28500	28500	28100	26500
		200	39900	48900	30200	30100	29200	27200
08HA001	Chemainus	50	13700	13700	14100	14100	14000	14600
		100	15000	14900	15500	15600	15400	16200
		200	16300	16100	16800	17200	16900	17900
08HA002	Cowichan	50	11200	11000	11600	11300	11500	11300
		100	12300	12000	12700	12500	12600	12400
		200	13300	12900	13900	13600	13800	13500
08HA011	Cowichan	50	20400	21400	25500	22300	24600	21900
		100	22500	23800	29900	25400	29000	24600
		200	24700	26300	34800	28700	34000	27500
08HB030	Enos	50	42	45	42	40	37	42
		100	47	51	46	44	39	46
		200	51	56	50	47	41	50
08HC001	Gold	50	72600	75800	80100	77700	78200	77500
		100	80200	84200	90400	87500	88300	86900
		200	87700	92700	101000	97700	98900	96500
08HB003	Haslam	50	2720	2870	3120	2920	----	2890
		100	3010	3190	3570	3270	----	3230
		200	3290	3530	4040	3630	----	3570
08HF003	Kokish	50	8020	8910	11000	11800	11200	11100
		100	8900	10100	13400	15900	13900	13800
		200	9770	11200	16100	22300	17300	17000
08HA003	Koksilah	50	8920	8710	----	7380	----	7660
		100	9820	9540	----	7730	----	8050
		200	10700	10400	----	8050	----	8390

* Values not presented on frequency plots.

---- Cannot be fitted.

FLOOD ESTIMATES FROM PROBABILITY DISTRIBUTIONS

Station Number	River or Creek	Return Period in years	Gumbel I	Log Normal	Three Parameter Lognormal	Power Transformation	Log Pearson III by the method of: Max. Likelihood	Log Pearson III by the method of: Moments
08HB004	Little Qualicum	50	5640	6630	8220	9240	8630	7460
		100	6320	7720	10200	12900	11200	9160
		200	7000	8880	12500	18500	14500	11000
08HB029	Little Qualicum	50	7060	7730	8260	6880	----	7410
		100	7860	8790	9570	7540	----	8300
		200	8670	9890	11000	8180	----	9200
08HE002	Marble	50	8770	9200	9750	9400	----	9280
		100	9700	10300	11100	10600	----	10400
		200	10600	11300	12500	11700	----	11500
08HB034	Nanaimo	50	36500	39300	40100	39900	39700	40200
		100	40500	44400	45500	45500	45100	45800
		200	44600	49600	51100	51300	50700	51600
08HB022	Nile	50	1010	1050	1110	1130	1090	1130
		100	1110	1160	1250	1290	1230	1290
		200	1210	1270	1390	1460	1380	1460
08HF002	Nimpkish	50	62700	65800	----	53200	----	60500
		100	69400	73600	----	56100	----	65800
		200	76200	81600	----	58800	----	70800
08OB002	Pallant	50	3220	3310	3860	3830	3760	3670
		100	3500	3590	4410	4630	4320	4150
		200	3780	3860	5000	5740	4960	4670
08HB006	Puntledge	50	14100	14800	12400	12300	11900	11800
		100	15600	16700	13300	13200	12500	12400
		200	17100	18600	14200	14000	13000	12800
08HB007	Puntledge	50	8330	8410	8680	8640	8660	8700
		100	9160	9220	9620	9620	9630	9670
		200	9980	10000	10600	10600	10600	10700
08HB001	Qualicum*	50	3440	4090	4970	----	5070	5680
		100	3870	4780	6210	----	6610	7720
		200	4280	5520	7650	----	8570	10400
08HD005	Quinsam	50	5680	6520	7340	7280	7090	7210
		100	6340	7500	8740	8800	8490	8630
		200	7000	8530	10300	10600	10100	10200
08HD007	Salmon	50	17000	18800	17100	16400	----	16800
		100	19000	21500	19000	18000	----	18400
		200	20900	24200	20800	19400	----	20000
08HD006	Salmon	50	39000	38400	35900	36000	35200	34800
		100	42800	41900	38500	38500	37600	36800
		200	46600	45500	41100	41000	39900	38600

* Values not presented on frequency plots.

