

DEPARTMENT OF THE INTERIOR—CANADA

Hon. A. MEIGHEN, Minister; W. W. CORY, Deputy Minister

DOMINION WATER POWER BRANCH

J. B. CHALLIES, C.E., Director

WATER RESOURCES PAPER No. 23

REPORT
OF THE
HYDROMETRIC SURVEY
OF
BRITISH COLUMBIA
FOR
Climatic Years 1916-17, and 1917-18

BY
R. G. SWAN, B.A.Sc.,
Chief Engineer

Prepared under the supervision of the Director of Water Power



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OTTAWA,

*To His Excellency the Duke of Devonshire, K.G., P.C., G.C.M.G., G.C.V.O., etc.,
etc., Governor General and Commander in Chief of the Dominion of Canada.*

MAY IT PLEASE YOUR EXCELLENCY:

The undersigned has the honour to lay before Your Excellency the Report of the Hydrometric Survey of British Columbia for the Climatic Years 1916-17, and 1917-18.

Respectfully submitted,

ARTHUR MEIGHEN,
Minister of the Interior.

OTTAWA, MAY 1, 1919.

DEPARTMENT OF THE INTERIOR,

OTTAWA May 1, 1919.

The Hon. ARTHUR MEIGHEN,
Minister of the Interior.

SIR,—I have the honour to submit the Report of The Hydrometric Survey of British Columbia for the Climatic Years 1916-17, and 1917-18, and to recommend that it be published as Water Resources Paper No. 23 of the Dominion Water Power Branch.

I have the honour to be Sir,

Your obedient servant,

W. W. CORY,
Deputy Minister of the Interior.

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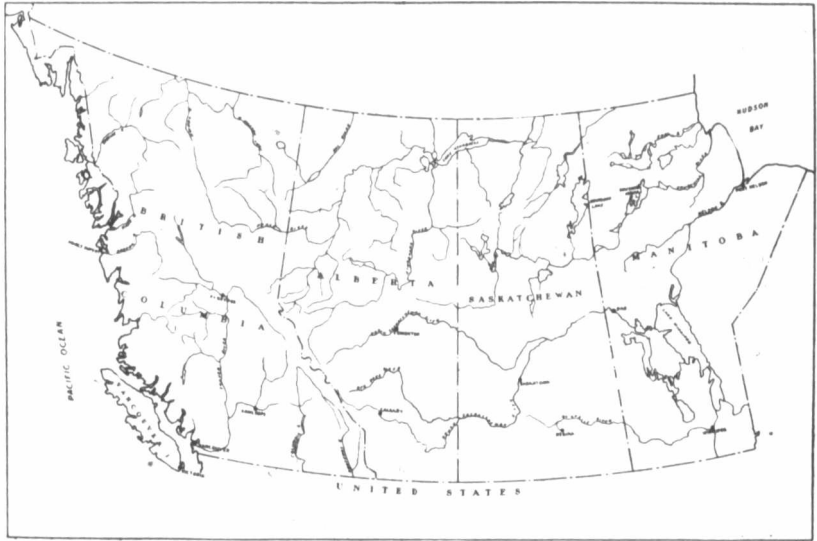
CHAPTER I.
REPORT OF THE CHIEF ENGINEER.
INTRODUCTION

This volume is the sixth report presenting data of stream flow in the province of British Columbia.

The work of collecting data on the streams of British Columbia was commenced in the year 1911 by the Dominion Water Power Branch of the Department of the Interior, and was originally carried on by the Railway Belt Hydrographic Survey whose operations were confined to that portion of the province known as the Railway Belt.

In 1913 an agreement was reached between the Dominion Government and the Government of the province, whereby the scope of the work undertaken by the Federal Government was extended to include the entire area of the province, and the name of the organization in charge of the collection of stream flow data was consequently changed to the Hydrometric Survey of British Columbia.

HYDROMETRIC OR STREAM MEASUREMENT OPERATIONS IN WESTERN CANADA.



The hydrometric survey operations in the provinces of Alberta and Saskatchewan are carried on by the Reclamation Service. Information can be obtained from the Director of the Reclamation Service at Ottawa or the Commissioner of Reclamation at Calgary, Alberta.

The hydrometric survey operations in the Province of Manitoba are carried on by the Dominion Water Power Branch. Information can be obtained from the Director at Ottawa or from the Chief Engineer of the Hydrometric Survey of Manitoba at Winnipeg.

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The hydrometric survey operations in the Province of British Columbia are carried on by the Dominion Water Power Branch in co-operation with the Provincial Water Rights Branch. Information can be obtained from the Director of Water Power at Ottawa or from the Chief Engineer of the Hydrometric Survey of British Columbia at Vancouver.

ORGANIZATION AND SCOPE OF WORK

Owing to the shortage of staff occasioned by the resignation of several members, it has not been possible to continue the work of collecting hydrometric data on the same scale as in 1916. It became imperative to postpone the investigations commenced in the Fort George District until conditions generally became more settled, and it was decided, in the meantime, to concentrate upon the southern and more thickly settled portion of the province, because the information there is likely to be required for practical purposes at an earlier date.

The services of the engineers of this staff have from time to time been utilized by other Dominion Government Departments, which are without engineers in the province, in connection with investigations which require engineering knowledge.

DIVISIONS AND DISTRICTS

The system followed of dividing the territory under investigation by the survey into divisions for the purpose of organization, and of sub-dividing the divisions into districts with a view to economical maintenance has been found quite satisfactory and no change has been made.

The divisions are known as Coast, Kamloops and Nelson and each division comprises three districts.

Below are listed the stations maintained in each district. The first list includes the regular gauging stations for which daily discharge records are available. The second list includes the miscellaneous metering stations, that is, stations for which continuous records are not available. Daily gauge records for some of the stations on the second list have been secured, but owing to unsatisfactory ratings it has not been found possible to publish daily discharges in this report.

Coast Division—List of Regular Gauging Stations.

SOUTHERN DISTRICT.

Index Number	Stream	Location
8MH 14	Alouette	Tp. 4, Rge. 4, W. 7 M.
8GA 1	Belknap	Tp. 6, Rge. 7, W. 7 M.
8GA 9	Belknap	Tp. 7, Rge. 7, W. 7 M.
8MF 2	Boulder	Tp. 3, Rge. 27, W. 7 M.
8GA 8	Brandt	Indian River.
8GA 10	Caplano	Near North Vancouver—Water District of Vancouver.
8MH 1	Chilliwack	Tp. 23, E. C. M.
8MF 3	Coquihala	Tp. 5, Rge. 26, W. 6 M.
8MF 14	Elk	Tp. 27, E. C. M.
8GA 13	Flume	Six miles from head of Burrard Inlet—Water District of Vancouver.
8MF 5	Fraser	Tp. 5, Rge. 26, W. 6 M.
8GA 11	Hixon*	Indian River.
8GA 18	Isco No. 2*	Burrard Inlet.
8GA 15	Isco No. 5*	Burrard Inlet.
8MF 6	Jones*	Tp. 3, Rge. 27, W. 6 M.
8GA 12	Lynn	Near North Vancouver—Water District of Vancouver.
8GA 5	Mesliloet	Tp. 7, Rge. 7, W. 7 M.
8MF 12	Nicolum	Tp. 4, Rge. 5, W. 6 M.
8GA 6	Norton	Tp. 7, Rge. 7, W. 7 M.
8GA 13	Seymour	Near North Vancouver—Water District of Vancouver.
8NL 1	SKERT	Four miles from International Boundary—Water District of Ashcroft.
8NL 2	Sumallo	Near Railway Belt Boundary—Water District of Ashcroft.
8NL 3	Sumallo*	Tp. 3, Rge. 24, W. 6 M.
8GA 7	Young*	Tp. 7, Rge. 7, W. 7 M.

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8GA 1
8ME 1
8ME 2
8GA 1
8MF 11
8MD 1
8MG 3
8MG 5
8MD 2
8ME 3
8MF 13

Index
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8HB 1
8HD 1
8HA 1
8HA 2
8HB 2
8HA 3
8HB 4
8HD 5
8HD 2
8HB 6
8HB 7
8HA 4
8HD 8
8HB 9
8HD 10
8HB 11

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Coast Division—Concluded.

LILLOOET DISTRICT.

Index Number	Stream	Location
SGA 16	Brandywine	Near Brew, one mile above mouth—Water District of Vancouver.
8ME 1	Bridge	Ten miles from Shalalth—30 miles above mouth—Lillooet Water District.
8ME 2	Cayuse	Near Lillooet—Above Seton Creek—Lillooet Water District.
SGA 17	Cheukamus	Near Watson—P. G. E. Ry.—Vancouver Water District.
8MF 10	Foster Bar	Twenty-three miles south from Lillooet. Lillooet Water District.
8MD 1	Fontain	Nine miles north from Lillooet—Lillooet Water District.
8MG 1	Green	At Nairn Falls.
8MG 2	Lillooet	Near Pemberton—New Westminster Water District.
8MD 2	Pavilion	Near Pavilion—Lillooet Water District.
8ME 3	Seton	Below Seton Lake—Lillooet Water District.
8MF 13	Texas	14 miles south of Lillooet—Lillooet Water District.

VANCOUVER ISLAND DISTRICT.

Index Number	Stream	Location
8HB 1	Big Qualicum	One and a half mile above mouth—Nanaimo Water District.
8HD 1	Campbell	At Campbell Lake—Nanaimo Water District.
8HA 1	Chemainus*	One mile above mouth, near Chemainus—Victoria Water District.
8HA 2	Cowichan	At Cowichan Lake—Victoria Water District.
8HB 2	Englishmans*	One and a half mile above mouth, near Parksville—Nanaimo Water District.
8HA 3	Koksilah*	Two miles above mouth, near Duncan—Victoria Water District.
8HB 4	Little Qualicum	At Cameron Lake, B.C.—Nanaimo Water District.
8HB 5	Nanaimo*	Six miles above mouth—Nanaimo Water District.
8HD 2	Oyster*	One mile above mouth—Nanaimo Water District.
8HR 4	Puntledge	One mile above mouth, near Courtenay—Nanaimo Water District.
8HB 7	Puntledge	Diversion Dam, above Canadian Collieries Power Plant—Nanaimo Water District.
8HA 4	Shawnigan*	At Shawnigan Lake, Koenigs, B.C.—Victoria Water District.
8HD 3	Sproat	At Sproat Lake.
8HB 9	Stamp	At Great Central Lake.
8HB 10	Stamp	One half mile above Stamp Falls—Alberni Water District.
8HB 11	Tsolum*	Three miles above mouth, near Courtenay—Nanaimo Water District.

Coast Division. List of Miscellaneous Gauging Stations.

SOUTHERN DISTRICT

Index Number	Stream	Location
	Dunville	Chilliwack.
	Hutchison	Chilliwack.
	Jackman	Near Rosedale.

LILLOOET DISTRICT

Index Number	Stream	Location
	Chekamus†	Chekye—Vancouver Water District.
	Frasert	At Lillooet—Lillooet Water District.
	Island Bar	Ten miles below Lillooet—Lillooet Water District.
	Laluwissint	Twenty three miles below Lillooet—Ashcroft Water District.
	Riley	Nine miles below Lillooet—Lillooet Water District.
	Swarts	Nineteen miles below Lillooet—Ashcroft Water District.

For stations marked with an asterisk (*) daily discharges are available for only one of the climatic years covered by this report.

Stations marked thus (†) have been maintained as regular gauging stations, but owing to unsatisfactory ratings it has not been found possible to publish daily discharges.

Kamloops Division. List of Regular Gauging Stations.

KAMLOOPS DISTRICT

Index Number	Stream	Location
8LB 20	Barriere	Near Barriere.
8LE 1	Bolean	Tp. 18, Rge. 12, W. 6 M.
8LE 21	Campbell	Tp. 18, Rge. 17, W. 6 M.
8LF 4	Cherry	Tp. 19, Rge. 19, W. 6 M.
8LA 1	Clearwater	Near Raft River.
8LB 3	Edwards	Tp. 22, Rge. 16, W. 6 M.
8LB 23	Edwards Lyons Diversion	Tp. 22, Rge. 16, W. 6 M.
8LE 6	Essell	Tp. 17, Rge. 14, W. 6 M.
8LG 3	Guichon	North of Mamit Lake.
8LB 1	Heffley (below Heffley Lake)	Tp. 22, Rge. 16, W. 6 M.
8LB 4	Heffley (above diversion near mouth)	Tp. 22, Rge. 17, W. 6 M.
8LE 8	Ingram	Tp. 17, Rge. 13, W. 6 M.
8LE 23	Loakin*	Tp. 21, Rge. 13, W. 6 M.
8LE 10	Martin*	Tp. 20, Rge. 13, W. 6 M.
8LE 12	Monte (below diversion to Summit Lake)	Tp. 18, Rge. 14, W. 6 M.
8LE 11	Monte (diversion to Summit Lake)	Tp. 18, Rge. 14, W. 6 M.
8LE 13	Monte (above Bostock's diversion)	Tp. 19, Rge. 15, W. 6 M.
8LA 3	Murtle	Fifty miles from Raft River.
8LE 34	Neda* (above upper diversion)	Tp. 19, Rge. 13, W. 6 M.
8LE 18	Neds (above diversion near mouth)	Tp. 20, Rge. 14, W. 6 M.
8LE 22	Niskonlith*	Tp. 21, Rge. 13, W. 6 M.
8LB 26	North Thompson	Near Barriere.
8LB 13	Paul (outlet of Paul Lake)	Tp. 20, Rge. 16, W. 6 M.
8LB 27	Paul* (above diversion near mouth)	Near Kamloops.
8LE 32	Peterson	Tp. 19, Rge. 17, W. 6 M.
8LB 17	Raft	Near Raft River.
8LE 20	Salmon (below Bolean creek)	Tp. 18, Rge. 12, W. 6 M.
8LE 19	Salmon (above Grande Prairie)	Tp. 17, Rge. 14, W. 6 M.
8LE 26	Scuttoo	Tp. 19, Rge. 16, W. 6 M.
8LB 25	Siwaeh	Tp. 22, Rge. 16, W. 6 M.
8LB 22	Sullivan	Tp. 23, Rge. 16, W. 6 M.
8LE 28	Threemile*	Tp. 20, Rge. 21, W. 6 M.
8LF 24	Tranquille	Tp. 20, Rge. 19, W. 6 M.
8LB 19	Whitewood*	Twenty-eight miles north of Kamloops.

OKANAGAN DISTRICT

Index Number	Stream	Location
8LD 1	Adams	Tp. 23, Rge. 12, W. 6 M.
8NL 4	Ashnola	Near Keremeos.
8LD 2	Bear*	Tp. 22, Rge. 13, W. 6 M.
8NN 1	Boundary	At Greenwood.
8LC 4	Braah*	Tp. 18, Rge. 8, W. 6 M.
8LE 25	Celesta	Tp. 26, Rge. 8, W. 6 M.
8LE 5	Chase	Tp. 21, Rge. 12, W. 6 M.
8NN 5	Kettle (Carson)	At Carson.
8NN 6	Kettle (Cascade)	At Cascade.
8NN 4	Kettle (Nicholsons Bridge)	At Kettle Valley.
8NN 3	Kettle (West Fork)	At Westbridge.
8NM 3	Okanagan	Okanagan Falls.
8LE 27	Seymour	North of Seymour Arm.
8LC 2	Shuswap (Enderby)	Tp. 18, Rge. 9, W. 6 M.
8LC 3	Shuswap (Shuswap Falls)	Ten miles south of Mabel Lake.
8NL 6	Similkameen	Near Ashnola.
8NL 7	South Similkameen*	At Princeton.
8LF 21	South Thompson	Tp. 21, Rge. 13, W. 6 M.
8NL 3	Tulameen	At Coalmont.

ASHCROFT DISTRICT

Index Number	Stream	Location
8LF 1	Barnes	Tp. 20, Rge. 24, W. 6 M.
8LG 11	Beaver	Five miles north of Nicola Lake.
8LF 2	Bonaparte	Tp. 21, Rge. 24, W. 6 M.
8LF 4	Cache	Tp. 21, Rge. 24, W. 6 M.
8LF 23	Cache (diversion to Eight-mile Creek)	Tp. 22, Rge. 24, W. 6 M.

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Kamloops District—Concluded.

ASHCROFT DISTRICT—Concluded.

Index Number	Stream	Location
SLG 10	Coldwater.....	Near Merritt.
SLF 7	Criss.....	Tp. 22, Rge. 22, W. 6 M.
SLF 17	Deadman.....	Tp. 22, Rge. 22, W. 6 M.
SLF 11	Hat.....	Tp. 19, Rge. 26, W. 6 M.
SLF 14	Hat (diversion to Oregon Jack Creek).....	Tp. 19, Rge. 26, W. 6 M.
SMF 8	Nahatlatch (seven miles from mouth).....	Tp. 12, Rge. 26, W. 6 M.
SMF 7	Nahatlatch (Outlet of Nahatlatch Lake).....	Tp. 12, Rge. 27, W. 6 M.
SLG 4	Nicola (Mouth).....	Tp. 17, Rge. 25, W. 6 M.
SLG 11	Nicola (above Nicola L)*.....	East of Nicola Lake.
SLG 11	Nicola (Nicola)*.....	At Nicola.
SLF 19	Oregon Jack.....	Tp. 19, Rge. 25, W. 6 M.
SLF 11	Scottie.....	Tp. 23, Rge. 25, W. 6 M.
SLG 4	Spius.....	Tp. 13, Rge. 23, W. 6 M.
SLF 22	Thompson (Spence's Bdge).....	Tp. 17, Rge. 25, W. 6 M.

* For stations marked with an asterisk (* daily discharges are available for only one of the climatic years covered by this report.

Kamloops Division. List of Miscellaneous Gauging Stations.

KAMLOOPS DISTRICT.

Index Number	Stream	Location
	Alkali.....	Sec. 26, Tp. 19, Rge. 19, W. 6 M.
	Barriere, East Fork.....	Forty miles north of Kamloops.
	Barriere, North Fork.....	Forty miles north of Kamloops.
	Bower's diversion from Cherry Creek.....	Tp. 19, Rge. 19, W. 6 M.
	Campbell.....	Sec. 36, Tp. 18, Rge. 17, W. 6 M.
	Guichon.....	Sec. 7, Tp. 19, Rge. 21, W. 6 M.
	Guichon, Leighton's Diversion.....	Sec. 7, Tp. 19, Rge. 21, W. 6 M.
	Niskolith.....	Sec. 7, Tp. 21, Rge. 13, W. 6 M.

OKANAGAN DISTRICT.

Index Number	Stream	Location
	Broderick.....	At Notch Hill.
	Newman.....	At Notch Hill.

ASHCROFT DISTRICT

Index Number	Stream	Location
	Guichon.....	Six miles west of Merritt.
	Hammond's diversion from Hat Creek.....	Tp. 19, Rge. 26, W. 6 M.
	Quilchena.....	Seven miles east of Nicola.

Nelson Division. List of Regular Gauging Stations.

NELSON DISTRICT

Index Number	Stream	Location
8NJ 4	Carpenter*.....	Near Sandon, New Denver Water District.
8NE 1	Columbia.....	Near Trail, Nelson Water District.
8NH 1	Duncan.....	Near Howser, Kaslo Water District.
8NH 4	Goat.....	Near Erickson, Nelson Water District.
8NE 9	Inonaklin.....	Near Edgewood, Nelson Water District.
8NH 4	Kaslo.....	Near Kaslo, Kaslo Water District.
8NJ 1	Kootenay.....	Near Glade, Nelson Water District.
8NJ 9	Kootenay.....	Near Nelson, Nelson Water District.
8NH 7	Lardena.....	Near Howser, Kaslo Water District.
8NJ 11	"L.H.".....	Near Silverton, New Denver Water District.
8NE 10	Pend d'Oreille.....	Near Metaline Falls, Washington, U.S.A.
8NJ 4	Silverton* (Below Mill).....	Near Silverton, New Denver Water District.
8NJ 4	Silverton (Above Mill).....	Near Silverton, New Denver Water District.
8NJ 14	Slocan.....	Slocan City, New Denver Water District.

Nelson Division. List of Regular Gauging Stations—Concluded.

REVELSTOKE DISTRICT

Index Number	Stream	Location
8ND 1	Akolkolex	Near Wigwam, Revelstoke Water District.
8NA 1	Bugaboo	Near Spillimacheen, Golden Water District.
8NA 2	Columbia	Near Golden, Golden Water District.
8ND 2	Columbia	At Revelstoke, Revelstoke Water District.
8NB 2	Hospital	Near Golden, Golden Water District.
8NE 1	Incomappleux	Near Camborne, Revelstoke Water District.
8NA 4	Kicking Horse	At Golden, Golden Water District.
8NA 7	Kicking Horse	Near Field, Golden Water District.
8NA 8	Kicking Horse	At No. 2 Tunnel, Golden Water District.
8NA 9	No. 2*	At Wilmer, Golden Water District.
8NA 11	Spillimacheen	Near Spillimacheen, Golden Water District.

CRANBROOK DISTRICT

Index Number	Stream	Location
8NA 10	Big Sand	Near Jaffray, Fernie Water District.
8NG 2	Bull	Near Bull River, Cranbrook Water District.
8NK 1	Elk	Near Elko, Fernie Water District.
8NG 5	Kootenay	Near Wardner, Cranbrook Water District.
8NG 11	Little Sand	Near Jaffray, Fernie Water District.
8NG 7	Mark*	Near Marysville, Cranbrook Water District.

Nelson Division. List of Miscellaneous Gauging Stations.

NELSON DISTRICT

Index Number	Stream	Location
	Silverton (Below Mill)	Near Silverton, Nelson Water District.
	Slocan	Crescent Valley, Nelson Water District.
	Wilson	Roseberry, New Denver Water District.

REVELSTOKE DISTRICT

Index Number	Stream	Location
	Ilicillewaet†	Revelstoke, Revelstoke Water District.
	Incomappleux†	Beaton, Revelstoke Water District.

CRANBROOK DISTRICT

Index Number	Stream	Location
	Cherry	Wass, Cranbrook Water District.
	Moyie	Kinggate, Cranbrook Water District.

For stations marked thus (*) daily discharges are available for only one of the climatic years covered by this report.
Stations marked thus (†) have been maintained as regular gauging stations, but owing to unsatisfactory ratings it has not been found possible to publish daily discharges in this report.

DOMINION GOVERNMENT PEACE RIVER BLOCK

Following the data for streams in British Columbia will be found, in this report, miscellaneous meter measurements taken on Peace river and tributaries, in the Peace River Block. This data is supplied by courtesy of the Reclamation Service, Department of the Interior.

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CHANGE IN PUBLICATION OF REPORT.

The study of run-off is so closely related to precipitation that for some time past the adoption of a water or climatic year in the place of the calendar year has been under consideration with the publication of stream flow data.

Following a conference of members of the Reclamation and Water Power Branches, held in Winnipeg in the Fall of 1917, it was decided to adopt the climatic year—October 1 to September 30, as this seemed the most applicable to climatic conditions in Canada. The year conforms to Vermeules three-period theory, the division of which is

October–February.....	Replenishing
March–May.....	Normal
June–September.....	Depletion

It was also considered that the adoption of the Climatic year would greatly facilitate the preparation of stream flow for publication, and also improve the accuracy and reliability of winter records, in that the records during the period when the stations are affected by ice cover, would appear as a whole in each annual publication, instead of being broken at December 31st as previously.

The data in this report covers the period October 1, 1916 to September 30, 1918, but as daily records for the last 3 months of 1916 are published in Water Resources Paper No. 21 the monthly summaries only, for this period, are included in this report.

DEFINITION OF TERMS

The volume of water flowing in a stream—the “run-off” or “discharge”—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups: (1) Those which represent a rate of flow, as “second-feet” “Miner’s inches” and “Discharge in second-feet per square mile” and (2) those which represent the actual quantity of water, as “run-off depth in inches”, “acre-feet”, “mile-feet” and “millions of cubic feet”.

The units used in this series of reports are “Second-feet, “second-feet per square mile”, “run-off depth in inches”, “acre-feet”, “mile-feet” and “millions of cubic feet.” They may be defined as follows:

“Second-feet” is an abbreviation for cubic feet per second (C.F.S.) A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section, 1 foot wide and 1 foot deep at an average velocity of a foot a second. It is generally used as a fundamental unit from which others are computed by the use of factors given in the following table of equivalents.

“Second-feet per square mile” in the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

“Run-off depth in inches” is the depth to which a drainage area would be covered if all the water flowing from it in a given period were conserved and uniformly distributed on the surface. It is used for comparing run-off with rainfall which is usually expressed in depth in inches.

“Acre-feet” is equivalent to 43,560 cubic feet and is the quantity of water required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation or power.

“Mile-feet” is equivalent to 27,878,400 cubic feet and is the quantity of water required to cover one square mile to a depth of 1 foot, and is equal to 640 acre-feet.

“Millions of cubic feet” is a term frequently used to express quantity of storage. When the quantities are of sufficient magnitude the unit is increased to that of “billions of cubic feet”.

Certain terms not in common use may be defined as follows:—
 "Control," "controlling section" and "point of control" are used to designate the cross section of the stream below the gauge, which controls or regulates the height of the water surface at the gauge. The control may be the same cross section at all stages.
 "Discharge relation" is the relation of gauge height to discharge.

CONVENIENT EQUIVALENTS.

The following is a list of convenient equivalents for use in hydraulic computations:

Table for converting velocity in feet per second into velocity in miles per hour.

(1 foot per second = 0.681818 mile per hour, or very nearly 1/3 mile per hour. 1 mile per hour = 1.4667 foot per second, or very nearly 1 1/3 foot per second. In computing the table the values 0.68182 and 1.4667 were used).

Units.	TENTHS.									
	0	1	2	3	4	5	6	7	8	9
0.....	0.000	0.068	0.136	0.205	0.273	0.341	0.409	0.477	0.545	0.614
1.....	0.682	0.750	0.818	0.886	0.955	1.020	1.090	1.160	1.230	1.300
2.....	1.360	1.430	1.500	1.570	1.640	1.700	1.770	1.840	1.910	1.980
3.....	2.050	2.110	2.180	2.250	2.320	2.390	2.450	2.520	2.590	2.660
4.....	2.730	2.800	2.860	2.930	3.000	3.070	3.140	3.200	3.270	3.340
5.....	3.410	3.480	3.550	3.610	3.680	3.750	3.820	3.890	3.950	4.020
6.....	4.090	4.160	4.230	4.300	4.360	4.430	4.500	4.570	4.640	4.700
7.....	4.770	4.840	4.910	4.910	5.050	5.110	5.180	5.250	5.320	5.390
8.....	5.450	5.520	5.590	5.660	5.730	5.800	5.860	5.930	6.000	6.070
9.....	6.140	6.200	6.270	6.340	6.410	6.480	6.550	6.610	6.680	6.750

Table for converting discharge in second-feet per square mile into run-off depth in inches over the area.

Discharge in second-feet per square mile.	RUN-OFF IN INCHES.				
	1 day.	28 days.	29 days.	30 days.	31 days.
1.....	0.03719	1.041	1.079	1.116	1.153
2.....	0.07438	2.083	2.157	2.231	2.306
3.....	0.11157	3.124	3.236	3.347	3.459
4.....	0.14876	4.165	4.314	4.463	4.612
5.....	0.18595	5.207	5.393	5.578	5.764
6.....	0.22314	6.248	6.471	6.694	6.917
7.....	0.26033	7.289	7.550	7.810	8.070
8.....	0.29752	8.331	8.628	8.926	9.223
9.....	0.33471	9.372	9.707	10.041	10.376

NOTE.—For part of a month multiply the value for one day by the number of days.

Table for converting discharge in second-feet into run-off in acre-feet.

Discharge in second-feet.	Run-off in acre-feet.				
	1 day.	28 days.	29 days.	30 days.	31 days.
1.....	1.983	55.54	57.52	59.50	61.49
2.....	3.967	111.10	115.00	119.00	123.00
3.....	5.950	166.60	172.60	178.50	184.50
4.....	7.934	222.10	230.10	238.00	246.00
5.....	9.917	277.70	287.60	297.50	307.40
6.....	11.900	333.20	345.10	357.00	368.90
7.....	13.880	388.80	402.60	416.50	430.40
8.....	15.870	444.30	460.20	476.00	491.90
9.....	17.850	499.80	517.70	535.50	553.40

NOTE.—For part of a month multiply value for one day by the number of days.

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Table for converting discharge in second-feet into run-off in millions of gallons.

Discharge in second-feet.	Run-off in millions of gallons.				
	1 day.	28 days.	29 days.	30 days.	31 days.
1	0.6463	18.10	18.74	19.39	20.04
2	1.2930	36.20	37.48	38.78	40.08
3	1.9390	54.30	56.22	58.17	60.12
4	2.5850	72.40	74.96	77.56	80.16
5	3.2320	90.50	93.70	96.95	100.20
6	3.8780	108.60	112.40	116.30	120.20
7	4.5240	126.70	131.20	135.70	140.30
8	5.1710	144.80	149.90	155.10	160.30
9	5.8170	162.90	168.70	174.50	180.40

NOTE.—For part of a month multiply the value for one day by the number of days.

Table for converting discharge in second-feet into run-off in millions of cubic feet.

Discharge in second-feet.	Run-off in millions of cubic feet.				
	1 days	28 days.	29 days.	30 days.	31 days.
1	0.0864	2.149	2.506	2.592	2.678
2	0.1728	4.838	5.012	5.184	5.356
3	0.2592	7.257	7.518	7.776	8.034
4	0.3456	9.676	10.024	10.368	10.712
5	0.4320	12.095	12.530	12.960	13.390
6	0.5184	14.514	15.036	15.552	16.068
7	0.6048	16.933	17.542	18.141	18.746
8	0.6912	19.352	20.048	20.736	21.424
9	0.7776	21.771	22.554	23.328	24.102

NOTE.—For part of a month multiply value for one day by the number of days.

1 second-foot equals 35.71 British Columbia miner's inches, or one British Columbia miner's inch equals 1.68 cubic feet per minute.

1 second-foot equals 6.23 British imperial gallons per second; equals 538,453 gallons for one day.

1 second-foot equals 7.48 United States gallons per second; equals 646,317 gallons for one day.

1/2 second-foot for one year covers 1 square mile 1.131 feet or 13.572 inches deep.

1 second-foot for one year equals 31,536,000 cubic feet; equals 724 acre-feet.

1 second-foot for one hour equals about 1 acre-inch.

1 second-foot for one year equals 31,536,000 cubic feet; equals 724 acre-feet.

1 second-foot for one hour equals about 1 acre-inch.

100 British Imperial gallons per minute equals 0.268 second-foot.

100 United States gallons per minute equals 0.223 second-foot.

1,000,000 British Imperial gallons per day equals 1.86 second-foot.

1,000,000 United States gallons per day equals 1.55 second-foot.

1,000,000 British Imperial gallons equals 3.68 acre-feet.

1,000,000 United States gallons equals 3.07 acre-feet.

1,000,000 cubic feet equals 22.95 acre-feet.

1,000,000,000 (1 billion) cubic feet equals 11,570 second-feet for one day.

1,000,000,000 cubic feet equals 414 second-feet for one 28-day month.

1,000,000,000 cubic feet equals 399 second-feet for one 29-day month.

1,000,000,000 cubic feet equals 386 second-feet for one 30-day month.

1,000,000,000 cubic feet equals 373 second-feet for one 31-day month.

1 acre-foot equals 43,560 cubic feet.

1 acre-foot equals 271,472 British Imperial gallons.

1 acre-foot equals 325,850 United States gallons.

1 inch deep on 1 square mile equals 2,323,200 cubic feet.

1 inch deep on 1 square mile equals 0.0737 second-foot per year.

Convenient equivalents—Continued.

1 foot deep on 100 square miles equals 2.79 billions of cubic feet—equals 3,227 second-feet for 10 days, 1,076 second feet for 30 days or 88 second-feet for one year.

1 foot equals 0.3048 metre.

1 mile equals 1.60935 kilometres.

1 mile equals 5,280 feet.

1 acre equals 0.4047 hectare.

1 acre equals 43,560 square feet.

1 acre equals 209 feet square, nearly.

1 square mile equals 2.59 square kilometres.

1 cubic foot equals 0.0283 cubic metre.

1 cubic foot of water weights 62.43 pounds.

1 cubic metre per minute equals 0.5886 second-foot.

1 horse power equals 550 foot-pounds per-second.

1 horse power equals 76.0 kilogram-metres per second.

1 horse power equals 746 watts, or 0.746 kilowatts.

1 horse power equals 1 second-foot of water falling 8.80 feet.

1½ horse power equals about 1 kilowatt.

To calculate water-power quickly:

Second-foot \times fall in feet \div 11 = net horse-power on water wheel, realizing 80 per cent of theoretical power.

ACCURACY AND RELIABILITY OF DATA.

In the notes preceding the discharge tables for each stream in this report will be found under the heading "Accuracy" a letter signifying the probable accuracy of the monthly mean discharge. These letters are to be interpreted as follows,— "A" probably accurate within 5 per cent; "B", within 10 per cent; "C", within 15 per cent and "D", within 25 per cent.

In determining the accuracy a thorough study has been made in each case of the following factors (1) Permanence of the stage-discharge relation (2) The number and range of discharge measurements defining the rating curve (3) the frequency and refinement of gauge readings.

The topographic surveys of the province are very incomplete, and the drainage areas, are in many cases, only approximate; consequently the figures showing discharge per square mile and run-off depth in inches may be somewhat in error.

EXPLANATION OF DATA

For each regular gauging station the following data, so far as available, are given:

1. Description of the Station.
2. Table of Discharge Measurements.
3. Table of Daily Discharges.
4. Table of Monthly Discharge and Run-off.

Under description of the station, the following information is given,— location and installation of the station, methods of determining discharge, characteristics of channel, extent of drainage area and control factors, if any, which might affect the discharge-relation. A statement is also made as to the accuracy and the reliability of data.

The table of discharge measurements gives particulars of each individual measurement, including the date of the measurement, by whom made, gauge height and discharge in second-feet.

The table of daily discharges gives the discharge as computed from observed gauge heights.

Attention is called to the fact that the zero of the gauge bears no relation to zero flow or the bottom of the river.

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The discharge measurements and gauge heights are the base data from which discharge rating tables, daily discharges and monthly discharges are computed.

The discharge rating table, which is not published in this report, gives the discharges in second-feet corresponding to every stage of the river recorded during the period for which the table is applicable. At such times as the gauge height is temporarily affected by ice cover, backwater, etc., the discharge relation is not applicable unless proper corrections to the gauge heights are known and applied.

In the table of monthly discharge, the column headed "Maximum" gives the mean flow for the day of highest discharge. As this discharge is based on the mean daily gauge reading, it is evident that there may have been short periods when the discharge was higher than that given in the column. Likewise in the column of "Minimum" the quantity given is the mean flow for the day of the lowest discharge. The column headed "Mean" is the average flow for the month in cubic feet per second based upon the mean daily discharge. On this mean are based computations of run-off which have previously been defined.

The drainage areas as given for each station have been obtained by planimeter determination from the latest available departmental maps.

The base data presented in this report, unless otherwise stated in the description of station, have been collected by methods commonly in practice and described in previous annual reports.

CONCLUSION AND ACKNOWLEDGEMENTS

As in the past, the Survey has, in pursuing its investigations, continued to receive the esteemed co-operation of various persons and companies interested in the stream flow data of the Province, I desire to express my thanks to them, especially the following: The Westminster Power Company; Messrs Anderson and Warden, Civil Engineers, Vancouver, B.-C.; Mr. F. S. Easton, C.E., Assistant Engineer, Vancouver Power Company, Ltd.; Mr. Jas. Hunter, C.E., Chief Engineer, Canadian Collieries (Dunsmuir) Ltd., Mr. Wm. Young, lately Comptroller of Water Rights, Victoria, B.C.; Mr. E. A. Cleveland, the present Comptroller of Water Rights, Victoria, B.C.; The Kootenay Power Company; The Bridge River Power Company.

Thanks are due to Mr. F. H. Peters, Commissioner of Reclamation, Department of the Interior, Calgary, Alta, for the courtesy of rating the current meters belonging to the Survey.

In compiling this report valuable information has been secured from the reports of the Meteorological Survey.

CHAPTER II
HYDROMETRIC DATA.
PACIFIC COAST DRAINAGE

SHAWNIGAN CREEK—STATION No. 8HA₁

Location.—At outlet from Shawnigan lake.

Records available.—Daily discharges May 11, 1914, to March 31, 1917.

Drainage area.—Twenty-two square miles.

Gauge.—Nine-foot enamel staff, nailed to piling on left down-stream side of highway bridge, at outlet from lake. Gauge read daily by Mr. G. B. Aitkens.

Channel and Control.—Straight for 50 feet on either side of section, gravel and sand bed. Control practically permanent.

Discharge measurements.—Made from railroad bridge and by wading; four in 1914, one in 1915, three in 1916, and one in 1917 cover all but high-water stage

Winter flow.—Open all year.

Accuracy.—"A" up to discharge of 280 cubic feet per second, "B" above 280 cubic feet per second. Note—measurements of December 11, 1916, G.H. 3.03 and January 30, 1917, made revision of discharge curve necessary.

Discharge Measurements of Shawnigan Creek, at Shawnigan Lake, during 1916-1917.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
		Feet.	Sec. ft.	1917		Feet.	Sec. ft.
1916 Nov. 9	M. Balls	1.21	5.61	Jan. 30	C. E. Webb	2.93	84.80
Dec. 11	C. E. Webb	3.03	84.90				

Daily Discharge in Second-feet of Shawnigan Creek, at Shawnigan Lake, for period Jan. 1 to March 31, 1917.

(Drainage Area, 22 square miles.)

Day.	Jan.	Feb.	Mar.
1	94	78	71
2	94	85	71
3	94	85	68
4	94	94	71
5	180	103	71
6	222	112	71
7	236	122	71
8	243	122	71
9	250	122	71
10	250	122	71
11	236	122	71
12	222	122	71
13	208	132	71
14	194	132	71
15	166	127	71
16	154	122	71
17	137	122	71
18	132	122	71
19	122	112	71
20	112	112	71
21	103	112	71
22	94	103	75
23	94	103	94
24	85	103	127
25	85	94	132
26	78	85	142
27	78	85	142
28	78	78	142
29	78	78	142
30	78	78	142
31	78	78	137

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Monthly Discharge of Shawnigan Creek, at Shawnigan Lake, for period Oct. 1916 to March, 1917.

(Drainage area, 22 square miles.)

Month.	Discharge in Second-Feet				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
October	0.8	0.0	0.04	0.00	0.00	2.5
November	22.0	1.5	67.00	3.05	3.40	3990.0
December	122.0	26.0	98.00	4.46	5.14	6030.0
January	250.0	78.0	141.00	6.40	7.38	8670.0
February	132.0	78.0	108.00	4.91	5.11	6000.0
March	142.0	68.0	89.00	4.04	4.66	5470.0
The period	250.0	0.0	84.00	3.81	25.69	20162.0

Note, Discontinued March 31, 1917.

KOKSILAH RIVER.—STATION NO. 8HA₃

Location.—Two miles from mouth. Above Esquimalt and Nanaimo Railway Bridge.

Records Available.—Daily discharges May 12, 1914, to March 21, 1919.

Drainage Area.—One hundred and twenty-four square miles.

Gauge.—Fourteen-foot staff on left bank 600 feet above bridge, read daily by Koksilah Charlie.

Channel and Control.—Gravel bed, channel straight for 100 feet above and 300 feet below section two channels at low water. Control liable to change during high-water stage.

Discharge Measurements.—Made from railroad bridge and by wading; six in 1914, three in 1915, four in 1916 and one in 1917, cover all stages.

Winter Flow.—Open-water all year.

Accuracy.—“A” up to discharge of 400 cubic feet per second. “B” between discharge of 400 and 2,000 cubic feet per second. “C” above discharge of 2,000 cubic feet per second.

Discharge Measurements of Koksilah River, 2 miles above mouth, during 1916-17.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1916		Feet	Sec.-ft.	1917		Feet	Sec.-ft.
Nov. 5	M. Balls	3.30	691	Aug. 5	C. E. Webb	0.95	17.4
Dec. 12	C. E. Webb	2.84	507				

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Daily Discharge in Second-feet of Koksilah River, 2 miles above mouth, for the period January 1 to March 31, 1917.

(Drainage area 124 square miles.)

Day.	Jan.	Feb.	Mar.
1	790	790	590
2	590	910	540
3	420	910	540
4	340	850	500
5	910	790	500
6	690	740	460
7	690	740	420
8	1,150	690	420
9	1,560	790	420
10	1,150	910	420
11	910	790	340
12	910	740	340
13	590	740	340
14	500	640	300
15	500	590	300
16	500	590	300
17	420	590	340
18	420	590	340
19	420	690	300
20	420	690	300
21	420	690	300
22	340	590	420
23	340	790	380
24	340	790	380
25	590	740	340
26	690	690	340
27	690	590	300
28	690	590	300
29	590	590	460
30	540	590	590
31	540	590	590

Monthly Discharge of Koksilah River, 2 miles above mouth, for the period October, 1916, to March, 1917.

(Drainage area, 24 square miles.)

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
October	1,840	2	96	0.77	0.89	5,900
November	1,700	270	520	4.19	4.68	30,900
December	690	270	436	3.52	4.06	26,800
January	1,560	340	634	5.12	5.90	39,000
February	910	590	723	5.82	6.06	40,100
March	590	300	400	3.23	3.72	24,600
The period	1,840	2	468	3.78	25.31	167,300

Note.—Discontinued March 31, 1917.

CHEMAINUS RIVER—STATION NO. 8HA₁

Location.—Near Esquimalt and Nanaimo Railway Bridge, 5 miles from Chemainus.

Records available.—Daily discharges May 13, 1914, to March 31, 1917.

Drainage Area.—One hundred and twenty square miles.

Gauge.—Eighteen-foot wooden staff, located on left bank 100 feet below bridge. Read daily by Mr. R. C. Mainguy.

Channel and control.—Straight for 150 feet above and 300 feet below section. Gravel and sand bed. Control changed in February, 1916.

Discharge measurements.—Made from railroad bridge and by wading. Four measurements define the 1916-7 rating curve.

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Winter Flow.—Generally open-water all year, although in January and February of 1916 the stream was frozen over for several weeks.

Accuracy.—“C” The stage-discharge curve is not well defined.

Discharge Measurements of Chemainus River, near E. & N. Ry. Bridge, during 1916-17.

(Drainage area, 120 square miles.)

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916				1917			
Nov. 4	M. Balls	5-44	1710	Jan. 29	C. E. Webb	3-79	210
Dec. 15	C. E. Webb	4-1	421	July 31	F. MacLachlan	2-70	20-7

Daily Discharge in Second-feet of Chemainus River 1 mile above mouth for period January 1, to March 31, 1917.

(Drainage area 120 miles.)

Day.	Jan.	Feb.	Mar.
1	200	125	134
2	245	180	140
3	690	235	176
4	1120	326	270
5	2730	410	245
6	1590	1010	220
7	1120	823	188
8	1020	770	180
9	1580	845	212
10	1450	955	184
11	1170	1180	270
12	845	1120	220
13	960	1100	60
14	640	880	196
15	590	790	184
16	610	1010	188
17	475	911	176
18	380	845	180
19	350	720	180
20	285	475	180
21	245	380	200
22	245	320	192
23	245	295	489
24	300	280	740
25	350	275	812
26	380	260	640
27	350	230	1180
28	332	200	710
29	270		475
30	230		440
31	184		392

Monthly Discharge of Chemainus River, 1 mile above mouth, for period October, 1916 to March, 1917.

(Drainage area 120 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
October	1,340	17	61	0-51	0-59	3,750
November	1,340	107	477	3-98	4-44	28,400
December	1,230	200	430	3-59	4-14	26,400
January	2,730	184	674	5-61	6-47	41,400
February	1,180	125	605	5-04	5-25	33,600
March	1,180	60	324	2-70	3-11	19,900
The period	2,730	17	429	3-57	24-00	153,450

Note.—Discontinued March 31.

COWICHAN RIVER.—STATION NO. 8HA₂

Location.—Near outlet from Cowichan lake.

Record Available.—Daily discharges January 31, 1913, to September 30, 1917. Not sufficient data available to publish daily discharges for 1917-18.

Drainage Area.—Two hundred and thirty-five square miles.

Gauge.—Twelve-foot wooden staff at highway bridge at outlet from lake, near left bank. Gauge read twice daily by Mr. H. T. Harding.

Channel and Control.—Gravel and small boulder bed. Channel straight for 200 feet above and below section.

Discharge measurements.—Six measurements made during 1916-17 define the rating curve.

Winter Flow.—Open all year.

Accuracy.—"C" The control is not permanent. Rating is revised above discharge of 1,200 cubic feet per second.

Discharge Measurements of Cowichan River, near Cowichan Lake, during 1916-18.

(Drainage area, 235 square miles)

Date	Engineer	Gauge height	Discharge	Date	Engineer	Gauge height	Discharge
		Feet	Sec.-ft.			Feet	Sec.-ft.
1916				1918			
Nov. 6	M. Balls	3.70	1,360	May 11	C. E. Webb	3.42	1320
Nov. 7	M. Balls	3.68	1,300	May 14	C. E. Webb	3.12	1220
Dec. 13	C. E. Webb	3.85	1,520	July 10	C. E. Webb	1.43	309
1917							
Mar. 29	C. E. Webb	3.25	1,110				
May 9	C. E. Webb	5.32	2,700				
Aug. 2	C. E. Webb	1.49	330				

Daily Discharge in Second-foot of Cowichan River, near Cowichan Lake, for period Jan. 1 to Sept. 30, 1917.

(Drainage area 235 square miles)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1				1,160	1,200	1,320	1,090	2,530	2,250	1,110	402	200
2				1,170	1,210	1,260	1,109	2,600	2,250	1,080	384	195
3				1,120	1,240	1,210	1,120	2,580	2,220	1,030	367	195
4				1,050	1,290	1,230	1,150	2,480	2,160	1,000	355	192
5				1,450	1,410	1,200	1,220	2,370	2,120	974	346	192
6				1,540	1,590	1,100	1,300	2,390	2,070	956	340	192
7				1,610	1,560	1,140	1,410	2,430	2,010	944	337	190
8				1,750	1,590	1,130	1,500	2,470	1,970	905	331	188
9				1,820	1,640	1,120	1,560	2,580	1,930	855	328	188
10				1,890	1,680	1,100	1,690	2,660	1,900	805	322	188
11				1,970	1,730	1,050	1,750	2,680	1,880	755	316	188
12				1,960	1,770	1,020	1,770	2,710	1,840	715	307	195
13				1,960	1,800	980	1,820	2,630	1,780	690	295	200
14				1,940	1,850	938	1,860	2,660	1,710	680	295	200
15				1,890	1,870	880	1,910	2,620	1,640	680	292	200
16				1,840	1,870	840	1,940	2,580	1,620	666	283	200
17				1,780	1,840	820	1,900	2,450	1,620	646	271	195
18				1,680	1,790	810	1,840	2,310	1,610	630	265	190
19				1,630	1,760	795	1,830	2,230	1,540	618	265	185
20				1,620	1,790	800	1,820	2,160	1,470	606	265	178
21				1,530	1,820	825	1,880	2,100	1,440	586	256	175
22				1,470	1,660	860	1,930	2,070	1,400	570	250	175
23				1,420	1,640	910	1,990	2,050	1,360	546	248	175
24				1,380	1,580	968	2,070	2,050	1,340	514	242	175
25				1,350	1,520	1,000	2,090	2,050	1,320	489	238	175
26				1,320	1,470	985	2,120	2,060	1,240	472	232	185
27				1,310	1,400	980	2,190	2,090	1,230	454	228	202
28				1,280	1,370	1,020	2,270	2,150	1,190	440	220	212
29				1,220		1,040	2,390	2,230	1,140	433	212	212
30				1,200		1,060	2,470	2,290	1,140	422	205	212
31				1,200		1,080		2,270		422	200	

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Monthly Discharge for Cowichan River, near Cowichan Lake, for year ending September 30, 1917.

(Drainage area, 235 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
October	433	88	137	0.58	0.67	8,420
November	1,510	530	1,190	5.07	5.66	70,800
December	1,570	1,140	1,400	5.96	6.87	86,100
January	1,970	1,050	1,530	6.51	7.50	94,100
February	1,870	1,200	1,600	6.81	7.09	88,900
March	1,320	795	1,020	4.34	5.00	62,700
April	2,479	1,090	1,760	7.49	8.36	105,000
May	2,710	2,050	2,370	10.10	11.64	146,000
June	2,250	1,140	1,680	7.15	7.98	100,000
July	1,110	422	700	2.98	3.44	43,000
August	402	200	287	1.22	1.41	17,600
September	212	175	192	0.82	0.92	11,400
The year	2,710	88	1,160	4.92	66.54	834,020

NANAIMO RIVER.—STATION No. 8HB₅

Location.—Six miles from mouth, 800 feet upstream from Canadian Collieries Railway Bridge, 8 miles from Ladysmith.

Records Available.—Daily discharges February 11, 1913, to September 30, 1917. Data insufficient to publish 1917-18 daily discharges.

Drainage Area.—Two hundred and forty-nine square miles.

Gauge.—Twelve-foot wooden staff nailed to tree, left bank, 25 feet above section. Gauge read daily by Peter Whisker, Jr.

Channel and Control.—Straight for 200 feet on either side of section, even gravel bed.

Discharge Measurements.—Four measurements made during 1916-17 cover all but low stage.

Winter Flow.—Open all year.

Accuracy.—"C" The control changed on January 5, 1917. New stage discharge relation after January 4, 1917.

Discharge Measurements of Nanaimo River, near Canadian Collieries Railway Bridge, during 1917-18.

(Drainage area, 249 square miles.)

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Feet. Gauge height.	Sec. ft. Dis-charge.
1917		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
Mar. 11	C. E. Webb	4.10	3,230	May. 24	C. E. Webb	1.55	419
Aug. 6	C. E. Webb	0.94	167	July 13	C. E. Webb	0.83	129

Daily Discharge in Second-feet, of Nanaimo River, 6 miles above mouth, for period Jan. 1 to Sept. 30, 1917.

(Drainage area 249 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1				360	460	460	760	2,750	2,160	784	232	80
2				368	485	490	732	2,320	1,850	950	214	78
3				364	595	460	718	1,950	1,730	820	205	75
4				372	865	465	844	1,720	1,630	886	190	69
5				3,040	1,520	485	1,240	1,600	1,480	865	184	69
6				2,790	1,630	485	1,350	2,540	1,480	795	178	68
7				2,080	1,470	490	1,706	3,080	1,510	684	169	78
8				1,660	1,370	490	1,950	3,630	1,900	625	151	84
9				2,110	1,600	470	1,940	4,150	1,840	615	145	87
10				1,940	1,400	460	1,940	3,690	1,510	590	145	88
11				1,840	1,810	435	1,910	2,900	1,240	585	139	88
12				1,610	1,900	460	1,720	2,790	1,110	600	126	172
13				1,360	1,740	460	1,530	2,640	1,100	575	124	236
14				1,180	1,540	460	1,510	2,140	1,260	655	122	252
15				986	1,520	450	1,440	1,810	1,520	530	120	320
16				872	1,740	435	1,370	1,540	1,550	505	114	332
17				865	1,650	420	1,570	1,370	1,490	465	106	324
18				704	1,430	420	1,280	1,250	1,330	450	102	284
19				660	1,270	425	1,290	2,660	1,210	425	106	236
20				610	820	450	1,360	1,276	1,120	385	160	202
21				570	372	470	1,690	1,440	1,160	360	139	178
22				535	570	460	1,706	1,610	1,120	332	122	154
23				510	767	914	1,660	1,650	1,060	296	120	142
24				495	697	1,070	1,610	1,800	1,130	264	114	124
25				470	648	994	1,700	1,860	1,060	240	104	122
26				470	610	893	1,850	2,300	986	208	104	122
27				510	575	823	2,190	2,850	982	211	100	272
28				510	545	851	2,220	3,210	978	296	94	435
29				470	.....	935	2,630	3,250	928	256	87	450
30				460	.....	886	3,320	2,640	809	256	86	400
31				580	.....	809	.....	2,330	.....	248	84	.....

Monthly Discharge of Nanaimo River, 6 miles above mouth, for year ending September 30, 1917.

(Drainage area, 249 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
October	2,300	47	153	0-61	0-70	9,410
November	3,910	267	1080	4-34	4-84	64,900
December	2,160	352	730	2-93	3-38	44,900
January	3,040	360	1,010	4-21	4-85	62,100
February	1,900	372	1,090	4-55	4-74	60,500
March	1,070	420	590	2-46	2-84	36,300
April	3,320	718	1,620	6-75	7-53	96,400
May	4,160	1,250	2,900	9-58	11-04	141,000
June	2,160	809	1,340	5-58	6-23	79,700
July	886	208	502	2-09	2-41	30,900
August	232	84	135	0-56	0-65	8,300
September	450	68	187	0-78	0-87	11,100
The year	4,160	47	895	3-70	50-08	644,910

Note.—Change in control January 5, 1917. New stage-discharge relation on that date.

ENGLISHMANS RIVER.—Station No. 8HB₂.

Location.—One-half mile above mouth, 2 miles from Parksville.

Records Available.—Daily discharges February 15, 1913, to December 31, 1913; May 19, 1914, to September 21, 1914; December 9, 1914, to August 9, 1917.

Drainage Area.—One hundred and eleven square miles.

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Gauge.—Twelve-foot enamelled staff in two sections, located on right bank 100 feet upstream from metering section. Read daily by Mr. L. Mandley.

Channel and Control.—Straight for 300 feet above and below section, even gravel bed. Control liable to change during high-water stage.

Discharge Measurements.—Four in 1913 by Provincial Water Rights Branch, four in 1914, three in 1915, two in 1916 and two in 1917 cover all but high stage.

Winter Flow.—Open all year.

Accuracy.—"B" between discharge of 100 and 600 cubic feet per second. "C" below discharge of 100 and above 600 cubic feet per second.

Co-operation.—Provincial Water Rights Branch established station in 1913.

Discharge Measurements of Englishmans River, one-half mile above mouth, during 1916-18.

(Drainage area, 111 square miles.)

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1916		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Oct. 28	M. Balls	1.58	16.3	May 27	C. E. Webb	1.82	112
1917							
May 12	C. E. Webb	3.38	839.0				
Aug. 7	C. E. Webb	1.72	39.6				

Daily Discharge in Second-feet of Englishmans River, one-half mile above mouth for period January 1 to August 9, 1917.

(Drainage area, 111 square miles.)

Day.	Jan.	Feb.	Mar.	April.	May.	June.	July.	August.	Sept.
1	120	120	174	250	760	530	275	63	
2	168	165	144	250	680	560	290	57	
3	165	210	150	230	680	500	270	57	
4	1640	250	180	270	500	536	290	55	
5	980	548	180	395	476	494	290	55	
6	624	560	174	420	600	494	270	55	
7	560	500	180	432	935	560	210	55	
8	760	500	180	560	1370	680	180	55	
9	680	500	174	580	1270	640	180	49	
10	696	500	174	560	890	430	195		
11	560	784	174	680	890	335	180		
12	488	800	165	560	890	335	195		
13	430	560	180	560	760	330	195		
14	365	488	168	500	600	425	165		
15	274	482	165	470	530	488	150		
16	250	752	150	440	440	530	230		
17	250	680	147	425	425	440	150		
18	230	500	141	420	415	390	144		
19	210	440	135	435	395	340	120		
20	196	365	141	440	385	355	120		
21	90	340	165	500	415	365	105		
22	114	290	165	560	435	340	111		
23	165	210	195	578	488	290	99		
24	156	238	560	580	494	340	90		
25	165	210	420	440	548	315	77		
26	150	195	340	560	712	286	68		
27	165	171	290	744	890	282	73		
28	150	180	250	775	980	305	85		
29	135		330	854	800	270	90		
30	120		315	980	720	250	70		
31	105		282		600		65		

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Monthly Discharge of Englishmans River, one-half mile above mouth, for year ending September 30, 1917.

(Drainage area, 111 square miles.)

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
October	1,130	15	77	0.70	0.81	4,730
November	1,290	114	368	3.35	3.74	21,900
December	1,880	114	355	3.23	3.72	21,800
January	1,640	90	360	3.27	3.77	22,100
February	800	120	412	3.75	3.91	22,900
March	560	135	212	1.93	2.23	13,000
April	980	230	515	4.68	5.22	30,600
May	1,370	380	673	6.12	7.06	41,400
June	680	250	414	3.76	4.20	24,600
July	290	65	162	1.47	1.70	9,960
August			44	0.40	0.46	2,710
September			50	0.46	0.51	2,980
The year	1880	15	304	2.76	37.33	21,8680

Note.—Station discontinued August, 1917. No gauge reader available, mean monthly discharge estimated for August and September from climatic conditions.

LITTLE QUALICUM RIVER.—STATION NO. 8HB₄

Location.—At outlet from Cameron lake.

Records Available.—Daily discharges February 27, 1913 to September 39, 1918.

Drainage Area.—Fifty-four square miles.

Gauge.—Twelve-foot wooden staff nailed to crib near shore of lake 500 feet from head of river. Read twice daily by Mr. T. B. McBey.

Channel and Control.—Straight on both sides of section for 100 feet. Even gravel bed. Confined by bridge abutments in high-water. Control practically permanent.

Discharge Measurements.—Made from highway bridge. Twenty-one measurements made during 1913-1918 define rating curve.

Winter Flow.—Open all year.

Accuracy.—"B" The Stage-discharge relation curve is well defined except at highest stage.

Co-operation.—Provincial Water Rights Branch established station in 1913.

Discharge Measurements of Little Qualicum River, at Cameron Lake, during 1916, 1917, 1918.

(Drainage area, 54 square miles.)

Date	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
1916		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Oct. 30	M. Balls	1.05	105.0	May 22	C. E. Webb	1.55	191
1917							
Mar. 27	C. E. Webb	1.10	109.0				
May 14	" "	2.96	481.0				
Aug. 10	" "	0.82	65.7				

Daily Discharge in Second-feet, of Little Qualicum River at Cameron Lake, for the period January 1 to September 30, 1917 and year ending September 30, 1918.

(Drainage area, 54 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May	June.	July.	Aug.	Sept.
1916-17												
1				139	140	163	122	335	580	311	101	50
2				133	138	157	124	335	580	311	100	50
3				124	133	158	124	329	538	311	97	50
4				128	125	154	121	311	490	307	94	50
5				181	124	140	128	293	463	307	90	51
6				249	160	140	143	301	448	307	86	53
7				255	203	140	158	301	433	303	85	55
8				295	217	139	169	305	458	299	85	57
9				293	229	136	178	375	508	275	85	58
10				297	245	124	190	478	486	253	85	58
11				307	315	121	202	520	460	241	82	59
12				311	281	109	209	488	416	235	77	59
13				295	293	113	214	488	402	251	72	69
14				293	293	110	215	463	406	225	70	70
15				273	279	108	215	414	414	225	70	75
16				245	299	108	215	395	445	217	70	77
17				225	315	105	214	337	442	203	70	82
18				213	315	100	209	329	442	192	69	82
19				194	313	97	208	321	418	183	68	80
20				176	293	97	211	307	397	175	68	76
21				166	273	100	217	289	390	168	68	72
22				170	255	97	225	287	390	153	68	67
23				167	247	99	231	293	369	150	68	63
24				161	227	105	231	315	365	138	65	61
25				153	205	110	233	347	357	130	62	64
26				145	197	110	259	404	351	123	60	67
27				142	182	112	265	460	343	122	60	68
28				138	170	122	269	538	333	118	60	70
29				130		124	299	590	325	113	58	75
30				133		118	333	631	317	109	55	79
31				136		122		582		105	52	
1917-18												
1	82	57	313	1,760	235	168	462	321	167	108	50	56
2	143	92	291	2,250	214	160	430	313	168	103	55	52
3	261	162	273	2,050	237	154	385	341	170	101	58	50
4	259	208	255	1,770	982	150	335	388	167	102	59	50
5	251	245	249	1,390	1,090	148	307	402	152	98	60	49
6	251	269	231	1,140	991	138	279	378	152	88	59	49
7	249	293	209	1,090	886	132	263	351	154	78	59	49
8	249	269	196	913	820	125	253	319	154	70	58	47
9	245	243	185	790	1,640	128	369	291	172	70	58	44
10	241	231	182	640	2,600	125	496	269	281	70	58	42
11	239	235	180	552	1,770	122	494	231	311	70	58	41
12	237	257	179	512	1,280	118	452	231	311	69	58	41
13	219	295	219	470	1,090	112	400	231	273	69	58	40
14	208	295	325	438	760	113	351	233	235	68	62	40
15	197	271	496	412	560	148	333	235	210	68	73	40
16	178	249	1,360	390	490	400	291	235	198	68	84	39
17	148	241	1,410	375	432	640	273	233	178	68	87	38
18	118	261	1,340	715	369	700	243	231	172	66	94	38
19	94	287	1,200	706	325	664	231	217	164	64	96	38
20	85	329	1,100	616	293	619	237	198	150	62	92	30
21	85	395	820	550	251	610	287	179	149	61	86	38
22	82	468	658	478	241	856	317	173	150	60	85	38
23	79	570	542	432	229	877	329	170	137	60	84	38
24	74	476	455	400	217	862	337	167	124	60	83	37
25	72	416	373	371	212	1,080	357	154	114	60	80	36
26	69	365	361	339	204	970	335	152	108	59	74	36
27	65	335	347	323	184	790	335	149	100	58	68	35
28	61	335	585	301	179	640	335	144	100	58	69	34
29	57	335	1,360	287		555	331	140	100	58	66	33
30	54	331	1,470	271		532	327	155	85	57	63	31
31	56		1,430	251		522		167		54	59	

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Monthly Discharge of Little Qualicum River, at Cameron Lake, for years ending
September 30, 1917-18.
(Drainage area, 54 square miles.)

Months.	Discharge in second-feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October.....	176	35	47	0-87	1-00	2,890
November.....	341	105	201	3-72	4-15	12,000
December.....	243	135	175	3-24	3-74	10,800
January.....	311	124	202	3-74	4-31	12,400
February.....	315	124	231	4-27	4-45	12,800
March.....	163	97	120	2-22	2-60	7,380
April.....	333	121	204	3-78	4-22	12,100
May.....	631	287	391	7-25	8-36	24,000
June.....	580	317	425	7-87	8-78	25,300
July.....	311	105	211	3-91	4-51	13,000
August.....	101	52	74	1-37	1-58	4,550
September.....	82	50	65	1-20	1-34	3,870
The year.....	631	35	196	3-62	49-04	141,090
1917-18						
October.....	261	54	152	2-82	3-25	9,350
November.....	570	57	294	5-45	6-08	17,500
December.....	1,470	179	600	11-10	12-80	39,900
January.....	2,250	251	741	13-70	15-80	45,600
February.....	2,600	179	672	12-40	12-90	37,300
March.....	1,080	112	431	7-98	9-20	26,500
April.....	496	231	338	66-26	6-98	20,100
May.....	402	140	238	4-41	5-08	14,600
June.....	311	85	170	3-15	3-51	10,100
July.....	108	54	71	1-32	1-52	4,570
August.....	94	50	69	1-28	1-48	4,240
September.....	56	31	41	0-76	0-85	2,440
The year.....	2,600	31	318	5-89	79-45	229,000

BIG QUALICUM RIVER. STATION NO. 8HB₁

Location.—At Esquimalt and Nanaimo Railway bridge. Twenty miles from Parksville.

Records Available.—Daily discharges, March 23, 1913, to April 20, 1914; May 21, 1914, to September 30, 1918.

Drainage Area.—Sixty-two square miles.

Gauge.—Nine-foot enamel vertical staff, located on left bank about one hundred feet above railroad bridge. Read daily by Mr. August Becque.

Channel and Control.—Even gravel bed. Channel straight for 300 feet above and below section. Control is not permanent.

Discharge measurements.—Made from cable carrier and by wading, one thousand feet upstream from gauge. Twelve measurements made during 1914-18 cover all but highest stage.

Winter Flow.—Open all year.

Accuracy.—"B" up to discharge of 450 cubic feet per second. "C" above 450 cubic feet per second. More discharge measurements are required at high-water stage.

Co-operation.—Gauge installed in 1913 by Provincial Water Rights Branch. Records to April 30, 1914, supplied by that branch.

Discharge Measurements of Big Qualicum River, 1½ mile above mouth, during 1916-18.

(Drainage area, 62 square miles.)

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1916.		Feet.	Sec.-ft.	1918		Feet	Sec.-ft.
Oct. 27	M. Balls.....	1-30	23-2	May 28	C. E. Webb.....	1-97	86-1
1917							
May 13	C. E. Webb.....	2-94	406-0				
Aug. 8	".....	1-45	34-3				

Daily Discharge
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Daily Discharge in Second-feet of Big Qualicum River, 1½ mile from mouth, for period January 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 62 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Aprl.	May.	June.	July.	Aug.	Sept.
1916-17												
1				140	170	170	240	510	320	140	45	25
2				140	170	140	240	510	320	140	45	25
3				140	200	140	280	510	320	140	35	25
4				200	200	170	320	460	280	140	35	25
5				410	240	170	320	410	280	140	35	25
6				410	240	140	320	460	280	120	35	25
7				360	280	140	410	510	280	120	35	25
8				360	280	140	410	510	280	120	35	25
9				410	280	120	410	510	280	100	35	25
10				460	320	120	410	510	280	100	35	25
11				460	360	120	410	460	280	100	35	25
12				410	360	100	460	460	240	85	35	35
13				410	360	100	460	460	240	85	35	35
14				360	360	100	460	460	240	85	35	35
15				320	360	100	460	410	240	85	35	35
16				320	260	100	410	360	240	85	25	35
17				280	320	100	410	360	200	85	25	35
18				240	320	100	360	360	200	70	25	35
19				240	320	100	360	320	200	70	25	35
20				240	280	100	360	320	200	70	25	35
21				200	280	120	360	280	200	70	25	35
22				200	240	120	360	280	200	55	25	35
23				170	240	200	360	280	200	55	25	35
24				170	240	200	360	280	200	55	25	35
25				170	240	200	360	280	200	55	25	35
26				170	200	200	360	280	170	45	25	35
27				170	200	200	360	280	170	45	25	45
28				170	170	240	410	280	170	45	25	45
29				170	240	460	280	170	45	25	45	45
30				170	240	460	280	140	45	25	45	45
31				170	240	240	280	280	45	25	45	45
1917-18												
1	45	35	360	2,130	320	320	810	240	100	55	25	45
2	120	45	320	3,230	280	320	740	280	100	55	35	45
3	120	85	320	2,500	360	320	680	280	100	55	35	45
4	120	100	280	2,100	1,910	280	560	280	85	45	35	45
5	120	140	280	1,400	1,300	280	510	280	85	45	35	35
6	120	140	240	1,200	1,210	240	460	280	85	45	35	35
7	100	140	240	1,100	1,120	240	460	240	85	45	25	35
8	85	140	200	1,000	1,300	240	410	240	85	45	25	35
9	85	140	200	960	4,880	240	560	240	85	45	35	35
10	85	140	200	810	7,080	200	560	200	280	45	35	35
11	85	170	200	740	5,000	200	510	200	280	45	35	35
12	85	200	170	680	3,500	200	510	200	280	45	35	35
13	85	200	170	626	3,000	200	460	200	240	45	35	35
14	70	120	320	560	1,900	280	410	200	200	35	35	35
15	70	170	510	510	1,120	510	470	170	170	35	55	35
16	70	140	880	460	1,120	1,910	360	170	140	35	55	35
17	55	140	1,400	620	960	1,700	360	170	140	35	70	25
18	55	120	1,210	880	810	1,600	320	140	140	35	70	25
19	55	120	1,040	810	680	1,640	280	140	120	25	70	25
20	55	280	810	740	620	1,500	320	140	120	35	70	25
21	45	360	740	620	560	2,020	320	120	120	35	70	25
22	45	360	620	620	510	2,350	320	120	100	35	70	25
23	45	320	510	560	410	1,910	320	120	100	35	70	25
24	45	320	460	560	410	1,910	320	100	100	35	70	25
25	45	280	410	510	360	1,910	320	100	85	35	70	25
26	35	360	360	460	360	1,600	280	100	85	35	70	25
27	35	360	410	460	360	1,500	280	100	70	35	55	25
28	35	360	620	410	320	1,300	240	100	70	35	55	25
29	35	360	1,120	410	1,210	240	100	70	35	55	25
30	35	360	1,040	360	1,040	240	100	55	25	55	25
31	35	1,800	320	960	100	25	55	25

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Monthly Discharge of Big Qualicum River, $1\frac{1}{8}$ mile from mouth, for years ending September 30, 1917-18.

[Drainage area, 62 squares miles.]

Month	Discharge in Second-Feet.				Run-Off	
	Maximum.	Minimum.	Mean	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	55	20	22	0.36	0.42	1,350
November	360	100	199	3.21	3.58	11,800
December	460	140	260	4.19	4.83	16,000
January	460	140	266	4.29	4.95	16,400
February	360	170	271	4.37	4.55	15,100
March	240	100	151	2.44	2.81	9,280
April	460	240	379	6.11	6.82	22,600
May	510	280	385	6.21	7.16	23,700
June	320	140	234	3.77	4.21	13,900
July	140	45	85	1.37	1.58	5,260
August	45	25	35	0.56	0.65	2,150
September	45	25	33	0.53	0.59	2,030
The year	510	20	193	3.12	42.15	139,570
1917-18						
October	120	35	68	1.10	1.15	4,180
November	360	35	208	3.35	3.74	12,400
December	1,800	170	563	9.08	10.50	34,600
January	3,230	320	914	14.70	16.90	56,200
February	7,080	280	1,490	24.00	25.00	82,700
March	2,350	200	971	15.70	18.10	59,700
April	810	210	419	6.76	7.54	24,900
May	280	100	176	2.84	3.27	10,800
June	280	55	126	2.03	2.26	7,500
July	55	25	40	0.65	0.75	2,460
August	70	25	50	0.81	0.93	3,070
September	45	25	32	0.52	0.58	1,900
The year	7,080	25	421	6.80	90.72	300,410

STAMP RIVER AT GREAT CENTRAL LAKE.—STATION NO. 8HB₀.

Location.—At outlet from Great Central lake.

Records Available.—Daily discharges February 20, 1913, to September 30, 1918.

Drainage Area.—One hundred and seventy-seven square miles.

Gauge.—Twelve-foot wooden staff nailed to crib in lake 300 feet to right of outlet. Gauge read twice daily by Mr. J. Drinkwater.

Channel and Control.—Straight for 300 feet above and 100 feet below section, rocky bed, some boulders. Control practically permanent.

Discharge Measurements.—Made from boat, 300 feet below lake. Eighteen measurements made during 1913-18 define rating curve and cover all but highest stage.

Winter Flow.—Open all year.

Accuracy.—"B" up to discharge of 5,000 cubic feet per second. "C" above 5,000 cubic feet per second.

Co-operation.—Station established in 1913 by Provincial Water Rights Branch.

Discharge Measurements of Stamp River, at Great Central Lake, during 1916-18.

[Drainage area, 177 square miles.]

Date.	Engineer	Gauge height.	Discharge.	Date.	Engineer	Gauge height.	Discharge.
		Feet.	Sec. ft.			Feet.	Sec. ft.
1916							
Oct. 31	M. Balls	2.10	841	1918			
1917				May 20	C. E. Webb	4.20	2,000
May 15	C. E. Webb	4.35	2,170				
Aug. 12	" "	1.98	700				

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Daily Discharge in Second-feet of Stamp River, at Great Central Lake, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 177 square miles.]

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Total in
cree-feet.

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11,800
16,000
16,400
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22,600
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13,900
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2,030
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1916-17.												
1				650	605	875	715	1,760	3,010	1,990	1,060	462
2				670	770	813	760	1,870	2,970	1,990	1,050	450
3				650	760	785	820	1,880	2,840	1,980	1,020	450
4				580	750	805	860	1,850	2,770	1,910	1,000	442
5				700	785	805	825	1,810	2,710	1,880	940	422
6				675	855	790	870	1,780	2,640	1,850	928	402
7				700	850	725	982	1,910	2,610	1,790	855	454
8				885	855	675	964	1,990	2,710	1,770	780	510
9				904	870	650	976	2,070	2,740	1,750	730	545
10				865	886	630	988	2,110	2,690	1,710	720	600
11				964	928	820	1,040	2,240	2,630	1,640	710	695
12				875	946	600	1,120	2,270	2,510	1,630	685	934
13				830	952	620	1,140	2,300	2,450	1,600	660	1,080
14				825	982	635	1,220	2,300	2,370	1,540	645	1,100
15				790	970	580	1,260	2,270	2,350	1,470	630	1,150
16				760	970	585	1,240	2,200	2,350	1,420	600	1,540
17				735	1,030	500	1,260	2,140	2,370	1,420	585	1,300
18				725	964	530	1,260	2,120	2,370	1,380	575	1,300
19				715	1,030	545	1,300	2,070	2,370	1,350	570	1,220
20				700	994	565	1,300	1,990	2,390	1,320	555	1,190
21				675	1,030	570	1,300	1,990	2,390	1,300	522	1,180
22				580	970	535	1,360	2,030	2,380	1,290	630	1,140
23				680	940	645	1,360	2,060	2,350	1,260	610	1,120
24				670	952	635	1,360	2,140	2,300	1,250	595	1,040
25				635	946	655	1,420	2,210	2,260	1,240	575	934
26				605	940	670	1,420	2,310	2,210	1,200	545	1,000
27				555	880	680	1,470	2,470	2,150	1,130	530	1,080
28				530	850	880	1,540	2,590	2,060	1,120	530	1,190
29				565	875	875	1,610	2,810	2,040	1,120	522	1,250
30				486	795	795	1,720	2,900	1,990	1,110	502	1,290
31				575	705	705	2,960			1,080	474	
1917-18												
1	1,830	575	2,590	7,420	1,420	1,510	2,610	2,430	1,650	1,320	715	450
2	1,780	660	2,460	8,930	1,600	1,420	2,550	2,390	1,640	1,290	750	438
3	1,880	780	2,290	9,500	1,680	1,350	2,420	2,790	1,620	1,250	760	430
4	1,800	1,090	2,150	9,160	2,860	1,310	2,260	3,100	1,590	1,250	760	422
5	1,820	1,820	1,960	8,230	3,230	1,250	2,120	2,940	1,590	1,190	745	410
6	1,780	2,170	1,820	7,800	3,400	1,190	1,990	2,960	1,530	1,160	730	398
7	1,730	2,130	1,680	6,860	3,810	1,130	1,950	2,810	1,580	1,110	715	378
8	1,630	2,060	1,580	6,090	6,170	1,070	1,980	2,750	1,620	1,080	690	366
9	1,550	2,220	1,530	5,420	10,600	1,020	2,930	2,630	1,860	1,050	665	350
10	1,360	2,190	1,540	4,670	10,700	976	3,190	2,590	2,800	1,040	655	334
11	1,230	2,730	1,490	4,250	9,160	940	3,100	2,460	3,020	1,010	645	324
12	1,180	2,930	1,310	3,910	7,210	922	3,010	2,460	2,940	982	625	321
13	1,200	2,940	1,350	3,550	6,380	928	2,880	2,390	2,870	946	620	321
14	1,110	2,760	1,750	3,320	5,460	988	2,800	2,380	2,820	904	610	312
15	1,040	2,600	1,980	3,140	4,600	1,010	2,750	2,390	2,600	875	605	303
16	988	2,380	2,540	2,810	4,300	1,120	2,570	2,370	2,400	850	610	291
17	934	2,350	2,890	3,000	3,750	2,020	2,450	2,370	2,360	840	595	282
18	845	2,280	3,080	3,090	3,530	2,250	2,310	2,330	2,310	820	585	279
19	830	2,340	3,520	3,170	3,260	2,500	2,160	2,280	2,070	815	580	270
20	815	2,990	3,400	3,060	2,880	2,610	2,260	2,200	2,030	825	575	264
21	735	4,610	3,260	2,730	2,570	2,730	2,360	2,070	1,920	850	570	258
22	725	5,010	3,100	2,550	2,340	2,980	2,410	1,960	1,860	860	565	252
23	725	4,600	2,410	2,440	2,170	3,040	2,480	1,860	1,830	825	565	246
24	645	4,100	2,490	2,380	1,990	3,160	2,430	1,780	1,790	795	555	240
25	605	3,580	2,290	2,320	1,850	3,190	2,390	1,720	1,740	780	550	234
26	585	3,290	2,130	2,210	1,720	3,140	2,380	1,680	1,700	765	540	228
27	575	3,150	2,230	2,090	1,630	3,020	2,390	1,610	1,650	740	518	219
28	540	3,120	2,590	1,960	1,570	2,920	2,370	1,580	1,560	725	506	216
29	535	2,910	3,700	1,880		2,810	2,370	1,580	1,490	710	496	210
30	550	2,730	4,480	1,700		2,050	2,430	1,610	1,360	670	474	210
31	535		6,370	1,460		2,680		1,710		650	450	

Monthly Discharge of Stamp River, at Great Central Lake, for years ending
September 30, 1917-18.

[Drainage area, 177 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	330	160	250	1.41	1.63	15,400
November	1,710	264	808	5.08	5.67	53,400
December	1,300	615	915	5.17	5.96	56,300
January	904	486	695	3.92	4.52	42,700
February	1,030	605	902	5.08	5.29	50,100
March	886	530	680	3.84	4.43	41,800
April	1,720	715	1,180	6.67	7.44	70,200
May	2,960	1,760	2,180	12.30	14.20	134,000
June	3,010	1,990	2,470	14.00	15.60	147,000
July	1,990	1,080	1,500	8.48	9.78	92,200
August	1,060	474	687	3.88	4.47	42,200
September	1,540	402	914	5.16	5.76	54,400
The year	3,010	160	1,106	6.25	84.75	799,700
1917-18						
October	1,880	535	1,100	6.21	7.16	67,600
November	5,010	575	2,640	14.90	16.60	157,000
December	6,370	1,310	2,510	14.20	16.40	154,000
January	9,500	1,460	4,230	23.90	27.50	260,000
February	10,700	1,420	3,990	22.50	23.40	222,000
March	3,190	922	1,910	10.80	12.40	117,000
April	3,190	1,950	2,480	14.00	15.60	148,000
May	3,110	1,580	2,260	12.80	14.70	139,000
June	3,020	1,360	1,990	11.20	12.50	118,000
July	1,320	650	935	5.28	6.09	57,500
August	760	450	613	4.59	5.29	37,700
September	450	210	308	1.68	1.87	18,300
The year	10,700	210	2,080	11.75	159.51	1,496,500

STAMP RIVER at STAMP FALLS—STATION NO. 8HB₁₀.

Location.—One-quarter mile above falls, 8 miles from Alberni on Beaver Creek road.

Records Available.—Daily discharges June 1, 1914 to September 30, 1918.

Drainage Area.—Three hundred and thirty-six square miles.

Gauge.—Fourteen-foot wooden staff on left bank 80 feet below measuring section. Frequent gauge reading by Mr. Robt. Darby.

Channel and Control.—Straight for 600 feet above and 300 feet below section. Rock bed with gravel. Control practically permanent.

Discharge Measurements.—Numerous measurements made from boat by Messrs. Ritchie Agnew Co. during 1913 and 1914; and 5 measurements made during 1914-1917 by this survey, cover all stages.

Winter Flow.—Open all year.

Accuracy.—"C".

Co-operation.—Station established in 1913 by Messrs. Ritchie and Agnew.

Discharge Measurement of Stamp River, at Stamp Falls in, 1917.

Date	Engineer	Gauge height.	Discharge.
		Feet.	Sec.-ft.
1917 Aug. 13	C. E. Webb	1.14	899

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Daily Discharge in Second-feet of Stamp River, at Stamp Falls, for period January 1, to September 30, 1917, and year ending September 30, 1918.

[Drainage Area, 336 square miles].

	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.													
1					800	800	960	1,130	2,850	4,490	2,680	1,130	560
2					880	880	1,040	1,040	2,850	4,240	2,680	1,130	560
3					880	960	1,040	1,040	2,850	4,240	2,510	1,040	560
4					1,230	960	960	1,340	2,680	4,240	2,510	1,040	510
5					1,130	960	960	1,450	2,850	4,490	2,340	960	460
6					1,130	1,340	960	1,560	3,020	4,750	2,340	960	510
7					1,130	1,560	880	1,670	3,020	4,490	2,200	880	560
8					1,130	1,670	880	1,670	3,620	4,240	2,200	880	660
9					1,230	1,560	800	1,800	3,190	4,020	2,060	880	720
10					1,230	1,670	720	1,800	3,190	4,020	1,930	800	800
11					1,230	1,800	800	1,930	3,390	3,800	1,930	800	720
12					1,340	1,800	800	1,930	3,590	3,800	1,670	800	800
13					1,340	1,930	800	2,060	4,020	4,020	1,450	720	1,560
14					1,340	1,930	720	2,200	3,590	3,800	1,230	720	1,670
15					1,230	1,800	720	2,200	3,190	3,590	1,040	720	1,930
16					1,130	1,930	800	2,200	3,020	3,590	960	720	2,060
17					1,040	1,800	720	2,060	2,850	3,590	880	660	1,930
18					1,040	1,800	720	2,200	2,850	3,390	880	660	1,800
19					960	1,670	800	2,340	2,680	3,390	800	660	1,560
20					880	1,670	800	2,340	2,680	3,390	720	660	1,340
21					880	1,560	880	2,510	2,850	3,190	660	720	1,230
22					880	1,450	960	2,510	2,850	3,190	660	720	1,130
23					960	1,340	1,040	2,680	3,190	3,390	720	800	1,130
24					960	1,230	1,040	2,510	3,390	3,190	720	720	1,040
25					880	1,130	1,130	2,680	4,020	3,190	880	720	1,040
26					880	1,040	1,230	2,680	4,490	3,020	1,040	660	1,230
27					800	1,040	1,230	2,850	5,010	3,020	1,040	660	1,340
28					800	960	1,450	2,850	4,750	2,850	1,130	660	1,450
29					880	800	1,560	2,850	4,750	2,850	1,230	610	1,560
30					800	800	1,340	2,680	4,490	2,880	1,230	610	1,670
31					800	800	1,130	2,680	4,490	2,880	1,130	610	1,670
1917-18.													
1		1,670	600	3,390	16,500	1,800	4,670	4,020	2,680	2,200	1,560	1,190	610
2		3,020	1,340	3,020	22,500	4,800	1,560	3,590	3,190	2,340	1,500	1,160	576
3		3,020	1,670	2,680	27,600	3,020	1,560	3,190	4,022	2,200	1,450	1,130	543
4		2,850	1,930	2,510	23,500	10,800	1,450	3,020	4,490	2,060	1,400	1,130	510
5		2,680	3,390	2,340	16,500	9,520	1,450	2,680	5,010	1,930	1,340	1,100	493
6		2,340	6,100	2,200	12,900	7,920	1,340	2,510	4,750	2,060	1,280	1,070	476
7		2,060	5,010	1,930	12,100	7,160	1,340	2,510	4,240	2,200	1,230	1,010	460
8		1,930	3,190	1,800	7,920	9,520	1,230	4,240	3,800	2,340	1,180	1,020	460
9		1,670	3,020	1,800	7,160	17,000	1,130	5,800	3,800	3,020	1,130	1,000	447
10		1,670	2,850	1,670	7,540	27,500	1,130	6,430	3,590	7,160	1,080	980	434
11		1,560	4,020	1,670	5,530	15,600	1,040	5,530	3,390	6,290	1,040	960	422
12		1,450	6,790	1,560	4,750	12,100	1,040	5,270	3,390	5,430	1,080	880	410
13		1,340	5,010	1,560	4,240	9,120	1,040	4,490	3,590	4,570	1,130	800	410
14		1,230	4,240	1,800	3,800	7,540	1,230	4,020	3,390	3,710	1,080	720	410
15		1,130	3,590	3,590	3,390	5,530	2,850	3,800	3,590	2,850	1,040	720	410
16		1,130	3,190	7,920	3,190	4,750	4,020	3,390	3,590	2,760	960	720	396
17		1,040	2,850	9,520	6,430	4,240	7,160	3,020	3,390	2,680	1,230	800	383
18		1,040	2,680	7,540	7,160	3,590	5,530	3,020	3,190	2,600	1,130	880	370
19		960	2,850	5,800	5,270	3,190	5,010	3,190	3,190	2,510	1,130	906	262
20		960	10,800	5,530	4,240	2,680	5,800	3,590	2,940	2,420	1,130	933	354
21		880	8,720	4,490	3,590	2,340	7,160	4,020	2,680	2,340	1,130	960	347
22		880	7,160	3,590	3,390	2,200	7,920	4,240	2,520	2,270	1,080	920	340
23		800	6,100	3,390	3,190	2,060	6,790	4,490	2,360	2,200	1,040	880	340
24		800	5,270	2,850	3,020	2,060	6,430	4,240	2,200	2,130	1,070	880	340
25		720	4,490	2,680	2,850	1,930	6,100	4,020	2,060	2,060	1,100	720	340
26		720	4,240	2,850	2,680	1,930	5,530	3,800	1,930	2,000	1,130	700	340
27		720	4,020	2,680	2,510	1,800	6,100	3,590	2,020	1,930	1,040	680	333
28		660	4,020	5,010	2,240	1,800	6,600	4,390	2,110	1,840	960	660	326
29		720	3,800	7,540	3,200	.....	4,750	3,190	2,200	1,750	1,000	643	320
30		660	3,590	12,500	2,060	4,490	3,020	2,270	1,670	1,040	610	320
31		660	17,500	1,930	4,240	2,340	1,230

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Monthly Discharge of Stamp River, at Stamp Falls, for years ending September 30, 1917-18.

[Drainage area, 336 square miles.]

Month	Discharge in Second Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	2,200	250	412	1.23	1.42	25,300
November	2,680	960	1,630	4.85	5.41	97,000
December	3,020	800	1,460	4.34	5.00	89,800
January	1,340	800	1,020	3.03	3.49	62,700
February	1,930	880	1,440	4.28	4.46	80,000
March	1,560	720	964	2.87	3.31	59,300
April	2,850	1,040	2,090	6.22	6.94	124,000
May	5,010	2,680	3,410	10.10	11.60	210,000
June	4,750	2,680	3,670	10.90	12.20	218,000
July	2,680	660	1,470	4.38	5.05	90,400
August	1,130	610	784	2.33	2.69	48,200
September	2,060	460	1,140	3.39	3.78	67,800
The year	5,010	250	1,624	4.83	65.35	1,172,500
1917-18.						
October	3,020	660	1,390	4.14	4.77	85,500
November	10,800	660	4,220	12.60	14.00	251,000
December	17,500	1,560	4,350	12.90	14.90	267,000
January	27,500	1,930	7,480	22.30	25.70	460,000
February	27,500	1,800	6,450	19.20	20.00	358,000
March	7,920	1,040	3,660	10.90	12.60	225,000
April	6,440	2,510	3,840	11.40	12.70	228,000
May	5,010	2,020	3,160	9.40	10.80	194,000
June	7,100	1,670	2,780	8.28	9.24	165,000
July	1,560	960	1,160	3.45	3.98	71,300
August	1,190	610	882	2.62	3.02	54,200
September	610	320	396	1.09	1.22	23,600
The year	27,500	320	3,314	9.86	132.93	2,382,600

SPROUT RIVER—STATION NO. 8HB.

Location.—At outlet from Sproat Lake.

Records Available.—Daily discharges March 1, 1913, to September 30, 1918.

Drainage Area.—One hundred and twenty-eight square miles.

Gauge.—Twelve-foot wooden staff nailed to crib on lake shore, 300 feet to right of outlet. Gauge read daily by Dr. Stirling.

Channel and Control.—Slight curve at section, straight for 500 feet above and below section, gravel and boulder bed, solid rock on left side. Control practically permanent.

Discharge Measurements.—Made from boat 800 feet below lake. Eighteen measurements made during 1913-18 define the rating curve and cover all but highest stage.

Winter Flow.—Open-water all year.

Accuracy.—"B" up to discharge of 6,000 cubic feet per second. "C" above discharge of 6,000 cubic feet per second. More discharge measurements required at high stage to accurately define upper portion of curve.

Co-operation.—Provincial Water Rights branch established station in 1913.

Discharge Measurements of Sproat River, at Sproat Lake, during 1916-18.

Date	Engineer	Gauge Height	Discharge	Date	Engineer	Gauge Height	Discharge
1916		Feet	Sec-ft	1918		Feet	Sec-ft
Nov 1	M. Balls	3.39	678	May 19	C. E. Webb	4.64	1,180
1917							
May 15	C. E. Webb	5.40	1,620				
Aug. 11	" "	2.53	436				

Daily Discharge in Second-feet of Sproat River, at Sproat Lake, for period January 1 to September 30, 1918, and year ending September 30, 1918.

[Drainage area 128 square miles.]

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Monthly Discharge of Sproat River, at Sproat Lake, for years ending September 30, 1917-18.

[Drainage area 128 square miles.]

Month	Discharge in Second-Foot.				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	570	138	208	1.63	1.88	12,800
November	1,190	705	947	7.40	8.26	56,400
December	1,420	714	1,060	8.28	9.55	65,200
January	902	660	809	6.32	7.29	49,700
February	1,190	660	955	7.46	7.77	53,000
March	876	570	663	5.17	5.96	40,800
April	1,340	760	1,100	8.60	9.60	65,500
May	1,810	1,410	1,600	12.50	14.40	98,400
June	1,890	1,330	1,600	12.50	14.00	95,200
July	1,280	654	952	7.45	8.59	58,500
August	636	300	442	3.46	3.99	27,200
September	690	244	489	3.82	4.26	29,100
The year	1,890	138	902	7.05	95.55	651,800
1917-18						
October	1,120	471	743	5.80	6.69	45,700
November	3,160	480	1,940	15.10	16.80	115,000
December	5,900	1,210	2,400	18.70	21.60	148,000
January	9,330	1,550	4,250	33.20	38.30	261,000
February	11,100	1,410	4,270	33.40	34.80	237,000
March	5,090	840	2,580	20.20	23.30	159,000
April	3,270	1,630	2,260	17.70	19.70	134,000
May	1,840	900	1,330	10.40	12.00	81,800
June	1,570	760	1,060	8.28	9.24	63,100
July	872	345	519	4.05	4.67	31,900
August	390	246	315	2.46	2.84	19,400
September	240	126	174	1.36	1.52	10,400
The year	11,100	126	1,820	14.22	191.46	1,306,300

PUNTLIDGE RIVER AT DIVERSION DAM STATION NO. 5HB7

Location.—At Diversion dam of Puntledge River Hydro-Electric Installation Canadian Collieries (Dunsmuir) Ltd.,

Records Available.—Daily discharges June 8, 1913 to September 30, 1918, supplied by Canadian Collieries (Dunsmuir) Ltd.

Drainage Area.—One hundred and seventy-five square miles.

Gauge.—Wooden staff located on right bank 50 feet above diversion dam.

Channel and Control.—Even flow over crest of dam. Water flowing through flume to intake is added, giving total flow of stream. Control is permanent.

Discharge Measurements.—Daily discharges obtained by weir measurements over dam, plus water to flume.

Winter Flow.—Open all year.

Co-operation.—All data on this station supplied by Canadian Collieries (Dunsmuir) Ltd.

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Daily Discharge in Second-feet of Puntledge River, at Diversion Dam, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area 175 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				440	400	640	510	1,400	2,600	1,300	440	400
2				390	440	640	510	1,400	2,600	1,300	440	400
3				390	440	600	510	1,400	2,480	1,300	400	400
4				390	440	600	510	1,400	2,380	1,300	400	400
5				390	440	600	510	1,400	2,280	1,300	400	400
6				390	440	600	510	1,400	1,950	1,300	400	400
7				390	440	560	560	1,400	1,940	1,300	400	400
8				390	440	560	560	1,530	1,940	1,060	400	400
9				390	480	560	560	1,680	2,060	1,060	400	400
10				440	480	560	560	2,040	1,930	1,060	400	400
11				440	480	590	600	2,400	1,930	1,060	400	400
12				440	530	560	600	2,150	1,800	980	400	400
13				440	570	560	600	2,150	1,670	980	400	400
14				440	570	520	630	2,040	1,660	980	400	400
15				480	570	520	630	2,160	1,600	980	400	480
16				480	570	520	630	2,040	1,760	980	400	480
17				480	600	520	620	1,850	1,760	900	400	480
18				480	600	520	620	1,680	1,850	900	400	480
19				480	700	500	720	1,580	1,850	900	400	480
20				430	980	500	720	1,500	1,850	900	400	480
21				430	780	500	720	1,220	1,850	900	400	480
22				430	700	500	980	1,220	1,850	900	400	480
23				430	700	520	1,040	1,300	1,860	840	400	480
24				430	700	520	1,040	1,300	1,680	520	400	480
25				430	700	520	980	1,300	1,500	520	400	480
26				430	640	520	980	1,660	1,400	440	400	480
27				430	640	520	980	1,940	1,500	440	400	480
28				430	640	520	980	2,270	1,500	440	400	480
29				400	400	520	1,130	2,480	1,500	440	400	520
30				400	400	520	1,220	2,600	1,500	440	400	520
31				400	400	520	520	2,600	440	400	400	520
1917-18												
1	520	360	1,220	3,700	520	700	1,670	650	1,760	780	610	520
2	560	360	650	5,160	520	700	1,670	700	1,760	654	610	520
3	1,760	360	650	6,180	560	480	1,560	1,350	1,670	654	650	520
4	2,050	360	650	6,180	1,940	480	1,300	2,040	1,160	654	650	480
5	1,950	520	650	5,200	2,360	480	1,070	2,590	900	654	650	480
6	1,850	1,400	650	4,560	2,360	480	1,060	2,460	640	654	650	440
7	1,750	1,850	650	4,120	2,360	480	1,060	2,360	640	654	650	440
8	1,650	1,850	600	3,660	2,360	480	1,060	2,360	1,000	654	650	440
9	520	1,760	600	3,200	3,600	480	1,210	2,260	1,580	654	650	440
10	440	1,760	600	2,940	3,720	480	1,660	2,060	1,930	654	650	440
11	440	1,850	600	2,820	3,860	480	2,000	1,860	2,820	654	650	440
12	400	2,160	560	2,820	3,740	440	2,360	1,660	2,820	654	608	440
13	400	2,160	570	2,820	3,440	440	2,260	1,300	2,820	654	608	440
14	400	2,480	610	2,700	3,200	480	2,060	1,300	2,900	654	608	440
15	400	2,350	600	2,700	3,040	770	2,060	1,300	2,570	654	608	440
16	400	2,250	700	2,580	2,920	1,270	1,760	1,300	2,460	654	608	440
17	400	1,880	840	2,470	2,800	1,850	1,240	1,380	2,160	654	608	440
18	400	1,500	1,080	2,600	2,700	2,160	640	1,380	1,300	654	608	440
19	400	1,050	1,580	2,600	2,580	2,160	640	1,380	640	654	608	440
20	400	1,220	1,950	2,470	2,360	2,160	720	1,360	640	654	608	440
21	400	1,940	1,860	2,270	2,250	2,160	720	1,360	640	654	608	400
22	400	2,600	1,840	2,270	2,050	2,160	780	1,360	700	654	608	400
23	440	2,600	1,760	2,040	1,940	2,360	1,560	1,360	840	654	608	400
24	640	2,480	1,650	2,040	1,860	2,360	2,040	1,360	840	654	608	400
25	920	2,260	1,280	1,860	1,580	2,360	2,040	1,220	840	654	560	400
26	920	2,050	910	1,660	1,230	2,360	1,950	980	840	654	560	400
27	980	1,850	910	1,380	1,060	2,160	1,600	600	840	654	560	400
28	800	1,580	900	1,220	700	2,050	850	600	840	654	560	400
29	360	1,220	1,240	710	520	2,360	760	640	840	654	560	400
30	360	1,220	2,200	520	520	1,880	840	760	780	654	520	400
31	360	3,600	520	520	1,760	1,760	900	900	654	520	400	520

Monthly Discharge of Puntledge River, at Diversion Dam, for years ending September 30, 1917-18.

[Drainage area 175 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	400	320	368	2 10	2 42	22,600
November	480	360	422	2 41	2 69	25,100
December	540	410	492	2 81	3 24	30,300
January	480	390	427	2 44	2 81	26,300
February	980	400	575	3 28	3 42	31,900
March	640	500	545	3 12	3 60	33,500
April	1,220	510	724	4 14	4 62	43,100
May	2,600	1,220	1,760	10 10	11 60	108,000
June	2,600	1,400	1,870	10 70	11 90	111,000
July	1,300	440	908	5 19	5 98	55,800
August	440	400	403	2 30	2 65	24,800
September	520	400	450	2 57	2 87	26,800
The year	2,600	320	745	4 26	57 80	539,100
1917-18						
October	2,050	360	764	4 36	5 03	47,000
November	2,600	360	1,640	9 37	10 50	97,600
December	3,600	600	1,100	6 28	7 24	67,600
January	6,180	520	2,830	16 30	18 80	174,000
February	3,860	520	2,270	13 00	13 50	126,000
March	2,360	440	1,340	7 65	8 82	82,400
April	2,360	640	1,410	8 05	8 98	83,900
May	2,560	600	1,430	8 17	9 42	87,900
June	2,900	640	1,410	8 05	8 98	83,900
July	780	654	658	3 76	4 33	40,500
August	650	520	607	3 47	4 00	37,300
September	520	400	438	2 50	2 79	26,100
The year	6,180	360	1,325	7 58	102 39	954,200

NOTE.—This data computed from hydrograph supplied by the Canadian Collieries (Dunsmuir) Limited.

PUNTLIDGE RIVER AT COURTENAY—STATION NO. 8HB₆

Location.—One mile from mouth, $\frac{1}{2}$ mile from Courtenay.

Records Available.—Daily discharges May 30, 1914 to September 30, 1918.

Drainage Area.—Two hundred square miles.

Gauge.—Fourteen-foot wooden staff nailed to piling of right abutment of trussed span of railway bridge. Read daily by Mr. Bubar.

Channel and Control.—Straight for 800 feet upstream and 200 feet downstream from section. Two channels at extreme high-water. Control liable to change during flood stage.

Discharge Measurements.—Made from highway bridge. Eleven measurements made during 1915-1918 cover all but highest stage.

Winter Flow.—Open all year.

Accuracy.—"B" Up to discharge of 4,500 cubic feet per second "D" above discharge of 4,500 cubic feet per second.

Discharge Measurements of Puntledge River, 1 mile above Mouth, during 1916-18.

(Drainage area, 200 square miles.)

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916				1917			
Oct. 26	M. Balls	1 40	313	May 29	C. E. Webb	4 40	3,380
1917				Aug. 12	" "	1 59	488
Jan. 30	C. E. Webb	1 60	493	1918			
Mar. 25	" "	1 87	677	May 29	C. E. Webb	2 45	1,160

Monthly Discharge of Puntledge River, near Mouth, for years ending September 30,
1917-18.

(Drainage area, 200 square miles.)

Month.	Discharge in Second Feet				Run-Off	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	780	170	452	2.26	2.61	27,800
November	1,040	465	578	2.89	3.22	34,400
December	1,270	520	629	3.14	3.62	38,700
January	622	493	539	2.70	3.11	33,100
February	780	493	692	3.46	3.60	38,400
March	780	610	679	3.40	3.92	41,800
April	1,720	610	1,080	5.40	6.03	64,300
May	3,360	1,660	2,330	11.70	13.50	143,000
June	3,030	1,570	2,250	11.30	12.60	134,000
July	1,660	492	1,010	5.05	5.82	62,100
August	492	437	446	2.23	2.57	27,400
September	1,000	437	624	3.12	3.50	37,100
The year	3,360	170	942	4.72	64.10	682,100
1917-18						
October	3,210	1,550	1,810	9.05	10.40	111,000
November			2,200	11.00	12.30	131,000
December			1,400	7.00	8.07	86,100
January	8,830	675	3,550	17.70	20.40	218,000
February	9,910	640	3,580	17.90	18.60	199,000
March	3,060	492	1,790	8.95	10.30	110,000
April	2,910	1,120	1,990	9.95	11.10	118,000
May	3,210	1,220	2,000	10.00	11.50	123,000
June	2,910	780	1,550	7.75	8.85	92,200
July	925	610	726	3.63	4.18	44,600
August	815	610	693	3.46	3.99	42,600
September	710	492	590	2.95	3.29	35,100
The year			1,823	9.11	122.78	1,310,600

TSOLUM RIVER—STATION NO. 8HB₁₁.

Location.—Foot-bridge, 2 miles above Sandwich.

Records Available.—Daily discharges May 31, 1914, to March 31, 1917.

Drainage Area.—One hundred and fifty square miles.

Gauge.—Twelve-foot enamel staff, 20 feet downstream from bridge on cribbing right bank. Gauge read twice daily by Mr. W. Calhoun.

Channel and Control.—Straight for 500 feet above and 300 feet below section. Gravel bed. Stream confined by cribbing, in high-water. Control is not permanent.

Discharge Measurements.—Made from foot bridge. Three measurements in 1916 and one in 1917.

Winter Flow.—Generally open all year.

Accuracy.—"C" Stage-discharge relation curve is not well defined owing to change in control, spring 1915.

Discharge Measurements of Tsolum River, 3 miles above mouth, during 1916-17.

Date	Engineer	Gauge height.	Dis-charge	Date.	Engineer.	Gauge height.	Dis-charge
		Feet.	Sec.-ft.	1917		Feet.	Sec.-ft.
1916 Oct. 26	M. Ball	4.46	2.50	Mar. 25	C. E. Webb	5.95	270

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Daily Discharge in Second-feet, of Tsolum River, 3 miles above mouth, for period January 1 to March 31, 1917.

[Drainage area, 150 square miles.]

Off.	Day.	Jan.	Feb.	March.
	1	100	120	145
Total in	2	100	120	145
Acre-feet	3	120	120	120
	4	145	145	120
	5	225	200	120
	6			
27,800	7	225	260	100
34,400	8	225	290	120
38,700	9	370	290	145
33,100	10	410	330	170
38,400	11	370	600	200
41,800	12	370	720	170
64,300	13	225	600	170
143,000	14	225	490	225
134,000	15	260	450	290
82,100	16	290	270	290
27,400	17			
37,100	18	260	410	260
	19	260	370	260
682,100	20	170	330	260
	21	145	330	225
	22	120	330	225
111,000	23			
131,000	24	100	330	290
86,100	25	82	290	410
218,000	26	100	330	490
199,000	27	100	370	410
110,000	28	120	330	410
118,000	29			
123,000	30	100	290	290
92,200	31	120	260	260
44,600		120	170	370
42,600		120		970
35,100		120		720
		120		660

Monthly Discharge of Tsolum River, 3 miles above mouth, for period January, 1916, to March, 1917.

[Drainage area, 150 square miles.]

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916						
October	540	2	56	0.37	0.43	3,440
November	720	50	291	1.94	2.16	17,300
December	1,180	120	334	2.23	2.57	20,500
1917						
January	410	100	186	1.24	1.43	11,400
February	720	120	330	2.20	2.29	18,300
March	970	100	292	1.95	2.25	18,000
The period	1,180	2	248	1.66	11.13	88,940

Note.—Discontinued March 31, 1917.

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Total in
Acre-feet
27,800
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OYSTER RIVER—Station No. 8HD₂.

Location.—One mile above mouth, at Island Highway Bridge, 18 miles from Courtenay.

Records Available.—Daily discharges June, 1914, to March 31, 1917.

Drainage Area.—Seventy square miles.

Gauge.—Twelve-foot enamel staff, nailed to cribbing on right bank 20 feet downstream from bridge.

Channel and Control.—Straight for 100 feet above and 400 feet below section, stream flows at a small angle to bridge. Control not permanent—changed in fall of 1915.

Discharge Measurements.—Made from highway bridge, 3 measurements define 1916-17 stage-discharge curve.

Winter Flow.—Occasionally affected by ice.

Accuracy.—"C".

Discharge Measurements of Oyster River, 1 mile from mouth, during 1916-17.

Date	Engineer	Gauge height.	Discharge.	Date	Engineer	Gauge height.	Discharge.
1916 Oct. 26	M. Balls	Feet 1.30	Sec.-ft. 35	1917 Mar. 24	C. E. Webb	Feet 1.93	Sec.-ft. 250

Daily Discharge in Second-feet of Oyster River 1 mile above mouth for period January 1 to March 31, 1917.

[Drainage area, 70 square miles.]

Day	Jan.	Feb.	March.
1	175	100	215
2	255	175	215
3	255	300	175
4	255	345	215
5	255	345	215
6	215	345	175
7	255	395	175
8	300	395	175
9	395	395	215
10	395	395	175
11	395	500	135
12	345	500	215
13	345	500	255
14	300	500	300
15	300	560	255
16	255	620	215
17	215	560	175
18	215	560	175
19	215	500	175
20	175	500	215
21	175	445	215
22	175	395	255
23	135	395	255
24	135	345	300
25	135	300	255
26	135	255	255
27	135	255	255
28	135	255	300
29	135	---	445
30	135	---	345
31	100	---	300

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Date	Engineer
1916 Oct. 24	M. F.
" 25	"
1917 May 25	C. E.
" 27	"
" 28	"
Aug 17	"

Monthly Discharge of Oyster River, 1 mile above mouth, for period October, 1916, to March, 1917.

[Drainage area, 70 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage area.	Total in acre-feet.
October 1916-17	395	40	75	1.07	1.23	4,610
November	395	135	253	3.61	4.03	15,100
December	560	70	202	2.89	3.33	12,400
January	395	100	227	3.24	3.74	14,000
February	620	100	398	5.69	5.92	22,100
March	445	135	234	3.34	3.85	14,400
The period	620	40	232	3.31	22.10	82,610

Note.—Discontinued March 31, 1917.

CAMPBELL RIVER—STATION NO. SHD₁

Location.—At outlet from Campbell Lake.

Records Available.—Daily discharges, May 10, 1910, to September 30, 1918.

Drainage Area.—Seven hundred and eighty square miles.

Gauge.—Twelve-foot enamel staff in sections, located one thousand feet above measuring section. Read twice daily by Mr. James Forbes.

Channel and Control.—Gravel and boulder bed. Channel straight for 200 feet above section. Rapids 100 feet below section. Control practically permanent.

Discharge Measurements.—Made from cable car. Twenty discharge measurements made during 1914-18 covering all but highest stage.

Winter Flow.—Open all year.

Accuracy.—"B" up to discharge of 7,000 cubic feet per second. "C" above 7,000 cubic feet per second.

Co-operation.—Gauge records previous to June 2, 1914 supplied by Campbell River Power Company. A cable car was also established in conjunction with this power company during 1915.

Discharge Measurements of Campbell River, at Campbell Lake, during 1916-18.

[Drainage area, 780 square miles.]

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1916		Feet	Sec.-ft.	1918.		Feet	Sec.-ft.
Oct. 24	M. Balls	0.60	454	May 29	C. E. Webb	2.76	2,500
" 25	" "	0.60	460	" 30	" "	3.18	3,230
1917				June 1	" "	3.97	4,140
May 25	C. E. Webb	3.77	4,000				
" 27	" "	4.45	5,020				
" 28	" "	5.36	6,470				
Aug 17	" "	1.81	1,410				

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Daily Discharge in Second-feet of Campbell River, at Campbell Lake, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 780 square miles.]

Table with columns: Day, Oct, Nov, Dec, Jan, Feb, March, April, May, June, July, Aug, Sept. Rows are numbered 1-31 for 1916-17 and 1917-18.

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Monthly Discharge of Campbell River, at Campbell Lake, for years ending September 30, 1917-18.

[Drainage area, 780 square miles.]

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Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
		Maximum.	Minimum.	Mean.	Per Square mile.	Depth in inches on Drainage area.	Total in acre-feet.
	1916-17						
	October	1,390	450	574	0.74	0.85	35,300
	November	2,460	970	1,690	2.17	2.42	101,000
	December	1,750	770	1,180	1.51	1.74	72,600
	January	1,700	780	1,100	1.41	1.63	67,600
	February	3,206	836	2,040	2.62	2.73	113,000
	March	1,410	820	1,020	1.31	1.51	62,700
	April	3,220	1,080	1,900	2.44	2.72	113,000
	May	8,300	3,160	4,260	5.46	6.30	262,000
	June	8,300	4,390	5,630	7.22	8.06	335,000
	July	4,700	2,380	3,570	4.58	5.28	220,000
	August	2,380	1,120	1,630	2.09	2.41	100,000
	September	2,920	900	1,730	2.22	2.48	103,000
	The year	8,300	450	2,194	22.81	38.13	1,585,200
	1917-18						
	October	4,900	900	1,910	2.45	2.82	117,000
	November	12,300	1,140	5,560	7.13	7.95	331,000
	December	14,600	1,750	4,300	5.51	6.35	264,000
	January	28,200	2,660	9,120	11.70	13.50	561,000
	February	24,900	1,700	7,390	9.47	9.86	410,000
	March	7,010	1,060	3,390	4.35	5.01	208,000
	April	5,490	2,560	3,780	4.85	5.41	225,000
	May	6,420	2,380	4,260	5.46	6.30	262,000
	June	10,500	3,180	5,280	6.77	7.55	314,000
	July	3,380	2,180	2,720	3.49	4.02	167,000
	August	2,340	1,370	1,890	2.42	2.79	116,000
	September	1,300	590	848	1.08	1.20	50,500
	The year	28,200	590	4,204	5.40	72.76	3,025,500

NOTE.—The rating curve for 1916-17 has been revised between gauge height of 0.5 and 6.3. The greatest change is at gauge height of 3.0, an increase in discharge of 8 per cent.

CHEAKAMUS—STATION NO. 8GA₁₇

Location.—At Watson on Pacific Great Eastern Railway, 1 mile above canyon.

Records Available.—Daily discharge December 1916 to September 30, 1918.

Drainage Area.—Not known.

Gauge.—Ten-foot staff in two sections, on right bank, near 21 Mile Post, read daily by Mr. C. Carlson.

Channel and Control.—Straight for 200 feet above and below metering section. Control appears permanent.

Discharge Measurements.—Made from cable car, one-half mile below gauge. Fifteen meter measurements made during 1916-1918 cover all but highest stage.

Winter Flow.—Open all winter.

Accuracy.—“B” below discharge of 4,000 cubic feet per second. “C” above discharge of 4,000 cubic feet per second.

Discharge Measurements of Cheakamus River, at Watson, during 1916-18.

Date	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916							
Dec 2	Hughes & Beeton	1.77	553	July 14	J. A. Elliott	5.40	4,610
1917							
Jan 26	Balls & Hughes	1.34	368	July 16	" "	5.35	4,240
July 5	F. MacLachlan	6.50	7,170	Aug 8	" "	4.50	2,620
July 6	" "	6.00	5,680	Sept 29	Balls & Milner	3.81	1,910
				1918			
July 5	Webb & MacLachlan	6.30	6,060	Feb 7	Swan & MacLachlan	2.95	1,140
July 12	J. A. Elliott	5.55	5,120	April 28	C. E. Webb	4.20	2,270
July 13	" "	5.45	4,380	July 5	" "	5.35	3,950
				July 8	" "	5.60	4,560

Daily Discharge in Second-feet of Cheakamus River, at Watson, for period Dec. 1916, to September 30, 1917, and year ending September 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1			526	435	351	386	393	1,090	5,020	4,080	2,230	2,500
2			550	435	351	383	397	1,050	4,540	4,300	2,350	2,540
3			902	428	372	383	400	1,140	4,300	4,300	2,770	1,760
4			707	428	442	393	428	1,310	2,930	4,780	2,850	1,760
5			610	435	614	400	510	1,280	4,300	6,830	2,620	1,620
6			534	452	590	393	558	1,500	3,090	5,770	3,010	1,460
7			530	442	478	386	566	1,520	3,870	4,300	2,900	1,500
8			542	478	478	383	745	1,800	8,470	4,080	2,700	1,460
9			530	510	478	379	750	2,620	5,400	4,300	2,700	1,460
10			510	490	478	372	760	2,900	3,370	4,780	2,500	1,710
11			502	590	486	365	760	2,960	2,850	4,900	2,900	1,950
12			486	490	478	372	750	3,230	5,520	4,300	2,900	2,930
13			463	456	478	372	634	2,620	5,400	4,080	3,230	3,560
14			449	417	478	365	630	2,090	5,400	4,080	3,090	2,290
15			463	414	486	358	653	1,850	5,270	4,300	3,310	2,430
16			456	407	566	358	795	1,640	5,520	4,300	3,460	2,540
17			449	400	534	358	902	1,500	4,780	4,540	3,700	2,740
18			463	393	490	358	919	1,520	3,460	4,780	4,350	2,470
19			456	400	470	365	653	1,540	3,870	4,780	4,780	1,950
20			449	407	442	365	810	1,710	4,080	4,900	5,020	2,060
21			456	400	442	358	891	1,850	5,020	4,780	4,590	1,850
22			449	400	435	358	848	2,350	4,300	4,080	3,660	1,760
23			449	400	428	425	831	2,470	3,870	3,090	2,540	1,620
24			400	393	421	428	820	2,620	3,180	2,770	2,500	1,480
25			365	393	414	390	902	3,230	3,420	2,930	2,470	1,310
26			351	386	407	390	1,050	3,870	3,230	2,930	2,620	3,460
27			379	386	403	390	1,240	4,780	3,660	3,460	2,500	2,770
28			386	383	397	400	1,170	5,770	3,760	4,300	2,700	2,540
29			382	365	407	407	1,140	5,020	3,660	2,770	3,130	1,800
30			418	365	400	960	5,520	3,870	2,350	2,850	1,460	
31			418	365	393	393	5,400		2,350	2,230	2,620	
1917-18.												
1	1,280	630	1,110	12,800	675	700	1,020	3,270	4,080	5,020	4,260	3,270
2	7,100	847	917	17,000	745	700	990	3,360	3,660	4,590	4,900	3,060
3	7,830	2,930	930	15,100	820	700	930	4,420	2,540	4,420	4,300	2,800
4	3,560	5,020	848	7,930	930	700	930	7,100	2,800	3,870	3,270	2,550
5	1,280	4,780	795	5,270	1,000	700	930	5,270	3,270	4,200	2,850	2,410
6	1,340	3,090	720	4,080	1,110	700	897	4,080	4,300	4,540	2,770	2,500
7	2,000	1,540	675	3,010	1,140	700	1,460	2,850	5,770	4,660	2,930	2,370
8	2,060	1,280	730	2,470	1,170	700	5,270	2,470	5,770	4,780	3,620	2,350
9	1,800	1,230	720	1,710	1,310	700	4,780	2,770	6,560	5,400	3,180	2,370
10	1,420	1,110	720	1,620	1,460	700	2,770	2,550	18,000	7,930	3,090	2,350
11	1,340	1,460	675	1,380	1,310	700	1,800	2,850	13,200	6,880	2,850	2,450
12	1,280	2,210	675	1,380	1,240	700	1,540	3,270	7,650	5,570	2,350	2,350
13	1,340	1,710	720	1,310	1,050	700	1,340	4,420	7,650	4,900	2,470	2,370
14	1,310	1,280	1,170	1,110	875	700	1,310	5,020	6,700	4,660	2,700	2,350
15	1,110	1,200	1,900	1,110	820	700	1,240	5,650	5,520	6,030	2,770	2,350
16	1,080	1,080	2,110	1,050	795	700	1,280	5,270	5,770	6,430	2,620	2,410
17	1,040	978	2,850	2,110	800	700	1,170	4,300	6,160	7,320	2,470	2,350
18	980	930	2,290	2,540	800	700	1,050	2,930	5,400	7,740	2,930	2,330
19	930	930	2,060	1,710	800	700	1,170	2,770	4,900	8,340	2,930	2,290
20	910	7,100	1,080	1,140	800	700	1,880	2,350	5,150	7,370	2,620	2,230
21	878	13,300	1,020	1,110	800	700	2,110	2,110	6,560	6,030	2,470	2,250
22	855	6,700	848	1,110	800	700	2,770	2,000	6,560	5,020	2,550	2,110
23	820	3,660	770	1,050	800	700	2,350	2,900	6,970	4,830	2,770	1,980
24	780	3,090	720	1,050	800	700	2,540	1,660	7,100	4,660	2,930	1,900
25	760	2,350	820	990	800	700	2,110	1,500	6,420	4,660	2,970	1,670
26	697	2,000	820	875	800	700	1,900	1,580	6,030	4,660	3,010	1,540
27	770	2,350	697	820	800	700	2,000	1,850	5,900	4,660	2,850	1,560
28	720	1,900	630	770	800	700	2,230	3,090	5,400	4,420	2,620	1,670
29	697	1,500	1,110	720	700	700	2,930	5,140	4,540	3,980	2,500	1,620
30	675	1,280	1,900	697	700	3,360	5,850	4,300	4,300	4,420	2,650	1,670
31	655		3,180	675	700		5,640			4,590	3,060	

NOTES.—No gauge reader available February 17 to March 31, 1918. Daily discharge estimated from study of climatic conditions.

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Monthly Discharge of Cheakamus River, at Watson, for period December, 1916, to September 30, 1917, and year ending September 30, 1918.

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Month	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in. Acre-feet
1916-17						
December	902	351	485			29,800
January	510	365	421			25,900
February	914	351	460			25,500
March	428	358	382			23,500
April	1,240	393	763			158,000
May	5,270	1,090	2,570			256,000
June	8,470	2,850	4,310			254,000
July	6,830	2,230	4,130			189,000
August	5,020	2,230	3,080			124,000
September	3,560	1,310	2,090			
The period	8,470	351	1,869			1,131,100
1917-18						
October	7,100	655	1,560			95,900
November	13,300	630	2,650			171,900
December	3,180	630	1,170			190,000
January	17,000	675	3,090			51,600
February			930			43,000
March			790			113,000
April	5,270	897	1,930			216,000
May	7,100	1,500	3,520			366,000
June	18,000	2,540	6,150			330,000
July	8,340	3,870	5,370			1,300,000
August	4,900	2,350	2,980			139,000
September	3,270	1,540	2,250			
The year			2,690			1,959,400

BRANDYWINE CREEK—STATION NO. 8 GA₁₆

Location.—Highway bridge just above falls, 27 miles from Squamish.

Records available.—Daily discharges from May 26 to December 31, 1915; May 5 to September 9, 1916; June 12 to September 30, 1918.

Drainage area.—Not known.

Gauge.—Vertical staff, located on left bank under highway bridge, Daily readings by Mr. C. Carlson.

Channel and control.—Rocky and covered with boulders. Control practically permanent.

Discharge measurements.—Made from highway bridge. Fifteen measurements during 1915 to 1918 give a well defined curve.

Winter Flow.—The stage discharge relation may be affected by ice.

Accuracy.—"B".

Discharge Measurements of Brandywine Creek, above Falls, during 1917-18.

Date	Engineer	Gauge height.	Discharge.	Date	Engineer	Gauge height.	Discharge.
1917		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
July 7	C. E. Webb	3.43	483	April 29	C. E. Webb	2.85	239
Sept. 28	Balls and Miller	2.39	132	July 6	"	3.26	338
				Oct. 10	F. MacLachlan	2.45	142

Daily Discharge in Second-feet of Brandywine Creek above Falls for period June 12, to September 30, 1917, and year ending September 30, 1918.

Day	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept.
1916-17												
1										610	280	95
2										450	400	110
3										440	400	110
4										530	340	110
5										530	490	80
6										460	530	80
7										460	460	125
8										330	460	225
9										490	460	570
10										610	490	250
11										530	460	225
12									430	530	340	160
13									570	530	340	160
14									650	400	400	140
15									570	610	400	125
16									490	610	400	95
17									610	610	490	80
18									650	690	400	95
19									490	490	342	80
20									650	650	284	80
21									610	530	225	80
22									370	460	200	65
23									370	400	180	80
24									340	460	180	65
25									370	460	180	65
26									460	540	140	490
27									530	460	140	200
28									530	430	110	140
29									570	400	125	95
30									690	400	80	95
31									430	430	110	
1917-18												
1	95	45	110	1,210	45	40	65	265	280	415	140	102
2	770	48	80	1,320	80	40	65	310	225	385	180	140
3	570	630	83	870	95	40	55	370	200	340	150	125
4	530	570	95	570	102	40	48	400	250	340	160	88
5	340	530	65	340	110	40	45	370	280	310	180	72
6	400	400	65	280	125	40	42	280	400	370	150	65
7	160	160	65	200	132	40	55	180	375	370	140	65
8	150	125	60	180	55	40	40	180	530	355	180	65
9	140	110	60	180	80	40	330	200	610	370	160	80
10	140	125	55	140	95	40	280	200	770	430	150	72
11	95	140	55	110	65	40	180	265	650	370	132	65
12	95	180	80	110	55	40	110	210	570	340	110	65
13	125	140	180	95	55	40	110	370	650	430	200	65
14	110	125	310	95	55	40	80	400	490	310	110	72
15	65	125	460	95	45	40	65	460	400	400	200	80
16	55	95	570	95	43	40	65	430	370	415	95	80
17	55	80	670	140	45	40	55	430	490	590	160	72
18	45	65	570	310	45	40	55	370	430	445	135	65
19	38	55	490	250	45	40	80	310	400	570	110	98
20	43	1,250	280	125	45	40	250	250	650	650	110	72
21	43	1,280	140	80	45	40	280	160	490	570	110	60
22	41	1,440	65	80	45	40	225	140	490	400	110	60
23	45	930	55	80	45	40	180	138	460	290	140	55
24	43	340	45	65	45	40	200	138	460	170	225	60
25	45	125	80	65	45	40	170	125	400	225	225	80
26	45	125	95	55	45	40	140	140	400	200	180	72
27	65	118	125	45	45	40	150	250	385	180	160	60
28	65	200	140	45	45	40	180	460	370	170	140	55
29	43	110	200	40	40	40	238	400	340	160	110	48
30	43	110	400	35	40	40	280	570	325	150	110	55
31	45		650	40	40	40		400		140	95	

NOTE.—No gauge reader available February 16 to April 1, 1918.
Daily discharge estimated from study of climatic conditions.

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Monthly Discharge of Brandywine Creek, above Falls, for the period July 1 to September 30, 1917, and year ending September 30, 1918.

Month.	Discharge in Second-Feet				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area	Total in Acre-feet.
July 1917	690	400	509			37,300
August	530	80	319			19,600
September	570	65	146			8,690
October 1917-18	770	38	146			8,980
November	1,780	45	343			20,400
December	670	45	206			12,700
January	1,320	35	235			14,400
February			63			3,500
March			40			2,400
April	530	42	154			9,160
May	570	125	302			18,600
June	770	200	441			26,200
July	650	140	348			21,400
August	225	95	147			9,040
September	140	48	74			4,400
The year			208			151,240

CAPILANO CREEK.—STATION NO. 8 GA₁₀

Location.—Approximately 300 feet above City of Vancouver intake. Six miles from mouth of creek.

Records Available.—Daily discharges from November, 1913, to September 30, 1918.

Drainage Area.—Sixty-four square miles.

Gauge.—Vertical staff gauge in three sections about 300 feet above intake on left bank read daily by Mr. Wm. Morrison.

Channel and Control.—Boulder bed. Channel straight for 100 feet above and below section. Control not permanent. Changed with flood in December, 1917.

Discharge Measurements.—Made from cable-carrier, foot bridge and by wading. Two rating curves, one used to January 1, 1918, the other after that date. Twelve measurements define curve used to January 1, 1918, and thirteen measurements define curve used from January 2, 1916.

Winter Flow.—Open-water all year.

Accuracy.—"B".

Co-operation.—Station established in co-operation with the City of Vancouver—Mr. F. L. Fellows, City Engineer.

Discharge Measurements of Capilano River, above City Intake, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet	Sec. ft.	1918.		Feet	Sec. ft.
1917				May 3	F. MacLachlan	3.81	1,830
May 22	Webb and Balls	3.52	980	" 22	"	2.48	515
Oct. 6	Webb and Hughes	2.42	424	" 22	"	2.47	501
1918				" 29	"	3.26	1,150
April 4	Webb and Milner	2.37	488	" 29	"	3.29	1,170
" 11	"	3.25	1,240	" 30	"	3.44	1,270
				" 30	"	3.50	1,370
				Sept. 9	Swan and MacLachlan	1.12	59.7
				" 9	"	1.12	63.4

DEPARTMENT OF THE INTERIOR.

Daily Discharge in Second-feet of Capilano River, above Intake, for the period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 64 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				100	120	120	240	780	2,330	1,330	390	100
2				120	150	120	240	780	2,590	1,570	390	100
3				120	120	120	240	715	1,830	1,570	430	100
4				120	600	120	540	715	1,220	1,570	430	80
5				2,330	935	150	780	715	1,120	1,570	350	80
6				600	715	150	540	855	1,120		350	80
7				430	430	150	715	1,330	1,330	1,020	310	120
8				540	430	120	1,570	1,960	2,200	1,020	270	210
9				715	480	120	780	2,460	2,330	1,020	270	120
10				480	540	120	660	2,080	1,450	1,020	270	100
11				660	780	120	780	1,570	935	1,120	270	120
12				390	780	120	540	3,110	855	1,220	270	600
13				310	600	120	540	2,330	1,220	1,020	270	480
14				240	480	120	540	1,700	1,960	1,020	240	270
15				210	390	120	540	1,220	2,200	1,020	240	935
16				180	480	100	480	1,020	2,200	1,020	240	390
17				180	430	100	540	855	1,570	1,020	240	270
18				150	350	100	600	780	1,330	935	240	210
19				150	310	120	540	855	1,450	855	210	150
20				150	270	120	780	935	1,450	780	350	120
21				120	240	120	1,020	935	1,450	715	270	120
22				120	210	120	780	1,020	1,450	600	210	180
23				120	180	270	935	1,220	935	480	180	100
24				120	180	310	660	1,570	1,330	430	150	100
25				120	180	210	780	1,830	1,450	480	150	150
26				120	150	150	780	2,330	1,330	540	120	430
27				180	150	210	935	2,460	1,330	540	120	780
28				150	120	210	1,020	2,460	1,450	1,330	120	780
29				120	120	780	1,020	2,460	1,570	540	120	430
30				100	100	390	1,020	2,080	1,020	430	120	310
31				120	120	270	2,080	2,080	390	390	120	
1917-18.												
1	240	240	430	8,240	365	325	655	1,420	655	465	85	70
2	5,840	210	350	4,080	415	325	465	1,540	655	415	85	70
3	2,080	4,410	270	5,690	1,420	325	415	1,800	525	365	105	70
4	715	935	240	3,500	4,080	325	415	2,340	730	325	85	70
5	480	4,540	210	1,540	2,480	325	415	1,300	900	365	85	70
6		350	1,020	210	5,250	3,640	325	465	900	1,080	325	85
7		310	600	180	1,800	1,420	325	585	810	1,300	325	85
8		270	390	150	1,080	1,800	525	1,670	730	1,080	325	85
9		240	310	240	730	3,500	325	4,080	810	1,420	325	150
10		210	270	210	525	1,420	325	1,930	900	2,760	585	900
11		150	430	210	525	730	325	1,180	1,080	1,080	465	465
12		150	600	180	655	465	325	990	1,180	1,300	325	285
13		120	430	180	465	365	325	810	1,180	1,080	345	180
14		120	310	1,830	585	325	465	655	1,080	990	345	150
15		120	270	1,570	465	325	730	525	1,300	655	245	245
16		120	240	6,880	415	325	2,480	465	900	730	285	365
17		100	210	1,220	4,080	325	2,340	465	810	900	245	415
18		100	180	1,830	2,340	325	2,340	415	990	655	245	900
19		100	150	660	900	365	1,420	585	730	730	245	810
20		80	7,790	350	655	365	810	1,930	810	810	325	48
21		100	1,830	270	465	365	4,810	2,060	585	810	285	285
22		80	855	210	365	365	2,900	1,670	525	730	210	285
23		80	540	180	415	325	1,420	1,420	585	810	180	210
24		120	390	180	465	325	5,840	1,300	415	810	150	180
25		120	390	180	365	365	2,760	900	415	525	150	150
26		150	310	T95	325	325	1,180	810	465	525	210	125
27		240	660	935	285	325	810	900	525	225	180	105
28		150	855	3,820	365	325	2,060	990	1,080	415	125	85
29		126	540	4,800	365	325	1,670	1,420	1,300	415	105	85
30		120	715	2,920	325	325	1,670	1,540	1,300	415	105	85
31		120	6,940	325	325	325	1,180	1,080	1,080	105	85	85

NOTES.—Gauge heights December 17, 1917—April 6, 1918, obtained from relation of gauges (at Intake and above Intake). Control changed Jan. 2, 1918.

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Monthly Discharge of Capilano River, above Intake, for years ending September 30, 1917-18.

[Drainage area, 64 square miles.]

Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
		Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
	1916-17						
100	October	1,840	45	166	2.60	3.00	10,200
100	November	3,240	150	526	8.22	9.17	31,300
100	December	4,020	80	345	5.40	6.23	21,200
80	January	2,330	100	308	4.81	5.54	18,900
80	February	935	120	386	6.03	6.28	21,400
100	March	780	100	176	2.75	3.17	10,800
120	April	1,570	240	705	11.00	12.30	42,000
600	May	3,110	715	1,520	23.70	27.30	93,500
480	June	2,590	855	1,530	23.90	26.70	91,000
270	July	1,570	390	948	14.80	17.10	58,300
935	August	430	120	249	3.89	4.48	15,300
	September	935	80	264	4.12	4.60	15,700
	The year	4,020	45	594	9.27	125.87	429,600
	1917-18.						
390	October	5,840	80	425	6.65	7.67	26,100
270	November	7,790	210	1,020	16.00	17.80	60,700
150	December	6,940	150	1,230	19.20	22.10	75,600
120	January	8,240	285	1,570	24.50	28.20	96,500
100	February	4,080	325	970	15.10	15.70	53,800
100	March	5,840	325	1,330	20.80	24.00	81,800
100	April	4,080	415	1,070	16.80	18.70	63,700
150	May	2,340	415	997	15.60	18.00	61,300
	June	2,760	415	867	13.50	15.10	51,600
430	July	585	105	274	4.28	4.93	16,800
780	August	900	85	247	3.86	4.45	15,200
780	September	70	40	54	0.84	0.94	3,210
430	The year	7,790	40	838	13.10	177.59	606,310

LYNN CREEK—SECTION NO. 8 GA₁₂

Location.—Below the overflow from the intake for the City of North Vancouver, and about 4 miles from the mouth of the stream.

Records available.—Daily discharges from June, 1914, to September 30, 1918.

Drainage area.—Fourteen square miles.

Gauge.—Cable gauge on flume bridge. Gauge read twice daily by Mr. J. Kirkland.

Channel and control.—The control is not permanent. Boulders and solid rock.

Discharge measurements.—Made from cable carrier and by wading—Ten measurements made during 1914-16 define curve to be used to March 9, 1917. Twelve measurements made during 1917-18 define rating curve to be used after March, 9, 1917.

Winter Flow.—Open-water all year.

Accuracy.—"B."

Co-operation.—The City of North Vancouver has co-operated in maintaining station.

Discharge Measurements of Lynn Creek, below Intake, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Jan. 5	Balls and MacLachlan	6.70	505.0	April 6	Webb and Balls	4.94	125.0
Mar. 16	Webb and MacLachlan	4.02	22.8	May 16	MacL. and Milner	5.27	178.0
" 27	H. C. Hughes	4.52	54.4	" 16	" "	5.26	179.0
May 11	Balls and MacLachlan	5.68	261.0	" 23	" "	5.04	138.0
Oct. 4	H. C. Hughes	5.62	240.0	Sept. 11	Swan and MacLachlan	3.52	10.5
Dec 15	MacL. and Wood	7.92	1,400.0	" 13	Craig and MacLachlan	3.46	8.14

and above

*Daily Discharge in Second-foot of Linn Creek, below City Intake, for the period
January 1, to September 30, 1917, and year ending September 30, 1918.*

[Drainage area 14 square miles.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				81	100	17	63	209	960	311	211	17
2				100	147	17	53	124	817	295	224	17
3				87	147	17	53	132	483	362	280	17
4				156	195	70	250	132	311	381	250	15
5				605	237	87	140	108	264	311	189	41
6				665	225	65	381	116	250	295	168	25
7				385	147	55	295	108	311	328	224	25
8				280	225	51	279	530	1,350	381	150	25
9				250	452	47	178	530	1,390	420	168	20
10				250	565	49	168	381	555	362	100	20
11				250	565	41	279	295	311	328	80	17
12				185	545	49	178	250	311	295	80	17
13				105	435	63	150	362	328	362	74	17
14				147	400	38	135	311	440	461	74	124
15				130	225	38	100	264	483	420	74	224
16				87	295	23	141	250	240	345	53	264
17				75	147	25	150	250	328	381	45	328
18				100	81	23	141	224	100	345	38	250
19				250	55	25	168	159	345	381	38	250
20				400	60	27	237	121	345	295	58	124
21				665	75	27	279	108	440	295	159	124
22				417	55	68	328	108	630	328	100	96
23				265	60	74	279	124	400	295	63	68
24				147	55	116	168	237	295	295	35	53
25				87	55	100	159	279	564	295	32	150
26				75	32	100	237	295	341	295	30	440
27				47	32	87	264	328	362	362	27	328
28				47	32	63	168	530	483	295	27	280
29				60	60	132	279	707	555	280	27	211
30				75	75	100	250	483	362	280	21	124
31				70	80	80	461	461	264	264	21	
1917-18												
1	94	22	362	1,460	108	53	150	80	150	21	45	23
2	420	87	362	2,980	132	49	132	74	150	23	124	23
3	440	462	328	1,110	189	32	100	108	132	20	116	23
4	256	410	328	1,140	108	23	100	124	141	20	100	22
5	200	345	264	580	63	22	100	150	109	29	100	22
6	116	217	211	362	141	20	132	132	108	19	100	19
7	138	116	189	328	280	27	116	132	116	17	168	18
8	100	100	168	328	211	74	150	108	94	16	483	18
9	80	87	162	211	116	168	100	100	87	16	818	18
10	52	137	116	400	116	345	80	100	87	16	1,080	17
11	32	735	80	735	100	708	80	74	63	15	818	16
12	25	562	45	960	108	1,080	53	80	63	14	400	12
13	23	400	309	708	132	818	58	53	63	14	328	11
14	21	400	708	362	150	440	32	63	63	23	295	10
15	23	280	2,110	237	116	328	30	80	45	23	530	14
16	23	132	3,440	189	200	237	45	108	45	23	872	13
17	22	108	2,420	264	116	116	108	124	74	25	1,320	12
18	25	100	1,520	100	100	100	108	211	49	22	1,420	11
19	32	100	120	208	30	63	80	460	45	20	708	11
20	32	100	362	483	23	27	63	362	38	20	362	10
21	23	63	328	345	25	38	63	328	38	18	483	10
22	23	63	250	237	38	80	53	328	32	18	872	10
23	38	63	189	168	23	132	100	328	32	27	1,260	8
24	53	45	150	132	23	280	108	250	38	23	798	8
25	94	45	132	116	20	168	108	224	27	20	550	8
26	63	32	168	100	27	116	80	211	23	19	400	8
27	45	27	483	100	23	100	100	200	23	18	280	8
28	27	80	1,920	80	38	132	108	200	22	14	132	6
29	23	168	818	100	116	124	178	20	14	18	108	9
30	23	630	483	63	168	116	168	20	14	14	80	14
31	20		362	63		211		150		18	55	

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Monthly Discharge of Lynn Creek, below City Intake, for years ending September 30, 1917-18.

[Drainage area 14 square miles.]

Month	Discharge in Second-Feet				Run-Off	
	Maximum	Minimum	Mean	Per square Mile	Depth in inches on Drainage Area	Total in Acre-feet
1916-17						
October	905	5	83	5.93	6.84	5,100
November	525	75	191	13.60	15.20	11,400
December	100	12	54	3.86	4.45	3,320
January	665	47	217	15.50	17.90	13,300
February	565	32	198	14.10	14.70	11,900
March	132	17	57	4.08	4.70	3,520
April	440	53	208	14.80	16.50	12,400
May	707	108	274	19.60	22.60	16,800
June	1,390	256	485	34.60	38.60	28,900
July	461	264	334	23.80	27.40	20,500
August	280	21	100	8.14	8.23	6,150
September	440	17	124	8.86	9.88	7,350
The year	1,390	5	194	13.82	187.00	139,770

Note.—New rating from March 9, owing to change in gauge control.

1917-18						
Month	Maximum	Minimum	Mean	Per square Mile	Depth in inches on Drainage Area	Total in Acre-feet
October	440	20	84	6.00	6.92	5,160
November	735	22	202	14.40	16.10	12,000
December	3,440	45	585	41.70	48.10	36,000
January	2,980	63	496	35.40	40.80	30,500
February	280	20	98	7.00	7.29	5,440
March	1,080	20	202	14.40	16.60	12,400
April	150	30	93	6.64	7.41	5,530
May	400	53	189	12.10	13.90	10,400
June	150	20	66	4.71	5.25	3,930
July	27	14	19	1.36	1.57	1,170
August	1,420	45	488	34.90	40.20	30,000
September	23	6	14	1.00	1.12	833
The year	3,440	6	210	15.00	205.26	153,363

SEYMOUR CREEK—STATION NO. 8 GA₁₃.

Location.—Above the city of Vancouver waterworks intake, about 7 miles from the mouth.

Records Available.—Daily discharges from November, 1913, to September 30, 1918.

Drainage Area.—Above the intake 69 square miles.

Gauge.—Vertical staff gauge spiked to the cribbing at the intake. Daily gauge readings by Mr. G. Skinner.

Channel and Control.—Boulders in channel. Control liable to shift during high water.

Discharge Measurements.—Made from cable carrier. Fourteen discharge measurements during 1913-18 cover all but high stage.

Winter Flow.—May be affected by ice for short period during coldest weather.

Accuracy.—"B" except where records are affected by ice conditions.

Co-operation.—Station maintained in co-operation with city of Vancouver. Mr. F. L. Fellows city engineer.

Discharge Measurements of Seymour Creek, above City Intake, during 1917-18.

Date	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
Mar. 25	Hughes and Balls	2.70	1,220	April 5	Webb and Milner	1.70	397
Oct. 5	Hughes and Webb	1.91	431	Sept. 9	Swan and MacL.	0.66	60.5

Daily Discharge in Second-feet of Seymour Creek, above City Intake, for the period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area 69 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				80	95	110	195	710	1,550	1,100	250	70
2				95	110	102	186	665	1,550	1,250	270	70
3				102	250	95	180	620	1,180	1,250	290	70
4				150	800	110	315	575	950	1,250	250	70
5				1,100	900	130	710	665	950	1,320	242	65
6				620	575	130	530	755	900	1,000	218	67
7				425	425	110	548	950	1,000	850	210	80
8				575	365	110	850	1,400	2,250	800	180	110
9				665	390	110	710	1,850	1,950	900	180	88
10				425	365	110	530	1,550	1,180	950	165	80
11				530	530	102	755	1,250	850	950	150	134
12				365	620	102	530	2,150	710	1,000	150	474
13				270	495	95	460	1,550	950	950	150	530
14				210	380	95	425	1,320	1,400	900	150	210
15				180	315	95	425	1,000	1,550	1,000	134	665
16				150	340	92	380	850	1,650	800	134	290
17				130	290	87	446	728	1,250	880	130	210
18				130	250	90	460	620	1,000	800	126	150
19				110	210	102	446	665	1,100	728	110	130
20				110	195	102	602	710	1,180	710	210	110
21				110	180	110	850	755	1,100	620	165	95
22				95	165	250	800	800	1,080	465	130	80
23				95	150	195	710	950	850	340	110	80
24				95	140	365	620	1,100	1,100	315	110	80
25				95	120	210	620	1,320	1,250	340	95	80
26				95	110	165	692	1,750	1,050	365	95	1,100
27				130	110	180	850	1,750	1,100	390	80	900
28				102	110	180	820	1,850	1,180	1,400	80	800
29				95		620	850	1,850	1,250	460	80	425
30				95		365	880	1,550	1,250	315	75	270
31				Ice 95		250		1,480		270	70	
1917-18												
1	210	150	530	8,200	150	110	710	1,000	530	365	88	80
2	4,700	330	365	4,200	150	110	460	1,000	575	340	95	80
3	2,600	3,120	290	4,450	516	110	390	1,250	495	290	95	75
4	900	1,000	250	1,950	2,330	110	365	1,750	620	270	88	70
5	530	3,700	195	1,180	1,550	95	340	1,000	800	290	80	70
6	340	1,100	180	2,600	1,650	88	340	800	900	270	80	65
7	250	620	165	1,480	1,400	88	425	710	1,100	250	80	60
8	210	390	150	1,100	900	88	800	665	900	250	80	60
9	180	290	180	800	2,150	83	3,950	710	1,100	230	110	60
10	150	230	165	575	1,400	80	1,550	755	2,800	575	390	58
11	140	390	180	460	850	80	1,000	850	1,000	390	340	58
12	130	460	150	530	620	80	800	950	1,000	230	180	58
13	110	340	850	425	80	710	1,000	1,050	180	150	55	55
14	110	250	1,950	495	340	110	620	800	900	180	130	55
15	110	210	4,120	495	270	250	530	1,050	620	180	140	55
16	95	180	10,300	390	230	1,100	460	800	710	180	210	55
17	95	150	2,350	2,600	210	1,400	390	755	800	180	180	55
18	88	140	2,600	2,600	180	1,950	340	710	620	165	665	52
19	80	130	1,180	900	150	1,000	460	710	665	165	710	52
20	80	7,600	665	620	130	900	1,250	620	665	250	340	52
21	80	1,950	425	460	130	2,350	1,550	530	800	230	210	52
22	80	1,000	315	365	110	2,350	1,250	425	710	165	195	52
23	80	620	250	350	110	1,000	1,100	460	620	140	180	52
24	88	390	210	390	110	4,320	1,000	390	620	130	150	52
25	110	425	180	340	110	3,000	755	340	460	110	130	52
26	120	290	165	290	110	1,180	620	365	460	150	120	50
27	150	390	638	250	110	800	710	460	460	130	110	50
28	130	1,050	3,000	250	110	1,180	800	800	390	120	110	50
29	110	620	8,050	230		1,000	1,050	1,000	340	110	102	49
30	102	800	1,950	180		1,100	1,050	1,000	365	102	80	50
31	95		12,400	150		900		900		95	80	

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Monthly Discharge of Seymour Creek, above City Intake, for years ending September 30, 1917-18.

[Drainage area 69 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October.....	1,750	50	183	2.65	3.06	11,300
November.....	3,000	110	494	7.16	7.99	29,400
December.....	2,600	80	271	3.93	4.53	16,700
January.....	1,100	80	243	3.52	4.06	14,900
February.....	900	95	321	4.65	4.84	17,800
March.....	620	87	160	2.32	2.67	9,840
April.....	880	180	579	8.40	9.37	34,500
May.....	2,150	575	1,150	16.70	19.20	70,700
June.....	2,250	710	1,210	17.50	19.50	72,000
July.....	1,400	270	797	11.50	13.30	49,000
August.....	290	70	154	2.23	2.57	9,470
September.....	1,100	65	253	3.65	4.07	15,100
The year.....	3,000	50	485	7.02	95.16	350,710
1917-18.						
October.....	4,700	80	395	5.72	6.60	24,300
November.....	7,600	130	944	13.70	15.30	56,200
December.....	12,400	180	1,750	25.40	29.30	107,000
January.....	8,200	150	1,370	18.40	21.20	78,100
February.....	2,350	100	590	8.55	8.90	32,800
March.....	4,320	80	874	12.70	14.60	53,700
April.....	3,950	340	857	12.40	13.80	51,100
May.....	1,750	340	790	11.50	13.30	48,600
June.....	2,800	340	770	11.20	12.50	42,800
July.....	575	95	216	3.13	3.61	13,300
August.....	710	80	184	2.67	3.08	11,300
September.....	80	49	58	0.84	0.94	3,450
The year.....	12,400	49	725	10.52	143.13	525,650

MESLILOET RIVER—STATION No. 8 GA₅

Location.—A short distance below canyon, 8 miles above mouth of river and in section 8, township 7, range 7, west of 7th Meridian.

Records Available.—Daily discharges from October, 1912, to September 31, 1918.

Drainage Area.—Sixty-five square miles.

Gauge.—Vertical staff gauge bolted to rock. Gauge readings taken twice a week by Mr. J. L. Davis.

Channel and Control.—Boulders and gravel bed. Control practically permanent.

Discharge Measurements.—Made from cable-carrier and by wading. Twenty-five measurements taken during 1912 to 1918, cover all but high stage.

Winter Flow.—Open-water conditions all year.

Accuracy.—"C" because of infrequent gauge readings.

Co-operation.—Gauge readings are maintained by the Westminster Power Company.

Discharge Measurements of Mesliiolet River, 8 miles above mouth, during years 1916-18.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
1916.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Oct. 12	Balls and Hughes.....	1.39	47.5	June 15	F. MacLachlan.....	2.84	396
1917.				June 20	" "	3.12	614
May 29	Balls and Hughes.....	3.75	838	July 28	M. Balls.....	2.01	139
Sept. 17	MacL. and Hughes.....	2.05	153	Aug. 3	J. Craig.....	1.93	150
Sept. 27	F. MacLachlan.....	2.78	403	Aug. 11	" "	2.80	318
Sept. 28	" "	2.70	310				
Nov. 22	" "	3.04	523				

DEPARTMENT OF THE INTERIOR.

Daily Discharge in second feet of Mesliloot River, 8 miles above mouth, for the period January 1 to September 30, 1917 and year ending September 30, 1918.

(Drainage area, 65 square miles.)

	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept
1				70	65	65	130	513	780	898	270	115
2				184	75	66	70	541	740	860	250	110
3				298	85	67	95	570	700	784	240	105
4				412	95	68	110	625	660	707	229	118
5				379	105	70	145	680	680	630	218	131
6				346	111	67	171	735	700	652	207	145
7				313	118	64	197	790	720	674	195	178
8				280	125	60	223	863	690	697	183	212
9				260	163	60	250	936	660	720	170	246
10				240	202	60	260	1,010	630	731	164	280
11				220	241	60	270	1,040	600	743	158	546
12				192	280	60	280	1,080	926	755	152	813
13				163	248	60	280	1,120	1,250	682	145	1,080
14				134	215	60	250	1,150	1,580	608	139	850
15				105	182	60	280	1,030	1,350	534	132	620
16				105	153	58	280	910	1,120	460	125	389
17				105	124	56	290	790	890	452	137	158
18				105	95	53	300	790	660	444	148	144
19				95	65	50	310	790	776	435	159	130
20				85	60	126	318	790	893	409	170	115
21				75	55	203	327	790	1,010	382	155	108
22				65	50	280	336	956	923	355	140	101
23				65	52	280	345	1,120	836	328	125	94
24				65	54	280	391	1,290	748	438	125	86
25				65	57	280	438	1,200	660	549	125	653
26				65	60	280	485	1,120	776	660	125	1,220
27				65	62	290	485	1,030	893	573	125	390
28				65	64	300	485	940	1,010	486	125	345
29				65	65	310	485	960	973	398	125	235
30				65	65	250	485	860	936	310	125	275
31				65	65	190	190	820	290	120	120	115
1917-18												
1	307	1,360	297	2,590	115	345	433	824	677	310	134	115
2	339	1,050	259	2,040	364	278	280	867	494	287	131	115
3	371	1,840	220	1,530	612	212	235	790	310	284	62	115
4	403	1,670	201	1,010	860	145	190	719	448	242	193	115
5	435	1,510	182	873	833	123	145	648	586	220	224	115
6	347	1,340	164	737	807	102	297	577	723	230	254	115
7	259	1,180	145	600	781	81	448	506	860	240	284	103
8	170	1,010	138	523	755	60	690	435	816	250	314	90
9	155	844	132	447	625	60	571	468	772	242	345	99
10	140	678	125	371	496	60	542	501	728	234	312	108
11	125	512	237	295	367	60	514	534	685	227	280	117
12	121	345	348	270	311	81	485	567	642	220	321	126
13	117	278	459	245	255	102	416	600	599	211	362	136
14	114	212	570	220	200	123	348	571	556	203	403	113
15	111	145	741	542	145	145	280	542	512	195	444	91
16	97	732	912	865	134	372	288	514	413	190	485	70
17	83	1,327	1,080	1,190	125	598	296	485	445	186	453	70
18	70	1,910	1,260	1,510	115	825	303	438	477	182	421	70
19	81	2,490	951	1,090	112	872	310	392	508	182	390	70
20	91	3,080	468	670	109	918	470	345	540	182	358	70
21	161	860	345	250	107	964	630	321	502	182	327	65
22	111	512	282	236	105	1,010	790	297	464	182	295	60
23	107	495	220	222	185	1,180	690	274	427	176	257	55
24	103	479	157	209	265	1,340	590	250	390	170	220	55
25	98	463	460	195	345	1,510	490	270	366	165	182	55
26	292	448	763	178	345	1,360	390	290	342	160	145	55
27	486	430	1,070	161	345	1,200	547	310	319	154	137	55
28	680	413	1,370	145	345	1,040	703	448	295	148	129	55
29	874	374	1,940	137	345	892	860	586	300	144	122	55
30	1,070	335	2,510	129	345	739	842	723	305	140	115	60
31	1,260	335	3,080	122	345	586	860	860	305	137	115	60

Note.—Discharge is interpolated between observed gauge heights.

Monthly

October
November
December
January
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The year

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Monthly Discharge of Mesliot River, 8 miles above mouth, for years ending
September 30, 1917-18.

(Drainage area, 65 square miles.)

Sept.	Month	Discharge in Second-Foot				Run-Off	
		Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area	Total in Acre-feet.
0	115						
0	110						
3	106						
9	118						
8	131						
7	145						
5	178						
3	212						
0	245						
4	280						
8	546						
2	813						
5	1,080						
9	850						
2	620						
5	389						
7	158						
8	144						
9	130						
0	115						
		1916-17					
	October	440	40	89	1.37	1.58	5,470
	November	860	105	370	5.69	6.35	22,000
	December	550	60	134	2.06	2.38	8,240
	January	412	65	155	2.07	2.39	9,530
	February	280	50	116	1.55	1.61	6,440
	March	310	50	136	1.81	2.09	8,360
	April	485	70	294	3.92	4.37	17,500
	May	1,290	513	896	11.96	13.70	55,100
	June	1,580	600	859	11.40	12.70	51,100
	July	808	290	569	7.69	8.76	35,000
	August	270	120	161	2.15	2.48	9,960
	September	1,220	86	333	4.44	4.95	19,800
	The year	1,580	40	343	4.66	63.36	248,440
		1917-18.					
	October	1,260	70	294	3.92	4.52	18,100
	November	3,080	145	967	12.90	14.39	57,500
	December	3,080	125	686	9.15	10.55	42,200
	January	2,560	122	631	8.41	9.70	38,800
	February	860	105	363	4.84	5.04	20,200
	March	1,510	60	561	7.48	8.62	34,500
	April	860	145	466	6.21	6.93	27,700
	May	860	250	511	6.81	7.85	31,400
	June	860	285	517	6.89	7.69	30,800
	July	310	137	208	2.77	3.19	12,800
	August	485	115	268	3.57	4.12	16,500
	September	135	55	56	1.15	1.28	5,120
	The year	3,080	55	463	6.18	83.88	335,620

BRANDT CREEK STATION NO. 8 GA.

Location.—One-half mile above the mouth of Young creek in Section 10, township 7, range 7, west of 7th Meridian.

Records Available.—Daily discharges from November, 1914, to December, 1916. Miscellaneous measurements during 1917. Daily discharges for climatic year 1917-18.

Drainage Area.—Not known.

Gauge.—Chain gauge read by-weekly by Mr. J. L. Davis.

Channel and Control.—New location for gauge established in October, 1917. Control appears permanent.

Discharge Measurements.—Ten discharge measurements made during 1917-18 define rating curve.

Winter Flow.—Open-water all year—ice conditions rare.

Accuracy.—"B".

Co-operation.—Gauge readings are maintained by the Westminster Power Company.

Discharge Measurements of Brandt Creek, above Young Creek, during 1917-18.

Date	Engineer	Gauge height.	Discharge		Date	Engineer	Gauge height.	Discharge	
			Feet	Sec. ft.				Feet	Sec. ft.
1917					1918				
May 30	H. C. Hughes and M. Balls	1.65		44.00	June 11	F. MacLachlan	1.75		50.50
Sept. 21	H. C. Hughes and F. MacLachlan				June 18	" "	1.22		24.40
			0.71	1.41	July 30	M. Balls		0.61	1.05
Oct. 3	F. MacLachlan		1.73	48.00	Aug. 5	J. Craig		0.55	1.39
Oct. 31	" "		0.82	7.69	Aug. 13	" "		0.72	3.61
Nov. 4	" "		1.19	19.6					
Nov. 23	" "		0.80	5.70					
Nov. 26	" "		0.72	3.53					

Daily Discharge in Second-feet of Brandt Creek, above Young Creek, for year ending September 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1	70.0	10.0	1.7	65.0	12.0	2.6	13.0	31.0	22.0	30.0	1.4	1.6
2	60.0	14.0	1.4	70.0	15.0	2.4	13.0	28.0	24.0	32.0	1.3	1.4
3	50.0	17.0	1.2	65.0	18.0	1.8	13.0	25.0	26.0	34.0	1.2	1.3
4	46.0	21.0	1.0	59.0	20.0	1.6	17.0	23.0	27.0	34.0	1.1	1.2
5	43.0	21.0	0.8	53.0	23.0	1.5	21.0	21.0	29.0	33.0	1.0	1.2
6	40.0	21.0	0.6	47.0	26.0	1.4	24.0	19.0	33.0	33.0	1.4	1.2
7	37.0	21.0	0.8	41.0	23.0	1.4	27.0	17.0	37.0	32.0	1.8	1.1
8	34.0	20.0	1.0	36.0	20.0	1.4	30.0	15.0	40.0	32.0	2.2	1.1
9	31.0	20.0	1.1	31.0	17.0	1.4	33.0	13.0	44.0	31.0	2.5	1.1
10	26.0	19.0	1.2	27.0	14.0	1.4	36.0	13.0	47.0	31.0	2.8	1.0
11	21.0	18.0	1.3	23.0	11.0	1.4	33.0	14.0	50.0	30.0	3.2	1.0
12	17.0	18.0	1.4	19.0	8.0	1.4	30.0	15.0	45.0	29.0	3.5	0.9
13	14.0	17.0	9.0	15.0	6.0	1.4	27.0	16.0	41.0	28.0	3.8	0.8
14	11.0	15.2	10.0	11.0	6.3	3.0	25.0	16.0	37.0	28.0	4.4	0.7
15	8.0	13.4	23.0	7.0	6.6	6.0	23.0	17.0	33.0	27.0	5.0	0.6
16	6.0	11.6	30.0	3.2	6.9	8.0	21.0	16.0	29.0	27.0	5.5	0.6
17	4.4	9.6	38.0	2.9	7.2	10.0	21.0	15.0	25.0	26.0	6.1	0.6
18	2.9	9.0	45.0	2.6	7.5	12.0	22.0	14.0	21.0	22.0	6.7	0.6
19	1.4	8.4	53.0	2.3	7.8	14.0	23.0	13.0	21.0	19.0	7.2	0.6
20	3.5	7.8	49.0	2.0	7.3	17.0	23.0	12.0	20.0	16.0	7.8	0.6
21	5.6	7.2	46.0	1.8	6.8	17.0	24.0	11.0	20.0	13.0	8.3	0.6
22	7.6	6.6	43.0	1.6	6.2	16.0	25.0	9.6	19.0	10.0	8.9	0.6
23	9.6	6.0	40.0	1.4	5.6	16.0	26.0	11.0	19.0	6.0	9.6	0.6
24	11.5	5.1	37.0	1.7	5.0	16.0	26.0	12.0	18.0	2.3	8.0	0.6
25	13.4	4.2	34.0	2.0	4.4	15.0	27.0	13.0	18.0	2.2	6.6	0.6
26	15.2	3.2	31.0	2.3	3.8	15.0	27.0	14.0	17.0	2.1	5.2	0.6
27	17.0	2.9	37.0	2.6	3.2	15.0	28.0	15.0	20.0	2.0	3.8	0.6
28	13.0	2.6	43.0	2.9	2.9	15.0	28.0	16.0	23.0	1.8	2.3	0.6
29	9.0	2.3	49.0	3.2	.....	14.0	29.0	17.0	26.0	1.7	2.1	0.6
30	6.0	2.0	54.0	6.0	.....	14.0	30.0	19.0	28.0	1.6	1.9	0.6
31	6.0	.....	59.0	9.0	.....	14.0	.....	21.0	.....	1.5	1.8	.....

NOTE.—Discharges interpolated between observed gauge heights.

Monthly Discharge for Brandt Creek, above Young Creek, for year ending September 30, 1918.

Month	Discharge in Second-Feet.				Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
	Maximum.	Minimum.	Mean.	.....		
October	70.0	1.4	20.6	.....	.....	1,270
November	21.0	2.0	11.8	.....	.....	702
December	59.0	0.6	24.2	.....	.....	1,490
January	70.0	1.4	19.9	.....	.....	1,220
February	26.0	2.9	10.7	.....	.....	594
March	17.0	1.4	8.3	.....	.....	510
April	36.0	13.0	24.8	.....	.....	1,480
May	31.0	9.6	16.5	.....	.....	1,010
June	50.0	18.0	28.6	.....	.....	1,700
July	34.0	1.5	19.9	1,220	
August	9.6	1.0	4.1	252	
September	1.6	0.6	0.8	48	
The year	70.0	0.6	15.8	11,496	

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YOUNG CREEK—STATION NO. 8 GA7.

Location.—At mouth, in section 10, township 7, range 7, West of 7th Meridian.

Records Available.—Daily discharges from October, 1912, to September 30, 1917. Not sufficient data available to publish daily discharges for 1917-18.

Gauge.—Vertical staff. Bi-weekly gauge readings by Mr. J. L. Davis.

Channel and Control.—Solid rock. Control practically permanent.

Discharge Measurements.—Made by wading. Seventeen meter-measurements made during 1912 to 1917 give a well defined rating curve.

Accuracy.—"C" because of infrequent gauge readings. The rating curve is revised slightly for this report.

Co-operation.—Gauge readings maintained by the Westminster Power Company.

Discharge Measurements of Young Creek, near mouth, during 1916-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec. ft.			Feet.	Sec.-ft.
1916				1918			
Oct. 14	Hughes and Balls	0-70	0-70	June 11	F. MacLachlan	1-41	31-10
1917	"			June 18	"	1-10	16-00
May 30	"	1-68	40-50	July 30	M. Balls	0-87	3-40
Sept. 21	Hughes and MacLachlan	0-76	2-14	Aug. 6	J. Craig	0-81	2-98
Oct. 2	F. MacLachlan	2-05	88-40	Aug. 13	"	1-00	8-58
Oct. 31	"	1-09	8-65				
Nov. 23	"	1-22	13-20				

Daily Discharge in Second-feet of Young Creek, above mouth, for the period January 1 to September 30, 1917.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1				2-4	7	0-8	4-2	44	47	60	7-5	3-7
2				2-4	7	0-8	4-2	47	46	52	8-0	3-2
3				13-0	7	0-8	4-2	50	45	44	3-5	2-8
4				24-0	7	0-9	8-5	53	44	41	7-4	2-4
5				35-0	7	0-9	12-8	56	44	38	6-3	3-9
6				34-0	7	1-0	17-0	59	47	35	5-2	5-4
7				33-0	8	1-0	18-0	62	50	35	4-2	7-6
8				32-0	9	1-0	18-0	65	53	35	3-9	10-0
9				32-0	10	1-0	19-0	69	50	35	3-6	14-0
10				27-0	9	0-9	20-0	73	48	35	3-6	18-0
11				22-0	8	0-8	21-0	77	46	36	3-0	22-0
12				17-0	7	0-7	23-0	87	44	38	2-8	40-0
13				16-0	7	0-6	25-0	97	51	40	2-6	58-0
14				15-0	6-6	0-6	21-0	108	58	34	2-4	77-0
15				14-0	6-1	0-6	17-0	118	65	28	2-1	66-0
16				13-0	5-6	0-6	14-0	97	62	22	1-9	55-0
17				11-5	4-4	0-7	11-0	75	59	17	1-7	44-0
18				10-0	3-2	0-8	11-0	53	56	15	2-3	33-0
19				9-4	2-1	0-9	12-0	56	53	13	2-9	22-0
20				8-8	1-0	1-0	13-0	59	61	12	3-5	12-0
21				8-2	1-0	1-4	14-0	62	69	11	4-2	1-7
22				7-6	1-0	1-9	15-0	65	77	11	4-2	9-0
23				7-0	1-0	2-4	16-0	78	66	10	4-2	16-0
24				7-0	0-9	2-4	17-0	91	55	10	4-2	23-0
25				7-0	0-9	2-4	24-0	104	44	12	4-2	30-0
26				7-0	0-8	2-4	32-0	84	52	14	4-2	37-0
27				7-0	0-8	2-4	40-0	64	60	17	4-2	44-0
28				7-0	0-8	3-0	41-0	51	68	14	4-2	51-1
29				7-0		3-6	42-0	50	77	11	4-2	58-0
30				7-0		4-2	43-0	49	68	9	4-2	66-0
31				7-0		4-2		48		7	4-2	

ending

Sept.	
4	1-6
3	1-4
2	1-3
1	1-2
0	1-2
4	1-2
2	1-1
8	1-1
5	1-1
8	1-0
2	1-0
5	0-9
8	0-8
4	0-7
0	0-6
5	0-6
1	0-6
7	0-6
2	0-6
8	0-6
3	0-6
9	0-6
0	0-6
6	0-6
0	0-6
2	0-6
8	0-6
0	0-6
1	0-6
3	0-6
0	0-6
8	0-6
9	0-6
8	0-6

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Total in Acro-feet.
1,270
702
1,490
1,220
594
510
1,480
1,010
1,700
1,220
252
48
11,496

Monthly Discharge of Young Creek, above mouth, for year ending September 30, 1917.

Month	Discharge in Second-Feet.			Per Square Mile	Run-Off	
	Maximum	Minimum	Mean		Depth in inches on Drainage Area	Total in Acre-feet.
October	49.0	0.4	4.6			283
November	63.0	2.0	31.0			1,840
December	53.0	0.6	10.5			646
January	35.0	2.4	15.0			892
February	10.0	0.8	4.9			270
March	4.2	0.6	1.5			92
April	43.0	4.2	19.0			1,150
May	118.0	44.0	70.0			4,270
June	73.0	44.0	56.0			3,300
July	60.0	7.0	26.0			1,570
August	8.5	1.7	4.0			247
September	77.7	1.7	28.0			1,650
The year	118.0	0.4	22.5			16,210

NORTON CREEK - STATION NO. 8 GA₆

Location.—At the outlet of Norton lake in section 10, township 7, range 7, west of the 7th Meridian.

Records Available.—Daily discharges from October, 1912, to September 30, 1918.

Gauge.—Vertical staff. Bi-weekly readings by Mr. J. L. Davis.

Channel and Control.—Boulders. Control not permanent.

Discharge Measurements.—Made by wading. Twelve meter-measurements made during 1916-18 cover all but high stage.

Winter Flow.—The lake freezes over but the stream is free of ice at the gauge throughout the winter.

Accuracy.—"C" Low because of infrequent gauge readings. The discharge curve is well defined.

Co-operation.—The gauge readers are maintained by the Westminster Power Company.

Discharge Measurements of Norton Creek, at Norton Lake, during 1916-18.

Date	Engineer	Gauge height Feet	Dis-charge Sec. ft.	Date	Engineer	Gauge height Feet	Dis-charge Sec. ft.
1916				1918			
Oct. 16	Balls and Hughes	1.69	0.23	June 13	F. MacLachlan	2.40	5.60
1917				" 18	" "	2.23	3.14
May 26	" "	3.01	19.50	Aug. 1	M. Balls	1.98	1.71
Sept 18	MacLachlan and Hughes	2.74	2.51	" 8	J. Craig	1.91	1.16
" 30	F. MacLachlan	2.35	6.06	" 12	" "	2.30	5.99
Oct. 31	" "	2.62	1.61				
Nov. 6	" "	3.02	26.30				
" 24	" "	2.64	12.80				
" 25	" "	2.58	10.70				

Daily Discharge in Second-feet of Norton Creek, at Norton Lake, for the period January 1 to September 30, 1917, and year ending September 30, 1918.

0, 1917.

off

Total in
Acres-foot.
—
283
1,840
646
892
270
92
1,150
4,270
3,300
1,570
247
1,650
16,210

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Dis-
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Sec.-ft.
5.60
3.14
1.71
1.16
5.99

Day	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept.
1916 17				0.20	2.40	2.40	4.30	14.5	23.8	27.8	11.6	0.4
2				0.20	2.40	2.40	3.95	16.7	23.2	21.1	11.6	0.4
3				0.60	3.00	2.70	3.60	19.0	22.6	14.5	11.6	0.4
4				1.00	3.60	3.00	4.05	21.3	22.0	13.5	10.4	0.4
5				1.50	4.30	3.30	4.50	27.3	21.3	12.5	9.2	0.4
6				1.10	5.00	3.60	5.00	33.4	22.5	11.6	8.0	0.5
7				0.80	5.60	3.60	5.00	39.5	23.7	11.6	6.9	0.6
8				0.50	6.20	3.60	5.00	45.6	25.0	11.6	6.2	0.6
9				0.20	6.90	3.60	5.00	48.5	26.0	11.6	5.6	0.8
10				0.18	6.00	3.60	5.00	51.4	27.0	11.6	5.0	1.0
11				0.16	5.20	3.60	5.30	54.4	28.0	12.0	4.1	1.2
12				0.15	4.40	3.60	5.60	55.5	29.0	12.5	3.2	3.8
13				0.30	3.60	3.60	5.95	56.6	30.0	13.0	2.3	6.4
14				0.45	3.60	3.60	5.70	57.7	31.0	14.6	1.5	9.1
15				0.60	3.60	3.60	5.45	58.8	33.0	16.2	1.2	7.5
16				0.80	3.60	3.60	5.20	47.5	32.0	17.9	0.9	6.0
17				2.20	2.30	3.30	5.00	36.2	31.0	19.6	0.6	4.5
18				3.60	3.00	3.00	5.30	25.0	30.0	20.2	0.6	3.0
19				3.60	2.70	2.70	5.60	22.3	29.0	20.8	0.6	2.4
20				3.60	2.40	2.40	5.95	19.7	33.1	21.3	0.6	2.0
21				3.40	2.40	2.80	7.0	17.1	37.2	19.6	0.6	1.5
22				3.60	2.40	3.20	7.50	14.5	41.2	17.9	0.6	2.0
23				3.60	2.40	3.60	8.30	18.0	39.1	16.2	0.6	2.5
24				3.60	2.40	3.60	9.10	21.5	37.0	14.5	0.6	3.0
25				3.60	2.40	3.60	9.90	25.0	35.0	15.6	0.5	3.5
26				3.60	2.40	3.60	10.70	25.0	33.0	16.7	0.5	4.0
27				3.20	2.40	3.60	11.60	25.0	35.7	17.8	0.4	4.5
28				2.80	2.40	4.05	12.30	25.0	38.4	16.2	0.4	5.0
29				2.40		4.50	13.70	25.0	41.2	14.6	0.4	5.5
30				2.40		5.00	13.00	25.0	34.5	13.1	0.4	6.0
31				2.40		4.65		24.4		11.6	0.4	
1917 18	6.0	1.5	5.7	12.0	13.0	3.8	18.0	33.0	10.0	3.0	1.5	1.3
2	25.0	6.2	5.0	11.6	16.0	3.3	15.0	33.0	11.0	3.3	1.4	1.1
3	31.0	10.9	4.4	46.5	20.0	2.8	11.6	31.0	12.0	3.6	1.3	0.9
4	30.0	16.2	3.7	42.0	23.0	2.3	10.4	30.0	13.0	3.3	1.2	0.8
5	29.0	29.8	3.0	37.0	26.0	1.9	15.0	29.0	14.5	3.0	1.2	0.8
6	28.0	25.0	2.4	32.0	29.0	1.5	20.0	27.0	15.0	2.7	1.1	0.8
7	27.0	23.0	2.6	27.0	29.0	1.5	24.0	25.0	15.5	2.4	1.0	0.7
8	26.0	21.0	2.8	23.0	26.0	1.5	29.0	23.0	16.0	2.1	0.9	0.7
9	25.0	20.0	3.0	17.8	23.0	1.5	33.0	21.3	17.0	1.8	1.5	0.7
10	22.6	18.0	3.2	17.8	21.0	4.5	37.0	19.0	17.3	1.5	2.1	0.6
11	20.2	17.0	3.4	16.0	19.0	1.5	37.0	17.0	17.8	4.0	2.7	0.6
12	17.8	16.0	3.6	14.0	17.0	1.5	33.0	15.0	12.0	6.0	3.3	0.6
13	15.1	14.5	3.6	12.0	14.5	1.5	29.0	13.0	6.9	8.0	3.9	0.5
14	12.3	12.7	10.0	10.0	14.5	2.0	25.0	11.0	6.4	10.0	3.7	0.5
15	9.6	10.9	17.0	8.0	13.0	3.6	21.0	9.1	6.0	12.0	3.6	0.5
16	6.9	9.1	23.0	6.0	11.0	5.2	17.8	8.5	5.5	15.0	3.4	0.4
17	5.1	10.0	29.0	6.9	9.0	6.8	17.8	8.0	5.0	17.8	3.2	0.4
18	3.3	11.0	35.0	6.6	7.0	8.4	19.0	7.5	4.3	15.0	3.0	0.4
19	1.5	12.0	41.2	6.3	5.0	10.0	20.5	7.0	3.6	13.0	2.9	0.4
20	1.3	13.0	41.2	6.0	5.0	11.6	22.0	6.5	3.3	10.5	2.7	0.4
21	1.1	14.0	34.0	5.7	4.9	11.6	23.0	5.5	3.0	8.0	2.6	0.3
22	0.9	15.0	27.0	5.4	4.8	16.0	24.0	5.0	2.7	6.0	2.5	0.3
23	0.8	16.2	20.0	5.0	4.7	20.0	25.0	5.0	2.4	4.0	2.4	0.2
24	1.2	13.0	13.0	5.0	4.6	24.0	25.0	5.0	2.1	1.5	2.3	0.2
25	1.6	11.6	6.0	5.0	4.5	28.0	26.0	5.0	1.8	1.5	2.3	0.1
26	2.0	9.1	17.8	5.0	4.4	33.0	27.5	5.0	1.5	1.5	2.2	0.1
27	2.4	8.4	17.0	5.0	4.3	33.0	29.0	5.0	1.8	1.5	2.1	0.1
28	2.1	7.7	16.0	5.0	4.3	30.0	30.0	5.0	2.1	1.5	2.0	0.1
29	1.8	7.0	15.0	5.0		27.0	31.0	5.0	2.4	1.5	1.8	0.1
30	1.5	6.3	14.0	5.0		24.0	32.0	6.5	2.7	1.5	1.7	0.1
31	1.5		13.0	9.0		21.0		8.0		1.5	1.6	

Monthly Discharge of Norton Creek, at Norton Lake, for years ending September 30, 1917-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depths in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	14.00	0.05	1.18			73
November	22.00	0.70	5.60			333
December	3.70	0.15	0.62			38
January	3.60	0.15	1.82			112
February	6.90	2.40	3.57			198
March	5.00	2.40	3.45			212
April	13.70	3.60	6.77			403
May	58.80	14.50	32.10			1,970
June	41.20	21.30	30.50			1,810
July	27.80	11.60	15.80			971
August	11.60	0.40	3.45			212
September	9.10	0.40	2.96			176
The year	58.80	0.05	9.00			6,508
1917-18.						
October	29.0	0.8	11.6			713
November	29.8	1.5	13.5			803
December	41.2	2.4	14.1			867
January	46.5	5.0	13.5			830
February	29.0	4.3	13.5			750
March	33.0	1.5	11.0			676
April	37.0	10.4	24.2			1,440
May	33.0	5.0	14.0			861
June	17.8	1.5	7.8			464
July	17.8	1.5	5.4			332
August	3.9	0.9	2.2			135
September	1.3	0.1	0.5			30
The year	46.5	0.1	10.9			7,901

FLUME CREEK—STATION NO. 8 GA₁₅.

Location.—Five miles from Wigwam Inn, Indian river; near the mouth of stream.

Records available.—Daily discharges from July, 1915, to September 30, 1918.

Gauge.—Vertical staff gauge. Bi-weekly readings by Mr. J. L. Davis.

Channel and control.—Irregular channel. Control not permanent. Changed with flood of December 31, 1917.

Discharge measurements.—Made by wading. Eight discharge measurements taken during 1915-17, cover all but high stage up to December 31, 1917. New stage-discharge relation after that date based on seven measurements made during 1918.

Winter Flow.—Generally open-water conditions all winter.

Accuracy.—“D” because of infrequent gauge readings.

Co-operation.—Gauge readings are taken by the employees of the Westminster Power Company.

Discharge Measurements of Flume Creek, near mouth, during 1916-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet	Sec. ft.			Feet.	Sec. ft.
1916.							
Oct. 11	Balls and Hughes	—0.11	1.72	1918.			
1917.							
Sept. 16	MacLachlan and Hughes	0.96	22.5	July 28	M. Balls	1.29	8.28
“ 17	“ “	0.63	16.5	Aug. 5	J. Craig	0.90	5.39
“ 28	F. MacLachlan	1.88	57.3	“ 5	“	1.15	7.23
“ 29	“	1.06	29.3	“ 3	“	1.15	6.03
Nov. 7	“	1.29	35.9	“ 9	“	1.57	15.80
“ 7	“	1.32	37.3	“ 10	“	2.55	63.57
“ 27	“	1.48	42.3				

Daily Discharge

Day 1916-17.

1917-18.

Notes.—Discharge

Daily Discharge in Second-feet, of Flume Creek near Indian River, for the period January 1, to September 30, 1917, and periods, October 1 to December 30, 1917, and June 20 to December 30, 1918.

ff.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
Total in Acre-feet.	1916-17.												
	1				15.8	13.3	13.3	22.6	62.0	75.0	88.5	39.8	12.0
	2				29.8	20.7	13.9	15.8	64.0	72.0	88.0	36.4	12.0
	3				43.9	28.1	14.5	19.5	66.0	67.0	80.0	37.0	3.3
	4				58.0	35.6	15.1	23.2	72.0	62.0	73.0	30.4	3.3
	5				51.7	43.2	15.8	26.9	78.0	62.0	66.0	27.4	4.0
	6				45.5	48.1	16.2	29.2	84.0	66.0	69.0	25.4	4.0
	7				39.3	53.0	16.6	31.6	90.0	66.0	72.0	24.9	8.0
	8				33.1	58.0	17.1	34.0	92.0	67.0	76.0	24.4	12.0
	9				31.0	50.0	16.1	36.4	95.0	68.0	80.0	23.9	16.0
	10				28.9	42.3	15.1	37.5	98.0	69.0	81.0	23.1	21.0
	11				26.9	34.6	14.2	38.6	98.0	70.0	81.0	22.4	33.0
	12				23.8	26.9	13.3	39.8	99.0	88.0	82.0	21.7	45.0
	13				20.7	24.9	13.3	40.2	100.0	107.0	80.0	21.0	58.0
	14				17.6	22.9	13.3	40.6	100.0	126.0	78.0	20.5	48.0
	15				14.5	21.0	13.3	41.0	94.0	113.0	76.0	20.1	38.0
	16				14.5	20.3	12.7	41.5	88.0	100.0	74.0	19.7	28.0
	17				14.5	19.6	12.1	42.0	82.0	87.0	75.0	20.0	17.1
	18				14.5	19.0	11.5	42.6	82.0	74.0	76.0	20.3	15.0
	19				14.2	18.4	11.0	43.2	82.0	80.0	78.0	20.6	13.0
	20				13.9	16.7	20.6	44.1	82.0	87.0	74.0	21.0	11.0
	21				13.6	15.0	30.2	45.0	82.0	94.0	70.0	20.1	10.4
	22				13.3	13.3	39.8	45.9	88.0	89.0	66.0	19.2	9.9
	23				13.3	13.3	39.8	46.8	95.0	84.0	62.0	18.4	9.4
	24				13.3	13.3	39.8	50.5	102.0	80.0	69.0	19.0	8.9
	25				13.3	13.3	39.8	54.2	98.0	76.0	76.0	19.6	67.4
	26				13.3	13.3	39.8	58.0	94.0	80.0	84.0	20.3	126.0
	27				13.3	13.3	40.9	58.5	91.0	85.0	74.7	21.0	92.0
	28				13.3	13.3	42.0	59.0	88.0	90.0	65.4	21.0	58.0
	29				13.3		43.2	59.5	96.0	89.0	56.1	21.0	28.4
	30				13.3		36.3	60.0	89.0	89.0	46.8	21.0	32.4
	31				13.3		29.4		82.0		43.3	16.5	
	1917-18.												
	1	36.0	121	27.0							54.0	7.4	5.8
	2	40.0	136	24.0							54.0	7.1	5.8
	3	44.0	150	21.0							54.0	6.6	5.8
	4	48.0	121	19.7							54.0	6.1	5.8
	5	44.0	92	18.4							54.0	5.6	5.8
	6	40.0	64	17.1							45.0	7.8	5.8
	7	36.0	36	15.8							36.0	10.1	5.4
	8	33.0	38	15.0							28.0	12.4	5.0
	9	30.0	39	14.2							27.0	14.8	4.6
	10	27.0	41	13.3							26.0	63.0	4.6
	11	24.0	42	33.0							25.0	66.0	4.6
	12	20.0	43	52.0							24.0	69.0	4.6
	13	16.0	36	71.0							23.0	72.0	4.6
	14	11.0	28	90.0							22.0	75.0	4.6
	15	6.9	21	100.0							21.0	78.0	4.6
	16	5.7	55	110.0							20.0	80.0	4.5
	17	4.5	89	120.0							19.0	68.0	4.5
	18	3.3	122	130.0							19.0	56.0	4.5
	19	4.2	156	97.0							19.0	44.0	4.5
	20	5.1	189	65.0						79	19.0	32.0	4.5
	21	6.0	222	33.0						74	19.0	20.0	4.3
	22	6.9	43	27.0						69	19.0	8.2	4.2
	23	10.9	43	21.0						64	19.0	7.8	4.1
	24	14.8	43	14.5						60	19.0	7.4	4.1
	25	18.4	43	45.0						53	19.0	7.0	4.1
	26	33.0	43	76.0						47	19.0	6.6	4.1
	27	48.0	43	107.0						40	14.0	6.4	4.1
	28	63.0	39	138.0						33	8.7	6.2	4.1
	29	77.0	35	200.0						40	8.4	6.0	4.1
	30	91.0	31	200.0						47	8.1	5.8	4.1
	31	106.0		200.0							7.8	5.8	

Notes.—No gauge records available for January 1 to June 20, 1918. Discharge interpolated between observed gauge heights. Change in control from January 1st.

Monthly Discharge of Flume Creek, near Indian River, for years ending September 30, 1917-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	75.0	1.0	11.0			676
November	144.0	21.0	66.0			3,930
December	90.0	11.0	27.0			1,960
January	58.0	13.3	22.5			1,380
February	58.0	13.3	25.9			1,440
March	43.2	11.0	22.9			1,410
April	60.0	15.8	40.9			2,430
May	102.0	62.0	87.5			5,380
June	126.0	62.0	82.1			4,890
July	88.5	43.3	72.9			4,480
August	39.8	16.5	23.0			1,410
September	126.0	3.3	28.0			1,670
The year	144.0	1.0	42.5			30,756
1917-18.						
October	106.0	3.3	30.8			1,890
November	222.0	31.0	73.0			4,340
December	200.0	13.3	68.0			4,160
January						
February						
March						
April						
May						
June						
July	54.0	7.8	25.9			1,590
August	80.0	5.6	28.0			1,720
September	5.8	4.1	4.7			280
The year						

HIXON CREEK, ABOVE BELKNAP CREEK—STATION No. 8 G A11.

Location.—About 1 mile above the mouth of Belknap creek, section 36, township 5, range 7, west of 7th Meridian.

Records available.—

Daily discharge, April to September, 1914.

Daily discharge, May to December, 1916.

Daily discharge, October to September, 1917-18.

and miscellaneous measurements.

Drainage area.—Not known.

Gauge.—Vertical staff. Gauge read bi-weekly by Mr. J. L. Davis.

Channel and control.—Rock and gravel control is not permanent. Control changed June 5, 1918.

Discharge measurements.—Five measurements made during 1917 define rating curve to be applied to June 5, 1918, and five measurements made after June 5, 1918, define curve after that date.

Winter flow.—Rarely affected by ice.

Accuracy.—"D" with infrequent readings and shifting of control it is impossible to more accurately determine discharges.

Co-operation.—Gauge readings supplied by Westminster Power Company.

Date
1917
Sept 20
Oct 1
Nov 1
" 5
" 24

Daily D

Day

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Notes -1

Discharge Measurements of Hixon Creek, above Belknap Creek, during 1917-18.