---- Cannot be fitted.

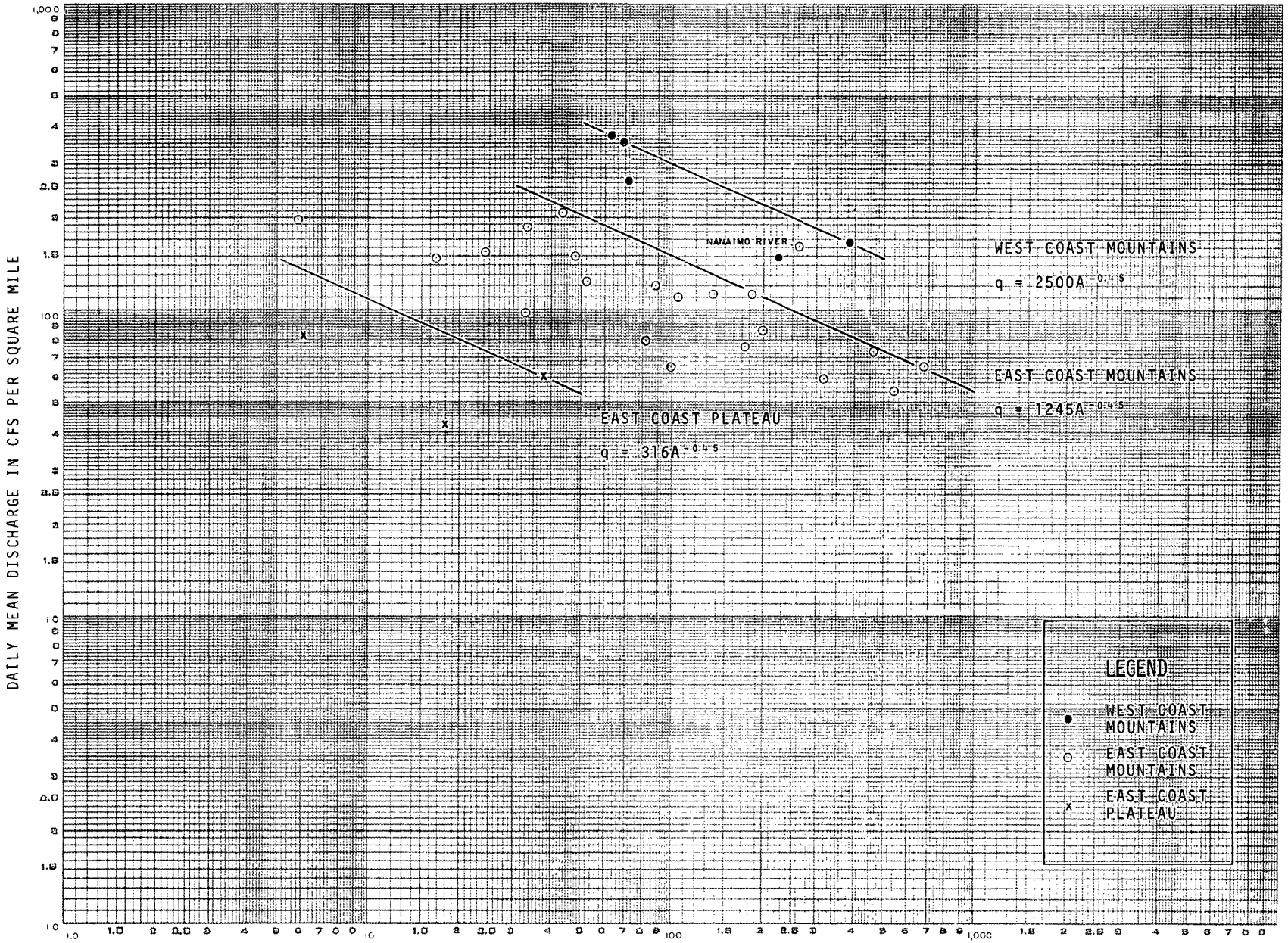
FLOOD ESTIMATES FROM PROBABILITY DISTRIBUTIONS