Date.	Engineer.	Gauge Height.	Dis-charge.	Date.	Engineer.	Gauge Height.	Dis-charge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
Sept 20	F. MacLachlan and H. C. Hughes	0-75	9-45	June 12	F. MacLachlan	1-60	38-2
Oct 1	F. MacLachlan	0-83	9-56	" 19	"	1-40	25-8
Nov 1	"	0-54	3-80	July 21	M. Balls	1-13	9-6
" 5	"	1-72	82-5	Aug 7	J. Craig	1-10	8-07
" 24	"	0-95	12-3	" 12	"	1-20	11-20

Daily Discharge in Second-feet of Hixon Creek, above Belknap Creek, for year ending September 30, 1918.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1	9-4	4-0	9-1	45-0	12-0	3-4	18-5	37-0	26-0	12-4	9-4	5-4
2	13-0	25-0	8-4	37-0	15-0	3-4	17-8	38-0	29-0	12-4	9-3	5-4
3	17-0	46-0	7-4	30-0	18-0	3-4	17-1	35-0	32-0	12-4	9-1	5-4
4	21-0	67-0	6-4	27-0	21-0	3-4	16-4	32-0	35-0	12-1	8-9	5-4
5	24-0	87-0	5-5	24-0	24-0	3-4	23-0	30-0	38-0	11-8	8-8	5-3
6	28-0	78-0	4-6	21-0	27-0	3-4	29-0	28-0	38-0	11-5	8-6	5-1
7	32-0	69-0	4-6	18-0	30-0	3-4	35-0	26-0	38-0	11-2	8-4	5-0
8	35-0	60-1	4-6	14-0	27-0	3-4	41-0	24-0	38-0	10-9	9-0	4-8
9	38-0	51-0	4-6	12-0	24-0	3-4	47-0	22-0	38-0	10-6	10-0	4-7
10	31-0	42-0	4-6	10-1	21-0	3-4	58-0	21-0	38-0	10-4	11-0	4-6
11	24-0	33-0	4-6	9-5	19-0	3-4	59-0	20-0	38-0	9-7	11-8	4-4
12	16-4	25-0	4-6	8-9	16-0	3-4	52-0	19-0	38-0	9-0	12-4	4-2
13	14-0	16-4	4-6	8-3	13-0	3-4	46-0	18-0	36-0	8-3	12-4	4-0
14	12-0	14-0	14-0	7-7	11-8	3-4	40-0	17-2	34-0	7-6	12-4	3-9
15	10-0	11-0	24-0	7-1	11-0	4-6	34-0	16-4	32-0	6-9	12-4	3-8
16	8-4	8-4	33-0	6-5	10-0	5-8	28-0	15-0	30-0	6-2	12-4	3-6
17	7-2	9-1	42-0	6-0	9-0	7-0	22-0	14-0	28-0	5-4	12-4	3-5
18	6-0	9-8	51-0	5-8	8-0	8-2	23-0	13-0	26-0	5-8	12-4	3-4
19	4-6	10-5	60-0	5-6	7-0	9-4	24-5	12-0	24-0	6-2	12-4	3-4
20	6-4	11-2	70-0	5-4	6-0	10-6	26-0	10-6	22-0	6-6	12-4	3-4
21	8-2	11-9	74-0	5-2	5-6	11-8	27-0	9-6	20-0	7-0	12-4	3-4
22	10-0	12-6	78-0	5-0	5-2	13-0	28-0	8-4	18-0	7-6	12-4	3-4
23	11-8	13-3	81-0	4-8	4-9	15-0	29-0	9-9	17-0	8-0	12-4	3-4
24	14-5	14-1	84-0	4-6	4-6	17-0	30-0	11-4	15-0	8-4	11-0	3-4
25	17-0	13-3	88-0	4-6	4-3	19-0	31-0	12-4	13-0	8-6	9-6	3-4
26	19-5	12-6	92-0	4-6	4-0	20-0	32-0	13-4	12-4	8-8	8-2	3-4
27	22-0	11-9	84-0	4-6	3-7	22-0	33-0	14-4	12-4	8-9	7-8	3-1
28	18-0	11-2	76-0	4-6	3-4	21-3	34-0	15-4	12-4	9-1	5-4	2-8
29	14-0	10-5	68-0	4-6	.....	20-6	35-0	16-4	12-4	9-3	5-4	2-5
30	10-0	9-8	60-0	4-6	.....	19-9	36-0	20-0	12-4	9-4	5-4	2-2
31	7-0	.....	52-0	8-0	.....	19-2	.....	23-0	.....	9-6	5-4	.....

NOTE.—Discharge is interpolated between observed gauge heights. Change in control from June 12.

Monthly Discharge of Hixon Creek, above Belknap Creek, for year ending September 30, 1918.

Month.	Discharge in Second-Feet.				Run-Off	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
October	38.0	4.6	16.4			1,010
November	87.0	4.0	26.6			1,580
December	92.0	4.6	38.9			2,390
January	45.0	4.6	11.7			719
February	30.0	3.4	13.1			728
March	22.0	3.4	9.4			578
April	59.0	16.4	32.2			1,920
May	38.0	8.4	19.4			1,190
June	38.0	12.4	26.8			1,590
July	12.4	5.4	9.1			560
August	12.4	5.4	10.0			615
September	5.4	2.2	4.0			238
The year	92.0	2.2	16.5			13,118

BELKNAP CREEK BELOW ANN LAKE—STATION No. 8GA₉.

Location.—About half way between Ann lake and Belknap lake, near the proposed site for the diversion dam, and in section 36, township 6, range 7, West of 7th Meridian.

Records available.—Daily discharges from June, 1913, to September 30, 1918.

Drainage area.—Not known.

Gauge.—Vertical staff gauge. Bi-weekly readings by Mr. J. L. Davis.

Channel and control.—Boulders and gravel bed. Control practically permanent.

Discharge measurements.—Made from cable carrier. Eleven discharge measurements during 1915-17 define 1916-17 rating. Five discharge measurements made during 1917-18 well define rating curve to be used for 1917-18 except for extreme high stages.

Winter flow.—Ice conditions at gauging station in very cold weather.

Accuracy.—"D" Poor because of infrequent gauge readings. The rating curve is revised for 1917-18 data.

Co-operation.—Gauge readings are made by the employees of the Westminster Power Company.

Discharge Measurements of Belknap Creek, below Ann Lake, during years 1916-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1916		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
Oct. 14	Balls & Hughes	0.61	11.0	June 13	F. MacLachlan	2.98	214.0
1917				" 19	" "	2.27	113.0
Sept. 18	F. MacLachlan	1.28	33.7	Aug. 1	M. Balls	1.36	44.4
Nov. 25	"	1.51	50.8	" 7	J. Craig	1.18	34.9

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1916-17.

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NOTE.—

Daily Discharge in second-feet, of Belknap Creek below Ann Lake, for years ending September 30, 1917-18.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1	22	183	246	19	11	11	15	177	174	247	242	41
2	20	196	222	28	11	11	14	180	171	228	239	41
3	18	209	198	52	13	11	13	181	168	209	236	41
4	16	211	173	76	15	11	18	185	165	196	222	41
5	15	213	148	100	17	12	23	187	162	183	207	46
6	13	215	130	89	20	12	28	189	167	170	192	51
7	13	218	113	78	21	12	29	191	172	170	177	56
8	13	207	95	67	21	12	30	193	177	170	170	64
9	13	196	84	56	22	12	31	217	183	170	162	72
10	12	185	73	51	20	12	33	241	189	170	155	82
11	12	174	61	47	18	11	36	265	195	174	150	90
12	12	163	50	43	16	11	39	280	201	178	145	101
13	12	152	43	37	15	11	41	294	212	182	140	232
14	11	141	36	32	14	11	59	308	224	198	134	303
15	11	134	28	27	13	11	78	322	236	214	122	249
16	11	128	24	22	13	11	97	279	229	230	111	195
17	11	122	20	16	13	11	116	236	222	245	100	141
18	11	116	17	11	12	11	120	193	216	248	85	87
19	11	110	13	11	11	11	124	195	209	251	71	33
20	11	105	13	11	11	11	128	197	225	255	57	33
21	11	100	13	11	11	11	133	199	240	243	43	33
22	11	96	13	11	11	12	138	201	255	231	43	34
23	11	93	13	11	11	12	143	208	248	220	43	34
24	11	90	13	11	11	12	148	215	241	209	43	35
25	11	116	12	11	11	13	157	322	234	228	42	36
26	12	142	12	11	11	14	167	298	227	247	42	36
27	12	168	11	11	11	15	177	274	246	265	41	37
28	50	183	11	11	11	15	177	250	265	260	41	38
29	90	210	11	11	11	16	177	226	284	255	41	39
30	130	228	11	11	11	16	177	201	266	250	41	40
31	170		11	11	11	16		177		245	41	
1917-18.												
1	76	121	41	437	125	45	97	257	293	79	43	36
2	112	133	40	448	149	43	88	265	286	78	41	36
3	148	145	39	459	172	41	79	252	279	77	40	36
4	184	157	38	417	195	40	69	239	272	77	39	36
5	220	169	37	375	218	39	100	226	265	76	38	36
6	256	181	36	333	141	38	131	214	259	76	37	36
7	293	193	39	292	265	38	162	201	253	75	35	35
8	331	205	42	250	252	38	193	188	248	74	35	35
9	369	217	45	206	239	38	223	176	241	74	35	35
10	341	229	47	168	226	38	254	171	235	73	36	34
11	313	241	49	155	214	39	285	165	229	72	36	34
12	285	253	51	142	201	39	265	160	223	70	37	34
13	225	265	53	129	188	39	245	156	218	68	37	33
14	165	210	94	116	176	39	226	151	172	66	38	33
15	106	155	135	103	157	46	207	147	127	65	38	33
16	47	101	176	90	138	52	188	143	82	63	39	32
17	44	95	217	77	120	58	168	139	92	62	40	32
18	41	89	257	77	101	64	173	136	102	60	40	32
19	38	83	297	78	83	70	178	133	112	58	41	32
20	42	76	337	78	65	76	183	130	107	56	42	32
21	46	70	343	79	62	82	187	126	102	55	43	32
22	49	65	349	80	59	93	192	123	98	53	44	32
23	53	60	353	18	57	104	196	151	94	52	44	32
24	55	55	358	82	55	115	201	179	90	50	43	32
25	57	50	363	81	53	126	209	207	86	49	41	32
26	58	48	369	80	51	137	217	235	82	48	39	32
27	59	46	381	79	49	147	225	262	82	47	37	32
28	72	45	393	78	47	137	233	289	81	46	36	32
29	85	44	404	78	47	127	241	316	81	45	36	31
30	97	43	415	77	47	117	249	308	80	44	36	31
31	109	42	426	101	47	107	300	300	43	43	36	31

NOTE.—Discharge is interpolated between observed gauge heights.

Dis-charge.
Sec.-ft.
214.0
113.0
44.4
34.9

Monthly Discharge for Belknap Creek, below Ann Lake, for years ending September, 30, 1917-18.

Month	Discharge in Second-Feet				Run-Off.	
	Maximum	Minimum	Mean.	Per square mile	Depth in inches on Drainage area.	Total in acre-feet
1916-17						
October	170	11	25.4			1,560
November	228	90	160.0			9,520
December	246	11	61.8			3,800
January	100	11	32.0			1,970
February	22	11	14.1			783
March	16	11	12.2			750
April	177	13	88.9			5,290
May	322	177	228.0			14,000
June	284	162	213.0			12,700
July	265	170	217.0			13,300
August	242	41	115.0			7,070
September	303	33	80.7			4,800
The year	322	11	104.0			75,543
1917-18						
October	369	38	141			8,670
November	265	43	128			7,620
December	426	36	201			12,400
January	459	77	172			10,600
February	265	47	138			7,660
March	147	38	71			4,370
April	285	69	180			11,300
May	316	123	198			12,200
June	293	80	166			9,880
July	79	43	62			3,810
August	44	35	39			2,340
September	36	31	33			1,960
The year	459	31	128			92,810

BELKNAP CREEK AT BELKNAP LAKE.—STATION NO. 8 GA1.

Location.—At the outlet of Belknap lake in Section 36, township 6, range 7, west of 7th meridian.

Records available.—Daily discharges from October, 1912 to September 30, 1918.

Drainage area.—Not known.

Gauge.—Vertical staff gauge read bi-weekly by Mr. J. L. Davis.

Channel and control.—Bed of stream strewn with boulders. Control appears permanent.

Discharge measurements.—Made from cable carrier. Sixteen meter measurements made during 1912-18, cover all stages.

Winter flow.—Open-water conditions practically all winter.

Accuracy.—"D" The curve is well defined, but with infrequent gauge readings accuracy is reduced.

Co-operation.—Gauge readings are made by employees of Westminster Power Company.

Discharge Measurements of Belknap Creek, at Belknap Lake, during years 1916-18.

Date.	Engineer *	Gauge Height	Discharge.	Date.	Engineer	Gauge Height.	Discharge.
		Feet	Sec. ft.			Feet	Sec.-ft.
1916				1918			
Oct. 15	Balls & Hughes	1.01	12.1	June 12	F. MacLachlan	2.97	214.0
1917				" 19	"	2.49	121.0
Sept. 28	F. MacLachlan & Hughes	1.44	32.2	July 31	M. Balls	1.62	47.2
Oct. 1	F. MacLachlan	1.60	47.0	Aug. 7	J. Craig	1.45	35.6
Nov. 5	"	4.55	743.0	" 12	"	1.82	52.9
" 24	"	1.74	560.0				

Daily Discharge in Second-feet, of Belknap Creek, at Belknap Lake, for period Jan. 1 to September 30, 1917, and year ending September 30, 1918

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				16	9	9	16	236	209	319	325	48
2				20	9	9	14	240	205	290	320	48
3				47	12	9	12	244	201	261	315	48
4				74	16	10	17	248	197	245	289	48
5				100	20	11	23	245	192	229	263	52
6				90	24	12	29	242	199	213	238	57
7				80	27	12	31	239	206	219	213	62
8				71	30	12	33	236	213	225	206	72
9				62	32	12	34	273	218	231	199	82
10				57	29	12	35	310	224	236	192	91
11				52	26	12	40	346	230	240	182	100
12				48	23	12	45	371	236	244	173	204
13				41	20	12	51	396	253	248	164	308
14				34	19	12	71	421	270	265	155	412
15				27	18	13	91	447	287	282	140	349
16				20	18	14	112	376	281	299	126	286
17				16	16	12	133	306	275	315	112	223
18				12	14	11	137	236	268	320	96	160
19				12	13	10	142	236	261	325	80	96
20				12	12	9	147	236	289	331	64	32
21				12	11	10	153	236	317	314	48	33
22				12	10	11	159	236	346	297	48	34
23				12	9	12	165	319	331	279	48	35
24				12	9	12	172	402	316	261	48	36
25				12	9	12	186	484	301	289	48	37
26				12	9	12	200	430	287	317	48	38
27				12	9	12	213	376	317	346	48	39
28				11	9	15	218	322	347	342	48	40
29				10	10	18	224	268	378	338	48	41
30				9	9	20	230	213	348	334	48	41
31				9		18		213		331	48	
1917-18												
1	41	24	37	643	139	44	113	334	394	85	41	29
2	723	221	35	663	174	42	102	346	382	84	39	29
3	695	418	32	683	208	40	91	327	370	84	37	29
4	666	614	30	614	243	38	79	308	358	84	35	29
5	637	810	27	546	278	35	122	289	346	83	34	29
6	609	752	24	477	312	32	165	270	327	82	33	29
7	580	694	45	409	346	29	208	251	308	81	32	28
8	551	636	66	340	327	29	251	232	289	80	37	28
9	522	578	87	271	308	29	293	313	270	79	42	28
10	474	520	109	202	289	30	335	206	251	79	47	27
11	426	462	130	185	270	30	328	199	232	77	52	27
12	378	404	151	168	251	31	350	192	213	75	56	27
13	296	346	172	151	232	31	322	185	200	73	54	26
14	214	283	214	134	213	32	295	178	187	71	53	26
15	131	219	256	117	190	40	268	172	174	69	52	25
16	48	155	298	100	166	49	241	167	161	67	50	25
17	44	142	340	84	142	57	213	162	149	66	49	24
18	40	129	382	84	118	65	218	158	137	63	48	24
19	35	116	424	84	94	73	223	153	125	60	47	24
20	44	103	466	84	70	81	228	149	120	57	45	24
21	53	90	476	84	67	80	233	144	115	55	43	24
22	62	77	486	84	64	103	238	140	110	53	42	24
23	55	64	495	84	61	117	243	184	105	51	41	24
24	52	52	504	84	58	130	248	227	100	48	39	24
25	48	50	513	81	55	144	261	270	95	47	36	24
26	45	48	522	79	52	158	274	312	89	46	34	24
27	41	47	543	77	50	172	286	355	89	45	31	24
28	38	45	563	75	48	160	298	399	88	44	29	24
29	35	43	583	73		148	310	430	87	44	29	24
30	31	40	603	70		136	322	418	86	43	29	24
31	28		623	104		124		406		43	29	

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Monthly Discharge of Belknap Creek, at Belknap Lake, for years ending September 30, 1917-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916-17.						
October.....	190	11	26-0			1,600
November.....	340	103	212-0			12,600
December.....	300	11	71-0			4,370
January.....	100	9	32-7			2,010
February.....	32	9	16-5			916
March.....	20	9	12-2			750
April.....	230	12	104-0			6,190
May.....	484	213	303-0			18,600
June.....	378	192	267-0			15,900
July.....	346	213	283-0			17,400
August.....	325	48	141-0			8,670
September.....	412	32	105-0			6,250
The year.....	484	9	131-0			95,256
1917-18						
October.....	723	28	266			16,400
November.....	810	24	273			16,200
December.....	623	24	298			18,300
January.....	683	70	224			13,800
February.....	34	48	172			9,550
March.....	172	29	75			4,610
April.....	378	79	240			14,300
May.....	430	140	251			15,400
June.....	394	86	199			11,800
July.....	85	43	65			4,000
August.....	56	29	41			2,520
September.....	29	24	26			1,550
The year.....	810	24	178			128,430

Ioco No. 2—STATION NO. 8G A₁₈.

Location.—Fifty feet above highway bridge at Ioco, B.C.

Records available.—Miscellaneous measurements 1916-17. Daily discharges March to September, 1918.

Drainage area.—Not known.

Gauge.—Three-foot vertical staff.

Channel and control.—Channel shifts and control is not permanent.

Discharge measurements.—Nine measurements obtained during 1918 define rating curve.

Winter flow.—Open-water all year.

Accuracy.—"C."

Ioco No. 2 rises in the hills behind Deer lake, flows in a southerly direction and empties into Burrard Inlet about one mile west of Port Moody on the north shore. This creek along with another, named Ioco No. 5 by this survey, form a possible water supply for the townsite of Ioco. This station was established in August 1916.

Discharge Measurements of Ioco No. 2 Creek, near Ioco, B.C., during years 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Mar. 15	G. K. Beeston & C. E. Webb.....	0-78	2-43	Mar. 11	Webb and Balls.....	0-54	1-40
June 29	C. E. Webb.....	0-65	1-37	" 11	" ".....	0-54	1-55
Aug. 13	F. MacLachlan & M. Balls.....	0-64	0-112	" 11	" ".....	0-54	1-82
Oct. 11	C. E. Webb.....	0-80	0-46	" 11	" ".....	0-54	1-83
				May 13	MacLachlan and Milner.....	0-38	0-39
				" 13	" ".....	0-40	0-59
				" 13	" ".....	0-395	0-33
				" 13	" ".....	0-395	0-34

Daily Discharge in Second-feet of Ioco No. 2 Creek, near Ioco, for the period March 11 to September 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1							2-40	0-90	0-43	0-16	0-15	0-23
2							2-18	0-90	0-47	0-16	0-16	0-19
3							1-96	0-90	0-43	0-15	0-15	0-16
4							1-74	0-90	0-40	0-15	0-15	0-16
5							1-74	0-90	0-36	0-15	0-14	0-16
6							1-74	0-90	0-33	0-15	0-13	0-16
7							1-74	0-90	0-30	0-15	0-13	0-16
8							1-74	0-90	0-30	0-15	0-50	0-16
9							2-40	0-90	0-40	0-14	1-06	0-16
10							2-40	0-82	0-90	2-40	1-74	0-16
11						2-40	1-74	0-66	0-47	1-06	1-52	0-16
12						2-62	1-30	0-50	0-33	0-50	1-30	0-16
13						2-40	1-52	0-47	0-33	0-26	0-90	0-15
14						3-06	1-74	0-43	0-33	0-23	0-74	0-15
15						3-50	1-74	0-43	0-33	0-19	0-66	0-15
16						12-50	1-74	0-47	0-26	0-16	2-40	0-15
17						8-30	1-74	0-47	0-26	0-16	1-14	0-15
18						8-30	1-30	0-90	0-30	0-15	1-06	0-15
19						9-80	1-30	1-22	0-26	0-74	0-90	0-15
20						8-00	1-30	1-30	0-26	0-66	0-74	0-15
21						9-80	1-22	0-74	0-26	0-50	0-50	0-15
22						13-10	1-22	0-47	0-26	0-40	0-50	0-15
23						8-00	1-14	0-47	0-23	0-26	0-43	0-15
24						13-70	1-06	0-47	0-23	0-19	0-43	0-15
25						7-10	0-98	0-43	0-23	0-30	0-40	0-15
26						5-00	0-90	0-40	0-23	0-82	0-33	0-15
27						5-00	0-90	0-36	0-19	1-06	0-33	0-15
28						5-00	0-90	0-36	0-19	0-50	0-30	0-15
29						3-50	0-90	0-33	0-16	0-19	0-30	0-15
30						3-06	0-90	0-33	0-16	0-16	0-30	0-26
31						2-70		0-33		0-16	0-23	

Monthly Discharge of Ioco No. 2 Creek, near Ioco, B.C., for period April to September 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
October						
November						
December						
January						
February						
March						
April	2-40	0-90	1-52			90-4
May	1-30	0-33	0-66			40-6
June	0-90	0-16	0-32			19-0
July	2-40	0-14	0-40			24-6
August	2-40	0-13	0-64			39-4
September	0-26	0-15	0-16			9-5
The period	2-40	0-13	0-62			223-5

1-40
1-55
1-82
1-83
0-39
0-59
0-33
0-34

Ioco No. 5.—STATION No. 8 GA₁₉.

Ioco No. 5 rises near lake Buntzen, flows in a southerly direction and empties into the Burrard Inlet about a mile west of Port Moody on the north shore. This is the largest creek in the vicinity of Ioco and is a possible source of supply for the townsite of Ioco.

Location.—At head of culvert under Canadian Pacific railroad near mouth, near Ioco, B.C.

Records available.—Miscellaneous measurements 1916-18. Daily discharges March to September, 1918.

Drainage area.—Not known.

Gauge.—Three-foot vertical staff at upstream end of railroad culvert.

Channel and control.—Measurements made at first mudsill in culvert. Control practically permanent.

Discharge measurements.—Six measurements made during 1916-18 define the rating curve.

Winter flow.—Open water all year.

Accuracy.—"C".

Discharge Measurements of Ioco No. 5 Creek, near Ioco, B.C., during years 1917-18.

Date	Engineer.	Gauge height	Discharge.	Date	Engineer.	Gauge height	Discharge.
		Feet.	Sec. ft.			Feet.	Sec. ft.
1917.				1918.			
Mar. 15	G. K. Beeston and C. E. Webb	0.65	3.16	Mar. 11	Webb & Balls	0.58	1.62
June 29	C. E. Webb	0.67	4.22				
Aug. 13	M. Balls & F. MacLachlan	0.46	1.90				
Oct. 11	C. E. Webb	0.53	1.10				

Daily Discharge in Second-feet of Ioco No. 5 Creek, near Ioco, for period March 11 to September 30, 1918.

Date	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.
1							4.79	1.22	0.86	0.78	0.82	0.82
2							3.72	1.22	1.11	0.78	0.86	0.82
3							3.02	1.22	1.00	0.78	0.86	0.82
4							2.66	1.22	1.00	0.78	0.86	0.82
5							1.95	1.11	0.90	0.78	0.82	0.82
6							1.95	1.22	0.86	0.78	0.82	0.82
7							2.66	1.22	0.82	0.78	0.82	0.82
8							3.72	1.22	0.86	0.78	0.90	0.82
9							9.50	1.11	0.90	0.78	6.00	0.82
10							3.72	1.11	1.95	2.30	5.14	0.82
11						1.74	1.95	1.00	0.90	1.64	5.14	0.82
12						2.66	1.95	1.00	0.90	0.86	3.72	0.82
13						1.95	3.72	0.90	0.90	0.86	1.95	0.78
14						5.50	2.66	0.86	0.90	0.82	1.42	0.78
15						8.00	1.95	0.82	0.90	0.82	7.00	0.78
16						42.00	1.95	0.86	0.82	0.78	8.00	0.78
17						17.90	1.95	0.86	0.86	0.78	6.50	0.78
18						17.90	1.95	1.42	0.86	0.82	1.95	0.78
19						25.00	1.95	1.42	0.82	1.64	1.42	0.78
20						20.40	1.84	1.32	0.78	0.90	1.42	0.78
21						30.00	1.74	1.22	0.78	0.90	1.74	0.78
22						46.50	1.64	1.22	0.78	0.86	1.74	0.78
23						20.40	1.53	1.22	0.78	0.82	1.42	0.78
24						36.00	1.42	1.11	0.78	0.86	1.32	0.78
25						27.50	1.32	0.90	0.78	1.53	1.22	0.78
26						15.40	1.32	0.86	0.78	1.74	1.11	0.78
27						15.40	1.32	0.86	0.78	0.90	0.90	0.78
28						15.40	1.22	0.86	0.78	0.90	0.82	0.78
29						11.50	1.22	0.86	0.78	0.86	0.82	0.78
30						10.50	1.22	0.86	0.78	0.86	0.82	0.82
31						7.40		0.86		0.82	0.82	

No accurate measurements available before March 11.

Monthly Discharge of Ioco No. 5 Creek, near Ioco, B.C., for period April to September, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	4.79	1.22	2.45			146.0
May	1.42	0.82	1.07			65.8
June	1.95	0.78	0.89			53.0
July	2.30	0.78	0.98			60.3
August	8.00	0.82	2.23			137.0
September	0.82	0.78	0.80			47.6
The period	8.00	0.78	1.40			509.7

FRASER RIVER DRAINAGE BASIN.

FRASER RIVER AT HOPE—STATION NO. 8MF₃.

Location.—At Hope, in section 16, township 5, range 26, west of 6th meridian.

Records available.—Daily discharges from March, 1912, to September, 1918. (Revised daily discharges for 1912 to 1914 published with this report.)

Drainage area.—Above gauging station 85,600 square miles; above mouth 90,000 square miles.

Gauge.—Chain gauge on Kettle Valley Railway bridge. Daily gauge readings by Mr. P. Johnson.

Channel and control.—About 900 feet wide. Control practically permanent, very swift at higher stages.

Discharge measurements.—Eighteen discharge measurements made during 1912-18 define the rating curve.

Winter flow.—Not enough ice to affect the stage-discharge relation.

Accuracy.—"B".

Discharge Measurements of Fraser River, at Hope, during years 1916-18.

Date	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
July 6	Balls & Milner	24.8	242,000	June 9	C. E. Webb	22.6	216,000
Aug. 18	M. Balls	18.9	126,000	Aug 6	" "	21.5	184,000
1917							
June 9	C. E. Webb	27.0	303,000	Sept. 8	" "	17.1	99,200
June 20	" "	25.7	274,000				
Sept. 9	" "	14.9	64,900				
Oct. 27	" "	14.4	56,600				

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Daily Discharge in Second-feet of Fraser River, at Hope, for period March 1 to September 30, 1912, and year ending September 30, 1913.

(Drainage area, 85,600 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1912												
1						19,000	20,400	71,600	218,000	224,000	140,000	106,000
2						19,000	23,900	76,200	218,000	218,000	138,000	101,000
3						19,000	22,500	89,000	212,000	212,000	138,000	101,000
4						19,000	23,900	101,000	199,000	186,000	140,000	97,500
5						19,000	23,900	106,000	190,000	197,000	144,000	89,000
6						19,000	23,900	111,000	180,000	182,000	144,000	87,400
7						16,900	25,300	117,000	176,000	178,000	142,000	85,800
8						16,900	26,000	124,000	178,000	178,000	140,000	84,200
9						16,200	26,900	133,000	174,000	176,000	142,000	84,200
10						16,200	27,800	140,000	174,000	176,000	144,000	81,000
11						16,200	27,800	146,000	176,000	170,000	140,000	84,200
12						16,200	30,500	155,000	184,000	160,000	140,000	81,000
13						16,200	31,400	158,000	193,000	164,000	142,000	82,600
14						15,500	32,300	158,000	197,000	164,000	151,000	76,200
15						14,800	34,100	180,000	199,000	166,000	151,000	71,600
16						15,500	35,000	193,000	214,000	176,000	147,000	73,000
17						16,200	42,700	193,000	218,000	170,000	137,000	73,000
18						16,900	40,500	199,000	232,000	162,000	133,000	73,000
19						16,900	42,700	228,000	228,000	158,000	133,000	71,600
20						16,200	46,000	230,000	234,000	156,000	137,000	70,200
21						16,900	48,600	232,000	242,000	155,000	137,000	70,200
22						16,200	52,500	228,000	256,000	153,000	137,000	68,800
23						15,500	56,400	214,000	260,000	155,000	137,000	66,000
24						15,500	59,000	222,000	262,000	151,000	140,000	64,600
25						14,100	59,000	238,000	262,000	155,000	144,000	61,800
26						16,900	60,400	240,000	254,000	156,000	155,000	59,000
27						17,600	66,000	242,000	248,000	156,000	155,000	59,000
28						19,700	68,800	238,000	248,000	151,000	147,000	59,000
29						20,400	70,200	238,000	248,000	144,000	124,000	56,400
30						19,000	73,000	232,000	228,000	142,000	122,000	52,500
31						18,300		228,000		144,000	115,000	
1912-13.												
1	49,900	41,600	29,600	23,900	19,000	19,000	18,300	41,600	208,000	286,000	203,000	193,000
2	52,500	40,500	30,500	24,600	22,500	26,900	18,300	38,300	234,000	282,000	193,000	186,000
3	52,500	39,400	28,700	23,900	26,900	21,100	18,300	36,100	252,000	274,000	190,000	178,000
4	48,600	37,200	29,600	24,600	27,800	19,000	18,300	35,000	268,000	272,000	190,000	197,000
5	46,000	36,100	30,500	20,400	30,500	20,400	19,000	33,200	258,000	264,000	191,000	184,000
6	52,500	35,000	28,700	20,400	42,700	23,900	19,000	32,300	240,000	256,000	193,000	168,000
7	59,000	37,200	29,600	20,400	35,000	21,100	19,000	32,300	244,000	244,000	195,000	156,000
8	71,600	36,100	27,800	23,900	28,700	21,100	19,000	33,200	252,000	238,000	195,000	151,000
9	63,200	37,200	26,000	17,600	26,000	21,100	19,700	35,000	256,000	232,000	197,000	146,000
10	61,800	37,200	26,000	19,000	24,600	21,100	19,700	39,400	278,000	232,000	216,000	133,000
11	60,400	36,100	26,900	18,300	23,900	20,400	20,400	42,700	306,000	238,000	232,000	128,000
12	61,800	35,000	27,800	19,000	23,200	20,400	22,500	48,600	328,000	232,000	232,000	119,000
13	61,800	43,800	29,600	12,700	22,500	20,400	22,500	68,800	338,000	224,000	226,000	113,000
14	59,000	39,400	29,600	14,100	20,400	20,400	23,200	82,600	362,000	218,000	222,000	119,000
15	59,000	37,200	27,800	14,100	21,800	20,400	25,300	89,000	362,000	214,000	222,000	120,000
16	56,400	37,200	26,900	15,500	22,500	20,400	27,800	94,100	350,000	210,000	218,000	115,000
17	59,000	34,100	25,300	15,500	26,900	20,400	35,000	101,000	340,000	205,000	216,000	119,000
18	56,400	36,100	25,300	14,800	26,900	19,000	34,100	101,000	324,000	205,000	220,000	122,000
19	55,100	44,900	24,600	14,800	23,900	21,100	41,600	103,000	312,000	205,000	220,000	128,000
20	55,100	39,400	23,900	15,500	23,900	21,100	46,000	103,000	302,000	205,000	222,000	147,000
21	56,400	37,200	23,900	16,900	22,500	20,400	51,200	106,000	292,000	207,000	224,000	174,000
22	52,500	40,500	23,900	16,900	23,900	19,700	55,100	110,000	286,000	207,000	226,000	166,000
23	52,500	43,800	24,600	19,000	22,500	19,000	59,000	134,000	292,000	210,000	226,000	142,000
24	49,900	42,700	25,300	19,700	23,900	18,300	68,800	146,000	300,000	214,000	224,000	126,000
25	49,900	39,400	24,600	20,400	22,500	18,300	67,400	158,000	306,000	222,000	220,000	120,000
26	49,900	34,100	26,000	17,600	22,500	18,300	66,000	174,000	302,000	228,000	214,000	115,000
27	46,000	33,200	23,900	16,900	22,500	18,300	55,100	174,000	302,000	222,000	212,000	110,000
28	43,800	32,300	25,300	16,900	21,800	18,300	46,000	178,000	294,000	222,000	206,000	103,000
29	46,000	33,200	26,000	16,200		18,300	43,800	188,000	292,000	218,000	205,000	96,800
30	44,900	31,400	26,900	16,200		18,300	42,700	195,000	290,000	208,000	203,000	89,000
31	42,700		27,800	15,500		18,300		199,000		203,000	201,000	

Daily

Day

1913-14

1914

Daily Discharge in Second-feet, of Fraser River, at Hope, for period Jan. 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area, 85,600 square miles.)

Day	Oct	Nov	Dec	Jan.	Feb.	March	April	May.	June	July	August	Sept.
1916 17												
1				22,500	18,600	18,300	16,200	53,600	258,000	260,000	151,000	10,000
2				22,500	19,000	18,300	16,200	53,600	249,000	262,800	163,000	97,600
3				50,700	19,000	19,000	15,800	56,000	242,000	268,000	154,000	93,600
4				22,100	19,000	19,000	15,500	56,000	242,000	268,000	147,000	90,400
5				23,900	19,000	19,000	15,800	56,000	253,000	275,000	147,000	84,000
6				22,500	18,300	18,300	16,200	56,600	268,000	275,000	147,000	81,000
7				21,100	18,600	18,300	16,200	59,900	280,000	280,000	149,000	76,600
8				22,500	19,000	18,600	16,900	65,400	286,000	292,000	144,000	72,400
9				23,200	19,000	17,600	17,600	76,600	307,000	298,000	139,000	69,600
10				23,900	19,000	17,600	18,300	92,000	310,000	284,000	134,000	69,600
11				23,200	19,000	17,600	19,000	109,000	317,000	268,000	133,000	69,600
12				21,800	19,000	17,200	19,700	124,000	317,000	256,000	131,000	67,500
13				21,800	19,000	16,900	19,700	144,000	313,000	247,000	131,000	67,500
14				20,400	19,000	16,500	20,400	153,000	300,000	240,000	129,000	66,800
15				21,100	19,000	16,200	21,100	158,000	284,000	234,000	129,000	66,800
16				22,500	19,700	16,200	23,200	164,000	270,000	238,000	126,000	69,600
17				27,200	19,700	16,200	23,900	172,000	270,000	234,000	127,000	69,600
18				21,800	19,700	16,200	25,300	182,000	268,000	229,000	127,000	71,000
19				19,000	19,700	16,200	28,400	193,000	280,000	228,000	125,000	75,200
20				17,600	19,700	16,200	33,800	196,000	294,000	223,000	127,000	81,000
21				17,600	19,700	16,200	33,800	196,000	300,000	223,000	127,000	81,000
22				18,300	19,700	16,200	34,800	190,000	292,000	212,000	128,000	78,000
23				18,300	19,700	16,500	36,300	192,000	280,000	209,000	129,000	73,800
24				18,300	19,300	16,500	37,800	194,000	280,000	203,000	130,000	71,000
25				18,300	19,000	16,200	38,800	196,000	275,000	188,000	131,000	69,600
26				19,000	19,000	16,200	40,800	205,000	268,000	180,000	124,800	66,800
27				19,000	19,000	16,200	44,800	214,000	268,000	176,000	117,000	66,800
28				19,000	19,000	16,200	47,800	227,000	262,000	151,000	114,000	68,200
29				19,000	19,000	16,200	48,300	238,000	258,000	145,000	110,000	71,000
30				19,000	19,000	16,200	50,600	242,000	256,000	141,000	105,000	71,000
31				18,300	19,000	15,800	249,000	249,000	249,000	142,000	100,000	71,000
1917 18												
1	22,400	52,400	88,800	77,300	43,300	36,800	41,800	129,000	190,000	296,000	210,000	131,000
2	77,400	51,200	82,500	72,400	41,800	36,800	41,800	140,000	193,000	275,000	210,000	127,000
3	71,000	56,000	73,800	76,800	40,800	35,800	42,800	154,000	196,000	262,000	200,000	123,000
4	69,600	58,600	64,000	71,000	43,300	34,800	42,800	176,000	192,000	256,000	200,000	119,000
5	72,400	61,200	57,300	69,600	45,300	34,800	34,300	178,000	188,000	249,000	200,000	114,000
6	79,500	59,900	64,000	72,400	46,800	29,200	43,300	188,000	186,000	242,000	190,000	106,000
7	93,600	58,600	54,800	75,200	45,300	28,400	43,300	199,000	192,000	234,000	178,000	103,000
8	100,000	59,300	57,300	76,600	43,800	30,000	44,800	207,000	198,000	231,000	152,000	101,000
9	112,000	58,600	57,300	76,600	45,800	31,800	48,900	201,000	207,000	221,000	160,000	98,400
10	106,000	58,600	58,600	69,600	45,800	30,900	52,400	192,000	236,000	238,000	152,000	95,200
11	98,400	57,300	58,600	64,000	45,800	29,200	56,700	188,000	247,000	242,000	152,000	95,200
12	90,400	56,000	54,800	62,600	43,800	29,200	61,200	189,000	284,000	249,000	147,000	93,600
13	81,000	54,800	48,900	56,000	42,800	29,200	62,900	192,000	315,000	251,000	143,000	92,000
14	78,000	54,200	44,800	44,800	41,800	30,000	65,400	201,000	332,000	253,000	140,000	88,800
15	73,800	53,600	41,800	48,900	40,800	30,900	68,200	214,000	329,000	253,000	138,000	87,200
16	73,800	52,400	54,800	53,600	39,800	33,800	72,400	214,000	321,000	245,000	134,000	85,600
17	72,400	51,200	61,200	52,400	38,800	32,800	72,400	223,000	332,000	242,000	131,000	84,000
18	72,400	51,200	57,300	57,300	37,800	33,800	71,000	223,000	341,000	247,000	127,000	82,500
19	71,000	50,000	50,000	56,000	36,800	33,800	69,600	220,000	345,000	249,000	127,000	81,000
20	71,000	71,000	50,000	52,400	35,800	32,800	72,400	216,000	334,000	253,000	127,000	81,000
21	69,600	69,600	48,900	51,200	34,800	32,800	78,000	205,000	336,000	258,000	131,000	79,500
22	66,800	69,600	48,900	50,000	33,800	33,800	85,600	209,000	339,000	260,000	129,000	78,000
23	61,200	71,000	48,400	51,200	35,800	35,800	93,600	186,000	332,000	270,000	125,000	76,600
24	61,200	82,500	48,400	53,600	39,800	36,800	101,000	178,000	324,000	260,000	125,000	76,600
25	61,200	85,600	43,800	50,000	34,800	38,800	106,000	172,000	327,000	250,000	127,000	75,200
26	60,600	101,000	39,800	47,800	34,800	38,800	107,000	165,000	332,000	240,000	136,000	73,800
27	59,900	133,000	39,800	47,300	34,800	36,800	109,000	160,000	332,000	250,000	132,000	71,000
28	59,300	123,000	39,800	46,800	36,800	37,800	110,000	156,000	329,000	220,000	156,000	69,600
29	57,300	105,000	68,200	44,800		37,800	112,000	162,000	321,000	321,000	152,000	68,200
30	56,000	95,200	68,200	42,800		39,800	117,000	174,000	315,000	210,000	142,000	66,800
31	53,600		68,200	43,300		41,800		180,000		210,000	134,000	

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Monthly Discharge of Fraser River, at Hope, for period March to December, 1912, and year 1913.

(Drainage area, 85,600 square miles.)

Month.	Discharge in Second-Feet.				Run Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1912.						
March	20,400	14,100	17,100	0.20	0.20	1,050,000
April	73,000	20,400	40,700	0.48	0.54	2,420,000
May	242,000	71,600	176,000	2.06	2.38	10,800,000
June	262,000	174,000	216,000	2.52	2.81	12,900,000
July	224,000	142,000	169,000	1.97	2.27	10,400,000
August	155,000	115,000	140,000	1.64	1.89	8,610,000
September	106,000	52,500	76,400	0.89	0.99	4,550,000
October	71,600	42,700	54,100	0.63	0.73	3,330,000
November	44,900	31,400	37,600	0.44	0.49	2,244,000
December	23,900	23,900	26,800	0.31	0.36	1,650,000
The period	262,000	14,100	95,370	1.11	12.69	57,954,000
1913.						
January	24,600	12,700	18,200	0.21	0.24	1,120,000
February	42,700	19,000	25,000	0.29	0.30	1,390,000
March	26,900	18,300	20,200	0.24	0.28	1,240,000
April	68,800	18,300	34,700	0.41	0.46	2,060,000
May	199,000	52,300	95,300	1.11	1.28	5,860,000
June	362,000	208,000	292,000	3.41	3.81	17,400,000
July	286,000	203,000	229,000	2.68	3.09	14,100,000
August	232,000	190,000	212,000	2.48	2.86	13,000,000
September	197,000	89,000	139,000	1.63	1.82	8,270,000
October	87,400	51,200	62,300	0.73	0.84	3,830,000
November	56,400	26,000	35,700	0.42	0.47	2,120,000
December	26,000	26,000	26,000	0.30	0.35	1,600,000
The year	362,000	12,700	99,100	1.16	15.80	71,990,000

NOTE.—The above data revised March 1916

Monthly discharge of Fraser River, at Hope, for 1914, and years ending September 30, 1917-18.

(Drainage area, 85,600 square miles.)

Month.	Discharge in Second-feet				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1914						
January	71,600	22,500	37,300	0.44	0.51	2,290,000
February	29,600	23,900	27,800	0.32	0.33	1,540,000
March	37,200	28,700	32,000	0.37	0.43	1,970,000
April	111,000	29,600	74,100	0.87	0.97	4,410,000
May	250,000	117,000	202,000	2.36	2.72	12,400,000
June	302,000	214,000	252,000	2.94	3.28	15,000,000
July	262,000	180,000	231,000	2.70	3.11	14,200,000
August	176,000	101,000	131,000	1.52	1.76	8,080,000
September	95,800	64,600	75,700	0.89	0.99	4,500,000
October	76,200	57,700	69,500	0.81	0.93	4,270,000
November	82,600	48,600	62,300	0.73	0.81	3,710,000
December	59,000	27,800	38,100	0.45	0.52	2,340,000
The year	302,000	22,500	102,700	1.20	16.36	74,690,000

NOTE.—Data revised, March 1916.

Monthly Discharge of Fraser River, at Hope, for 1914, and years ending September 30, 1917-18—Concluded.

(Drainage area, 85,600 square miles.)

Month.	Discharge in Second-feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October.....	95,800	42,700	57,100	0.67	6.77	3,510,000
November.....	56,400	26,900	36,700	0.43	0.48	2,180,000
December.....	29,600	19,000	22,700	0.26	0.30	1,400,000
January.....	27,200	17,600	20,900	0.24	0.28	1,290,000
February.....	19,700	18,300	19,100	0.22	0.23	1,060,000
March.....	19,000	15,800	17,000	0.20	0.23	1,050,000
April.....	50,600	15,500	27,000	0.32	0.36	1,610,000
May.....	249,000	53,600	147,000	1.72	1.98	9,040,000
June.....	317,000	242,000	278,000	3.25	3.63	16,500,000
July.....	298,000	141,000	230,000	2.69	3.10	14,100,000
August.....	163,000	100,000	131,000	1.53	1.76	8,050,000
September.....	100,000	66,800	75,200	0.88	0.98	4,470,000
The year.....	317,000	15,500	88,500	1.03	14.10	64,260,000
1917-18						
October.....	112,000	53,600	74,100	0.87	1.00	4,560,000
November.....	133,000	50,000	68,700	0.80	0.89	4,090,000
December.....	88,800	39,800	56,200	0.66	0.76	3,460,000
January.....	77,300	42,800	58,500	0.68	0.78	3,000,000
February.....	46,800	33,800	40,400	0.47	0.49	2,340,000
March.....	41,800	28,400	34,100	0.40	0.46	2,100,000
April.....	117,000	41,800	71,200	0.83	0.93	4,240,000
May.....	223,000	129,000	187,000	2.18	2.51	11,500,000
June.....	345,000	186,000	282,000	3.29	3.67	16,800,000
July.....	296,000	210,000	245,000	2.86	3.30	15,100,000
August.....	210,000	125,000	152,000	1.78	2.05	9,350,000
September.....	131,000	66,800	90,800	1.06	1.18	4,500,000
The year.....	345,000	28,400	114,000	1.32	18.02	82,440,000

PAVILION CREEK—STATION No. 8 MD₂.

Location.—Above the ditches, 22 miles above Lillooet.

Record available.—Daily discharges from June 19, to September 30, 1915; April 1 to October 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Eighty-two square miles, taken from the provincial map of 1913.

Gauge.—Vertical staff gauge, located about 3 miles below Pavilion lake. Read daily by Mr. C. A. Shaw.

Channel and control.—Straight above and below measuring section even flow over sand and gravel bed. Control is not permanent.

Discharge measurements.—Made from log across stream. Three discharge measurements taken during 1917 define season's rating curve. Rating for 1918 defined by three measurements made during 1918.

Accuracy.—"B" control changes each year.

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Discharge Measurements of Pavilion Creek, above irrigation ditches, during years 1916-18.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
		Feet.	Sec. ft.			Feet.	Sec. ft.
1916 Dec. 11	Beeston and Hughes	0-61	2-32	1918 April 17	C. E. Webb	0-68	3-34
1917 May 2	Webb and Balls	1-33	17-69	June 26	" "	1-08	12-80
July 11	C. E. Webb	1-35	20-10	Sept. 11	" "	0-86	5-97
Oct. 7	Balls and Milner	0-84	5-11				

Daily Discharge in Second-feet, of Pavilion Creek, above ditches, for periods April 1 to September 30, 1917-18.

(Drainage area, 82 square miles.)

Days.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	8-0	10-4	24-1	29-2	17-2	6-00	4-3	21-1	8-3	8-3	9-6	5-2
2	8-0	20-7	25-4	28-0	17-2	6-00	4-6	19-3	8-3	8-3	15-3	6-0
3	8-0	20-0	26-7	26-7	19-4	6-00	5-0	17-6	7-2	8-3	21-1	6-0
4	8-6	19-4	26-7	25-4	19-4	6-50	5-0	16-5	6-0	8-3	21-1	6-0
5	9-2	19-4	26-7	24-1	19-4	7-00	5-0	15-3	6-0	8-3	21-1	6-0
6	9-8	19-4	26-7	22-8	19-4	7-50	4-7	15-3	6-0	8-3	19-3	6-0
7	10-4	19-4	26-7	21-6	19-4	8-00	4-3	15-3	9-5	7-6	17-6	6-1
8	10-4	19-4	28-0	21-6	19-4	8-00	4-3	14-1	13-0	7-0	17-6	6-2
9	10-4	18-3	29-2	21-6	18-3	8-00	4-3	13-0	17-0	8-3	17-6	6-4
10	11-9	17-2	29-2	20-5	17-2	8-00	4-7	15-3	21-1	9-6	16-5	6-6
11	13-4	16-2	29-2	19-4	17-2	8-00	5-0	17-6	16-2	9-6	15-3	6-2
12	13-4	15-3	28-0	19-4	17-2	8-00	5-0	16-5	11-3	9-6	14-2	6-2
13	13-4	16-2	26-7	19-4	17-2	8-00	5-0	15-3	11-3	9-6	13-0	6-6
14	13-4	17-2	26-7	19-4	17-2	7-50	4-6	16-5	11-3	9-6	14-2	7-0
15	13-4	17-2	26-7	19-4	17-2	7-00	4-3	17-6	13-3	9-6	15-3	6-8
16	13-4	17-2	25-4	20-5	17-2	7-50	4-1	17-6	15-3	9-6	15-3	6-6
17	13-4	20-7	24-1	21-6	16-2	8-00	3-9	17-6	15-3	9-6	15-3	7-4
18	13-4	24-1	24-1	21-6	15-3	8-00	4-1	19-3	15-3	9-6	11-1	8-3
19	13-4	22-9	24-1	21-6	14-3	8-00	4-3	21-1	12-3	5-9	7-0	8-4
20	11-9	21-6	25-4	20-5	13-4	8-00	3-9	21-1	11-3	2-2	5-7	8-6
21	10-4	21-6	26-7	19-4	12-6	8-00	3-6	21-1	11-3	6-7	4-3	8-7
22	8-2	21-6	26-7	19-4	11-9	7-75	3-3	12-7	11-3	11-3	4-3	8-9
23	6-0	20-5	26-7	19-4	11-9	7-50	2-9	4-3	10-5	11-3	4-3	8-4
24	6-5	19-4	25-4	18-3	11-9	7-25	6-2	4-3	9-6	11-3	4-3	8-0
25	7-0	19-4	24-1	17-2	11-9	7-00	9-6	4-3	10-5	10-5	4-3	7-7
26	8-7	19-4	25-4	17-2	11-9	6-50	15-3	5-2	11-3	9-6	4-0	7-5
27	10-4	20-5	26-7	17-2	9-4	6-00	21-1	6-0	10-5	9-6	3-6	7-3
28	9-2	21-6	28-0	17-2	7-0	5-12	21-1	5-2	9-6	9-6	3-9	7-0
29	8-0	21-6	29-2	17-2	7-0	4-25	21-1	4-3	9-0	9-6	4-3	7-0
30	9-2	21-6	29-2	17-2	7-0	4-25	21-1	6-3	8-3	9-6	4-3	7-0
31		22-8		17-2				8-3		9-6	4-3	

Monthly Discharge of Pavilion Creek, above ditches, for periods April to September, 1917-18.

(Drainage area, 82 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	13.4	6.00	10.40	0.13	0.14	619
May	24.1	10.40	19.40	0.24	0.28	1,190
June	29.2	24.10	26.60	0.32	0.36	1,580
July	29.2	17.20	20.70	0.25	0.29	1,270
August	19.4	7.70	14.60	0.18	0.21	898
September	8.0	4.25	7.09	0.09	0.10	422
The period	28.2	4.25	16.5	0.20	1.38	5,979
1918.						
April	21.1	2.9	7.20	0.09	0.10	428
May	21.1	4.3	13.70	0.17	0.20	842
June	21.1	6.0	11.20	0.14	0.16	666
July	11.3	2.2	8.90	0.11	0.13	547
August	21.1	3.6	11.20	0.14	0.16	689
September	8.9	5.2	7.00	0.09	0.10	417
The year	21.1	2.2	9.87	0.12	0.85	3589

Note.—Irrigation Stream.

FOUNTAIN CREEK—STATION NO. 8 MD₁.

Location.—Above irrigation ditches, 10 miles above Lillooet on Fraser river.

Records available.—Daily discharges, June 6 to October 1914; April 12 to October 8, 1915; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Twenty square miles (measured from the provincial map of 1913, scale 12 miles to one inch.)

Gauge.—Three-foot enamel staff located above ditches. Read daily by Mrs. F. Dillon.

Channel and control.—Irregular, gravel bed. Control is a sunken log across stream, and is permanent during irrigation season.

Discharge measurements.—Made by wading, three measurements during 1917 define 1917 rating. Change in control during winter months. Three measurements define 1918 rating curve.

Accuracy.—"C" A new rating curve is developed each year.

Discharge Measurements of Fountain Creek, above ditches, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
1917				April 17	C. E. Webb	0.42	1.90
May 1	Webb & Balls	0.45	3.03	June 26	" "	0.71	10.50
July 11	C. E. Webb	0.70	18.10	Sept. 11	" "	0.59	5.22
Oct. 7	Balls & Milner	0.50	4.42				

Note.—Change in control between Oct. 7, 1917, and April 17, 1918.

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Daily Discharge in Second-feet of Fountain Creek, above ditches, for period May 1 to Sept. 30, 1917, and April 1 to Sept. 30, 1918.

(Drainage area, 30 square miles.)

Day.	1917.					1918.					
	May.	June.	July.	August.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	3-30	27-50	31-0	9-8	4-4	3-2	2-3	10-0	12-8	8-0	8-0
2	3-30	27-50	31-0	9-8	6-0	3-2	2-3	10-0	12-8	8-0	5-9
3	3-30	20-90	31-0	24-0	6-0	3-2	2-3	10-0	12-8	8-0	5-9
4	3-30	24-00	31-0	20-9	6-0	2-3	3-2	10-0	12-8	8-0	5-9
5	2-20	17-80	27-5	20-9	6-0	1-5	4-5	10-0	9-1	8-0	5-9
6	2-20	17-80	27-5	17-8	6-0	1-5	5-9	10-0	8-0	8-0	5-9
7	3-30	15-00	27-5	17-8	6-0	1-5	8-0	10-0	8-0	8-0	5-9
8	4-40	15-00	24-0	17-8	6-0	1-5	19-0	8-0	8-0	8-0	5-9
9	3-30	15-00	24-0	14-9	6-0	3-2	10-0	10-0	8-0	8-0	5-9
10	3-30	17-80	20-9	14-9	6-0	1-5	8-0	10-0	8-0	8-0	4-5
11	3-30	17-80	12-1	12-1	7-6	1-5	5-9	10-0	8-0	8-0	5-6
12	4-40	24-00	12-1	12-1	7-6	1-5	4-5	10-0	5-9	8-0	5-6
13	7-60	24-00	12-1	12-1	6-0	1-5	4-5	10-0	5-9	8-0	5-4
14	9-85	27-50	12-1	12-1	6-0	1-5	5-9	12-8	5-9	8-0	5-4
15	9-85	27-50	12-1	9-8	6-0	1-5	8-0	12-8	8-0	8-0	4-5
16	9-85	31-00	12-1	7-6	6-0	1-5	8-0	12-8	8-0	8-0	4-5
17	9-85	31-00	12-1	7-6	6-0	1-5	8-0	12-8	8-0	8-0	3-7
18	9-85	31-00	12-1	7-6	6-0	1-5	8-0	12-8	8-0	8-0	3-7
19	9-85	31-00	12-1	7-6	6-0	1-5	8-0	10-0	10-0	8-0	3-2
20	9-85	31-00	12-1	7-6	6-0	1-5	8-0	10-0	10-0	8-0	3-2
21	9-85	27-50	12-1	7-6	6-0	2-3	8-0	10-0	8-0	8-0	3-2
22	2-10	24-00	12-1	7-6	6-0	2-3	5-9	10-0	8-0	8-0	3-2
23	12-10	24-00	17-8	7-6	6-0	2-3	4-5	15-6	5-9	8-0	3-2
24	12-10	24-00	20-9	7-6	6-0	2-3	4-5	15-6	5-9	5-9	3-5
25	12-10	24-00	20-9	7-6	6-0	2-3	4-5	15-6	5-9	5-9	3-5
26	12-10	20-90	17-8	7-6	6-0	2-3	5-9	12-8	5-9	5-9	3-5
27	24-00	20-90	17-8	7-6	4-4	1-5	5-9	12-8	5-9	8-0	3-5
28	31-00	27-50	14-9	6-0	4-4	1-5	5-9	12-8	5-9	8-0	3-2
29	38-00	31-00	12-1	6-0	4-4	1-5	8-0	12-8	8-0	8-0	2-3
30	27-50	31-00	12-1	4-4	4-4	1-5	8-0	12-8	8-0	8-0	2-3
1	27-50		12-1	4-4			10-0		8-0	8-0	

Monthly Discharge of Fountain Creek, above ditches, for periods May to Sept., 1917, and April to Sept., 1918.

(Drainage area, 20 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
May	38-0	2-2	10-80	0-50	0-58	664
June	31-0	15-0	24-30	1-21	1-35	1,450
July	31-0	12-1	18-30	0-91	1-05	1,120
August	24-0	4-4	10-90	0-54	0-62	670
September	7-6	4-4	5-84	0-29	0-32	347
The period	38-0	2-2	14-0	0-69	3-92	4,251
1918.						
April	3-2	1-5	1-91	0-10	0-11	114
May	6-0	2-3	6-31	0-32	0-37	388
June	15-6	8-0	11-40	0-57	0-64	678
July	12-8	5-9	8-16	0-48	0-55	602
August	8-0	5-9	7-78	0-39	0-45	478
September	8-0	2-3	4-53	0-23	0-26	270
The period	15-6	1-5	6-68	0-35	2-38	2,430

Note—Irrigation stream, New station established May 2.

(632-6)

BRIDGE RIVER—STATION NO. 8 MEI.

Location.—Thirty miles above mouth and ten miles from Mission on Seton Lake.

Records available.—Daily discharges from October 7, 1913, to September 30, 1918.

Drainage area.—The Provincial map (scale 17.75 miles to 1 inch) shows a drainage area of 1,900 square miles above gauging station.

Gauge.—Vertical staff gauge, located on left bank at highway bridge. Readings are taken twice daily by Mr. A. Viera.

Channel and control.—Straight for considerable distance above and below; sand and mud bed. Control appears permanent, but is liable to shift.

Discharge measurements.—Made from highway bridge. Twenty-three measurements made during 1913 to 1918, cover all but extreme high and low stage.

Winter flow.—Stage-discharge relation affected by ice.

Accuracy.—"B" except for discharge below 1,000 c.f.s. which must be placed at "D."

Co-operation.—Gauge records supplied by the Bridge River Power Company.

Discharge Measurements of Bridge River at Highway Bridge, 30 miles above mouth, during years 1916-18.

Date.	Engineer.	Gauge height.		Date.	Engineer.	Discharge.	
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916				1918			
Dec. 14	Beeston & Hughes	1.05	467	Jan. 21	Swan and MacLachlan	Ice	978
1917				Mar. 18	F. MacLachlan	0.37	601
Feb. 4	Balls & Hughes	0.78	405	April 20	C. E. Webb	1.89	1,330
April 28	Balls & Webb	0.95	702	April 22	" "	2.56	1,900
July 9	C. E. Webb	6.02	8,250	June 21	" "	9-10	100
Oct. 10	Balls & Milner	3.96	3,650	June 22	" "	9.63	16,200
Oct. 11	" "	3.60	3,230	June 28	" "	8.60	12,600
				June 29	" "	8.03	10,900
				Sept. 14	" "	5.67	6,500
				Sept. 15	" "	5.42	5,880

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Daily Discharge in Second-feet of Bridge River, 30 miles above mouth, for period March 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area, 1900 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.
1916-17.												
1						500	420	680	7000	7600	5180	6910
2						500	420	680	6910	8610	6000	5920
3						500	460	680	6680	9680	7200	5260
4						600	460	680	6170	9860	7600	4880
5						500	460	720	6800	9980	7100	4240
6						500	530	800	7700	11200	7200	3920
7						500	560	880	8100	10900	7600	3980
8						500	620	1040	8610	9660	6620	3860
9						500	650	1400	9060	8300	6440	3720
10						500	620	1570	7200	8610	7000	3560
11						500	620	1750	5580	9170	6910	4240
12						460	560	1930	4730	9520	7800	4520
13						460	560	2250	4880	9740	8500	5580
14						460	560	2200	5580	9520	8500	4240
15						460	560	1980	7300	9630	8720	3470
16						460	590	1840	9170	9740	9170	5920
17						480	620	1700	10100	9980	9520	6620
18						500	650	1570	9630	10600	10100	5830
19						500	650	1620	9280	10600	10400	5030
20						460	620	1750	8200	10860	10960	5420
21						460	590	1980	7800	9980	10300	5780
22						460	560	2250	6350	11300	9630	4520
23						420	560	2510	5660	10100	8720	4380
24						420	560	2900	5660	7900	8100	3720
25						420	590	3000	5030	7600	8000	2900
26						460	620	3600	5340	8100	7300	2680
27						460	650	5030	6000	8400	7200	5340
28						460	680	6530	7000	9280	7400	3660
29						460	760	7300	6620	8200	8100	2680
30						405	760	6720	7200	5660	9170	2300
31						405		6440		4960	8100	
1917-18.												
1	2110	1000	1570	1930	700	650	960	3790	8300	11700	11800	8610
2	1930	1080	1240	6440	700	650	800	3990	6440	12100	11600	7800
3	3790	1080	1240	8400	700	650	840	4050	5340	11300	9980	7100
4	6820	1360	720	7400	700	650	880	4590	5100	10300	9170	6170
5	7200	1240	1200	4520	700	650	920	4660	5420	10300	9170	5910
6	5660	1160	920	3790	700	650	960	4120	6260	11200	9980	6000
7	4730	1080	1040	1660	700	650	1000	3860	8000	11400	9630	5830
8	4660	1000	1040	940	700	650	1000	3530	9860	12100	9980	5830
9	3920	1000	1000	940	700	650	1040	3230	12100	13000	9980	6080
10	3530	920	1000	940	700	650	1360	3230	17800	14700	8830	6170
11	3950	1000	920	940	700	650	1480	3530	26000	17900	7700	6350
12	3410	1000	840	940	700	650	1440	4310	20800	17500	7100	6260
13	2900	1000	840	940	700	650	1400	5340	19000	14000	7000	6000
14	3010	1000	840	940	700	650	1320	6440	18800	12000	7200	5830
15	2900	1000	840	940	700	650	1280	7300	18000	12600	7400	5740
16	3170	880	920	940	700	650	1200	7300	13500	16900	7500	5590
17	2970	920	920	940	700	650	1160	6630	17500	17200	7300	5260
18	1560	920	920	940	700	680	1160	6000	14000	21500	7500	5540
19	1570	960	880	940	700	650	1200	5100	14300	23300	6630	6080
20	880	1400	840	940	700	650	1400	4450	13200	24600	5580	6170
21	920	5580	920	940	700	650	1840	3980	13900	20400	6080	6170
22	1440	5420	840	940	700	650	2110	3660	15900	16700	6350	5260
23	1280	5740	840	940	700	650	2110	3410	17300	14600	7000	4950
24	1340	4240	760	940	700	650	2150	3170	17300	14000	7400	4590
25	1160	3060	840	940	700	650	2200	3010	17200	13300	9750	4110
26	1080	2510	1200	940	700	650	2110	2840	15500	13000	9860	4250
27	1040	2160	1930	940	700	680	2150	2900	14000	12400	9290	4590
28	1040	1930	1880	940	700	650	2510	3290	12900	12400	8000	4960
29	1000	920	1880	940		800	2790	4730	11700	12400	7300	5260
30	1000	920	1930	940		880	3290	6820	10600	12200	7400	5000
31	1000		5580	940		920		9050		12100	8100	

Notes.—Discharge relation affected by ice from January 8 to March 17; daily discharge estimated.

Monthly Discharge of Bridge River, 30 miles above mouth, for years ending Sept. 30, 1917-18.

(Drainage area, 1900 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	3,300	1,240	1,800	0.95	1.09	111,000
November	1,240	490	728	0.38	0.42	43,300
December			466	0.25	0.29	28,700
January			450	0.24	0.28	27,700
February			425	0.22	0.23	23,600
March	500	405	470	0.25	0.29	28,900
April	760	420	584	0.31	0.35	34,800
May	7,300	680	2,450	1.29	1.49	151,000
June	1,100	4,730	7,020	3.70	4.13	418,000
July	11,300	4,960	9,190	4.84	5.58	565,000
August	10,600	5,180	8,670	4.25	4.90	496,000
September	6,910	2,300	4,490	2.35	2.63	267,000
The year	11,300	420	3,012	1.59	21.68	2,195,000
1917-18						
October	7,200	880	2,620	1.38	1.59	161,000
November	5,740	880	1,780	0.94	1.05	106,000
December	5,580	720	1,240	0.65	0.75	76,200
January			1,880	0.99	1.14	116,000
February			700	0.37	0.38	38,900
March			673	0.35	0.40	41,400
April	3,290	800	1,540	0.81	0.90	91,600
May	9,050	2,840	4,590	2.41	2.78	28,200
June	26,000	5,100	10,000	5.25	5.87	595,000
July	24,600	10,300	14,500	7.63	8.80	892,000
August	11,800	5,580	8,330	4.38	5.05	512,000
September	8,610	4,110	5,790	3.05	3.40	345,000
The year			4,470	2.35	37.11	3,003,300

Note:—January and February—Gauge heights affected by ice. Discharge for this period estimated from meter measurements, gauge heights and climatic conditions.

CAYUSE CREEK—STATION NO. 8 ME₂.

Location.—At the Pacific Great Eastern Railway bridge, 2 miles from mouth, and 2 miles from Lillooet.

Records available.—Daily discharges from April 8, 1914 to September 30, 1918.

Drainage area.—Three hundred and fifty square miles (measured from the provincial map of 1912, scale 12 miles to 1 inch).

Gauge.—Six-foot vertical staff gauge, nailed to a pile on left side of stream, daily gauge readings are taken by Mr. J. B. Arthur.

Channel and control.—Straight above and below section for 200 feet. Gravel and boulder bed. The current is very swift at the higher stages. The control is not permanent and appears to shift slightly with each freshet.

Discharge measurements.—Made from railroad bridge. Fifteen discharge measurements taken during 1916-18, cover all stages.

Winter flow.—Stage discharge relation affected by ice.

Accuracy.—"B" Curve revised for 1917-18 report (above discharge of 1,300 cubic feet per second.)

Discharge Measurements of Cayuse Creek, above Seton Creek, during 1916-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916				1918			
Dec. 9	Beeston & Hughes	0.22	164	Jan. 18	Swan and MacLachlan	1.75	319
1917				Jan. 17	" "	1.75	316
Feb. 6	Balls & Hughes	0.08	136	Feb. 17	" "	1.32	195
May 2	Balls & Webb	1.03	122	Mar. 14	" "	1.17	138
July 11	C. E. Webb	3.90	2,140	Mar. 15	F. MacLachlan	1.16	136
Oct. 5	Balls and Milner	2.48	673	April 16	C. E. Webb	1.46	235
Oct. 9	" "	2.02	420	June 20	" "	4.08	2,850
Oct. 12	" "	1.86	351	Sept. 10	" "	2.30	671

Daily Discharge in Second-feet of Cayuse Creek, above Seton Creek, for period Jan. 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area, 350 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				135	135	120	120	135	1,200	2,350	880	635
2				135	135	120	120	120	1,460	2,350	880	565
3				135	135	120	120	135	1,460	2,350	790	565
4				135	142	127	120	135	1,460	2,350	790	505
5				135	135	110	120	135	1,460	2,350	790	455
6				135	135	110	120	150	1,950	2,350	980	455
7				142	135	120	129	150	1,770	2,350	1,080	405
8				142	127	120	120	170	2,140	2,350	1,080	405
9				142	127	120	120	170	2,350	2,140	1,080	405
10				142	127	120	120	285	1,950	2,140	980	360
11				135	120	120	120	360	1,770	2,140	880	360
12				135	120	120	120	405	1,460	2,140	880	455
13				135	120	120	120	455	1,460	2,140	880	455
14				127	120	120	127	505	1,770	2,140	880	455
15				127	120	120	120	505	1,950	2,140	880	455
16				127	120	120	120	505	2,350	2,140	880	455
17				127	120	120	120	455	2,350	1,950	835	554
18				127	120	120	120	405	2,350	1,950	835	455
19				127	120	120	120	405	2,140	1,950	835	405
20				127	120	120	120	405	2,140	1,770	835	405
21				127	120	120	120	455	1,950	1,600	835	405
22				127	120	120	120	455	1,770	1,460	790	405
23				127	120	120	120	505	1,600	1,330	790	360
24				120	120	120	120	635	1,460	1,200	790	360
25				120	120	120	120	880	1,460	1,200	790	360
26				120	120	120	120	1,080	1,330	1,330	790	382
27				120	120	120	120	1,460	1,460	1,460	705	382
28				120	120	120	120	1,950	1,770	1,200	705	360
29				120	120	120	120	135	2,350	1,770	1,080	635
30				120	120	120	135	1,950	1,950	980	635	360
31				120	120	120	1,600	1,600	880	880	635	360
1917-18												
1	360	170	320	635	195	150	170	880	1,580	2,400	1,320	705
2	400	170	285	980	185	150	150	980	1,320	2,400	1,200	635
3	500	250	285	1,080	220	170	150	1,080	980	2,050	1,200	565
4	600	250	250	980	195	150	150	1,320	980	1,880	1,080	635
5	705	220	250	790	195	135	170	1,200	1,200	1,880	1,080	705
6	635	250	285	635	195	150	150	1,450	1,320	2,050	1,200	635
7	565	250	250	565	220	150	150	980	1,730	2,220	980	635
8	495	220	250	565	195	135	195	880	2,790	2,400	1,200	565
9	415	220	250	405	195	135	195	790	5,620	2,220	1,080	565
10	380	195	220	360	170	135	195	790	6,820	1,880	980	565
11	367	195	220	320	195	135	220	790	5,030	2,590	880	635
12	344	170	250	285	195	110	195	980	5,620	2,400	790	565
13	320	170	250	320	195	135	220	1,320	5,320	2,220	790	565
14	320	195	220	320	170	135	195	1,580	5,030	2,400	980	505
15	285	220	250	285	170	135	220	2,050	4,750	2,590	1,080	455
16	285	195	250	285	195	150	195	1,730	5,030	3,000	980	505
17	250	170	220	285	170	150	195	1,580	3,000	3,450	1,080	455
18	250	195	250	285	135	150	220	1,450	2,790	3,000	1,200	565
19	220	195	220	250	135	150	250	405	3,000	3,450	1,080	455
20	220	980	285	250	135	135	285	980	2,590	3,700	980	505
21	220	1,320	250	220	135	150	320	880	3,220	4,470	880	565
22	250	1,450	220	250	135	170	320	880	4,200	3,000	880	565
23	220	1,200	220	250	150	150	360	790	5,030	2,790	980	455
24	195	880	195	250	170	150	405	790	4,470	2,590	980	455
25	220	705	195	220	170	150	455	705	4,200	2,050	880	565
26	220	170	170	195	150	170	565	705	3,450	1,320	88	505
27	195	150	170	195	150	170	455	790	3,000	1,450	980	505
28	170	455	170	220	170	150	505	790	2,590	1,200	980	505
29	195	405	405	195	195	170	635	980	2,050	1,320	880	565
30	195	360	360	195	195	170	790	1,200	2,050	1,200	790	505
31	170	455	455	195	195	170	1,320	1,320	1,450	1,450	880	505

319
316
195
138
136
235
2,850
671

Monthly Discharge of Cayuse Creek, above Seton Creek, for years ending Sept. 30, 1917-18.

(Drainage area, 350 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October			300	0.86	0.99	18,400
November	260	155	199	0.57	0.64	11,800
December	175	145	163	0.47	0.54	10,000
January	142	120	129	0.37	0.43	7,930
February	142	120	125	0.36	0.37	6,940
March	127	110	120	0.34	0.39	7,380
April	135	120	121	0.35	0.39	7,200
May	2,350	120	623	1.78	2.05	38,300
June	2,350	1,200	1,780	5.09	5.68	106,000
July	2,350	880	1,840	5.26	6.06	113,000
August	1,080	635	840	2.40	2.77	51,600
September	635	360	428	1.22	1.36	25,500
The year	2,350	110	556	1.59	21.67	104,050
1917-18						
October	705	170	328	0.94	1.08	20,200
November	1,450	150	399	1.14	1.27	23,700
December	455	170	254	0.73	0.84	15,600
January	1,080	195	395	1.13	1.39	24,300
February	220	135	175	0.50	0.52	9,700
March	170	110	149	0.43	0.50	9,160
April	790	150	289	0.83	0.93	17,200
May	2,050	700	1,070	3.06	3.53	65,800
June	6,820	980	3,360	9.60	10.70	209,000
July	4,470	1,200	2,360	6.75	7.78	145,000
August	1,320	790	1,060	2.85	3.29	61,500
September	705	455	552	1.57	1.75	32,800
The year	6,820	110	861	2.46	33.49	624,960

SETON CREEK—STATION No. 8 ME₃.

Location.—At foot bridge to provincial hatchery, one-half mile below Seton lake and 3 miles from Lillooet.

Records available.—Daily discharges from April 6, 1914, to September 30, 1918.

Drainage area.—460 square miles, measured from the provincial map of 1912 (scale 12 miles to 1 inch).

Gauge.—Vertical staff, nailed to foot-bridge pier. Daily gauge readings by J. B. Arthur.

Channel and control.—Straight for 200 feet above and below section. The current is very swift at high stage. Control practically permanent.

Discharge measurements.—Made from foot-bridge. Twenty-one meter measurements taken during 1914-18 give a fairly well defined rating curve.

Winter flow.—Open-water conditions all year.

Accuracy.—"C."

Discharge Measurements of Seton Creek, at Hatchery, during 1916-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1916		Feet	Sec. ft.	1918		Feet	Sec. ft.
Dec. 9	Heeston & Hughes	1.37	250	Jan. 17	Swan & MacLachlan	2.00	520
1917							
Feb. 6	Balls & Hughes	0.95	143	Feb. 15	" "	1.55	341
May 1	Balls & Webb	1.04	168	Mar. 14	F. MacLachlan	1.23	292
July. 8	C. E. Webb	3.30	1,550	Mar. 15	" "	1.30	261
Oct. 5	Balls & Milner	1.90	521	April 16	C. E. Webb	1.65	318
				June 20	" "	4.50	2,820

Daily Discharge in Second-feet of Seton Creek, below Seton Lake, for period Jan. 1, to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area, 460 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				180	150	130	140	150	620	1,550	1,090	840
2				180	150	130	140	150	760	1,550	1,080	840
3				180	140	130	140	150	920	1,550	1,090	840
4				180	140	130	140	150	1,090	1,550	1,090	760
5				180	140	130	140	150	1,080	1,550	1,080	690
6				180	140	140	140	150	1,080	1,660	1,080	690
7				180	140	140	140	150	1,080	1,660	1,080	690
8				180	140	140	150	165	1,080	1,660	1,080	620
9				180	140	140	150	165	1,170	1,660	1,080	560
10				180	140	140	150	165	1,260	1,660	1,080	560
11				180	140	140	150	165	1,260	1,660	1,000	560
12				180	140	140	150	165	1,350	1,660	1,000	500
13				165	140	140	150	180	1,360	1,660	1,000	500
14				165	140	140	150	200	1,530	1,660	1,000	500
15				165	140	140	150	200	1,660	1,660	1,000	500
16				165	140	140	150	200	1,660	1,660	1,000	450
17				165	140	140	150	200	1,550	1,660	1,000	450
18				165	140	140	150	230	1,550	1,760	1,000	450
19				165	140	140	150	230	1,550	1,760	1,000	450
20				165	140	140	150	230	1,550	1,760	1,000	450
21				165	140	140	150	230	1,660	1,760	1,000	450
22				150	140	140	150	230	1,660	1,760	1,000	450
23				150	140	140	150	230	1,660	1,760	1,000	450
24				150	140	140	150	260	1,660	1,660	1,000	450
25				165	130	140	150	260	1,660	1,550	1,000	450
26				165	130	140	150	260	1,660	1,440	920	450
27				165	130	140	150	300	1,550	1,350	920	400
28				165	130	140	150	400	1,550	1,200	840	400
29				165	130	140	150	500	1,550	1,260	840	400
30				150	140	150	150	500	1,550	1,170	840	400
31				150	140	140	150	620	1,080	840		
1917-18												
1	400	200	450	260	300	200	230	500	920	3,650	2,280	1,000
2	400	200	450	300	300	200	230	500	920	3,550	2,280	1,000
3	400	200	400	300	260	200	230	560	920	3,550	2,070	1,000
4	400	230	400	350	290	200	230	630	920	3,440	1,970	1,000
5	400	230	400	350	300	200	230	620	920	3,230	1,860	920
6	400	200	400	350	300	200	230	620	920	3,130	1,860	920
7	400	200	400	400	300	180	230	520	1,090	3,020	1,760	840
8	400	200	350	500	300	180	260	690	1,080	3,020	1,760	840
9	400	200	350	500	300	180	260	690	1,260	3,020	1,660	760
10	400	200	300	450	300	180	260	690	1,660	3,130	1,660	760
11	400	200	300	450	300	180	260	690	2,070	3,130	1,550	690
12	400	200	300	400	300	180	260	760	2,280	3,130	1,440	690
13	400	200	300	400	300	180	260	840	2,490	3,130	1,440	690
14	400	200	300	450	300	180	260	840	2,710	3,130	1,440	690
15	400	200	300	450	300	180	260	840	2,710	3,020	1,440	690
16	400	200	350	450	260	200	300	920	2,710	3,020	1,350	690
17	350	200	350	500	260	200	300	920	2,820	3,130	1,260	690
18	350	200	350	500	260	200	300	920	2,820	3,340	1,266	690
19	350	200	300	500	260	200	300	1,000	2,820	3,340	1,260	690
20	350	230	300	450	230	200	300	1,000	2,820	3,340	1,260	620
21	300	300	300	450	230	200	350	1,000	2,820	3,340	1,170	620
22	300	300	260	450	230	230	350	1,000	2,820	3,230	1,170	620
23	300	350	300	450	230	230	350	1,000	2,820	3,230	1,170	560
24	260	350	260	400	230	230	400	1,000	4,590	3,020	1,170	500
25	260	400	230	400	230	230	400	920	4,380	3,020	1,080	500
26	360	400	230	400	230	230	400	920	4,380	2,820	1,080	500
27	300	450	200	350	230	230	400	920	4,170	2,820	1,080	500
28	260	500	200	350	230	230	450	920	4,070	2,820	1,080	500
29	260	500	260	350	230	230	450	840	3,960	2,710	1,000	500
30	230	450	260	300	230	230	450	840	3,860	2,600	1,000	450
31	230	260	300	230	230	230	920	2,300	1,000			

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202
261
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Monthly Discharge of Seton Creek, below Seton Lake, for years ending September 30, 1917-18.

[Drainage area, 460 square miles.]

Month	Discharge in Second-Feet				Run-Off	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area	Total in Acre-feet.
1916-17						
October	620	260	379	0.82	0.95	23,300
November	300	230	259	0.56	0.63	15,400
December	250	180	214	0.47	0.54	13,200
January	180	150	168	0.36	0.42	10,300
February	150	130	139	0.30	0.31	7,720
March	140	130	138	0.30	0.35	8,480
April	150	140	148	0.32	0.36	8,810
May	620	150	237	0.51	0.59	14,600
June	1,660	620	1,370	2.98	3.32	81,500
July	1,760	1,080	1,580	3.43	3.95	97,200
August	1,080	840	995	2.16	2.49	61,200
September	840	400	540	1.17	1.30	32,100
The year	1,760	130	514	1.12	15.21	373,810
1917-18						
October	400	230	348	0.76	0.88	21,400
November	500	200	269	0.58	0.65	16,000
December	450	200	316	0.69	0.80	19,400
January	500	260	404	0.88	1.01	24,800
February	300	230	269	0.58	0.60	14,900
March	230	180	203	0.44	0.51	12,500
April	450	230	306	0.67	0.75	18,200
May	1,000	500	810	1.76	2.03	49,800
June	4,500	920	2,490	5.42	6.05	148,000
July	3,850	2,300	3,110	6.76	7.79	191,000
August	2,280	1,000	1,450	3.15	3.63	89,200
September	1,000	450	704	1.53	1.71	41,900
The year	4,500	1.0	800	1.94	26.41	647,100

TEXAS CREEK—STATION NO. 8 MF₁₅.

Location.—At highway bridge, 14 miles below Lillooet on west side of Fraser river.

Records available.—Daily discharge during irrigation season April to September, during 1914-15, 1917-18.

Drainage area.—Fifty square miles (measured from provincial map of 1912, scale 12 miles to 1 inch).

Gauge.—Vertical staff located on bridge pier. Irregular readings by Mr. Wm. Dickie.

Channel and control.—Irregular, with large boulders, control is not permanent. Stream very swift at high-water stage.

Discharge measurements.—Made from highway bridge. Four meter measurements during 1917 and 1918 define rating curve to be used to June 15, change in control at that date. Two measurements define rating curve from June 16, 1918.

Accuracy.—"C" Impossible to accurately rate stream, owing to frequent change in control.

Discharge Measurements of Texas Creek, at mouth, during years 1917-18.

Date	Engineer	Gauge height.	Discharge.	Date	Engineer	Gauge height.	Discharge.
1917		Feet	Sec.-ft.	1918		Feet	Sec.-ft.
April 27	Webb & Balls	1.04	17.8	April 18	C. E. Webb	1.17	31.5
July 2	C. E. Webb	2.30	282.0	July 2	"	2.75	306.0
Oct. 5	Balls & Milner	1.31	40.8	Sept. 12	"	1.48	55.2

Daily Discharge in Second-feet of Texas Creek, 24 miles below Lillooet, for period April 28 to Sept. 30, 1917, and period April 1 to Sept. 30, 1918.

[Drainage area, 50 square miles.]

Day	1917						1918					
	April	May	June	July	Aug	Sept.	April	May.	June.	July	Aug	Sept.
1		22	283	394	265	69	22-0	41-0	358	271	183	58
2		22	283	379	283	69	22-0	41-0	433	260	162	58
3		22	319	363	248	69	22-0	47-0	473	248	152	58
4		22	355	347	215	69	25-0	54-0	513	271	141	65
5		15	355	331	200	69	28-0	54-0	513	294	141	72
6		31	394	315	185	69	31-0	54-0	513	283	141	65
7		54	433	299	158	69	31-0	54-0	513	271	151	58
8		69	555	283	130	69	31-0	54-0	513	260	162	52
9		87	433	338	130	69	31-0	62-0	597	248	151	46
10		87	355	394	130	61	28-0	69-0	702	248	141	46
11		87	283	394	130	54	25-0	62-0	807	248	122	46
12		87	319	394	106	54	22-0	54-0	852	248	104	46
13		87	319	394	118	54	25-0	70-0	897	248	113	46
14		78	394	375	130	54	28-0	87-0	942	271	122	46
15		69	433	356	130	54	31-0	87-0	987	294	113	46
16		69	473	317	130	54	30-0	87-0	596	260	104	46
17		69	473	319	130	47	30-0	87-0	584	226	95	46
18		69	433	301	130	41	29-0	87-0	572	226	87	46
19		87	433	283	118	41	30-0	78-0	549	226	95	46
20		97	394	248	106	41	31-0	69-0	526	215	104	40
21		106	394	215	106	41	31-0	69-0	541	204	104	35
22		106	319	215	106	41	31-0	69-0	456	204	104	35
23		106	283	215	97	41	36-0	87-0	445	204	104	35
24		118	283	215	87	41	41-0	106-0	433	193	104	40
25		130	248	215	87	41	41-0	118-0	422	183	88	46
26		185	248	200	87	41	41-0	130-0	410	183	72	46
27		283	319	185	87	41	36-0	157-0	433	183	72	46
28		22	513	337	171	87	41	31-0	185-0	456	193	72
29		22	319	355	157	87	41	31-0	200-0	445	204	80
30		22	283	394	202	78	41	31-0	215-0	433	204	87
31		283		248	69			283-0		204	63	

NOTES.—Change in control occurred 16th June, 1918. A new curve used from then on.

Monthly Discharge of Texas Creek, 24 miles below Lillooet, for period May to Sept., 1917, and April to Sept., 1918.

[Drainage area, 50 square miles.]

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
May	513	15	118-0	2-36	2-72	7,260
June	473	248	363-0	7-26	8-10	21,600
July	394	157	293-0	5-86	6-76	18,000
August	283	69	134-0	2-68	3-09	8,240
September	69	41	52-9	1-06	1-18	3,150
The period	513	15	192-0	3-84	21-85	58,250
1918.						
April	41	22	30	0-60	0-67	1,790
May	283	41	94	1-88	2-17	5,780
June	987	358	564	11-30	12-60	33,600
July	294	183	234	4-68	5-40	14,300
August	183	63	114	2-28	2-63	7,010
September	72	26	47	0-94	1-05	2,800
The period	987	22	180	3-61	24-52	65,280

Note.—Irrigation Stream.

FOSTER BAR CREEK—STATION NO. 8 ME18.

Location.—Above irrigation ditches, 19 miles below Lillooet.

Records available.—Daily discharges from June 22, to September 30, 1915; April 1 to October 31, 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Twenty square miles.

Gauge.—Three-foot vertical staff gauge, located above ditches. Daily gauge readings are taken by Mr. C. McGillivray.

Channel and control.—Boulders and gravel bed. Control is not permanent.

Discharge measurements.—Made by wading near gauge. Nine discharge measurements made during 1916-18 cover all but highest stage.

Accuracy.—"B".

Discharge Measurements of Foster Bar Creek, above Irrigation Ditches, during years 1916-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1916		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Oct. 1	M. Balls	0.52	2.08	April 26	C. E. Webb	0.71	4.07
Dec. 15	Beeston and Hughes	0.45	1.09	June 19	"	0.83	5.93
1917				Sept. 9	"	0.47	1.61
May 4	Balls and Webb	0.47	1.65				
July 13	C. E. Webb	0.87	6.15				
Oct. 13	Balls and Milner	0.45	1.66				

Daily Discharge in Second-feet of Foster Bar Creek, above Ditches, for periods April 1 to Sept. 30, 1917-18.

(Drainage area, 20 square miles.)

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	0.7	1.9	16.2	10.8	2.80	1.90	0.7	6.7	6.7	3.8	1.9	1.9
2	0.7	1.9	13.5	10.8	2.80	1.90	0.7	6.7	6.7	3.8	1.9	1.9
3	0.7	1.9	13.5	10.8	2.80	1.90	0.7	6.7	6.7	3.8	1.9	1.9
4	0.7	1.9	13.5	10.9	2.80	1.90	1.2	6.7	6.7	3.8	1.9	1.9
5	0.7	1.9	13.5	10.8	2.80	1.90	1.2	6.7	6.7	2.8	1.9	1.9
6	0.7	1.9	13.5	8.6	3.80	1.90	1.2	6.7	6.7	2.8	1.9	1.9
7	0.7	1.9	13.5	8.6	3.80	1.90	1.2	6.7	6.7	2.8	1.9	1.9
8	0.7	1.9	13.5	8.6	2.80	1.90	1.2	6.7	6.7	2.8	1.9	1.9
9	0.7	2.8	13.5	8.6	2.80	1.90	1.9	6.7	6.7	2.8	1.9	1.9
10	0.7	2.8	13.5	8.6	2.80	1.90	1.9	6.7	8.6	2.8	1.9	1.9
11	0.7	2.8	13.5	8.6	2.80	1.90	1.9	6.7	8.6	2.8	1.9	1.9
12	0.7	6.7	13.5	8.6	2.80	1.90	1.9	6.7	8.6	2.8	1.9	1.2
13	0.7	6.7	13.5	6.7	2.80	1.90	1.9	8.6	8.6	2.8	1.9	1.2
14	0.7	8.6	13.5	6.7	2.80	1.90	2.8	8.6	6.7	2.8	1.9	1.2
15	1.2	8.6	13.5	6.7	2.80	1.90	2.8	8.6	6.7	2.8	2.8	1.2
16	1.2	8.6	13.5	6.7	2.80	1.90	2.8	8.6	6.7	2.8	2.8	1.2
17	1.2	6.7	13.5	5.1	2.80	1.90	2.8	8.6	6.7	2.8	2.8	1.2
18	1.2	6.7	10.8	5.1	2.80	1.90	2.8	8.6	6.7	3.8	3.8	1.2
19	1.2	6.7	10.8	5.1	2.80	1.90	2.8	8.6	6.7	2.8	3.8	1.2
20	1.2	6.7	10.8	5.1	1.90	1.90	2.8	6.7	6.7	2.8	2.8	1.2
21	1.2	6.7	10.8	5.1	1.90	1.90	3.8	6.7	6.7	1.9	2.8	1.2
22	1.2	6.7	10.8	5.1	1.90	1.90	3.8	6.7	6.7	1.9	2.8	1.2
23	1.2	6.7	10.8	5.1	1.90	1.90	3.8	6.7	5.1	1.9	2.8	1.2
24	1.2	6.7	8.6	3.8	1.90	1.90	3.8	6.7	5.1	1.9	2.8	1.2
25	1.2	8.6	8.6	3.8	1.90	1.90	3.8	6.7	5.1	1.9	2.8	1.2
26	1.2	8.6	8.6	3.8	1.90	1.90	3.8	6.7	5.1	1.9	1.9	1.2
27	1.2	8.6	8.6	3.8	1.90	1.90	3.8	6.7	3.8	1.9	1.9	1.2
28	1.2	13.5	8.6	3.8	1.90	1.90	5.1	6.7	3.8	1.9	1.9	1.2
29	1.2	16.2	8.6	3.8	1.90	1.90	5.1	6.7	3.8	1.9	1.9	1.2
30	1.2	18.9	10.8	3.8	1.90	1.90	5.1	6.7	3.8	1.9	1.9	1.2
31	1.2	18.9	3.8	3.8	1.90	1.90	6.7	6.7	1.9	1.9	1.9	1.2

Monthly Discharge of Foster Bar Creek, above Ditches, for period Oct., 1916, to Sept., 1917, and April to Sept., 1918.

(Drainage area, 20 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	2.00	2.00	2.00	0.10	0.12	123.0
April	1.20	0.70	0.97	0.05	0.06	57.7
May	18.90	1.90	6.76	0.34	0.39	416.0
June	16.20	8.60	12.00	0.60	0.67	714.0
July	10.80	3.80	6.70	0.34	0.39	412.0
August	3.80	1.90	2.51	0.13	0.15	155.0
September	1.90	1.90	1.90	0.10	0.11	113.0
The period	18.90	0.70	4.69	0.24	1.89	1,990.7
1918.						
April	5.1	0.7	2.64	0.13	0.14	157
May	8.6	6.7	7.42	0.36	0.41	438
June	8.6	3.8	6.35	0.32	0.36	378
July	3.8	1.9	2.61	0.13	0.15	160
August	3.8	1.9	2.28	0.11	0.13	140
September	1.9	1.2	1.45	0.07	0.08	86
The period	8.6	0.7	3.74	0.18	1.27	1,359

Note.—Irrigation Stream.

THOMPSON RIVER TRIBUTARY BASIN.

THOMPSON RIVER AT SPENCE'S BRIDGE—STATION NO. 8 LF₂₂.

Location.—Section 10, township 17, range 25, west of 6th meridian.

Records available.—October 25 to December 31, 1911; January 1 to December 31, 1912; January 1 to December 31, 1913; January 1 to December 31, 1914; January 1 to December 31, 1915; March 1 to December 31, 1916; January 1 to December 31, 1917; and January 1 to September 30, 1918.

Drainage area.—Twenty-one thousand square miles.

Gauge.—Standard chain gauge, situated on highway bridge and read daily.

Channel.—Rocks and boulders; velocity swift; permanent control.

Discharge measurements.—Nineteen meter measurements have been made during 1911 to 1918. The rating curve is well defined at all stages.

Winter flow.—Open-water all winter.

Accuracy.—"B."

Discharge Measurements of Thompson River, at Spence's Bridge, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Jan. 12 1917	C. C. Cline	1.2	5,300	Mar. 18 1918	Cline & Phillips	2.2	6,450
Mar. 21	A. L. McNaughton	0.7	4,400				
June 17	F. R. Archibald	17.7	98,000				

DEPARTMENT OF THE INTERIOR.

Daily Discharge in Second-feet of Thompson River, at Spence's Bridge, for period Jan. 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage-area, 21,000 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				4,300	4,500	4,600	4,400	8,500	94,000	92,000	48,500	28,000
2				4,400	4,700	4,600	4,400	9,000	91,000	93,000	46,000	26,500
3				4,500	4,600	4,400	4,400	9,300	89,000	93,000	44,000	25,500
4				4,500	4,700	4,400	4,400	9,500	92,000	93,000	43,000	24,500
5				4,600	4,700	4,400	4,500	9,800	93,000	94,000	41,000	23,500
6				4,700	4,600	4,400	4,500	10,500	95,000	95,000	40,000	22,000
7				4,900	4,500	4,400	4,600	11,000	99,000	97,000	38,500	20,500
8				5,000	4,900	4,400	4,600	13,000	101,000	96,000	38,500	20,500
9				5,000	4,900	4,400	4,600	14,000	107,000	94,000	38,000	19,500
10				5,000	4,900	4,400	4,700	16,000	107,000	91,000	37,000	19,500
11				5,000	4,700	4,400	4,700	20,000	110,000	88,000	36,000	19,000
12				5,000	4,700	4,400	4,900	24,000	107,000	85,000	34,500	18,500
13				5,000	4,700	4,400	5,000	28,000	102,000	84,000	33,000	19,500
14				5,000	4,900	4,400	5,200	34,000	99,000	83,000	32,000	20,500
15				5,000	4,900	4,300	5,200	40,500	96,000	81,000	33,000	20,500
16				4,900	4,900	4,300	5,300	44,000	6,000	78,000	33,000	20,500
17				4,700	4,700	4,300	5,300	51,000	98,000	77,000	33,500	20,500
18				4,700	4,600	4,300	5,400	55,000	101,000	76,000	33,500	20,000
19				4,900	4,600	4,400	5,500	58,500	102,000	75,000	33,500	20,500
20				5,000	4,600	4,300	5,500	58,500	102,000	72,500	34,000	21,000
21				5,000	4,500	4,400	5,800	59,000	100,000	72,000	35,000	20,500
22				5,500	4,500	4,400	5,800	51,000	99,000	69,000	36,000	20,500
23				5,300	4,600	4,400	6,000	62,500	99,000	67,000	36,000	20,500
24				4,700	4,600	4,500	6,100	63,500	99,000	65,000	34,500	20,000
25				4,600	4,400	4,500	6,400	67,500	95,000	61,500	33,500	20,000
26				4,600	4,600	4,500	6,800	70,000	94,000	59,000	32,500	19,500
27				4,600	4,700	4,500	7,500	76,000	92,000	56,000	31,500	18,500
28				4,500	4,700	4,400	8,000	82,000	92,000	54,000	31,000	18,000
29				4,500	4,500	4,400	8,800	86,000	92,000	51,500	29,500	18,000
30				4,400	4,400	4,400	8,200	89,000	92,000	51,500	28,500	18,000
31				4,500	4,400	4,400	9,100	91,000	91,000	50,000	28,000	18,000
1917-18												
1	18,000	12,000	16,000	12,500	8,500	7,300	7,500	28,000	55,000	83,000	41,500	31,000
2	17,000	12,000	15,500	13,000	8,200	7,300	8,000	30,500	57,500	77,000	41,000	30,000
3	16,500	12,000	15,000	12,500	8,700	7,500	8,000	35,000	58,500	75,000	41,000	30,000
4	16,500	11,500	14,000	12,500	9,500	7,300	8,000	39,000	57,500	73,500	40,500	29,500
5	21,000	11,500	13,500	11,500	9,400	7,000	8,000	41,500	56,500	70,000	40,500	27,000
6	25,500	11,500	13,000	12,000	9,500	6,600	8,000	44,500	56,000	67,000	39,500	26,500
7	28,000	12,000	13,000	13,000	9,500	6,600	8,200	47,500	57,500	63,500	39,500	26,500
8	29,400	12,000	12,000	13,000	9,500	6,800	8,600	48,000	58,500	63,500	38,000	26,000
9	28,500	12,000	12,000	13,000	9,800	6,800	9,000	48,500	60,000	62,500	36,000	25,500
10	27,000	12,500	12,000	12,500	10,000	6,600	9,000	48,000	69,000	63,500	36,000	25,000
11	25,000	12,500	11,500	12,000	10,500	6,800	10,000	48,000	63,500	63,500	35,000	25,000
12	22,500	12,000	11,000	11,500	10,000	6,800	10,500	48,000	84,000	64,000	34,000	24,500
13	22,500	12,000	10,500	11,000	9,800	6,600	11,000	50,000	89,000	66,000	33,500	23,500
14	21,000	12,000	10,500	11,000	9,600	6,600	11,500	52,500	94,000	66,000	32,000	23,500
15	20,500	12,000	9,800	11,500	8,800	6,600	12,000	57,500	98,000	65,000	32,000	23,500
16	20,000	11,500	9,000	11,500	8,500	6,600	13,000	61,000	99,000	62,500	31,000	23,500
17	19,500	11,500	9,500	12,000	8,000	6,800	13,000	64,000	99,000	61,500	31,000	23,000
18	19,000	11,000	9,800	12,000	7,500	6,700	14,000	65,000	98,000	61,000	32,000	22,500
19	18,500	11,000	9,800	12,000	7,300	6,600	14,000	66,000	97,000	63,500	32,000	21,500
20	18,000	11,000	10,000	12,000	7,300	6,600	14,500	65,000	98,000	64,000	33,000	21,500
21	16,500	12,000	9,800	12,000	7,000	6,600	15,500	64,000	97,000	64,000	33,500	21,500
22	16,000	12,000	9,500	11,500	7,000	6,700	16,000	61,500	97,000	63,500	33,000	22,000
23	15,000	12,500	9,300	11,500	7,000	6,800	18,000	58,500	96,000	61,500	32,500	22,000
24	14,500	14,000	8,700	11,000	7,000	6,800	19,000	57,000	97,000	58,500	32,500	22,000
25	14,000	15,500	8,300	11,000	7,000	7,000	20,000	54,000	97,000	53,000	33,000	21,500
26	13,500	17,500	8,000	10,500	7,000	7,000	21,000	53,000	97,000	51,000	34,500	21,000
27	13,500	18,000	7,500	10,500	7,000	7,100	21,000	51,500	98,000	47,500	35,500	20,500
28	13,500	18,000	6,900	10,500	7,000	7,300	22,000	50,000	95,000	44,500	36,500	19,500
29	13,500	17,500	6,400	10,000	7,000	7,300	23,500	49,500	92,000	43,500	36,000	19,500
30	13,000	17,000	7,700	9,500	7,300	7,300	25,000	49,500	88,000	41,000	34,500	18,500
31	13,000	9,500	8,700	7,500	7,500	7,500	51,000	41,000	82,500	41,000	32,500	18,000

Month

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Monthly Discharge of Thompson River, at Spence's Bridge, for years ending Sept. 30, 1917-18.

(Drainage area, 21,000 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	17,800	11,600	13,450	0.64	0.74	827,000
November	11,300	7,000	8,360	0.40	0.45	497,000
December	7,000	4,150	5,550	0.27	0.31	341,000
January	5,000	4,300	4,700	0.22	0.25	289,000
February	4,900	4,400	4,700	0.22	0.23	261,000
March	4,700	4,300	4,400	0.21	0.24	271,000
April	8,200	4,400	5,500	0.26	0.29	327,000
May	91,000	9,000	42,700	2.03	2.34	2,625,000
June	110,000	89,000	97,800	4.66	5.20	5,819,000
July	97,000	59,000	74,200	3.68	4.24	4,747,000
August	48,500	28,000	35,700	1.70	1.96	2,195,000
September	28,000	18,000	20,800	0.99	1.10	1,238,000
The year	110,000	4,150	26,700	1.27	17.35	19,437,000
1917-18						
October	29,500	13,000	19,000	0.90	1.04	1,170,000
November	18,000	11,000	13,000	0.62	0.69	780,000
December	16,000	6,400	10,600	0.50	0.58	650,000
January	13,000	8,700	11,600	0.55	0.64	715,000
February	10,500	7,000	8,400	0.40	0.42	465,000
March	7,500	6,600	6,900	0.53	0.38	420,000
April	25,000	7,500	13,500	0.64	0.71	800,000
May	66,000	28,000	31,000	2.43	2.80	3,149,000
June	99,000	55,000	82,500	3.93	4.38	4,900,000
July	83,000	41,000	61,500	2.93	3.38	3,780,000
August	41,500	31,000	35,500	1.69	1.95	2,180,000
September	31,000	18,500	24,000	1.14	1.27	1,400,000
The year	99,000	6,600	28,000	1.34	18.24	20,400,000

TRANQUILLE RIVER—STATION NO. 8 LF₂₄.

Location.—Section 36, township 20, range 19, west of the 6th meridian, below one small diversion.

Records available.—July 4 to October 21, 1911; March 29 to September 7, 1912; May 1 to October 31, 1913; May 3 to November 14, 1914; April 1 to September 30, 1915; April 1 to July 14, 1916; May 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Two hundred and thirty square miles. The flow of the creek is diminished by a small diversion above the gauging station with a maximum flow of 2 or 3 second-feet.

Gauge.—Standard vertical staff gauge read daily.

Channel.—Stones and boulders.

Discharge measurements.—Eight measurements made during the years 1916 to 1918 agree very well and cover the whole range of stage during 1918 and all but the higher stages of 1917.

Accuracy.—"B" up to a discharge of 450 cubic feet per second.

Discharge Measurements of Tranquille River, below diversion near mouth, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
June 19	Archibald & Curry.....	1.50	142	May 25	A. L. McNaughton.....	1.49	139
June 26	V. D. Curry.....	1.35	100	Sept. 28	"	0.57	3
July 20	A. L. McNaughton.....	0.88	23				
Oct. 15	C. G. Cline.....	0.62	4				

Daily Discharge in Second-feet of Tranquille River, below Diversion, for the period May 1 to Sept. 30, 1917, and April 1 to Sept. 30, 1918.

(Drainage area, 230 square miles.)

Day.	1917.					1918.					
	May.	June.	July.	August.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	9	420	225	9	2	9	225	165	17	9	4
2	9	420	165	9	2	9	255	165	17	4	4
3	9	385	140	9	2	9	255	165	17	4	4
4	9	350	115	9	2	9	285	140	17	4	4
5	17	350	115	9	2	9	255	140	17	4	4
6	26	350	92	9	2	9	225	140	18	4	4
7	38	350	92	9	4	17	225	140	17	4	4
8	71	350	71	9	4	17	195	140	9	9	4
9	140	350	71	9	4	17	195	165	9	9	4
10	195	320	71	9	4	17	195	140	9	9	4
11	225	285	53	9	4	17	195	140	9	9	4
12	285	285	53	9	4	17	195	115	9	9	4
13	350	255	38	4	4	26	225	115	9	9	4
14	350	225	38	4	4	17	255	90	9	9	4
15	350	225	38	4	4	17	255	90	9	9	2
16	350	195	38	4	4	17	255	70	9	17	2
17	320	165	26	4	4	17	225	50	9	17	2
18	350	140	26	4	4	17	195	50	4	17	2
19	385	140	26	3	2	26	195	50	4	17	2
20	385	115	26	3	2	26	165	50	4	17	2
21	385	140	26	3	2	40	165	40	4	17	2
22	420	115	17	3	2	50	165	40	4	17	4
23	455	115	17	3	2	50	140	40	4	17	4
24	455	115	17	3	2	70	140	40	4	17	4
25	455	92	17	2	4	90	140	26	9	9	4
26	455	92	17	2	4	70	140	26	9	9	3
27	490	92	17	2	4	90	140	26	9	9	3
28	560	71	9	2	4	115	115	26	9	9	4
29	560	195	9	2	4	140	140	17	9	9	4
30	455	255	17	2	4	195	140	17	9	9	4
31	455	9	9	2			165		9	9	

Monthly Discharge in Second-feet of Tranquille River, near mouth, for the periods May to Sept., 1917, and April to Sept., 1918.

(Drainage area, 230 square miles.)

Month.	Discharge in Second-Feet				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917						
May	560	9	290			17,800
June	420	71	230			13,700
July	225	9	55			3,380
August	9	2	5			330
September	4	2	3			190
The period	560	2	117			35,400
1918						
April	195	9	41	0.18	0.20	2,450
May	285	140	195	0.85	0.86	12,000
June	165	17	87	0.38	0.42	5,200
July	17	4	10	0.04	0.05	610
August	17	4	10	0.04	0.05	640
September	4	2	4	0.02	0.02	210
The period	285	2	58	0.25	1.60	21,110

NOTE.—A small quantity of water was diverted above the gauging station.

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CHERRY CREEK—STATION No 8 LF₆.

Location.—Section 14, township 19, range 19, west of the 6th meridian.

Records available.—June 5 to September 1, 1911; April 24 to September 15, 1912; April 19 to October 19, 1913; May 1 to August 19, 1914; April 1 to September 30, 1915; April 1 to October 31, 1916; April 5 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Thirty square miles.

Gauge.—Standard chain gauge, daily readings.

Channel.—Velocity swift at all stages. Control has shifted during the 1918 freshet.

Discharge measurements.—Thirteen meter measurements made during 1914, to 1917 define the curve very well previous to the change in the control about June, 1918. After this date a parallel curve through two meter measurements of 1918 was used to define the rating.

Accuracy.—Results should be fairly accurate except for discharges below 0.8 cubic feet per second occurring after June 1, 1918.

Discharge Measurements of Cherry Creek, above Alkali Creek, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
May 25	Cline & McNaughton.....	1.32	46.5	June 11	A. L. McNaughton.....	0.95	11.0
July 25	McNaughton & Curry.....	1.00	20.0	Aug. 3	A. L. McNaughton.....	0.58	0.8
Aug. 31	C. G. Cline.....	0.42	0.2				

Daily Discharge in Second-feet of Cherry Creek, above Alkali Creek, for the periods April to Sept., 1917-18.

(Drainage area, 30 square miles.)

Day.	1917						1918					
	April	May	June	July	Aug.	Sept.	April	May	June	July	Aug.	Sept.
1	0.2	0.2	34	92	8.0	0.3	0.2	8	25	1.0	1.0	0.3
2	0.2	0.3	34	78	8.0	0.3	0.2	8	21	1.0	0.7	0.3
3	0.2	0.3	38	70	8.0	0.3	0.2	10	17	1.0	0.7	0.3
4	0.2	0.3	38	58	7.0	0.3	0.2	10	21	1.0	2.0	0.3
5	0.2	0.8	38	46	5.0	0.3	0.2	10	21	0.7	1.0	0.3
6	0.2	0.8	38	34	5.0	0.3	0.3	10	21	0.7	1.0	0.3
7	0.2	7.0	34	23	5.0	0.3	0.3	10	17	0.7	1.0	0.3
8	0.2	8.0	30	13	5.0	0.3	0.3	10	14	0.7	0.7	0.3
9	0.2	10.0	34	13	4.0	0.3	0.3	10	14	0.3	0.7	0.3
10	0.2	30.0	38	10	4.0	0.3	1.5	8	11	0.3	0.7	0.3
11	0.2	38.0	34	10	3.0	0.3	1.5	8	11	0.3	0.7	0.3
12	0.2	38.0	34	8	3.0	0.3	2.2	10	8	0.3	1.0	0.3
13	0.2	46.0	34	5	3.0	0.3	3.0	10	8	0.3	1.0	0.3
14	0.2	50.0	30	5	3.0	0.3	3.0	10	5	0.3	2.0	0.3
15	0.2	50.0	27	5	3.0	0.2	3.0	13	5	0.3	1.0	0.3
16	0.2	46.0	27	4	2.5	0.2	3.0	13	5	0.3	1.0	0.3
17	0.2	42.0	27	3	2.5	0.2	3.0	13	2	0.3	1.0	0.3
18	0.2	38.0	23	3	2.5	0.2	3.0	10	2	0.3	1.0	0.3
19	0.2	34.0	20	3	2.0	0.2	4.0	10	2	0.3	0.3	0.3
20	0.2	34.0	20	3	2.0	0.2	5.0	8	2	0.3	0.3	0.3
21	0.3	34.0	13	2	1.5	0.2	6.5	8	2	0.3	0.3	0.3
22	0.3	34.0	10	2	1.5	0.2	6.5	8	2	0.3	0.3	1.0
23	0.3	34.0	8	2	1.5	0.2	6.5	8	2	0.3	0.3	1.0
24	0.3	34.0	8	2	1.5	0.2	6.5	10	2	0.7	0.3	0.3
25	0.2	42.0	10	23	1.5	0.2	6.5	10	1	0.7	0.3	0.3
26	0.2	42.0	13	16	1.5	0.3	6.5	8	1	1.0	0.3	0.3
27	0.2	50.0	13	20	1.5	0.3	6.5	8	1	6.5	1.0	0.3
28	0.2	54.0	16	16	1.5	0.3	6.5	8	1	8.0	1.0	0.2
29	0.2	42.0	100	13	1.0	0.3	8.0	8	1	6.5	0.7	0.2
30	0.2	38.0	100	10	0.3	0.3	8.0	13	1	2.0	0.3	0.2
31		34.0		8	0.3			20		2.0	0.3	

Monthly Discharge of Cherry Creek, above Alkali Creek, for the periods April to Sept., 1917-18.

(Drainage area, 30 square miles.)

Month.	Discharge in Second Feet.				Run-Off.	
	Maximum	Minimum	Mean	Per square mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1917						
April	0.3	0.2	0.2	0.01	0.01	10
May	54.0	0.2	29.4	0.98	1.13	1,800
June	100.0	8.0	30.6	1.02	1.14	1,800
July	92.0	2.0	19.6	0.65	0.75	1,200
August	8.0	0.3	3.2	0.11	0.13	290
September	0.3	0.2	0.3	0.01	0.01	15
The period.....	100.0	0.2	13.9	0.46	3.17	5,025
1918						
April	8.0	0.2	3.5	0.12	0.13	210
May	20.0	8.0	10.0	0.33	0.38	610
June	25.0	1.0	8.2	0.27	0.30	490
July	8.0	0.3	1.2	0.04	0.05	70
August	2.0	0.3	0.8	0.03	0.03	50
September	1.0	0.2	0.3	0.01	0.01	20
The period.....	25.0	0.2	4.0	0.13	0.90	1,450

THREEMILE (DURAND) CREEK—STATION NO. 8 LF₂₈.

Location.—Section 23, township 20, range 21, west of 6th meridian; below diversion from Guichon creek into Threemile creek; above all diversions from Threemile creek.

Records available.—June 21 to September 30, 1915; May 11 to October 31, 1916; April 14 to September 30, 1917.

Drainage area.—Fifty-five square miles. Flow of creek augmented by diversion from Guichon creek, stored in Tunkwa lake.

Gauge.—Standard vertical staff. This gauge and the whole creek bed were washed out on July 1, 1917, in a very large flood caused by the failure of a storage dam on the east fork of the creek.

Discharge measurements.—Three in 1917 and six in 1915 and 1916 define the rating curve fairly well except for the flood. Four other measurements were made after the flood and give some idea of the discharge during the last three months of the irrigation-season.

Accuracy.—The figures given should be fairly reliable, though they are rather incomplete.

Discharge Measurements of Threemile Creek, above Diversions, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1917.			
May 20	C. G. Cline	1.50	21.9	Aug. 2	V. D. Currie		8.0
June 3	McNaughton & Cline.	1.50	18.3	" 29	Cline and Chisholm		4.2
June 27	Cline & Currie	1.00	4.8	Oct. 6	"		0.2
July 11	"		9.8	1918.			
				June 12	A. L. McNaughton		4.5

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Discharge in Second-feet of Threemile Creek, above Diversions, for the period April 14 to Sept. 30, 1917.

(Drainage area, 55 square miles.)

Day.	April.	May.	June.	July.	Aug.	Sept.
1						
2			4	17		
3			5	18		
4			8	20		
5				17	8	
6			6	14		
7				11		
8				8		
9			14	11		
10				14		
11			20	14	10	
12				14		
13			23	14		
14	1		15	15		
15			21	15		
16			2	15		
17			21	17		
18			3	21		
19			2	17		
20				15		
21			23	11		
22			25	9		
23			23	8		
24			23			
25			27	6		
26			27	6		
27				6		
28			25	6		
29			25	42	4	
30	3		17	Flood		0.2

DEADMAN RIVER—STATION NO. 8 LF 27.

Location.—Section 15, township 22, range 22, west of 6th meridian; above mouth of Criss creek.

Records available.—April 22 to November 21, 1913; April 1 to December 9, 1914; March 22 to September 30, 1915; April 1 to October 31, 1916; April 10 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Three hundred square miles. The run-off is artificially controlled by the storage dam on Deadman lake.

Gauge.—Standard vertical staff gauge; daily readings.

Channel.—Gravel and silt.

Discharge measurements.—Two meter measurements in 1918 and ten in 1915-17, cover all stages fairly well.

Accuracy.—“B.”

Discharge Measurements of Deadman River, above Criss Creek, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918.			
May 20	C. G. Cline	5.10	983	June 13	A. L. McNaughton	2.29	120
June 27	Cline & Curry	2.57	147	July 27	"	1.92	68
Aug 27		2.57	158				
Aug 4	V. D. Curry	1.95	62				
Aug 30	Chisholm & Cline	1.70	43				

DEPARTMENT OF THE INTERIOR.

Daily Discharge in Second-feet, of Deadman River, above Criss Creek, for the periods April to Sept., 1917-18.

(Drainage area, 300 square miles.)

Day.	April.	May.	June.	1917. July.	Aug.	Sept.	April.	May.	June.	1918. July.	Aug.	Sept.
1	10	16	530	190	60	46	20	140	190	35	60	45
2	10	19	490	220	70	46	20	160	470	30	30	45
3	10	20	430	200	70	46	20	190	170	30	45	45
4	10	16	370	190	70	43	20	220	160	30	45	40
5	10	18	370	170	60	43	20	250	160	30	40	40
6	10	18	370	155	70	43	20	270	160	35	35	40
7	10	18	340	140	70	43	20	270	160	38	35	40
8	10	26	340	125	70	43	20	290	140	38	32	40
9	10	60	370	125	60	43	20	290	130	40	45	35
10	10	110	400	125	60	43	20	270	130	45	60	35
11	10	130	410	110	57	43	20	270	115	40	55	35
12	10	240	410	95	57	43	22	260	115	35	55	35
13	10	300	370	85	57	43	23	240	115	32	55	35
14	10	350	340	70	57	43	23	220	95	32	50	32
15	10	440	320	70	57	43	23	220	95	32	50	32
16	10	570	300	70	53	40	23	200	80	30	50	30
17	10	700	260	70	53	40	25	200	80	30	50	30
18	10	900	240	60	53	35	25	200	70	30	50	30
19	10	1,100	220	60	53	35	25	200	70	30	50	30
20	10	980	190	53	53	30	25	200	60	30	50	30
21	10	900	190	53	53	30	25	200	60	30	50	30
22	10	800	170	46	53	28	25	160	50	30	50	30
23	10	700	170	46	53	28	25	190	45	40	48	30
24	10	700	170	46	50	28	25	195	45	50	48	30
25	12	700	155	50	50	28	25	190	45	50	48	25
26	13	790	155	50	50	28	25	190	40	60	45	25
27	14	700	150	70	50	28	25	190	40	60	45	25
28	14	700	155	70	46	28	40	190	49	60	45	25
29	15	650	170	60	46	28	80	190	35	60	45	25
30	15	610	190	60	46	28	135	190	35	60	45	25
31		570		60	46			190		60	45	

Monthly Discharge of Deadman River, above Criss Creek, for the periods April to Sept., 1917-18.

[Drainage area, 300 square miles.]

Month.	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April			11	0.04	0.04	650
May	1,100	16	445	1.48	1.71	27,400
June	530	150	291	0.97	1.08	17,300
July	220	53	97	0.32	0.37	6,000
August	70	46	57	0.19	0.22	3,500
September	46	28	37	0.12	0.13	2,200
The period	1,100	16	156	0.52	3.55	57,050
1918.						
April	135	20	29	0.10	0.11	1,730
May	290	140	214	0.72	0.83	13,290
June	190	54	97	0.32	0.36	5,770
July	60	30	49	0.13	0.15	2,450
August	69	30	47	0.16	0.18	2,900
September	45	25	33	0.11	0.12	1,960
The period	290	20	77	0.26	1.75	28,010

CRISS CREEK—STATION NO. 8 LF 7.

Location.—Section 32, township 32, range 22, west of the 6th meridian; half-a-mile from mouth.

Records available.—June 14 to September 14, 1912; April 22 to November 21, 1913; April 1 to December 9, 1914; March 22 to September 30, 1915; April 1 to October 31, 1916; April 17 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—One hundred and fifty square miles.

Gauge.—Standard vertical staff gauge, read daily.

Channel.—Gravel and boulders; velocity high; control apparently unchanged since 1912.

Discharge measurements.—Two measurements in 1918, and seventeen during 1912 to 1916, agree well and cover all stages except extreme high water.

Accuracy.—Results should be quite accurate except for discharges greater than 500 cubic feet per second. During the season of 1918 some water was diverted above the gauging section.

Discharge Measurements of Criss Creek, near Mouth, during 1917-18.

Date	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
May 20	C. G. Cline	3.40	405.0	June 13	A. L. McNaughton	2.70	262.0
June 27	Cline and Curry	2.45	163.0	June 27	"	0.82	2.3
Aug 1	V. D. Curry	1.17	9.0				
" 30	Chisholm and Cline	0.69	0.8				

Daily Discharge in Second-feet of Criss creek, near mouth, for the period, April 17 to Sept. 30, 1917, and April 1 to Sept. 30, 1918.

(Drainage area, 150 square miles.)

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1		45	530	290	9.0	0.6	15	310	340	20.0	1.3	1.3
2		45	530	260	7.0	0.6	15	310	340	15.0	1.3	1.3
3		50	600	230	5.0	0.6	15	340	310	15.0	1.3	1.3
4		50	600	175	5.0	0.6	15	370	310	15.0	1.3	1.3
5		60	640	150	5.0	0.6	15	410	310	10.0	1.3	1.3
6		90	600	130	7.0	0.6	15	410	310	10.0	1.3	1.3
7		90	600	130	7.0	0.6	15	410	280	7.0	1.3	1.3
8		175	570	110	5.0	0.6	15	450	280	5.0	1.3	1.3
9		230	530	110	5.0	0.6	20	450	280	5.0	3.0	1.3
10		320	500	90	3.0	0.6	30	410	340	5.0	3.0	1.3
11		400	430	75	3.0	0.6	40	410	340	3.0	1.3	1.3
12		430	400	75	3.0	0.6	40	370	280	3.0	1.3	1.3
13		460	400	40	3.0	0.8	25	370	250	3.0	1.3	1.3
14		460	360	40	3.0	0.8	25	340	220	3.0	1.3	1.3
15		460	320	30	3.0	0.8	22	340	190	3.0	1.3	1.3
16		430	320	30	1.3	0.6	22	340	160	1.3	1.3	1.3
17		20	430	320	25	1.3	0.6	25	340	140	1.3	1.3
18		20	430	290	20	1.3	0.6	25	340	140	1.3	1.3
19		20	460	290	20	1.3	0.8	40	340	120	1.3	1.3
20		20	460	260	20	1.3	0.8	80	340	100	1.3	1.3
21		20	460	260	30	1.3	0.8	140	340	80	1.3	1.3
22		20	460	230	15	1.3	0.8	120	340	65	1.3	1.3
23		20	460	200	5	1.3	0.8	140	340	50	1.3	1.3
24		30	430	200	3	1.3	0.8	140	370	40	1.3	1.3
25		40	460	175	3	0.8	0.8	140	370	30	1.3	1.3
26		40	530	150	3	0.8	0.8	160	370	30	1.3	1.3
27		40	600	150	3	0.8	0.8	160	340	25	1.3	1.3
28		50	600	200	3	0.8	1.3	170	340	25	1.3	1.3
29		50	680	260	3	0.8	1.3	220	340	25	1.3	1.3
30		30	600	260	5	0.8	3.0	270	340	20	1.3	1.3
31			600		5	0.8			340		1.3	1.3

NOTES.—In 1917 a small irrigation ditch diverted water from the creek above the gauge during part of the season.

Monthly Discharge of Criss Creek, near Mouth, for the periods May to Sept., 1917, and April to Sept., 1918.

Drainage area, 150 square miles.

Month	Discharge in Second-Feet				Run-Off	
	Maximum	Minimum	Mean	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
May	680	45.0	370.0	2.47	2.85	22,700
June	640	150.0	373.0	2.48	2.77	22,200
July	290	3.0	69.0	0.46	0.53	4,200
August	9	0.8	2.9	0.02	0.02	180
September	3	0.6	0.8	0.01	0.01	50
The period	680	0.6	163.1	1.08	6.18	49,330
1918.						
April	270.0	15.0	70.0	0.47	0.52	4,160
May	450.0	310.0	360.0	2.40	2.77	22,000
June	340.0	20.0	180.0	1.20	1.34	10,700
July	20.0	1.3	4.6	0.03	0.03	280
August	3.0	1.3	1.4	0.01	0.01	80
September	1.3	1.3	1.3	0.01	0.01	80
The period	450.0	1.3	102.9	0.69	4.68	37,300

BARNES CREEK—STATION NO. 8 L F.

Location.—Section 23, township 20, range 24, west of 6th meridian; just above Barnes lake.

Records available.—April 26 to September 14, 1912; May 1 to December 14, 1913; April 1 to December 8, 1914; April 1 to September 30, 1915; April 1 to October 31, 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Thirty-eight square miles.

Gauge.—Standard vertical staff; daily readings.

Channel.—Rocky. Two channels at very low water. During the freshet at the end of May, 1917, scouring of the channel took place and meterings made during 1918 show a further change to have occurred.

Discharge measurements.—Seven measurements during 1915-16 and one in the spring of 1917 define the rating curve very well for conditions up to the freshet of May 28, 1917. For the remainder of 1917 the rating curve is based upon three subsequent 1917 measurements which define it fairly well for low-water; for high-water the curve is produced parallel to the 1916 curve. The 1918 curve is defined by two measurements and is parallel to former curves.

Accuracy.—Fairly good for the period up to May 28, 1917. After May 28, the accuracy is not so good for discharges over 12 cubic feet per second during 1917. Figures given for the low-water period of 1918 are uncertain. It is the intention to construct a measuring weir at this station as soon as possible. Some water is diverted from Barnes creek above the gauging station.

Discharge Measurements of Barnes Creek, above Barnes Lake, during 1917-18.

Date	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918.			
May 18	C. G. Cline	0-70	11-7	June 8	C. G. Cline	0-70	15-6
June 25	Cline and Curry	0-55	10-6	July 25	A. L. McNaughton	0-42	2-1
July 30	V. D. Curry	0-30	2-6				
Sept. 8	Chisholm and Cline	0-20	1-0				

Daily Discharge in Second-feet of Barnes Creek, above Barnes lake, for the periods April 1 to Sept. 30, 1917-18.

[Drainage area, 38 square miles.]

Day.	1917.					1918.					
	April.	May.	June.	July.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	2	5	40	70	3	1-5	2	25	1	2	3-0
2	2	5	40	63	3	1-5	2	25	1	2	3-0
3	2	5	38	53	3	1-5	3	25	1	2	2-0
4	2	5	40	45	3	1-5	7	22	2	2	2-0
5	2	5	40	42	3	1-5	11	20	4	2	2-0
6	2	5	40	38	4	1-5	9	18	4	2	2-0
7	2	7	38	31	7	1-5	7	16	4	2	2-0
8	2	9	36	26	7	1-5	6	16	4	2	2-0
9	2	13	34	24	5	1-5	7	13	4	3	2-0
10	2	17	32	24	4	1-5	7	11	3	4	2-0
11	3	20	31	20	4	2-0	7	11	3	4	1-5
12	3	22	31	12	4	2-0	10	11	3	4	1-0
13	3	22	31	12	4	2-0	13	11	3	5	1-0
14	3	22	28	10	3	2-0	13	9	3	6	0-7
15	3	20	28	8	3	2-0	11	9	3	6	0-7
16	3	17	26	8	3	2-0	11	7	3	6	0-5
17	3	15	26	8	3	2-0	11	7	3	7	0-5
18	3	13	26	7	3	2-0	11	6	2	7	0-5
19	3	15	24	7	3	2-0	13	6	2	7	0-5
20	3	17	22	5	3	2-0	13	4	2	7	0-5
21	3	17	19	4	3	4-0	13	3	2	7	0-5
22	3	17	17	4	2	3-0	13	2	2	6	0-5
23	3	20	15	4	2	3-0	13	2	2	6	0-5
24	3	22	11	4	2	2-0	13	1	2	5	0-5
25	3	27	10	4	2	2-0	13	1	2	4	0-5
26	4	34	10	4	2	2-0	13	1	3	4	0-5
27	4	43	10	3	2	2-0	13	1	3	4	0-5
28	5	51	10	3	1	2-0	16	1	3	3	0-5
29	5	52	50	3	1	2-0	16	1	2	3	0-5
30	5	45	75	3	1	2-0	19	1	2	3	0-5
31		42		3	1		25		2	3	0-5

Monthly Discharge of Barnes Creek, above Barnes Lake, for the periods April to Sept. 1917-18.

(Drainage area, 38 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	5	2	2.9			170
May	52	5	20.3			1,250
June	75	10	29.3			1,740
July	70	3	17.8			1,100
August	7	1	3.0			180
September	1	1	1.0			60
The period	75	1	12.4			4,500
1918.						
April	4	1.5	2.0			120
May	25	2.0	11.0			675
June	25	1.0	9.5			560
July	4	1.0	2.6			160
August	7	2.0	4.2			260
September	3	0.5	1.1			65
The period	25	1.5	5.1			1,840

NOTE.—In addition to quantity of water for 1917, some was diverted into Separation lake for use near Waltham. In 1918 water was diverted from Barnes Creek above the gauging station.

BONAPARTE RIVER—STATION NO. 8 L F₂.

Location.—Section 18, township 21, range 24, west of 5th meridian; five miles above mouth.

Records available.—June 10 to November 6, 1911; March 25 to December 22, 1912; March 30 to December 31, 1913; January 1 to December 9, 1914; February 20 to December 25, 1915; February 1 to December 31, 1916; January 1 to December 11, 1917; March 18 to September 30, 1918.

Drainage area.—Two thousand square miles.

Gauge.—Standard vertical staff gauge, read daily.

Channel.—Boulders; velocity high.

Discharge measurements.—Twenty-two meter measurements made during 1913 to 1918 agree very well.

Winter flow.—The stream is frozen from December to March. The 1917 winter discharge was estimated from one meter measurement in January.

Accuracy.—The results should be quite accurate at all stages during the high-water season.

Discharge Measurements of Bonaparte River, five miles from mouth, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.							
Jan. 17	F. Archibald	Ice	50	Mar. 19	Cline and Phillips	1.50	132
June 25	Cline & Curry	3.30	734	June 7	C. G. Cline	2.95	554
July 31	V. D. Curry	1.75	200	July 24	A. L. McNaughton	1.55	153
Sept. 5	Chisholm & Cline	1.20	97				

Daily Discharge in Second-feet of Bonaparte River, 5 miles from mouth, for the period April 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

[Drainage area, 2,000 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	May.	July.	Aug.	Sept.
1916-17.												
1							100	270	1,010	960	215	95
2							100	290	1,030	940	200	90
3							100	310	1,050	920	200	90
4							100	325	1,065	880	200	85
5							100	345	1,090	840	200	85
6							100	345	1,100	800	200	85
7							100	350	1,110	790	200	85
8							105	390	1,130	710	215	85
9							115	440	1,130	690	215	85
10							120	490	1,190	650	200	85
11							120	560	1,240	610	200	85
12							130	590	1,260	590	185	85
13							130	630	1,290	540	170	85
14							130	670	1,260	470	155	85
15							130	690	1,200	430	140	85
16							140	735	1,170	410	140	85
17							140	780	1,130	390	140	85
18							155	820	1,070	380	140	85
19							155	860	1,030	360	140	85
20							170	950	990	345	130	85
21							155	1,070	950	325	130	85
22							140	1,110	910	310	130	85
23							155	1,140	880	190	130	85
24							170	1,120	840	270	120	85
25							185	1,110	800	270	120	85
26							200	1,110	790	250	110	85
27							200	1,110	780	250	110	85
28							215	1,120	780	235	110	85
29							215	1,110	850	235	105	85
30							235	1,065	1,010	215	105	80
31								1,000		215	95	
1917-18.												
1	85	90	90				130	460	650	270	130	110
2	85	90	99				120	375	630	250	120	105
3	85	95	90				120	490	630	240	120	105
4	85	95	90				130	490	610	220	110	105
5	85	95	90				130	490	590	220	110	100
6	85	95	90				130	490	570	210	110	100
7	85	95	90				130	490	550	200	105	100
8	85	95	90				140	490	560	200	105	95
9	85	95	90				140	490	560	200	105	95
10	85	95	90				110	510	560	200	105	95
11	85	95	85				160	510	550	190	105	90
12	85	95					175	510	550	190	105	90
13	85	95	100				190	490	530	190	110	90
14	85	95					200	490	530	170	110	90
15	85	95					200	490	510	170	120	90
16	85	95					210	490	510	160	120	90
17	85	95					210	490	470	160	120	85
18	85	95					130	225	510	460	140	85
19	85	95					130	225	530	430	200	190
20	85	95					120	240	550	410	160	190
21	85	95					110	240	570	390	160	175
22	85	95					110	260	590	370	150	160
23	85	95					105	270	590	370	150	160
24	85	95					110	345	650	360	150	150
25	90	95					120	390	650	350	140	140
26	90	95					120	430	660	350	140	140
27	90	90					120	450	660	330	140	130
28	90	90					120	450	650	310	140	120
29	90	90					130	450	630	280	140	120
30	90	90					140	460	650	270	130	120
31	90						140		650		130	110

Dis-charge.
ec.-ft.
132
554
153

Monthly Discharge of Bonaparte River, five miles from mouth, for years ending
Sept. 30, 1917-18.

(Drainage area, 2,000 square miles)

Month.	Discharge in Second-Foot.				Run Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	130	86	100	0.05	0.06	6,150
November	115	86	95	0.05	0.06	5,650
December	96	50	70	0.03	0.04	4,300
January			50	0.02	0.03	3,100
February			50	0.02	0.02	2,800
March			70	0.03	0.04	4,300
April	235	100	144	0.07	0.08	8,600
May	1,140	270	738	0.37	0.43	45,400
June	1,290	780	1,038	0.52	0.58	61,200
July	960	215	504	0.25	0.29	31,000
August	215	95	156	0.08	0.09	9,600
September	95	80	85	0.04	0.04	5,100
The year.	1,290		250	0.13	1.76	187,800
1917-18.						
October	90	85	86	0.04	0.05	5,300
November	95	90	94	0.05	0.06	5,600
December						
January						
February						
March						
April	460	120	235	0.12	0.13	14,000
May	660	460	545	0.27	0.31	33,500
June	650	270	480	0.24	0.27	28,600
July	600	130	190	0.09	0.10	11,700
August	190	105	125	0.06	0.07	7,700
September	110	85	90	0.05	0.06	5,400

SCOTTIE CREEK—STATION NO. 8 L F₃₁.

Location.—Section 16, township 23, range 25, west of 6th meridian; above diversions near mouth.

Records available.—June 1 to October 31, 1911; April 1 to September 8, 1912; May 1 to November 28, 1913; April 18 to October 31, 1916; April 3 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Seventy square miles.

Gauge.—Standard vertical staff gauge installed above diversions on August 25, 1915; daily readings.

Channel.—Width about fifteen feet, rocks and gravel.

Discharge measurements.—Eleven meter measurements during 1916-18 agree fairly well and cover the range of stage during the 1918 season and all but the higher stages of the 1917 season.

Accuracy.—"B" up to a discharge of 40 cubic feet per second; "C" and "D" above that amount.

Discharge Measurements of Scottie Creek, above Diversions, near Mouth, during
1917-18.

Date.	Engineer	Gauge Height	Discharge	Date	Engineer	Gauge Height	Discharge
1917		Feet	Sec. Ft.	1918		Feet	Sec. Ft.
May 17	C. G. Cline	1.25	67.0	June 7	C. G. Cline	0.81	10.5
June 16	V. D. Curry	0.95	21.7	July 25	A. L. McNaughton	0.61	3.5
June 26	C. G. Cline	0.96	26.2				
July 30	V. D. Curry	0.70	7.8				
Sept. 5	Cline & Chisholm	0.60	3.7				

Daily Discharge in Second feet of Scottie Creek, above Diversions, for the periods April to Sept., 1917-18.

[Drainage area, 70 square miles.]

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	4	11	95	27	7	4	7	16	16.0	4.5	2.5	3.5
2	4	11	110	25	7	4	7	16	16.0	4.5	3.0	3.5
3	4	11	120	23	8	4	7	16	16.0	5.2	3.5	3.5
4	4	13	115	23	8	4	7	18	16.0	4.5	3.5	3.5
5	4	13	110	23	8	4	7	16	16.0	4.5	5.2	3.0
6	4	13	105	21	7	4	7	16	14.0	3.5	6.0	3.0
7	4	16	100	21	7	4	7	16	11.0	3.5	6.0	3.0
8	4	23	95	19	7	4	7	14	11.0	3.5	7.0	3.0
9	4	50	110	19	6	4	8	14	10.0	6.0	6.0	3.0
10	4	80	115	17	6	4	8	14	9.0	5.2	5.2	3.0
11	4	80	110	17	6	4	8	14	9.0	3.5	5.2	3.0
12	4	90	110	16	5	4	9	12	9.0	3.5	4.5	3.0
13	4	90	105	14	5	4	9	12	8.0	3.0	4.5	3.0
14	5	100	90	13	5	4	8	12	8.0	3.0	4.5	3.0
15	5	100	85	12	5	4	8	11	8.0	3.0	5.2	3.0
16	5	100	75	12	5	4	8	11	8.0	3.5	5.2	3.0
17	5	100	60	10	5	4	7	11	8.0	3.5	5.2	3.0
18	5	120	46	10	5	4	7	11	8.0	3.0	6.0	3.0
19	6	140	37	9	5	4	7	11	8.0	3.0	6.0	3.0
20	6	140	37	8	5	4	9	11	7.0	3.5	7.0	3.0
21	7	140	30	8	5	5	10	12	7.0	4.5	7.0	3.0
22	7	140	27	8	5	5	11	12	7.0	4.5	5.2	3.0
23	7	130	32	8	4	6	11	11	7.0	3.5	3.5	3.0
24	7	130	32	8	4	6	12	11	7.0	3.5	5.2	3.0
25	8	120	27	8	4	6	12	11	7.0	3.5	3.5	3.5
26	8	120	23	8	4	6	14	11	6.0	3.5	3.5	3.5
27	9	110	23	7	4	6	14	12	6.0	4.5	3.5	3.5
28	10	110	23	7	4	6	14	12	5.2	4.5	3.0	3.5
29	11	105	40	7	4	6	14	14	4.5	3.5	3.0	3.5
30	11	100	40	7	4	6	16	14	4.5	3.0	2.5	3.5
31		95		7	4			14		2.5	2.5	

Monthly Discharge of Scottie Creek, above Diversions, for the periods April to Sept., 1917-18.

[Drainage area, 70 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	11	4	5.5	0.07	0.08	330
May	140	11	83.9	1.15	1.33	5,200
June	115	23	70.9	0.97	1.08	4,200
July	27	7	13.6	0.19	0.22	840
August	8	4	5.3	0.07	0.08	330
September	6	4	4.6	0.06	0.07	270
The period	140	4	30.6	0.42	2.86	11,170
1918.						
April	16.0	7.0	9.3	0.13	0.14	550
May	18.0	11.0	13.0	0.19	0.22	800
June	16.0	4.5	9.2	0.13	0.14	550
July	6.0	2.5	3.8	0.05	0.06	230
August	7.0	2.5	4.6	0.07	0.08	280
September	3.5	3.0	3.2	0.04	0.04	180
The period	18.0	2.5	7.2	0.10	0.68	2,590

HAT CREEK—STATION NO. 8 LF₁₃

Location.—Section 18, township 19, range 26, west of the 6th meridian. Just above the Hammond diversion to Oregon Jack creek.

Records available.—April 22 to December 31, 1911; January 1 to November 18, 1912; April 30 to December 31, 1913; April 1 to November 30, 1914; March 13 to September 30, 1915; April 4 to October 31, 1916; April 11 to September 30, 1917; April 9 to September 30, 1918.

Drainage area.—Forty-seven square miles.

Gauge.—Standard vertical staff gauge read daily by Thomas King; rather difficult to read accurately at high stages because of the roughness of the water.

Channel.—Rocks and gravel. The control is liable to change from year to year.

Discharge measurements.—Three meterings were made in 1917 and two in 1918, covering low and medium stages only. For high-water the rating curve was produced parallel to the old curve.

Accuracy.—For the reasons given above the accuracy of the listed data is low for 1917 and 1918.

Discharge Measurements of Hat Creek, above Hammond's diversion, during 1917-18.

Date.	Engineer.	Gauge Height.	Dis-charge.	Date.	Engineer.	Gauge Height.	Dis-charge.
1917.		Feet.	Sec. ft.	1918.		Feet.	Sec. ft.
June 23	Cline and Curry.....	0.65	20.0	June 26	C. G. Cline	0.75	22.8
July 28	V. D. Curry.....	0.30	6.2	July 26	A. L. McNaughton.....	0.19	3.2
Sept. 7	Cline and Chisholm.....	0.18	3.3				

Daily Discharge in Second-feet of Hat Creek, above Hammond Diversion, for periods April 1 to Sept. 30, 1917-18.

[Drainage area, 47 square miles.]

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	1-0	1	45	35	6	4	2-0	18	27	5-0	3-5	3-0
2	1-0	2	50	35	6	4	2-0	18	24	5-0	3-5	3-0
3	1-0	1	45	30	5	4	2-0	16	21	4-0	3-0	3-0
4	1-0	2	50	30	5	3	2-0	16	21	4-0	3-0	3-0
5	1-0	2	45	24	5	3	2-0	16	24	4-0	3-0	3-0
6	1-0	2	45	24	13	3	3-0	14	24	4-0	3-0	2-5
7	1-0	2	45	18	6	3	3-0	12	30	4-0	3-0	2-5
8	1-0	6	50	18	6	4	3-0	12	33	4-0	3-5	2-0
9	1-0	9	45	15	6	4	3-0	12	40	5-0	3-5	2-0
10	1-0	13	35	15	6	4	2-5	14	33	6-0	3-5	2-0
11	1-5	18	35	13	6	4	2-5	12	33	6-0	3-5	2-0
12	1-0	24	30	13	6	4	2-5	24	24	4-0	3-0	2-0
13	1-0	18	45	13	6	4	2-5	24	21	3-5	3-0	2-0
14	1-5	24	35	13	5	4	2-5	33	18	3-5	3-5	2-0
15	1-0	18	45	11	5	3	2-0	33	16	3-5	3-5	1-5
16	1-5	18	45	9	5	3	2-0	27	16	3-5	6-0	1-5
17	1-5	13	35	9	5	3	2-0	21	16	3-0	5-0	1-5
18	1-0	9	30	9	5	3	2-0	16	14	3-5	6-0	1-5
19	1-5	9	24	9	5	3	3-0	18	14	3-5	6-0	1-5
20	1-5	13	30	9	5	3	5-0	16	12	3-5	5-0	1-5
21	1-0	18	24	7	5	3	3-5	12	12	3-5	3-5	2-0
22	1-0	15	27	7	4	3	5-0	12	10	3-5	5-0	2-0
23	1-0	18	27	6	5	3	5-0	12	9	3-5	3-0	2-0
24	1-5	21	24	6	4	3	6-0	12	8	3-5	3-5	2-0
25	1-5	30	21	6	4	3	6-0	12	8	3-5	3-0	2-0
26	1-5	24	18	6	4	3	6-0	12	7	3-5	3-0	2-0
27	1-5	45	18	5	4	3	7-0	14	7	5-0	3-0	2-0
28	1-5	60	18	6	4	3	6-0	16	7	3-0	3-0	2-0
29	1-5	35	48	6	4	3	8-5	27	6	3-0	3-0	2-0
30	1-5	45	45	5	4	3	8-5	27	6	3-0	3-0	2-0
31		50		5	4			27		3-0	3-0	

Monthly Discharge of Hat Creek, above Hammond's Diversion, for periods April to Sept., 1917-18.

[Drainage area, 47 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April			1.2	0.03	0.03	70
May	60	1	18.2	0.39	0.45	1,120
June	50	18	36.0	0.77	0.86	2,100
July	35	5	13.5	0.29	0.33	830
August	6	4	5.3	0.11	0.13	330
September	4	3	3.1	0.07	0.08	180
The period	60		12.9	0.28	1.86	4,630
1918.						
April	8.5		3.7	0.08	0.09	220
May	32.0	12.0	18.0	0.38	0.44	1,100
June	40.0	6.0	18.0	0.38	0.42	1,070
July	5.8	3.4	3.9	0.09	0.10	240
August	5.8	3.0	3.7	0.08	0.09	230
September	3.0	1.5	2.1	0.05	0.06	130
The period	40.0	1.5	8.2	0.18	1.20	2,990

HAMMOND'S DIVERSION FROM HAT CREEK TO OREGON JACK CREEK—STATION NO. 8 L F₁₄.

Location.—Section 17, township 19, range 26, west of the 6th meridian; one mile from head gates at Hat creek.

Records available.—May 9 to August 31, 1912; May 28 to September 27, 1913; April 1 to September 30, 1916; May 1 to September 30, 1917; April 1 to September 30, 1918.

Gauge.—Standard vertical staff gauge in wooden flume; read daily by Thomas King.

Channel.—The flume is four feet wide at the gauge but it gradually gets narrower until some fifteen feet below the gauge the flume ends abruptly and the water falls into a small pond.

Discharge measurements.—Eight meter measurements taken during 1916 to 1918 agree very well and define the rating curve for all stages.

Accuracy.—The results should be quite reliable.

Discharge Measurements of Hammond's Diversion from Hat Creek, during 1916-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916.				1918.			
Aug 24	A. L. McNaughton	0.25	4.1	June 6	C. G. Cline	0.50	9.2
" 24	" "	0.25	3.7	" 6	" "	0.85	13.5
" 25	" "	0.20	2.3	" 6	" "	0.40	7.8
" 25	" "	0.32	5.6	July 26	A. L. McNaughton	0.20	2.3
1917.							
June 23	C. G. Cline	0.30	5.1				

Daily Discharge in Second-foot of Hammond's Diversion from Hat Creek, for period May 25 to Sept. 30, 1916, and May 14 to Sept. 30, 1917.

Day.	1916.						1917.				
	April	May.	June.	July.	Aug.	Sept.	May.	June.	July.	Aug.	Sept.
1	Dry	Dry	0	13	Dry	Dry	Dry	10	13	3	Dry
2			13	13				9	13	3	
3			15	13				9	13	3	
4			15	13				9	0	3	
5			15	0				9	0	3	
6			15	0			Dry	10	0	11	
7			15	0				10	0	5	
8			15	0				10	0	2	
9			15	0				10	0	2	
10			0	0				11	11	2	
11			0	0				11	11	4	
12			0	12				11	11	4	
13			0	12			Dry	11	9	3	
14			13	12			7	11	10	3	
15			13	12			7	11	10	3	
16			14	12	Dry	Dry	7	12	9	3	
17			14	13			0	12	7	3	
18			14	13			7	12	7	3	
19			13	13			9	11	7	3	
20			13	13			10	10	6	3	
21			13	12			9	9	6	3	
22			13	11			7	9	6	2	
23			13	11			8	8	6	2	
24			13	12			11	8	5	2	
25		13	13	12			12	11	5	2	
26		13	13	12			12	11	5	2	
27		14	13	12			13	10	5	Dry	
28		14	13	12			12	10	4		
29		15	13	12			11	14	4		
30	Dry	15	13	0			11	12	3		Dry
31		15		0	Dry	Dry	12			Dry	

Daily Discharge in Second-foot of Hammond Diversion from Hat Creek, for period April 29 to Sept. 30, 1918.

Day.	April	May.	June.	July.	Aug.	Sept.
1		11	14	5	2	2
2		11	13	5	2	2
3		11	13	5	2	2
4		11	13	5	2	2
5		11	14	5	2	2
6		10	14	4	2	2
7		7	15	4	2	2
8		9	15	4	2	2
9		9	15	4	3	2
10		9	15	5	3	2
11		9	15	5	3	1
12		13	15	4	2	1
13		13	13	4	2	1
14		15	12	4	3	1
15		15	12	4	3	1
16		14	12	4	5	1
17		13	10	2	4	1
18		13	9	2	5	1
19		12	8	3	5	1
20		11	8	2	4	1
21		11	7	2	4	1
22		10	7	3	5	1
23		9	6	3	4	1
24		9	6	3	3	1
25		9	6	2	2	1
26		9	5	2	2	1
27		11	5	2	2	1
28		12	5	2	2	1
29		13	5	2	2	1
30		14	5	2	2	1
31	7	14		2	2	

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Monthly Discharge of Hammond's Diversion from Hat Creek, for the periods May to Sept., 1916-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916.						
April						190
May	15	0	3.2			680
June	15	0	11.4			530
July	13	0	8.7			0
August	0	0	0.0			0
September	0	0	0.0			0
The period						1,400
1917.						
May	13.2	7.6	5.3			330
June	14.0	8.4	10.4			620
July	13.2	3.7	6.1			380
August	10.8	2.3	3.0			180
September			0.0			0
The period						1,510
1918.						
April						30
May	15	7	11.6			700
June	15	5	10.4			620
July	5	2	3.4			210
August	5	2	2.8			180
September	2	1	1.4			80
The period						1,820

CACHE CREEK—STATION NO. 8 L F₄.

Location.—Section 34, township 21, range 24, west of 6th meridian. This station is above all diversions except the McAbee diversion to Eightmile creek, on which a regular gauging station is maintained.

Records available.—June 9 to September 24, 1911; April 1 to September 30, 1912; May 9 to September 30, 1915; May 11 to October 30, 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Thirty-five square miles. Part of the run-off is diverted to Eight-mile creek.

Gauge.—Standard vertical staff gauge, readings three times a week.

Channel.—Rocks and gravel, current swift.

Discharge measurements.—Only one meter measurement was made during 1918; but eight measurements during 1916 and 1917 define the curve very well and it is unlikely that there has been any change in the rating.

Accuracy.—Gauge readings are taken only three times a week, and only one meter measurement was made during the season.

Discharge Measurements of Cache Creek, below Diversion to Eightmile Creek, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
May 17	C. G. Cline	1.20	35.4	July 24	A. L. McNaughton	0.48	1.2
June 26	Cline & Curry	0.92	14.4				
July 27	V. D. Curry	0.64	3.7				
Sept 5	Cline & Chisholm	0.55	2.3				

Daily Discharge in Second-feet of Cache Creek, below Diversion to Eightmile Creek for periods April 1 to Sept. 30, 1917-18.

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	1.5	3.5	38	38	6.0	1.5	3.5	6.0	9.0	3.5	1.5	1.5
2	1.5	4.5	38	38	6.0	1.5	3.5	5.0	9.0	3.5	1.5	1.5
3	1.5	6.0	38	25	6.0	1.5	3.5	4.5	9.0	3.5	1.5	1.5
4	1.5	6.0	38	13	5.5	1.5	3.5	3.5	9.0	3.5	1.5	1.5
5	1.5	6.0	38	13	3.5	1.5	3.5	6.0	9.0	3.5	1.5	1.5
6	1.5	7.0	38	13	3.5	1.5	3.5	9.0	9.0	3.5	1.5	1.5
7	1.5	9.0	38	13	3.5	1.5	3.5	9.0	9.0	2.5	1.5	1.5
8	1.5	11.0	38	10	3.5	1.5	3.5	9.0	9.0	1.5	1.5	1.5
9	1.5	13.0	32	6	3.5	1.5	3.5	9.0	9.0	1.5	1.5	1.5
10	1.5	20.0	27	6	3.5	1.5	3.5	9.0	9.0	1.5	1.5	1.5
11	1.5	27.0	27	6	3.5	1.5	3.5	9.0	9.0	1.5	1.5	1.5
12	1.5	30.0	27	6	3.5	1.5	3.5	9.0	9.0	1.5	1.5	1.5
13	1.5	34.0	27	6	3.5	1.5	3.5	9.0	9.0	1.5	1.5	1.5
14	1.5	38.0	27	6	3.5	1.5	3.5	9.0	9.0	1.5	1.5	1.5
15	1.5	38.0	27	7	3.5	1.5	3.5	9.0	8.0	1.5	1.5	1.5
16	2.0	38.0	27	8	3.5	1.5	3.5	9.0	6.0	1.5	1.5	1.5
17	3.0	38.0	27	9	3.5	1.5	3.5	9.0	6.0	1.5	1.5	1.5
18	3.5	38.0	27	9	3.5	1.5	3.5	9.0	6.0	1.5	1.5	1.5
19	3.5	38.0	23	9	2.5	1.5	3.5	9.0	6.0	1.5	1.5	1.5
20	3.5	38.0	19	9	1.5	1.5	5.0	9.0	5.0	1.5	1.5	1.5
21	3.5	38.0	19	9	1.5	1.5	6.0	9.0	4.0	1.5	1.5	1.5
22	3.5	47.0	19	8	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
23	3.5	57.0	19	6	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
24	2.0	57.0	23	6	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
25	1.5	57.0	27	6	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
26	1.5	47.0	14	6	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
27	1.5	38.0	27	5	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
28	2.0	38.0	30	4	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
29	2.5	38.0	34	4	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
30	3.0	38.0	38	5	1.5	1.5	6.0	9.0	3.5	1.5	1.5	1.5
31		38.0		6	1.5			9.0		1.5	1.5	

Monthly Discharge of Cache Creek, below Diversion to Eightmile Creek, for the periods April to Sept., 1917-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
1917.						
April	3.5	1.5	2.1			120
May	57.0	3.5	30.3			1,860
June	38.0	19.0	29.0			1,700
July	38.0	4.0	10.2			630
August	6.0	1.5	3.0			180
September	1.5	1.5	1.5			90
The period						4,580

NOTE.—Figures relating to the drainage area are omitted as some water is diverted from above the gauging station into Eight mile creek.

1918.						
April	6.0	3.5	4.4			260
May	9.0	3.5	8.4			520
June	9.0	3.5	6.6			390
July	3.5	1.5	1.9			120
August	1.5	1.5	1.5			90
September	1.5	1.5	1.5			90
The period	9.0	1.5	4.0			1,470

NOTE.—Water is diverted from the creek about five miles above this station through McAbee's diversion, on which a regular gauging station is maintained.

MCABEE'S DIVERSION FROM CACHE CREEK TO EIGHT MILE CREEK—
STATION NO. 8 L F₂₉.

Location.—Section 12, township 22, range 24, west of the 6th meridian. This diversion takes water from Cache creek above the regular gauging station.

Records available.—May 21 to July 8, 1915; April 6 to May 12, 1916; April 1 to July 14, 1917; August 1 to 10, 1918.

Gauge.—Vertical staff in flume read every second day while the diversion is in use.

Channel.—The gauge is installed in a lumber flume 2.8 feet wide.

Discharge measurements.—The flume was rated by three discharge measurements in 1915.

Accuracy.—The 1915 rating should be fairly reliable, as the gauge is in a lumber flume which is in good condition.

Discharge.—In 1918 there was a discharge of cubic feet per second for the first ten days of August, giving a total flow of 60 acre-feet.

Daily Discharge in Second-feet of McAbee's Diversion from Cache Creek, for the period April 1, to July 14, 1917.

Day.	April.	May.	June.	July.
1	0.8	Dry	1.4	Dry
2	0.8		1.4	
3	0.8		1.4	
4	0.8		1.4	
5	0.8		1.4	
6	0.8		1.4	Dry
7	0.8		1.4	5.4
8	0.8		1.4	4.8
9	0.8			4.2
10	0.8		Dry	4.2
11	0.8	4.2		4.2
12	0.8	4.2		4.2
13	0.8	4.2		4.2
14	1.2	4.2		4.2
15	1.4	4.2		
16		4.2		
17		4.2		
18		4.2		
19		4.2		
20		4.2		
21		4.2		
22		2.5		
23		0.8		
24		0.8		
25		0.8		
26		1.1		
27		1.4		
28		1.4		
29		1.4		
30	Dry	1.4	Dry	
31		1.4		

Monthly Discharge of MacAbee's Diversion from Cache Creek for the period April to July, 1917.

Month	Discharge in Second-Foot				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	1.4	0				26
May	4.2	0				118
June	1.4	0				22
July	5.4	0				71
The period						237

NOTE.—The water was not running continuously during any month.

NORTH THOMPSON TRIBUTARY DRAINAGE BASIN.

NORTH THOMPSON—STATION NO. 8 L B₂₆.

Location.—Forty miles north of Kamloops and one mile above the mouth of the Barriere river.

Records available.—June 1 to December 31, 1915; April 1 to December 31, 1916; January 1 to December 31, 1917; and January 1 to September 30, 1918.

Drainage area.—Seven thousand square miles.

Gauge.—Standard vertical staff gauge fastened to down-stream end of west-ern pier of highway bridge.

Channel.—The stream is confined by the abutments and piers of the bridge; rapids one-half mile below.

Discharge measurements.—Fifteen meter measurements have been made during 1915, to 1918. The rating curve is defined with fair accuracy at all stages.

Winter flow.—The river was free of ice at the control all winter though frozen at the gauge. The open-water rating curve was applicable to winter gauge readings.

Accuracy.—"C".

Discharge Measurements of North Thompson River, at Barriere, during 1917-18.

Date	Engineer	Gauge height		Date	Engineer	Discharge	
		Feet	Sec-ft			Feet	Sec-ft
1917				1918			
Jan 11	F. R. Archibald	3.30	2,390	June 12	A. L. McNaughton	16.90	48,600
Feb 22	F. R. Archibald	2.00	1,940				
April 14	F. R. Archibald	3.20	2,610				
May 30	F. R. Archibald	16.45	46,500				
July 21	Cline and McNaughton	13.00	28,000				
Aug 24	Cline and Chisholm	9.80	17,350				
Sept 28	McNaughton and Chisholm	7.40	10,520				

Daily Discharge in Second-feet of North Thompson River, at Barriere, for period Jan. 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area, 7,000 square miles)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				1,700	2,100	1,900	1,700	3,700	48,050	37,500	22,300	11,100
2				1,800	2,050	2,000	1,700	3,900	48,700	36,200	21,300	10,600
3				1,900	2,250	2,150	1,750	3,900	49,000	39,000	17,500	10,400
4				2,000	2,650	2,200	1,750	4,400	48,000	40,700	16,600	9,600
5				2,000	2,650	2,050	1,900	4,600	44,000	45,800	16,000	9,000
6				2,100	2,600	2,000	1,950	5,000	48,700	47,000	16,300	8,400
7				2,200	2,500	1,900	2,100	5,600	50,500	43,500	15,700	8,100
8				2,300	2,550	2,100	2,250	6,500	52,200	42,200	15,700	8,000
9				2,400	2,600	2,100	2,150	8,350	62,500	37,500	15,100	8,000
10				2,500	2,600	2,050	2,100	11,400	56,000	35,500	15,900	9,200
11				2,500	2,500	2,000	2,200	13,800	48,000	35,200	14,800	9,900
12				2,550	2,400	1,850	2,300	14,800	40,000	35,000	15,000	10,800
13				2,350	2,400	1,800	2,450	23,400	39,000	33,000	14,800	10,600
14				2,200	2,450	1,800	2,400	24,800	38,000	33,000	14,800	10,700
15				2,150	2,400	1,850	2,550	28,500	39,700	32,600	15,200	10,400
16				2,150	2,500	1,850	2,750	29,300	44,500	32,200	15,100	9,600
17				2,000	2,600	1,950	2,800	29,700	45,500	31,500	18,000	10,500
18				2,050	2,450	1,900	2,750	30,900	50,000	30,900	16,600	11,700
19				2,200	2,150	1,800	2,700	27,400	50,000	30,900	17,000	11,100
20				2,400	2,050	1,750	2,200	26,600	45,700	30,700	17,000	10,400
21				2,400	2,000	1,800	2,700	26,600	44,000	30,500	17,000	10,100
22				2,300	2,100	1,850	2,700	26,200	43,200	29,700	17,000	10,200
23				2,300	2,150	1,900	2,600	25,700	41,000	28,900	17,000	9,500
24				2,350	2,000	1,950	2,400	30,100	40,200	24,800	17,500	9,000
25				2,400	2,000	1,950	2,600	32,200	39,000	21,100	17,000	8,800
26				2,400	1,950	1,900	3,350	38,000	39,200	19,600	16,000	8,600
27				2,500	1,900	1,850	3,600	40,000	39,000	19,800	15,000	8,800
28				2,500	1,850	1,800	3,650	43,000	38,000	19,600	15,000	8,500
29				2,450	1,750	1,750	3,700	45,200	37,500	20,200	14,000	8,400
30				2,450	1,700	1,700	3,700	46,500	37,500	23,200	13,000	8,000
31				2,200	1,650	1,650	3,700	38,700	37,500	22,700	12,000	.....
1917-18												
1	11,800	6,600	7,700	5,000	2,800	3,050	3,600	16,400	25,600	29,300	21,300	16,400
2	13,000	6,700	7,600	5,800	3,000	3,200	3,400	18,300	24,600	29,000	21,500	17,200
3	18,800	6,300	7,400	6,300	3,200	3,300	3,300	20,000	23,000	28,000	21,000	15,000
4	22,600	6,300	7,300	6,600	3,300	3,300	3,100	23,000	22,500	26,000	20,600	13,500
5	24,000	6,200	7,300	7,000	3,800	3,100	3,100	26,000	21,600	23,700	20,600	13,200
6	23,200	6,200	7,000	7,800	3,950	3,100	3,200	25,300	22,000	23,700	20,500	12,700
7	19,000	6,100	6,600	7,400	3,900	3,200	3,100	24,300	24,300	24,500	20,000	13,400
8	16,200	6,000	6,700	7,200	3,900	3,300	3,300	23,400	24,000	26,500	19,200	13,000
9	15,700	5,900	6,000	7,000	3,900	3,100	3,500	21,600	31,300	27,000	18,900	12,700
10	13,400	5,800	5,700	6,800	3,800	3,050	3,900	21,000	43,500	29,000	16,700	12,600
11	12,200	5,800	5,600	6,700	3,700	2,700	4,400	21,000	51,500	30,500	16,200	12,400
12	11,400	5,300	5,400	6,700	3,600	2,600	4,900	22,000	53,500	32,000	16,000	12,500
13	10,500	5,200	5,000	6,700	3,400	2,550	5,400	24,600	57,000	31,000	15,800	12,500
14	9,500	5,000	4,900	6,500	3,400	2,500	6,100	26,000	59,000	29,000	15,000	12,500
15	9,500	4,700	4,600	6,200	3,500	2,550	6,600	30,500	64,000	29,000	14,500	12,200
16	10,600	4,800	4,700	6,000	3,600	2,650	6,900	32,000	58,000	29,600	14,700	.....
17	9,200	4,600	5,000	6,100	3,600	2,600	6,800	31,300	49,000	30,500	16,000	.....
18	8,300	4,700	5,300	5,100	3,400	2,700	7,000	30,500	48,000	32,000	17,800	.....
19	7,800	4,600	5,200	4,800	3,400	2,800	6,200	28,000	53,500	43,000	18,300	.....
20	7,400	4,600	4,600	4,400	3,300	2,800	6,600	26,500	51,500	33,500	18,600	.....
21	7,100	5,800	4,200	4,300	3,100	2,900	7,200	25,000	50,000	34,000	18,600	.....
22	6,600	7,200	4,100	4,000	3,000	3,100	8,000	23,700	48,500	30,500	18,600	.....
23	6,300	11,700	3,800	4,100	2,900	3,050	8,800	21,000	50,000	27,000	18,600	.....
24	6,000	13,400	3,700	4,200	2,900	3,050	8,900	20,600	51,500	26,000	18,300	.....
25	6,000	12,200	3,600	4,200	2,800	3,300	9,000	19,600	52,500	24,000	20,800	.....
26	5,900	11,000	3,600	4,000	2,800	3,400	9,000	19,000	55,000	22,300	21,800	.....
27	5,700	9,200	3,400	3,950	3,000	3,100	9,200	18,900	48,500	20,000	22,900	.....
28	5,500	8,800	3,500	3,650	3,000	3,200	9,800	17,300	39,500	20,300	19,600	.....
29	5,100	7,900	3,700	3,300	.....	3,100	11,400	17,700	35,000	20,300	17,500	.....
30	5,400	7,800	3,900	3,100	.....	3,500	13,000	21,500	32,000	21,600	16,200	9,000
31	5,900	.....	3,950	3,050	.....	3,600	.....	27,300	.....	21,800	15,000	.....

Monthly Discharge of North Thompson River, at Barriere, for years ending Sept. 30,
1917-18.

(Drainage area, 7,000 square miles.)

Month.	Discharge in Second-Feet.			Per Square Mile.	Run-Off.	
	Maximum.	Minimum.	Mean.		Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	10,600	4,150	6,250	0.89	1.03	384,000
November	4,750		3,500	0.50	0.56	208,000
December			2,330	0.33	0.38	143,000
January			2,240	0.32	0.37	137,000
February	2,650	1,850	2,300	0.33	0.34	128,000
March	2,200	1,650	1,900	0.27	0.31	117,000
April	3,700	1,700	2,510	0.36	0.40	150,000
May	45,200	3,700	22,400	3.20	3.69	1,380,000
June	62,500	37,500	45,000	6.43	7.17	2,680,000
July	47,000	19,600	32,000	4.57	5.27	1,968,000
August	22,300	12,000	16,000	2.29	2.64	984,000
September	11,700	8,000	9,600	1.37	1.53	571,000
The year	62,500		12,200	1.73	23.69	8,850,000
1917-18.						
October	24,000	5,900	11,000	1.57	1.81	675,000
November	13,400	4,600	6,900	0.99	1.10	411,000
December	7,700	3,400	5,200	0.74	0.85	320,000
January	7,800	3,050	5,400	0.77	0.89	330,000
February	3,950	2,800	3,350	0.48	0.50	186,000
March	3,800	2,500	3,000	0.43	0.50	185,000
April	13,000	3,100	6,300	0.90	1.00	375,000
May	32,000	16,400	23,300	3.33	3.84	1,430,000
June	64,000	21,600	42,700	6.10	6.81	2,540,000
July	34,000	20,300	27,200	3.89	4.48	1,670,000
August	22,000	14,500	18,300	2.62	3.02	1,130,000
September			11,000	1.57	1.75	650,000
The year	64,000	2,500	13,600	1.95	26.65	9,992,000

RAFT RIVER—STATION NO. 8 L B17.

Location.—About 1 mile from the mouth of Raft river which is a tributary of the North Thompson, seventy-five miles north of Kamloops.

Records available.—June 1 to December 19, 1914; February 21 to December 31, 1915; April 5 to September 30, 1916; April 1 to December 13, 1917; April 1 to September 30, 1918.

Drainage area.—Three hundred square miles.

Gauge.—Standard vertical staff gauge attached to highway bridge.

Channel.—About 150 feet wide; rocks, sand and gravel; control permanent.

Discharge measurements.—Eleven meter measurements during 1914 to 1918, agree very well and cover practically the entire range of stage.

Winter Flow.—River frozen from November to March.

Accuracy.—"B."

Discharge Measurements of Raft River, near mouth, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Feb. 20	F. R. Archibald		23	Sept. 6	A. L. McNaughton	3.43	96
April 13	" "	3.52	105				
May 28	" "	8.40	3,560				
June 21	" "	7.30	2,370				
Aug. 18	A. L. McNaughton	3.59	135				

Daily Discharge in Second-feet of Raft River, near Mouth, for period April 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

[Drainage area, 300 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1							50	530	2,400	1,560	250	60
2							50	480	2,700	1,320	250	60
3							50	480	2,100	1,560	220	60
4							50	500	2,300	1,920	220	60
5							50	530	2,700	1,560	190	60
6							50	580	3,300	1,560	190	50
7							50	690	4,250	1,250	190	50
8							60	1,000	4,500	1,120	190	50
9							80	1,180	5,000	940	160	50
10							90	1,400	2,600	830	140	50
11							125	1,740	2,000	830	140	140
12							130	2,100	1,920	730	140	190
13							105	2,600	1,840	580	160	190
14							125	2,850	2,300	530	140	140
15							130	2,950	2,700	530	140	125
16							220	2,850	3,300	480	140	90
17							220	2,600	2,200	430	125	90
18							250	2,100	2,200	430	125	90
19							285	1,830	2,200	390	105	90
20							220	1,830	1,920	390	105	75
21							250	1,920	1,920	350	105	75
22							320	1,920	1,830	320	90	75
23							285	2,200	1,830	250	90	75
24							350	2,200	1,920	220	90	75
25							390	2,300	1,920	220	90	75
26							430	2,600	2,200	220	75	75
27							530	3,200	1,740	220	75	75
28							500	3,300	1,480	250	75	140
29							480	3,400	1,920	285	75	140
30							480	3,200	1,320	250	60	100
31								3,050		250	60	140
1917-18												
1	160	100	280				140	1,650	1,550	880	120	140
2	190	100	280				140	1,900	1,300	730	120	120
3	780	280	280				140	2,200	1,250	580	120	120
4	730	280	280				140	2,500	1,250	530	100	100
5	630	250	280				140	2,200	1,300	480	100	100
6	480	250	280				140	2,000	1,650	480	100	95
7	280	220	280				140	1,750	1,850	480	100	90
8	220	190	250				190	1,550	2,400	390	140	90
9	140	190	250				280	1,300	2,950	350	190	75
10	140	190	220				480	1,300	3,500	390	280	75
11	140	190	220				580	1,300	2,950	390	220	75
12	140	190	190				630	1,300	2,850	350	190	60
13	140	190	190				680	1,750	2,700	350	190	60
14	140	160					730	2,000	3,300	350	220	60
15	120	160	Ice				680	2,950	2,100	350	250	60
16	120	160					630	2,200	2,400	320	280	60
17	120	160					680	2,100	2,200	280	280	60
18	120	160					830	1,900	2,400	280	320	60
19	120	190					830	1,550	2,200	280	350	60
20	120	220					880	1,250	1,850	250	280	60
21	140	350					950	1,250	1,750	250	250	60
22	120	480					950	1,100	1,650	250	280	60
23	120	580					880	1,050	1,550	220	250	75
24	120	580					880	950	1,500	190	220	90
25	120	480					830	950	1,500	190	220	90
26	100	430					780	880	1,400	160	220	75
27	100	350					830	880	1,400	160	220	60
28	100	320					880	1,000	1,300	140	190	60
29	100	280					1,000	1,300	1,200	140	140	60
30	100	280					1,250	1,750	1,090	140	140	50
31	100							2,200		140	140	

Monthly Discharge of Raft River, near mouth, for years ending Sept. 30, 1917-18.

[Drainage area, 300 square miles.]

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916-17						
October	80	45	60	0.20	0.23	3,690
November						
December						
January						
February			about 20			
March						
April	530	50	215	0.72	0.80	12,800
May	3,400	480	1,940	6.47	7.46	120,000
June	1,000	1,320	2,420	8.07	9.00	144,000
July	1,920	220	700	2.33	2.69	43,700
August	250	60	135	0.45	0.52	8,300
September	190	50	90	0.30	0.33	5,300
1917-18						
October	780	100	200	0.67	0.77	12,300
November	580	100	265	0.88	0.98	15,800
December						
January						
February						
March						
April	1,250	140	610	2.03	2.26	36,300
May	2,950	830	1,600	5.32	6.13	98,000
June	3,500	1,000	1,950	6.50	7.25	116,000
July	880	140	340	1.13	1.30	21,000
August	350	100	200	0.67	0.77	12,300
September	140	50	75	0.25	0.28	4,500

* CLEARWATER RIVER—STATION NO. 8 L A.

Location.—Tributary of the North Thompson river from the west, 70 miles above Kamloops. Measuring station located 1 mile from mouth.

Records available.—Continuous records from April 1, 1914 to September 30, 1918.

Drainage area.—Two thousand four hundred square miles.

Gauge.—Standard tape-wound steel cable gauge.

Channel.—Straight for some distance above and below measuring section. Bed of stream of large boulders and gravel. Current swift.

Discharge measurements.—Seventeen meter measurements taken during 1914 to 1918 agree fairly well and cover the whole range of stage.

Winter flow.—Ice conditions for about 3 months. One meter measurement was taken on February 19, 1917 during the period of ice cover.

Accuracy.—During the open-water period the results are considered quite reliable.

Discharge Measurements of Clearwater River, near mouth, during 1917-18.

Date	Engineer	Gauge Height	Discharge	Date	Engineer	Gauge Height	Discharge
1917		Feet	Sec.-ft.	1918		Feet	Sec.-ft.
Feb. 19	F. R. Archibald	Ice	1,270	Feb. 7	C. G. Cline	5-10	2,274
April 12	" "	3.58	1,058				
May 29	" "	12.65	24,620				
June 22	" "	13.00	26,500				
Aug. 19	A. L. McNaughton	8.65	10,130				

Daily Discharge in Second-feet of Clearwater River, near mouth, for period April 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

[Drainage area, 2,400 square miles.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1							1,200	2,400	24,700	22,000	12,100	7,700
2							1,180	2,500	25,500	22,500	11,800	7,100
3							1,180	2,600	25,700	23,400	11,300	6,600
4							1,150	2,700	26,500	25,200	11,200	6,100
5							1,150	2,900	27,700	25,500	10,600	5,750
6							1,120	3,100	28,400	26,200	10,300	5,300
7							1,120	3,450	31,000	26,000	10,300	5,100
8							1,100	4,000	33,000	25,000	10,200	5,000
9							1,050	4,900	34,200	24,200	9,700	4,800
10							1,000	6,250	31,000	23,400	9,500	4,700
11							1,050	7,550	28,400	22,000	9,200	5,200
12							1,100	9,550	25,700	21,200	9,100	5,500
13							1,120	12,800	24,700	20,400	9,000	5,750
14							1,150	13,400	24,200	19,200	9,000	5,900
15							1,180	15,200	25,000	18,600	9,100	6,000
16							1,200	16,800	26,500	17,800	9,100	5,900
17							1,200	17,400	27,000	17,800	9,200	5,900
18							1,220	17,000	27,700	17,600	9,800	5,750
19							1,250	16,600	27,200	17,400	10,300	5,750
20							1,280	16,500	26,200	17,000	10,600	5,650
21							1,280	16,600	26,500	16,600	10,900	5,650
22							1,350	17,200	26,700	16,000	11,200	5,500
23							1,450	18,000	25,500	14,800	11,000	5,500
24							1,600	18,400	24,600	13,700	10,700	5,400
25							1,700	18,800	24,000	12,700	10,100	5,300
26							1,850	20,400	23,400	12,000	9,500	5,200
27							2,000	21,600	23,000	11,800	8,800	5,400
28							2,100	23,600	22,700	12,500	8,300	5,300
29							2,200	24,800	22,500	12,800	8,100	5,200
30							2,300	25,000	22,200	13,500	8,000	5,000
31								24,700		12,800	7,800	
1917 18												
1	4,800	2,950	5,300		2,250	1,650	1,650	7,800	14,800	19,000	12,700	10,000
2	5,200	2,950	5,000		2,250	1,700	1,500	9,100	14,600	18,200	12,800	9,700
3	6,400	3,000	4,700		2,250	1,700	1,550	10,500	14,400	17,400	12,800	9,200
4	8,500	3,100	4,400		2,300	1,700	1,600	11,600	13,700	16,600	12,700	8,800
5	10,000	3,150	4,100		2,400	1,700	1,600	12,700	13,800	16,000	12,400	8,500
6	10,500	3,300	4,000		2,350	1,650	1,650	13,000	14,000	15,600	12,100	8,200
7	10,200	3,300	3,900		2,300	1,650	1,650	13,400	14,800	15,200	11,500	8,100
8	9,700	3,200	3,800		2,200	1,650	1,700	13,200	16,300	15,600	11,200	8,100
9	9,000	3,200	3,600		2,100	1,600	1,850	13,000	19,700	16,000	11,300	8,000
10	8,200	3,200	3,450		2,000	1,600	2,050	12,700	23,600	16,800	11,200	7,800
11	7,700	3,150	3,300		2,050	1,550	2,300	13,200	26,500	17,800	11,000	7,700
12	7,000	3,150	3,100		2,000	1,550	2,500	13,700	28,000	19,000	10,600	7,500
13	6,600	3,100	3,100		2,000	1,550	2,600	14,600	28,800	18,600	10,000	7,400
14	6,400	3,000	3,150		1,950	1,500	2,750	16,000	31,000	18,200	9,400	7,300
15	6,100	2,950	3,200		1,950	1,550	2,750	17,400	31,000	17,800	9,500	7,100
16	5,900	2,950	3,300		1,950	1,600	2,750	17,800	29,400	17,400	10,000	7,000
17	5,650	2,900	3,150		1,900	1,600	2,900	18,000	28,000	17,800	9,800	6,800
18	5,100	2,800	3,100		1,900	1,550	2,950	18,200	29,000	18,200	10,200	6,700
19	5,000	2,950	2,950		1,850	1,550	3,100	17,400	29,400	18,600	10,600	6,700
20	4,700	3,000	2,750		1,800	1,500	3,400	17,200	28,400	18,800	10,900	6,600
21	4,800	3,450	2,600		1,750	1,500	3,600	16,000	28,200	19,000	10,800	6,600
22	4,400	4,400	2,800		1,700	1,500	3,800	15,200	28,200	18,200	10,900	6,700
23	4,100	5,200	2,400		1,700	1,550	4,000	14,400	28,800	17,000	11,200	6,800
24	3,900	5,800	2,350		1,650	1,550	4,200	13,700	29,200	16,200	11,400	6,700
25	3,700	6,400	2,300		1,650	1,600	4,400	13,000	28,800	14,800	11,500	6,400
26	3,600	6,400	2,250		1,650	1,600	4,600	12,400	28,000	14,000	12,000	6,000
27	3,500	6,400	2,200		1,600	1,600	4,900	11,800	26,000	13,400	12,100	5,800
28	3,450	6,250	2,200		1,650	1,650	5,300	11,500	24,000	12,700	11,800	5,650
29	3,300	5,900	2,150		1,650	1,650	6,000	12,100	22,500	12,700	10,900	5,500
30	3,150	5,650	2,150		1,700	1,700	6,700	13,500	20,000	12,700	10,400	5,400
31	3,000		2,150		1,700	1,700		14,000		12,500	10,200	

Monthly Discharge of Clearwater River, near mouth, for 1917-18.

[Drainage area, 2,400 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916-17.						
October	4,070	2,340	3,170	1.32	1.52	195,000
November	2,940	1,580	2,160	0.90	1.00	128,000
December	1,770	1,490	1,600	0.67	0.77	98,400
January	Approximately		1,400	0.58	0.67	86,100
February			1,300	0.54	0.56	72,200
March			1,300	0.54	0.62	80,000
April	2,300	1,000	1,360	0.57	0.64	81,000
May	25,000	2,400	13,100	5.46	6.30	805,000
June	34,200	22,200	26,400	11.00	12.27	1,571,000
July	26,200	11,800	18,800	7.83	9.03	1,156,000
August	12,100	7,800	9,800	4.08	4.70	603,000
September	7,700	4,700	5,650	2.36	2.63	336,000
The year	34,200	1,000	7,190	2.99	40.71	5,211,700
1917-18.						
October	10,500	3,000	5,900	2.46	2.84	360,000
November	6,400	2,800	3,900	1.62	1.81	232,000
December	5,300	2,150	3,200	1.33	1.53	200,000
January			2,700	1.13	1.30	166,000
February	2,400	1,600	1,970	0.82	0.85	110,000
March	1,700	1,500	1,600	0.67	0.77	98,000
April	6,700	1,500	3,700	1.29	1.44	185,000
May	18,200	7,800	13,800	5.75	6.63	850,000
June	31,000	13,700	23,800	9.92	11.07	1,400,000
July	19,000	12,500	16,500	6.88	7.93	1,000,000
August	12,800	9,400	11,000	4.58	5.28	675,000
September	10,000	5,400	7,300	3.04	3.39	435,000
The year	31,000	1,500	7,900	3.29	44.84	5,711,000

MURTLERIVER—STATION No. 8 L A₃.

Location.—At the Clearwater trail crossing 15 miles below Murtle lake, 20 miles above Helmcken falls, and 50 miles by pack trail from the Canadian Northern Pacific Railway at Raft River post office.

Records available.—September 1 to December 12, 1914; January 1 to November 20, 1915; June 1 to September 9, 1916; April 26 to May 27, 1917; June 26 to October 19, 1917; November 26 to December 24, 1917; April 1 to 4, 1918, and May 27 to September 2, 1918.

Drainage area.—Only part of the watershed has been surveyed and it is hardly possible to make a close estimate of the drainage area.

Gauge.—Gurley automatic water stage register. The record has been interrupted by ice conditions and by stoppage of the gauge clock at various times.

Channel.—Rocks and gravel.

Discharge measurements.—Thirteen meter measurements in 1916 and 1917 and one in 1918 define the rating curve fairly well at all stages.

Winter flow.—The gauge height was affected by ice during the winter months. The winter of 1917 was one of exceptionally low stream discharge throughout this district and the meter measurement of February 1, 1917 is probably near the minimum for this period.

Accuracy.—The results should be quite accurate during the period when the gauge was in operation.

Discharge Measurements of Murtle River, at Upper Crossing, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Feb. 1	C. G. Cline	Ice	190	Sept. 2	A. L. McNaughton	3.65	1,200
April 27	F. R. Archibald	2.30	230				
June 25	"	6.18	5,290				
Aug. 15	A. L. McNaughton	3.70	1,235				
Nov. 25	"	3.54	1,117				

Daily Discharge in Second-feet of Murtle River, 20 miles above Helmcken Falls, for period April 26 to Sept. 30, 1917, and year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1								250		4,650	1,870	920
2								260		4,650	1,800	900
3								280		4,650	1,730	880
4								300		4,850	1,650	850
5								320		5,000	1,600	830
6								340		5,000	1,600	800
7								400		4,900	1,550	800
8								480		4,700	1,500	790
9								570		4,500	1,470	780
10								680		4,300	1,430	760
11								780		4,100	1,380	780
12								910		3,900	1,360	800
13								1,090		3,750	1,350	800
14								1,230		3,550	1,300	830
15								1,390		3,400	1,280	820
16								1,500		3,250	1,250	800
17								1,750		3,100	1,230	800
18								1,860		3,000	1,200	800
19								1,830		2,850	1,170	800
20								1,930		2,750	1,160	800
21												
22								2,060		2,600	1,140	800
23								2,200		2,500	1,130	780
24								2,320		2,350	1,100	780
25								2,500		2,200	1,100	740
26								2,700	5,400	2,150	1,070	740
27								230	3,050	5,300	2,050	1,040
28								230	3,350	5,100	2,000	1,020
29								240		4,950	1,950	1,000
30								240		4,900	1,950	850
31								240		4,800	2,000	950
										2,000	940	800
1917-18.												
1	800		1,100				340		2,850	3,850	1,470	1,230
2	950		1,070				400		2,850	3,650	1,450	1,200
3	1,140		1,070				400		2,800	3,500	1,400	
4	1,200		1,070				400		2,800	3,300	1,380	
5	1,200		1,000						2,800	3,100	1,350	
6	1,250		1,000						2,900	2,950	1,300	
7	1,250		1,000						3,100	2,850	1,250	
8	1,250		970						3,350	2,750	1,250	
9	1,250		970						3,830	2,650	1,250	
10	1,200		970						4,350	2,650	1,250	
11	1,200		970						4,650	2,650	1,250	
12	1,150		970						5,000	2,550	1,250	
13	1,150		1,020						5,400	2,500	1,200	
14	1,140		1,280						5,750	2,450	1,200	
15	1,100		920						5,750	2,350	1,200	
16	1,100		900						5,750	2,350	1,200	
17	1,070		900						5,300	2,300	1,300	
18	1,070		900						5,950	2,250	1,350	
19	1,040		880						5,900	2,200	1,350	
20			850						5,800	2,200	1,350	
21			830						5,700	2,100	1,350	
22			820						5,600	2,050	1,380	
23			800						5,550	2,000	1,380	
24			1,100						5,450	1,900	1,380	
25									5,350	1,800	1,380	
26		1,070							5,200	1,750	1,380	
27		1,070						2,300	4,950	1,650	1,350	
28		1,100						2,250	4,650	1,600	1,300	
29		1,100						2,350	4,400	1,600	1,270	
30		1,100						2,630	4,150	1,500	1,250	
31								2,850		1,500	1,250	

total in
e-feet.

195,000
128,400
98,400
86,100
72,200
80,000
81,000
805,000
571,000
156,000
603,000
338,000

211,700

360,000
232,000
200,000
166,000
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Monthly Discharge of Murtle River, at Upper Crossing, for the periods July to Sept., 1917-18.

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1917						
July	5,000	1,950	3,400			210,000
August	1,870	940	1,300			80,000
September	920	740	800			48,000
1918						
July	5,900	2,800	4,600			274,000
August	3,850	1,500	2,400			148,000
September	1,470	1,200	1,300			80,000

BARRIERE RIVER—STATION NO. 8 LB₂₀.

Location.—At highway bridge near mouth of river, forty miles north of Kamloops.

Records available.—March 22 to December 31, 1915; April 1 to December 31, 1916; January 1 to December 31, 1917; January 1 to September 30, 1918.

Drainage area.—Three hundred square miles.

Gauge.—A standard vertical staff gauge, attached to the south abutment of the bridge.

Channel.—Rocks and gravel; water swift.

Discharge measurements.—Fifteen measurements during 1915, to 1918 accurately define the rating curve.

Winter discharge.—Ice conditions obtain from November to March. The discharge during that period was estimated from the results of two meter measurements in the winter of 1917 and two in the winter of 1918.

Accuracy.—"B".

Discharge Measurements of Barriere River, near mouth, during 1917-18.