Station Number	River of Creek	Return Period in years	Gumbel I	Lognormal	Three Parameter Lognormal	Power Transformation	Log Pearson III by the method of: Max. Likelihood	Moments
08HA010	San Juan	50	39000	39400	41600	42000	40700	40600
		100	42700	43000	46200	46800	45200	44800
		200	46400	46600	51000	51800	49900	49200
08HB014	Sarita	50	23800	26700	32900	31200	33400	29100
		100	26500	30600	40000	38900	41800	34400
		200	29200	34600	48000	48600	52000	40300
08HB017	Somass	50	48300	50800	49100	47200	42800	48400
		100	53500	56900	54500	51500	45300	53200
		200	58700	63100	59900	55700	47500	58000
08HB008	Sproat	50	12800	13000	12700	12400	12200	12500
		100	14200	14400	13900	13500	13300	13700
		200	15500	15800	15100	14700	14300	14800
08HB010	Stamp	50	29600	30600	31900	30900	----	30700
		100	32700	34000	35900	34500	----	34200
		200	35900	37600	40100	38200	----	37800
08HB009	Stamp*	50	15400	15200	14200	14000	13500	14300
		100	17000	16600	15200	14900	14200	15300
		200	18500	18100	16200	15800	14800	16200
08HB024	Tsable	50	10700	12400	12100	11400	10300	11700
		100	12000	14300	13900	12800	11100	13200
		200	13200	16400	15800	14300	12000	14800
08HB011	Tsolum	50	8930	9580	8290	7980	----	8610
		100	9930	10800	9010	8580	----	9390
		200	10900	12100	9720	9130	----	10100
08HC002	Ucona	50	20500	25300	27900	26800	26900	26200
		100	23100	30000	33900	32500	32700	31400
		200	25600	35000	40500	38900	39400	37200
08OA002	Yakoun	50	20700	22500	25500	25000	25000	24600
		100	22900	25300	29700	29900	29400	28600
		200	25200	28100	34300	35600	34300	33000
08HE006	Zeballos	50	28600	31600	33900	33500	33200	33100
		100	31800	35700	39300	39100	38500	38100
		200	34900	40100	45000	45300	44400	43500