Date.	Engineer.	Gauge height	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet	Sec. ft.			Feet	Sec.-ft.
1917				1918			
Jan. 12	F. R. Archibald	Ice	46	Jan. 14	Chisholm & McNaughton	Ice	176
Feb. 23	"	Ice	44	Feb. 4	C. G. Cline	7.05	140
Apr. 14	"	6.70	72	June 20	A. L. McNaughton	9.75	1,860
Apr. 15	"	6.70	74				
May 31	"	10.25	2,400				
July 31	Cline & McNaughton	8.00	506				
Aug. 23	Chisholm & Cline	7.05	161				
Sept. 30	Chisholm & McNaughton	6.86	116				

Daily Discharge in second-feet of Barriere River, near mouth, for period March 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area 300 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.		
1916-17														
1						50	60	230	2,610	1,910	295	160		
2						50	60	230	2,270	1,860	280	120		
3						50	60	245	2,380	1,910	260	100		
4						50	60	275	2,090	1,910	230	110		
5						50	70	275	1,960	1,860	230	100		
6						50	70	320	2,200	1,710	245	400		
7						60	70	340	2,500	1,570	260	110		
8						60	90	360	2,320	1,440	260	120		
9						60	90	430	2,670	1,320	245	110		
10						60	100	590	3,160	1,130	230	120		
11						70	100	740	2,800	1,020	245	120		
12				46		70	90	1,020	2,600	1,020	245	120		
13						70	90	1,400	2,270	910	230	130		
14						70	70	1,600	2,060	880	215	130		
15						70	70	1,760	2,010	880	200	130		
16						70	70	1,810	2,520	770	200	145		
17						60	90	1,910	2,550	690	200	160		
18						60	90	1,960	440	640	200	145		
19						60	100	2,380	2,270	640	190	130		
20						60	100	2,670	2,160	610	180	120		
21						70	100	2,730	2,210	570	170	100		
22						70	110	2,060	2,210	570	170	110		
23						70	100	1,910	2,060	540	160	100		
24						60	145	1,810	2,010	430	160	100		
25						60	155	1,660	1,960	430	160	110		
26						60	170	1,910	1,960	385	160	120		
27						60	185	2,110	1,910	360	160	130		
28						60	200	2,670	1,860	340	160	120		
29						60	200	2,850	1,810	385	160	100		
30						60	215	2,970	1,810	410	160	110		
31						60		2,380		295	160			
1917-18														
1	185	130	130				130	1,520	1,320	880	260	185		
2	170	120	130				120	1,660	1,280	880	275	70		
3	260	110	120			Meter	130	1,480	1,240	810	290	160		
4	260	100	110			140	120	1,570	1,200	740	300	160		
5	260	110	100	130		Ice	120	1,570	1,160	720	310	145		
6	245	110	75	170			130	1,610	1,320	640	320	130		
7	245	120	75	170			130	1,520	1,440	640	340	130		
8	230	130	70				170	1,400	1,400	590	295	120		
9	215	170	80				215	1,320	1,860	620	320	120		
10	185	160	100				230	1,240	2,320	590	260	110		
11	170	145	100				245	1,160	2,610	540	245	120		
12	170	130	100				295	1,360	2,440	540	230	130		
13	185	120	100			Meter	360	1,570	2,380	480	230	130		
14	160	130	100			175	230	1,610	2,910	480	260	120		
15	160	120	100			Ice	215	1,860	2,550	430	295	110		
16	145	120	120				245	1,910	2,060	430	280	110		
17	170	110	120				120	320	2,010	430	270	110		
18	160	120	130				120	295	1,760	2,110	410	260	110	
19	145	120	130					340	1,710	2,010	385	275	110	
20	145	120	130					340	1,570	1,860	340	260	110	
21	130	130	130					Ice	385	1,480	1,860	340	270	100
22	120	145	130					540	1,440	1,710	340	280	100	
23	110	170	130					540	1,280	1,660	320	290	100	
24	110	160	130					590	1,200	1,600	295	295	100	
25	120	185	130					665	1,090	1,500	295	275	100	
26	120	200	130					120	690	1,050	1,440	320	245	100
27	110	200	130					100	715	1,240	1,300	275	260	100
28	110	170	130						880	1,400	1,160	260	250	100
29	120	170	130						1,090	1,400	1,050	245	245	100
30	120	160	130					Ice	1,320	1,520	850	230	230	100
31	130		130				130		1,480		230	200		

Monthly Discharge of Barriere River, near mouth, for years ending September 30, 1917-18.

(Drainage area, 300 square miles.)

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October.....	350	110	155	0.52	0.60	9,500
November.....	120	90	100	0.33	0.37	5,950
December.....	80	50	66	0.22	0.25	4,050
January.....			45	0.15	0.17	2,770
February.....			45	0.15	0.16	2,500
March.....	70		61	0.20	0.23	3,750
April.....	215	60	106	0.35	0.39	6,300
May.....	2,970	230	1,470	4.90	5.65	90,500
June.....	3,160	1,810	2,250	7.50	8.37	134,000
July.....	1,910	295	950	3.17	3.65	58,400
August.....	295	160	210	0.70	0.81	12,900
September.....	160	100	120	0.40	0.45	7,150
The year.....	3,160		465	1.55	21.10	337,770
1917-18						
October.....	260	110	165	0.55	0.63	10,100
November.....	200	100	140	0.47	0.52	8,300
December.....	130	75	115	0.38	0.44	7,100
January.....			150	0.50	0.58	9,200
February.....			130	0.43	0.45	7,200
March.....			120	0.40	0.46	7,400
April.....	1,320	120	395	1.32	1.47	23,500
May.....	1,910	1,050	1,480	4.93	5.68	91,000
June.....	2,910	850	1,720	5.72	6.38	102,000
July.....	800	230	475	1.57	1.81	29,000
August.....	340	200	270	0.90	1.04	16,600
September.....	185	100	120	0.40	0.45	7,100
The year.....	2,910		440	1.46	19.91	318,500

WHITEWOOD CREEK—STATION No. 8 LB₁₉.

Location.—Flows into the North Thompson river from the west, 25 miles north of Kamloops.

Records available.—September 1 to December 12, 1914; March 10 to September 30, 1915; July 11 to October 31, 1916; April 10 to September 15, 1917.

Drainage area.—Twenty-five square miles.

Gauge.—Vertical staff, read daily by C. Mayson.

Channel.—Rocky; water fairly swift.

Discharge measurements.—Four measurements made in 1917 define the curve fairly well.

Accuracy.—“C”. There was a small amount of water diverted from the creek above the gauging station.

Discharge Measurements in Whitewood Creek, at Highway Bridge, for 1917.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.							
June 10	C. G. Cline.....	1.70	49.5	Oct. 4	C. G. Cline.....	0.15	0.8
July 10	V. D. Curry.....	0.85	11.7				
Aug. 9	V. D. Curry.....	0.38	2.6				

Daily Discharge in second-feet of Whitewood Creek, at Highway Bridge, for period April 1 to September 30, 1917.

(Drainage area, 25 square miles.)

Day.	April.	May	June.	July.	August.	Sept.
1	2.0	3.5	5.2	19.0	3.5	0.7
2	2.0	3.5	5.2	18.0	3.0	0.6
3	2.0	3.5	5.2	18.0	3.0	0.6
4	2.0	4.0	5.2	16.0	3.0	0.6
5	2.0	5.0	5.2	16.0	3.0	0.6
6	2.5	6.0	5.5	14.0	3.0	0.6
7	2.5	7.0	5.2	14.0	3.0	0.6
8	2.5	9.5	5.0	13.0	3.0	0.6
9	2.5	14.0	5.0	13.0	2.5	0.6
10	2.5	15.0	5.0	11.0	2.5	0.6
11	2.5	15.0	3.8	11.0	2.5	0.6
12	2.5	15.0	3.3	10.0	2.0	0.6
13	2.5	24.0	2.9	10.0	2.0	0.6
14	2.5	33.0	2.9	9.0	2.0	0.6
15	2.5	33.0	2.6	8.0	2.0	0.6
16	2.5	41.0	2.9	7.0	2.0	0.6
17	2.5	44.0	2.6	7.0	2.0	0.6
18	2.5	38.0	2.6	6.0	2.0	0.6
19	2.5	38.0	2.4	6.0	2.0	0.6
20	2.5	41.0	2.2	5.0	2.0	0.6
21	2.5	44.0	2.0	5.0	2.0	0.6
22	2.5	44.0	1.8	4.0	1.5	0.5
23	2.5	44.0	1.7	4.0	1.5	0.5
24	2.5	50.0	1.6	4.0	1.5	0.5
25	3.0	50.0	1.6	3.5	1.5	0.5
26	3.0	52.0	1.6	3.5	0.8	0.6
27	3.0	55.0	1.6	3.5	0.8	1.0
28	3.0	65.0	1.6	3.5	0.8	1.0
29	3.0	70.0	2.0	3.5	0.8	0.6
30	3.0	60.0	2.0	3.5	0.8	0.6
31		55.0		3.5	0.7	

Monthly Discharge of Whitewood Creek, at Highway Bridge, for period April to September, 1917.

(Drainage area, 25 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April			2.5	0.10	0.11	150
May	70.0	3.5	31.7	1.27	1.46	1,950
June	55.0	16.0	32.5	1.30	1.45	1,900
July	19.0	3.5	8.9	0.36	0.41	550
August	3.5	0.7	2.0	0.08	0.09	120
September	1.0	0.5	0.6	0.03	0.03	40
The period			13.0	0.52	3.55	4,710

SULLIVAN CREEK—STATION No. 8 LB₂₈.

Location.—Section 12, township 23, range 16, west of the 6th meridian; 200 yards below the storage dam on Canough lake.

Records available.—May 23 to September 30, 1917; May 24 to September 30, 1918.

Gauge.—Standard vertical-staff weir gauge, reading to hundredths of a foot, read daily during 1917 and weekly with supplementary automatic gauge readings during 1918. The gauge is installed above a 3 foot Cippoletti weir.

Accuracy.—“A”. The discharge is artificially controlled by a storage dam on Canough lake.

Daily Discharge in Second-feet of Sullivan Creek, below Canough Lake, for period May 22 to September 30, 1917, and May 24 to September 30, 1918.

	1917.					1918.					
	May	June	July	Aug.	Sept.	April	May	June	July	Aug.	Sept.
1		7.2	8.1	8.1	1.5			0.2	6.2	2.8	1.7
2		7.2	8.1	8.1	1.5			0.2	5.8	2.7	1.7
3		7.2	8.1	7.2	1.3			0.2	5.5	2.6	1.5
4		7.2	7.6	7.2	1.3			0.1	5.2	2.6	1.5
5		0.3	7.6	.9	1.2			0.1	4.9	2.6	1.3
6		0.3	7.6	6.9	0.9			0.1	4.7	2.6	1.3
7		0.4	7.6	6.9	0.8			0.1	4.3	2.6	1.2
8		0.3	7.6	6.9	0.9			0.1	4.0	2.6	1.0
9		0.3	7.6	6.7	0.9			0.0	4.0	2.8	0.9
10		0.3	7.6	6.7	0.9			0.0	4.0	2.8	0.9
11		0.3	7.2	6.7	1.6			0.0	2.0	2.8	0.9
12		0.3	7.2	6.7	1.6			0.0	0.1	2.8	0.8
13		0.3	7.2	6.4	1.6			0.1	1.6	2.8	0.8
14		0.3	7.2	6.4	1.5			0.8	3.1	2.6	0.8
15		0.3	7.2	6.2	1.5			2.3	3.1	2.2	0.6
16		0.3	7.2	5.9	1.5			2.4	3.1	1.5	0.6
17		0.3	7.2	5.6	1.5		6.7	4.0	3.1	1.0	0.5
18		0.3	7.2	5.4	1.5			6.2	3.1	0.9	0.4
19		0.1	0.3	7.2	5.2	1.3		6.2	2.9	0.6	0.4
20		0.3	8.9	4.7	1.3			6.2	3.1	0.6	0.3
21		8.1	8.9	4.5	1.2			6.2	3.1	0.6	0.3
22		8.1	8.9	4.0	1.2			6.2	2.9	0.6	0.2
23		10.4	8.1	8.6	3.6	1.2		6.2	2.8	0.6	0.1
24		10.1	8.1	8.6	3.2	0.0	3.6	6.2	2.6	0.6	0.1
25		11.0	8.1	8.6	2.8	0.0	3.9	7.5	2.8	0.6	0.1
26		11.3	8.1	8.6	2.6	0.0		4.3	9.4	3.1	0.6
27		11.3	8.1	8.6	2.6	0.0		4.3	7.2	3.2	0.5
28		11.3	8.1	8.6	2.4	0.0		4.3	6.4	3.2	0.5
29		11.0	8.1	8.1	2.2	0.0		4.1	6.3	3.1	2.6
30		7.2	8.1	8.1	1.8	0.0		3.9	6.3	3.1	1.7
31		7.2	8.1	8.1	1.5			3.9	2.8	1.7	0.1

Gauge elevation of weir crest is 1.00

Monthly Discharge of Sullivan Creek, below Canough Lake, for periods June to September, 1917-18.

Month	Discharge in Second-Feet				Run-Off.	
	Maximum	Minimum	Mean	Per square mile	Depth in inches on Drainage Area	Total in Acre-feet
1917						
June	8.1	0.3	3.8			225
July	8.9	7.2	7.9			485
August	8.1	1.5	5.2			320
September	1.6	0.0	1.0			60
The period						1,270
1918						
June	9.4	0.0	3.2			190
July	6.2	0.1	3.4			210
August	2.8	0.5	1.8			110
September	1.7	0.1	0.7			40
The period	9.4	0.0	2.3			550

Note. The discharge at the station is regulated by a storage dam at the outlet of Canough lake, 200 yards above the weir.

HEFFLEY CREEK, TWO MILES BELOW HEFFLEY LAKE—STATION NO. 8 LB.

Location.—Section 9, township 22, range 16, west of the 6th meridian; two miles below Heffley lake and above all diversions.

Records available.—May 25 to December 8, 1911; April 1 to September 20, 1912; May 11 to September 19, 1913; May 1 to December 9, 1914; April 1 to September 30; 1915; April 1 to October 31, 1916; April 9 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Twenty-eight square miles; flow regulated by storage dam on Heffley lake.

Gauge.—Standard vertical staff gauge; daily readings.

Channel.—Rock and gravel; steep banks.

Discharge measurements.—Three measurements in 1917 define the main portion of the curve. To locate the curve at low stages a measurement made in the fall of 1916 was used. A change in section occurred between the seasons of 1917 and 1918 and the 1918 curve is located by three measurements made during the season of 1918.

Accuracy.—A high accuracy cannot be assigned owing to the shifting nature of the control.

Discharge Measurements of Heffley Creek, two miles below Heffley Lake, during 1917-18.

Date	Engineer.	Gauge height	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
June 16	Cline & Curry	3.82	4.3	May 18	C. G. Cline	3.89	7.1
July 24	Curry & McNaughton	4.24	17.9	July 16	A. L. McNaughton	4.10	10.7
Aug. 24	Cline & Chisholm	4.10	11.1	Sept 30	C. G. Cline	3.52	1.9

Daily Discharge in Second-feet, of Heffley Creek, two miles below Heffley Lake, for periods April 1 to September 30, 1917-18.

(Drainage area, 28 square miles.)

	1917						1918					
	April	May	June	July	Aug.	Sept.	April	May	June	July	Aug.	Sept.
1	1.0	1.5	4.1	12	16	8.0	1.5	3.5	11	12	7.0	3.0
2	1.0	1.5	11	12	16	8.0	1.5	4.0	11	12	6.5	2.5
3	1.0	1.5	10	8	16	8.0	1.5	4.5	11	12	6.0	2.0
4	1.0	1.5	9	8	16	7.0	1.5	4.5	11	11	5.5	2.0
5	1.0	2.0	9	8	16	6.0	1.5	5.0	11	11	5.5	2.0
6	1.0	2.0	9	8	16	6.0	1.5	5.5	12	11	5.0	6.5
7	1.0	2.0	8	7	16	5.0	1.5	5.5	12	11	5.0	7.5
8	1.0	2.0	8	6	16	5.0	1.5	5.5	12	11	5.0	8.0
9	1.0	1.5	8	5	15	5.0	1.5	6.0	12	11	5.5	7.5
10	1.0	1.5	8	5	15	5.0	2.0	6.0	12	10	6.0	6.0
11	1.0	2.0	8	5	14	4.0	2.0	6.0	11	10	6.5	7.0
12	1.0	3.0	7	5	14	4.0	2.0	6.0	11	9	6.0	5.5
13	1.0	5.0	7	8	13	4.0	2.0	6.0	11	11	5.5	5.5
14	1.0	6.0	6	8	12	4.0	2.0	6.0	11	11	5.5	5.0
15	1.0	6.0	5	8	12	3.5	2.0	6.5	11	11	5.5	5.0
16	1.0	8.0	4	9	12	3.5	2.0	6.5	11	11	5.0	5.0
17	1.0	8.0	5	16	12	3.0	2.0	5.5	11	11	5.0	4.5
18	1.0	7.0	5	23	12	3.0	2.5	7.0	11	11	4.5	4.0
19	1.0	7.0	5	27	12	3.0	2.5	8.0	11	10	4.5	4.0
20	1.0	7.0	8	27	12	2.5	2.0	8.5	12	10	4.0	3.0
21	1.0	7.0	8	27	12	2.5	2.0	8.0	12	10	4.0	3.0
22	1.0	7.0	8	27	11	2.0	2.0	8.0	12	10	4.0	3.0
23	1.5	7.0	8	27	11	2.0	2.0	7.0	13	10	3.5	3.0
24	1.5	10.0	8	18	11	2.0	2.0	7.0	13	9	3.5	3.0
25	2.0	11.0	8	27	11	2.0	2.0	11.0	13	9	3.5	2.5
26	2.0	12.0	8	27	11	2.0	2.0	11.0	13	9	3.5	2.5
27	2.0	16.0	8	27	11	2.0	2.0	11.0	13	9	3.5	2.5
28	2.0	16.0	8	27	10	2.0	2.5	11.0	12	9	3.0	2.5
29	1.5	18.0	8	23	10	2.0	3.0	11.0	12	8	3.0	2.5
30	1.5	16.0	9	20	9	2.0	3.0	11.0	12	8	3.0	2.0
31		13.0		18	9			11.0		7	3.0	

Monthly Discharge of Heffley Creek, two miles below Heffley Lake, for the periods
April to September, 1917-18.

(Drainage area, 28 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917						
April.....			1-2	0-04	0-04	70
May.....	18	1-5	6-7	0-24	0-28	410
June.....	11	4-0	7-7	0-28	0-31	460
July.....	27	5-0	15-6	0-56	0-65	960
August.....	16	9-0	12-9	0-46	0-53	790
September.....	8	2-0	3-9	0-14	0-16	230
The period.....	27		8-0	0-29	1-97	2,920
1918						
April.....	3-0	1-5	2-0	0-07	0-08	120
May.....	11-0	3-5	7-2	0-25	0-29	440
June.....	13-0	11-0	11-7	0-42	0-47	700
July.....	12-0	7-0	10-2	0-36	0-43	630
August.....	7-0	3-0	4-7	0-17	0-20	290
September.....	8-0	2-0	4-1	0-15	0-17	240
The period.....	13-0	1-5	6-6	0-24	1-64	2,420

Note.—The flow on this stream is regulated by a storage dam at the outlet of Heffley lake.

HEFFLEY CREEK ABOVE DIVERSIONS NEAR MOUTH—STATION NO. 8 LB₄.

Location.—Section 11, township 22, range 17, west of 6th meridian.

Records available.—August 19 to October 31, 1911; April 3 to September 15, 1912; April 13 to September 15, 1913; April 1 to December 6, 1914; March 1 to September, 30, 1915; April 1 to October 31, 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Sixty-five square miles.

Gauge.—Vertical staff, read daily.

Channel.—About 15 feet wide, with rocky bed.

Discharge measurements.—Eleven meter measurements during the years 1916 to 1918 agree fairly well and cover the whole range of stage.

Accuracy.—“B”. The flow of Heffley creek is regulated by a storage dam on Heffley lake and there are several diversions in the upper part of the watershed. See stations 8LB₅, 8LB₃ and 8LB₂.

Discharge Measurements of Heffley Creek, above diversions near mouth, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917.		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
May 15	A. L. McNaughton.....	1-80	34-9	May 18	C. G. Cline.....	1-15	5-6
June 16	Cline & Curry.....	1-45	14-3	July 16	A. L. McNaughton.....	1-18	6-7
July 24	McNaughton & Cline.....	1-25	7-8				
Sept. 28	Chisholm & McNaughton.....	0-80	0-9				

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Daily Discharge in Second-feet of Hefley Creek, lower station, for period April 1 to September 30, 1917-18.

(Drainage area, 65 square miles.)

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	1.6	2.9	25	25.0	6.4	3.5	3.0	8	9	7.5	3.5	2.5
2	2.1	2.9	25	22.0	6.2	3.0	3.0	8	11	7.0	3.5	2.5
3	2.7	3.0	25	20.0	6.4	3.0	3.0	9	12	7.0	3.5	2.5
4	2.7	3.0	29	17.0	6.4	3.0	3.0	14	13	7.0	4.0	3.0
5	3.0	2.6	29	13.0	6.4	2.7	3.0	13	14	6.0	2.5	4.0
6	3.3	2.0	28	11.0	6.4	2.7	3.0	13	15	5.0	2.0	4.0
7	3.7	2.9	26	10.0	6.4	2.7	3.0	12	15	4.5	2.0	2.5
8	3.3	3.8	25	7.0	6.4	2.8	3.0	12	13	4.0	3.5	2.5
9	2.7	5.3	26	6.0	5.8	3.0	3.0	11	11	3.5	3.5	2.5
10	3.5	7.7	29	5.3	5.8	3.0	3.0	8	9	3.5	3.5	2.5
11	3.5	12.0	31	4.5	5.8	3.0	3.5	7	8	3.5	3.5	3.0
12	2.9	21.0	26	4.3	6.4	3.0	4.0	7	7	3.0	3.0	3.0
13	2.7	22.0	25	4.3	6.4	2.7	4.5	7	7	2.5	2.5	3.0
14	2.9	30.0	20	4.3	5.6	2.7	4.5	6	7	2.5	2.5	3.0
15	3.0	35.0	16	4.3	5.3	2.7	4.5	6	6	4.5	2.5	2.5
16	3.2	35.0	14	3.8	4.7	2.7	4.0	6	5	6.5	2.5	2.5
17	3.3	28.0	11	3.7	4.7	2.4	4.0	6	6	6.0	2.5	2.5
18	3.5	28.0	9	5.3	5.1	2.1	4.0	6	6	6.5	2.5	2.5
19	3.3	25.0	9	8.0	4.7	2.0	4.0	6	7	6.5	2.0	2.5
20	3.0	25.0	10	9.0	4.7	1.8	4.0	6	7	6.5	2.0	2.5
21	4.0	25.0	12	9.0	4.7	1.3	4.5	6	8	5.0	2.0	2.5
22	3.5	25.0	12	7.7	4.7	1.0	4.5	6	10	4.5	2.0	2.5
23	3.5	25.0	11	7.7	4.3	1.0	4.5	6	11	4.5	2.0	2.5
24	3.5	28.0	11	7.7	4.3	1.0	4.0	6	11	4.5	2.0	2.5
25	3.8	31.0	11	6.4	4.3	0.9	4.5	7	10	3.5	2.0	2.5
26	3.8	35.0	9	6.4	4.3	0.9	5.0	7	10	5.0	2.0	2.5
27	3.3	35.0	9	6.4	3.8	0.9	3.5	8	9	5.0	2.0	2.5
28	3.5	31.0	10	6.4	3.8	0.8	5.0	8	9	4.5	2.5	2.5
29	3.0	28.0	17	6.4	3.8	0.9	6.0	7	9	4.0	2.5	2.5
30	3.0	25.0	25	6.4	3.8	0.9	7.0	7	8	4.0	2.5	2.5
31		27.0		6.4	3.7			7		3.5	2.5	

Monthly discharge of Hefley Creek, above diversions near mouth, for period April to Sept., 1917-18.

(Drainage area, 65 square miles.)

Month.	Discharge in Second-Feet.				Run Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	4.0	1.6	3.2			190
May	35.0	2.0	19.9			1,220
June	31.0	9.0	18.8			1,120
July	25.0	3.7	8.5			520
August	6.4	3.7	5.2			320
September	3.5	0.9	2.1			125
The period	35.0	0.9	9.6			3,495
1918.						
April	7.0	3.0	4.1			240
May	14.0	6.0	7.9			500
June	15.0	5.0	9.4			550
July	7.5	2.5	4.9			300
August	4.0	2.0	2.6			160
September	4.0	2.5	2.7			160
The period	15.0	2.0	5.3			1,920

Note—The flow is regulated by a storage dam at Hefley lake and there are diversions in the upper part of the watershed.

SIWASH CREEK—STATION No. 8LB₂₉

Location.—Section 12, township 22, range 16, west of 6th meridian; near mouth of creek and near Heffley lake.

Records available.—June 7 to July 28, 1914; April 1 to September 30, 1915; April 3 to October 31, 1916; May 1 to September 30, 1917; April 8 to September 8, 1918.

Drainage area.—Seven square miles.

Gauge.—Standard vertical staff, installed above a 4-foot Cippoletti weir. Daily gauge readings.

Discharge Measurements.—Standard formula for Cippoletti weirs used in calculating discharges direct from gauge heights.

Accuracy.—"A".

Daily Discharge in Second-feet of Siwash Creek, near mouth, for the periods May 1 to September 30, 1917, and April 8 to September 8, 1918.

(Drainage area, 7 square miles.)

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1		0-1	12-5	7-0	0-5	0-1		8-7	6-2	1-7	0-2	0-2
2		0-1	12-5	5-4	0-5	0-1		10-5	8-7	1-7	0-2	0-2
3		0-1	12-5	4-0	0-5	0-1		11-5	8-7	1-2	0-2	0-2
4		0-1	12-5	4-0	0-5	0-1		0-5	10-5	1-2	0-2	0-2
5		0-1	10-5	4-0	0-5	0-1		10-5	9-6	1-2	0-2	0-2
6		0-2	10-5	4-0	0-5	0-1		8-7	8-7	1-2	0-2	0-2
7		1-2	9-6	4-0	0-5	0-1		8-7	7-8	1-2	0-2	0-2
8		2-2	9-6	2-8	0-7	0-1	0-2	8-7	7-0	0-7	0-2	0-2
9		1-7	10-5	1-7	0-5	0-1	0-2	7-8	6-2	0-5	0-2	
10		1-7	12-5	2-8	0-5	0-1	0-5	7-8	5-4	1-2	0-5	
11		5-4	11-5	2-8	0-5	0-1	0-5	7-8	5-4	0-7	0-5	
12		9-6	9-6	2-8	0-5	0-1	0-2	7-8	4-0	0-7	0-5	
13		14-0	8-7	2-2	0-5	0-1	0-2	7-8	4-0	0-7	0-5	
14		15-2	7-8	1-7	0-2	0-1	0-2	7-8	4-0	0-7	0-2	
15		16-5	7-0	1-2	0-2	0-1	0-0	7-8	4-0	0-7	0-2	
16		13-2	5-4	1-2	0-2	0-1	0-0	7-8	4-0	0-7	0-5	
17		13-2	5-4	1-2	0-2	0-0	0-0	7-0	3-4	0-5	0-5	
18		13-2	5-4	0-7	0-2	0-0	0-0	6-2	2-8	0-5	0-5	
19		13-2	4-7	0-7	0-2	0-0	0-2	6-2	2-8	0-5	0-2	
20		14-0	4-0	0-7	0-2	0-0	0-4	6-2	2-8	0-5	0-2	
21		15-2	4-0	1-2	0-2	0-0	0-4	6-2	2-8	0-5	0-5	
22		16-5	4-0	0-7	0-2	0-0	0-7	5-4	2-8	0-5	0-2	
23		19-0	4-0	0-7	0-2	0-0	1-2	5-4	1-7	0-7	0-2	
24		19-0	4-0	0-7	0-1	0-0	1-2	5-4	1-7	0-7	0-2	
25		19-0	4-0	0-7	0-1	0-0	1-2	5-4	1-7	0-7	0-2	
26		21-0	4-0	0-7	0-1	0-0	1-2	5-4	2-2	0-7	0-2	
27		23-5	3-4	0-7	0-1	0-0	1-7	5-4	1-7	0-7	0-2	
28		19-00	3-4	0-7	0-1	0-0	2-8	5-4	1-7	0-7	0-2	
29		19-0	4-0	0-5	0-1	0-0	4-0	5-4	1-7	0-5	0-2	
30		16-5	10-5	0-5	0-1	0-0	7-0	5-4	1-7	0-2	0-2	
31		14-0		0-5	0-1			6-2		0-2	0-2	

Monthly discharge for Siwash Creek, near Heffley Lake, for the periods May to September, 1917, and April to August, 1918.

[Drainage area 7 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
May	23.5		10.9	1.56	1.80	670
June	12.5	3.4	7.6	1.09	1.22	450
July	7.0	0.5	2.0	0.29	0.33	120
August	0.5		0.3	0.04	0.05	20
September			0.1	0.01	0.01	5
The period	23.5		4.2	0.60	3.41	1,265
1918.						
April	7.0					50
May	11.5	5.4	7.3	1.04	1.20	450
June	10.5	1.7	4.5	0.55	0.72	270
July	1.7	0.2	0.8	0.11	0.13	50
August	0.5	0.2	0.3	0.04	0.05	20
The period	11.5	0.2	3.3	0.46	2.10	840

EDWARDS CREEK—STATION NO 8LB₃

Location.—Three miles from mouth in section 26, township 22, range 16, west of the 6th meridian. Lyon's and Devick's ditches take water above the gauging station.

Records available.—June 24 to October 31, 1911; April 20 to September 21, 1912; April 13 to September 30, 1915; April 1 to October 30, 1916; April 11 to September 30, 1917; April 28 to September 30, 1918.

Drainage area.—Fifteen square miles above gauging station. The flow of the stream is regulated by storage dams on lakes near the head waters and is further affected by water drawn off through Lyon's and Devick's diversions.

Gauge.—Standard vertical staff gauge with enamel facing located above a 5-foot Cippoletti weir, constructed during the fall of 1917. Previous to this time the gauge had been located in the natural creek channel which had shifted several times.

Accuracy.—During 1917 a low accuracy must be assigned, but the results for 1918, having been obtained from precise gauge readings above a standard Cippoletti weir, should be very accurate and reliable.

Discharge Measurements of Edwards Creek, three miles from mouth, during 1917.

Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.
May 15	A. L. McNaughton	2.00	31.40
May 21		1.75	22.50
July 24	Curry and McNaughton	0.68	1.70
Aug. 14	C. G. Cline	0.62	1.35

Daily Discharge in Second-feet of Edwards Creek, below Lyons Diversion, for periods April to September 30, 1917, and April 28 to September 30, 1918.

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	0.5	1.0	16.5	14.5	2.0	1.0	8.8	5.6	1.6	1.9	1.3	
2	0.5	1.0	18.5	11.0	2.0	1.0	8.1	7.0	1.5	1.7	1.3	
3	0.5	1.0	21.0	9.0	2.5	1.0	10.3	7.0	1.3	1.7	1.2	
4	0.5	1.0	21.0	8.0	2.5	1.0	10.7	7.8	1.1	1.7	4.1	
5	0.5	1.0	18.5	8.0	2.0	1.0	9.8	8.8	1.0	1.6	3.9	
6	0.5	1.5	16.5	7.5	2.0	1.0	9.2	10.9	0.8	1.6	3.5	
7	0.5	3.0	15.5	6.0	2.5	0.5	9.4	10.9	0.7	1.6	3.0	
8	0.5	4.0	16.5	5.5	2.5	0.5	9.0	11.1	0.5	1.7	2.5	
9	0.5	4.5	25.0	5.0	2.5	0.5	8.8	10.5	0.5	1.7	2.4	
10	0.5	5.5	30.0	4.5	2.0	0.5	8.1	9.4	0.5	1.7	2.2	
11	0.5	11.5	27.0	4.0	2.0	0.5	7.8	8.0	0.5	1.7	2.2	
12	0.5	14.5	21.0	3.5	2.0	0.5	8.1	7.4	0.4	2.2	2.1	
13	0.5	24.0	17.0	3.5	2.0	0.5	7.8	6.5	1.5	2.1	2.1	
14	0.5	30.0	14.5	3.5	1.5	0.5	7.8	5.4	1.5	2.6	2.0	
15	0.5	31.0	12.5	2.0	1.5	0.5	7.6	5.1	2.4	2.5	1.9	
16	0.5	31.0	11.0	2.0	1.5	0.5	7.6	4.7	2.4	2.5	1.9	
17	0.5	25.0	10.0	2.0	1.5	0.5	7.0	4.4	2.4	2.5	1.7	
18	0.5	21.0	9.5	2.0	1.5	0.5	6.9	4.1	3.5	2.8	1.2	
19	0.5	21.0	8.5	2.0	1.5	0.5	7.0	4.7	3.3	2.8	1.2	
20	0.5	21.0	8.0	2.0	1.0	0.5	7.4	4.4	3.0	2.8	1.2	
21	0.5	22.0	8.0	2.0	1.0	0.5	7.4	4.3	2.1	2.6	1.2	
22	0.5	23.0	8.0	2.0	1.0	0.5	7.6	3.8	2.1	2.6	1.4	
23	0.5	22.0	7.5	2.0	1.0	0.5	7.8	3.2	2.0	2.5	1.3	
24	0.5	23.0	7.0	2.0	1.0	0.5	8.2	3.2	2.0	2.2	1.3	
25	1.0	27.0	6.5	2.0	1.0	0.5	8.2	3.0	2.9	2.1	1.2	
26	1.0	26.0	6.5	2.0	1.0	0.5	8.2	2.8	2.9	2.1	1.2	
27	1.0	16.5	6.5	1.5	1.0	0.5	7.8	2.5	2.5	2.5	1.2	
28	1.0	14.5	6.0	1.5	1.0	0.5	5.1	7.4	2.1	2.2	4.1	
29	1.0	16.5	10.5	2.0	1.0	0.5	5.9	6.9	1.9	2.1	2.2	1.1
30	1.0	19.0	15.5	2.5	1.0	0.5	7.8	7.8	1.7	2.0	2.0	1.1
31		18		2.5	1.0		8.1		2.0	1.9		

Monthly discharge of Edwards Creek three miles from mouth, for the periods April to September, 1917, and May to September, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April			0.6			40
May	31.0	1.0	15.5			950
June	30.0	6.0	14.0			830
July	14.5	1.5	4.1			250
August	2.5	1.0	1.6			100
September			0.6			40
The period	31.0		6.1			2,210
1918.						
May	10.7	6.9	8.2			500
June	11.1	1.7	5.7			340
July	3.5	0.4	1.8			110
August	2.8	1.6	2.1			130
September	4.1	1.1	1.8			105
The period	11.1	0.4	3.9			1,185

NOTE.—In addition to the above discharge, Edwards creek supplied 400 acre-feet diverted through Lyons diversion and about 50 acre-feet through Devick's diversion.

LYON'S DIVERSION FROM EDWARDS CREEK—STATION NO. 8 LB₂₃

Location.—Section 34, township 22, range 16, west of 6th meridian. This diversion takes water from Edwards creek above the gauging station.

Records available.—April 13 to September 30, 1915; May 5 to October 31, 1916; May 1 to August 31, 1917; April 16 to September 30, 1918.

Gauge.—Standard vertical staff.

Channel.—Wooden flume.

Discharge measurements.—Nine float and meter measurements during 1917 and 1918 give a good rating at all stages.

Accuracy.—Readings are taken only three times a week, and for this reason a high accuracy cannot be assigned.

Discharge Measurements of Lyons Diversion from Edwards creek, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1917.		Feet.	Sec.-ft.
May 21	Archibald and McNaughton	0-12	0-5*	May 21	Archibald and McNaughton	0-40	2-8*
" 21	" "	0-30	1-9*	" 21	" "	0-43	3-2*
" 21	" "	0-30	1-9*	" 21	" "	0-60	5-4*
" 21	" "	0-22	1-3*	1918.			
" 21	" "	0-40	3-1*	May 17	C. G. Cline	0-38	2-9*

*Float measurement.

*Meter measurement.

Daily Discharge in Second-feet, of Lyons Diversion from Edwards Creek, for the periods May 1 to August 4, 1917, and April 16 to September 29, 1918.

Day.	1917.				1918.					
	May.	June.	July.	Aug.	April.	May.	June.	July.	Aug.	Sept.
1	2-0	1-8	2-3	2-1	.....	2-0	3-2	0-0	0-8	0-5
2	2-0	1-8	2-1	1-8	.....	2-0	2-8	0-0	0-8	.....
3	2-0	1-8	1-9	1-6	.....	2-2	2-9	0-0	0-8	.....
4	2-0	1-7	1-0	1-4	.....	2-5	3-0	0-0	0-7	1-2
5	2-0	1-7	0-2	1-2	.....	2-4	3-2	0-0	0-7	.....
6	2-0	1-6	0-5	.....	.....	2-3	3-4	0-0	0-6	1-0
7	.....	1-6	0-8	.....	.....	2-3	3-7	0-0	0-6	.....
8	.....	1-7	1-2	.....	.....	2-2	3-6	0-0	0-6	.....
9	Dry	1-8	1-1	Dry	.....	2-2	3-6	0-0	0-6	.....
10	.....	1-9	1-0	.....	.....	2-1	3-3	0-0	0-6	.....
11	.....	1-8	1-0	.....	.....	2-0	3-0	0-0	0-6	.....
12	.....	1-7	1-0	.....	.....	2-0	2-9	0-0	.....	.....
13	.....	1-6	0-9	.....	.....	2-0	2-8	3-2	0-0	.....
14	Dry	1-5	1-3	.....	.....	2-0	2-6	3-1	.....	.....
15	.....	1-4	1-7	.....	.....	1-9	2-3	3-0	.....	0-0
16	2-0	1-4	1-5	.....	0-5	2-3	2-0	3-0	.....	.....
17	2-0	1-4	1-3	.....	0-4	2-8	1-8	3-0	.....	.....
18	2-0	1-3	1-1	.....	0-4	3-0	1-7	2-0	0-0	0-8
19	3-0	1-3	1-0	.....	0-3	3-2	1-6	0-6	.....	.....
20	3-0	1-3	0-9	.....	0-4	3-2	0-2	0-5	.....	.....
21	3-0	1-3	0-7	.....	0-5	3-3	0-0	0-5	.....	.....
22	3-0	1-2	0-6	.....	0-4	3-5	0-0	1-0	.....	0-7
23	3-0	1-4	0-4	.....	0-3	3-6	0-0	1-4	.....	.....
24	3-0	1-6	0-2	.....	0-2	3-7	0-0	1-2	.....	.....
25	3-0	1-7	0-0	.....	0-0	3-7	0-0	1-1	1-1	0-8
26	2-9	1-6	0-5	.....	.....	3-8	0-0	1-2	.....	.....
27	2-7	1-8	1-1	.....	.....	3-6	0-0	1-2	.....	.....
28	2-2	2-0	1-7	.....	.....	3-4	0-0	1-3	.....	.....
29	1-8	2-3	2-2	.....	.....	3-5	0-0	1-1	.....	0-0
30	1-8	2-3	2-2	.....	.....	3-6	0-0	1-1	.....	.....
31	1-7	.....	2-2	.....	.....	3-7	.....	0-9	.....	.....

Monthly discharge, of Lyons Diversion from Edwards Creek, for the periods May to August, 1917, and May to July, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
May	3.0	0.0	1.7			100
June	2.3	1.2	1.6			100
July	2.3	0.0	1.1			70
August	2.1	0.0	0.3			15
The period	3.0	0.0	1.2			285
1918.						
May	3.8	1.9	2.8			170
June	3.7	0.0	1.8			110
July	3.2	0.0	1.0			62
August						30
September						30
The period						400

PAUL CREEK AT PAUL LAKE—STATION NO. 8 LB 13.

Location.—Section 31, township 20, range 16, west of 6th meridian; one-quarter mile below storage dam on Paul lake.

Records available.—Previous to 1916 at gauging station above Western Canadian Ranching Company's diversion—July 1 to October 6, 1911; May 12 to September 25, 1912; May 16 to September 30, 1913; April 20 to September 27, 1914; April 25 to September 30, 1915; and at the present section near the lake—May 1 to October 31, 1916; May 9 to September 30, 1917.

Drainage area.—Fifty-five square miles; flow regulated by storage dam on Paul lake.

Gauge.—Standard vertical staff gauge read daily.

Channel.—Gravel and rocks.

Discharge measurements.—Five measurements taken during 1918 agree very well. Owing to a change of section, measurements taken during previous seasons do not agree with measurements of the present season.

Accuracy.—"B".

Discharge Measurements of Paul Creek, at Paul Lake, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.							
June 19	Curry and Archibald.....	4.70	28.9	June 12	C. G. Cline.....	4.62	19.2
July 6	V. D. Curry.....	4.60	22.9	July 15	A. L. McNaughton.....	4.62	18.8
Aug 9	McNaughton and Curry.....	4.44	15.5	Aug 2	".....	4.31	6.2
Oct. 3	C. G. Cline.....	3.92	0.1	Sept. 10	".....	4.09	1.2
				" 10	".....	4.11	1.3

Daily Discharge in Second-feet of Paul Creek, near Paul Lake, for the period May to September 30, 1917-18.

(Drainage area. 55 square miles.)

Day.	1917.					1918.				
	May.	June.	July.	Aug.	Sept.	May.	June.	July.	Aug.	Sept.
1	0.5	27	18	18	9.0		20	20	6	1.2
2	0.5	30	18	18	9.0		20	20	6	1.2
3	0.5	30	18	18	9.0	24	20	20	6	1.2
4	0.5	30	18	18	9.0	24	20	20	6	1.2
5	0.5	30	18	18	9.0	13	20	20	6	1.2
6	0.5	30	24	18	5.5	13	20	20	6	1.2
7	0.5	30	18	18	5.5	13	20	20	6	1.2
8	0.5	30	18	18	5.5	13	20	20	6	1.2
9	0.5	30	18	18	5.5	13	20	20	6	1.2
10	0.5	30	18	18	5.5	13	20	20	6	1.2
11	0.5	30	18	18	5.5	13	20	20	6	1.2
12	5.5	30	18	18	5.5	13	20	20	6	1.2
13	18.0	30	18	18	5.5	18	20	20	6	1.2
14	3.0	30	18	18	5.5	18	20	20	3	1.2
15	9.0	30	18	18	2.5	18	20	19	3	1.2
16	18.0	30	18	18	2.5	18	20	18	3	1.2
17	18.0	30	18	18	2.5	18	20	18	3	1.2
18	18.0	30	18	18	2.5	18	20	18	3	1.2
19	24.0	30	18	18	1.0	18	20	18	3	1.2
20	44.0	30	18	18	2.5	18	20	18	3	1.2
21	24.0	30	18	18	1.0	18	20	13	3	0.5
22	30.0	24	18	18	1.0	18	20	13	3	0.5
23	44.0	18	18	18	1.0	18	20	13	3	0.5
24	44.0	18	18	18	1.0	18	20	13	3	0.5
25	44.0	18	18	18	1.0	18	20	13	3	0.5
26	44.0	18	18	18	1.0	18	20	9	3	0.5
27	44.0	18	18	10	1.0	18	20	9	3	0.5
28	37.0	18	18	18	1.0	18	20	6	3	0.5
29	24.0	18	18	13	1.0	24	20	6	1	0.5
30	24.0	18	18	13	0.1	24	20	6	1	0.5
31	24.0		18	13		24		6	1	

Monthly discharge of Paul Creek, near Paul Lake, for period May to Sept., 1917-18.

[Drainage area 55 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
May	44		17.6	0.32	0.37	1,080
June	30	2.0	25.8	0.47	0.52	1,540
July	24	18.0	18.2	0.33	0.38	1,100
August	18	13.0	17.5	0.32	0.37	1,080
September	9	0.1	3.9	0.07	0.08	230
The period	44	0.1	16.6	0.30	1.72	4,830
1918.						
May	24		16.5	0.30	0.35	1,010
June	24	24	20.9	0.36	0.40	1,200
July	24	6	16.0	0.29	0.33	1,000
August	6	1	4.0	0.07	0.08	250
September			1.0	0.02	0.02	60
The period	24		11.5	0.21	1.18	3,520

Notes.—The flow is regulated by the storage dam on Paul lake.

PAUL CREEK ABOVE LOWER DIVERSIONS—STATION No. 8 L B 27

Location.—In Kamloops Indian Reserve No. 1, about one mile above the mouth of the creek and one-quarter mile above the North Thompson River road, at the point of diversion of irrigation water for the lower flats of the reserve.

Records available.—May 15 to November 16, 1918.

Drainage area.—Eighty square miles.

Channel.—Two rectangular weirs without end contractions and with crest lengths of 4.2 feet each have been placed in the two branches of the division box at the point of diversion. All water coming down the creek passes over one or other of these weirs, and the discharges have been added to give the total flow.

Gauge.—Standard vertical staff gauge on each weir, read three times a week.

Accuracy.—"A". The flow of Paul creek is controlled by a storage dam at Paul lake, and there is a large diversion between this station and station 8 L B₁₃ at the lake.

Daily Discharge in Second-feet of Paul Creek, above lower diversion, near mouth, for the period May 15 to October 30, 1918.

[Drainage area, 80 square miles.]

Day	May	June	July	Aug.	Sept.	Oct.
1		9.0	13.0	5.4	3.0	1.7
2		9.9	12.0	5.2	3.2	1.4
3		10.8	11.2	4.8	3.3	1.3
4		11.6	11.6	4.6	2.8	1.3
5		9.8	12.1	4.3	2.5	1.2
6		10.1	12.2	4.2	2.4	1.6
7		10.4	12.3	4.2	2.3	2.0
8		9.8	11.9	4.2	2.3	2.0
9		9.4	12.0	4.2	2.3	2.0
10		8.7	11.5	4.3	2.2	2.0
11		8.1	10.9	4.4	2.0	2.0
12		7.6	10.9	4.6	1.8	2.0
13		7.9	10.9	4.7	1.8	2.0
14		8.1	11.1	4.5	1.8	2.0
15		10.7	8.2	10.6	4.3	1.8
16		10.8	8.3	11.8	3.9	1.9
17		11.0	8.5	11.2	3.6	1.8
18		9.8	8.5	10.4	3.5	1.8
19		8.7	8.5	9.9	3.3	1.8
20		7.5	7.8	9.5	3.1	1.9
21		7.8	7.1	8.9	3.1	2.1
22		8.3	9.1	8.3	3.1	1.9
23		7.9	11.2	7.7	3.4	2.0
24		7.5	13.2	8.0	3.8	2.0
25		7.5	15.2	8.1	3.8	2.0
26		7.5	13.9	7.8	3.9	2.0
27		7.5	12.7	7.4	3.9	2.0
28		7.5	12.8	6.4	3.4	2.0
29		7.6	12.8	5.6	3.0	2.0
30		8.8	12.0	5.4	2.8	2.1
31		8.2		5.4	2.8	2.1

Monthly discharge of Paul Creek, above lower diversion, near mouth, for the period June to October, 1918.

(Drainage area, 80 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1918.						
June.....	15.0	7.6	10.0			595
July.....	12.3	5.4	9.9			610
August.....	5.4	2.8	3.9			240
September.....	3.3	1.8	2.2			130
October.....	2.1	1.2	1.9			120
The period.....	15.0	1.2	5.6			1,695

SOUTH THOMPSON RIVER TRIBUTARY BASIN.

SOUTH THOMPSON RIVER—STATION No. 8 LE₂₂.

Location.—Section 35, township 21, range 13, west of the 6th meridian; at outlet of Little Shuswap lake at Chase.

Records available.—April 22 to July 31, 1911; April 10 to December 21, 1912; April 12 to December 31, 1913; January 1 to 27, March 24 to December 31, 1914; and continuous records from January 1, 1915 to September 30, 1918.

Drainage area.—Seven thousand square miles.

Gauge.—Vertical staff gauge for open-water, and chain gauge for winter use. Readings are taken twice daily.

Channel.—The measuring section is below Little Shuswap lake and above the Chase riffle.

Discharge measurements.—Eighteen meter measurements made during 1913 to 1918 agree very well and cover practically the whole range of stage.

Winter flow.—There is very little ice at the Chase riffle which forms the control for the gauging station, so that though ice sometimes forms at the gauge, it does not affect the height of the water.

Accuracy.—"A."

Discharge Measurements of South Thompson River, at Chase, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Jan. 16	F. R. Archibald	2.18	2,100	Aug. 14	A. L. McNaughton	5.58	10,540
Mar. 28	A. L. McNaughton	1.90	2,080				
June 25	" "	12.40	35,950				
Sept. 10	" "	4.68	8,100				

Daily Discharge in Second-feet of South Thompson River, at Chase, for period January 1 to September 30, 1917, and year ending September 30, 1918

[Drainage area, 7,000 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				2,600	2,300	2,200	2,050	3,400	27,500	35,700	20,000	9,000
2				2,600	2,300	2,200	2,050	3,450	28,300	35,000	19,400	9,000
3				2,500	2,300	2,200	2,050	3,600	29,100	35,000	18,600	8,700
4				2,500	2,300	2,200	2,050	3,800	29,500	35,400	17,800	8,300
5				2,500	2,300	2,200	2,050	4,000	29,900	35,400	17,100	8,100
6				2,500	2,300	2,200	2,050	4,200	30,100	35,400	16,500	8,000
7				2,500	2,300	2,200	2,100	4,400	30,500	35,800	16,200	8,000
8				2,500	2,300	2,200	2,100	4,500	31,600	35,400	15,700	8,000
9				2,500	2,300	2,200	2,100	4,600	32,600	35,400	15,300	7,700
10				2,500	2,300	2,200	2,100	4,900	33,500	34,800	14,800	7,700
11				2,500	2,300	2,200	2,150	5,500	33,900	34,600	14,300	7,700
12				2,500	2,300	2,200	2,200	6,550	34,100	34,100	13,800	7,400
13				2,400	2,300	2,200	2,200	7,850	34,000	33,500	13,400	7,400
14				2,400	2,300	2,100	2,200	8,850	33,700	33,100	13,100	7,400
15				2,400	2,300	2,100	2,200	10,000	33,700	32,300	12,800	7,200
16				2,400	2,300	2,100	2,200	11,500	34,100	31,800	12,700	7,000
17				2,400	2,300	2,100	2,300	13,100	34,800	31,200	12,400	6,700
18				2,400	2,300	2,100	2,300	14,300	35,000	30,400	12,100	6,700
19				2,400	2,300	2,100	2,300	15,200	35,300	29,600	11,500	6,700
20				2,400	2,200	2,100	2,300	15,800	35,500	28,900	11,400	6,700
21				2,400	2,200	2,100	2,400	17,000	35,900	28,000	11,400	6,700
22				2,400	2,200	2,100	2,450	17,800	36,200	27,300	11,100	6,400
23				2,400	2,200	2,100	2,500	18,600	36,300	26,300	10,800	6,400
24				2,400	2,200	2,100	2,550	19,700	36,200	25,700	10,800	6,100
25				2,400	2,200	2,100	2,600	20,700	36,200	25,000	10,400	5,800
26				2,400	2,200	2,100	2,750	21,300	36,200	24,400	10,200	5,800
27				2,400	2,200	2,100	2,800	22,300	36,000	23,400	10,000	5,800
28				2,400	2,200	2,100	2,850	23,400	35,600	22,700	9,800	5,800
29				2,300		2,100	3,000	24,600	35,700	22,000	9,600	5,500
30				2,300		2,050	3,150	25,700	35,800	21,200	9,300	5,500
31				2,300		2,050		26,500		20,700	9,300	
1917-18.												
1	5,500	5,250	4,200	4,200	4,800	3,450	3,150	9,600	20,300	30,000	13,800	9,600
2	5,500	5,000	4,200	4,200	4,800	3,450	3,150	10,000	20,300	30,000	13,500	9,300
3	5,500	5,000	4,200	4,200	4,800	3,300	3,150	11,000	20,300	29,400	13,300	9,000
4	5,800	5,000	4,000	4,400	4,800	3,300	3,150	11,800	20,000	28,600	12,800	9,000
5	6,100	5,000	4,000	4,400	4,600	3,300	3,300	13,000	19,900	27,800	12,800	8,700
6	6,400	4,800	4,000	4,600	4,400	3,300	3,300	13,400	19,900	27,000	12,400	8,700
7	6,400	4,800	4,000	4,600	4,400	3,300	3,450	14,500	19,800	26,300	12,000	8,300
8	6,400	4,800	4,000	4,600	4,400	3,150	3,450	15,000	19,800	25,500	11,700	8,000
9	6,400	4,800	4,000	4,800	4,400	3,150	3,600	15,600	20,300	25,200	11,700	8,000
10	6,400	4,800	3,800	4,800	4,400	3,150	3,600	16,000	20,700	24,800	11,400	7,700
11	6,400	4,800	3,800	4,800	4,400	3,150	3,800	16,300	21,800	24,400	11,400	7,700
12	6,400	4,600	3,800	4,800	4,200	3,150	4,000	16,600	22,500	24,000	11,400	7,400
13	6,400	4,600	3,800	4,800	4,200	3,000	4,200	17,000	24,200	23,300	11,100	7,400
14	6,400	4,600	3,800	4,800	4,200	3,000	4,800	17,700	25,000	23,000	10,800	7,000
15	6,100	4,600	3,800	4,800	4,200	3,000	4,800	18,200	26,300	22,000	10,800	7,000
16	6,100	4,400	3,800	4,800	4,000	3,000	5,000	19,200	27,000	21,800	10,800	7,000
17	6,100	4,400	3,800	4,800	4,000	3,000	5,250	19,900	28,000	21,400	10,800	7,000
18	6,100	4,400	3,800	5,000	4,000	2,850	5,500	20,300	28,600	21,000	10,800	6,700
19	5,800	4,400	3,800	5,000	4,000	2,850	5,800	21,000	29,400	20,300	10,800	6,700
20	5,200	4,400	3,800	5,000	4,000	2,850	5,800	20,000	30,200	19,900	10,800	6,700
21	5,800	4,200	3,800	5,000	3,800	2,850	6,100	21,400	31,000	19,200	10,800	6,400
22	5,800	4,200	3,800	5,000	3,800	2,850	6,400	21,400	31,400	18,800	10,800	6,400
23	5,500	4,200	3,800	5,000	3,800	2,850	6,700	21,400	31,600	18,000	10,800	6,400
24	5,500	4,200	3,800	5,000	3,800	2,850	6,700	21,000	32,000	17,300	10,800	6,400
25	5,500	4,200	3,800	4,800	3,800	2,850	7,000	21,000	32,600	16,600	10,800	6,400
26	5,500	4,200	3,800	4,800	3,450	2,850	7,400	21,000	32,600	16,300	10,800	6,400
27	5,500	4,200	3,800	4,800	3,450	3,000	7,700	20,700	32,600	15,600	10,800	6,400
28	5,500	4,200	3,800	4,800	3,450	3,000	8,000	20,500	32,600	15,200	10,800	6,400
29	5,250	4,200	3,800	4,800		3,000	8,300	20,000	32,200	14,800	10,400	6,100
30	5,250	4,200	4,000	4,800		3,150	9,000	19,900	31,400	14,500	10,000	6,100
31	5,250		4,000	4,800		3,150		20,000		14,200	10,000	

Monthly discharge of South Thompson River, at Chase, for years ending September 30, 1917-18.

[Drainage area, 7,000 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	7,000	4,350	5,380	0.77	0.89	331,000
November	4,100	3,050	3,540	0.05	0.56	211,000
December	3,050	2,600	2,800	0.40	0.46	172,000
January	2,600	2,300	2,440	0.35	0.40	150,000
February	2,300	2,200	2,270	0.32	0.33	126,000
March	2,200	2,050	2,140	0.31	0.36	132,000
April	3,150	2,050	2,340	0.33	0.37	140,000
May	26,500	3,400	12,500	1.79	2.06	770,000
June	36,300	27,500	33,500	4.78	5.33	2,000,000
July	35,800	20,700	30,300	4.35	4.99	1,860,000
August	20,000	9,300	13,300	1.90	2.19	818,000
September	9,000	5,500	7,100	1.01	1.13	422,000
The year	36,300	2,050	9,800	1.40	19.07	7,132,000
1917-18.						
October	6,400	5,250	5,900	0.84	0.97	350,000
November	5,250	4,200	4,550	0.65	0.72	270,000
December	4,200	3,800	3,900	0.56	0.65	240,000
January	5,000	4,200	4,750	0.68	0.78	290,000
February	4,800	3,450	4,150	0.59	0.61	230,000
March	3,450	2,850	3,100	0.44	0.51	190,000
April	9,000	3,150	5,200	0.74	0.83	310,000
May	21,400	9,600	17,500	2.50	2.88	1,080,000
June	32,600	19,800	26,000	3.72	4.15	1,550,000
July	30,000	14,200	21,800	3.12	3.60	1,340,000
August	13,800	10,000	11,300	1.62	1.87	700,000
September	9,600	6,100	7,350	1.05	1.17	440,000
The year	32,600	2,850	9,600	1.38	18.74	7,000,000

SHUSWAP RIVER AT SHUSWAP FALLS—STATION NO. 8 LC₃

Location.—At highway crossing, below Shuswap falls and ten miles above Mabel lake.

Drainage area.—Six hundred and fifty square miles.

Records available.—January 1 to December 31, 1913; May 7 to December 31, 1917; January 1 to September, 30, 1918.

Gauge.—Vertical staff gauge attached to solid rock wall, enamel facings.

Channel.—Rocks and gravel. Control probably permanent.

Discharge measurements.—One measurement taken in 1913 and six during 1917 to 1919 agree very well but are not well distributed on the discharge curve.

Winter flow.—Except for short periods during the winter months open-water conditions prevail.

Accuracy.—"C." Except for discharges above 7,000 cubic feet per second.

Discharge Measurements of Shuswap River, at Shuswap Falls, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.							
May 6	Swan and Cline	3.70	1,060	1918.			
July 17	Cline and Curry	5.85	4,730	Jan. 27	A. L. McNaughton	3.20	652
Sept. 21	Cline and Chisholm	3.30	763	June 27	" "	6.30	5,550

Daily Discharge in Second-foot of Shuswap River, at Shuswap Falls, for the period May 6 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 650 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1									7,300	6,400	1,950	880
2									7,100	6,600	1,950	880
3									6,800	6,800	1,800	800
4									6,400	7,300	1,650	800
5									6,400	7,300	1,550	800
6												
7								1,070	5,700	7,100	1,550	800
8									6,100	6,800	1,550	740
9									1,270	6,800	6,600	1,400
10									1,550	7,300	6,400	1,400
11									1,950	7,500	6,100	1,550
12									2,600	7,100	6,100	1,400
13									3,600	6,400	5,900	1,400
14									4,400	6,400	5,700	1,400
15									5,000	6,100	5,500	1,400
16									5,700	6,800	5,200	1,400
17									5,900	7,300	5,000	1,270
18									5,700	7,800	4,800	1,270
19									5,000	7,500	4,600	1,270
20									4,800	7,300	4,400	1,270
21									4,400	7,100	4,000	1,270
22									4,400	7,300	3,600	1,270
23									4,800	7,300	3,400	1,170
24									5,000	7,100	3,200	1,170
25									5,500	6,600	2,800	1,070
26									5,700	6,800	2,600	1,070
27									6,800	6,600	2,450	1,070
28									7,100	6,800	2,250	1,070
29									7,300	6,400	2,450	970
30									8,000	6,800	2,450	970
31									7,800	6,600	2,250	970
									7,300		2,100	970
1917-18.												
1	670	610	880				600	4,000	3,600	6,100	1,400	1,070
2	800	510	800				670	4,600	3,600	6,400	1,400	1,070
3	970	610	800		670		550	5,000	3,400	6,600	1,550	1,070
4	970	670	740		670		600	5,500	3,200	6,800	1,550	970
5	1,070	740	740		600		600	5,700	3,200	6,800	1,400	970
6	1,170	800	740		600		670	5,900	3,400	6,100	1,400	970
7	1,270	800	740		600		670	6,400	3,800	5,000	1,270	970
8	1,270	800	740		550		740	6,800	4,400	3,800	1,400	970
9	1,270	800	670		550		800	5,900	5,500	3,800	1,400	880
10	1,170	800	670		550	600	880	4,600	6,600	3,600	1,550	880
11	1,070	740	670		550	600	970	4,000	7,300	3,400	1,650	880
12	970	740	670		550	600	1,070	4,200	7,800	3,600	1,400	880
13	880	740	670		550	550	1,170	4,600	7,800	3,400	1,550	880
14	800	740	670		600	600	1,270	5,000	9,200	3,000	1,400	800
15	800	740	670		670	600	1,400	5,900	9,500	2,800	1,400	800
16	800	800	670		670	550	1,550	6,400	9,000	2,600	1,400	740
17	740	800	600		600	550	1,550	5,900	8,500	2,600	1,400	740
18	740	880	600		600	550	1,550	6,800	8,000	2,450	1,550	740
19	740	880	600		600	550	1,650	5,900	7,800	2,250	1,650	740
20	670	880	600		600	550	1,650	5,000	7,300	1,950	1,550	740
21	670	970	600		600	500	1,800	4,200	7,100	2,100	1,400	740
22	670	970	600		600	500	1,800	4,200	6,800	2,250	1,400	740
23	600	970	600		600	500	1,950	4,200	6,600	2,100	1,400	740
24	600	1,070	600		600	520	1,950	4,200	6,600	1,950	1,550	740
25	600	970			600	550	1,950	2,800	6,100	1,650	1,650	740
26	600	970			600	550	2,100	2,450	6,400	1,400	1,550	740
27	600	880			600	600	2,100	2,450	5,600	1,550	1,400	740
28	600	880			550	550	2,250	2,240	6,100	1,400	1,270	740
29	600	880			600	600	2,800	2,800	6,400	1,400	1,270	740
30	600	880			550	550	3,400	2,800	6,600	1,400	1,170	740
31	600				550	550		3,400		1,400	1,070	

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Monthly Discharge of Shuswap River, at Shuswap Falls, for period June to September, 1917, and year ending September 30, 1918.

[Drainage area, 650 square miles.]

Month.	Discharge in Second-Foot.			Run-Off.		
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Area. Drainage Area.	Total in Acre-feet.
1917.						
June.....	7,800	5,700	6,850	10.54	11.76	408,000
July.....	7,300	2,100	4,800	7.39	8.52	295,000
August.....	1,950	970	1,350	2.08	2.40	83,000
September.....	880	740	760	1.17	1.30	45,000
1917-18.						
October.....	1,270	600	830	1.28	1.48	51,000
November.....	1,070	610	820	1.26	1.41	48,800
December.....			650	1.00	1.15	40,000
January.....			650	1.00	1.15	40,000
February.....			600	0.93	0.97	33,300
March.....			550	0.85	0.98	34,000
April.....	3,400	550	1,420	2.18	2.43	84,500
May.....	6,800	2,450	4,850	7.15	8.24	286,000
June.....	9,000	3,200	6,240	9.60	10.71	372,000
July.....	6,800	1,400	3,300	5.07	5.84	203,000
August.....	1,550	1,070	1,430	2.20	2.54	88,000
September.....	1,070	740	1,850	1.31	1.46	50,500
The year.....	9,000		1,830	2.82	38.36	1,331,100

SHUSWAP RIVER AT ENDERBY—STATION NO. 8 LC₂.

Location.—Section 26, township 18, range 9, west of the 6th meridian.

Records available.—August 25 to November 10, 1911; March 1 to December 31, 1912; April 1 to December 31, 1913; January 1 to December 31, 1914; January 1 to December 31, 1915; March 19 to December 31, 1916; January 1 to December 31, 1917; January 1 to September 30, 1918.

Drainage area.—One thousand six hundred and fifty square miles.

Gauge.—Standard vertical staff gauge, attached to pile of highway bridge.

Channel.—Straight for 100 yards at section; velocity low, control good.

Discharge measurements.—Twenty-four measurements have been made since the station was established in 1911. The rating curve is accurately defined. No measurements were made during the season of 1918.

Winter flow.—Ice conditions prevailed from January to March, 1917. The discharge was estimated from two meter measurements. Open-water conditions largely prevailed during the winter of 1917-18.

Accuracy.—“B”. During the season of 1918 no meter measurements were made but it is unlikely that any change in the control has occurred.

Discharge Measurements of Shuswap River, at Enderby, during 1917.

Date.	Engineer.	Gauge height.	Discharge.
Jan. 22	F. R. Archibald.....	Feet.	Sec.-ft.
Mar. 9	A. L. McNaughton.....	Ice.	520
June 7	F. R. Archibald.....	12.30	11,300
July 12	A. L. McNaughton.....	3.67	10,800
Sept. 4	" ".....	3.67	1,780

DEPARTMENT OF THE INTERIOR.

Daily Discharge in Second-feet of Shuswap River, at Enderby, for period April 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 1,700 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1							500	1,900	12,000	11,700	4,200	1,850
2							500	1,950	12,200	11,700	4,000	1,800
3							500	2,000	12,200	11,700	3,850	1,700
4							505	2,000	12,000	11,700	3,700	1,650
5							515	2,000	11,700	11,800	3,500	1,650
6							530	2,100	11,400	11,700	3,350	1,600
7							560	2,150	11,300	11,700	3,350	1,600
8							675	2,300	11,400	11,500	3,350	1,550
9							690	2,300	11,700	11,300	3,150	1,500
10							770	2,750	11,700	10,900	3,050	1,500
11							770	3,050	11,800	10,700	2,950	1,500
12							860	3,550	11,700	10,400	2,900	1,500
13							800	4,200	11,500	10,200	2,800	1,450
14							800	4,900	11,400	9,800	2,750	1,450
15							830	5,800	11,400	9,400	2,650	1,450
16							930	7,000	11,800	9,000	2,550	1,400
17							930	7,800	12,000	8,700	2,450	1,400
18							1,000	8,200	12,200	8,300	2,400	1,350
19							1,050	8,400	12,500	8,000	2,350	1,350
20							1,050	8,600	12,600	7,600	2,300	1,300
21							1,250	8,600	12,700	7,200	2,300	1,300
22							1,500	8,600	12,800	6,800	2,250	1,300
23							1,500	8,700	12,600	6,500	2,250	1,250
24							1,550	8,800	12,300	6,200	2,150	1,200
25							1,600	9,000	12,300	5,800	2,100	1,200
26							1,700	9,300	12,000	5,500	2,100	1,200
27							1,900	9,900	11,900	5,200	2,050	1,300
28							1,900	10,400	11,700	4,900	2,000	1,300
29							1,900	11,000	11,800	4,800	1,950	1,300
30							1,900	11,400	11,800	4,550	1,950	1,300
31								11,800		4,450	1,900	
1917-18.												
1	1,300	1,250	1,470	1,600	1,500	1,150	1,620	5,050	6,100	8,700	2,850	2,250
2	1,350	1,250	1,470	1,450	1,500	1,150	1,550	5,500	6,150	8,200	2,750	2,200
3	1,750	1,200	1,470	1,450	1,500	1,100	1,500	6,000	6,100	7,650	2,750	2,200
4	1,620	1,450	1,470	1,450	1,500	1,100	1,500	6,550	6,100	7,400	2,720	2,120
5	1,620	1,450	1,450	1,450	1,500	1,100	1,600	7,150	6,100	6,900	2,700	2,100
6	1,650	1,450	1,450	1,500	1,500	1,100	1,650	7,600	6,100	6,400	2,650	2,050
7	1,700	1,450	1,450	1,570	1,470	1,100	1,700	8,050	6,150	5,900	2,600	2,000
8	1,700	1,450	1,450	1,800	1,350	1,100	1,800	8,200	6,400	5,700	2,500	1,950
9	1,700	1,450	1,450	1,600	1,300	1,000	2,100	8,100	6,850	5,500	2,500	1,920
10	1,700	1,450	1,420	1,600	1,200	1,000	2,400	8,100	7,400	5,300	2,450	1,900
11	1,700	1,450	1,350	1,650	1,200	1,000	2,500	8,000	7,400	5,250	2,500	1,850
12	1,700	1,450	1,350	1,900	1,200	950	2,750	7,900	9,100	5,250	2,650	1,800
13	1,700	1,450	1,350	2,100	1,200	820	2,950	8,000	10,350	5,200	2,600	1,750
14	1,850	1,450	1,350	1,950	1,170	800	2,750	8,200	11,250	5,100	2,500	1,670
15	1,850	1,450	1,340	1,650	1,450	770	2,850	8,500	11,900	5,050	2,550	1,650
16	1,600	1,400	1,320	1,050	1,500	770	2,850	8,850	12,500	4,900	2,550	1,620
17	1,600	1,350	1,300	1,650	1,200	770	2,850	9,200	12,800	4,800	2,500	1,600
18	1,600	1,350	1,300	1,650	1,200	800	2,850	9,400	13,150	4,600	2,500	1,550
19	1,500	1,350	1,300	1,620	1,200	770	2,950	9,400	13,100	4,500	2,600	1,500
20	1,500	1,350	1,300	1,600	1,200	820	3,050	9,300	12,800	4,400	2,550	1,470
21	1,450	1,340	1,200	1,600	1,200	820	3,450	8,950	12,600	4,250	2,500	1,450
22	1,450	1,350	1,200	1,600	1,200	850	3,700	8,650	12,300	4,200	2,550	1,400
23	1,450	1,450	1,200	1,570	1,200	950	3,700	8,200	11,900	4,000	2,500	1,400
24	1,450	1,450		1,500	1,200	970	3,800	7,700	11,800	3,900	2,450	1,350
25	1,350	1,450		1,500	1,200	1,100	3,900	7,450	11,700	3,750	2,400	1,320
26	1,350	1,450		1,500	1,200	1,320	3,950	6,900	11,400	3,550	2,350	1,320
27	1,350	1,450		1,450	1,200	1,320	4,000	6,500	11,000	3,450	2,400	1,300
28	1,300	1,450		1,450	1,200	1,300	4,150	6,200	10,600	3,300	2,400	1,300
29	1,300	1,470		1,450		1,300	4,375	5,900	9,900	3,200	2,350	1,250
30	1,300	1,470		1,500		1,500	4,650	5,800	9,300	3,050	2,300	1,200
31	1,300			1,500		1,670		6,100		2,950	2,270	

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Monthly Discharge of Shuswap River, at Enderby, for years ending September 30, 1917-18.

[Drainage area, 1,650 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
1916-17.						
October.....	1,510	930	1,170	0.70	0.81	72,000
November.....	980	760	890	0.54	0.60	53,000
December.....	760	600	670	0.46	0.53	41,200
January.....			550	0.33	0.38	33,800
February.....			550	0.33	0.34	30,500
March.....			550	0.33	0.38	33,800
April.....	1,900	500	1,050	0.63	0.70	62,500
May.....	11,800	1,900	6,150	3.73	4.30	378,000
June.....	12,800	11,300	11,960	7.25	8.09	710,000
July.....	11,800	4,450	8,700	5.27	6.08	535,000
August.....	4,200	1,900	2,730	1.65	1.90	168,000
September.....	1,850	1,200	1,440	0.87	0.97	86,000
The year.....	12,800	500	3,020	1.84	25.08	2,203,800
1917-18.						
October.....	1,700	1,300	1,530	0.93	1.07	94,000
November.....	1,470	1,250	1,400	0.85	0.95	83,000
December.....			1,400	0.85	0.98	86,000
January.....	2,100	1,450	1,600	0.97	1.12	98,000
February.....			1,300	0.79	0.82	72,000
March.....			1,080	0.64	0.74	66,000
April.....	4,650	1,500	2,850	1.67	1.86	170,000
May.....	9,200	5,050	7,600	4.61	5.31	467,000
June.....	13,150	6,100	9,800	3.70	4.13	383,000
July.....	8,700	2,950	5,000	3.03	3.49	307,000
August.....	2,850	2,270	2,530	1.53	1.76	156,000
September.....	2,250	1,200	1,680	1.02	1.14	100,000
The year.....	13,150		3,150	1.71	23.47	2,282,000

BRASH CREEK—STATION NO. 8 LC4.

Location.—Section 27, township 18, range 8, west of the 6th meridian; above intake of the Enderby waterworks.

Records available.—October 28 to December 31, 1915; January 1 to December 31, 1916; January 1 to December 31, 1917.

Drainage area.—Ten square miles.

Gauge.—Standard vertical staff; read twice a week.

Channel.—Boulders and gravel; water swift at high stages; control permanent.

Discharge measurements.—Three measurements taken during 1915, five during 1916 and four during 1917 agree very well and cover all ranges of stage during the present season.

Ice conditions.—The stream is generally frozen over for the winter, but the under side of the ice seems to wear away so that the water is not in contact with it. Under these circumstances practically open-water conditions exist and the gauge height can be used to give the discharge.

Accuracy.—“B”. The gauge is read only twice a week, but there are no marked fluctuations.

Discharge Measurements of Brash Creek, above Water Works Intake, during 1917.

Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.
Jan. 21	F. R. Archibald.....	3.67	1.3
June 6	“ “.....	4.85	60.0
July 10	A. L. McNaughton.....	4.40	20.0
Aug. 18	V. D. Curry.....	3.90	2.6

Daily Discharge in Second-feet, of Brash Creek, above Water Works Intake, for 1917.

[Drainage area 10 square miles.]

Day.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1-4	1-1	1-4	1-4	30	50	48-0	4-3	1-4	2-6	2-6	2-0
2	1-4	1-2	1-4	1-4	30	55	46-0	4-3	1-4	5-0	3-0	1-7
3	1-4	1-3	1-4	1-4	30	60	43-0	4-3	1-4	7-4	3-6	1-4
4	1-4	1-4	1-4	1-4	32	64	40-0	4-3	1-4	9-8	4-0	1-4
5	1-4	1-4	1-4	1-4	34	67	38-0	4-3	1-4	8-5	4-3	1-4
6	1-4	1-4	1-4	1-7	36	70	38-0	4-3	1-4	7-1	4-3	1-4
7	1-4	1-4	1-4	2-0	38	73	38-0	5-0	1-4	5-7	4-3	1-4
8	1-4	1-4	1-4	2-3	41	71	38-0	6-0	1-4	4-3	4-0	1-4
9	1-4	1-4	1-4	2-6	44	69	38-0	6-7	1-4	3-8	3-6	1-4
10	1-4	1-4	1-4	4-0	46	67	34-0	6-0	1-4	3-2	3-0	1-4
11	1-4	1-4	1-4	5-3	48	64	34-0	5-0	2-0	2-6	2-6	1-4
12	1-4	1-4	1-4	6-7	50	64	30-0	5-0	2-0	2-3	2-6	1-4
13	1-4	1-4	1-4	6-7	52	64	25-0	4-3	2-6	2-0	2-6	1-4
14	1-4	1-4	1-4	6-7	55	64	20-0	4-3	2-0	1-7	2-6	1-4
15	1-4	1-4	1-4	6-7	58	64	15-0	4-3	1-4	1-4	2-6	1-4
16	1-4	1-4	1-4	6-7	61	64	14-5	4-3	2-0	1-4	2-6	1-4
17	1-4	1-4	1-4	7-7	64	64	13-0	4-0	1-4	1-4	2-6	1-4
18	1-4	1-4	1-4	8-7	62	64	11-0	3-5	1-4	1-4	2-6	1-4
19	1-4	1-4	1-4	9-8	60	61	9-8	3-0	1-4	1-4	2-6	1-4
20	1-3	1-3	1-3	11-0	58	58	8-0	2-6	1-4	1-4	2-6	1-4
21	1-2	1-2	1-2	12-0	55	55	8-0	2-2	1-4	1-4	2-6	1-4
22	1-1	1-1	1-1	13-0	55	55	8-0	1-8	1-4	1-4	2-6	1-4
23	1-2	1-2	1-2	14-5	55	55	6-7	1-4	1-4	1-4	2-6	1-4
24	1-3	1-2	1-2	20-0	55	55	6-0	1-4	1-4	1-4	2-6	1-4
25	1-4	1-3	1-2	30-0	55	55	5-0	1-4	1-4	1-4	2-6	1-4
26	1-4	1-4	1-4	38-0	55	55	4-3	1-4	1-4	1-4	2-6	1-4
27	1-4	1-4	1-4	36-0	55	55	4-3	1-4	1-4	1-4	2-6	1-4
28	1-4	1-4	1-4	34-0	55	55	4-3	1-4	1-4	1-4	2-6	1-7
29	1-4	1-4	1-4	32-0	50	52	4-3	1-4	1-4	1-4	2-6	2-0
30	1-4	1-4	1-4	30-0	50	50	4-3	1-4	1-4	1-8	2-3	2-3
31	1-4	1-4	1-4	46	46	46	4-3	1-4	2-2	2-2	2-6	2-6

Monthly Discharge of Brash Creek, above Water Works Intake, for 1917.

[Drainage area 10 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
January	1-4	1-1	1-4	0-14	0-16	90
February	1-4	1-1	1-3	0-13	0-13	70
March	1-4	1-1	1-4	0-14	0-16	90
April	38-0	1-4	11-8	1-18	1-32	700
May	64-0	30-0	49-0	4-90	5-65	3,000
June	71-0	50-0	61-0	6-10	6-81	3,600
July	48-0	4-3	21-0	2-10	2-42	1,800
August	6-7	1-4	3-4	0-34	0-39	210
September	2-6	1-4	1-5	0-15	0-17	90
October	9-8	1-4	2-9	0-29	0-33	180
November	4-3	2-3	2-9	0-29	0-32	170
December	2-6	1-4	1-5	0-15	0-17	90
The year	71-0	1-1	13-3	1-33	18-03	9,590

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ADAMS RIVER—STATION NO. 8 LD.

Location.—Section 6, township 23, range 12, west of 6th Meridian.

Records Available.—July and August 1911 and continuous records from January 1, 1912 to August 10, 1918.

Drainage Area.—One thousand six hundred square miles.

Gauge.—Gurley automatic printing gauge supplemented and checked by readings on a staff gauge.

Channel.—Except in very low water the meter measurements are made above the dam; in low water below the dam by wading. The gauge is below the dam.

Discharge Measurements.—Nine measurements made since the installation of the automatic gauge agree very well and cover all stages except for discharges of from 1,000 to 3,000 cubic feet per second.

Winter Flow.—Since the installation of the gauge there has apparently been no back-water from ice at any time.

Accuracy.—"B" and "C".

Discharge Measurements of Adams River, below Adams Lake, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Mar. 30	A. L. McNaughton	0-93	375	May 18	McNaughton and Nelson...	5-10	5,100
June 27	" "	6-43	7,500				
Sept. 1	" "	4-59	4,580				

DEPARTMENT OF THE INTERIOR.

Daily Discharge in Second-feet of Adams River, below Adams Lake, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area 1,600 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917.												
1				500	485	450	400	3,750	7,600	7,000	4,500	3,900
2				500	480	450	400	2,900	7,600	5,800	3,040	2,300
3				500	480	450	400	2,220	7,550	5,900	800	3,460
4				500	480	450	400	2,220	7,500	7,250	790	3,460
5				500	480	450	410	2,250	7,450	7,400	780	3,800
6				500	480	450	410	2,220	7,350	7,600	780	3,690
7				500	480	450	410	2,250	7,450	7,700	790	3,180
8				500	475	450	410	2,250	7,550	7,650	790	3,150
9				500	470	450	410	3,040	7,850	7,700	790	2,420
10				500	470	450	410	3,800	8,050	7,400	790	2,400
11				500	470	450	410	3,900	8,050	7,300	790	2,400
12				500	470	450	410	3,950	8,000	7,100	800	2,400
13				500	470	450	420	4,500	7,900	7,100	3,540	2,370
14				500	470	450	430	5,100	7,800	6,900	4,050	2,370
15				500	460	450	430	5,200	7,750	6,800	2,950	2,370
16				500	460	450	430	5,600	7,700	6,700	2,760	2,370
17				500	460	450	430	6,300	7,800	6,600	2,440	2,270
18				500	460	450	430	7,700	7,800	6,500	2,370	2,370
19				500	460	450	440	7,650	7,800	6,400	800	2,370
20				500	460	450	450	7,550	7,750	6,250	2,370	2,350
21				500	460	450	460	7,400	7,750	6,100	2,500	2,350
22				500	460	450	460	7,200	7,750	5,950	2,500	2,300
23				500	460	450	470	7,150	7,700	5,800	2,500	2,300
24				500	460	440	480	7,100	7,650	5,650	2,900	2,300
25				500	460	430	490	7,100	7,600	5,400	2,830	2,300
26				490	450	420	500	7,150	6,900	5,200	850	2,250
27				490	450	410	500	7,250	7,300	5,050	3,700	2,250
28				490	450	400	520	7,550	7,150	4,850	3,800	2,250
29				490	450	400	2,300	7,600	7,100	4,800	3,600	2,250
30				490	450	400	4,000	7,600	7,100	4,700	3,550	2,250
31				490	450	400	7,600	7,600	7,100	4,600	3,700	.....
1917-18												
1	2,200	1,980	540	2,500	1,220	370	390	4,050	5,000	6,600	3,450	.....
2	2,200	1,100	550	2,500	1,300	370	450	4,100	5,000	6,500	3,800	.....
3	2,200	500	550	2,250	1,300	370	550	4,100	5,000	6,300	2,900	.....
4	2,250	500	550	2,500	1,200	370	570	4,600	5,000	6,100	2,750	.....
5	2,300	500	550	2,500	1,200	370	570	4,900	4,900	5,900	2,630	.....
6	2,370	500	550	2,370	1,200	370	570	5,000	4,800	5,600	2,700	.....
7	2,400	500	580	2,370	1,200	370	760	5,000	4,750	5,400	2,700	.....
8	2,400	500	640	2,370	950	370	1,620	4,900	4,900	5,350	1,100	.....
9	2,400	500	640	2,250	1,250	370	1,620	4,850	5,050	5,300	2,500	.....
10	2,400	500	640	2,370	1,200	370	1,800	4,800	3,300	5,300	2,630	.....
11	2,400	500	630	2,370	1,200	370	2,000	4,800	5,900	5,300	.....	1918
12	2,400	500	630	2,370	1,200	370	2,120	4,900	6,300	5,300	.....	.....
13	2,370	500	630	2,000	400	370	2,200	5,000	6,600	5,100	.....	.....
14	2,370	500	630	2,000	400	370	2,250	5,050	6,850	4,550	.....	.....
15	2,370	500	630	2,000	400	370	1,870	5,050	7,000	4,600	.....	.....
16	2,350	500	630	2,000	400	370	270	5,200	7,150	4,600	.....	.....
17	2,300	500	2,800	2,000	400	370	270	5,300	7,150	4,600	.....	.....
18	2,300	500	3,100	1,750	370	370	270	5,400	7,150	3,700	.....	.....
19	2,270	500	3,040	2,000	370	370	270	5,500	7,150	610	.....	.....
20	2,250	500	3,040	1,620	370	370	270	5,500	7,150	640	.....	.....
21	2,250	500	3,040	1,620	370	370	290	5,500	7,150	640	.....	.....
22	2,250	520	2,370	1,620	370	370	300	5,400	6,400	680	.....	.....
23	2,200	520	2,370	1,620	370	390	2,760	5,350	5,950	720	.....	.....
24	2,200	520	2,370	1,620	370	390	3,400	5,200	5,950	2,800	.....	.....
25	2,120	520	2,370	1,520	370	390	3,400	5,100	5,950	3,400	.....	.....
26	2,120	520	2,370	1,620	370	390	3,400	5,000	5,950	3,400	.....	.....
27	2,100	540	2,370	1,620	370	390	2,630	4,900	5,900	3,400	.....	.....
28	2,070	540	2,370	1,620	370	390	3,150	4,750	5,800	3,400	.....	.....
29	2,040	540	2,150	1,300	.....	390	3,180	4,700	5,600	3,400	.....	.....
30	2,000	540	2,500	1,300	390	3,460	4,700	5,350	3,450
31	2,000	2,500	1,300	390	4,800	3,450

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Monthly Discharge of Adams River, below Adams Lake, for years ending September 30, 1917-18.

[Drainage area 1,600 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	3,450	250	550	0.35	0.40	34,400
November	450	300	440	0.27	0.30	26,200
December	450	450	450	0.28	0.32	27,600
January			500	0.31	0.36	30,700
February			470	0.29	0.30	26,100
March			440	0.28	0.32	27,000
April	4,000	400	620	0.39	0.43	37,000
May	7,700	2,000	5,300	3.31	3.82	326,000
June	8,050	6,900	7,600	4.75	5.30	450,000
July	7,700	4,600	6,300	3.94	4.54	388,000
August	4,500	780	2,200	1.38	1.59	135,000
September	3,900	2,250	2,600	1.63	1.82	155,000
The year	8,050	250	2,290	1.43	19.50	1,663,000
1917-18.						
October	2,400	2,000	2,250	1.40	1.61	138,000
November	1,980	500	580	0.36	0.40	34,500
December	3,100	540	1,550	0.97	1.12	95,000
January	2,500	1,300	1,950	1.22	1.41	120,000
February	1,300	370	730	0.46	0.48	40,500
March	390	370	380	0.24	0.28	23,500
April	3,460	270	1,550	0.97	1.08	92,000
May	5,500	4,050	4,950	3.09	3.56	304,000
June	7,150	4,750	5,950	3.72	4.15	355,000
July	6,600	610	4,100	2.56	2.95	250,000
The year						

BEAR CREEK—STATION No. 8 LD₂.

Location.—Section 22, township 22, range 13, west of the 6th meridian; five miles from mouth of creek.

Records Available.—July 1 to September 30, 1917; May 1 to September 30, 1918.

Gauge.—Standard vertical staff gauge in lumber flume.

Channel.—Rectangular timber flume twelve feet wide which takes the whole flow of the creek and discharges into a small lake situated practically on the height of land between Bear and Loakin creeks.

Discharge Measurements.—One meter measurement in 1917 and three in 1918 agree fairly well and cover the whole range of stage.

Accuracy.—The results should be quite reliable.

Discharge Measurements of Bear Creek, above Adams River Lumber Co's. Diversion, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Aug 30	A. L. McNaughton	0.10	2.1	May 15	A. L. McNaughton	1.60	143.0
				June 18	" "	0.90	63.0
				July 11	" "	0.36	12.8

Daily Discharge in Second-feet of Bear Creek, near Loakin Creek Divide, for period July 1 to September 30, 1917, and May 1 to September 30, 1918.

Day.	1917.						1918.						
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.	
1				115	7	2			100	90	20	4	3
2				100	6	2			110	85	18	5	3
3				85	6	2			130	80	15	5	3
4				70	5	2			145	75	15	4	3
5				57	5	2			120	77	14	4	3
6				55	7	2			110	80	12	3	3
7				50	9	2			100	90	12	4	3
8				45	10	2			95	95	12	4	2
9				40	8	2			90	110	10	4	2
10				40	6	2			85	130	15	5	2
11				35	5	2			100	110	15	5	2
12				30	5	2			115	105	12	6	2
13				25	5	2			130	100	10	6	2
14				24	5	2			140	95	9	6	2
15				20	4	2			145	85	7	7	2
16				20	4	2			140	75	7	7	2
17				18	4	2			130	65	7	7	2
18				15	3	1			120	61	6	7	2
19				15	3	1			110	57	5	6	2
20				14	3	1			100	50	5	5	2
21				12	3	1			90	45	5	5	2
22				10	3	1			75	40	5	5	2
23				10	3	1			70	40	5	5	2
24				10	3	1			70	40	5	5	2
25				8	3	1			65	40	6	4	2
26			115	8	2	2			60	35	6	3	2
27				7	2	2			50	30	7	10	2
28				7	2	3			60	25	7	7	2
29				7	2	2			75	25	5	5	2
30				7	2	2			85	25	5	4	2
31				7	2				95		5	3	

Monthly Discharge of Bear Creek, above Adams River Lumber Co's. Diversion, for period July to September, 1917, and May to September, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
July 1917.	115	7	31.0			1,900
August	10	2	4.4			270
September	3	1	1.8			110
May 1918.	145	50	100			6,150
June	130	25	69			4,100
July	20	5	9			550
August	10	3	5			300
September	3	2	2			120
The period	145	2	37			11,220

SEYMOUR RIVER—STATION No. 8 LE₂₇.

Location.—Tributary to Seymour Arm of Shuswap lake. The metering station is located three miles above the mouth of the stream, well above any chance of backwater from the lake.

Records Available.—August 17 to December 11, 1914; March 8 to December 31, 1915; April 28 to December 31, 1916; April 9 to June 30, and October 1 to December 31, 1917; April 1 to September 30, 1918.

Drainage Area.—Two hundred and fifty square miles.

Gauge.—Standard vertical-staff gauge in two sections, one for low-water and one for high water.

Channel.—Rocks and gravel, current swift.

Discharge Measurements.—Made from a cable car on a section about two hundred feet above the gauge. Twenty measurements made during 1914 to 1918 agree very well and cover all but extremely high stages.

Winter Flow.—Ice conditions prevail during three or four months. A meter measurement on January 24, 1917, gives probably an approximation to minimum flow for the period.

Accuracy.—"B" for all discharges less than 6,000 cubic feet per second.

Discharge Measurements of Seymour River, 3 miles from mouth, during 1917-18.

Date	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Jan. 24	F. R. Archibald	Ice.	164	Aug. 10	A. L. McNaughton	2.40	1,090
June 11	"	6.05	4,365				
July 13	A. L. McNaughton	4.97	3,076				
Sept. 7	"	1.50	595				

Daily Discharge in Second-feet of Seymour River, near mouth, for the period April 9 to June 30, 1917, and year ending September 30, 1918.

[Drainage area, 250 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1								900	4,080			
2								900	3,700			
3								1,010	3,000			
4								1,010	3,000			
5								1,010	2,720			
6								1,140	3,280			
7								1,400	3,340			
8								1,720	5,350			
9							1,200	2,540	7,300			
10							1,070	2,800	4,750			
11							1,270	3,480	3,700			
12							1,140	4,150	2,630			
13							1,140	5,050	2,400			
14							700	5,050	3,480			
15							600	4,900	3,850			
16							600	4,450	6,000			
17							620	3,850	4,900			
18							600	2,800	4,900			
19							600	2,450	4,900			
20							600	2,450	4,900			
21							680	2,800	6,280			
22							900	2,900	5,200			
23							900	3,280	3,600			
24							950	3,600	3,280			
25							950	3,600	3,340			
26							950	3,700	3,600			
27							920	4,520	3,280			
28							920	5,220	3,700			
29							950	5,050	3,850			
30							950	3,850	3,220			
31								3,850				
1917-18.												
1	1,550	750	560				700	2,900	1,720	3,200	1,270	1,700
2	2,200	900	480				700	3,700	1,950	3,100	1,400	1,650
3	2,900	1,070	480				670	4,500	2,200	3,000	1,270	1,550
4	3,700	1,070	480				650	5,350	2,550	2,900	1,200	1,400
5	2,650	1,070	480				700	4,450	2,800	2,700	1,150	1,400
6	1,700	1,070	520				750	3,600	3,100	2,350	1,070	1,350
7	1,400	950	520				800	3,000	3,450	1,950	1,000	1,350
8	1,150	800	520				850	2,550	3,200	1,850	1,000	1,400
9	900	750	520				1,100	2,100	3,000	1,700	1,000	1,400
10	870	700	480				1,400	1,950	3,850	1,500	1,000	1,400
11	850	700	480				1,720	1,800	5,050	1,700	1,150	1,400
12	800	650	460				2,000	2,250	6,000	1,900	1,350	1,400
13	750	650	440				1,870	2,800	7,300	2,100	1,350	1,400
14	750	600	480				1,720	3,450	8,000	2,200	1,400	1,350
15	800	600	520				1,400	3,350	5,300	2,200	1,400	1,350
16	800	600	600				1,150	3,200	5,300	2,100	1,550	1,270
17	750	600	600				1,150	3,100	5,300	2,100	1,700	1,150
18	700	700	700				1,200	2,900	5,300	2,000	1,870	1,070
19	600	800	750				1,270	2,450	4,900	1,900	2,000	950
20	580	850	800				1,400	2,000	4,400	1,700	2,200	900
21	560	1,350	800				1,480	1,720	4,800	1,600	2,450	800
22	540	2,000	750				1,500	1,650	5,000	1,550	2,700	800
23	520	1,350	750				1,550	1,550	5,500	1,550	2,800	750
24	540	850	700				1,480	1,400	6,000	1,400	2,800	600
25	560	850	700				1,400	1,270	4,700	1,400	2,900	520
26	520	400	650				1,720	1,400	3,700	1,400	3,000	480
27	480	800	600				2,000	1,500	3,600	1,480	2,650	440
28	480	750	540				2,100	2,000	3,400	1,400	2,250	440
29	520	700	480				2,200	2,700	3,300	1,350	2,250	440
30	520	650	480				2,350	3,350	2,900	1,250	1,950	440
31	600		480					4,150		1,150	1,900	

Monthly Discharge of Seymour River, near Mouth, for periods October to December, 1916, May to June, and October to December, 1917, and April to September, 1918.

(Drainage area 250 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	610	395	470	1.88	2.17	29,000
November	590	395	480	1.92	2.14	28,500
December	530	290	340	1.36	1.57	21,000
May	5,120	990	3,070	12.28	14.15	180,000
June	7,300	2,400	4,050	16.20	18.07	241,000
1917-18.						
October	3,700	480	1,040	4.15	4.78	64,000
November	2,000	600	870	3.48	3.88	52,000
December	806	440	570	2.28	2.63	35,000
January						
February						
March						
April	2,350	650	1,370	5.48	6.11	81,500
May	5,350	1,270	2,700	10.80	12.45	166,000
June	8,000	1,720	4,250	17.00	18.97	253,000
July	3,200	1,150	1,920	7.68	8.85	118,000
August	3,000	1,000	1,750	7.00	8.07	108,000
September	1,700	440	1,050	4.20	4.89	62,500

CELESTA CREEK—STATION No. 8LE₂₅.

Location.—Near Albas, on the Seymour arm of the Shuswap lakes; one-half mile from mouth of creek.

Records Available.—March 1 to December 31, 1914; January 1 to December 31, 1915; May 1 to December 31, 1916; January 1 to May 28, 1917; July 14 to December 10, 1917; April 1 to 30, 1918, July 1 to September 30, 1918.

Drainage Area.—Eighty square miles.

Gauge.—Up to May 28, 1917, a standard vertical staff gauge was in use. On this date the gauge was washed out by a freshet and was replaced on July 14 by a chain gauge at a point one-quarter mile down stream from the former section.

Channel.—Rocks, boulders and gravel.

Discharge Measurements.—Eleven measurements at the former section define the discharge curve fairly well. Three measurements have been taken at the present section at low or intermediate stages. The discharge curve is undefined as yet, above a discharge of 400 cubic feet per second, and for this reason it is not at present possible to compute the discharge for May and June, 1918.

Winter Flow.—During the winter of 1917 ice formed on the surface of the water at the gauge. The water afterwards receded leaving the ice suspended from the bank a few inches above the water surface. This gave approximately open-water conditions of flow during the winter season. Ice conditions prevailed during the winter of 1918.

Accuracy.—Results are somewhat incomplete and less reliable after the freshet which destroyed the gauge.

Discharge Measurements of Celesta Creek, at Albas, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Jan. 23	F. Archibald	0.37	26*	Mar. 7	Phillips and McNaughton	Ice	34
July 14	A. L. McNaughton	1.84	267†	Aug. 8	A. L. McNaughton	0.79	55
Sept. 6		0.43	27				

NOTES.—*Old gauge. †New gauge.

Daily Discharge in Second-feet of Celesta Creek, near mouth, for period January 1 to September 30, 1917, and periods October 1 to December 10, 1917, April 1 to April 30 and July 1 to September 30, 1918.

[Drainage area, 80 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Sept.	
1916-17.												
1				36	28	26	24	130			85	35
2				35	28	26	24	130			80	35
3				36	28	26	24	145			70	30
4				36	28	26	26	160			70	30
5				36	28	26	28	160			70	30
6				36	28	26	26	160			70	25
7				36	26	26	28	195			70	25
8				36	26	26	28	210			65	25
9				36	26	26	36	240			65	25
10				36	26	26	36	270			70	25
11				36	26	26	41	360			65	25
12				36	26	26	41	630			70	30
13				36	28	24	36	740			70	35
14				36	28	24	36	830		260	70	35
15				36	28	24	46	920		250	70	35
16				36	28	26	46	950		240	70	30
17				36	28	28	46	920		220	60	30
18				36	26	24	46	770		210	60	30
19				36	26	24	53	740		200	60	25
20				36	26	24	53	680		190	60	25
21				28	26	26	80	770		180	45	25
22				28	26	20	80	740		160	45	25
23				26	26	28	80	740		140	45	25
24				26	26	22	80	800		140	45	25
25				28	26	24	100	860		120	45	25
26				28	26	22	115	860		100	45	25
27				28	26	24	115	920		100	40	25
28				28	26	28	130	1,500		100	40	25
29				28		32	130	1,000		100	35	25
30				28		24	130	1,000		85	35	25
31				28		32		1,000		85	35	25
1917-18.												
1	25	30	45				70			330	70	55
2	45	30	45				70			310	60	55
3	45	30	45				60			270	55	55
4	45	32	40				60			270	55	50
5	45	45	40				70			260	55	45
6	45	47	40			Meter 34	55			230	55	40
7	45	45	40				70			230	55	40
8	45	40	40				80			230	55	35
9	40	40	40				130			230	70	35
10	40	40	40				160			230	70	35
11	40	40					185			220	70	35
12	40	40					200			210	70	35
13	40	40					220			210	70	32
14	35	40					220			200	70	32
15	35	35					220			185	70	32
16	35	35					185			185	60	30
17	35	32					210			160	60	30
18	32	32					210			140	70	27
19	32	32					210			140	70	27
20	30	32					220			140	70	27
21	30	35					260			140	70	27
22	30	35					270			130	70	27
23	30	35					280			120	80	27
24	30	40					280			100	80	25
25	30	40					300			90	80	25
26	30	40					310			85	70	25
27	30	45					310			85	70	25
28	30	45					320			80	70	25
29	30	45					330			70	60	25
30	30	45					360			70	60	25
31	30									70	55	25

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Monthly Discharge of Celesta Creek, near mouth, during years ending September 30, 1917-18.

[Drainage area 80 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage	Total in Acre-feet.
1916-17.						
October	46	36	40	0.50	0.58	2,460
November	36	28	35	0.44	0.49	2,080
December	36	28	33	0.41	0.47	2,030
January	36	26	33	0.41	0.47	2,030
February	28	26	27	0.34	0.35	1,500
March	32	20	26	0.33	0.38	1,600
April	130	24	59	0.74	0.83	3,500
May		130	630	7.88	9.08	38,700
June						
July						
August	85	35	59	0.74	0.85	3,600
September	35	25	28	0.35	0.39	1,700
1917-18.						
October	45	25	36	0.45	0.52	2,200
November	47	30	38	0.48	0.54	2,260
December			40			
January			38			
February			38			
March			35			
April	360	55	200	0.25	0.28	11,900
May						
June						
July	330	70	175	0.22	0.25	10,800
August	80	55	65	0.81	0.93	4,000
September	55	25	34	0.43	0.48	2,000

SALMON RIVER ABOVE GRANDE PRAIRIE—STATION No. 8 LE19.

Location.—Section 13, township 17, range 14, west of the 6th meridian.

Records Available.—August 9 to September 22, 1917; April 1 to September 30, 1918.

Drainage Area.—One hundred and eighty square miles.

Gauge.—Vertical staff, daily readings.

Channel.—Rocks and gravel.

Discharge Measurements.—Three measurements in 1917 and two in 1918, define the curve fairly well up to discharge of 150 second-feet. Above this stage further measurements are necessary for accurate definition.

Accuracy.—“B” for discharges below 150 cubic feet per second, and “D” for discharges above that amount.

Discharge Measurements of Salmon River, above Grande Prairie, during 1917-18.

Date	Engineer.	Gauge height.	Dis. charge.	Date.	Engineer.	Gauge height.	Dis-charge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
July 17	C. G. Cline and V. D. Curry	2.82	35.0	May 22	Cline and McNaughton	3.68	14.7
Aug 18	V. D. Curry	2.55	16.7	June 25	A. L. McNaughton	2.95	5.4
Sept. 25	Chisholm and Cline	2.19	3.1				

Daily Discharge in Second-feet of Salmon River, five miles above Adelphi, for period August 9 to September 30, 1917 and April 1 to September 30, 1918.

[Drainage area, 180 square miles.]

Day.	1917.		1918.					
	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1		3	9	230	210	33	8	9
2		3	9	260	205	29	9	9
3		3	10	280	200	29	9	9
4		3	12	305	180	27	8	8
5		3	17	295	170	27	8	8
6		3	20	265	165	25	7	8
7		3	21	220	165	24	6	7
8		3	24	210	170	21	6	7
9	17	4	31	180	175	20	9	6
10	15	4	40	170	170	21	14	6
11	14	4	55	170	180	27	14	5
12	13	3	60	190	165	24	24	5
13	12	3	65	210	145	21	27	5
14	11	3	60	225	140	20	24	5
15	10	3	55	230	135	18	20	4
16	9	3	47	250	110	17	18	4
17	8	3	45	220	100	15	17	4
18	7	3	42	210	95	14	17	4
19	6	3	45	190	85	12	20	3
20	6	3	57	170	80	12	24	3
21	6	2	105	160	70	10	21	3
22	8	2	125	145	65	9	20	4
23	8	2	125	135	60	9	18	5
24	7	2	130	130	55	10	15	5
25	7	2	135	130	55	9	14	5
26	5	3	135	120	50	9	12	5
27	5	4	135	115	45	9	13	5
28	4	6	140	110	42	10	12	4
29	3	7	165	110	37	9	13	4
30	3	7	200	130	35	9	12	4
31	3	7		180		8	10	

Monthly Discharge of Salmon River, above Grande Prairie, for period April to September, 1918.

[Drainage area, 180 square miles.]

Month.	Discharge in Second-Feet				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April	200	9	70	0.39	0.43	4,150
May	305	110	190	1.06	1.22	11,700
June	210	35	120	0.67	0.75	7,150
July	33	8	17	0.09	0.10	1,050
August	27	6	14	0.08	0.09	900
September	9	3	5	0.03	0.03	320
The period	305	3	68	0.39	2.62	25,270

SALMON RIVER AT FALKLAND—STATION NO. 8 LE₂₀.

Location.—Below the mouth of Bolean creek: section 2, township 18, range 12, west of 6th meridian.

Records Available.—May 23 to December 31, 1911; January 1 to September 13, 1912; April 1 to September 30, 1915; April 1 to October 31 1916; April 6 to September 30, 1917; April 1 to September 30, 1918.

Drainage Area.—Three hundred and fifty square miles.

Gauge.—Vertical staff gauge, read daily.

Channel.—Stream confined between bridge abutments; water fairly swift. Bed of stream, rocks and gravel.

Discharge Measurements.—Ten discharge measurements, during 1915 to 1918 agree very well and cover all ranges of stage during the season of 1918, and all but the very high stages during the season of 1917.

Accuracy.—"B".

Discharge Measurements of Salmon River, at Falkland, during 1917.

Date	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Date charge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
May 23	C. G. Cline	8.30	440	May 22	A. L. McNaughton	7.68	243
July 16	Cline and Curry	7.20	107	June 26	" "	7.25	119
Sept. 25	Cline and Chisholm	6.77	43				

Daily Discharge in Second-feet of Salmon River, near Falkland, for periods April 1 to September 30, 1917-18.

☪ [Drainage area, 350 square miles.]

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	40	36	750	355	79	46	30	280	320	100	60	50
2	40	36	740	310	71	46	30	310	320	90	60	50
3	40	36	720	280	71	46	35	340	300	90	60	50
4	40	36	680	265	71	46	35	350	280	90	60	50
5	40	36	660	250	64	46	35	370	280	90	60	45
6	46	36	620	235	64	46	35	340	280	80	50	45
7	46	41	600	205	100	46	35	340	280	80	50	45
8	46	46	600	190	87	52	40	310	310	70	50	45
9	46	64	580	175	79	52	50	280	310	70	60	45
10	46	110	560	160	79	52	50	250	300	120	65	45
11	46	150	550	150	71	52	60	200	280	100	70	45
12	41	220	530	150	71	46	60	350	260	80	70	45
13	41	310	530	135	71	46	65	340	250	70	65	49
14	41	355	510	120	71	46	60	350	250	65	65	45
15	36	390	510	110	64	46	50	370	230	70	70	45
16	36	405	490	110	64	46	45	370	200	70	60	45
17	36	420	460	100	58	46	45	340	170	70	65	45
18	36	460	440	100	58	46	50	320	160	70	70	45
19	36	440	405	87	58	46	50	310	150	70	65	45
20	31	420	405	87	58	46	60	280	150	65	65	45
21	36	420	405	79	58	46	80	260	135	65	65	45
22	36	405	355	79	58	46	150	240	135	65	65	45
23	36	440	340	87	58	41	135	250	120	65	60	45
24	41	475	325	79	58	41	135	230	150	60	60	45
25	41	510	310	79	52	41	135	220	120	60	50	45
26	41	550	280	79	52	46	150	220	120	65	45	45
27	41	620	265	71	46	46	150	200	120	65	60	45
28	36	680	250	79	46	52	135	190	110	65	50	45
29	36	770	405	79	46	46	175	220	110	65	50	45
30	36	830	385	79	46	46	190	220	110	60	45	45
31		810		79				310		60	45	

Monthly Discharge of Salmon River at Falkland, for periods April to September 1917 and 1918.

[Drainage area, 350 square miles.]

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1917.						
April	46	31	40	0.11	0.12	2,400
May	830	36	340	0.97	1.12	21,000
June	750	250	490	1.40	1.56	29,000
July	355	71	143	0.41	0.47	8,800
Aug.	100	45	64	0.18	0.21	3,900
September	52	41	47	0.13	0.14	2,800
The period	830	31	187	0.53	3.62	67,900
1918.						
April	190	30	80	0.23	0.28	4,750
May	370	190	290	0.83	0.96	17,800
June	310	110	210	0.60	0.67	12,500
July	120	60	75	0.21	0.24	4,600
August	70	45	60	0.17	0.20	3,700
September	50	45	46	0.13	0.14	2,750
The period	370	30	127	0.36	2.47	46,100

ESSELL CREEK—STATION NO. 81F₆.

Location.—Section 36, township 17, range 14 west, of 6th meridian; one-quarter mile below Summit lake.

Records Available.—May 25 to September 30, 1911; April 1 to September 7, 1912; April 16 to September 14, 1913; April 1 to December 4, 1914; June 1 to November 4, 1916; April 1 to September 30, 1917; May 20 to September 30, 1918;

Drainage Area.—Six square miles. The natural run-off is increased by water diverted from upper Monte creek and stored in Summit lake.

Gauge.—Vertical staff, braced against a rock. Established June 1 1916. Three readings a week.

Channel.—Rocks and gravel; apparently permanent.

Discharge Measurements.—Ten meter measurements in 1916, 1917 and 1918 agree fairly well and cover all but the highest stages of the stream.

Accuracy.—The accuracy is reduced somewhat by the fact that the gauge readings were taken only three times a week.

Discharge Measurements of Essell Creek below Summit Lake during 1917-18.

Date.	Engineers.	Gauge Height.	Discharge.	Date.	Engineers.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
May 22	C. G. Cline	1.40	23.9	May 23	Cline and McNaughton.....	1.40	22.6
July 19	Cline and Curry	1.30	16.5	June 25	A. L. McNaughton.....	1.23	12.8
Aug. 8	V. D. Curry	1.00	3.6				
Sept. 25	Cline and Chisholm	0.85	0.8				

Daily Discharge in Second-feet of Essell Creek, near Summit Lake, for period April 1 to September 30, 1917, and May 20 to September 30, 1918.

Day.	1917.						1918.				
	April.	May.	June.	July.	Aug.	Sept.	May.	June.	July.	Aug.	Sept.
1	1-0	1-6	51	27-0	3-4	1-2		25	10	10	4
2	1-0	2-0	51	25-0	3-2	1-2		25	13	10	6
3	1-0	2-0	48	26-0	3-0	1-2		25	16	10	6
4	1-0	2-0	46	27-0	2-8	1-1		25	14	10	6
5	1-0	2-0	40	25-0	2-8	1-0		25	12	10	5
6	1-0	1-6	35	23-0	2-8	1-0		20	10	10	4
7	1-0	1-2	35	21-0	2-8	1-0		20	8	10	3
8	1-0	2-0	35	21-0	2-8	1-0		16	6	12	3
9	1-2	2-8	35	21-0	2-8	1-1		16	6	14	3
10	1-2	3-9	34	21-0	2-8	1-2		16	6	16	3
11	1-2	5-0	32	21-0	2-8	1-2		11	6	20	3
12	1-2	6-0	33	21-5	2-8	1-2		6	4	25	3
13	1-2	6-5	35	22-0	2-8	1-1		15	3	25	3
14	1-2	7-0	34	22-5	2-5	1-1		25	6	25	3
15	1-2	10-2	32	21-7	2-3	1-0		35	10	25	3
16	1-2	13-5	30	21-0	2-1	1-0		35	10	25	1
17	1-1	17-3	30	21-0	1-8	1-0		35	10	25	2
18	1-0	21-0	30	21-0	1-5	1-0		35	12	30	3
19	1-1	25-0	30	16-5	1-5	1-0		35	14	35	3
20	1-1	25-0	30	16-0	1-5	1-0	35	35	6	35	3
21	1-2	25-0	30	13-5	1-7	1-0	30	35	13	35	3
22	1-2	24-0	30	12-0	1-0	1-0	25	35	10	30	3
23	1-2	21-0	31	10-5	2-0	1-0	25	25	8	20	3
24	1-2	22-0	28	9-3	2-0	1-0	25	16	6	16	2
25	1-2	23-0	25	8-2	2-0	0-8	25	13	7-	13	1
26	1-3	25-0	26	7-4	1-7	0-8	25	25	8	10	1
27	1-4	32-0	27	6-7	1-5	0-9	25	25	10	8	1
28	1-5	40-0	28	6-0	1-5	0-9	25	25	13	6	1
29	1-3	45-0	28	5-5	1-5	1-0	25	25	16	5	1
30	1-2	51-0	29	5-0	1-4	1-0	25	18	13	4	1
31		51-0		4-2	1-3		25		10	3	

Monthly discharge of Essell Creek, below Summit Lake, for periods April to September, 1917, and June to September, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	1-5		1-1			70
May	51-0	1-6	16-6			1,000
June	51-0	25-0	34-0			2,000
July	27-0	4-2	17-1			1,050
August	3-4	1-3	2-2			140
September	1-2	0-8	1-0			60
The period	51-0	0-8	12-0			4,320
1918.						
June	35	6	24			1,400
July	16	3	10			600
August	35	3	17			1,050
September	6	1	3			160

Note.—The discharge for 1917 included water diverted from Monte creek. See station No. 8LE11

INGRAM CREEK—STATION NO. 8LE₃

Location.—Section 23, township 17, range 13, west of the 6th meridian; above diversions near mouth

Records Available.—April 1 to October 4th, 1911; April 1 to August 31, 1912; April 1 to September 16, 1913; May 6 to November 11, 1914; April 1 to September 30, 1915; April 1 to October 31, 1916; April 1 to September 30, 1917; May 22 to June 25, 1918.

Drainage Area.—Twenty-five square miles.

Gauge.—Vertical staff gauge in 1917. Sloping staff gauge bolted to solid rock in 1918.

Channel.—Old gauging station used in 1917, with rocky bed and swift water; new gauging station for 1918 with solid rock control.

Discharge Measurements.—Three measurements in 1917 and one in 1915 were used to define the 1917 rating curve. The 1918 rating curve is defined by three measurements.

Accuracy.—Accuracy "C" for 1917, and "B" for 1918.

Discharge Measurements of Ingram Creek, above Diversion, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
May 23	C. G. Cline	2.15	53.6	May 22	Cline and McNaughton	1.35	21.2
July 18	Cline and Curry	0.93	5.0	June 25	A. L. McNaughton	0.98	3.3
Aug. 8	V. D. Curry	0.80	3.7				
Sept. 25	Chisholm and Cline		0.9				
Oct. 20	"	0.40	1.0				

NOTE.—The gauge was moved to a new section on October 12, 1917.

Daily Discharge in Second-feet of Ingram Creek, at Mouth, for period April 1 to September 30, 1917, and during May and June 1918.

[Drainage area 25 square miles.]

Day.	1917.						1918.	
	April.	May.	June.	July.	Aug.	Sept.	May.	June.
1	5	8	55	16	4	3		35
2	5	9	50	13	4	3		
3	5	9	60	16	4	3		8
4	5	10	55	13	4	3		
5	5	10	55	11	4	3		
6	5	11	65	10	5	3		12
7	6	14	55	10	5	3		
8	6	20	45	9	4	3		
9	6	22	45	8	4	3		
10	5	24	40	6	4	3		6
11	8	29	34	6	4	2		
12	5	40	50	6	4	2		
13	5	50	45	11	4	2		4
14	5	40	40	11	4	2		
15	6	55	34	9	4	2		
16	7	60	34	7	4	2		
17	7	60	34	6	4	2		
18	8	60	29	6	4	2		
19	8	55	29	6	4	2		
20	9	55	24	5	4	2		
21	9	60	24	5	4	1		
22	8	60	24	5	4	1		21
23	9	75	22	4	4	1		
24	9	80	20	4	4	1		25
25	10	75	18	4	4	1		5
26	10	80	16	4	4	1		
27	10	85	13	4	4	1		17
28	8	80	16	5	4	1		
29	8	75	20	5	4	1		17
30	9	70	16	5	4	1		
31		65		5	3			

Monthly Discharge of Ingram Creek, above Diversions, for period April to September, 1917.

[Drainage area 25 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
April			7	0.3	0.3	400
May	85	8	47	1.9	2.2	2,900
June	65	13	35	1.4	1.6	2,000
July	16	4	8	0.3	0.3	500
August	5	3	4	0.2	0.2	200
September			2	0.1	0.1	100
The period	85		17	0.7	4.7	6,100

BOLEAN CREEK.—STATION NO. 8LE₁.

Location.—Section 10, township 18, range 12, west of the 6th meridian; one mile from mouth of creek.

Records Available.—May 23 to December 31, 1911; January 1 to September 16, 1912; April 27, to September 19, 1913; April 1 to December 8, 1914; April 1 to September 30, 1915; April 1 to September 30, 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage Area.—Eighty square miles.

Gauge.—Vertical staff, read twice a day.

Channel.—Gravel and sand about 20 feet wide.

Discharge Measurements.—Eleven discharge measurements taken during 1915 to 1918 to cover all stages up to discharges of 200 feet per second.

Accuracy.—The results should be quite reliable.

Discharge Measurements of Bolean Creek, one mile from mouth, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
May 23	C. G. Cline	2.45	167	May 22	C. G. Cline	2.23	110
July 18	Cline & Curry	1.42	25	June 28	A. L. McNaughton	1.62	39
Aug 18	V. D. Curry	1.23	10				
Sept. 25	Cline & Chisholm	1.11	6				

Daily Discharge in Second-feet of Bolean Creek, one mile from mouth, for periods April 1 to September 30, 1917-18.

[Drainage area, 80 square miles.]

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	3	16	295	150	11	4	16	140	155	30	15	16
2	3	14	280	120	12	4	16	170	150	28	16	13
3	8	16	245	100	16	4	13	200	130	26	13	13
4	6	16	230	90	16	3	13	215	130	26	13	13
5	6	16	230	80	13	4	16	190	140	23	12	11
6	8	17	250	76	11	6	19	145	140	22	11	11
7	9	22	260	70	32	6	19	150	150	22	11	11
8	14	25	260	67	36	6	22	135	150	20	12	11
9	16	41	280	61	23	6	30	130	160	17	16	10
10	12	58	235	53	22	6	35	120	175	35	16	8
11	25	87	215	38	20	8	42	140	150	31	28	8
12	19	120	180	38	19	8	40	160	135	26	31	8
13	15	160	200	38	19	8	45	200	130	23	22	6
14	13	190	200	36	16	8	45	215	115	22	22	6
15	12	200	200	36	13	8	35	235	100	22	22	6
16	16	200	200	28	13	8	28	270	85	19	20	6
17	16	125	190	26	13	8	31	220	80	16	19	6
18	13	115	155	22	13	6	28	190	80	16	20	6
19	11	115	150	20	13	6	30	155	65	16	28	6
20	11	120	130	19	13	6	37	135	65	16	23	5
21	14	130	130	16	11	6	60	125	55	19	23	5
22	14	150	110	16	13	6	65	115	55	17	22	7
23	13	180	100	16	13	6	60	110	55	13	20	8
24	16	205	94	16	11	6	75	100	57	13	16	7
25	16	205	94	16	11	6	70	95	47	16	15	6
26	16	245	90	14	11	7	70	95	45	16	13	6
27	19	260	80	13	9	13	70	95	45	16	23	6
28	16	340	80	13	9	16	85	105	42	16	19	5
29	16	360	175	16	6	16	105	130	35	16	16	6
30	16	310	215	13	6	16	125	190	35	13	15	6
31		295		16	6			200		17	13	

Monthly Discharge of Bolean Creek, one mile above mouth, for periods April to September, 1917-18.

[Drainage area, 80 square miles.]

Month.	Discharge in Second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.
1917.						
April	25	3	13	0.17	0.19	790
May	360	14	140	1.75	2.02	8,600
June	295	80	185	2.31	2.58	11,000
July	150	13	43	0.54	0.62	2,640
August	36	6	14	0.18	0.21	890
September	16	3	7	0.09	0.10	440
The period	360	80	67	0.84	5.72	24,360
1918.						
April	125	13	45	0.56	0.62	2,600
May	270	95	155	1.94	2.23	9,500
June	175	35	100	1.25	1.40	6,000
July	35	13	20	0.25	0.29	1,208
August	31	11	18	0.22	0.25	1,100
September	16	5	8	0.10	0.11	500
The period	270	5	58	0.72	4.90	20,900

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CHASE CREEK.—STATION NO. 8LE₅.

Location.—Section 18, township 21, range 12, west of the 6th meridian; four miles from the mouth of the creek.

Records Available.—June 1 to November 9, 1911; March 1 to December 7, 1912; May 9 to September 30, 1915; April 9 to October 31, 1916; April 16 to September 30, 1917; May 17 to September 30, 1918.

Drainage Area.—One hundred and twenty square miles.

Gauge.—Vertical staff gauge; daily readings.

Channel.—Gravel and silt, velocity medium. The control appears to be fairly permanent.

Discharge Measurements.—Fifteen meter measurements during 1915 to 1918 define the curve fairly well at the lower and intermediate stages. Some uncertainty in the flood stage is probably caused by lack of a satisfactory measuring section during high-water.

Accuracy.—The results should be quite reliable except at extreme high-water.

Discharge Measurements of Chase Creek, four miles above mouth, during 1917-18.

[Drainage area, 120 square miles.]

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
May 26	F. R. Archibald	3-18	353	May 17	A. I. McNaughton	3-00	258
July 7	A. I. McNaughton	1-17	77	June 17	"	1-63	119
Aug. 29	"	0-22	8	July 10	"	0-79	32

To eliminate negative gauge readings the datum was lowered 0.3 feet at the close of the 1916 season.

Daily Discharge in Second-feet of Chase Creek, four miles from mouth, for periods April 1 to September 30, 1917, and May 17 to September 30, 1918.

[Drainage area, 120 square miles.]

Day.	1917.							1918.				
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	5	26	340	150	16	7	275	43	15	20		
2	5	26	300	130	16	7	210	43	15	20		
3	5	26	280	120	16	7	175	40	15	15		
4	5	26	245	130	11	7	175	36	15	15		
5	5	26	245	107	16	7	185	36	15	13		
6	6	26	260	97	21	7	200	33	15	11		
7	6	26	300	76	26	7	200	30	15	11		
8	6	40	320	66	40	7	200	30	15	11		
9	6	48	340	57	32	7	250	27	15	11		
10	6	57	245	48	26	7	275	27	15	11		
11	7	200	215	48	21	7	225	43	20	11		
12	7	245	185	40	21	7	225	36	36	11		
13	7	280	175	40	16	7	225	30	30	11		
14	7	300	200	40	16	7	15	200	30	25	11	
15	7	300	230	32	16	7	20	185	25	25	11	
16	7	280	260	32	11	7	20	165	20	20	11	
17	7	260	245	32	11	7	30	290	115	20	20	
18	7	230	215	26	11	7	30	130	20	25	10	
19	7	200	185	26	11	7	36	185	105	20	30	
20	11	230	160	21	11	7	43	175	80	20	30	
21	11	245	150	21	11	7	50	165	70	20	25	
22	11	260	130	21	11	7	60	150	70	20	25	
23	16	280	120	21	11	7	70	140	60	20	20	
24	16	300	120	21	11	7	105	130	60	20	20	
25	16	320	120	21	11	7	130	130	60	20	20	
26	21	320	107	16	11	11	140	115	50	20	25	
27	21	380	107	16	11	11	140	140	50	15	25	
28	21	400	107	16	7	7	150	50	15	30	9	
29	21	420	150	16	7	7	200	50	15	25	9	
30	21	420	280	16	7	7	260	43	15	22	9	
31		380		16	7	7	175		15	20		

Monthly Discharge of Chase Creek, four miles from mouth, for periods April to September, 1917, and June to September, 1918.

[Drainage area, 120 square miles.]

Month.	Discharge in Second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1917.						
April	21		10	0.08	0.09	600
May	420	26	212	1.77	2.04	13,000
June	340	107	211	1.76	1.96	12,500
July	150	16	49	0.41	0.47	3,000
August	40	7	15	0.12	0.14	900
September	11	7	7	0.06	0.07	420
The period	420		84	0.70	4.77	30,420
1918.						
June	275	43	145 ¹	1.21	1.35	8,630
July	43	15	26	0.22	0.25	1,600
August	36	15	22	0.18	0.21	1,350
September	20	9	11	0.09	0.10	650

NISKONLITH CREEK.—STATION No. 81E₃₂.

Location.—Section 7, township 21, range 13, west of 6th meridian; one-quarter mile above Niskonlith lake.

Records Available.—May 5 to August 4, 1918.

Gauge.—Standard vertical staff gauge with enamel facing read weekly, supplemented by continuous readings on an automatic gauge supplied by the Provincial Water Rights Branch.

Channel.—Gravel and boulders; control probably permanent.

Discharge Measurements.—Four discharge measurements taken during 1918 cover practically the whole range of stage.

Accuracy.—"B".

Discharge Measurements of Niskonlith Creek, above Niskonlith Lake, during 1918.

Date.	Engineer.	Gauge Height.	Discharge.
1918.			
May 5	Alex. I. McNaughton	Feet. 1.32	Sec.-ft. 20.3
June 19	"	0.80	4.7
July 12	"	0.50	1.3
Sept. 6	C. G. Cline	0.15	0.4

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Daily Discharge of Niskonlith, above Niskonlith Lake, for period May 5 to July 31, 1918.

[Drainage area, 12 square miles.]

Day.	May.	June.	July.
1		13	2.0
2		13	1.5
3		13	1.5
4		13	1.5
5	20	13	1.5
6		12	1.5
7		12	1.0
8		12	1.0
9		12	1.0
10		12	1.0
11		10	1.5
12	22	10	1.5
13		9	1.0
14		8	1.0
15		8	1.0
18		6	1.0
17		6	1.0
18		5	0.5
19	20	5	0.5
20		5	0.5
21		4	0.5
22		3	0.5
23		3	1.0
24		3	1.0
25		3	0.5
26	12	3	0.5
27	12	3	0.5
28	12	3	1.0
29	13	2	1.0
30	15	2	0.5
31	15		0.5

Monthly Discharge of Niskonlith Creek, above Niskonlith Lake, for period May to July, 1918.

[Drainage area, 12 square miles.]

Month.	Discharge in Second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
May						1,200
June	13	2.0	7.5	0.63	0.70	450
July	2	0.5	1.0	0.08	0.09	60
The period						1,710

LOAKIN CREEK—STATION NO. 8LE₃₃.

Location.—Section 29, township 21, range 13, west of 6th meridian.

Records Available.—May 6 to August 3, 1918.

Gauge.—Standard vertical staff gauge, read daily.

Channel.—Rocks and silt largely obstructed by logs.

Discharge Measurements.—Four measurements during the season of 1918 define the curve well at all stages.

Accuracy.—Owing to the poor condition of the channel a high degree of accuracy cannot be assigned. A weir has been constructed during the fall of 1918 which will give dependable results next season.

*Discharge Measurements of Loakin Creek, above Indian Reserve Diversion
during 1918.*

Date.	Engineer.	Gauge Height.	Discharge.
1918.		Feet.	Sec.-ft.
May 6	A. L. McNaughton	9-08	36-7
June 18	" "	8-06	3-4
July 11	" "	7-43	3-0
Sept. 6	C. G. Cline	7-00	0-5

*Daily Discharge in Second-feet of Loakin Creek, above Indian Reserve Diversion,
for period May 6, to July 31, 1918.*

[Drainage area, 20 square miles.]

Day.	May.	June.	July.
1		27	3
2		27	3
3		27	3
4		25	2
5		20	2
6	37	20	2
7	39	20	2
8	34	20	2
9	30	20	2
10	30	19	2
11	30	17	3
12	34	16	2
13	37	15	2
14	39	15	2
15	41	14	2
16			
17	39	14	2
18	37	8	2
19	34	6	2
20	39	6	2
21	34	5	2
22	27	5	2
23	25	5	2
24	25	4	2
25	23	4	2
26			
27	20	4	2
28	19	4	2
29	20	3	2
30	21	3	2
31	27	3	2
31	28		1

*Monthly Discharge of Loakin Creek, above Indian Reserve Diversion, for period May
to July, 1918.*

[Drainage area, 20 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
May						1,600
June	27	3	12-9	0-64	0-71	770
July	3	1	2-1	0-09	0-10	110
The period						2,480

MARTIN CREEK—STATION NO. 8LE₁₀.

Location.—Section 7; township 20, range 13, west of 6th meridian; above diversions and about one and one-half mile above the mouth of the creek.

Records Available.—April 22 to September 30, 1918.

Drainage Area.—Fifteen square miles.

Channel.—A three-foot Cippoletti weir is in use.

Gauge.—A nail driven in a support two feet above the weir crest is used as an initial point for measurements of water elevation.

Accuracy.—“A”.

Daily Discharge in Second-feet of Martin Creek above Diversions for period April 22 to September 30, 1918.

[Drainage area, 15 square miles.]

July.	Day.	April.	May.	June.	July.	Aug.	Sept.
3	1		3.8	4.0	0.4	0.2	0.2
3	2		4.0	4.4	0.4	0.2	0.2
3	3		3.9	4.1	0.4	0.1	0.1
2	4		3.6	3.6	0.3	0.1	0.1
2	5		2.6	3.1	0.3	0.1	0.0
2	6		2.6	2.8	0.2	0.1	0.1
2	7		2.6	2.6	0.2	0.1	0.1
2	8		2.6	2.4	0.2	0.4	0.1
2	9		2.5	2.2	0.2	0.2	0.1
2	10		2.2	1.9	1.3	0.2	0.1
3	11		1.9	1.7	0.2	0.4	0.1
2	12		1.9	1.5	0.2	0.3	0.1
2	13		1.9	1.4	0.2	0.2	0.1
2	14		1.9	1.4	0.2	0.2	0.1
2	15		1.7	1.3	0.2	0.2	0.1
2	16		1.7	1.2	0.2	0.2	0.1
2	17		1.6	1.1	0.2	0.1	0.1
2	18		1.7	1.8	0.2	0.2	0.1
2	19		1.4	0.9	0.2	0.2	0.1
2	20		1.7	0.7	0.2	0.2	0.1
2	21		1.7	0.7	0.1	0.2	0.1
2	22		2.5	1.7	0.6	0.2	0.1
2	23		2.2	1.8	0.8	0.2	0.1
2	24		2.5	1.8	0.6	0.1	0.1
2	25		2.2	2.0	0.5	0.1	0.1
2	26		2.1	2.1	0.5	0.2	0.1
2	27		2.3	2.2	0.5	0.2	0.1
2	28		2.8	2.6	0.5	0.2	0.1
2	29		2.8	2.9	0.4	0.2	0.1
2	30		3.8	3.2	0.4	0.2	0.1
1	31		3.7		0.2	0.1	.....

May

Monthly Discharge of Martin Creek, above Diversions, for period May to September, 1918.

[Drainage area, 15 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
May.....	4.0	1.4	2.4	0.16	0.18	150
June.....	4.4	0.4	1.6	0.11	0.12	95
July.....	0.4	0.1	0.2	0.01	0.01	12
August.....	0.4	0.1	0.2	0.01	0.10	12
September.....	0.2	0.1	0.1	0.01	0.01	6
The period.....	4.4	0.1	0.09	0.05	0.33	275

tal in
s-feet.

1,600
770
110
2,480

NEDS CREEK, UPPER STATION—No. 8LE₃₄.

Location.—Section 25, township 19, range 14, west of 6th meridian; above diversions.

Records Available.—May 22 to September 30, 1918.

Channel.—A three-foot Cippoletti weir has been constructed in the channel of the Creek.

Gauge.—A nail driven in a support two feet above the weir crest is used as an initial point for measurements of water elevation. The readings thus taken have been reduced by subtraction to give elevation of water-level above weir crest.

Accuracy.—"A".

Daily Discharge in Second-feet of Neds Creek, above Harrison ditch, for the period April 22 to September 30, 1918.

(3-foot Cippoletti weir.)

Day.	April.	May.	June.	July.	Aug.	Sept.
1		2.8	2.6	0.4	0.2	0.4
2		3.0	2.6	0.4	0.2	0.4
3		4.0	2.3	0.4	0.2	0.4
4		4.0	2.3	0.4	0.2	0.3
5		3.6	1.9	0.4	0.2	0.3
6		3.0	1.6	0.3	0.2	0.2
7		2.8	1.4	0.3	0.2	0.2
8		3.0	1.4	0.2	1.0	0.2
9		2.8	1.3	0.2	0.4	0.2
10		2.4	1.1	1.0	0.5	0.2
11		2.3	1.1	0.4	1.1	0.2
12		2.6	1.0	0.3	0.5	0.2
13		2.6	1.0	0.3	0.4	0.2
14		2.4	1.0	0.3	0.5	0.2
15		2.6	0.8	0.3	0.5	0.2
16		0.5	0.8	0.3	0.4	0.2
17		0.5	0.6	0.2	0.4	0.2
18		0.5	0.6	0.1	0.5	0.2
19		1.9	0.6	0.2	0.4	0.2
20		1.7	0.5	0.2	0.4	0.2
21		1.7	0.5	0.2	0.4	0.2
22	2.1	1.7	0.4	0.2	0.4	0.4
23	1.9	1.7	0.4	0.2	0.3	0.4
24	1.7	1.7	0.6	0.2	0.2	0.3
25	1.7	1.9	0.5	0.2	0.2	0.2
26	1.7	1.9	0.5	0.4	0.2	0.2
27	1.7	1.9	0.6	0.4	0.8	0.2
28	1.9	1.9	0.6	0.4	0.5	0.2
29	2.1	1.9	0.5	0.4	0.4	0.2
30	2.6	2.3	0.4	0.3	0.4	0.2
31		2.6		0.2	0.4	

Monthly Discharge of Neds Creek, above Harrison Ditch, for period April to September, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
April 21-30						34
May	4.0	0.5	2.3			140
June	2.6	0.4	1.0			60
July	1.0	0.2	0.3			18
August	1.1	0.2	0.4			25
September	0.4	0.2	0.2			15
The period			0.8			292

Monthly Discharge of Neds Creek, in Bostock's Diversion, for the periods May to September 1917 and April to June, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917						
May.....	6.5	0.7	3.8			230
June.....	4.5	1.7	3.2			190
July.....	1.7	0.1	0.6			40
August.....	1.7	0.0	0.2			10
September.....	0.0	0.0	0.0			
The period.....	6.5	0.0	1.5			470
1918.						
April.....	2.6	0.9	1.5			90
May.....	4.0	0.3	2.1			120
June.....	2.9	0.5	1.5			90
July.....	0.3	0.0	0.1			10
The period.....	4.0	0.0	1.3			310

MONTE CREEK DIVERSION TO SUMMIT LAKE—STATION NO. 8LE₁₁.

Location.—Section 22, township 18, range 14, west of the 6th meridian.

Records available.—May 25 to October 2, 1911; June 20 to September 3, 1913; April 1 to November 17, 1914; July 1 to September 30, 1915; April 1 to October 8, 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Channel.—During 1917 and previous years the gauge was located in the diversion channel. Owing to shifting conditions in this channel a measuring weir was constructed in the fall of 1917.

Gauge.—Standard vertical staff weir gauge reading to hundredths of a foot, installed above a five-foot Cippoletti weir.

Accuracy.—Precise daily gauge readings on a well constructed weir ensure a high degree of accuracy during 1918. The accuracy of the data for 1917 is not so good.

Discharge Measurements of Diversion of Monte Creek to Summit Lake, during 1917.

Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.
1917			
May 22	C. G. Cline.....	1.60	59
July 19	" ".....	0.15	0
Aug. 8	Cline and Curry.....	0.10	0

Daily Discharge in Second-feet of Monte Creek Diversion to Summit Lake for periods April 1 to September 30, 1917-18.

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	1-0	10	75	21-0	0-5	Dry.	1-5	29-7	12-0	2-2	Dry.	Dry.
2	1-0	10	65	21-0	0-0		1-5	34-0	18-9	2-0		
3	1-0	10	65	21-0	0-0		1-7	37-3	17-3	1-7		
4	1-0	10	60	19-0	0-0		2-0	40-6	20-0	1-7		
5	1-0	13	50	17-0	0-0		2-0	36-6	20-5	1-5		
6	1-0	13	50	17-0	0-0		2-2	30-9	21-0	1-5		
7	1-5	19	45	17-0	0-5		2-2	29-7	22-1	0-1		
8	1-5	35	40	13-0	0-0		2-8	26-7	22-1	0-1		
9	1-5	55	35	13-0	0-0		6-3	24-4	22-1	0-1		
10	1-5	75	35	13-0	Dry.		8-2	24-4	20-0	0-0		
11	1-5	80	33	12-0	0-0		9-8	26-1	17-3	0-0		
12	3-0	90	30	10-0	0-0		11-6	30-9	15-3	0-0		
13	3-0	95	30	10-0	0-0		14-8	34-0	2-8	0-0		
14	3-0	95	30	9-0	0-0		14-8	36-6	2-5	0-0	Dry.	Dry.
15	3-0	95	30	8-0	0-0	Dry.	13-4	37-3	2-2	0-0		
16	3-0	85	30	8-0	0-0		11-6	32-8	2-2	0-0		
17	5-0	75	30	1-7	0-0		10-3	29-7	2-0	0-0		
18	5-0	70	25	0-5	0-0		10-3	27-3	2-0	0-0		
19	5-0	63	25	0-5	0-0		13-4	24-4	3-6	0-0		
20	5-0	60	25	0-5	0-0		20-0	22-1	4-6	0-0		
21	5-0	65	25	0-5	0-0		24-4	9-4	3-6	0-1		
22	5-0	70	21	0-5	0-0		23-8	8-6	3-6	0-0		
23	8-0	75	21	0-5	0-0		26-1	7-8	3-6	0-0		
24	8-0	95	19	0-5	0-0		24-4	7-4	3-6	0-0		
25	8-0	95	17	0-5	0-0		22-1	7-0	2-2	0-0		
26	8-0	97	17	0-5	0-0		21-6	6-7	5-9	0-0		
27	13-0	110	17	0-5	0-0		22-1	6-3	41-3	0-0		
28	13-0	110	19	0-5	0-0		23-8	7-0	3-0	0-0		
29	13-0	95	33	0-5	0-0		26-1	8-2	2-8	0-0		
30	13-0	95	30	0-5	0-0		27-9	11-1	2-5	0-0	Dry.	Dry.
31		85		0-5	Dry.	Dry.		8-2		0-0		

Monthly Discharge of Diversion of Monte Creek to Summit Lake, for periods April to September, 1917 and April to July, 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	13-0		4-7			280
May	110-0	10-0	66-1			4,060
June	75-0	17-0	34-2			2,040
July	24-0	0-5	8-0			490
August	0-5	0-0	0-0			2
September			0-0			0
The period	110-0	0-0	18-8			6,872
1918.						
April	27-9	1-5	13-4			800
May	40-6	6-3	22-7			1,400
June	22-1	2-0	9-5			560
July	2-2	0-0	0-4			20
The period	40-6		11-2			2,780

Note.—The flow past this station gives only part of the total discharge of Monte creek. See station No. 8LEg.

MONTE CREEK BELOW DIVERSION TO SUMMIT LAKE—STATION NO. 8LE₁₂

Location.—Section 22, township 18, range 14, west of 6th meridian.

Records available.—May 28 to September 30 1911; April 1 to September 7, 1912; June 20, to September 30, 1913; April 1 to November 17, 1914; April 1 to September 30, 1915; April 1 to October 31, 1916; April 5 to September 30, 1917; April 1 to September 30, 1918.

Gauge.—Standard vertical staff gauge, read daily.

Channel.—Gravel, about ten feet in width.

Discharge measurements.—Six well distributed discharge measurements during 1917 and 1918 agree very well and give a complete rating for the 1918 range of stage. The higher stages during June 1917 are not so well rated and the channel seems to be shifting slightly.

Accuracy.—"B" up to discharge of 30 cubic feet per second; "D" for higher discharges.

Discharge Measurements of Monte Creek, below Summit Lake Diversion, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
May 22	C. G. Cline	4-20	14-3	May 21	Cline and McNaughton	4-28	20-7
July 19	Cline and Curry	4-00	5-5	June 25	A. L. McNaughton	3-95	4-2
Aug. 8	V. D. Curry	3-85	2-9				
Sept. 25	Chisholm and Cline	2-70	0-7				

Daily Discharge in Second-feet of Monte Creek, below Summit Lake Diversion, for periods April to Sept., 1917-18.

Day	1917						1918					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	0-5	0-5	75	30-0	2-0	0-5	5	22	34	3	2	2
2	0-5	0-5	75	25-0	1-5	0-5	5	22	14	2	2	2
3	0-5	0-5	65	20-0	1-5	0-5	5	34	14	2	2	2
4	0-5	0-5	60	20-0	1-5	0-5	3	34	14	1	2	2
5	0-5	1-5	50	13-0	1-5	0-5	3	22	9	1	2	2
6	0-5	1-5	45	13-0	1-5	0-5	5	22	9	1	2	1
7	0-5	2-0	45	10-0	3-5	1-0	3	22	9	1	2	1
8	0-5	3-5	30	8-0	2-5	1-5	3	14	9	3	1	1
9	0-5	10-5	45	4-5	2-5	1-0	5	14	9	3	2	1
10	1-0	13-0	37	4-5	2-5	0-5	9	14	5	3	3	1
11	1-5	13-0	30	4-5	1-5	0-5	9	14	5	2	5	1
12	1-5	17-0	30	4-5	1-5	0-5	14	22	5	2	3	1
13	1-5	20-0	20	2-5	1-5	0-5	14	22	9	3	2	1
14	1-5	20-0	20	2-5	1-5	0-5	14	34	14	2	2	1
15	1-5	20-0	20	2-5	1-5	0-5	9	34	14	2	3	1
16	1-5	20-0	13	2-5	1-5	0-5	5	22	14	2	3	1
17	1-5	13-0	13	4-5	1-5	0-5	5	22	9	2	3	1
18	1-5	13-0	13	4-5	1-5	0-5	5	14	9	1	3	1
19	1-5	13-0	13	4-5	1-5	0-5	9	14	5	1	3	1
20	1-5	13-0	13	4-5	1-5	0-5	14	9	3	2	3	1
21	1-0	13-0	13	4-5	1-5	0-5	14	22	5	2	3	1
22	0-5	13-0	8	4-5	1-5	0-5	14	22	5	2	3	2
23	1-0	13-0	8	4-5	1-5	0-5	14	22	5	2	3	2
24	1-5	20-0	8	4-5	1-5	0-5	14	22	5	2	3	2
25	1-5	20-0	8	4-5	1-5	0-5	14	14	5	2	3	2
26	1-5	25-0	8	4-5	1-5	0-5	14	14	9	2	3	2
27	0-5	30-0	8	4-5	1-5	0-5	14	14	5	2	3	2
28	0-5	65-0	8	3-5	1-5	1-5	14	14	3	2	3	2
29	0-5	75-0	17	2-5	1-5	1-5	14	22	5	2	2	2
30	0-5	75-0	13	2-5	1-5	2-0	14	22	5	2	2	2
31		75-0		2-5	1-5			34		2	2	

Monthly Discharge of Monte Creek, below Summit Lake Diversion, for periods April to Sept., 1917-18.

Month.	Discharge in second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917						
April	1.5	0.5	1.0			60
May	75.0	0.5	20.0			1,230
June	75.0	8.0	27.0			1,600
July	30.0	2.5	7.3			450
August	3.5	1.5	1.7			100
September	2.0	0.5	0.7			40
The period	75.0	0.5	9.6			3,480
1918						
April	14	3	9.5			570
May	34	9	20.9			1,300
June	34	3	8.8			530
July	3	1	2.0			120
August	5	1	2.6			160
September	2	6	1.5			90
The period	34	1	7.6			2,770

Note.—Part of the water in Monte creek is divided into Summit lake above this station. See station 8 LE 11.

MONTE CREEK ABOVE BOSTOCK'S DIVERSION—STATION NO. 8 LE₁₃

Location.—Section 25, township 19, range 15, west of 6th meridian.

Records Available.—May 20 to June 30, 1911; April 8 to September 7, 1912; April 16 to September 13, 1913; April 1 to December 4, 1914; April 7 to September 30, 1915; April 1 to November 4, 1916; April 9 to September 30, 1917; May 5 to September 30, 1918;

Drainage Area.—One hundred and ten square miles. The flow of the creek is diminished by a diversion into Summit lake.

Gauge.—Standard vertical staff gauge, read three times a week.

Channel.—About fifteen feet wide, with rocky bed.

Discharge Measurements.—Seventeen discharge measurements during 1914 to 1918 define the rating curve well at all stages.

Accuracy.—The results should be quite reliable. This stream does not give the whole flow of the creek. See stations 8 L E₁₁ and 8 L E₁₂.

Discharge Measurements of Monte Creek, above Bostock's Diversion, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
May 23	C. G. Cline	1.37	27.0	May 4	Cline & McNaughton	1.41	27.3
July 19	Curry & Cline	0.82	4.1	June 28	A. L. McNaughton	0.85	5.0
Aug. 8	V. D. Curry	0.70	3.4				
Sept. 25		0.49	0.5				

Daily Discharge in Second-feet of Monte Creek, above Bostock's Diversion, for periods
April 9 to Sept. 30, 1917 and May 5 to Sept. 30, 1918.

Day.	1917						1918				
	April.	May.	June.	July.	Aug.	Sept.	May.	June.	July.	Aug.	Sept.
1		3-0	47	19-0	3-0	0-5		22	6-0	2-0	3-0
2		3-0	48	24-0	3-0	0-5		25	5-0	2-0	4-0
3		3-0	45	23-0	2-5	0-5		27	4-0	1-5	4-0
4		3-5	42	22-0	2-5	0-5		25	3-5	1-5	3-0
5		3-5	42	18-0	2-0	0-5	27	22	3-0	1-5	4-0
6		4-0	42	15-0	1-5	0-5		20	2-5	1-5	3-0
7		4-0	41	11-0	2-0	0-5		19	2-5	1-5	2-5
8		6-0	41	8-0	3-0	0-5		17	2-5	2-0	2-0
9	11-0	9-0	40	6-0	2-5	0-5		17	3-0	2-5	1-5
10	10-0	12-0	40	5-0	2-5	0-5		17	4-0	2-5	1-5
11	8-0	16-0	40	4-0	2-0	0-5		13	3-5	3-0	1-5
12	7-0	20-0	40	4-0	2-0	0-5		9	3-0	4-0	1-5
13	6-0	28-0	40	4-0	2-0	0-5		9	2-5	4-0	1-5
14	5-0	36-0	36	4-0	2-0	0-5		9	2-5	4-0	1-5
15	4-0	36-0	32	4-0	2-0	0-5		9	2-5	4-0	1-0
16	3-5	37-0	28	4-5	2-0	0-5		10	2-5	4-0	0-5
17	4-0	35-0	26	4-0	1-5	0-5		12	2-5	4-0	0-5
18	4-0	33-0	24	3-5	1-5	0-5		12	3-0	6-0	0-5
19	4-0	31-0	20	3-5	1-0	0-5		12	3-5	6-0	1-0
20	4-0	29-0	16	4-0	1-0	0-5	27	11	4-0	6-0	1-0
21	4-0	27-0	13	4-0	1-5	0-5	25	10	3-0	6-0	1-5
22	4-0	28-0	11	4-0	1-5	0-5	22	9	2-5	5-0	1-5
23	4-0	30-0	9	3-5	1-5	0-5	22	8	2-0	4-0	1-5
24	4-0	30-0	8	3-5	1-0	0-5	22	6	1-5	2-5	1-5
25	4-0	31-0	8	3-5	1-0	0-5	22	6	2-0	3-0	0-5
26	4-0	31-0	7	3-5	1-0	0-5	22	6	2-5	4-0	0-5
27	4-0	31-0	6	3-0	1-0	0-5	22	6	3-0	3-0	0-5
28	4-0	31-0	9	3-0	1-0	0-5	22	5	3-5	2-5	0-5
29	4-0	37-0	11	3-0	0-5	0-5	22	6	4-0	2-0	0-5
30	3-5	43-0	14	3-0	0-5	0-5	22	6	3-0	2-0	0-5
31		45-0		3-0	0-5		22		2-5	1-5	

Monthly Discharge of Monte Creek, above Bostock's Diversion, for periods April
to Sept. 1917 and June to Sept., 1918.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches in Drainage Area.	Total in Acre-feet.
1917.						
April						270 ¹
May		45	3-0	23-1		1,400
June		48	6-0	27-2		1,600
July		24	3-0	7-3		500
August		3	0-5	1-7		100
September				0-5		20
The period.		48	0-5			3,900
1918.						
June		27	5-0	12-8		770
July		6	1-5	3-1		190
August		6	1-5	3-2		200
September		4	0-5	1-6		90
The period.		27	0-5	5-2		1,250

¹ Period, May 9 to 30.

NOTE.—Part of the water in Monte creek is diverted into Summit lake above this station. See station 8 LE11.

CAMPBELL CREEK—STATION NO. 8 LE₂₁.

Location.—Section 36, township 18, range 17, west of 6th meridian; about one mile above junction of Campbell and Scuittoe creeks.

Records available.—May 9 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—One hundred and ten square miles.

Gauge.—Standard weir gauge reading to hundredths of a foot above a four foot Cippoletti weir. Gauge readings are taken daily.

Accuracy.—The results obtained from such precise gauge readings in combination with a weir should be very accurate and reliable.

Daily Discharge in Second-feet of Campbell Creek, above Scuittoe Creek, for period May 9 to Sept. 30, 1917 and April 1 to Sept. 30, 1918.

(Drainage area, 110 square miles.)

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1			3.1	3.4	1.6	2.6	2.4	10.7	1.6	3.9	4.8	0.9
2			3.1	3.1	1.4	2.6	2.4	11.1	1.8	3.4	4.5	0.7
3			2.6	2.9	1.2	2.9	2.7	8.6	1.6	2.9	4.5	0.7
4			2.9	3.1	1.2	2.6	2.9	7.9	1.6	2.2	4.5	0.6
5			2.6	3.4	1.2	2.4	2.9	7.5	1.4	2.0	4.8	0.6
6			2.4	3.1	1.8	2.4	2.7	7.5	1.4	2.2	4.2	0.6
7			2.9	2.9	1.8	2.2	2.9	7.2	1.2	3.2	3.4	0.4
8			2.2	2.6	1.4	2.2	3.2	5.6	1.2	3.9	3.2	0.4
9		0.6	3.1	2.6	1.2	2.0	3.4	3.9	1.2	4.8	3.4	0.3
10		0.4	2.6	2.4	1.0	2.2	3.4	3.7	1.0	6.3	3.7	0.3
11		9.2	2.4	2.2	1.2	2.0	3.2	3.4	1.4	6.3	3.7	0.3
12		6.2	2.0	2.4	1.0	1.8	2.4	3.2	1.8	6.6	3.4	0.3
13		7.5	1.6	2.2	0.9	1.8	2.2	3.4	1.8	6.9	3.2	0.3
14		7.9	1.4	2.4	0.9	1.6	1.2	3.4	2.2	6.6	3.9	0.3
15		2.0	1.6	2.5	0.7	1.4	1.0	2.9	2.9	6.3	3.7	0.3
16		2.9	2.0	2.9	0.6	1.2	0.9	2.7	3.2	6.6	3.4	0.3
17		1.8	1.6	3.4	0.7	1.2	0.9	2.9	3.4	6.9	3.7	0.3
18		1.6	2.0	3.1	0.9	1.0	0.7	3.2	3.4	7.5	4.2	0.2
19		1.2	1.8	2.9	1.0	1.0	0.9	3.4	3.9	6.9	3.4	0.2
20		1.4	2.0	3.1	1.2	0.9	0.9	3.2	4.5	8.6	2.9	0.2
21		0.7	2.2	2.9	1.4	0.9	0.7	3.7	4.5	7.9	2.2	0.2
22		1.0	2.0	2.2	1.6	0.7	0.6	3.4	4.2	6.9	1.8	0.2
23		1.2	1.8	2.4	1.8	0.7	0.6	2.9	4.2	6.3	1.4	0.2
24		1.6	1.8	2.6	1.8	0.7	0.6	2.4	3.9	6.6	0.9	0.2
25		1.2	1.8	2.4	2.2	0.6	0.6	2.0	3.0	5.9	0.9	0.2
26		1.4	2.0	2.2	2.4	0.7	7.9	2.2	3.9	6.6	0.9	0.2
27		1.8	2.0	2.2	2.6	0.7	8.9	2.0	3.7	6.9	1.0	0.2
28		2.6	2.9	2.0	3.4	0.6	9.6	1.6	3.9	5.3	0.9	0.2
29		2.9	6.2	2.2	3.4	0.6	10.0	1.6	3.7	5.3	0.7	0.2
30		2.4	4.0	2.0	3.1	0.4	10.4	1.8	3.7	5.3	0.7	0.2
31		2.4		1.8	2.9			1.8		5.0	0.6	

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20

900

770
190
200
90

250

Monthly Discharge of Campbell Creek, above Scuittoe Creek, for periods May to Sept., 1917 and April to Sept., 1918.

(Drainage area, 110 square miles)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
May.....	9.2	0.4	2.7			165
June.....	6.2	1.4	2.4			143
July.....	3.4	1.8	2.6			160
August.....	3.4	0.9	1.6			98
September.....	2.9	0.4	1.5			89
The period.....						655
1918						
April.....	10.4	0.6	3.1	0.03	0.03	185
May.....	11.1	1.6	4.2	0.04	0.05	260
June.....	4.5	1.0	2.7	0.02	0.02	160
July.....	8.6	2.0	5.5	0.05	0.06	340
August.....	4.8	0.6	2.9	0.03	0.03	180
September.....	0.9	0.2	0.3	0.00	0.00	18
The period.....	11.1	2.0	3.1	0.03	0.19	1,143

Note.—For month of May, 1917, 2.69 is the mean for the period of observation, May 9 to May 31. The total of 165 acre-feet is that from a mean daily flow of 2.69 cubic feet per second for a month of 31 days.

Note.—The station is situated below a series of lakes, the flow being artificially regulated by storage water from these lakes.

SCUITTOE CREEK—STATION NO. 8 LE 36.

Location.—Section 5, township 19, range 16, west of the 6th meridian; above all diversions, and about one half mile above the mouth of the creek.

Records available.—May 28 to September 30, 1917; April 16 to September 30, 1918.

Drainage area.—Fifty-six square miles.

Gauge.—Standard chain gauge; readings three times a week.

Channel.—Artificial control of large boulders

Discharge measurements.—Three meter measurements in 1917 and two in 1918 define the curve fairly well.

Accuracy.—This stream is swift and rocky and hard to measure accurately.

Discharge Measurements of Scuittoe Creek, above Diversion near Mouth, during 1917-18.

Date	Engineer.	Gauge height	Discharge.	Date	Engineer.	Gauge height.	Discharge.
1917				1918			
May 9	A. L. McNaughton		3.0	Apr. 19	McNaughton and Cline	2.35	2.1
May 28	McNaughton and Cline	3.60	91.4	Sept. 21	A. L. McNaughton	1.65	0.2
July 24	C. G. Cline	2.85	16.7				
Aug. 27	C. G. Cline	2.20	0.9				

Daily Discharge in Second-feet of Scuittoe Creek, near mouth, for periods May 9 to Sept. 30, 1917 and April 16 to Sept. 30, 1918.

(Drainage area, 56 square miles.)

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1			94	32	12.0	3.0		7	23	10	2	5.0
2			97	38	13.0	5.0		8	25	8	2	4.0
3			100	45	12.0	2.0		9	25	8	3	4.0
4			88	40	11.0	1.5		9	25	8	3	4.0
5			76	36	11.0	3.0		10	25	7	3	3.0
6			76	34	9.0	5.0		10	25	6	3	3.0
7			76	33	7.5	4.0	Ice.	11	25	5	3	3.0
8			71	32	7.5	3.0	"	12	25	5	3	3.0
9		3	67	30	7.5	2.5	"	13	25	5	3	3.0
10			63	28	7.0	2.5	"	17	25	6	2	3.0
11			56	25	6.0	2.5	"	21	28	6	2	3.0
12			50	22	5.0	2.0	"	25	27	6	3	3.0
13			50	19	4.0	1.5	"	25	25	5	3	3.0
14			50	17	2.5	3.0	"	25	23	5	4	3.0
15			46	15	2.5	4.0	"	25	21	4	5	2.0
16			43	13	2.5	5.0		25	19	3	5	2.0
17			40	11	2.5	4.0	3	27	20	3	5	1.0
18			35	10	2.5	2.5	3	30	22	3	5	1.0
19			36	9	2.5	2.0		32	18	3	4	0.7
20			34	12	2.5	2.0		32	15	3	4	0.4
21			32	14	2.5	2.0	3	32	15	3	4	0.4
22			29	17	2.0	1.5		34	15	4	4	0.4
23			27	17	2.0	1.5	2	36	15	4	5	0.4
24			25	17	2.5	1.0		32	14	3	5	0.4
25			25	17	2.5	1.0	3	29	13	2	5	0.3
26			25	17	3.0	1.5		25	12	2	6	0.3
27			23	17	1.0	1.5		24	11	2	6	0.3
28			22	17	1.5	2.0	3	22	11	2	5	0.2
29		91	76	17	1.5	2.0		20	11	2	5	0.2
30			28	14	1.5	2.5	4	19	11	2	5	0.2
31		91		11	2.0			21		2	5	

Monthly Discharge of Scuittoe Creek, above Diversions near mouth, for periods June to Sept., 1917 and May to Sept., 1918.

(Drainage area, 56 square miles.)

Month.	Discharge in Second-Feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
June			50.4	0.9	1.1	3,000
July			21.8	0.4	0.4	1,300
August			4.9	0.1	0.1	290
September			2.6	0.0	0.1	150
The period			19.9	0.3	1.7	4,740
1918						
May		36	7.0	21.5		1,320
June		28	11.0	19.8		1,180
July		10	2.0	4.4		270
August		6	2.0	4.0		240
September		5	0.2	1.9		110
The period						3,120

PETERSON CREEK—STATION No. 8 LE₃₅.

Location.—Section 13, township 19, range 17, west of 6th meridian; below Jacko lake and above outlet from Edith lake.

Records available.—April 27 to September 30, 1917; April 20 to September 30, 1918.

Drainage area.—Twenty-five square miles.

Gauge.—Standard weir gauge reading to hundredths of a foot above a three foot Cippoletti weir.

Accuracy.—"A."

Daily Discharge in Second-feet of Peterson Creek, below Jacko Lake, for the periods April 27 to Sept. 30, 1917 and April 20 to Sept. 30, 1918.

(Drainage area, 25 square miles.)

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1		0.3	0.3	0.2	2.8	0.1		0.1	1.7	1.9	0.2	Dry
2		0.3	0.3	0.1	2.7	0.1		0.1	0.9	1.7	0.2	
3		0.4	0.3	0.1	2.5	0.1		0.1	0.2	1.6	0.1	
4		0.3	0.4	0.9	2.2	0.1		0.1	0.1	1.6	0.1	
5		0.3	0.3	0.1	1.8	0.1		0.1	0.1	2.1	0.0	
6		0.4	0.2	0.1	1.3	0.1		1.8	0.1	1.8	0.0	
7		0.5	0.1	0.1	0.6	0.1		1.7	0.1	1.6	0.0	
8		0.3	0.2	0.8	0.3	0.1		0.9	0.1	1.5	0.0	
9		0.3	0.3	0.9	0.2	0.1		0.9	0.1	1.5	0.0	
10		0.3	0.2	1.1	0.1	0.1		0.2	0.0	1.0		
11		0.2	1.5	1.3	0.1	0.1		0.0	0.0	1.0	0.1	
12		0.3	1.2	1.5	0.1	0.1		0.0	0.0	0.8	0.0	
13		0.8	0.8	3.6	0.1	0.1		0.0	0.0	0.6	0.0	
14		1.0	0.3	3.4	0.1	0.1		0.4	0.0	0.4	0.0	
15		0.9	0.5	3.4	0.1	0.1		0.4	0.0	0.3	0.0	
16		0.9	0.5	3.3	0.1	0.1		0.8	0.0	0.3	Dry	Dry
17		0.8	0.5	3.1	3.6	0.1		0.1	0.2	0.2		
18		0.6	0.2	2.6	5.6	0.1		5.4	1.3	1.6		
19		0.4	0.1	3.4	5.2	0.1		5.4	1.2	1.5		
20		0.4	0.1	3.6	4.9	0.1	0.1	1.6	2.8	1.5		
21		0.3	0.1	4.7	1.5	0.1	0.1	0.3	2.9	1.4		
22		0.3	0.1	4.5	0.8	0.1	0.1	3.4	2.8	1.2		
23		0.3	0.1	4.2	2.6	0.1	0.1	3.4	2.8	1.0		
24		0.4	0.1	4.0	3.8	0.1	0.1	0.9	2.6	0.9		
25		0.4	0.1	3.6	3.8	0.1	0.1	0.9	2.6	0.6		
26		0.3	0.1	3.6	3.8	0.1	0.1	1.0	2.6	0.6		
27		0.6	0.3	0.1	3.6	3.5	0.1	1.3	2.4	0.4		
28		0.3	0.3	3.2	3.4	3.4	0.1	1.1	2.4	0.3		
29		0.2	0.3	3.8	3.2	1.6	0.1	1.7	2.2	0.3		
30		0.3	0.2	2.6	3.1	0.4	0.1	2.4	2.0	0.3		Dry
31			0.2		3.0	0.2		2.1		0.2	Dry	

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Monthly Discharge of Peterson Creek, below Jacko Lake, for the periods May to Sept., 1917, and May to August, 1918.

(Drainage area, 25 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in Acre-feet.
1917.						
May.....	1.0	0.2	0.4			25
June.....	3.8	0.1	0.6			36
July.....	4.7	0.1	2.4			148
August.....	5.6	0.1	1.9			117
September.....	0.1	0.1	0.1			6
The period.....	5.6	0.1	1.1			332
1918						
May.....	5.4	0.0	1.1			70
June.....	2.9	0.0	1.1			68
July.....	2.1	0.2	1.0			63
August.....						1
The period.....	5.4	0.0	1.1			202

NOTE.—The discharge in 1917 was regulated by the storage dam on Jacko lake.

OREGON JACK CREEK—STATION NO. 8 LF₁₉.

Location.—Section 22, township 19, range 25, west of the 6th meridian.

Records available.—April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage area.—Thirty-four square miles. The natural flow is augmented by water diverted from Hat creek.

Gauge.—Standard vertical staff gauge.

Channel.—Rocks and gravel, subject to change during freshet period.

Discharge measurements.—One measurement in 1916 and three in 1917 define the 1917 curve fairly well for medium stages. During the 1918 freshet the control shifted and the curve for the period following is located by three well distributed measurements.

Accuracy.—Below 11 sec. ft.—“C”; above 11 sec. ft.—“D.”

Discharge Measurements of Oregon Jack Creek, above Diversion, for 1916-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916.				1918.			
Oct. 1	F. R. Archibald.....	0.72	3.0	June 5	C. G. Cline.....	1.10	10.7
1917.				July 2	A. L. McNaughton.....	0.84	4.7
June 23	Cline & Curry.....	1.00	10.4	Sept. 12	C. G. Cline.....	0.70	1.3
July 28	V. D. Curry.....	0.80	4.9				
Sept. 7	Chisholm & Cline.....	0.69	2.1				

Daily Discharge in Second-feet of Oregon Jack Creek, above Diversion, for the periods to April 1 to Sept. 30, 1917-18.

Day.	1917.						1918.					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1.....	2.5	1.0	7.5	9.0	9.0	2.5	0.2	2.0	14	6.0	6.0	3.5
2.....	2.5	1.0	9.0	9.0	7.5	2.5	0.2	2.0	14	7.0	6.0	2.5
3.....	2.5	1.5	9.0	7.5	7.5	2.5	0.2	2.0	13	7.0	5.0	2.5
4.....	2.5	1.5	9.0	7.5	6.0	2.5	0.2	2.5	12	7.0	4.5	1.5
5.....	1.0	1.5	10.5	7.5	5.0	2.5	0.2	2.5	11	6.0	4.5	1.5
6.....	1.0	2.5	10.5	7.5	5.0	2.5	0.2	2.5	11	6.0	4.5	1.5
7.....	1.0	7.5	12.0	7.5	5.0	2.5	0.2	2.5	11	5.0	6.0	1.5
8.....	0.5	7.5	13.0	7.5	5.0	2.5	0.2	2.5	11	5.0	6.0	1.5
9.....	0.5	7.5	16.0	7.5	5.0	2.5	0.2	2.5	11	4.0	6.0	1.5
10.....	0.5	7.5	16.0	7.5	4.0	2.5	0.2	4.0	11	4.0	6.0	1.5
11.....	0.5	7.5	14.0	7.5	4.0	2.5	0.4	4.0	11	4.0	6.0	1.5
12.....	0.5	7.5	13.0	7.5	4.0	2.5	0.2	5.0	11	3.5	6.0	1.5
13.....	0.5	9.0	10.5	9.0	4.0	2.5	0.2	5.0	11	3.5	6.0	1.5
14.....	0.5	9.0	10.5	10.5	2.5	2.5	0.2	6.0	11	3.5	6.0	1.0
15.....	0.5	7.5	9.0	13.0	2.5	2.5	0.2	6.0	11	3.5	6.0	1.0
16.....	0.5	10.5	9.0	13.0	2.5	2.5	0.2	9.0	11	3.5	6.0	1.0
17.....	0.5	10.5	9.0	9.0	2.5	2.5	0.2	9.0	11	3.5	6.0	1.0
18.....	0.5	10.5	9.0	9.0	2.5	2.5	0.2	9.0	11	3.5	6.0	1.0
19.....	0.5	9.0	7.5	7.5	2.5	2.5	0.2	10.5	11	3.5	6.0	1.0
20.....	0.5	10.5	7.5	7.5	2.5	2.5	0.2	10.5	11	3.5	6.0	1.0
21.....	0.5	10.5	7.5	7.5	2.5	2.5	0.5	10.5	11	3.5	6.0	1.0
22.....	0.5	10.5	7.5	7.5	2.5	1.5	0.7	12.0	14	5.0	6.0	0.5
23.....	1.0	10.5	10.5	7.5	2.5	1.0	0.7	12.0	10	7.0	4.5	0.5
24.....	1.0	13.0	7.5	7.5	2.5	1.0	1.0	12.0	8	7.0	4.5	0.5
25.....	1.0	13.0	7.5	9.0	2.5	1.0	1.0	12.0	6	8.0	4.5	0.5
26.....	1.0	13.0	7.5	8.0	2.5	1.0	2.5	13.0	6	7.0	4.5	0.5
27.....	1.0	10.5	7.5	6.0	2.5	1.0	2.5	13.0	6	5.0	4.5	0.5
28.....	1.0	9.0	7.5	5.0	2.5	1.0	2.5	15.0	6	11.0	4.5	0.5
29.....	1.0	7.5	13.0	13.0	2.5	1.0	2.5	16.0	8	10.0	3.5	0.5
30.....	1.0	7.5	17.0	13.0	2.5	1.0	2.0	16.0	11	8.0	3.5	0.5
31.....		7.5		11.0	2.5			16.0		6.0	3.5	

Monthly Discharge of Oregon Jack Creek, above Diversion, for periods April to Sept., 1917-18.

Month	Discharge in Second Feet.			Run Off.
	Maximum.	Minimum.	Mean.	Total in Acre feet.
1917.				
April.....	2.5	0.5	0.9	50
May.....	13.0	1.0	7.8	500
June.....	17.0	7.5	10.1	600
July.....	13.0	5.0	8.6	500
August.....	9.0	2.5	3.7	200
September.....	2.5	1.0	2.0	100
The period.....	17.0	0.5	5.6	1,950
1918.				
April.....	2.5		0.7	40
May.....	16.0	1.7	8.0	499
June.....	14.0	5.8	10.4	620
July.....	11.0	3.4	5.3	330
August.....	5.8	3.4	5.2	320
September.....	3.4	0.3	1.2	70
The period.....	16.0		5.1	1,870

NOTE.—During the irrigation season, water is diverted into Oregon Jack creek from Hat creek. See station 8LF14.

NICOLA RIVER ABOVE NICOLA LAKE—STATION NO. 8 LG₁₂.

Location.—At highway bridge six miles above Nicola lake.

Records Available.—May 12 to September 16, 1915; April 1 to September 30, 1916; April 7 to September 25, 1917.

Drainage Area.—Two hundred and eighty miles.

Gauge.—Vertical staff; daily readings during the spring and early summer but less frequently during the low water period when there is less variation in the stream.

Channel.—Rocks and gravel.

Discharge Measurements.—Nine discharge measurements have been made during 1915, 1916 and 1917, and give a rating curve well defined for all stages except the peak of the freshet.

Accuracy.—"B."

Discharge Measurements of Nicola River, above Nicola Lake, during 1917-18.

Date.	Engineers.	Gauge height.	Dis charge.	Date.	Engineers.	Gauge height.	Dis charge.
		Feet.	Sec. ft.			Feet.	Sec.-ft.
1917.				1918.			
May 29	Cline & McNaughton.....	4.00	1,029.0	May 31	A. L. McNaughton.....	2.80	422.0
July 25	C. G. Cline.....	0.90	57.0	July 17	McNaughton & Cline.....	1.00	61.0
Sept. 14	Cline & Chisholm.....	0.05	2.5				

Daily Discharge in Second-feet of Nicola River, above Nicola Lake, for period April 1 to Sept. 25, 1917.

Day.	April.	May.	June.	July.	Aug.	Sept.
1	25	30	1,250	625	45	6
2	25	30	1,200	560	43	6
3	25	30	1,150	495	40	6
4	25	35	1,200	435	40	6
5	25	35	1,200	420	37	6
6	25	45	1,200	410	35	6
7	25	55	1,200	400	35	6
8	28	65	1,150	400	35	6
9	25	95	1,150	400	35	6
10	25	115	1,150	400	35	6
11	30	115	1,150	380	29	6
12	30	175	1,150	370	24	6
13	30	200	1,100	370	24	6
14	30	200	1,100	340	24	3
15	30	225	1,150	320	24	3
16	30	250	1,150	310	24	6
17	30	280	1,100	280	17	1
18	30	310	1,190	280	15	6
19	25	400	1,070	270	13	6
20	25	470	1,070	260	12	6
21	25	500	1,050	250	11	6
22	25	670	1,030	250	11	6
23	25	670	1,000	200	11	6
24	30	710	990	100	11	6
25	30	750	940	60	11	6
26	30	790	900	60	11	6
27	30	940	840	60	11	6
28	30	1,030	790	50	8	6
29	30	1,030	750	50	6	6
30	30	1,120	690	50	6	6
31	30	1,210	600	50	6	6

Monthly Discharge of Nicola River above Nicola Lake, for period April to Aug., 1917.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	30	25	27	0.10	0.11	1,700
May	1,210	30	406	1.45	1.67	25,000
June	1,250	690	1,065	3.80	4.24	63,000
July	625	50	287	1.02	1.18	17,600
August	45	6	22	0.08	0.09	1,300
The period.....	1,250		361	1.29	7.29	108,600

NICOLA RIVER AT NICOLA—STATION NO. 8 LG₁₃.

Location.—Near the town of Nicola; below Nicola lake.

Records Available.—April 14 to August 31, 1913; February 22 to December 31, 1915; February 1 to December 31, 1916; January 1 to September 30, 1917.

Drainage Area.—Thirteen hundred square miles.

Gauge.—Standard vertical staff gauge, read daily.

Channel.—Rocky; permanent control.

Discharge Measurements.—Ten measurements made by the Provincial Water Rights Branch in 1913, and eleven made by the British Columbia Hydro-metric Survey during 1915 to 1917 give a well defined rating curve.

Winter Flow.—Ice conditions obtained in December, January and February, The flow during this period has been estimated from one meter measurement.

Accuracy.—"B" except when the stream is covered with ice.

Discharge Measurements of Nicola River, at Nicola, during 1917-18.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
1917		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Jan. 25	A. L. McNaughton	0-10	15	May 30	A. L. McNaughton	2-30	506
Mar. 15	"	0-32	28				
May 30	Cline & McNaughton	3-20	864				
July 25	C. G. Cline	1-47	252				

Daily Discharge in Second-feet of Nicola River, at Nicola, for period Jan. 1 to Sept. 30, 1917.

(Drainage area, 1,300 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June	July.	Aug.	Sept.
1				15	15	20	34	50	980	810	145	35
2				15	15	20	35	35	1,020	770	145	32
3				15	15	20	35	50	1,060	740	140	32
4				15	15	25	38	57	1,100	700	140	32
5				15	21	27	38	47	1,120	660	135	28
6				15	22	29	36	62	1,150	620	115	25
7				15	23	31	38	66	1,150	600	120	27
8				15	23	31	40	65	1,150	580	120	27
9				15	23	31	39	62	1,170	560	105	27
10				15	23	31	39	45	1,180	550	92	28
11				15	23	32	39	63	1,180	520	81	22
12				15	23	33	37	65	1,150	500	75	17
13				15	23	32	40	87	1,140	495	70	16
14				15	24	33	44	109	1,120	465	70	17
15				15	25	33	45	125	1,120	445	68	17
16				15	28	33	46	150	1,100	425	62	17
17				15	27	33	46	185	1,090	375	57	17
18				15	26	32	47	240	1,080	335	60	16
19				15	25	33	47	285	1,060	295	65	16
20				15	25	32	49	350	1,050	290	62	16
21				15	25	32	56	395	1,040	270	57	16
22				15	20	32	65	435	1,000	255	55	16
23				15	20	31	59	465	1,000	235	55	15
24				15	20	32	50	520	1,000	225	51	11
25				15	20	32	53	570	990	220	50	11
26				15	20	32	57	640	960	210	50	11
27				15	20	33	63	690	930	200	40	11
28				15	20	33	62	730	880	185	32	11
29				15		33	65	790	850	185	35	11
30				15		34	57	840	820	185	40	11
31				15		34		890		155	40	

Monthly Discharge of Nicola River at Nicola, for year ending Sept. 30, 1917.

(Drainage area, 1,300 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	41	23	29	0.02	0.02	1800
November	25	15	18	0.01	0.01	1,070
December	15	13	13	0.01	0.01	830
January			15	0.01	0.01	920
February			22	0.02	0.02	1,220
March	34		30	0.02	0.02	1,840
April	65	34	47	0.04	0.04	2,800
May	860	35	295	0.23	0.2	18,100
June	1,180	820	1,050	0.81	0.90	62,500
July	810	155	420	0.32	0.37	25,800
August	145	32	78	0.06	0.07	4,800
September	35	11	20	0.02	0.02	1,190
The period	1,180	11	170	0.13	1.75	122,870

NICOLA RIVER AT MOUTH—STATION NO. 8 LG.

Location.—Section 12, township 17, range 25, west of 6th meridian.

Records Available.—August 1 to November 30, 1911; April 5 to December 21, 1912; May 9 to December 11, 1913; April 1 to September 30, 1914; April 1 to September 30, 1915; April 1 to December 31, 1916; April 1 to December 3, 1917; March 16 to September 30, 1918.

Drainage Area.—Twenty-six hundred square miles.

Gauge.—Inclined staff gauge, read three times a week.

Channel.—Straght at measuring section; bed of stream composed of rocks and gravel; velocity high.

Discharge Measurements.—Sixteen meter measurements have been made since 1912. The rating curve is well defined at all stages.

Winter Flow.—Ice conditions usually from December to March.

Accuracy.—“B.”

Discharge Measurements of Nicola River, at mouth, in 1917 and 1918.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
1917		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
June 16	F. R. Archibald	7.60	6,770	March 18	Cline & Phillips	2.05	283

Daily Discharge in Second-feet of Nicola River, at mouth, for period April 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area, 2,600 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917												
1							210	490	2,900	3,700	550	170
2							210	500	2,700	3,650	530	160
3							210	500	2,500	3,600	510	160
4							210	510	3,000	3,400	490	155
5							210	520	3,500	3,100	450	155
6							210	530	4,050	2,800	410	150
7							210	650	5,000	2,500	410	150
8							210	730	6,000	2,400	410	150
9							210	1,500	7,400	2,400	410	150
10							210	2,200	6,000	2,300	390	150
11							210	2,850	5,000	2,150	370	155
12							210	3,200	4,050	2,000	350	160
13							210	3,600	4,400	1,850	340	165
14							210	3,350	4,800	1,700	330	170
15							210	3,100	5,800	1,570	320	170
16							210	2,850	6,800	1,440	310	170
17							230	2,900	6,500	1,360	300	170
18							250	2,950	5,900	1,280	290	170
19							250	3,000	5,400	1,200	300	170
20							250	3,000	4,800	2,230	310	170
21							265	3,100	4,600	1,060	290	170
22							280	3,300	4,400	1,000	270	170
23							300	3,500	4,300	940	250	170
24							320	3,600	4,200	880	240	170
25							340	3,300	4,100	820	230	170
26							365	2,850	4,100	760	220	165
27							390	2,900	4,050	710	200	160
28							420	2,950	3,950	670	190	160
29							450	3,000	3,850	640	190	160
30							470	3,100	3,750	610	190	160
31								3,000		580	180	
1917-18.												
1	160	240	310				580	7,450	3,200	1,700	340	165
2	160	280	310				530	3,750	2,600	1,520	340	160
3	180	310	280				490	4,050	2,500	1,360	340	160
4	210	410	280				490	3,900	2,450	1,280	310	155
5	200	450		2,800			490	3,600	2,950	1,200	280	150
6	190	410	Ice				510	3,500	3,450	1,130	250	150
7	190	340		1,400			530	3,300	4,050	1,130	250	155
8	190	280					580	3,200	4,400	1,130	250	160
9	180	260		900	370		710	3,000	4,800	1,100	230	165
10	180	250					880	2,850	5,600	1,050	230	160
11	170	250			370		1,130	3,100	5,300	1,020	210	155
12	170	240		Ice			1,100	3,300	5,000	940	210	150
13	180	230					1,060	3,900	4,800	820	220	150
14	170	210			280		1,000	4,500	4,050	1,000	220	150
15	160	210					940	4,200	3,450	1,050	230	140
16	165	210		Ice		250	870	3,900	3,300	940	240	140
17	150	200				260	820	3,600	3,300	820	250	135
18	150	190				280	760	3,200	3,200	760	250	130
19	150	190				300	880	2,700	3,100	710	230	120
20	150	220				310	1,000	2,400	3,000	670	220	120
21	150	250				320	1,280	2,300	3,100	620	210	110
22	150	370				320	1,600	2,100	3,100	580	210	120
23	150	530				340	2,050	2,000	2,850	530	210	130
24	150	670				370	2,100	1,950	2,550	530	210	140
25	150	580				420	2,200	1,900	2,400	490	210	140
26	150	490				450	2,100	1,800	2,200	450	190	150
27	150	410				420	2,090	1,750	2,200	430	190	150
28	155	390				390	2,290	2,200	1,900	410	190	140
29	160	370				400	2,400	2,800	1,800	370	180	140
30	180	340				410	2,950	3,200	1,700	370	170	130
31	210					500		4,050		350	170	130

Monthly Discharge of Nicola River, at mouth, for periods Oct. to Dec., 1916, April to Sept., 1917, Oct. and Nov., 1917, and April to Sept., 1918.

(Drainage area, 2,600 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October.....	335	170	250	0-10	0-11	15,400
November.....	200	150	170	0-06	0-07	10,000
December.....	140	110	125	0-05	0-06	7,700
April.....	470	210	265	0-10	0-11	15,800
May.....	3,600	490	2,380	0-92	1-06	146,000
June.....	6,800	2,500	4,600	1-77	1-97	274,000
July.....	3,700	580	1,750	0-67	0-77	108,000
August.....	550	180	330	0-13	0-15	20,300
September.....	170	150	160	0-06	0-07	9,800
1917-18						
October.....	210	150	170	0-06	0-07	10,500
November.....	670	190	325	0-13	0-13	19,300
April.....	2,100	490	1,200	0-46	0-51	71,500
May.....	4,500	1,750	3,100	1-19	1-37	190,000
June.....	5,600	1,700	3,300	1-27	1-42	200,000
July.....	1,700	350	850	0-33	0-38	52,000
August.....	340	170	235	0-09	0-10	14,500
September.....	165	130	145	0-06	0-07	8,600

BEAVER CREEK—STATION NO. 8LG₁₁.

Location.—Five miles above Nicola Lake.

Records Available.—June 12 to September 30, 1915; April 6 to November 15, 1916; April 10 to September 30, 1917; April 1 to September 30, 1918.

Drainage Area.—Eighty-three square miles.

Gauge.—Standard vertical staff gauge installed on July 10, 1916.

Channel.—Rocks and gravel, water swift at high stages.

Discharge Measurements.—Six meter measurements during 1915 and 1916, and three during 1917 agree very well and cover all but the high stages for the season of 1917. During 1918 there was a change in the gauge height-discharge relation for low stages.

Accuracy.—The results given should be fairly accurate.

Discharge Measurements of Beaver Creek, five miles above Nicola Lake, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918			
May 29	Cline & McNaughton.....	6-60	181-0	June 1	A. L. McNaughton.....	5-57	34-2
July 24	C. G. Cline.....	4-82	3-6	July 17	Cline & McNaughton.....	4-80	1-3
Sept 13	Cline & Chisholm.....	4-83	2-5				

Daily Discharge in Second-feet of Beaver Creek, five miles above mouth, for periods April 9 to Sept. 30, 1917, and April 1 to Sept. 30, 1918.

(Drainage area, 83 square miles.)

Day	April	May	June	July	Aug.	Sept.	April	May	June	July	Aug.	Sept.
1917												
1		8	130	58	58	3	3	22	37	2.2	0.4	1.5
2		8	115	46	5	3	3	28	46	2.2	0.4	1.5
3		8	115	42	5	3	3	32	52	2.2	0.4	1.5
4		7	115	37	5	3	3	32	46	2.2	0.4	1.5
5		7	100	29	5	3	3	28	37	2.2	0.4	1.5
6		8	85	26	4	3	3	25	37	2.2	0.4	1.5
7		8	70	19	4	3	4	27	32	2.2	0.4	1.5
8		12	70	14	4	3	4	22	25	2.2	0.4	1.5
9		16	58	12	4	3	5	22	25	3.0	0.5	1.5
10	7	22	85	12	4	3	5	22	32	3.0	0.5	1.0
11	10	37	70	10	4	3	5	22	19	3.0	0.5	1.0
12	6	58	70	8	4	3	5	19	16	3.0	0.5	1.0
13	6	100	70	8	4	3	6	19	16	2.5	3.0	1.0
14	10	130	70	8	4	3	5	16	16	2.5	3.0	1.0
15	10	145	46	7	4	3	5	16	13	3.0	1.5	1.0
16	6	145	46	7	4	3	5	19	13	2.2	3.0	1.0
17	6	115	46	6	4	3	4	16	8	1.5	2.2	1.0
18	4	100	29	6	4	3	4	16	8	1.5	3.0	1.0
19	4	100	22	6	4	3	4	16	8	1.5	2.2	1.0
20	6	115	16	5	4	3	4	16	19	1.5	1.5	0.5
21	6	130	16	4	4	3	4	16	16	1.0	1.5	0.5
22	6	165	16	4	4	3	5	16	14	0.5	1.5	0.5
23	6	165	16	3	4	3	6	16	11	0.4	1.5	0.5
24	6	165	16	3	3	3	8	16	8	0.4	1.5	0.5
25	6	180	14	3	3	3	4	16	5	0.4	1.5	0.5
26	7	260	14	3	3	3	4	16	4	0.4	1.5	0.5
27	7	240	14	3	3	3	4	19	3	0.4	1.5	0.5
28	7	260	16	4	3	3	11	19	3	0.4	1.5	0.5
28	7	220	46	5	3	3	16	19	2	0.4	1.5	0.5
30	8	145	70	5	3	3	22	19	2	0.4	1.5	0.5
31		145		5	3			28		0.4	1.5	

Monthly Discharge of Beaver Creek, five miles above mouth, for periods June to Oct. 1917, and April to Sept., 1918.

(Drainage area, 83 square miles)

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917						
June	260	7	102.0	1.25	1.42	6300
July	130	14	55.5	0.64	0.76	3300
August	58	3	13.2	0.16	0.18	800
September	5	3	3.9	0.05	0.06	240
October	3	3	3.0	0.04	0.05	180
The period	260	3	35.5	0.43	2.47	10,820
1918						
April	22.0	3.0	5.6	0.07	0.08	330
May	32.0	16.0	20.5	0.25	0.29	1,260
June	52.0	2.0	18.9	0.23	0.26	1,120
July	3.0	0.4	1.6	0.02	0.02	100
August	3.0	0.4	1.3	0.02	0.02	80
September	1.5	0.5	1.0	0.01	0.01	60
The period	52.0	0.4	8.1	0.10	0.68	2,950

COLDWATER RIVER—STATION NO. 8 LG₁₀.