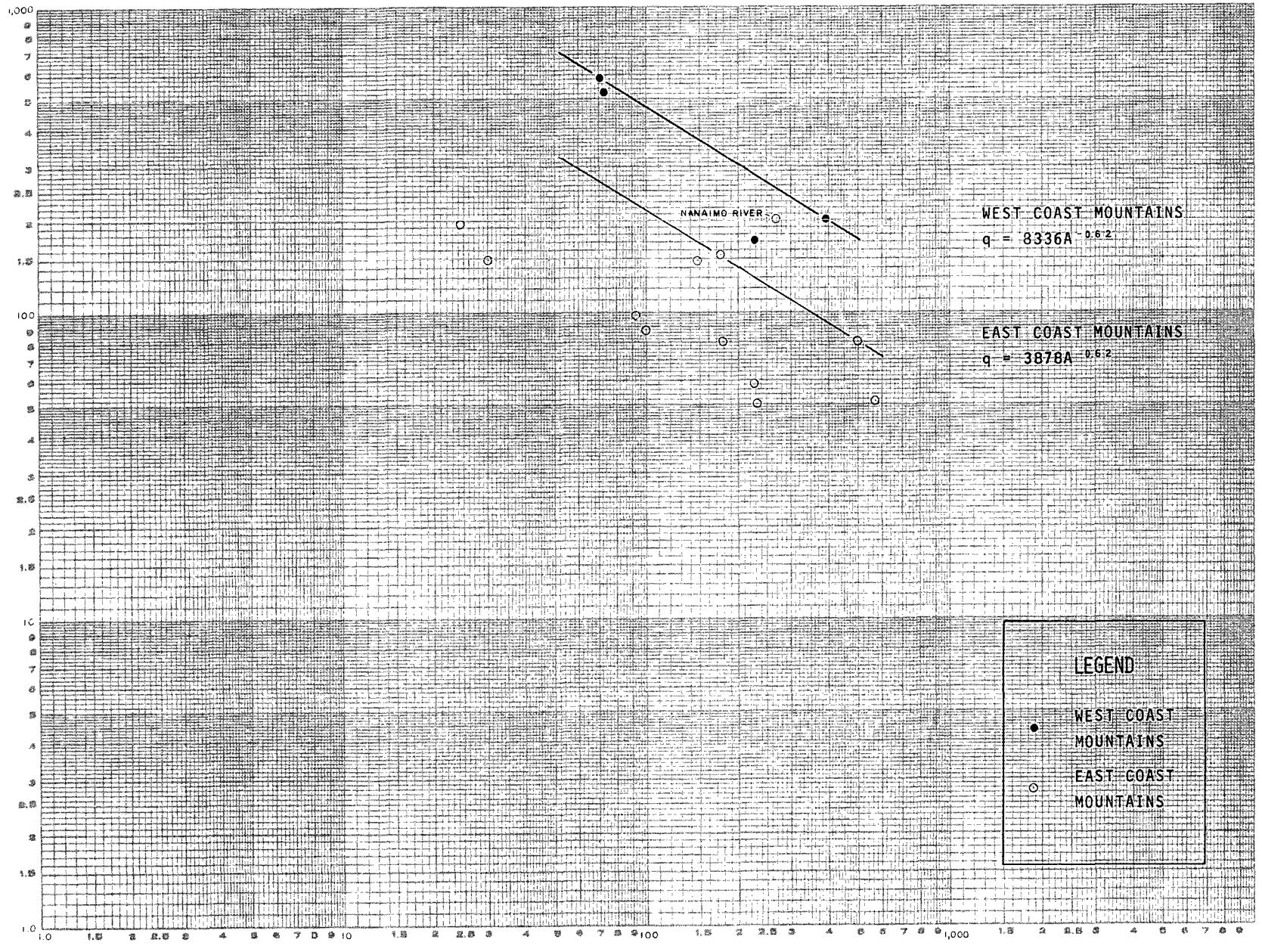
* Values not presented on frequency plots.