Location.—The present station is located three miles above Merritt on the Kettle Valley railroad bridge. This replaces the former station at Merritt which was washed out in the 1916 freshet.

Records Available.—Former station:—April 17 to August 31, 1913; April 1 to December 6, 1914; March 17 to December 31, 1915; March 19 to May 4, 1916; Present station:—June 23 to December 31, 1916; January 1 to October 31, 1917; May 29 to September 30, 1918.

Drainage Area.—Three hundred and sixty square miles.

Gauge.—Steel cable gauge, read twice daily.

Channel.—Banks fairly high, bed of loose rock and coarse gravel.

Discharge Measurements.—Thirteen discharge measurements taken during 1916 to 1918 agree very well and cover all stages up to a discharge of 1,800 cubic feet per second.

Accuracy.—The results are considered fairly accurate at all stages during the open-water period.

Discharge Measurements of Coldwater River at Merritt, during 1917-18.

Date	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
1917		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
Jan. 23	A. L. McNaughton	.....	30	Jan. 23	C. G. Cline	2.30	196
Mar. 14	"	.....	37	May 29	A. L. McNaughton	4.35	1,066
May 30	McNaughton and Cline	5.42	1,650	May 31	"	5.15	1,618
July 25	C. G. Cline	2.50	205	July 18	Cline and McNaughton	2.90	294
Sept. 14	Cline and Chisholm	1.70	44				

Note.—Ice conditions on Jan. 23, and March 14, 1917.

Daily Discharge in Second-feet of Coldwater River at Merritt, for periods April 1 to Sept. 30, 1917; Oct. 1 to 30, 1917 and May 29 to Sept. 30, 1918

(Drainage area, 360 square miles.)

Day.	1917						1917-18					
	Apr.	May	June	July	Aug.	Sept.	Oct.	May	June	July	Aug.	Sept.
1	50	200	1,920	960	135	40	55	1,150	575	75	30	30
2	50	200	1,520	1,100	135	40	60	500	450	75	30	30
3	50	210	1,270	1,240	145	40	75	900	330	90	30	30
4	50	210	1,020	1,190	135	40	150	750	300	70	30	30
5	50	210	1,180	1,060	125	39	90	1,000	330	60	30	30
6	60	250	1,330	870	115	39	75	1,220	300	50	30	30
7	60	260	1,460	840	110	38	60	1,650	300	50	25	25
8	60	390	1,600	760	100	37	50	1,800	300	55	25	25
9	60	650	1,400	640	100	37	50	1,750	350	55	25	25
10	60	910	1,270	720	100	36	40	2,150	330	60	25	25
11	60	1,220	1,100	650	100	36	40	2,050	330	60	20	20
12	60	1,340	940	630	95	35	40	1,950	300	60	20	20
13	68	1,360	970	620	90	40	30	1,900	270	60	20	20
14	68	1,340	1,160	590	75	40	30	1,650	270	75	20	20
15	68	1,110	1,760	500	70	35	30	1,150	350	75	20	20
16	75	900	2,050	410	68	32	30	1,000	300	75	20	20
17	82	950	1,900	480	68	30	30	1,150	300	75	20	20
18	82	680	1,750	390	68	28	30	1,000	300	90	20	20
19	90	740	1,490	310	68	28	30	975	300	90	20	20
20	85	800	1,660	330	68	28	30	1,000	210	75	20	20
21	85	900	1,440	340	68	28	30	1,200	165	75	17	17
22	90	1,150	1,310	390	63	25	30	1,250	150	60	17	17
23	100	1,190	1,300	260	60	25	30	1,350	130	60	30	30
24	105	1,310	1,150	200	55	25	30	850	130	60	40	40
25	120	1,310	990	180	55	25	30	750	130	60	30	30
26	140	1,530	1,110	185	55	25	30	650	140	60	25	25
27	225	1,870	1,210	190	55	25	30	520	130	50	17	17
28	210	2,220	1,060	190	47	50	30	600	130	50	17	17
29	200	2,150	900	185	45	50	30	1,670	670	100	40	17
30	200	1,700	820	180	45	50	30	1,400	500	90	40	17
31		1,680		150	45		30	1,600		75	40	17

periods

Sept.
1.5
1.5
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0.5
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0.5
0.5
0.5
0.5
0.5

to Oct.

Total in
Acre-feet.
6300
3300
800
240
180
10,820
330
1,260
1,120
100
80
60
2,950

Monthly Discharge of Coldwater River, near Merritt, for year ending Sept. 30, 1917, Oct., 1917, and period June to Sept., 1918.

(Drainage area, 360 square miles.)

Month.	Discharge in Second-Feet				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
1916-17						
October	51	32	36	0.10	0.11	2,210
November	56	35	42	0.12	0.13	2,500
December	35	30	34	0.09	0.10	2,090
January			30	0.08	0.09	1,650
February			30	0.08	0.08	1,670
March			40	0.11	0.12	2,450
April	225		92	0.26	0.29	5,500
May	2,220	200	1,000	2.78	3.20	61,500
June	2,050	820	1,330	3.70	4.13	79,000
July	1,240	150	540	1.50	1.73	33,000
August	145	45	83	0.23	0.26	5,100
September	50	25	35	0.10	0.11	2,100
The year	2,220		275	0.76	10.35	198,970
1917-18.						
October	150	30	45	0.12	0.14	2,800
June	2,150	500	1,170	3.25	3.63	70,000
July	575	75	250	0.69	0.79	15,400
August	90	40	65	0.18	0.21	4,000
September	30	17	24	0.07	0.08	1,400
The period						

GUICHON CREEK—STATION No. 8 LG₃.

Location.—Above Mamit Lake.

Records Available.—June 3 to December 31, 1911; January 1 to November 14, 1912; April 26 to September 29, 1913; April 1 to November 30, 1914; March 1 to September 30, 1915; April 1 to October 31, 1916; April 7 to September 30, 1917; April 1 to September 30, 1918.

Drainage Area.—Three hundred and fifteen square miles. Water is diverted from Guichon Creek drainage area above this gauging station into Tunkwa lake and Threemile creek. See miscellaneous measurements on this diversion taken during season of 1917.

Gauge.—Standard vertical staff gauge. Readings were taken only once a week during April, May, June and July, 1917.

Channel.—The channel is straight at measuring section; velocities are fairly high; bed of stream is of sand and gravel. The section has been permanent since the freshet of 1915.

Discharge Measurements.—Eleven discharge measurements during 1915 to 1918 define the rating curve fairly well except for flood stages.

Accuracy.—The accuracy of the results is somewhat impaired by the infrequency of the gauge readings during the 1917 season. The data for 1918 should be fairly accurate.

Date.
 1917.
 June 2
 July 11
 Aug 2
 Oct 6
 *Banks
 Daily I
 Day.
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 Notes.—V
 the diversion

Discharge Measurements of Guichon Creek, above Mamit Lake, during 1917-18.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
June 2	Cline and McNaughton	5-82	360*	June 12	A. L. McNaughton	2-04	48
July 11	Curry and Cline	2-87	112	July 19	Cline And McNaughton	1-20	8
Aug 2	V. D. Curry	1-60	23				
Oct 6	Chisholm and Cline	1-27	7				

*Banks flooded.

Daily Discharge in Second-feet of Guichon Creek, above Mamit Lake, for period April 7 to Sept. 30, 1917, and April 1 to Sept. 30, 1918.

Day.	1917						1918					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1					23	10	10	23	75	13	5	5
2					23	10	10	23	100	13	5	5
3					20	10	10	20	115	13	5	5
4			150		20	10	10	20	110	13	5	5
5					23	10	13	23	110	10	5	5
6				245	23	10	13	26	105	10	5	5
7		11			23	10	13	37	100	10	5	5
8		11		330	30	8	17	37	90	10	5	5
9		11			30	8	23	30	75	10	5	5
10		11			23	8	17	30	65	8	7	4
11	15	180			23	8	23	30	55	7	7	4
12	14				17	8	17	26	48	7	8	4
13	15			76	17	8	17	26	46	7	10	4
14	17				11	8	13	28	43	7	10	4
15	20		200		11	8	17	23	37	7	10	4
16	24				11	8	15	24	23	7	10	4
17	31				11	8	13	30	20	7	10	4
18	35	240			11	8	13	30	17	6	10	4
19	30				11	8	13	33	17	8	10	4
20	30			50	11	8	12	33	15	7	8	4
21				50	11	8	15	33	15	7	8	4
22			89	43	11	8	13	35	17	7	7	4
23				43	11	8	13	37	17	7	7	4
24				37	11	8	13	40	17	6	7	4
25				37	11	8	13	43	15	6	7	4
26				30	11	8	13	46	15	6	7	4
27		82		30	11	8	13	45	15	6	7	4
28				30	11	8	13	40	15	6	7	4
29			195	26	11	8	17	40	15	6	6	4
30				26	11	8	17	43	13	5	5	4
31				23	11			46		5	5	

Notes.—Water is diverted from Guichon creek above the gauging station into Threemile Creek. A measurement of the diversion gave 4 cubic feet per second on June 3.

1917,
Total in
cubic feet

2,210
2,500
2,090
1,650
1,670
2,450
5,500
61,500
79,000
33,000
5,100
2,100

198,970
2,800
70,000
15,400
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Monthly Discharge for Guichon Creek, above Mamit Lake, for period April to Sept., 1918.

Month	Discharge in Second-Feet			Per Square Mile.	Run-Off.	
	Maximum	Minimum	Mean		Depth in inches on Drainage Area.	Total in Acre-feet.
1918						
April	23	10	14		850	
May	46	20	32		2,000	
June	115	13	47		2,800	
July	13	5	8		490	
August	10	5	7		430	
September	5	4	4		260	
The period.	115	4	19		6,830	

NOTE.—Some of the water above this station is diverted into Tunkwa lake and Threemile creek.

SPIUS CREEK—STATION NO. 8 LGs.

Location.—Section 23, township 13, range 23, west of 6th meridian; one-half mile above storage pond of the Nicola Valley Pine Lumber Company.

Records Available.—August 18 to November 22, 1911; May 8 to September 12, 1912; May 25 to November 30, 1913; March 22 to December 24, 1914; March 7 to October 15, 1915; January 1 to December 1, 1917; April 1 to September 30, 1918.

Drainage Area.—Three hundred and fifty square miles.

Gauge.—Chain gauge suspended on pole, well braced. Daily gauge readings.

Channel.—The channel is composed of rocks and gravel; control probably permanent.

Discharge Measurements.—Six discharge measurements during 1916 and 1917 define the rating curve at the lower and higher stages. For gauge heights between 2.0 and 4.0 the curve is not so well defined.

Winter Flow.—Ice conditions prevail between November and March. For January, February, and part of March, 1917, the flow was estimated from two meter measurements.

Accuracy.—"B" for discharges below 400 cubic feet per second; "C" for discharges above that amount.

Discharge Measurements of Spius Creek, above Sawmill Pond, during 1917-18.

Date	Engineers.	Gauge height.	Discharge.	Date.	Engineers.	Gauge height.	Discharge.
1917		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Jan 24	A. L. McNaughton	Ice	42	Jan 22	C. G. Cline	Ice	242
Mar 16	"	0-90	31	July 18	A. L. McNaughton	1-90	247
May 31	Cline and McNaughton	4-42	2,370				
July 26	C. G. Cline	1-62	165				
Sept 15	Cline and Chisholm	1-02	43				

Daily L

Day.

1916-17

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Daily Discharge in Second-feet of Spius Creek, above Saw Mill Pond, for period Jan. 1 to Sept. 1917, and year ending Sept. 30, 1918.

[Drainage area, 350 square miles]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	
1916-17													
1				45	40	30	35	145	2,450	1,100	110	35	
2				45	40	30	45	180	1,850	1,190	110	35	
3				45	40	30	40	180	1,280	1,190	125	35	
4				45	40	30	40	180	1,370	1,280	110	30	
5				45	40	30	45	200	1,550	1,100	90	30	
6				45	40	30	45	265	1,750	1,020	90	30	
7				45	40	30	50	315	1,650	860	90	30	
8				45	40	30	60	540	1,950	640	110	30	
9				45	40	30	60	780	2,550	710	90	30	
10				45	40	30	50	1,100	1,550	710	80	35	
11				45	40	30	65	1,280	1,370	640	80	50	
12				45	40	30	65	1,280	1,280	640	90	50	
13				45	40	30	60	1,370	1,370	640	100	40	
14				45	40	30	50	1,280	1,550	540	90	45	
15				45	40	31	60	1,020	2,050	480	80	40	
16				45	35	35	65	980	2,250	480	75	40	
17				45	35	35	70	820	1,850	480	65	40	
18				45	35	35	70	780	1,750	420	75	35	
19				45	35	35	80	940	1,650	390	70	35	
20				45	35	35	70	980	1,650	340	65	30	
21				45	35	35	80	1,190	1,450	340	75	30	
22				45	35	35	80	1,450	1,370	240	65	25	
23				45	35	40	80	1,550	1,190	200	60	30	
24				42	35	40	80	1,500	1,100	200	50	20	
25				40	35	45	90	1,450	1,020	145	45	20	
26				40	35	40	125	1,850	1,100	160	45	25	
27				40	35	40	180	2,150	1,190	180	40	35	
28				40	35	45	160	2,650	1,190	180	40	45	
29				40	45	45	180	2,550	1,100	160	40	46	
30				40	45	35	160	1,850	940	145	40	40	
31				40	45	30	30	2,150	110	35			
1917-18.													
1		40	30	50				230	2,800	1,600	470	100	70
2		40	35					250	2,800	1,100	440	100	80
3		80	185					230	2,600	1,000	410	90	70
4		90	190					230	2,350	1,300	390	80	60
5		65	120					250	2,200	2,400	390	80	46
6		50	135					270	1,800	1,800	340	70	40
7		50	120					270	1,300	2,100	340	70	40
8		40	80					290	1,400	2,100	340	65	35
9		40	70					500	1,300	2,200	340	65	35
10		40	65					675	1,300	2,950	209	80	35
11		35	70					675	1,700	2,200	290	90	30
12		35	65					650	2,200	1,800	250	80	30
13		30	65					535	2,100	2,000	230	70	30
14		30	65					500	2,200	1,700	210	70	30
15		30	65					470	2,350	1,200	390	90	30
16		30	60					440	2,000	1,200	340	110	30
17		30	50					390	1,500	1,200	290	120	30
18		30	60					390	1,300	1,100	250	135	25
19		30	50					500	1,200	1,100	230	150	25
20		30	210					735	1,200	1,000	210	120	25
21		30	650		Meter			1,100	1,200	1,100	210	100	25
22		30	440		242			1,100	1,100	1,200	195	100	35
23		30	310					1,200	1,100	1,000	195	90	40
24		30	210					1,300	920	920	180	80	40
25		30	180					1,290	920	880	165	80	40
26		35	120					1,100	880	770	150	80	35
27		30	100					1,200	880	700	135	70	35
28		30	80					2,200	1,600	675	120	65	35
29		30	80					2,500	2,100	650	120	60	35
30		30	60					2,600	2,100	535	110	50	35
31		30						1,900		110	50		

to Sept.,
Total in
Acre-feet
850
2,000
2,800
490
430
260
6,830

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17-18.
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Sec.-ft.
242
247

THE NATIONAL ARCHIVES
 100 COLLEGE AVENUE
 OXFORD, ENGLAND
 OX1 2EG

Monthly Discharge of Spius Creek above Sawmill Pond for periods Jan. to Sept., 1917, Oct., Nov., 1917, and April to Sept., 1918.

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-ft.
1917.						
January			44	0.33	0.15	2,700
February			38	0.11	0.11	2,100
March			34	0.10	0.11	2,100
April	180	35	78	0.22	0.24	4,600
May	2,650	145	1,130	3.23	3.72	69,500
June	2,450	940	1,550	4.43	4.94	92,000
July	1,280	110	545	1.56	1.80	33,500
August	125	35	75	0.21	0.24	4,600
September	50	20	35	0.10	0.11	2,100
The period	2,650		400	1.12	1.42	213,200
1917-18.						
October	90	30	40	0.11	0.12	2,400
November	650	30	135	0.39	0.43	8,000
April	2,600	230	800	2.28	2.54	47,600
May	2,800	880	1,700	4.85	5.59	104,500
June	2,950	535	1,350	3.85	4.30	80,000
July	470	110	260	0.74	0.85	16,000
August	150	50	85	0.24	0.28	5,200
September						
The period	80	25	38	0.11	0.12	2,250

NAHATLATCH RIVER AT OUTLET OF NAHATLATCH LAKE—STATION No. 8 MF7.

Location.—Section 14, township 12, range 27, west of the 6th meridian.

Records Available.—February 26 to December 31, 1912; January 1 to December 31, 1913; January 1 to December 31, 1914; January 1 to December 31, 1915; January 1 to December 31, 1916; January 1 to December 31, 1917; January 1 to September 30, 1918.

Drainage Area.—Three hundred square miles.

Gauge.—Vertical staff gauge in two sections, read once a week.

Channel.—Rocks and boulders. Control has remained permanent since station was installed.

Discharge Measurements.—Fourteen meter measurements made during 1912 to 1918 define the curve closely for all stages.

Winter Flow.—Open-water conditions prevail all winter.

Accuracy.—"B."

Discharge Measurements of Nahatlatch River, below Lake, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917.		Feet	Sec. ft.	1918.		Feet.	Sec. ft.
Jan. 10	C. G. Cline	3.00	232	Mar. 14	C. G. Cline	3.30	345
Jan. 14	F. R. Archibald	7.90	3,360				

Daily Discharge in Second-feet of Nahatlatch River, at Nahatlatch Lake, for period Jan. 7 to Sept. 28, 1917, and year ending Sept. 30, 1918.

(Drainage area 300 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917												
1					170				4,800			
2						175						
3											1,700	
4								700				
5												
6										4,500		
7				230			210					720
8					180							
9						175			6,000			
10				230							1,500	
11								2,800				
12												
13							300			3,700		
14									3,300			1,070
15					190							
16						170			5,600			
17				180							1,850	
18								1,400				
19												
20							410			3,300		
21												950
22					175				3,500			
23						175						
24				180							1,450	
25								2,800				
26												
27							560			2,050		
28												1,240
29												
30							190		3,650			
31											1,360	
1917-18.												
1		350			500	440						
2												
3												
4				4,000				750	4,450		1,900	
5	1,540									3,100		
6												
7				550					4,500			1,100
8					800	400						
9		640										
10								2,100			1,990	
11												
12		680		1,200								
13				450			1,550			3,100		
14						350			7,500			1,100
15					700							
16			720								1,900	
17								3,550				
18				1,150								
19		440						900		4,200		
20												
21				620					5,300			1,150
22					640	580						
23												
24		2,700										
25					700			1,450			1,400	
26												
27		380					1,700					
28										1,950		
29				390					3,700			1,100
30						650					1,250	
31								4,300				

to Sept.,

off.

Total in
Acre-ft.

2,700
2,100
2,100
4,600
69,500
92,000
33,500
4,600
2,100

213,200

2,400
8,000
47,600
104,500
80,000
16,000
5,200

2,250

MF7.

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Sec.-ft.
345

NAHATLATCH RIVER, 7 MILES FROM MOUTH—STATION No. 8 MFs.

Location.—Section 7, township 12, range 26, west of 6th meridian; below mouth of Douglas and Log creeks.

Records Available.—Continuous weekly records from February 27 1912, to April 27, 1916; daily readings from April 27, 1916 to September 30, 1918.

Drainage Area.—Four hundred square miles.

Gauge.—Vertical staff in two sections at measuring section read weekly; also an auxiliary gauge with daily readings which are used to compute daily readings at the main gauge.

Channel.—Rocks and boulders; permanent control.

Discharge Measurements.—Twelve meter measurements have been made during 1912 to 1918 and the curve is well defined.

Winter Flow.—Open water all winter.

Accuracy.—"B."

Discharge Measurements of Nahatlatch River, 7 miles from Keefers, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Jan. 11	C. G. Cline	0.41	299	Mar. 15	Cline and Phillips	0.77	402
June 14	F. R. Archibald	6.10	4,750				

Daily

Day

1916

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HYDROMETRIC SURVEY—BRITISH COLUMBIA.

193

Daily Discharge in Second-feet of Nahatlatch River, seven miles from mouth, for period Jan. 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area 400 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	July.	Sept.
1916-17												
1				250	240	230	250	720	5,550	4,400	1,350	1,170
2				250	240	230	250	720	5,200	4,800	1,450	1,020
3				250	240	230	250	720	4,000	5,000	2,000	950
4				260	250	230	250	770	3,500	5,200	1,650	850
5				260	260	230	260	770	3,700	5,000	1,650	750
6				260	270	230	270	850	4,100	5,000	1,600	720
7				290	270	220	280	970	4,350	4,400	1,750	800
8				270	270	220	290	1,300	5,100	3,800	1,700	750
9				290	260	225	300	2,250	6,600	2,850	1,550	750
10				280	260	220	310	3,200	3,600	3,950	1,620	770
11				290	260	220	350	3,500	3,600	4,000	1,450	920
12				270	260	220	350	3,500	3,400	4,050	1,600	1,120
13				260	260	220	350	3,600	3,700	4,350	1,900	1,300
14				240	250	210	340	3,350	4,700	4,100	1,900	1,070
15				240	250	210	350	2,650	5,250	4,000	1,900	920
16				240	260	210	380	2,300	6,100	4,050	1,900	1,150
17				240	260	210	400	1,800	5,800	4,000	2,100	1,200
18				250	260	210	430	1,620	5,150	4,000	2,250	1,120
19				250	250	220	460	1,850	4,850	3,950	2,100	950
20				250	240	220	450	1,950	4,950	3,900	2,000	970
21				250	240	220	470	2,700	4,900	3,800	1,700	950
22				250	230	230	470	2,850	4,350	3,350	1,600	820
23				250	240	240	470	3,350	3,800	2,700	1,500	820
24				250	230	250	470	3,600	3,450	2,100	1,500	750
25				260	230	250	470	3,700	3,500	1,900	1,370	660
26				260	230	250	520	4,700	3,800	2,500	1,370	620
27				260	230	250	620	5,500	4,000	2,400	1,320	1,370
28				260	230	260	700	6,400	4,300	2,500	1,320	1,250
29				250	260	260	750	6,250	4,400	2,550	1,400	1,000
30				250	250	250	770	5,700	3,900	1,750	1,600	800
31				240	260	260	5,500	.....	.....	1,370	1,370	.....
1917-18												
1				6,800	540	450	1,000	3,800	3,900	4,250	2,000	1,650
2	720	350	770	6,800	540	450	1,000	3,800	3,900	4,250	2,000	1,650
3	1,150	380	720	7,400	580	430	920	4,250	3,000	4,400	2,150	1,450
4	2,200	700	640	6,400	640	430	800	4,400	2,500	3,700	1,900	1,200
5	2,150	1,300	620	4,800	720	420	750	5,300	2,500	3,300	1,700	1,100
6	1,750	1,100	600	3,500	700	410	800	5,200	3,400	3,600	1,800	1,100
7	1,400	1,100	580	2,500	700	410	750	4,250	3,900	3,500	1,750	1,150
8	1,100	920	580	2,400	660	410	770	3,300	5,300	3,600	1,800	1,100
9	1,000	720	520	2,200	640	410	850	2,900	6,400	3,600	1,750	1,100
10	850	660	500	1,900	660	410	1,200	2,700	6,500	3,900	2,200	1,100
11	750	580	480	1,650	750	400	1,950	2,450	8,600	4,900	1,650	1,100
12	700	640	470	1,450	770	400	1,900	2,750	9,300	4,700	1,650	1,150
13	700	800	460	1,450	750	400	1,850	3,900	6,800	3,500	1,500	1,150
14	640	920	460	1,300	700	380	1,650	4,500	7,100	2,850	1,450	1,100
15	620	800	440	1,200	620	380	1,500	5,100	8,300	2,750	1,550	1,050
16	620	700	470	1,100	620	400	1,300	5,600	6,200	3,300	2,000	1,000
17	540	720	520	1,050	580	400	1,150	5,100	4,100	4,200	2,100	1,000
18	500	580	640	1,000	560	430	1,100	4,400	4,900	4,400	1,700	950
19	450	540	660	1,400	500	480	1,000	3,750	5,100	4,500	2,000	950
20	450	520	770	1,250	460	480	1,000	3,150	4,800	4,600	2,050	1,000
21	420	2,000	680	1,100	460	500	1,250	2,700	5,000	3,600	1,550	1,050
22	410	6,200	620	1,000	470	500	2,100	2,100	5,800	3,300	1,450	1,400
23	410	4,500	560	950	540	620	2,500	2,050	6,500	2,300	1,300	900
24	400	3,100	500	950	470	620	2,400	1,950	6,200	2,200	1,500	800
25	400	2,000	410	900	470	700	2,500	1,750	5,900	2,200	1,700	720
26	380	1,550	410	850	470	900	2,400	1,700	5,400	2,050	1,750	660
27	400	1,250	430	720	450	900	2,100	1,700	4,900	2,250	1,750	660
28	380	1,100	430	720	450	800	2,050	1,700	4,700	2,100	1,650	720
29	360	1,000	450	720	440	720	2,200	2,100	4,400	2,050	1,300	750
30	360	950	1,300	680	.....	680	2,900	3,550	3,900	2,000	1,200	850
31	360	900	2,250	580	.....	750	3,450	4,700	3,900	1,950	1,300	800
32	350	.....	4,000	500	.....	950	.....	4,900	.....	1,900	1,450	.....

Monthly Discharge of Nahatlatch River, seven miles from mouth, for years ending
Sept. 30, 1917-18.

(Drainage area 400 square miles.)

Month.	Discharge in Second-Feet.				Run Off.	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	700	410	540	1.35	1.55	43,000
November	570	380	450	1.12	1.25	27,000
December	440	270	340	0.85	0.98	21,000
January	290	240	255	0.64	0.74	16,000
February	270	230	250	0.62	0.65	14,000
March	260	210	230	0.58	0.67	14,000
April	770	250	410	1.02	1.16	24,000
May	6,400	720	2,860	7.15	8.24	176,000
June	6,600	3,400	4,480	11.20	12.50	267,000
July	5,200	1,370	3,640	9.10	10.49	224,000
August	2,250	1,320	1,660	4.15	4.78	102,000
September	1,370	620	940	2.35	2.62	56,000
The year	6,600	210	1,340	3.34	45.61	974,000
1917-18						
October	2,200	350	740	1.85	2.13	45,500
November	6,200	350	1,280	3.20	3.57	76,000
December	4,000	410	750	1.87	2.16	46,000
January	7,400	500	1,950	4.88	5.63	124,000
February	770	440	580	1.45	1.51	32,000
March	950	380	530	1.32	1.52	32,500
April	3,450	750	1,600	4.00	4.46	95,000
May	5,600	1,700	3,500	8.75	10.09	215,000
June	8,600	2,500	5,300	13.20	14.73	315,000
July	4,900	1,900	3,300	8.25	9.51	203,000
August	2,200	1,200	1,700	4.25	4.90	105,000
September	1,650	660	1,020	2.55	2.84	61,000
The year	8,600	350	1,850	4.63	63.05	1,346,000

COQUIHALLA RIVER—STATION NO. 8 MF₃.

Location.—At highway bridge, one mile from mouth, near Hope.

Records Available.—Daily discharges from November 1911 to September 30, 1918.

Drainage Area.—Three hundred and sixty square miles.

Gauge.—Chain gauge on highway bridge. Irregular readings until July 1, 1917, daily readings after that date by Mr. T. L. Thacker.

Channel and Control.—Straight for two hundred feet above band below gauging section, even gravel bed. Control appears permanent.

Discharge Measurements.—Made from highway bridge. Twenty-four meter measurements made in 1912 to 1918 cover all but highest stage.

Winter Flow.—Stage-discharge relation occasionally affected by ice.

Accuracy.—"B."

Discharge Measurements of Coquihalla River, near mouth, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec. ft.	1918.		Feet.	Sec. ft.
June 8	C. E. Webb	4.62	5.350	June 9	C. E. Webb	4.45	5.090
June 20	" "	4.52	4.720	Aug 7	" "	1.10	430
Sept. 8	" "	0.75	247	Sept. 7	" "	0.70	268
Oct. 27	" "	1.25	465				

Daily Discharge in Second-feet of Coquihalla River, near Highway Bridge, for period Jan. 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

(Drainage area 360 square miles.)

ft.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
	1916-17.												
Total in Acres-feet.	1				270		320	210	1,100		3,800	705	295
	2				240		310	260	1,080		4,020	670	270
	3				210		315	310	1,060		3,300	670	320
	4				320		320	360	1,060		4,130	635	250
	5				370		270	420	2,170		3,500	600	230
43,000	6				420		270	420	1,100		2,540	705	250
27,000	7				520		270	437			2,460	600	250
21,000	8				630		270	454		5,140	2,390	565	230
16,000	9				740		270	470		4,370	2,540	500	230
14,000	10				740		250	497		3,610	2,540	530	230
24,000	11				740		240	524		2,850	2,460	500	250
176,000	12				565		230	551		2,850	2,180	470	250
267,000	13				445		230	532		2,850	2,320	470	230
224,000	14				395		230	512		3,040	2,180	445	230
102,000	15				370		230	553		3,240	1,920	470	210
56,000	16				345		230	594		3,430	1,920	440	100
974,000	17				320		230	635		3,630	1,800	445	190
	18				320		230	685		3,820	1,680	445	170
45,500	19				307		230	740		4,020	1,620	445	170
76,000	20				295		230	715		4,890	1,450	420	150
46,000	21				262		230	690		4,360	1,350	395	135
120,000	22				230		230	660		3,916	1,200	345	120
32,000	23				270		270	635		3,470	1,020	395	135
32,500	24				250		270	687		3,020	1,020	370	120
95,000	25				295		230	740		3,180	890	370	105
215,000	26				270		240	855		3,340	810	270	90
315,000	27				270		250	970		3,500	970	270	405
203,000	28				250		240	1,000		3,600	1,100	270	320
105,000	29				230		230	1,030		3,700	1,150	270	210
61,000	30				250		230	1,070		3,800	930	270	2,040
1,346,000	31				250		220				740	250	
	1917-18.												
	1	2,180	705	670	12,600	635	295	1,350	2,850	1,800	1,620	420	270
	2	1,800	775	670	9,000	635	320	890	3,500	1,920	1,450	500	250
	3	1,150	2,040	600	8,000	635	295	810	5,090	1,800	1,150	420	250
	4	320	1,680	565	7,000	1,200	270	740	5,900	2,320	1,350	395	230
	5	320	1,560	470	5,000	970	270	705	3,200	2,860	1,300	395	230
	6	230	1,450	420	3,200	890	250	740	2,610	2,300	1,250	370	210
	7	230	1,450	445	2,860	890	270	740	2,390	4,720	1,350	345	210
	8	190	1,560	445	2,110	850	250	740	2,390	5,350	1,250	395	210
	9	150	1,250	670	1,980	1,020	230	1,450	2,180	6,750	1,250	500	210
	10	250	970	630	1,800	1,250	270	1,920	2,320	6,460	1,200	890	190
	11	230	420	530	1,450	1,150	250	1,740	2,770	4,540	1,150	600	190
	12	230	370	670	1,200	890	230	1,400	3,500	6,750	1,200	470	170
	13	230	320	1,170	970	670	210	1,150	3,800	5,480	1,250	420	170
	14	230	470	1,680	930	740	210	1,060	4,960	3,110	1,400	445	170
	15	190	420	1,680	1,100	600	230	810	3,800	3,110	1,200	530	150
	16	170	530	2,940	970	600	230	920	3,020	2,690	1,150	553	150
	17	150	320	2,180	970	600	345	970	2,610	3,200	1,060	576	150
	18	170	530	3,110	1,250	445	345	890	2,390	2,690	1,010	600	135
	19	170	530	9,850	1,060	670	345	1,150	2,040	3,020	970	565	135
	20	190	3,700	5,350	970	470	370	2,610	1,980	3,400	740	370	135
	21	190	2,040	1,500	970	445	395	2,940	1,620	3,500	740	320	150
	22	230	2,040	1,250	930	420	740	2,180	1,620	3,400	705	370	170
	23	250	1,680	1,060	890	420	530	2,390	1,400	2,770	670	345	170
	24	230	970	810	1,800	370	850	2,610	1,250	2,250	635	345	170
	25	270	890	850	1,200	395	930	2,460	1,300	2,110	530	320	170
	26	270	670	810	930	370	740	2,390	1,250	2,040	470	320	170
	27	150	740	1,000	930	370	705	2,180	1,300	1,860	445	345	150
	28	190	890	2,000	850	345	635	1,920	1,800	1,920	445	320	135
	29	120	890	4,000	810		740	2,250	2,180	1,500	445	270	135
	30	270	1,400	8,000	530		1,620	2,320	7,040	2,040	420	270	120
	31	670		12,500	600		1,350		2,940		445	270	

Discharge.

Sec. A.
5,090
430
268

Monthly Discharge of Coquihalla River, near Highway Bridge, for years ending Sept. 30, 1917-18.

(Drainage area 360 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	510	150	232	0.64	0.74	14,300
November	3,690	170	712	1.98	2.21	42,400
December	450	170	244	0.68	0.78	15,000
January	740	230	367	1.02	1.18	22,600
February			250	0.69	0.72	13,900
March	320	220	253	0.70	0.81	15,600
April	1,070	210	607	1.68	1.87	36,100
May			2,400	6.67	7.69	148,000
June			3,640	10.10	11.30	217,000
July	4,130	740	2,000	5.55	6.40	123,000
August	705	250	458	1.27	1.46	28,200
September	2,040	90	276	0.77	0.86	16,400
The year	4,130	90	953	2.65	36.02	692,500
1917-18						
October	2,180	150	375	1.04	1.20	23,100
November	3,700	320	1,110	3.08	3.44	66,000
December	12,600*	420	2,210	6.14	7.08	136,000
January	12,600*	530	2,430	6.75	7.78	149,000
February	1,250	345	669	1.86	1.94	37,200
March	1,620	210	475	1.32	1.52	29,200
April	2,940	705	1,550	4.31	4.81	92,200
May	7,040	1,250	2,810	7.81	9.00	173,000
June	6,750	1,500	3,300	9.17	10.23	196,000
July	1,620	420	976	2.71	3.12	60,000
August	890	270	428	1.19	1.37	26,300
September	270	120	178	0.49	0.55	10,600
The year	12,600*	120	1,300	3.82	52.04	998,600

NOTE.—February gauge heights in 1917, affected by ice conditions. Mean monthly discharge estimated from gauge heights and climatic conditions. Gauge removed May 6, 1917. Replaced June 8, 1917. Mean monthly discharge for May estimated from climatic conditions.

NOTE.—* Approximate—from estimate of high water.

NICOLUM RIVER—STATION No. 8 MF12.

Location.—At the pack trail bridge, nine miles from Hope, and four miles from the mouth of the river, in section 27, township 4, range 5, west of 6th meridian.

Records available.—Daily discharges from August, 1914, to December, 1915; June 11, 1916 to December 14, 1917; June 10 to September 30, 1918.

Drainage area.—Thirty square miles, above gauging station.

Gauge.—Vertical staff gauge, located at pack trail bridge, irregular readings taken by Mr. Wm. Robinson.

Channel and control.—Irregular, gravel and small boulders. Control is not permanent, it changed with flood of December 31, 1917.

Discharge measurements.—Made from bridge and by wading. Thirteen meter measurements taken during 1914 to 1917 give a well defined rating curve to be used to December 31. Three measurements in 1918 define rating curve to be used from January 1, 1918.

Winter flow.—The stage-discharge relation is affected by ice.

Accuracy.—"C" Infrequent gauge readings and change in control.

Discharge Measurements of Nicolum River, 4 miles from mouth, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917		Feet	Sec-ft.	1918		Feet.	Sec-ft.
June 10	C. E. Webb	2.42	329	June 10	C. E. Webb	2.85	488
" 19	"	2.50	384	" 18	"	2.52	259
Sept. 10	"	1.12	27.7	Sept. 20	"	1.52	24.2
Oct. 28	"	1.09	24.0				

Daily Discharge in Second-feet of Nicolum River, 4 miles above mouth, for period Jan. 1, to Sept. 30, 1917, and year ending Sept. 30, 1918.

[Drainage area, 30 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				17	17	26	17	64	452	253		35
3				17	17	26	17	64	412	253		34
7				17	17	21	17	72	332	253		32
4				17	26	21	17	72	292	253		30
5				26	46	21	26	72	253	253		28
6				26	35	21	26	80	253	234		26
7				21	35	21	26	87	292	215		26
8				26	35	17	35	215	412	215		26
9				30	35	17	35	253	412	215		26
10				26	35	17	35	253	332	215		26
11				26	35	17	35	292	292	215		26
12				26	41	17	35	292	253	210		26
13				21	35	17	35	292	253	204		26
14				21	35	17	35	253	372	198		26
15				17	25	17	35	234	412	192		26
16				17	51	17	35	180	452	186		26
17				17	46	17	41	166	452	180		26
18				17	41	17	46	151	372	176		26
19				17	35	17	46	151	372	172		26
20				17	30	17	46	166	332	168		26
21				17	30	17	46	180	332	164		26
23				17	30	17	46	180	332	160		26
24				17	26	17	46	180	292	156		26
25				17	26	17	46	253	273	152		26
26				17	26	17	51	292	253	148		26
27				17	26	17	57	372	273	144		26
28				17	26	17	64	412	292	140		29
29				17	26	17	72	492	332	137		32
30				17		17	72	492	292	134		35
31				17		17	72	452	253	130		35
				17		17		452		126		
1917-18.												
1	35	35	38							207	50	17
2	57	41	39							198	50	22
3	105	46	40							189	50	22
4	96	51	41							180	50	22
5	87	57	42							171	43	22
6	78	53	43							162	36	22
7	69	49	44							153	36	22
8	60	46	45							145	36	22
9	51	43	46							145	58	22
10	42	40	42						495	145	81	22
11	34	38	38						545	145	90	22
12	26	36	35						445	145	99	22
13	26	33	35						397	145	81	22
14	26	30	35						349	145	73	22
15	26	28							300	145	65	22
16	26	26							300	145	57	22
17	28	26							300	145	50	22
18	30	26							260	132	46	23
19	31	30							265	120	42	24
20	33	35							250	120	38	25
21	35	61							250	120	34	24
22	32	87							250	120	31	24
23	29	74							250	120	28	23
24	26	61							250	99	25	23
25	26	48							250	81	22	23
26	26	35							228	81	22	22
27	26	35							207	81	17	22
28	26	35							207	81	12	22
29	28	36							207	81	12	22
30	30	37							207	65	12	22
31	33								65	12		22

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Monthly Discharge of Nicolum River, 4 miles above mouth, for years ending Sept. 30, 1917-18.

[Drainage area, 30 square miles.]

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum	Mean	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
1916-17.						
October	44	20	23.0	0.77	0.89	1,410
November	140	26	40.0	1.33	1.48	2,380
December	30	18	22.0	0.73	0.84	1,350
January	30	17	19.5	0.56	0.75	1,200
February	51	17	32.1	1.07	1.11	1,780
March	26	17	18.2	0.61	0.70	1,120
April	72	17	40.4	1.35	1.51	2,400
May	492	64	231.0	7.70	8.88	14,200
June	452	253	331.0	11.00	12.30	19,700
July	253	126	189.0	6.30	7.26	11,600
August	121	35	72.0	2.40	2.77	4,430
September	35	26	28.0	0.93	1.04	1,670
The year	492	17	87.2	2.90	39.55	63,240
1917-18.						
October	105	26	41	1.37	1.58	2,520
November	87	26	43	1.43	1.60	2,560
December						
January						
February						
March						
April						
May						
June						
July	207	65	132	4.40	5.07	8,120
August	99	12	44	1.47	1.70	2,710
September	24	17	22	0.73	0.81	1,310
The year						

NOTE.—Mean monthly discharge interpolated for month of August, 1917.

JONES CREEK.—STATION No. 8 MF₆.

Location.—At outlet of Jones lake, in section 28, township 3, range 27, west of 6th meridian.

Records Available.—Daily discharges from April, 1911 to December 31, 1916 and April 1 to September 30, 1917. Not sufficient discharge measurements during 1917-18 to define rating curve.

Drainage Area.—Twenty-five square miles, determined by triangulation survey by Anderson and Warden, Civil Engineers, Vancouver, B.C.

Gauge.—Vertical staff fastened to rock-filled crib. Daily gauge readings by Mr. R. Barr of Ruby Creek, B.C. A Gurley water stage register was installed in November, 1916, at same section and same datum as staff gauge.

Channel.—Uniform section, deep water, good control.

Discharge Measurements.—Owing to a temporary obstruction in the control, affecting the stage-discharge relation, a new rating has been necessary for 1917 data. Six discharge measurements made during 1917 give a well defined rating curve.

Winter Flow.—Open-water practically all winter.

Accuracy.—"B."

Co-operation.—Gauge read by employee of Anderson and Warden, Civil Engineers, for the Vancouver Power Company.

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Discharge Measurements of Jones Creek, near Jones Lake, during 1917-18.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917-				1918.			
July 21	H. C. Hughes	1.94	299.0	June 8	C. E. Webb	1.99	336
" 22	" "	1.84	276.0	Aug. 8	" "	1.31	163
" 23	" "	1.70	249.0	Sept. 6	" "	1.03	123
" 24	" "	1.62	224.0				
Sept. 6	Hughes and Milner	0.90	94.8				
Oct. 25	C. E. Webb	0.85	79.9				

Daily Discharge in Second-feet of Jones Creek, near Jones Lake, for period Jan. 1 to Sept. 30, 1917.

[Drainage area, 25 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1				54	67	85	62	124	358	324	192	116
2				57	67	79	57	124	381	347	192	108
3				62	79	79	57	124	347	358	192	108
4				67	116	79	57	124	312	393	192	100
5				79	172	85	73	124	267	405	182	92
6				100	182	85	79	142	267	370	182	92
7				100	172	79	73	152	278	335	172	92
8				92	161	79	79	171	301	312	161	85
9				124	142	73	79	214	428	312	161	79
10				124	142	73	79	245	393	312	152	85
11				124	133	73	92	267	346	324	152	92
12				116	133	67	92	267	301	324	152	92
13				116	124	67	92	289	278	324	161	116
14				92	124	67	92	301	289	312	161	108
15				92	124	67	85	289	335	312	161	108
16				85	133	62	79	267	393	324	161	108
17				79	142	62	79	256	405	335	172	108
18				73	142	57	85	224	381	335	172	100
19				73	133	62	85	214	347	324	182	100
20				73	124	62	85	203	347	312	182	100
21				73	124	67	85	192	347	301	192	92
22				73	124	67	92	192	358	278	182	92
23				73	116	73	100	192	335	245	161	85
24				73	108	75	100	203	312	224	161	85
25				73	100	67	100	224	335	214	152	79
26				79	100	62	108	267	324	203	142	108
27				73	92	67	116	312	312	214	133	172
28				73	92	67	116	370	324	234	124	172
29				73	67	67	124	405	358	224	124	142
30				67	67	62	124	381	335	214	124	133
31				67	67	62	124	370	370	203	124	133

Monthly Discharge of Jones Creek, at Jones Lake, for year ending Sept. 30, 1917.

[Drainage area, 25 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	215	50	77	3.08	3.55	4,730
November	495	100	232	9.28	10.40	13,800
December	120	55	84	3.36	3.87	5,160
January	124	54	83	3.32	3.83	5,100
February	182	67	124	4.96	5.17	6,890
March	85	62	70	2.80	3.23	4,300
April	124	57	88	3.52	3.93	5,240
May	301	124	233	9.32	10.70	14,300
June	428	267	336	13.40	14.90	20,000
July	405	203	298	11.90	13.70	18,300
August	192	124	163	6.52	7.52	10,000
September	172	79	105	4.20	4.69	6,250
The year	495	50	158	6.30	85.49	114,070

BOULDER CREEK—STATION NO 8 MF₂.

Location.—Near mouth of creek, and near Jones lake in section 28, township 3, range 27, west of 6th meridian.

Records Available.—Daily discharges from January, 1913, to September, 1918.

Drainage Area.—Not known.

Gauge.—A fine wire is stretched tightly across the stream and the distance to the water surface is measured by a graduated rod. The result, subtracted from 15.00 gives the direct reading. Daily gauge readings by Mr. R. Barr.

Channel and Control.—The channel is about thirty feet wide. The bed of the stream is covered with boulders giving uneven bottom. Control is not permanent and changes with almost each high-water.

Discharge Measurements.—Seven discharge measurements during 1911-16 define rating curve used until June 1, 1917. Curve used from June 1, 1917, to December 31, 1917, based on three discharge measurements made during 1917. Curve used January 1 to September 30, 1918, based on three discharge measurements made during 1918.

Winter Flow.—The stream was affected by ice from January 30 to April 3.

Accuracy.—"C". Impossible to accurately determine flow with constant change in control.

Co-operation.—The records on this stream are kept by Messrs. Anderson and Warden, Civil Engineers, Vancouver, for the Vancouver Power Company.

Discharge Measurements of Boulder Creek, near mouth, during 1917-18.

Date.	Engineer.	Gauge height	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec. ft.			Feet.	Sec. ft.
1917.				1918.			
July 22	H. C. Hughes	4.89	52.6	June 8	C. E. Webb	5.05	194
" 23	" "	4.75	38.1	Aug. 9	" "	4.05	22.4
Sept. 7	H. C. H. and A. T. M.	4.30	10.2	Sept. 6	" "	3.90	14.4

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Daily Discharge in Second-feet of Boulder Creek, near mouth, for period April 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1							13	41	165	145	34	8
2							13	41	249	165	34	8
3							13	41	186	145	34	8
4							13	41	85	186	30	8
5							13	41	69	145	26	8
6							13	46	85	125	23	7
7							13	65	125	106	23	7
8							13	140	207	105	23	7
9							15	180	165	115	23	7
10							15	160	105	115	20	7
11							23	160	85	115	20	14
12							23	160	69	115	17	10
13							20	160	85	105	20	20
14							20	140	165	105	17	12
15							17	120	186	105	17	10
16							15	83	186	105	17	10
17							20	65	186	105	17	8
18							23	52	145	85	14	7
19							23	58	145	69	14	7
20							23	65	145	69	17	6
21							23	83	145	69	17	6
22							26	83	125	55	14	6
23							26	101	105	39	12	6
24							26	160	105	34	10	6
25							26	170	135	34	10	6
26							29	200	145	34	10	34
27							41	200	135	44	10	26
28							41	220	145	62	10	26
29							41	220	145	34	10	14
30							41	180	115	34	10	10
31								180		34	10	
1917-18.												
1	10	34	20	750			40	140	108	90	35	20
2	186	34	20	360			40	170	90	90	40	20
3	186	165	14	170			40	170	82	82	49	17
4	50	105	14	170			40	330	82	74	31	14
5	26	55	14	129			44	140	140	82	27	14
6	17	55	14	170			44	108	170	67	20	14
7	12	39	12	170			49	98	220	74	20	11
8	12	30	12	129			54	90	170	74	24	11
9	10	23	105	82			98	82	245	82	54	11
10	10	20	23	74			117	90	480	108	60	11
11	10	20	23	67			98	117	195	67	390	11
12	9	23	20	82			82	129	220	60	74	11
13	9	23	69	67			90	140	270	54	44	11
14	9	20	135	54			60	140	155	54	40	8
15	7	17	106	54			54	195	98	74	49	8
16	9	14	228	44			54	129	129	67	60	8
17	9	14	105	44			44	140	155	67	49	8
18	9	14	270	98			35	108	117	67	54	8
19	7	14	135	74			60	82	129	67	82	8
20	7	125	69	67			155	74	140	155	54	
21	20	186	50	60			220	67	170	90	40	8
22	12	85	39	54			140	67	155	54	60	11
23	12	34	34	60			129	74	170	44	82	8
24	26	30	34	108			117	60	140	49	49	8
25	12	26	30	54			98	54	98	44	40	8
26	14	20	26	44			82	54	117	74	31	8
27	20	30	69	44			82	60	98	82	27	8
28	12	23	186	44			108	108	90	54	24	8
29	12	20	594	44			117	170	90	54	24	8
30	12	23	105	44			140	660	82	49	20	8
31	20		402	44				220		49	20	

NOTES.—Stage—discharge relation affected by ice Jan. 30, 1917—April 2, 1918; discharge estimated from study of gauge records and climatic conditions. Feb. 1—Mar. 31—40 c.f.s. Change in control from January 1, 1917.

Monthly Discharge of Boulder River, near mouth, for years ending Sept. 30, 1917-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	65	8	15.0			922
November	350	17	45.0			2,680
December			16.0			984
January			15.0			922
February			20.0			1,110
March			13.0			799
April	41	13	22.0			1,310
May	220	41	118.0			7,260
June	249	69	138.0			8,210
July	186	34	90.0			5,530
August	34	10	18.0			1,110
September	34	6	11.0			655
The year			43.4			31,492
1917-18.						
October	186	7	25			1,540
November	186	14	44			2,620
December	594	12	96			5,900
January	750	44	111			6,820
February			40			2,220
March			40			2,460
April	220	40	84			5,000
May	690	54	139			8,550
June	270	82	154			9,160
July	155	44	71			4,370
August	390	20	54			3,320
September	20	8	10			595
The year	750	7	72			52,555

ELK CREEK—STATION NO. 8 MF₁₆.

Location.—Above Chilliwack waterworks intake, and below Jackman creek.

Records Available.—October 1, 1916, to September 30, 1918.

Gauge.—Three-foot vertical staff, read irregularly by Mr. A. E. Kipp.

Channel and Control.—Steep and full of large boulders, control is not permanent.

Discharge Measurements.—Made by wading just below Jackman creek. Seven measurements made during 1917-18, cover all but high stage.

Winter Flow.—Open-water all year.

Accuracy.—"C."

Discharge Measurements of Elk Creek, above Waterworks Intake, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
July 20	H. C. Hughes	0-60	13.2	May 9	Webb and MacLachlan	0-85	28.8
Sept. 5	Hughes and Milner	0-24	3-63	June 7	C. E. Webb	1-53	62.7
Sept. 17	C. E. Webb	0-29	4-71	Aug. 3	" "	0-32	5-62
				Sept. 5	" "	0-33	5-92

Daily Discharge in Second-feet of Elk Creek, above Waterworks Intake, for years ending Sept. 30, 1917-18.

in-Off.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1	5.0	7.0	6.2	5.0	6.5	11.0	5.0	10.0	48.0	34.0	7.5	4.0
2	5.0	10.0	6.2	5.0	6.2	11.0	5.0	10.0	39.0	34.0	7.5	4.0
3	5.0	12.0	6.2	6.0	18.0	11.5	5.0	10.0	45.0	34.0	7.5	4.0
4	5.0	14.8	6.2	6.0	30.0	11.5	4.0	10.0	51.0	58.0	7.5	4.0
5	4.0	12.0	6.0	7.0	42.0	11.5	4.0	10.0	24.5	51.0	7.0	4.0
6	4.0	8.8	6.0	7.5	26.8	11.0	7.0	22.0	27.0	45.0	6.2	4.0
7	4.0	17.0	6.0	8.0	20.5	10.0	10.0	34.0	29.0	34.0	6.2	4.0
8	4.0	24.5	6.0	9.0	20.5	10.0	10.0	45.0	120.0	32.0	6.2	4.0
9	1.0	20.0	5.0	10.0	20.5	9.0	10.0	39.0	54.5	29.0	6.2	4.0
10	4.0	14.8	5.0	11.5	16.5	8.8	10.0	37.0	34.0	29.0	6.2	4.0
11	4.0	13.0	5.0	11.0	17.0	8.0	20.5	35.0	37.0	29.0	6.2	4.0
12	4.0	10.0	5.0	10.0	19.0	7.0	16.0	34.0	39.0	25.0	6.0	4.0
13	4.0	7.5	5.0	10.0	20.5	6.2	13.0	34.0	38.0	20.5	6.0	4.0
14	4.0	8.0	6.0	9.0	22.0	6.2	10.0	34.0	36.0	24.5	6.0	4.0
15	4.0	8.0	6.0	8.0	24.0	6.2	10.0	24.5	34.0	23.0	5.0	4.0
16	4.0	8.0	6.2	7.5	26.8	6.2	10.0	22.5	37.0	20.5	5.0	4.0
17	4.0	8.8	6.0	7.5	20.5	6.2	10.0	22.5	40.0	18.0	5.0	3.0
18	3.0	8.0	6.0	7.5	18.5	6.2	10.0	21.0	42.0	15.0	5.0	3.0
19	4.0	8.0	6.0	7.5	16.5	6.2	11.0	20.5	36.5	13.0	6.0	3.0
20	4.0	7.0	5.0	7.5	15.0	6.2	11.0	20.5	35.0	12.0	7.5	3.0
21	4.0	7.0	5.0	7.5	14.0	6.2	11.5	20.5	34.0	12.0	7.0	3.0
22	3.0	7.0	5.0	7.5	13.0	6.2	11.0	20.5	34.0	11.0	6.0	3.0
23	3.0	6.2	5.0	7.5	11.0	6.2	10.0	20.5	34.0	10.0	5.0	3.0
24	4.0	6.2	5.0	8.0	10.0	6.2	12.0	25.0	34.0	10.0	5.0	3.0
25	4.0	6.2	5.0	8.0	10.0	6.0	14.0	29.0	34.0	10.0	4.0	3.0
26	5.0	6.2	5.0	8.5	10.0	6.0	17.0	36.5	29.0	10.0	4.0	3.0
27	4.0	6.2	5.0	8.8	10.0	5.0	20.5	39.0	29.0	9.0	4.0	3.0
28	3.0	6.2	5.0	8.0	11.0	5.0	17.0	45.0	90.0	7.5	4.0	3.0
29	4.0	6.2	5.0	8.0	10.0	5.0	14.0	51.0	51.0	7.5	4.0	20.0
30	4.0	6.2	5.0	7.0	10.0	5.0	12.0	39.0	34.0	7.5	4.0	38.0
31	5.0	5.0	5.0	7.0	10.0	5.0	10.0	45.0	34.0	7.5	4.0	4.0
1917-18.												
1	53.0	5.0	5.0	30.0	14.2	17.0	26.5	21.1	16.4	6.3	6.0	6.0
2	73.0	101.0	5.0	30.0	13.8	15.4	28.0	21.3	16.3	5.9	5.8	5.8
3	64.0	74.0	5.0	30.0	13.4	13.8	29.4	21.5	16.2	5.6	5.5	5.5
4	17.0	48.0	7.5	30.0	13.1	12.2	30.8	27.0	16.1	5.3	5.2	5.2
5	10.0	21.5	10.0	30.0	12.7	10.7	32.0	32.0	16.0	5.0	5.0	5.0
6	7.5	16.0	8.1	30.0	12.3	11.7	30.0	37.0	15.8	7.0	5.0	5.0
7	8.4	10.0	8.3	32.0	11.9	12.6	28.0	52.6	15.6	9.0	5.0	5.0
8	9.2	8.7	7.5	31.0	11.5	13.5	26.0	49.0	15.5	11.0	5.0	5.0
9	10.0	7.5	7.5	30.0	11.1	13.5	24.0	46.0	15.4	13.5	4.9	4.9
10	8.7	7.5	7.5	29.0	10.7	13.5	24.5	43.0	15.3	15.3	4.8	4.8
11	7.5	7.5	25.0	28.0	10.3	13.5	25.0	40.0	14.4	13.0	4.7	4.7
12	6.2	7.5	43.0	27.5	10.0	13.5	25.5	37.0	13.5	10.0	4.6	4.6
13	5.0	7.5	61.0	27.0	10.0	13.5	26.0	33.0	12.0	23.0	4.5	4.5
14	5.0	7.2	44.0	26.0	10.0	13.9	26.5	29.0	10.5	36.0	4.4	4.4
15	5.0	6.9	26.5	25.0	10.0	14.3	43.0	25.0	9.0	49.0	4.3	4.3
16	5.0	6.6	20.0	24.0	10.0	14.6	39.0	21.5	7.5	17.0	4.2	4.2
17	5.0	6.3	13.5	23.5	11.4	14.9	35.0	21.5	12.5	16.5	4.2	4.2
18	5.0	29.0	115.0	23.0	12.8	15.3	31.0	21.5	17.5	16.0	4.2	4.2
19	5.0	51.0	71.0	22.5	14.2	15.6	28.0	21.5	21.5	15.3	4.2	4.2
20	5.0	73.0	26.5	22.0	16.8	15.9	25.0	21.5	26.5	12.6	4.2	4.2
21	5.0	37.0	17.0	21.0	19.2	16.3	21.5	21.5	16.5	10.0	4.2	4.2
22	5.0	13.5	16.0	20.0	21.5	16.7	21.0	21.5	7.5	9.2	4.2	4.2
23	5.0	12.0	15.5	19.0	19.2	17.0	20.4	21.5	7.5	8.4	4.2	4.2
24	6.2	10.5	15.0	18.0	17.0	17.8	19.9	21.5	7.5	7.5	4.2	4.2
25	7.5	9.0	14.0	17.0	17.0	18.6	19.3	21.5	7.5	7.5	4.2	4.2
26	7.0	7.5	13.5	17.3	18.0	19.3	19.6	21.5	7.5	7.5	4.2	4.2
27	6.5	6.2	25.0	16.6	19.0	20.0	19.9	17.0	7.3	7.3	4.2	4.2
28	6.0	5.0	37.0	14.9	20.0	20.7	20.1	16.8	7.1	7.1	4.2	4.2
29	5.5	5.0	50.0	20.7	21.5	21.5	20.3	16.6	6.9	6.9	4.2	4.2
30	5.0	5.0	75.0	21.5	24.0	20.6	16.5	6.7	6.6	6.6	4.2	4.2
31	5.0	100.0	19.0	19.0	19.0	20.9	6.5	6.3	4.2	4.2	4.2	4.2
Discharge.												
Sec.-ft.												
28.8												
62.7												
5.62												
5.92												

an creek.

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n creek.

1917-18.

Monthly Discharge of Elk Creek, above Waterworks Intake, for years ending Sept. 30, 1917-18.

Month.	Discharge in Second-Feet.			Run-Off.		
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	5.0	3.0	4.06			250
November	24.5	6.2	9.69			577
December	6.2	5.0	5.48			337
January	11.5	5.0	7.95			487
February	42.0	6.2	17.70			983
March	11.5	5.0	7.47			459
April	20.5	4.0	11.00			655
May	51.0	10.0	28.00			1,720
June	120.0	27.0	40.70			2,420
July	58.0	7.5	22.00			1,350
August	7.5	4.0	5.70			350
September	38.0	3.0	5.27			314
The year	120.0	3.0	13.80			9,904
1917-18						
October	73.0	5.0	12.2			750
November	101.0	5.0	20.4			1,210
December	115.0	5.0	28.9			1,780
January			50.0			3,070
February	32.0	14.9	24.8			1,380
March	21.5	10.0	14.6			878
April	24.0	10.7	15.7			934
May	43.0	19.3	26.0			1,600
June	52.6	16.5	27.3			1,620
July	26.5	6.5	12.7			781
August	49.0	5.0	12.1			744
September	6.0	4.2	4.6			274
The year		4.2	20.8			15,041

NOTE.—Intermittent Gauge Readings for 1916-17. Other daily discharges are interpolated.
—Maximum discharge probably occurred about January 1, 1917.

LILLOOET RIVER—STATION NO. 8 MG₅.

Location.—Government highway bridge at Agerton, one and one-half miles from Pemberton and eight miles above Lillooet lake.

Records Available.—Daily discharges from November 16, 1913, to September 30, 1918.

Drainage Area.—Eight hundred square miles.

Gauge.—Vertical staff gauge nailed to the central pier of the bridge. Daily gauge readings by Mr. N. J. Baker.

Channel and Control.—Straight for three hundred feet above and below measuring section. Control is not permanent. Large amount of silt carried in stream.

Discharge Measurements.—Made from highway bridge. Ten meter measurements taken during 1915 to 1917 cover all but extreme stages.

Winter Flow.—Stage-discharge relation affected by ice during winter months.

Accuracy.—"D" below discharge of 1,000 cubic feet per second. "B" between discharge of 1,000 and 16,000 cubic feet per second. "D" above discharge of 16,000 cubic feet per second.

Discharge Measurements of Lillooet River, 6 miles above Lillooet Lake, during 1916-17.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1916.				1917.			
Dec. 7	Beeston and Hughes	1.48	575	April 24	Balls and Webb	1.91	1,070
Feb. 1	Balls and Hughes	1.90	591	July 6	C. E. Webb	9.50	10,000
				Oct. 3	Milner and Balls	9.70	13,700
				" 4	"	10.30	15,450

Daily Discharge in Second-feet of Lillooet River, 6 miles above Lillooet Lake, for period April 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

[Drainage area, 800 square miles.]

n-Off

Total in Acre-feet.
250
577
485
983
459
655
1,720
2,420
1,350
350
314
9,904

750
1,210
1,780
3,070
1,380
878
934
1,600
1,620
781
744
274
15,041

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Daily

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"B"

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Dis-
charge.
Sec.-ft.
1,070
10,000
13,700
15,450

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug't	Sept.
1916-17.												
1							1,440	1,360	7,130	8,150	8,150	7,530
2							1,280	1,360	6,940	9,050	9,050	7,940
3							1,280	1,440	5,740	9,550	10,300	8,370
4							1,280	1,440	5,900	9,550	9,050	6,760
5							1,130	1,520	6,400	13,400	9,800	5,900
6							1,130	1,520	6,940	14,300	9,050	5,430
7							1,130	1,930	6,940	12,200	8,370	5,740
8							1,130	2,380	9,050	10,300	7,530	5,740
9							1,130	2,670	10,000	9,550	7,530	5,740
10							1,090	3,290	6,760	10,300	10,800	6,060
11							1,050	3,180	5,580	10,300	8,820	6,580
12							1,050	3,180	5,270	11,900	12,800	7,940
13							990	3,290	5,270	12,500	14,600	7,940
14							990	2,970	6,220	12,500	14,600	5,580
15							1,030	2,870	8,820	12,800	15,200	8,590
16							1,130	2,570	10,200	12,300	15,800	10,000
17							1,130	2,290	9,800	12,500	16,700	9,800
18							1,200	2,290	9,050	14,900	18,200	8,590
19							1,200	2,380	8,150	15,200	16,400	9,050
20							1,200	2,700	8,370	13,400	16,700	9,550
21							1,130	3,490	7,940	17,000	14,900	8,590
22							1,130	3,510	7,530	15,200	11,700	7,730
23							1,230	3,850	6,220	8,590	12,200	6,580
24							1,030	3,970	5,900	7,730	10,800	5,900
25							1,130	4,720	6,220	10,300	9,550	3,850
26							1,200	5,900	6,220	9,300	10,500	4,460
27							1,280	6,940	6,940	11,100	11,400	7,130
28							1,360	8,590	6,940	9,550	12,800	5,740
29							1,440	9,050	7,330	8,590	13,100	4,330
30							1,360	7,730	7,530	6,490	14,300	3,290
31								7,530		6,060	10,500	
1917-18.												
1	3,070	1,130	2,570	5,900	2,870	1,440	1,600	4,990	10,300	13,400	17,600	16,100
2	4,850	1,200	2,200	11,100	2,870	1,440	1,600	4,990	5,900	12,800	16,100	11,900
3	11,700	1,200	1,930	14,000	3,400	1,280	1,600	5,270	5,900	11,400	15,200	11,100
4	15,800	2,570	1,760	9,550	3,400	1,280	1,680	5,270	5,900	11,700	14,000	8,590
5	12,500	2,110	1,760	6,940	3,730	1,280	1,680	5,270	5,900	13,400	12,200	10,000
6	10,000	2,020	1,680	5,580	3,970	1,360	1,680	4,990	6,940	13,100	14,000	10,500
7	7,130	1,680	1,600	4,590	2,870	1,440	1,680	4,590	8,590	14,600	14,600	10,300
8	6,760	1,520	1,660	3,970	3,070	1,440	1,930	3,970	10,500	15,500	16,100	9,050
9	6,400	1,360	1,520	3,730	3,400	1,130	2,670	3,970	15,500	16,700	14,000	11,700
10	5,900	1,280	1,520	3,400	3,500	990	2,870	3,850	19,400	18,800	10,800	12,200
11	6,060	1,680	1,440	3,290	2,870	850	2,870	3,850	20,300	17,600	9,800	13,100
12	5,900	2,020	1,360	3,290	2,380	850	2,670	5,270	19,900	16,100	9,050	10,300
13	4,990	1,930	1,280	2,870	2,380	850	2,670	5,900	17,600	14,600	8,590	9,050
14	5,270	1,680	1,200	2,670	2,110	920	2,470	6,940	15,200	14,000	10,800	10,800
15	4,330	1,600	1,130	2,380	1,930	990	2,380	6,940	13,400	17,600	9,800	10,500
16	2,970	1,440	1,130	2,380	1,760	1,200	2,110	6,940	11,700	19,100	9,550	9,550
17	2,470	1,440	1,520	2,670	1,930	1,280	1,930	6,940	11,100	20,600	9,050	11,700
18	2,200	1,440	1,440	2,870	1,930	1,360	1,930	6,940	11,700	20,600	9,800	10,800
19	2,020	1,360	1,360	2,380	1,930	1,280	1,930	6,580	11,700	20,900	6,580	11,700
20	1,936	7,330	1,360	2,110	1,700	1,280	1,930	5,900	12,200	20,000	8,150	12,200
21	2,020	11,900	1,280	1,930	1,760	1,360	3,290	5,270	15,200	17,900	9,050	10,500
22	1,840	12,800	1,200	1,760	1,680	1,440	3,510	4,590	17,300	17,600	9,550	8,150
23	1,680	10,800	1,200	1,600	1,680	1,600	3,730	4,590	17,600	17,600	11,700	7,530
24	1,520	7,530	1,130	1,520	1,520	1,600	3,730	4,590	16,400	17,900	14,600	6,220
25	1,440	4,590	1,130	1,520	1,520	1,580	3,850	4,210	14,600	14,900	17,300	6,220
26	1,280	3,510	1,060	1,280	1,520	1,680	3,850	3,970	13,700	15,200	17,600	7,330
27	1,200	3,400	1,060	1,280	1,400	1,680	2,970	3,620	14,900	16,100	16,100	9,050
28	1,130	3,180	1,060	1,280	1,400	1,680	3,400	4,590	13,100	13,700	8,590	11,100
29	1,200	2,870	990	1,930	.....	.....	1,680	3,970	5,740	11,900	14,600	11,900
30	1,130	2,670	1,930	1,930	.....	.....	1,600	4,850	6,940	11,700	16,100	12,200
31	1,130	.....	3,510	2,380	.....	.....	1,600	10,500	.....	16,100	13,400	.....

Monthly Discharge of Lillooet River, 6 miles above Lillooet Lake, for years ending
Sept. 30, 1917-18.

[Drainage area, 800 square miles.]

Month	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	5,760	1,540	2,600	3.25	3.75	180,000
November	1,540	600	1,000	1.25	1.40	59,500
December	600		546	0.68	0.78	33,600
January			450	0.56	0.65	27,700
February			425	0.53	0.55	23,600
March			800	1.00	1.15	49,200
April	1,440	900	1,180	1.47	1.64	70,200
May	9,050	1,360	3,610	4.51	5.20	222,000
June	10,300	5,270	7,250	9.06	10.10	431,000
July	17,000	6,060	11,100	13.90	16.00	682,000
August	18,200	7,530	12,000	15.00	17.30	738,000
September	10,000	3,290	6,880	8.60	9.60	409,900
The year	18,200	600	3,987	4.98	68.12	2,905,800
1917-18.						
October	15,800	1,130	4,450	5.57	6.42	274,000
November	12,800	1,130	3,390	4.24	4.73	202,000
December	3,510	990	1,510	1.89	2.18	92,800
January	14,000	1,280	3,580	4.48	5.16	220,000
February	3,970	1,440	2,380	2.98	3.10	132,000
March	1,680	850	1,340	1.67	1.93	82,400
April	4,850	1,600	2,670	3.34	3.73	159,000
May	10,500	3,620	5,420	6.78	7.82	333,000
June	20,300	5,900	12,900	16.10	18.00	768,000
July	20,900	11,400	16,100	20.10	23.20	990,000
August	17,600	6,580	12,200	15.30	17.60	750,000
September	16,100	6,220	10,200	12.70	14.20	607,000
The year	20,900	850	6,350	7.93	108.07	4,610,200

NOTE.—January, February and March, 1917—Gauge heights affected by ice. Discharge for this period estimated from gauge records and climatic conditions.

GREEN RIVER—STATION NO. 8 MG₃.

Location.—Above Nairn falls, five miles from mouth, three miles from Pemberton.

Records Available.—Daily discharge November, 1913, to September 30, 1918. Revised data for climatic years 1914-15, 1915-16, 1916-17 are published in this report.

Drainage Area.—Two hundred square miles from Lillooet pre-emptor's sheet, 1915. Scale, 3 miles to 1 inch. In previous reports this area was given as one hundred and eighty square miles.

Gauge.—Sloping staff bolted to solid rock on right bank. Daily readings are taken by Mr. Wm. Tuck.

Channel and Control.—The channel is irregular boulder bed. Permanent control.

Discharge Measurements.—Twenty-seven discharge measurements made during 1915-1918 give a well defined rating curve.

Winter Flow.—Stream liable to be affected by ice.

Accuracy.—"B."

Discharge Measurements of Green River, at Nairn Falls, during 1915-18.

Date	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
1915.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
April 3	C. E. Dobbie	8.80	5,960*	Jan 10	Swan and MacLachlan	4.78	1,310
May 25	C. G. Cline	6.05	2,410†	Feb. 6	"	3.35	658
1917.				April 30	C. E. Webb	6.70	3,220
April 25	Webb and Balls	2.95	570†	July 4	"	7.40	3,930
Oct. 2	Balls and Milner	8.60	5,700	" 5	"	7.70	4,250

NOTE.—*Surface velocity co-efficient corrected.
†Soundings revised.

Daily Discharge in Second-feet of Green River, above Nairn Falls, for period Jan. 1 to Sept. 30, 1915, and year ending Sept. 30, 1916.

[Drainage area, 200 square miles.]

Off.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Sept.	
Total in Acre-feet.	1 1914-15				350	350	288	1,100	1,250	2,350	5,020	5,280	2,870
	2				350	312	280	6,320	1,100	2,160	5,670	4,890	3,090
	3				380	288	288	6,850	1,160	2,450	5,930	5,150	3,550
	4				350	275	300	4,020	2,250	2,650	6,380	4,020	3,540
	5				350	270	312	2,760	3,200	5,150	7,110	3,310	2,760
160,000	6				350	262	320	2,350	3,900	4,760	6,850	3,420	2,450
59,500	7				338	262	325	2,350	5,020	5,020	6,320	3,090	1,890
33,600	8				338	262	325	1,980	4,760	4,500	5,800	2,760	1,430
27,700	9				338	262	312	1,570	4,500	5,020	5,020	3,420	1,290
23,600	10				338	262	330	1,360	3,540	3,650	4,760	3,540	1,290
49,200	11				350	262	350	1,430	3,310	3,310	3,900	3,780	1,040
70,200	12				350	262	345	2,070	2,450	3,420	3,540	2,870	930
222,000	13				325	250	350	2,350	2,450	3,780	3,310	3,100	930
431,000	14				325	250	404	1,730	2,650	3,900	2,760	4,140	1,100
682,000	15				312	250	1,040	1,650	2,250	4,260	3,090	3,780	1,290
738,000	16				338	250	1,040	2,550	1,890	4,500	3,660	3,540	1,430
409,900	17				312	262	930	2,550	1,890	4,760	3,310	4,260	1,430
2,905,800	18				312	262	1,290	2,980	2,070	3,900	3,310	4,500	1,570
274,000	19				390	240	1,150	3,200	2,650	3,310	3,660	5,930	1,810
202,000	20				390	240	980	3,310	3,310	3,540	4,020	5,540	2,070
92,800	21				250	262	1,160	2,160	3,540	3,420	3,900	6,060	1,570
220,000	22				250	262	1,650	1,810	3,090	3,540	5,020	6,320	1,430
132,000	23				275	270	2,070	1,730	2,760	4,140	4,760	5,280	1,290
82,400	24				325	270	1,500	1,810	2,250	4,500	4,760	6,060	1,430
159,000	25				368	288	1,220	1,540	2,550	3,900	4,630	4,150	1,220
333,000	26				408	276	980	1,650	2,070	3,540	4,260	4,260	1,220
768,000	27				458	275	880	1,570	2,450	3,200	5,020	4,420	1,360
990,000	28				620	275	780	1,360	2,870	2,870	4,760	3,780	1,040
750,000	29				620		805	1,570	2,450	2,550	5,150	4,380	1,040
607,000	30				545		880	1,400	2,160	4,260	5,670	4,760	1,500
4,610,200	31				325		930		1,890		4,890	3,780	
xl estimated	1 1915-16				325	150	620	660	2,250	3,540	4,760	4,500	3,310
	2	980	1,100	350	325	150	580	830	3,310	3,310	5,410	4,140	3,090
	3	980	1,100	350	325	150	580	830	3,310	3,310	5,410	4,140	3,090
	4	980	930	350	325	150	545	930	4,260	3,780	6,980	3,540	2,760
	5	880	930	380	325	150	510	1,100	4,760	3,310	6,060	3,540	2,450
	6	780	930	410	325	150	475	1,290	4,500	3,200	4,760	3,310	1,980
	7	700	830	440	300	150	440	1,360	4,260	3,310	3,310	3,540	1,810
	8	620	740	440	300	150	440	1,360	3,900	3,310	3,090	3,540	1,730
	9	545	740	410	300	150	660	1,360	2,450	3,310	4,380	3,780	1,570
	10	510	660	410	300	150	1,100	1,500	1,980	3,540	5,410	4,020	1,430
	11	440	580	410	275	150	1,810	1,650	1,570	3,200	5,670	4,140	1,160
	12	410	580	380	275	150	2,870	1,650	1,430	3,200	5,410	4,140	1,160
	13	440	510	350	275	150	3,900	1,810	1,430	3,540	5,800	4,260	1,360
	14	440	440	325	250	150	3,310	1,890	1,360	4,760	5,410	4,260	1,220
	15	475	440	325	250	230	2,350	2,070	1,430	5,540	4,760	4,380	1,160
	16	510	440	250	1,430	1,730	1,890	2,250	6,060	4,020	4,140	4,140	1,160
	17	545	440	325	230	3,540	1,430	1,570	2,870	7,380	4,760	3,900	1,290
	18	586	410	325	230	2,650	1,220	1,430	3,420	7,900	5,280	3,310	1,430
	19	580	410	325	230	2,160	930	1,290	3,200	7,900	5,280	2,650	1,430
	20	660	410	325	230	1,730	830	1,160	2,870	6,450	5,540	2,650	1,430
	21	780	380	325	230	1,430	830	1,040	2,650	4,760	5,800	2,760	1,430
	22		930	380	350	230	1,220	1,040	930	2,450	5,020	5,280	2,980
	23		1,040	380	380	230	1,040	830	2,160	6,320	5,020	3,200	2,070
	24		1,160	380	380	210	930	930	1,810	6,060	4,500	3,310	1,570
	25		1,160	410	350	190	880	780	1,040	1,730	6,060	3,900	3,540
	26		1,360	410	350	190	830	660	1,040	2,450	6,320	3,310	3,780
	27		4,760	410	330	175	780	580	1,040	2,980	6,980	3,310	4,020
	28		2,870	380	350	175	740	580	1,290	3,540	7,110	3,900	1,930
	29		3,540	380	325	160	700	580	1,500	3,540	6,450	2,980	4,020
	30		2,450	380	325	150	660	580	1,730	3,200	5,670	3,200	3,900
	31		1,570	350	325	150		580	1,980	3,090	4,760	3,780	700
			1,100		325	150		620		3,200		4,760	3,540

Sec-ft.
1,310
658
3,220
3,930
4,250

Dis-charge.

Daily Discharge in Second-feet of Green River, above Nairn Falls, for years ending Sept. 30, 1917-18.

[Drainage area, 200 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-1917												
1	660	440	275	190	120	140	140	830	4,760	3,750	1,890	1,890
2	660	440	275	210	120	140	130	880	4,500	4,250	2,250	1,570
3	660	440	250	190	130	140	175	930	3,540	4,760	2,870	1,430
4	660	440	250	210	130	140	175	880	3,200	4,500	3,310	1,290
5	660	440	230	210	300	140	190	930	3,090	4,280	3,310	1,040
6	660	325	210	210	300	140	175	930	8,980	4,500	4,020	1,160
7	660	325	230	190	230	140	230	1,290	3,200	4,260	3,540	930
8	620	275	210	190	210	140	250	1,500	6,850	4,500	2,070	830
9	580	300	210	175	190	140	275	1,570	4,760	4,630	1,570	740
10	580	300	210	190	190	140	300	2,070	4,630	5,020	1,890	1,040
11	580	300	210	190	190	140	300	2,450	4,260	5,540	2,250	1,290
12	580	300	210	175	175	140	275	2,160	3,090	5,540	3,540	2,250
13	740	300	190	160	175	150	275	1,890	3,420	5,800	2,870	2,650
14	830	275	190	160	190	140	300	1,730	3,780	5,280	3,090	2,070
15	880	275	190	160	190	140	300	1,570	4,260	4,760	3,310	1,290
16	930	275	190	175	175	150	325	1,570	4,760	5,280	3,540	1,070
17	1,100	275	190	160	175	130	300	1,430	4,890	5,540	4,260	1,570
18	930	250	190	160	190	150	275	1,500	4,760	4,500	4,030	1,430
19	930	275	190	175	175	150	275	1,290	5,150	4,760	4,020	1,290
20	740	275	175	175	175	130	275	1,430	4,890	6,320	3,540	1,430
21	660	275	175	175	175	130	325	1,570	4,260	5,800	4,020	1,040
22	660	250	190	190	175	140	440	1,570	3,540	3,780	3,310	830
23	580	250	190	190	150	150	440	1,810	3,660	3,310	2,870	930
24	580	250	175	175	140	150	475	1,890	3,310	3,090	2,450	930
25	510	250	175	175	140	140	440	2,450	3,200	2,450	2,250	1,430
26	510	250	160	175	140	140	475	2,870	2,870	2,250	2,070	2,250
27	510	275	160	160	140	150	510	3,200	2,980	3,310	2,450	1,730
28	440	275	160	160	140	150	545	3,540	3,200	3,020	2,250	1,430
29	440	275	160	150	120	120	740	3,260	3,310	5,280	3,540	740
30	440	275	175	120	120	830	4,500	3,200	1,890	3,090	580	580
31	440	190	120	120	130	130	4,760	1,570	2,250	2,250	2,250	2,250
1917-18												
1	2,250	230	930	6,060	350	190	830	3,420	2,760	4,630	3,900	2,870
2	4,760	580	740	9,470	380	160	660	3,540	2,550	4,380	4,140	2,070
3	3,780	1,160	740	9,470	440	150	660	3,900	3,350	4,380	4,380	1,890
4	4,020	1,290	660	6,060	580	150	620	4,260	2,650	4,020	4,020	2,070
5	2,650	1,890	660	5,020	700	140	620	4,380	2,870	4,380	3,780	2,450
6	2,250	1,290	580	4,020	660	130	580	3,540	3,420	4,630	3,310	2,550
7	2,070	1,160	580	2,450	620	130	650	2,760	4,260	5,020	3,200	2,160
8	1,290	930	580	2,070	740	140	780	2,350	5,020	5,280	3,200	1,980
9	1,290	830	510	1,730	830	140	2,070	2,070	6,850	3,410	2,980	2,070
10	1,160	740	510	1,570	880	130	2,250	2,250	9,860	6,450	2,870	2,250
11	930	580	510	1,430	780	130	1,890	2,550	5,930	6,060	2,760	2,350
12	740	1,430	380	1,430	740	120	1,650	3,090	5,930	5,540	2,160	2,550
13	830	1,160	380	1,220	740	140	1,570	3,660	6,190	4,890	2,250	1,890
14	930	1,040	325	1,040	660	150	1,220	4,260	5,540	5,410	2,550	1,980
15	1,040	830	740	930	510	175	1,040	4,890	4,380	6,190	3,090	1,810
16	1,040	830	830	1,100	410	190	1,100	4,260	4,630	6,720	2,650	1,890
17	830	740	830	930	380	230	880	3,780	4,150	7,110	2,070	1,980
18	740	1,160	880	1,040	325	250	930	3,090	4,630	7,510	2,160	2,160
19	740	2,070	830	980	300	275	930	2,450	3,540	7,770	2,160	2,250
20	660	4,500	740	830	275	350	1,290	2,070	4,380	5,930	1,890	1,890
21	580	6,580	740	740	210	440	1,570	1,890	5,410	5,020	2,160	1,430
22	660	4,760	660	740	160	510	2,250	1,730	5,800	4,890	2,250	1,290
23	580	5,280	510	780	140	545	2,160	1,570	6,060	4,500	3,310	1,220
24	580	3,540	440	830	190	580	2,250	1,430	5,670	4,380	3,780	1,160
25	510	2,650	440	740	175	580	2,250	1,360	5,410	4,140	4,140	980
26	580	2,450	410	620	190	545	1,810	1,570	4,760	3,660	3,660	1,360
27	510	2,250	380	510	190	660	1,890	1,730	3,150	3,780	3,780	1,890
28	440	1,890	830	475	210	740	1,890	2,760	4,890	3,540	2,070	2,550
29	325	1,730	2,450	440	440	880	2,650	4,140	4,500	3,420	2,850	2,250
30	275	1,290	5,280	410	410	1,040	3,200	3,540	4,630	3,780	2,650	1,890
31	275	6,320	380	380	380	1,160	2,980	2,980	3,660	3,660	3,540	3,540

NOTE.—Drainage area revised December 31, 1918 from Lillooet preceptors sheet 1915—scale 3 miles to 1 inch.

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Monthly Discharge of Green River, above Nairn Falls, for years ending Sept. 30, 1915-18. (Data Revised January, 1919.)

[Drainage area, 200 square miles.]

Sept.	Month.	Discharge in Second-feet.				Run-Off.	
		Maximum.	Minimum.	Mean.	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1,890							
1,570							
1,430							
1,290							
1,040							
1,160	1914-15			2,970	14.80	17.10	183,000
930	October			1,530	7.65	8.53	91,000
830	November			646	3.23	3.72	39,700
740	December			347	1.73	1.99	21,300
1,040	January	620	250	288	1.44	1.60	16,000
1,290	February	350	240	268	1.34	1.40	14,900
2,250	March	2,070	280	788	3.94	4.30	47,200
2,650	April	6,850	1,100	2,370	11.80	13.20	141,000
2,070	May	5,020	1,100	2,690	13.40	15.40	165,000
2,070	June	5,150	2,160	3,710	18.50	20.60	220,000
2,070	July	7,110	2,760	4,690	23.40	27.00	288,000
1,730	August	6,320	2,760	4,320	21.60	24.90	266,000
1,570	September	3,540	930	1,660	8.30	9.26	98,800
1,430	The year			2,160	10.80	147.40	1,575,900
1,430	1915-16						
1,040	October	3,540	410	1,120	5.60	6.46	68,900
830	November	1,100	350	562	2.81	3.14	38,400
930	December	440	325	358	1.79	2.06	22,000
930	January	325	150	244	1.22	1.41	15,000
1,430	February	3,540	150	790	3.95	4.26	45,400
2,250	March	3,900	440	1,120	5.60	6.46	68,900
1,730	April	2,070	660	1,340	6.70	7.48	79,700
1,430	May	4,760	1,360	2,780	13.90	16.00	170,000
740	June	7,900	3,200	5,070	25.30	28.20	302,000
580	July	6,980	2,980	4,680	23.40	27.00	288,000
	August	4,500	2,650	3,700	18.50	21.30	227,000
	September	3,310	700	1,550	7.75	8.65	92,200
	The year	7,900	150	1,940	9.71	132.42	1,412,500
2,870	1916-17						
2,070	October	1,100	440	658	3.29	3.79	40,500
1,890	November	440	250	305	1.52	1.70	18,200
2,070	December	275	160	200	1.00	1.15	12,300
2,450	January	210	120	176	0.88	1.01	10,800
2,550	February	300	120	178	0.89	0.93	9,900
2,160	March	150	120	140	0.70	0.81	8,600
2,070	April	830	130	338	1.69	1.89	20,100
2,250	May	4,760	830	1,980	9.90	11.40	122,000
2,350	June	6,850	2,870	3,940	19.70	22.00	234,000
2,550	July	6,320	1,570	4,310	21.50	24.80	265,000
1,890	August	4,260	1,570	2,960	14.80	17.10	182,000
1,980	September	2,650	580	1,390	6.95	7.75	82,000
1,810	The year	6,850	120	1,380	6.90	94.33	1,006,100
1,890	1917-18						
1,980	October	4,760	275	1,270	6.35	7.32	78,100
2,160	November	6,580	230	1,900	9.50	10.60	113,000
2,250	December	6,320	325	1,010	5.05	5.82	62,100
1,890	January	9,470	380	2,110	10.60	12.20	130,000
1,430	February	880	140	455	2.28	2.37	25,300
1,290	March	1,160	120	360	1.80	2.08	22,100
1,220	April	3,200	580	1,470	7.35	8.20	87,500
1,160	May	4,890	1,360	2,940	14.70	17.00	181,000
980	June	9,860	2,350	4,840	24.20	27.00	288,000
	July	7,770	3,420	5,050	25.20	29.00	310,000
	August	4,380	1,890	2,970	14.80	17.10	183,000
	September	2,870	980	1,970	9.85	11.00	117,000
	The year	9,860	120	2,200	11.00	149.69	1,598,100

CHILLIWACK RIVER—STATION No. 8 MH₁.

Location.—Two miles above Sumas lake at highway bridge on Yale road.

Records Available.—Daily discharges from November, 1911, to December, 1915, and from October 1916, to September, 1918.

Drainage Area.—Four hundred and fifty square miles, of which, about one hundred square miles are in the state of Washington.

Gauge.—Vertical staff gauge on rock filled crib until December 29, 1917. Gauge washed away in flood. Chain gauge installed spring of 1918 at new highway bridge, about 200 feet above old gauge. Gauge read daily by Mr. N. W. Dennison.

Channel and Control.—The control is not permanent and channel shifts with each extreme high-water.

Discharge Measurements.—There are two stage-discharge relation curves. One to be used up to December 31, 1917, is defined by four measurements made during 1917, the other is defined by four measurements made during 1918.

Accuracy.—"C" The constant changing of control makes it impossible to accurately determine the true discharge. During 1918 considerable work has been carried on by the Provincial government to regulate the flow of the stream.

Discharge Measurements of Chilliwack River, 5 miles above Sumas Mountain, during 1917-18.

Date.	Engineer.	Gauge Height.		Date.	Engineer.	Gauge Height.	
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
July 19	H. C. Hughes	4-92	5,840	May 8	Webb and MacLachlan	5-21	3,070
" 25	" "	3-68	3,280	June 6	C. E. Webb	6-40	4,300
Sept. 5	H. C. G. and A. T. M.	1-66	1,080	Aug. 8	" "	3-62	1,830
" 16	C. E. Webb	1-30	840	Sept. 5	" "	3-08	1,100

NOTE.—C temporary gauge bridge, 150 feet above highest gauge an estimate of discharge of 1,100.

Daily Discharge in Second-feet of Chilliwack River, 5 miles above Sumas Mountain, for years ending Sept. 30, 1917-18.