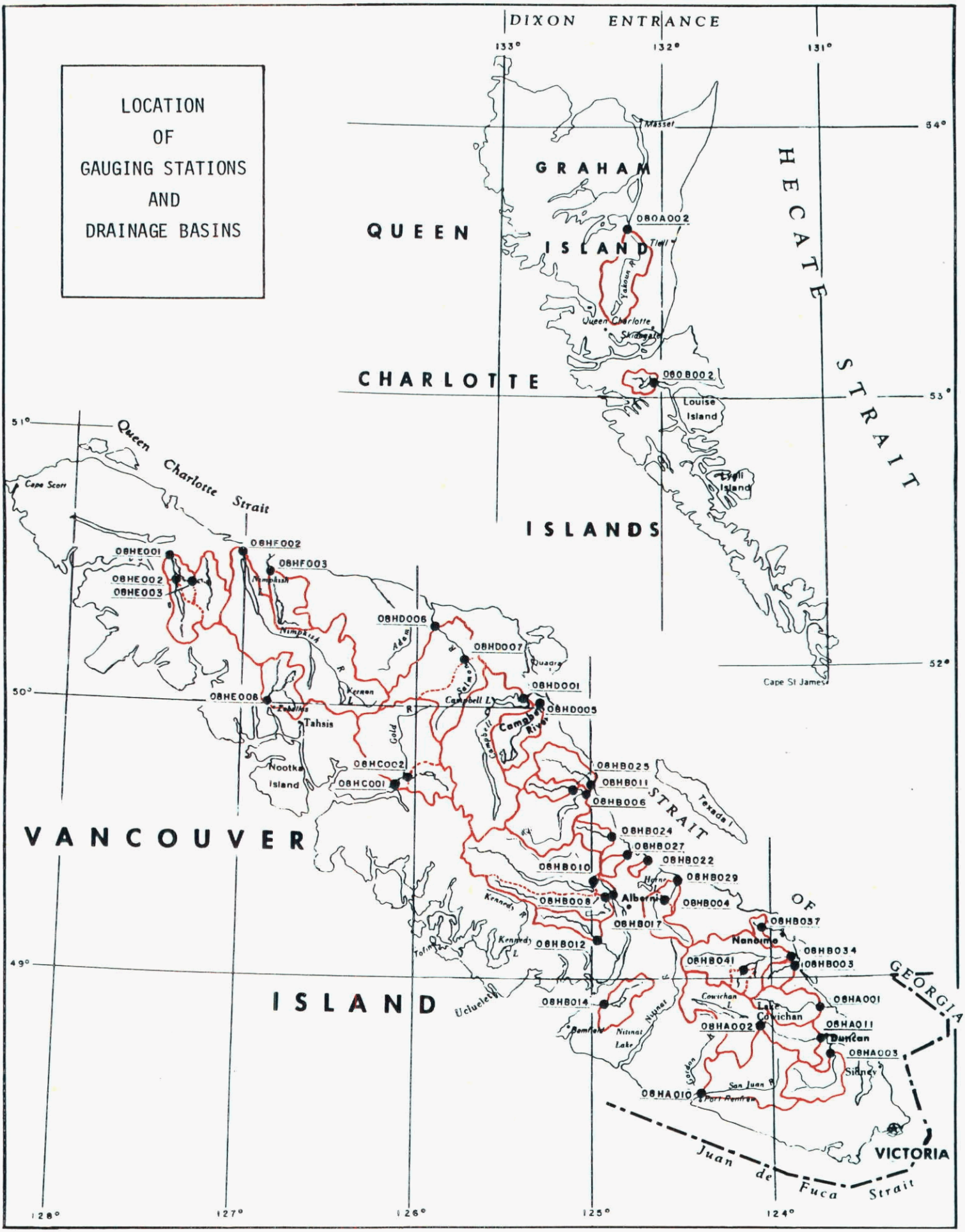
---- Cannot be fitted.

ENVELOPE CURVE OF EXTREME FLOODS ON VANCOUVER AND QUEEN CHARLOTTE ISLANDS



ENVELOPE CURVE OF EXTREME FLOODS ON VANCOUVER AND QUEEN CHARLOTTE ISLANDS




LOCATION
OF
GAUGING STATIONS
AND
DRAINAGE BASINS
DIXON ENTRANCE
133°
132°
131°
54°
53°
52°
51°
50°
49°
128°
127°
126°
125°
124°
Masset
GRAHAM
ISLAND
QUEEN
CHARLOTTE
ISLANDS
HECATE STRAIT
080A002
Tlell
Yakoun R.
Queen Charlotte
Skidegate
080B002
Louise Island
Tlell Island
Cape St James
Queen Charlotte Strait
Cape Scott
08HE001
08HE002
08HE003
08HF002
08HF003
Nimpkish R.
Nimpkish L.
08HD006
Adam R.
08HD007
Quadra
08HE008
Zeballos
Tahsis
Kennen L.
Salmon R.
Campbell L.
08HD001
08HD005
Campbell River
Gold R.
Leiner R.
08HC002
08HC001
Nootka Island
08HB025
08HB011
08HB006
Texada I.
STRAIT OF GEORGIA
VANCOUVER
ISLAND
08HB024
08HB027
08HB022
08HB010
08HB029
Horne L.
Alberni
08HB008
08HB004
Kennedy R.
08HB017
08HB037
Nanaimo
08HB012
Kennedy L.
08HB034
08HB003
08HB041
Ucluelet
08HB014
Cowichan L.
Lake Cowichan
08HA001
08HA011
Nitinat R.
Bamfield
Nitinat Lake
08HA002
Duncan
08HA003
Sidney
Jordan R.
San Juan R.
08HA010
Port Renfrew
Juan de Fuca Strait
VICTORIA