[Drainage area 450 square miles]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1	945	1,120	1,000	845	845	1,030	890	1,460	6,320	5,570	2,680	1,190
2	890	1,600	1,060	868	868	1,000	869	1,420	5,810	6,320	2,680	1,160
3	890	1,190	1,190	890	1,060	978	845	1,420	4,870	6,320	2,610	1,120
4	867	1,700	1,120	890	1,510	972	800	1,380	4,050	7,130	2,400	1,060
5	845	1,260	1,060	917	1,700	1,000	1,190	1,420	4,240	6,860	2,270	1,030
6	823	1,190	1,000	945	1,700	1,000	1,190	1,510	4,240	5,810	2,270	972
7	800	1,120	1,000	1,030	1,510	1,030	1,120	1,510	4,450	5,570	2,210	945
8	800	1,060	945	1,060	1,340	1,000	1,120	2,030	4,450	5,330	2,210	918
9	785	4,870	945	1,090	1,260	972	1,160	2,990	6,320	5,810	2,150	918
10	785	2,150	890	1,120	1,300	945	1,120	2,830	5,400	5,810	2,090	945
11	770	1,600	890	1,190	1,260	945	1,340	3,670	4,450	5,570	2,030	1,120
12	770	1,340	945	1,120	1,260	917	1,260	3,490	3,490	5,330	2,090	1,120
13	755	1,260	890	1,060	1,220	917	1,190	3,860	3,490	5,570	2,030	1,160
14	755	1,260	918	1,000	1,260	890	1,190	3,670	4,870	5,570	2,030	1,160
15	755	1,190	945	1,000	1,300	890	1,120	2,400	6,860	5,330	1,980	1,120
16	770	1,190	945	972	1,600	868	1,120	2,990	8,000	5,810	1,980	1,090
17	755	1,120	918	972	1,510	845	1,090	2,540	7,410	5,570	1,920	1,000
18	740	1,190	918	945	1,360	845	1,060	2,270	6,590	5,450	1,920	1,000
19	740	1,120	945	945	1,300	868	1,120	2,400	6,320	5,330	1,860	945
20	740	1,120	945	917	1,260	845	1,160	2,270	6,060	5,570	1,860	945
21	725	1,090	918	917	1,260	868	1,190	2,270	5,810	5,100	1,810	945
22	725	1,060	918	890	1,190	890	1,190	2,340	5,810	4,660	1,810	918
23	725	1,000	845	890	1,160	890	1,220	2,270	5,330	4,050	1,760	918
24	710	1,000	845	845	1,120	868	1,220	2,830	4,870	3,490	1,700	945
25	710	1,030	823	945	1,120	845	1,220	2,990	5,100	3,320	1,650	945
26	1,260	1,060	800	945	1,090	845	1,260	4,870	5,100	3,070	1,600	1,120
27	890	1,260	800	917	1,060	868	1,510	5,810	5,330	2,830	1,600	1,260
28	845	1,120	800	890	1,060	890	1,510	6,060	5,810	2,910	1,510	1,190
29	800	1,120	785	890	.....	868	1,460	7,000	5,330	2,990	1,420	1,120
30	890	1,000	800	845	.....	868	1,420	6,190	5,330	2,830	1,340	1,000
31	945	.....	800	845	.....	890	.....	5,940	.....	2,830	1,260	.....
1917-18												
1	1,060	890	1,600	.....	.....	.....	.....	3,450	4,290	3,650	1,530	1,390
2	2,990	890	1,510	.....	.....	.....	.....	3,550	3,350	3,450	1,460	1,350
3	2,270	3,860	1,420	.....	.....	.....	.....	3,550	3,450	3,250	1,460	1,320
4	2,030	3,860	1,260	.....	.....	.....	.....	3,650	3,650	2,850	1,390	1,250
5	1,700	3,490	1,260	.....	.....	.....	.....	3,250	3,750	2,670	1,390	1,210
6	1,420	2,830	1,190	.....	.....	.....	.....	3,150	4,120	2,580	1,530	1,210
7	1,260	2,150	1,190	.....	.....	.....	.....	3,450	5,720	2,400	1,670	1,180
8	1,190	1,920	1,260	.....	.....	.....	.....	3,050	5,060	2,310	1,670	1,120
9	1,120	1,600	1,510	.....	.....	.....	.....	3,050	8,170	2,140	1,630	1,090
10	1,000	1,510	1,510	.....	.....	.....	.....	2,950	7,770	3,250	1,870	1,120
11	945	1,510	1,420	.....	.....	.....	.....	2,850	7,140	3,050	2,020	1,120
12	867	1,420	1,420	.....	.....	.....	.....	3,450	7,610	2,850	1,980	1,150
13	845	1,340	1,600	.....	.....	.....	.....	3,550	7,370	2,670	1,820	1,180
14	845	1,340	6,720	.....	.....	.....	.....	3,750	6,350	2,580	1,740	1,210
15	822	1,300	4,870	.....	.....	.....	.....	4,290	5,390	2,670	1,820	1,120
16	845	1,190	8,150	.....	.....	.....	.....	4,070	5,060	2,760	1,980	1,120
17	822	1,150	6,060	.....	.....	.....	.....	3,750	4,940	2,850	1,600	1,060
18	822	1,120	13,500	.....	.....	.....	.....	3,450	4,820	2,760	1,740	1,030
19	845	1,190	10,040	.....	.....	.....	.....	3,250	4,820	2,670	1,700	1,030
20	867	2,540	6,590	.....	.....	.....	.....	2,850	5,260	2,760	1,600	1,030
21	1,060	4,660	4,870	.....	.....	.....	.....	3,450	5,790	2,580	1,600	1,030
22	945	3,860	4,050	.....	.....	.....	.....	3,250	2,580	2,490	1,670	1,030
23	945	2,990	3,860	.....	.....	.....	.....	3,150	2,490	4,940	2,310	1,630
24	890	2,540	3,490	.....	.....	.....	.....	2,850	2,400	4,880	1,900	1,600
25	890	1,920	3,490	.....	.....	.....	.....	2,670	2,310	4,820	1,820	1,600
26	918	1,810	3,860	.....	.....	.....	.....	2,670	2,400	4,580	1,900	1,530
27	945	1,920	6,450	.....	.....	.....	.....	2,490	2,400	4,340	1,740	1,530
28	890	1,920	10,500	.....	.....	.....	.....	2,580	2,850	3,700	1,820	1,460
29	845	1,810	27,000	.....	.....	.....	.....	2,670	3,650	3,450	1,740	1,460
30	845	1,700	13,650	.....	.....	.....	.....	3,250	5,860	3,450	1,390	970
31	867	.....	17,100	.....	.....	.....	.....	5,260	.....	1,600	1,320	.....

NOTE.—Gauge washed out December 29, 1917. Gauge records December 29, 1917 to April 20, 1918, not reliable—temporary gauge washed April 21, 1918—August 7, 1918. New permanent chain gauge installed August 8, 1918, at new highway bridge, 150 feet above old gauge. This is an absolutely different section. Gauge height of 11.5 on December 29, 1917, is an estimate as gauge was washed out during day, and in all probability change in control had already taken place. The discharge of 27,000 c.f.s. for gauge height of 11.5 was arrived at by producing the rating curve in a straight line. The highest gauge height at which a discharge measurement was obtained was about 5 feet.

Monthly Discharge of Chilliwack River, 5 miles above Sumas Mountain, for years ending Sept. 30, 1917-18.

[Drainage area 450 square miles.]

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	1,260	710	813	1.81	2.09	50,000
November	4,870	1,000	1,350	2.99	3.34	80,300
December	1,190	785	922	2.05	2.36	56,700
January	1,190	845	955	2.12	2.44	58,700
February	1,700	845	1,260	2.80	2.92	70,000
March	1,030	845	914	2.03	2.34	56,200
April	1,510	800	1,170	2.60	2.90	69,600
May	7,000	1,380	3,100	6.89	7.94	191,000
June	8,000	3,490	5,370	11.09	13.03	320,000
July	7,130	2,830	4,960	11.09	12.07	305,000
August	2,680	1,290	1,960	4.35	5.01	121,000
September	1,260	918	1,040	2.31	2.58	61,900
The year	8,000	710	1,984	4.40	59.92	1,440,400
1917-18						
October	2,990	822	1,120	2.49	2.87	68,900
November	4,660	800	2,070	4.60	5.13	123,000
December	27,000	1,190	5,560	12.30	14.20	342,000
January						
February						
March						
April						
May	5,860	2,310	3,330	7.40	8.53	205,000
June	8,170	3,350	5,110	11.30	12.60	304,000
July	3,650	1,600	2,570	5.71	6.58	158,000
August	2,020	1,320	1,920	3.60	4.15	99,600
September	1,390	970	1,110	2.47	2.76	66,000
The period	27,000	822	2,810	6.23	56.82	1,366,500

ALOUETTE RIVER—STATION No. 8 MH₁₄.

Location.—At outlet from Alouette lake, township 4, range 4, west 7th meridian.

Records Available.—Daily discharges January 1, 1916, to September 30, 1918.

Drainage Area.—One hundred and forty square miles, estimated by the Burrard Power Company.

Gauge.—Vertical staff. Gauge read daily by Wright & Greaves.

Channel and Control.—Channel is regular above and below metering section. Control appears permanent.

Discharge Measurements.—Distributed over a period of seven years. The rating has never varied.

Winter Flow.—Not affected by ice.

Co-operation.—Data supplied by the Burrard Power Company.

Daily Discharge in Second-feet of Alouette River, at Alouette Lake, for period Jan. 1 to Sept. 30, 1917, and year ending Sept. 30, 1918.

[Drainage area 140 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
n-Off.	1917.											
Total in Acre-feet.				231	280	267	483	1,093	1,559	1,217	430	186
				255	293	255	465	1,093	1,867	1,217	397	146
				280	365	255	483	917	1,867	1,217	365	146
				321	711	243	501	862	1,559	1,154	365	146
				1,033	1,217	280	917	809	1,382	1,154	365	146
				1,315	1,154	267	1,154	835	1,282	1,154	335	137
50,000				1,315	1,093	255	1,154	917	1,154	1,062	335	146
80,000				1,348	1,033	280	1,154	1,154	1,217	974	321	155
50,700				1,633	917	280	1,154	1,523	2,208	917	293	186
58,700				1,487	809	243	1,093	1,487	1,992	862	280	197
70,000												
56,200				1,382	809	231	1,123	1,487	1,633	862	267	219
69,600				1,249	974	231	1,154	1,487	1,417	862	255	243
191,000				974	945	243	1,123	1,559	1,217	835	255	280
320,000				809	889	231	1,062	1,559	1,186	835	243	293
305,000				735	835	243	917	1,417	1,282	809	231	365
121,000												
61,900				621	835	219	835	1,348	1,487	809	231	397
1,440,400				501	759	219	862	1,282	1,417	809	231	397
				447	711	208	809	1,093	1,282	809	231	365
				430	643	219	784	1,003	1,217	735	219	335
				365	579	243	784	917	1,154	688	255	307
68,900												
123,000				335	520	267	945	889	1,154	643	293	280
342,000				307	465	280	1,093	974	1,154	600	307	243
				307	431	335	1,154	974	1,093	539	293	231
				307	381	447	1,093	1,033	1,154	483	280	231
				293	350	430	1,003	1,154	1,315	447	243	231
205,000				307	307	397	974	1,348	1,282	430	243	267
304,000				365	293	413	1,033	1,487	1,186	397	219	465
158,000				350	267	413	1,062	1,633	1,217	501	208	600
99,000				335		465	1,154	1,671	1,282	520	197	600
66,000				335		483	1,154	1,633	1,282	465	186	579
1,366,500				293		501		1,559		465	186	
	1917-18											
	465	267	1,003	7,500	447	280	1,348	835	621	293	208	219
	1,487	280	862	6,450	447	267	1,093	862	621	293	197	197
	3,099	397	759	4,361	447	255	917	917	600	280	186	186
	2,486	600	735	3,551	1,217	267	784	1,033	579	267	175	165
	1,950	688	600	2,783	1,867	255	665	1,033	579	255	165	155
	1,417	917	539	2,253	2,034	231	600	917	579	231	155	155
	1,033	917	483	2,391	2,391	219	559	809	643	231	146	146
	862	784	465	2,164	1,867	208	621	784	665	219	146	137
	621	665	483	1,867	1,827	208	917	711	688	219	175	128
	579	579	483	1,382	2,783	197	1,382	688	784	255	381	119
	465	579	579	1,154	2,486	186	1,382	665	835	280	643	111
	430	465	559	1,154	1,827	175	1,217	688	809	280	643	111
	381	465	711	974	1,452	175	1,093	688	809	267	579	111
	321	430	2,077	917	1,093	165	1,003	665	784	255	501	103
	293	397	2,391	917	917	165	889	665	735	243	447	103
	267	350	7,500	413	759	307	784	665	665	243	413	103
	243	335	6,950	381	665	465	711	643	600	231	397	96
	231	307	4,967	3,099	539	1,315	643	643	579	231	397	96
	208	280	3,794	2,439	465	1,523	600	643	539	231	501	89
	197	1,123	2,391	1,709	413	1,671	735	688	520	231	501	82
	197	3,320	1,709	1,282	365	1,671	1,003	665	501	243	483	76
	175	2,391	1,154	1,123	335	2,486	1,123	621	520	243	465	76
	155	1,950	974	917	335	2,298	1,123	579	501	231	447	70
	165	1,417	835	945	307	2,632	1,062	539	483	219	430	70
	186	1,154	711	917	307	3,154	974	501	447	208	397	70
	231	974	621	809	307	2,682	862	465	397	231	365	70
	255	862	579	688	280	2,034	784	430	381	243	335	65
	255	1,123	1,709	665	267	1,827	735	465	350	243	307	65
	280	1,062	7,500	665		1,748	759	539	321	231	280	65
	267	1,033	5,535	539		1,671	809	559	307	219	255	65
	255		5,535	465		1,523		621		208	231	

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Monthly Discharge of Alouette River, at Alouette Lake, for years ending Sept. 30, 1917-18.

† [Drainage area 140 square miles estimated.]

Month.	Discharge in Second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	917	50	416			7,130
November	2,298	255	979			58,300
December	1,348	231	534			32,800
January	1,633	231	654			40,223
February	1,217	267	674			37,415
March	501	200	301			18,530
April	1,154	465	956			56,827
May	1,671	809	1,289			75,578
June	2,208	1,093	1,383			82,302
July	1,217	397	789			48,534
August	430	186	276			16,975
September	600	137	284			16,891
The year	2,298	50	681			491,533
1917-18						
October	3,099	155	628	4.48	5.17	38,600
November	3,320	2,267	870	6.21	6.93	51,800
December	7,500	465	2,403	15.00	17.30	129,000
January	7,500	381	1,834	13.10	15.10	113,000
February	2,783	267	1,017	7.26	7.56	56,500
March	3,154	163	1,041	7.45	8.59	64,000
April	1,382	559	906	6.48	7.23	53,900
May	1,033	430	685	4.89	5.64	42,100
June	835	307	581	4.15	4.63	34,600
July	293	208	344	1.74	2.01	15,000
August	643	146	356	2.52	2.91	21,700
September	219	65	110	0.79	0.88	6,550
The year	7,500	65	861	6.17	8.95	626,750

Note.—This data supplied by the Burrard Power Company.

SKAGIT RIVER DRAINAGE BASIN.

SKAGIT RIVER—STATION NO. 8 N1.

Location.—Forty miles from Hope, four miles above the International Boundary.

Records Available.—Daily discharges March 27 to December 31, 1915; March 31, 1916, to September 30, 1918.

Drainage Area.—Three hundred and fifty-six square miles.

Gauge.—Gurley Water Stage Register on left bank, one mile from Whitworth's Ranch.

Channel and Control.—Channel is straight for two hundred feet above and below section, fine gravel bed. The control is gradually changing by the formation of a sand and gravel bar below gauge.

Discharge Measurements.—Made from cable carrier at gauge. Thirteen measurements made during 1915-1917 define rating curve to be used to September 30, 1917. Six meter measurements made during 1917-18 define rating curve to be used after that date.

Winter Flow.—May be affected by ice.

Accuracy.—"C".

Discharge Measurements of Skagit River, 4 miles from International Boundary, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
June 12	C. E. Webb	11.83	2,590	June 14	C. E. Webb	14.14	5,560
" 14	" "	12.25	3,070	" 15	" "	14.13	5,410
" 15	" "	13.16	4,540	Sept. 23	" "	9.34	283
" 16	" "	13.86	5,700	" 27	" "	9.23	257
Sept. 15	" "	9.41	354				
Oct. 31	" "	9.20	244				

Daily Discharge in Second-feet of Skagit River, four miles from International Boundary, for period March 27 to Dec. 31, 1915, and year ending Sept., 1916.

[Drainage area, 356 square miles. Revised Feb., 1918.]

n-off.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sep.
1915.												
1							860	780	1,050	586	412	222
2							1,100	700	1,010	592	400	225
3							1,190	700	972	604	375	225
4							1,280	700	964	610	342	225
5							1,100	700	1,030	592	330	225
6							1,200	860	1,120	562	326	225
7							940	940	1,140	538	318	225
8							900	1,060	1,060	502	303	225
9							820	1,060	964	478	300	185
10							780	1,020	900	448	296	185
11							780	940	900	418	289	185
12							820	900	844	409	278	185
13							940	860	804	385	275	185
14							900	860	788	395	282	150
15						193	900	860	796	430	282	150
16							940	860	804	454	282	150
17							1,020	780	844	430	289	150
18							1,100	860	828	406	272	150
19							1,140	940	740	390	272	150
20							1,100	1,020	700	390	278	150
21							1,140	1,020	664	400	292	120
22							940	1,020	652	400	296	120
23							940	900	658	385	289	120
24							900	900	670	375	278	120
25							860	990	634	370	268	120
26							860	860	604	365	250	120
27							526	860	900	586	365	240
28							526	860	940	556	375	237
29							532	860	860	556	390	234
30							544	780	1,080	568	442	240
31							550	780	1,030	442	219	120
1915-16.												
1	120	1,240	289				964	2,210	2,400	3,560	1,280	580
2	150	1,050	282				1,030	2,790	2,580	3,710	1,280	580
3	185	940	278				1,130	3,620	2,920	3,900	1,290	580
4	185	884	292				1,280	4,170	3,380	3,570	1,290	520
5	185	916	303				1,350	4,190	3,340	3,260	1,100	520
6	185	836	303				1,330	4,010	3,000	3,030	1,100	520
7	185	756	303				1,350	3,600	2,970	2,940	1,100	460
8	185	694	430				1,420	3,070	3,310	3,250	1,100	460
9	150	652	604				1,480	2,620	3,640	3,450	1,100	460
10	150	604	538	280			1,500	2,260	3,390	3,320	1,100	400
11	150	568	490				1,500	2,000	3,150	2,930	980	400
12	225	520	448				1,450	1,820	3,340	2,930	980	400
13	225	478	418				1,360	1,680	3,890	2,800	980	330
14	225	466	390				1,440	1,600	4,780	2,280	876	330
15	225	448	365				1,480	1,610	6,030	2,160	860	330
16	225	430	350				1,440	1,790	1,740	2,160	860	293
17	225	424	334				1,400	2,120	7,560	2,280	820	293
18	225	424	322				1,360	2,320	7,220	2,160	740	282
19	275	406	314				1,290	2,580	5,880	1,980	670	282
20	460	375	318				1,240	2,630	4,750	1,980	670	278
21	460	360	390				1,190	2,530	4,330	1,860	580	275
22	460	360	508				1,130	2,340	4,510	1,860	580	275
23	460	365	472				1,080	2,110	4,630	1,860	580	289
24	460	346	442				1,060	1,980	4,890	1,740	580	350
25	580	342	424				1,140	2,100	4,890	1,580	670	326
26	740	342	385				1,320	2,500	5,430	1,480	820	303
27	924	326	370				1,910	2,680	5,780	1,480	820	310
28	1,280	306	300				2,220	2,740	5,310	1,380	670	318
29	1,360	306	318				2,090	2,570	4,590	1,380	670	300
30	1,100	300	278				1,980	2,410	3,860	1,280	670	282
31	1,150		260			916		2,370		1,280	580	

Total in Acre-feet:
7,130
58,300
32,800
40,223
37,415
18,530
56,877
75,578
82,302
48,534
16,975
16,891

491,553

38,600
51,800
129,000
113,000
56,500
64,000
53,000
42,100
34,600
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Daily Discharge in Second-feet of Skagit River, four miles from International Boundary, for years ending Sept. 30, 1917-18.

[Drainage area, 356 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1	275	247	231	170	150	222	156	1,060	4,870	3,530	980	418
2	269	269	240	170	150	225	156	1,060	4,380	3,900	964	406
3	260	330	234	170	150	225	153	1,150	3,920	3,940	964	390
4	247	334	225	170	150	251	152	1,150	3,210	3,900	924	370
5	244	314	216	170	150	289	150	1,150	2,930	3,690	900	365
6	237	285	213	170	150	219	148	1,380	3,210	3,360	852	355
7	231	258	213	170	150	195	147	1,480	3,560	3,080	812	346
8	228	247	213	170	150	198	152	2,040	3,920	2,850	772	342
9	219	514	208	170	150	192	160	2,930	4,540	2,770	732	338
10	216	772	208	192	150	185	165	3,560	3,770	2,850	724	338
11	213	562	202	185	150	183	200	3,920	3,210	2,770	700	370
12	210	412	193	175	150	181	250	3,920	2,580	2,680	694	375
13	208	382	183	173	150	175	330	4,070	2,840	2,530	700	390
14	205	352	193	171	150	173	400	3,920	3,110	2,340	694	370
15	202	322	193	167	170	169	460	3,070	4,480	2,280	682	346
16	200	292	191	165	170	169	520	2,800	5,700	2,266	682	360
17	198	285	191	165	170	167	520	2,290	5,580	2,240	682	355
18	200	269	189	165	170	164	550	2,040	5,180	2,090	682	346
19	198	264	185	165	170	162	550	2,040	4,840	1,940	670	342
20	195	260	185	165	170	160	610	2,040	4,590	1,820	646	338
21	190	254	183	160	170	159	610	2,160	4,390	1,700	622	330
22	188	244	179	153	170	159	610	2,160	4,010	1,580	586	326
23	185	244	169	150	170	160	790	2,280	3,530	1,420	568	318
24	183	247	159	150	198	159	780	2,600	3,250	1,290	550	306
25	185	247	158	150	222	158	820	2,800	3,200	1,230	526	300
26	244	247	160	150	234	159	980	4,220	5,310	1,210	502	342
27	258	240	160	150	225	164	1,150	5,210	3,480	1,230	484	406
28	228	234	160	150	222	162	1,150	5,740	3,660	1,260	472	385
29	225	225	160	150	160	1,150	5,920	3,570	1,200	1,200	460	360
30	234	222	160	150	158	1,060	5,210	3,320	1,080	1,080	460	330
31	250	160	150	150	156	1,060	4,870	1,030	1,030	442	.....	.....
1917-18.												
1	283	227	595	2,700	574	310	450	2,180	3,030	2,070	770	385
2	365	254	595	2,700	630	334	500	3,030	2,360	2,010	700	370
3	518	262	595	2,700	679	326	560	3,160	2,060	1,840	665	340
4	485	490	595	2,700	679	322	560	4,070	2,060	1,680	637	342
5	415	637	595	2,700	721	314	560	3,550	2,540	1,630	609	334
6	370	581	595	2,700	834	306	560	3,160	3,030	1,540	581	334
7	342	536	595	2,700	794	302	630	2,840	3,680	1,500	560	330
8	322	490	595	2,700	786	298	630	2,360	4,860	1,520	548	334
9	306	445	595	2,360	786	298	1,110	2,180	5,560	1,600	554	326
10	294	410	595	2,370	735	290	1,610	2,360	5,980	1,850	672	322
11	282	385	595	1,990	826	290	1,660	2,360	5,140	1,620	623	318
12	274	375	595	1,910	882	290	1,610	2,540	4,720	1,400	567	310
13	262	360	595	1,760	826	290	1,400	2,840	5,560	1,260	554	302
14	258	360	595	1,610	810	290	1,400	3,160	4,440	1,420	623	298
15	250	350	595	1,500	721	290	1,400	3,420	4,150	1,430	637	294
16	242	342	595	1,380	686	310	1,400	3,680	3,650	1,430	595	286
17	228	330	790	1,270	644	270	1,400	3,550	3,650	1,410	602	276
18	234	318	1,080	1,170	616	270	1,400	3,160	3,550	1,360	574	282
19	230	310	1,070	1,250	581	270	1,400	3,030	3,300	1,250	542	278
20	227	302	1,480	1,260	548	270	1,500	2,720	3,250	1,140	512	282
21	246	310	1,460	1,140	506	270	2,360	2,360	3,550	1,030	506	282
22	246	542	1,170	1,090	490	290	2,300	1,940	3,770	975	506	286
23	234	651	993	1,500	405	330	2,360	1,610	3,590	939	500	290
24	234	651	794	993	370	390	2,420	1,610	3,190	906	485	278
25	234	651	714	975	355	390	2,180	1,400	2,950	930	460	262
26	238	637	581	993	346	390	1,940	1,400	2,720	898	450	246
27	238	602	602	922	330	390	1,780	1,300	2,590	842	425	246
28	234	595	595	874	342	390	1,940	1,720	2,340	818	410	250
29	230	595	658	850	330	330	1,940	2,060	2,130	794	410	250
30	230	595	1,490	9,826	330	330	2,060	3,160	2,070	770	415	262
31	227	2,700	721	.....	.....	.....	.....	3,550	.....	770	405	.....

NOTES.—Daily discharges during March, April, May and June, 1918, were obtained from a study of relation between discharge of Sumallo 23 and Skagit.

Monthly Discharge of Skagit River, four miles from International Boundary, for periods April to Dec., 1915-16.

[Drainage area, 356 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1915.						
April	1,280	780	957	2.69	3.00	56,900
May	1,080	700	897	2.52	2.90	55,200
June	1,140	556	814	2.29	2.56	48,400
July	610	365	420	1.18	1.35	25,800
August	412	219	292	0.82	0.94	18,000
September	225	120	166	0.47	0.52	10,200
October	1,360	110	428	1.19	1.37	26,000
November	1,240	300	549	1.54	1.72	32,800
December	604	260	373	1.05	1.21	22,900
The period	1,360	120	543	1.53	15.58	296,200
NOTE—Revised February, 1918.						
1916.						
April	2,220	964	1,400	3.94	4.40	83,300
May	4,190	1,600	2,550	7.16	8.26	157,000
June	7,560	2,400	4,430	12.40	13.80	264,000
July	3,900		2,410	6.78	7.82	148,000
August			877	2.46	2.84	53,900
September		275	378	1.06	1.18	22,500
October	275	183	220	0.62	0.72	13,500
November	772	222	312	0.88	0.98	18,600
December	240	158	191	0.54	0.62	11,700
The period	7,560	158	1,420	3.98	40.62	772,500

NOTES for 1916:—No gauge height records—Jan. 1 to Mar. 30. One Measurement, Jan. 10. No gauge height records—July 11 to Sept. 17. Daily discharge where no gauge height is given obtained from study of flow of Sumallo river at mouth and Skagit River stations.

Monthly Discharge of Skagit River, four miles from International Boundary, for Years ending September 30, 1917-18.

[Drainage area, 356 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	275	183	220	0.62	0.72	13,500
November	772	222	312	0.88	0.98	18,600
December	240	158	191	0.54	0.62	11,700
January			164	0.46	1.68	10,100
February			169	0.47	0.49	9,390
March	289	156	182	0.51	0.59	11,200
April		147	498	1.40	1.55	29,600
May			2,910	8.17	9.42	179,000
June	5,700	2,580	3,870	10.90	12.20	230,000
July	3,940	1,030	2,290	6.44	7.38	141,000
August	980	442	682	1.92	2.21	41,900
September	418	300	355	0.99	1.10	21,100
The year			987	2.78	38.94	717,090
1917-18.						
October	518	227	283	0.79	0.91	17,400
November	851	227	453	1.27	1.42	27,000
December	2,700	581	836	2.32	2.68	50,800
January	2,700	721	1,670	4.69	5.41	103,000
February	882	330	625	1.76	1.83	34,700
March	390	270	315	0.88	18.01	19,400
April	2,420	450	1,430	4.02	4.48	85,100
May	4,070	1,300	2,630	7.39	8.52	162,000
June	5,980	2,060	3,520	9.89	11.03	209,000
July	2,070	770	1,310	3.68	4.24	80,000
August	770	405	551	1.55	1.79	33,900
September	385	246	301	0.84	0.94	17,900
The year	5,980	227	1,160	3.26	44.26	840,800

NOTES:—Gauge height records interrupted from various causes January to June, 1918, daily Discharge was obtained from study of flow of Sumallo river at mouth and Skagit river.

SUMALLO RIVER STATION—No. 8 N₄.

Location.—Eight miles above mouth in section 28, township 3, range 24, west of the 6th meridian.

Records Available.—Irregular daily discharge records from July, 1914, to September, 1918.

Drainage Area.—Seventeen square miles (measured from Dominion map of 1913, scale, 3 miles to the inch).

Gauge.—Six-foot vertical staff, irregular readings by W. H. Robinson. Impossible to obtain daily readings.

Channel and Control.—Channel straight, even gravel bed, control is not permanent.

Discharge Measurements.—Nine measurements obtained during 1916-18 define the rating curve used for 1916-17 and 1917-18 data.

Winter Flow.—Control liable to be affected by ice conditions.

Accuracy.—"C."

Discharge Measurements of Sumallo River, 8 miles from mouth, during 1917-18.

Date.	Engineer.	Gauge height.		Date.	Engineer.	Discharge.	
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
Sept. 11	C. E. Webb	1.24	69.5	June 11	C. E. Webb	4.62	840
Oct. 28	"	0.91	41.0	June 12	"	4.47	770
				June 15	"	3.44	496
				Sept. 24	"	1.02	51
				Sept. 29	"	0.98	49.6

Daily Discharge in Second-feet of Sumallo River, 8 miles from mouth, for periods Oct. 1 to Nov. 15, 1916, April 14 to Sept. 29, 1917, and year ending Sept. 30, 1918.

(Drainage area, 17 square miles)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1	50											
2	42											
3		42								601		
4								103	473			
5			35						448	575	147	
6									575			58
7										423		
8	42								423	423		58
9								198			132	
10	42							373	473	448		58
11									549			
12	28									448	117	
13	42		58						423			
14								498				
15	35						68		523		117	
16	28		58						549			50
17												58
18										423	117	
19										398		50
20	28									398		
21											103	
22										679		
23									260	601	350	50
24												
25												
26												
27												
28												
29												
30												
31												
1917-18												
1	78	54	87	1,090	106	68	136	448	550	333	128	68
2	112	66	84	1,140	117	68	125	525	577	304	126	68
3	147	78	80	1,130	122	65	117	602	599	294	124	63
4	103	90	77	1,080	127	63	110	679	620	284	122	58
5	90	103	73	987	132	60	130	589	641	274	120	58
6	78	93	71	895	129	58	150	498	663	263	117	58
7	73	94	69	800	125	58	170	498	684	252	110	58
8	68	80	68	718	136	58	190	498	705	238	103	58
9	63	77	65	541	147	56	210	498	743	243	103	58
10	60	73	63	423	143	58	230	498	781	249	103	58
11	58	67	61	363	140	58	249	498	819	254	110	58
12	56	58	60	304	127	58	234	498	732	260	117	58
13	54	58	58	276	115	56	218	498	692	264	103	58
14	50	58	181	249	103	54	199	498	651	269	103	58
15	50	56	304	229	98	56	180	498	601	273	103	58
16	50	55	339	208	93	58	168	524	569	277	103	58
17	50	54	373	213	88	58	155	549	537	282	103	58
18	48	52	398	218	84	58	183	492	508	290	100	56
19	47	50	423	205	81	61	219	416	491	238	97	54
20	46	124	315	192	78	64	238	350	473	218	94	52
21	46	198	208	180	80	68	318	304	498	198	91	52
22	46	172	181	171	82	74	398	326	473	189	88	51
23	46	147	155	163	84	80	382	348	498	180	85	51
24	46	132	145	157	81	85	366	370	498	163	82	50
25	47	117	135	152	78	90	350	392	498	147	78	50
26	49	115	125	147	75	84	327	414	473	140	78	50
27	50	113	344	142	72	78	304	436	445	132	78	50
28	46	110	563	137	68	96	327	458	417	132	78	50
29	42	100	781	132		113	350	480	389	132	75	50
30	42	90	1,060	114		130	399	401	361	132	72	50
31	42		1,050	96		147		523		130	68	

NOTE—No reader available before April, 1917.

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Monthly Discharge of Sumallo River, for year ending Sept. 30, 1918.

(Drainage area, 17 square miles).

Month.	Discharge in Second-Feet.				Run-Off	
	Maximum.	Minimum.	Mean	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917-18						
October.....	147	42	61	1.42	1.64	3,750
November.....	198	50	91	2.12	2.36	5,410
December.....	1,050	58	256	5.95	6.86	15,700
January.....	1,140	96	415	9.65	11.10	25,500
February.....	147	68	104	2.42	2.52	5,780
March.....	147	54	72	1.67	1.92	4,430
April.....	399	110	237	5.51	6.15	14,100
May.....	679	304	471	10.90	12.60	29,000
June.....	819	361	573	13.30	14.80	34,100
July.....	333	130	226	5.26	6.06	13,900
August.....	128	68	99	2.30	2.65	6,140
September.....	68	50	54	1.26	1.41	3,210
The year.....	1,140	42	222	5.15	70.07	161,020

SUMALLO RIVER—STATION NO. 8 NL₂.

Location.—One mile from mouth and just south of the Railway Belt Boundary.

Records Available.—Daily discharges from July, 1914, to December 31, 1916; April 15 to September 30, 1918.

Drainage Area.—Seventy square miles.

Gauge.—Vertical staff located at pack trail bridge, daily gauge readings by W. H. Robinson.

Channel and Control.—Straight for two hundred feet above and below section. Boulders in stream bed. Control is not permanent. The rating for 1917-18 report is revised.

Discharge Measurements.—Made from bridge. Fourteen meter measurements during 1915 to 1918 give a well defined rating curve.

Winter Flow.—Stream open all winter, but during very cold weather anchor ice affects stage-discharge relation.

Accuracy.—"C" Rating curve revised above gauge height of 1.8 for this report.

Discharge Measurements of Sumallo (23 Mile) River, 1 mile from mouth, during 1917-18.

Date.	Engineers.	Gauge height.	Dis-	Date.	Engineer.	Gauge height.	Dis-
		Feet.	charge.			Feet.	charge.
1917			Sec. ft.	1918			Sec.-ft.
June. 10	C. E. Webb.....	3.20	867	June. 13	C. E. Webb.....	3.01	920
June 11	".....	3.00	787	June 17	".....	3.60	1,310
June 18	".....	4.00	1,230	Sept. 21	".....	0.53	81
Sept. 12	".....	0.62	110				
Nov. 2	".....	0.28	62				

Daily Discharge in Second-feet of Sumallo River, one mile from mouth, for period Jan. 1 to Sept. 30, 1916, and year ending Sept. 30, 1917.

(Drainage area, 70 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1915-16												
1				108	65	220	220	644	644	910	322	150
2				108	65	200	244	820	685	955	322	150
3				96	65	183	294	1,090	775	1,000	294	150
4				96	65	166	350	1,090	910	1,000	294	135
5				85	55	166	350	1,050	955	955	268	135
6				85	55	166	322	955	820	865	268	135
7				85	55	150	350	820	775	730	268	121
8				85	55	150	382	730	955	820	268	121
9				85	55	183	414	644	910	775	268	121
10				85	55	268	414	562	910	820	268	108
11				75	55	350	414	449	820	775	244	108
12				75	55	820	382	414	910	775	244	108
13				75	55	685	350	382	910	775	244	96
14				65	65	521	382	382	1,340	603	244	96
15				65	121	449	382	382	1,770	562	220	96
16				65	350	382	382	449	1,920	562	220	85
17				65	414	382	350	562	1,820	603	200	85
18				65	350	350	350	644	1,430	562	183	85
19				65	294	350	322	730	1,090	521	166	85
20				55	294	350	322	730	820	521	166	85
21				55	294	322	268	685	865	484	150	85
22				55	294	322	244	644	865	484	150	108
23				65	268	294	244	685	1,140	484	150	96
24				65	268	294	268	685	1,140	449	150	96
25				75	244	268	268	685	1,520	414	166	85
26				75	244	268	322	685	1,480	382	183	85
27				75	244	268	382	644	1,380	382	183	85
28				75	244	244	414	644	1,190	350	166	85
29				75	244	244	562	644	1,090	350	166	85
30				65	220	220	562	644	1,050	322	166	85
31				65	220	220	220	644	322	150	150	150
1916-17.												
1	85	65						220	1,240	730	183	96
2	85	75						220	1,090	865	183	96
3	75	75						244	955	955	200	96
4	75	75						244	775	910	200	85
5	75	75						244	685	865	183	85
6	75	75						294	775	775	183	85
7	65	75						322	865	685	183	85
8	65	75						449	955	644	166	85
9	65	200						685	1,140	644	166	85
10	65	183						865	910	644	166	85
11	65	135						955	775	603	166	90
12	65	121						955	644	603	166	90
13	65	121						1,000	644	562	166	96
14	65	121						955	955	521	150	96
15	55	108					108	730	1,240	521	150	85
16	55	108					108	644	1,380	521	150	85
17	55	108					108	521	1,240	521	150	85
18	55	108					121	449	1,090	494	150	85
19	55	108					121	449	1,050	484	150	75
20	55	108					135	449	1,050	449	150	75
21	55	108					135	494	955	414	150	75
22	55	108					135	484	820	350	135	75
23	55	80					150	521	775	322	135	75
24	55	80					166	603	685	268	121	75
25	65	80					174	644	685	244	121	75
26	75	80					200	1,050	685	244	121	85
27	65	80					244	1,340	730	268	108	96
28	65	80					244	1,480	730	268	108	96
29	65	80					244	1,520	685	244	108	96
30	65	80					220	1,340	685	220	108	90
31	65	80					220	1,240	200	108	108	108

Discharge.
Sec.-ft.

920
1,310
81

Daily Discharge in Second-feet of Sumallo River, one mile from mouth, for year ending Sept. 30, 1918.

(Drainage area, 70 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917-18												
1	85	65	135			85	121	560	845	392	166	96
2	108	73	135			85	135	785	615	392	166	96
3	166	96	121			85	150	905	515	356	150	85
4	135	96	121			85	150	1,240	515	356	150	85
5	121	121	108			85	150	1,040	670	322	135	85
6	121	135	108			75	150	905	845	322	135	85
7	108	150	108			75	165	785	1,110	294	121	85
8	96	121	96			75	166	615	1,450	294	121	75
9	96	121	96			75	268	560	1,590	322	121	75
10	85	108	96			75	356	615	1,800	356	121	75
11	85	108	96			65	392	615	1,520	322	150	75
12	85	108	96			65	392	670	1,380	294	135	75
13	78	96	85			65	322	785	1,380	268	121	75
14	75	96	85			65	294	905	1,310	268	121	75
15	75	96				65	244	1,110	905	356	135	75
16	75	96				65	220	1,110	785	356	135	75
17	70	85				65	200	040	785	322	135	75
18	65	85				75	200	905	785	294	135	75
19	65	85				75	220	845	775	294	135	75
20	65	322				75	356	775	775	268	135	75
21	75	322				75	615	615	775	244	121	75
22	75	268				85	670	470	775	220	121	85
23	75	220				96	615	392	785	200	121	85
24	75	200				108	615	322	785	183	108	75
25	65	183			96	108	560	322	775	183	108	75
26	65	166			96	108	470	294	615	200	108	75
27	65	166			96	108	430	294	515	183	108	75
28	65	150			96	108	470	356	470	166	108	65
29	65	150			96	108	470	515	430	166	96	65
30	65	135			96	96	515	905	392	166	96	75
31	65				96	96		1,040		166		

Note—No gauge height records available from December 15 to February 25. Mean monthly discharge for Dec. Jan and Feb. estimated from study of flow-relation between Sumallo 23, and Skagit.

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Monthly Discharge of Sumallo River, one mile from mouth, for year 1916, and years ending Sept. 30, 1917-18.

(Drainage area, 70 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916						
January.....	108	55	75	1.08	1.24	4,630
February.....	414	55	173	2.46	2.65	9,890
March.....	820	150	305	4.36	5.03	18,800
April.....	362	220	350	5.00	5.58	20,800
May.....	1,090	382	672	9.60	11.10	41,300
June.....	1,920	644	1,096	15.70	17.50	65,400
July.....	1,000	322	629	8.96	10.30	38,700
August.....	322	150	218	3.11	3.58	13,400
September.....	150	85	105	1.50	1.67	6,250
October.....	85	55	65	0.92	1.06	3,980
November.....	200	65	99	1.42	1.58	5,900
December.....			60	0.86	0.99	3,690
The year.....	1,920	55	321	4.58	62.28	274,410

Note.—No Gauge Reader available after November 22. Daily discharge estimated from study of Sumallo river and Skagit river stations.

November 23 to November 30—80 cubic feet per second. Mean discharge for December—60 cubic feet per second.

1916-17.						
October.....	85	55	65	0.92	1.06	3,980
November.....	200	65	99	1.42	1.58	5,900
December.....			60	0.86	0.99	3,690
May.....	1,520	220	607	9.96	11.50	42,900
June.....	1,380	644	896	12.80	14.30	53,300
July.....	955	200	517	7.39	8.52	31,800
August.....	200	108	151	2.16	2.49	9,280
September.....	96	75	86	1.23	1.37	5,120
The period.....	1,520	55	321	4.59	41.81	155,970

Note.—No Gauge reader available before April 15.

1917-18.						
October.....	166	65	84	1.20	1.38	5,160
November.....	322	65	141	2.01	2.24	8,390
December.....			300	4.29	4.95	18,400
January.....			500	7.14	8.23	30,700
February.....			160	2.29	2.38	8,880
March.....	108	65	83	1.19	1.38	5,100
April.....	670	121	356	4.80	5.36	20,000
May.....	1,240	294	719	10.30	11.90	44,200
June.....	1,800	392	896	12.80	14.30	53,300
July.....	392	166	275	3.93	4.53	16,900
August.....	166	96	126	1.80	2.08	7,750
September.....	96	65	78	1.11	1.24	4,640
The year.....			308	4.40	59.96	223,420

COLUMBIA RIVER DRAINAGE BASIN.

COLUMBIA RIVER, GOLDEN—STATION NO. 8 NA₂.

Location.—Section 12, township 27, range 22, west of the 5th meridian, one mile from Golden.

Records Available.—Daily discharges during open seasons 1903 to 1917, monthly mean discharges estimated for winter months 1917-18.

Drainage Area.—Two thousand, five hundred square miles.

Gauge.—A vertical staff gauge located at Columbia River Lumber Company's mill. Read daily by Mr. K. Wood.

Channel and Control.—Channel is straight for about seven hundred feet above and below section. Bed is composed of muddy silt. Stage-discharge relation affected for short period by backwater from Kicking Horse river when Kicking Horse is in flood.

Discharge Measurements.—Made from cable car covering all stages.

NOTE.—A revision in rating has been made, based on data obtained during the highwater period of 1918. The discharge data prior to 1918 has not been revised as it comes well within the accuracy accorded.

Winter Flow.—Stage discharge relation affected by ice.

Accuracy.—"B" for open-water.

Discharge Measurements of Columbia River, near Golden, during 1917-18.

Date	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height	Dis-charge
		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
1917.				1918			
March 2	Hughes and Balls	1-78	732A	June 11	G. K. Beeston	7-22	7,500a
April 26	H. C. Hughes	1-20	1,090	June 11	"	7-28	7,710a
May 10	"	1-75	1,690	June 14	"	8-98	1,090a
June 18	"	7-36	9,060	June 15	"	9-52	13,200a
June 21	"	7-80	9,840	June 17	"	11-20	19,800
June 27	"	7-98	10,800	June 25	"	11-21	19,600
Oct. 17	"	2-59	2,360	June 29	"	10-13	16,400
1918.							
Feb. 2	Balls and Beeston		873A	July 1	"	9-27	13,700
Feb. 24	G. K. Beeston		800a	July 2	"	9-06	13,700
April 16	"	1-95	1,800	July 5	"	8-66	11,800
April 23	"	2-40	2,050	July 6	"	8-33	11,700
May 14	"	4-42	4,470	July 8	"	8-15	11,200
May 15	"	4-71	4,900	July 8	"	8-15	11,100
May 16	"	5-28	5,490	July 9	"	8-26	11,100
May 17	"	5-52	6,280	July 11	"	8-29	11,300
May 21	"	5-20	5,820	July 12	"	8-39	11,100
May 22	"	5-10	5,470	July 13	"	8-64	11,700
June 5	"	4-50	4,490	July 15	"	8-78	12,400
June 6	"	4-51	4,540	July 16	"	8-88	12,700
June 7	"	4-59	4,670	July 17	"	8-91	12,700
June 8	"	5-19	5,030	Aug. 31	"	7-08	9,530
June 10	"	6-50	6,130	Aug. 3	"	7-56	9,620
				Sept. 20	Swan & Beeston	4-55	4,550

Daily Discharge in Second-feet of Columbia River, near Golden, for period April 1 to Sept. 30, 1916, and year ending Sept. 30, 1917.

(Drainage area, 2,500 square miles.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1915-16												
1							1,320	2,500	4,790	19,800	11,300	7,900
2							1,320	2,540	4,960	19,400	11,000	7,900
3							1,280	2,630	4,820	19,100	10,600	7,900
4							1,280	2,940	4,790	19,700	10,600	7,900
5							1,280	3,250	4,820	19,100	10,600	7,900
6							1,280	3,940	5,330	18,600	10,600	7,900
7							1,320	4,300	5,460	18,200	10,400	7,720
8							1,360	4,300	5,550	18,200	10,400	7,580
9							1,360	4,300	5,550	18,000	10,400	7,360
10							1,360	4,240	5,570	18,500	10,300	7,090
11							1,040	4,000	5,770	19,100	10,200	6,480
12							1,040	3,580	5,850	19,900	10,800	5,550
13							1,040	2,980	5,930	21,400	9,610	4,630
14							1,440	2,820	6,230	22,000	9,290	4,300
15							1,400	2,670	6,620	22,300	9,080	3,940
16							1,400	2,720	8,090	22,800	8,920	3,820
17							1,400	2,700	8,680	20,700	8,880	3,700
18							1,440	2,980	9,680	21,090	8,840	3,700
19							1,440	3,310	11,900	19,900	8,580	3,640
20							1,480	3,420	14,100	19,400	8,240	3,580
21							1,520	3,700	16,000	19,100	8,050	3,580
22							1,600	3,820	19,500	18,500	7,900	3,530
23							1,640	3,800	22,500	17,600	7,600	3,470
24							1,580	3,700	23,400	16,500	7,900	3,360
25							1,570	3,640	23,700	14,600	7,900	3,200
26							1,620	3,490	23,400	13,800	7,900	3,140
27							1,840	3,550	23,400	13,100	7,900	3,030
28							2,020	3,760	23,000	12,600	7,900	2,940
29							2,470	4,180	22,300	12,300	7,900	2,870
30							2,500	4,590	21,100	12,000	7,900	2,820
31								4,690		11,600	7,900	
1916-17												
1	2,720	1,640					1,320	1,090	7,720	10,500	11,900	6,480
2	2,570	1,640					1,320	1,080	7,720	10,700	11,900	6,400
3	2,530	1,600					1,320	1,040	7,900	11,200	11,800	6,000
4	2,380	1,560					1,320	1,040	7,900	11,400	11,800	5,250
5	2,240	1,560					1,320	1,040	7,900	11,800	11,100	4,630
6	2,170	1,480					1,320	1,080	7,990	12,000	10,400	4,000
7	2,060	1,440					1,320	1,120	8,090	12,000	9,540	3,940
8	1,970	1,400					1,320	1,060	8,136	12,500	8,280	3,820
9	1,970	1,320					1,320	1,320	8,240	12,800	7,850	3,720
10	1,970	1,260					1,320	1,610	8,280	13,300	7,680	3,640
11	1,930	1,120					1,320	1,880	8,280	13,600	7,270	3,820
12	1,880	1,000					1,320	2,240	8,380	13,800	7,000	3,960
13	1,880	1,000					1,320	2,720	8,480	13,900	7,140	4,060
14	1,880	1,000					1,320	3,250	8,480	14,100	7,320	3,960
15	1,880	Frozen					1,440	4,060	8,720	14,200	7,580	3,840
16	1,970						1,380	4,630	8,880	14,200	7,680	3,880
17	2,020						1,320	4,820	9,080	14,200	7,810	4,180
18	2,420						1,240	4,820	9,290	14,400	7,900	4,500
19	2,670						1,160	4,060	9,540	14,500	8,050	4,690
20	2,470						1,080	4,060	9,720	14,700	8,090	4,560
21	2,150						1,080	4,060	9,900	14,800	8,180	4,460
22	2,020						1,000	4,690	10,200	14,900	8,280	4,370
23	2,020						1,000	5,490	10,400	14,900	8,180	4,240
24	1,840						1,000	6,150	10,600	14,700	8,090	4,180
25	1,800						1,000	6,310	10,900	14,400	7,900	4,060
26	1,720						1,160	6,820	10,600	13,900	7,810	3,820
27	1,720						1,280	7,540	10,400	13,500	7,720	3,330
28	1,720						1,240	7,990	10,400	12,300	7,540	3,090
29	1,680						1,160	7,900	10,400	11,400	7,400	2,870
30	1,680						1,080	7,720	10,400	11,300	6,910	2,770
31	1,640							7,720		11,500	6,620	

Daily Discharge in Second-feet, of Columbia River, near Golden, for year ending September 30, 1918.

(Drainage area, 2,500 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917-18.												
1	2,670	1,580	1,120				1,080	2,870	4,590	13,900	11,200	5,850
2	2,920	1,570	1,000		873		1,080	3,580	4,560	13,000	11,100	5,670
3	3,820	1,550	1,000				1,080	4,180	4,460	12,200	10,900	5,550
4	4,560	1,580	1,000				1,080	4,430	4,430	11,700	10,600	5,550
5	4,960	1,500	1,000				1,140	4,760	4,430	11,300	10,500	5,320
6		5,200	1,460	1,000			1,220	5,100	4,590	10,900	10,300	5,100
7		5,400	1,400	1,000			1,340	5,100	4,760	10,900	9,830	4,890
8		5,320	1,400	1,000			1,330	4,890	5,030	10,900	9,500	4,960
9		4,900	1,360	1,000			1,420	4,690	5,650	11,100	9,180	5,100
10		4,620	1,320	1,000			1,560	4,360	6,130	11,000	9,050	5,250
11		4,360	1,300	1,000			1,540	4,120	7,640	11,200	8,880	5,030
12		4,120	1,260	1,000			1,680	3,880	8,250	11,400	8,780	4,820
13		3,880	1,260	1,000			1,740	3,820	9,400	12,100	8,480	4,760
14		2,360	1,320	1,000			1,800	4,160	10,900	11,800	8,280	4,620
15		2,240	1,380	1,000			1,800	4,790	13,200	12,100	8,280	4,560
16		2,080	1,420	1,000			1,740	5,480	18,400	12,300	8,050	4,460
17		1,990	1,500	1,000			1,640	5,920	19,900	12,300	7,900	4,400
18		2,100	1,560	930			1,580	6,080	20,400	12,600	7,630	4,430
19		2,060	1,620	930			1,550	6,150	20,600	12,800	7,270	4,430
20		1,970	1,680	930			1,600	5,920	21,300	13,000	7,040	4,430
21		1,960	1,800	860			1,680	5,480	20,600	13,500	6,820	4,430
22		1,880	1,920	860			1,760	5,250	20,200	13,400	6,650	4,590
23		1,860	2,020	860			1,970	4,960	19,700	13,400	6,480	4,820
24		1,800	2,170	800		800	2,150	4,360	19,500	13,200	6,480	4,620
25		1,720	2,240	800			2,260	4,060	19,500	13,100	6,480	4,430
26		1,700	2,100	800			2,330	3,640	19,200	13,100	6,480	4,240
27		1,740	1,920	800			2,380	3,520	18,300	12,700	6,280	4,040
28		1,800	1,760	750			2,470	3,470	18,200	12,200	6,150	3,940
29		1,700	1,600	750			2,600	3,470	16,600	12,000	6,150	3,880
30		1,640	1,320	700			2,620	3,470	15,000	11,800	6,150	3,880
31		1,580		700				4,040		11,600	6,030	

NOTE.—Gauge heights affected by ice during January, February and March. Mean monthly discharges for these months estimated from climatic conditions and meter measurements under ice conditions.

Monthly Discharge of Columbia River, near Golden, for period April to Sept., 1916, and years ending Sept. 30, 1917-18.

(Drainage area, 2,500 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916						
April	2,500	1,040	1,490	0.59	0.66	88,700
May	4,660	2,500	3,520	1.41	1.63	216,000
June	23,700	4,790	11,700	4.68	5.22	696,000
July	22,800	11,600	18,000	7.20	8.30	1,110,000
August	11,300	7,900	9,210	3.68	4.24	566,000
September	7,900	2,820	5,080	2.03	2.26	302,000
The year	23,700	1,040	8,170	3.26	22.31	2,978,700
1916-17						
October	2,720	1,640	2,050	0.82	0.94	126,000
November			1,160	0.46	0.51	89,000
December			1,000	0.40	0.46	61,500
January			950	0.38	0.44	58,400
February			900	0.36	0.38	50,000
March			800	0.32	0.37	49,200
April	1,440	1,000	1,240	0.50	0.56	73,800
May	7,990	1,000	3,880	1.55	1.79	239,000
June	10,900	7,720	9,100	3.64	4.06	541,000
July	14,900	10,500	13,200	5.28	6.09	812,000
August	11,900	6,620	8,480	3.39	3.91	521,000
September	6,480	2,770	4,220	1.69	1.89	251,000
The year	14,900		3,915	1.57	21.40	2,851,900

NOTE.—Stage-discharge relation affected by ice from November 15, 1916, to March 31, 1917. Mean monthly discharge estimated from discharge measurements and climatic conditions.

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Note:—

Monthly Discharge of Columbia River, near Golden, for period April to Sept., 1916, and years ending Sept. 30, 1917-18—Concluded.

(Drainage area, 2,500 square miles.)

Aug.	Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
			Maximum.	Minimum.	Mean.	Per square miles.	Depth in inches on Drainage Area.	Total in Acre-feet.
		1917-18.						
200	5,850	October	5,400	1,580	2,960	1.18	1.36	182,000
100	5,670	November	2,240	1,260	1,600	0.64	0.71	95,200
900	5,550	December	1,120	700	922	0.36	0.42	56,700
600	5,550	January			880	0.35	0.40	54,100
500	5,320	February			835	0.33	0.34	46,400
		March			900	0.36	0.42	55,300
		April	2,620	1,080	1,710	0.68	0.76	102,000
300	5,100	May	6,150	2,870	4,520	1.81	2.09	278,000
830	4,890	June	21,300	4,430	12,809	5.12	5.71	762,000
500	4,960	July	13,900	10,900	12,200	4.88	5.63	750,000
180	5,100	August	11,200	6,030	8,160	3.26	3.76	502,000
050	5,250	September	5,850	3,880	4,740	1.90	2.12	282,000
		The year	21,300		4,350	1.74	23.72	3,165,700

COLUMBIA RIVER, REVELSTOKE—STATION NO. 8 ND₂.

Location.—Downstream side of highway bridge at Revelstoke.

Records Available.—Daily discharges during open-water periods for years 1913 to 1918. For period in which stage-discharge relation is affected by ice, the monthly mean discharge is estimated.

Drainage Area.—Nine thousand square miles.

Gauge.—Chain gauge read daily by Mr. S. Anderson.

Channel and Control.—The section is about one thousand feet wide and considerably broken up by bridge piers. The control is a gravel bar and apparently permanent.

Discharge Measurements.—Made from highway bridge and are distributed over range of stage.

Winter Flow.—Stage-discharge relation affected by ice.

Accuracy.—"B" for open-water.

Discharge Measurements of Columbia River, near Revelstoke, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
1917				Jan. 10	Balls and Beeston		8,000 ¹
May 12	H. C. Hughes	9.46	32,400	Feb. 17	G. K. Beeston	6.34	16,200
May 18	" "	11.28	45,100	April 15	Balls and Beeston	6.43	16,200
June 11	" "	14.06	75,340	May 27	" "	8.70	28,800
				June 19	G. K. Beeston	20.1	162,000
				Sept. 28	" "	9.97	36,300

Note.—¹Ice conditions.

Daily Discharge in Second-feet of Columbia River, near Revelstoke, for period April 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 9,000 square miles)

Day.	Oct	Nov	Dec	Jan	Feb.	Mar	April	May	June	July	Aug.	Sept
1916-17												
1							6,490	11,100	70,200	80,800	58,400	48,800
2							6,490	11,300	72,200	89,900	57,500	41,600
3							6,490	11,700	68,200	103,000	62,200	37,600
4							6,490	12,200	67,200	118,000	61,200	32,700
5							6,490	12,200	67,200	122,000	59,300	30,600
6							6,760	12,700	70,200	119,000	59,300	28,500
7							7,450	13,200	72,200	107,000	65,200	28,200
8							8,060	16,200	87,500	101,000	57,500	29,200
9							7,670	20,000	106,000	99,500	53,000	28,500
10							8,820	24,800	88,700	101,000	53,900	28,500
11							9,100	31,600	76,400	109,000	55,800	32,000
12							9,240	35,200	67,200	101,000	53,900	35,500
13							9,520	40,800	64,200	111,000	62,200	37,900
14							9,630	46,400	66,200	106,000	65,200	36,200
15							13,000	49,200	75,300	106,000	672,000	32,000
16							12,400	51,600	89,900	113,000	71,200	34,800
17							12,000	52,100	99,500	119,000	79,700	40,000
18							10,700	48,000	94,700	119,000	84,100	44,800
19							10,500	43,600	80,900	119,000	88,700	44,000
20							10,100	42,400	88,700	117,000	88,700	41,600
21							9,900	44,800	94,700	116,000	83,000	44,800
22							9,700	48,000	93,500	110,000	75,300	45,600
23							9,700	54,800	84,100	101,000	70,200	44,000
24							9,700	62,200	77,500	86,300	69,200	39,200
25							9,900	67,200	75,300	79,700	69,200	33,400
26							10,100	73,200	75,300	78,600	65,200	29,200
27							10,500	80,800	75,300	86,300	59,300	34,100
28							10,900	81,900	77,500	93,500	56,600	30,600
29							11,100	81,900	84,100	88,700	61,200	25,400
30							11,100	76,400	79,700	76,400	65,200	23,000
31								71,200		86,300	57,500	
1917-18												
1	22,400	13,000	15,200				9,000	32,000	57,500	91,100	99,500	54,800
2	24,200	12,700	14,700				9,200	37,200	49,600	93,500	103,000	49,600
3	34,100	13,200	14,000				9,300	44,800	45,600	86,300	97,100	43,200
4	75,300	14,200	13,000				9,500	54,800	40,000	76,400	37,500	42,400
5	77,500	14,200	12,400				9,700	60,200	42,400	73,200	80,800	43,200
6	67,200	14,200	12,000				9,700	55,700	45,600	80,800	78,600	46,400
7	52,100	14,000	11,500				9,520	52,100	51,200	87,500	80,800	48,800
8	44,000	13,700	11,300				9,350	46,400	62,200	95,900	78,600	49,600
9	39,200	13,200	11,300				10,500	41,600	83,000	109,000	74,200	48,800
10	36,200	13,000	11,100	Ms. 0000			12,800	39,200	113,000	116,000	63,200	48,000
11	33,400	12,700	11,100				15,200	37,600	133,000	127,000	60,200	48,000
12	29,900	12,200	10,300				15,700	40,400	138,000	122,000	57,500	49,600
13	27,200	12,000	8,820				16,000	46,400	145,000	109,000	56,600	50,400
14	30,600	12,000					16,400	53,900	165,000	109,000	54,800	48,800
15	29,900	11,700					15,800	63,200	157,000	109,000	57,500	41,800
16	27,200	11,300					15,200	67,200	144,000	121,600	64,200	44,000
17	23,600	11,300					14,700	63,200	139,000	130,000	67,200	43,200
18	21,200	11,100				6,160	14,200	59,300	151,000	135,000	65,200	44,800
19	20,000	10,900					14,400	53,000	157,000	136,000	55,700	47,200
20	18,900	11,700					14,700	48,000	153,000	139,000	53,000	49,600
21	17,700	18,600					17,000	44,000	151,000	119,000	56,600	50,400
22	17,200	25,700					18,600	39,200	151,000	109,000	63,200	51,200
23	16,400	27,200					18,900	31,300	157,000	98,300	67,200	48,800
24	16,200	26,600					19,800	28,500	166,000	88,700	73,200	44,000
25	16,000	24,200					20,000	31,300	166,000	83,000	75,300	39,200
26	15,400	21,800					20,600	30,600	148,000	78,600	76,400	37,600
27	15,200	19,500					20,900	29,900	124,000	75,300	67,200	36,900
28	14,400	17,700					21,800	29,600	104,000	78,600	54,800	39,200
29	14,000	16,700					23,600	34,100	93,500	81,900	47,200	40,800
30	13,700	17,200					24,500	49,600	88,700	86,300	46,400	39,200
31	13,200							64,200		92,300	52,100	

Notes: Stage discharge relation for 1917-18, affected by ice from December 14 to April 4. Mean Monthly discharge for January, February and March estimated from meter measurements, gauge records and climatic conditions.

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Monthly Discharge of Columbia River, near Revelstoke, for years ending Sept. 30, 1917-18.

(Drainage area, 9,000 square miles.)

Month.	Discharge in Second-Feet				Run-Off	
	Maximum.	Minimum.	Mean	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	34,800	13,700	18,400	2.04	2.35	1,113,000
November	14,200		9,480	1.05	1.17	564,000
December			6,000	0.67	0.77	369,000
January			5,900	0.66	0.76	363,000
February			5,800	0.64	0.67	322,000
March			5,700	0.63	0.73	350,000
April	13,000	6,490	9,330	1.04	1.16	2,555,000
May	81,900	11,100	42,900	4.76	3.49	2,640,000
June	106,000	64,200	70,800	7.87	8.78	4,210,000
July	122,000	76,400	102,000	11.30	13.00	6,270,000
August	88,700	53,000	65,700	7.30	8.10	4,040,000
September	48,800	23,000	35,400	3.93	4.38	2,110,000
The year	122,000		31,450	3.49	47.36	22,906,000
Note. Stage-discharge relation affected by ice from November 12 to March 31. Mean Monthly Discharge during this period estimated from meter measurements and climatic conditions.						
1917-18						
October	77,500	13,200	29,100	3.23	3.72	1,790,000
November	27,200	10,900	15,600	1.73	1.93	928,000
December			10,100	1.12	1.29	621,000
January			7,500	0.83	0.96	461,000
February			6,200	0.69	0.72	344,000
March			6,000	0.67	0.77	369,000
April	24,500	9,000	15,200	1.69	1.89	904,000
May	67,200	28,500	45,400	5.04	5.81	2,790,000
June	166,000	40,000	114,000	12.70	14.20	6,780,000
July	139,000	73,200	101,000	11.20	12.90	6,210,000
August	103,000	46,400	68,200	7.58	8.74	4,190,000
September	54,800	36,900	45,800	5.09	5.68	2,730,000
The year	166,000		38,700	4.30	58.61	28,117,000

COLUMBIA RIVER, TRAIL—STATION NO. 8 NE₃.

Location.—Highway Bridge at Trail, fifteen miles above the International Boundary.

Records Available.—April 15, 1913, to September 30, 1918.

Drainage Area.—Thirty-four thousand square miles.

Gauge.—Chain attached to down stream side of bridge, read twice daily by C. A. Broderick.

Channel and Control.—The bed of the channel is gravel and not liable to shift. Control is a pronounced riffle about four hundred yards below gauge and appears to be permanent.

Discharge Measurements.—Made from highway bridge and cover a range in stage of 32.5 feet.

Winter Flow.—Not affected by ice.

Accuracy.—“B” between discharge of 12,000 and 100,000 cubic feet per second. “C” above discharge of 100,000 cubic feet per second.

Co-operation.—The station is maintained in co-operation with the Water Resources Branch of the United States Geological Survey.

Discharge Measurements of Columbia River, at Trail, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Feb. 18	J. A. Elliott	8.23	13,870	April 3	K. G. Beeston	11.02	28,100
March 25	Balls and Elliott	7.65	12,170				
May 16	Swan and Patterson	17.92	75,200				
June 12	T. R. Patterson	31.22	195,300				
Aug. 3		26.60	150,000				

Mean Monthly conditions

Daily Discharge in Second-feet of Columbia River, at Trail, for period Jan. 1 to Sept. 30, 1917, and year ending September 30, 1918.

(Drainage area, 34,000 square miles.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				15,300	12,500	11,400	10,200	28,200	173,000	211,000	158,000	96,200
2				15,000	12,500	11,300	10,400	29,000	176,000	210,000	151,000	94,200
3				14,800	12,500	11,200	10,600	29,800	176,000	210,000	145,000	91,700
4				14,800	12,500	11,200	10,800	30,500	177,000	214,000	139,000	88,600
5				14,500	12,600	11,100	11,000	31,200	176,000	217,000	134,000	85,000
6				14,500	12,600	11,100	11,500	31,700	176,000	220,000	129,000	81,600
7				14,800	12,700	11,000	11,800	33,500	176,000	222,000	125,000	78,100
8				14,900	12,700	11,000	12,500	34,100	179,000	224,000	122,000	74,800
9				15,000	12,800	10,900	13,000	36,900	184,000	223,000	119,000	72,000
10				15,100	12,900	10,800	13,500	39,200	187,000	222,000	116,000	69,100
11				15,200	13,000	10,800	14,200	42,800	197,000	221,000	114,000	66,700
12				15,100	12,900	10,800	14,800	47,200	194,000	220,000	111,000	65,400
13				15,000	12,800	10,700	15,400	51,700	194,000	219,000	109,000	64,400
14				14,800	12,700	10,700	15,900	58,800	194,000	217,000	106,000	63,500
15				14,500	12,600	10,600	16,400	65,600	194,000	216,000	104,000	62,600
16				14,200	12,500	10,600	16,500	73,100	197,000	214,000	104,000	61,800
17				14,000	12,500	10,600	17,500	79,300	201,000	211,000	103,000	61,100
18				13,900	12,400	10,600	18,100	85,200	206,000	209,000	104,000	60,600
19				13,800	12,300	10,500	18,600	90,200	210,000	207,000	107,000	60,300
20				13,600	12,200	10,400	19,200	94,600	214,000	205,000	108,000	60,300
21				13,800	12,100	10,300	19,700	98,900	216,000	203,000	108,000	60,400
22				13,600	12,000	10,200	20,300	104,000	218,000	200,000	109,000	60,800
23				13,500	11,900	10,000	21,200	108,000	220,000	198,000	109,000	61,100
24				13,200	11,800	9,800	22,000	114,000	219,000	196,000	109,000	61,000
25				13,100	11,700	10,400	23,100	120,000	218,000	193,000	107,000	60,600
26				13,000	11,600	9,800	24,100	128,000	218,000	187,000	107,000	60,300
27				12,900	11,500	9,800	25,100	138,000	217,000	179,000	106,000	59,900
28				12,800	11,400	9,600	26,200	147,000	215,000	174,000	104,000	59,500
29				12,600		9,760	27,200	156,000	214,000	171,000	103,000	59,000
30				12,600		10,000	27,500	162,000	212,000	168,000	100,000	58,000
31				12,500		10,100		168,000		164,000	98,000	
1917-18.												
1	56,700	36,000	30,100	24,100	23,900	18,000	26,200	67,000	113,000	243,000	140,000	93,200
2	55,400	35,200	30,600	24,600	23,600	18,400	27,000	72,000	114,000	234,000	140,000	91,000
3	54,700	34,600	31,100	25,200	23,300	18,300	27,400	77,900	115,000	222,000	139,000	89,000
4	55,500	34,000	31,200	26,100	23,000	18,200	27,700	84,500	116,000	210,000	136,000	86,800
5	56,900	33,500	30,700	27,500	22,700	18,100	28,800	90,400	116,000	205,000	135,000	84,800
6	58,000	32,900	30,300	29,100	22,500	17,400	29,300	96,000	117,000	200,000	133,000	82,800
7	60,500	32,400	29,900	30,800	22,300	17,400	30,900	102,000	119,000	196,000	131,000	81,000
8	62,800	31,800	29,400	31,400	22,100	17,200	31,900	105,000	122,000	190,000	129,000	79,900
9	63,800	31,100	29,000	31,800	21,900	17,100	33,000	109,000	126,000	188,000	127,000	79,200
10	64,400	30,800	28,600	31,700	21,700	17,000	34,200	110,000	135,000	186,000	125,000	78,300
11	64,800	30,800	28,300	31,400	21,500	16,900	35,300	111,000	148,000	189,000	124,000	77,300
12	64,200	30,400	27,900	31,000	21,300	16,800	36,500	114,000	162,000	190,000	121,000	76,200
13	63,400	29,900	27,700	30,500	21,100	16,700	37,500	116,000	183,000	190,000	160,000	75,000
14	64,000	28,700	27,500	30,100	20,900	16,600	38,700	118,000	203,000	189,000	130,000	74,200
15	64,000	28,100	27,200	29,700	20,700	16,500	39,900	128,000	216,000	188,000	109,000	73,800
16	64,200	27,700	26,900	29,400	20,500	16,400	41,400	130,000	228,000	186,000	106,000	73,400
17	64,500	27,300	26,700	29,200	20,300	16,300	42,300	131,000	236,000	185,000	104,000	73,000
18	64,600	26,900	26,500	29,000	20,000	16,200	43,500	133,000	244,000	184,000	103,000	72,500
19	63,600	26,400	26,300	28,800	19,800	16,300	44,600	134,000	252,000	182,000	102,000	72,000
20	61,600	25,900	26,000	28,300	19,600	16,500	46,100	134,000	257,000	182,000	100,000	71,600
21	49,600	25,300	25,000	27,800	19,400	16,400	47,300	134,000	262,000	182,000	98,600	71,200
22	47,900	25,700	25,200	27,400	19,200	17,400	48,500	134,000	266,000	181,000	97,200	70,700
23	46,400	26,200	24,900	27,000	19,000	18,000	50,100	134,000	268,000	179,000	88,300	70,400
24	44,900	26,700	24,700	26,500	18,800	18,700	51,600	131,000	270,000	177,000	96,000	69,000
25	50,000	27,100	24,500	26,200	18,500	19,500	53,100	125,000	272,000	173,000	96,000	69,500
26	42,500	27,600	24,200	25,900	18,400	20,400	54,700	124,000	274,000	169,000	96,000	69,000
27	41,400	28,100	24,000	25,600	18,200	21,300	56,200	120,000	272,000	164,000	96,800	68,500
28	40,300	28,700	23,900	25,200	18,200	22,300	57,700	114,000	268,000	158,000	97,600	67,900
29	39,200	29,100	23,800	24,900		23,500	59,800	113,000	263,000	152,000	97,600	67,400
30	38,100	29,500	23,600	24,600		24,800	62,800	112,000	252,000	148,000	97,300	67,000
31	37,000		23,800	24,200		26,200		112,000		144,000	95,200	

Month

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November.
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The

1912-
The

Date.

1917.
Mar. 10
Ap. 28
Jun. 25

Monthly Discharge of Columbia River, at Trail, for years ending September, 30, 1917-18.

(Drainage area, 34,000 square miles.)

Aug.	Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
			Maximum.	Minimum.	Mean.	Per square mile	Depth, in inches on Drainage Area.	Total in Acre-feet.
0.000	96,200	1916-17.						
0.000	94,200	October.....	57,700	34,700	42,300	1.24	1.43	2,601,000
0.000	91,700	November.....	34,300	23,100	29,100	0.85	0.95	1,732,000
0.000	88,600	December.....	23,100	15,600	19,600	0.58	0.67	1,205,000
0.000	85,000	January.....	15,300	12,500	14,100	0.41	0.47	887,000
		February.....	13,000	11,400	12,400	0.36	0.37	689,000
		March.....	11,400	9,600	10,600	0.31	0.36	652,000
		April.....	27,500	10,200	17,300	0.51	0.57	1,030,000
		May.....	168,000	28,200	79,200	2.33	2.69	4,870,000
		June.....	220,000	17,300	198,000	5.82	6.49	11,800,000
		July.....	224,000	164,000	205,000	6.03	6.95	12,600,000
		August.....	158,000	98,000	115,000	3.38	3.90	7,070,000
		September.....	96,200	58,000	68,600	2.02	2.25	4,080,000
		The year.....	224,000	9,600	67,600	1.99	27.10	49,196,000
		1917-18.						
		October.....	64,800	37,000	53,500	1.57	1.81	3,290,000
		November.....	36,000	25,300	29,600	0.87	0.97	1,780,000
		December.....	31,200	23,600	27,100	0.80	0.92	1,670,000
		January.....	31,800	24,100	27,800	0.82	0.94	1,710,000
		February.....	23,900	18,200	20,800	0.61	0.64	1,160,000
		March.....	26,200	16,200	18,400	0.54	0.62	1,130,000
		April.....	62,800	26,200	41,500	1.22	1.36	2,470,000
		May.....	134,000	67,000	113,000	3.32	3.83	6,950,000
		June.....	274,000	113,000	200,000	5.88	6.56	11,900,000
		July.....	243,000	144,000	186,000	5.47	6.31	11,400,000
		August.....	140,000	88,300	113,000	3.32	3.83	6,950,000
		September.....	93,200	67,000	75,900	2.23	2.49	4,520,000
		The year.....	274,000	16,200	75,600	2.22	30.28	54,910,000

No. 2 CREEK—STATION No. 8 NAs.

Location.—Highway bridge two miles from mouth.

Records Available.—Daily records during open-water seasons for years 1912-15, and 1918 and intermittent records for winter seasons.

Drainage Area.—One hundred and twenty square miles.

Gauge.—Vertical staff read daily by H. Williams.

Channel and Control.—The banks are high and not subject to overflow. The bed of the river is gravelly and the control is not permanent.

Discharge Measurements.—Made from highway bridge.

Accuracy.—“C”.

Discharge Measurements of No. 2 Creek, near Wilmer, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Mar. 10	Balls and Hughes.....	Ice	46	April 20	G. K. Beeston.....	1.36	152
Apr. 11 28	H. C. Hughes.....	0.81	72	May 20	“ “.....	1.95	320
June 25	“ “.....	2.51	666	July 3	“ “.....	2.66	834
				Aug. 6	“ “.....	2.51	705

Daily Discharge in Second-foot of No. 2 Creek, near Wilmer, for year ending September 30, 1918.

[Drainage area 135 square miles]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1		203	126	118			76	203	300	660	1,060	450
2		216	134	118			83	216	300	580	1,560	342
3		393	134	103			83	230	230	660	1,430	300
4		850	142	97			76	393	261	580	660	261
5		620	126	70			70	342	300	580	660	300
6		510	134				83	342	342	660	755	342
7		342	134				83	321	393	850	580	342
8		230	110				90	261	510	1,060	580	300
9		300	134				104	230	1,180	1,430	510	261
10		280	126		Meter 77		110	230	1,950	1,690	450	300
11		261	118				118	230	2,470	1,560	450	342
12		230	126				142	261	2,210	1,430	450	393
13		216	126				142	261	2,470	1,180	510	342
14		203	134				142	342	2,860	1,060	450	342
15		203	97				134	393	2,470	1,180	450	342
16		180	110				126	510	1,820	1,560	580	342
17		160	118				126	393	1,820	1,690	580	393
18		160	134				118	342	1,820	1,690	580	393
19		151	134		Meter 74		126	342	1,560	1,820	393	450
20		151	110				134	300	1,430	1,430	393	450
21		142	142				142	261	1,820	1,060	450	450
22		142	216				160	246	1,950	955	510	300
23		142	203				160	261	2,210	850	580	342
24		142	203				170	230	1,950	660	580	342
25		134	160				160	230	1,950	580	755	393
26		134	134				160	203	1,560	580	660	393
27		134	134		Meter 74		160	203	1,180	580	660	450
28		126	134				160	203	660	580	393	393
29		134	104				170	261	580	580	342	300
30		142	126				170	342	580	660	393	342
31		134						300		850	342	

NOTE.—Stage-discharge relation from December 6 to March 31 affected by ice. Mean monthly discharges for December, January, February and March estimated from meter measurements and climatic conditions.

Monthly Discharge for No. 2 Creek, near Wilmer, for year ending September 30, 1918.

[Drainage area 135 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Discharge Area.	Total in Acre-feet.
1917-18						
October	850	126	238	1-76	2-03	14,600
November	216	97	135	1-00	1-12	8,030
December			80	0-59	0-68	4,920
January			74	0-55	0-63	4,550
February			75	0-56	0-58	4,160
March			75	0-56	0-65	4,610
April	170	76	126	0-93	1-04	7,500
May	510	203	286	2-12	2-44	17,600
June	2,860	230	1,370	10-10	11-30	84,200
July	1,820	580	1,010	7-48	8-62	62,100
August	1,560	342	605	4-48	5-16	37,200
September	450	261	356	2-64	2-94	21,200
The year	2,860	76	369	2-73	37-19	270,670

BUGABOO RIVER—STATION NO. 8 NA₁.

Location.—Downstream side of highway bridge about one mile from mouth and three miles from Spillimacheen.

Records Available.—May 20 to December 31, 1913; April 1 to December 15, 1914; March 17 to December 31, 1915; April 1 to December 31, 1916; March 1, 1917, to September 30, 1918.

Drainage Area.—One hundred and ninety square miles.

Gauge.—A vertical staff gauge read daily by Mr. Jas. Montgomery.

Channel and Control.—Measuring section is fairly uniform and the channel is straight above and below. The control is not permanent.

Discharge Measurements.—Made from highway bridge and cover a range in stage of 3.6 feet or a range in discharge of from 22 to 2,420 cubic feet per second.

Winter Flow.—Stage-discharge relation affected by ice for about four months.

Accuracy.—"B" for open-water.

Discharge Measurements of Bugaboo River, near Galena, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918.			
Mar. 6	Hughes and Balls		44.5*	Jan. 16	Balls and Beeston	0-83	66.2*
April 27	H. C. Hughes	0-52	58.5*	Feb. 7	" "	0-40	54.8
June 22	" "	2-74	941-0	Mar. 1	G. K. Beeston		46.8*
Oct. 21	" "	1-01	133-0	April 21	" "	1-28	198-0
				June 12	" "	3-60	1,930-0
				" 13	" "	4-05	2,420-0
				Aug. 5	" "	2-38	679-0
				Sept. 21	Swan and Beeston	1-98	463-0

Daily Discharge in Second-feet of Bugaboo River, near Galena, for period March 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area 190 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1						45	43	48	622	950	434	327
2						45	45	54	641	1,220	534	227
3						45	45	56	508	1,400	654	256
4						45	45	56	458	1,550	546	232
5						45	45	58	472	1,360	524	247
6						45	48	64	482	1,310	524	256
7						45	48	74	687	1,260	546	272
8						45	48	74	829	1,130	434	290
9						45	48	111	1,080	1,180	411	263
10						45	47	185	776	1,200	482	226
11						45	47	290	590	1,380	598	346
12						45	48	346	492	1,450	562	308
13						45	48	346	508	1,180	755	327
14						45	47	411	622	1,180	687	272
15						45	48	492	909	1,180	707	272
16						45	45	508	1,260	1,310	741	411
17						45	45	367	1,260	1,400	829	444
18						43	45	290	1,020	1,500	755	367
19						45	49	256	1,060	1,400	776	308
20						43	49	272	995	1,220	755	327
21						43	49	367	995	1,220	734	354
22						43	53	482	909	1,060	654	327
23						45	48	590	707	909	603	327
24						43	48	755	687	776	562	290
25						43	48	654	687	755	562	241
26						62	51	622	755	829	508	226
27						48	56	590	755	968	458	327
28						43	53	734	868	934	444	210
29						48	53	590	968	654	622	185
30						43	48	482	755	508	508	165
31						48		482		434	411	
1917-18												
1	198	102	83			Meter 47	58	308	380	950	995	534
2	210	102	84				56	367	338	1,080	1,080	338
3	545	90	74				62	482	327	909	995	308
4	829	150	80				72	720	338	707	720	290
5	492	111	72				54	622	388	707	707	308
6	354	102					53	482	434	868	720	346
7	290	90			Meter 53		53	434	545	995	734	354
8	327	74					58	354	950	1,130	687	327
9	226	87					77	308	1,340	1,340	562	308
10	216	94					102	279	2,220	1,580	434	327
11	198	98					106	308	2,290	1,460	641	388
12	190	72					124	346	2,150	1,130	508	397
13	178	87					102	425	2,690	995	508	367
14	226	68					120	545	3,240	1,040	472	354
15	160	72					116	641	2,290	1,240	534	327
16	150	68			Meter 66		87	654	1,700	1,340	641	308
17	140	74					80	534	1,820	1,400	622	327
18	124	80					90	434	2,150	1,520	562	367
19	107	77					102	397	1,700	1,580	458	388
20	107	84					130	354	1,520	1,460	434	425
21	124	198					165	316	1,520	934	508	425
22	111	290					172	301	1,880	909	534	411
23	120	216					172	290	1,950	909	534	534
24	106	130					180	266	1,700	654	654	388
25	102	120					150	241	1,580	654	622	301
26	102	94					140	226	1,130	641	667	290
27	94	111					144	226	909	641	482	290
28	74	106					160	241	806	622	367	308
29	80	92					198	308	734	667	346	327
30	94	92					266	388	790	720	327	301
31	94							434		852	458	

NOTE.—Stage-discharge relation affected by ice from December 6 to March 31. Mean monthly discharge for December, January, February and March estimated from meter measurements and climatic conditions.

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Monthly Discharge of Bugaboo River, near Galena, for years ending September 30, 1917-18.

[Discharge area 190 square miles.]

ug.	Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
			Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17								
434	327	October	250	84	115	0.60	0.69	7.070
534	227	November			56	0.29	0.32	3.330
654	256	December			40	0.21	0.24	2.460
546	232	January			40	0.21	0.24	2.460
524	247	February			40	0.21	0.22	2.220
		March	62	43	45	0.24	0.28	2.770
		April	56	43	48	0.25	0.28	2.860
		May	755	48	346	1.82	2.10	21.300
508	346	June	1,280	458	779	4.10	4.57	46.400
562	308	July	1,550	434	1,120	5.90	6.80	68.900
755	327	August	829	411	590	3.10	3.57	36.300
687	272	September	444	165	291	1.53	1.71	17.300
707	272	The year	1,550		292	1.54	21.02	213.370
1917-18								
741	411	October	829	74	205	1.08	1.24	12.600
829	444	November	150	68	108	0.57	0.64	6.430
755	367	December			70	0.37	0.43	4.300
776	308	January			65	0.34	0.39	4.000
755	327	February			55	0.29	0.30	3.050
		March			50	0.26	0.30	3.070
734	354	April	266	53	115	0.60	0.67	6.840
654	327	May	720	226	394	2.07	2.39	24.200
562	290	June	3,240	327	1,390	7.32	8.17	82.700
562	241	July	1,580	622	1,020	5.27	6.19	62.700
508	226	August	1,080	327	597	3.14	3.62	36.700
458	327	September	534	290	355	1.87	2.09	21.100
444	210	The year	3,240		369	1.94	26.43	267.690

SPILLIMACHEEN RIVER—STATION No. 8 NA₁₁.

Location.—Downstream side of highway bridge four miles from Spillimacheen.

Records Available.—Daily discharges for open-water periods 1912-1918. Intermittent records for periods in which stage-discharge relation is affected by ice.

Drainage Area.—Five hundred and eighty square miles.

Gauge.—Vertical staff gauge read daily by Mr. James Montgomery.

Channel and Control.—The channel is straight above and below section. Control is gravel bar and is not permanent.

Discharge Measurements.—Made from highway bridge.

Winter Flow.—Stage-discharge relation affected by ice.

Accuracy.—"B".

Discharge Measurements of Spillimacheen River, near Spillimacheen, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.			139*	1918			
Mar. 7	Hughes and Balls		212	Jan. 17	Balls and Beeson		236*
Apr. 27	H. C. Hughes	0.03	212	Feb. 7	" "		157*
June 22	" "	2.92	4,100	Mar. 2	G. K. Beeston		168*
Oct. 21	" "	0.68	443	Apr. 21	" "	0.90	634
				May 18	" "	2.19	2,360
				June 12	" "	3.75	7,280
				" 13	" "	4.05	8,980
				July 4	" "	2.57	2,830
				Aug. 5	" "	2.27	2,260
				Sept. 21	Swan and Beeston	1.94	1,730

Note.—*Ice conditions.

y discharge

Daily Discharge in Second-feet of Spillimacheen River, at Spillimacheen Landing, for period April 1 to September 30, 1917, and year ending September 30, 1918.

Drainage area, 580 square miles.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1916-17												
1							130	180	2,560	3,690	2,280	1,730
2							130	180	2,490	4,440	2,280	1,270
3							130	180	2,490	5,190	2,280	1,190
4							130	190	2,720	5,950	2,280	1,110
5							130	200	2,950	5,650	2,280	1,040
6							130	260	3,180	5,360	2,150	1,110
7							130	334	3,710	5,070	2,020	1,190
8							140	408	4,240	4,500	1,900	1,270
9							140	482	4,780	4,780	2,020	1,040
10							140	493	3,690	5,070	2,150	1,060
11							140	504	3,440	5,360	2,280	1,080
12							140	515	3,190	4,980	2,280	1,100
13							150	660	2,950	4,600	2,500	1,120
14							150	920	2,710	4,220	2,710	1,150
15							150	1,190	3,740	4,500	2,820	1,150
16							150	1,460	4,780	4,880	2,940	1,560
17							150	1,730	5,070	5,260	3,060	1,560
18							150	1,570	4,780	5,650	3,180	1,560
19							150	1,410	4,500	5,260	3,180	1,560
20							150	1,270	4,220	4,880	3,100	1,560
21							150	1,820	3,790	4,500	3,020	1,520
22							150	2,380	3,360	4,780	2,940	1,480
23							150	2,940	2,940	4,160	2,720	1,480
24							160	2,860	2,860	3,550	2,500	1,500
25							160	2,780	3,060	2,940	2,280	1,520
26							170	2,710	3,180	3,100	2,710	1,540
27							186	3,180	3,240	3,260	2,710	1,560
28							180	3,020	3,300	3,430	2,710	1,110
29							180	2,860	3,360	3,690	2,710	660
30							180	2,710	3,430	2,980	2,380	622
31								2,630		2,280	2,060	
1917-18												
1	1,150	280	365				180	1,270	2,110	3,400	3,580	2,080
2	1,150	280	322			167	180	1,890	1,730	3,400	3,760	1,790
3	1,150	280	280				180	2,520	1,730	3,400	3,950	1,500
4	1,230	420	259				180	3,150	1,730	3,310	3,150	1,210
5	1,320	370	258				180	2,940	1,730	3,230	3,150	1,270
6	1,410	320					180	2,430	2,280	3,150	3,150	1,340
7	1,270	280				157	190	1,920	2,840	4,230	3,150	1,410
8	1,190	280					213	1,410	3,400	4,690	2,730	1,270
9	1,110	280					236	1,360	5,250	5,150	2,310	1,540
10	1,040	280					260	1,310	6,940	5,620	1,900	1,820
11	1,000	300					287	1,270	8,630	4,970	2,080	1,750
12	965	286					314	1,270	9,220	4,320	2,020	1,680
13	930	273					340	1,900	9,810	3,670	1,960	1,620
14	880	260					365	2,520	10,400	4,560	1,900	1,560
15	770	266					350	3,150	11,000	4,660	2,020	1,340
16	660	273					335	2,730	6,980	4,770	2,150	1,470
17	550	280				236	320	2,310	7,330	4,880	2,280	1,600
18	515	260					343	1,900	7,680	4,660	2,280	1,730
19	480	310					366	1,990	8,030	4,440	2,280	1,730
20	450	365					390	1,790	7,850	4,230	2,280	1,730
21	450	420					515	1,600	7,670	4,230	2,280	1,730
22	430	440					538	1,410	7,500	3,720	2,420	1,730
23	410	461					561	1,320	9,230	3,210	2,560	1,570
24	390	482					585	1,230	7,900	2,710	2,710	1,420
25	382	550					610	1,150	6,570	2,560	2,940	1,270
26	374	500					635	1,040	5,250	2,420	2,480	1,310
27	365	460					660	1,160	4,550	2,280	2,020	1,360
28	320	420					585	1,280	3,850	2,080	1,560	1,410
29	306	382					812	1,410	3,150	2,520	1,510	1,410
30	383	365					1,040	1,950	3,400	2,960	1,460	1,300
31	280							2,490		3,400	1,410	

Notes.—Stage-discharge relation affected by ice from Dec. 6 1917, to March 31 1918. Mean discharges estimated during this period from meter measurements and climatic conditions as follows: Dec. 6-31, 220 c. f. s.; Jan. 1-17, 250 c. f. s.; Jan. 18-31 210 c. f. s.; Feb. 1-28, 160 c. f. s.; Mar. 1-31, 170 c. f. s.

Monthly Discharge of Spillimacheen River, at Spillimacheen Landing, for years ending September 30, 1917-18.

Drainage area, 580 square miles.

Sept.	Month.	Discharge in Second-feet.			Run-Off		
		Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1,730	1916-17.						
1,270	October	1,140	391	550	0.95	1.10	33,800
1,190	November	..	..	298	0.51	0.57	17,700
1,110	December	..	..	230	0.40	0.46	14,100
1,040	January	..	..	200	0.34	0.40	12,300
1,110	February	..	..	160	0.28	0.29	8,890
1,190	March	..	..	135	0.23	0.26	8,300
1,080	April	186	130	149	0.26	0.29	8,870
1,100	May	3,180	180	1,420	2.45	2.82	87,300
1,120	June	5,070	2,560	3,490	6.02	6.71	208,600
1,150	July	5,950	2,280	4,450	7.70	8.88	274,000
1,150	August	3,180	1,900	2,530	4.36	5.03	156,000
1,150	September	1,730	622	1,280	2.21	2.47	76,200
1,560	The year	5,950	..	1,241	2.14	29.28	905,460
1,520	1917-18						
1,480	October	1,410	280	749	1.19	1.19	46,100
1,480	November	550	260	347	0.60	0.67	20,600
1,480	December	..	..	230	0.40	0.46	14,100
1,500	January	..	..	230	0.40	0.46	14,100
1,520	February	..	..	160	0.28	0.29	8,890
1,540	March	..	..	170	0.29	0.33	10,500
1,560	April	1,040	180	398	0.69	0.77	23,700
1,560	May	3,150	1,040	1,840	3.17	3.66	113,000
1,110	June	11,000	1,730	5,860	10.10	11.30	349,000
960	July	5,620	2,080	3,770	6.50	7.49	232,000
622	August	3,950	1,410	2,430	4.19	4.83	149,000
622	September	2,080	1,210	1,530	2.64	2.94	91,000
2,080	The year	11,000	..	1,480	2.51	34.69	1,071,990

NOTE.—Stage-discharge relation affected by ice, November 17 1916 to April 1 1917. Mean monthly discharge for January, February and March 1917, estimated from gauge records, meter measurements and climatic conditions.

KICKING HORSE RIVER AT NO. 2 TUNNEL—STATION NO. 8 N A₈.

Location.—Just above Canadian Pacific Railway bridge at No. 2 Tunnel.
 Records Available.—Daily discharges for open-water periods July, 1912, to September, 1918, and intermittent records for the winter periods.

Drainage Area.—Fifty square miles.

Gauge.—Vertical staff gauge nailed to cribbing on left bank, and read daily by Mr. R. Hutchison.

Channel and Control.—The channel is very rough and composed of gravel and boulders. The control is rock.

Discharge Measurements.—Made from Canadian Pacific Railway bridge and by wading.

Winter-Flow.—Stage-discharge relation affected by ice.

Accuracy.—“B” for open-water.

Discharge Measurements of Kicking Horse River, at No. 2 Tunnel, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Mar. 4	Hughes and Balls	..	5.68*	Jan. 4	Balls and Beeston	..	14.1*
April 23	H. C. Hughes	-0.05	6.52	Feb. 13	G. K. Beeston	..	11.4*
June 19	..	3.15	272.00	Mar. 6	..	..	16.1*
Oct. 19	..	1.08	81.00	April 18	..	..	10.9
				May 23	..	0.04	91.5
				June 4	Balls and Beeston	1.27	94.7
				Aug. 2	..	2.35	330.0
				Sept. 19	Swan and Beeston	1.87	130.0

NOTE.—*Ice conditions.

estimated 250 c.f.s.

Daily Discharge in Second-feet of Kicking Horse River, at No. 2 Tunnel, for period April 23 to September 30, 1917, and year ending September 30, 1918.

[Drainage area 50 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
1916-17												
1								10	132	325	165	132
2								10	165	513	177	110
3								10	142	625	446	110
4								10	142	694	325	110
5								10	177	671	259	110
6								13	189	513	244	110
7								13	229	468	244	110
8								17	259	491	189	110
9								37	325	513	177	110
10								49	244	513	189	110
11								56	189	558	189	110
12								70	165	580	177	110
13								104	153	535	215	110
14								113	165	558	259	110
15								142	274	468	259	110
16								202	535	535	274	104
17								153	535	558	274	132
18								122	343	558	307	122
19								113	307	535	307	122
20								113	307	491	307	122
21								142	307	558	274	113
22								189	290	402	244	113
23								6	215	259	382	215
24								6	259	215	290	215
25								6	229	202	259	95
26								6	215	215	274	189
27								6	215	215	362	177
28								6	229	290	402	165
29								6	202	382	343	189
30								6	165	307	229	189
31								142		189	165	
1917-18												
1	63	32	27				7	56	104	229	362	142
2	70	27	37				7	78	86	307	362	132
3	113	27	27				7	104	86	274	343	122
4	290	27	27				7	142	78	202	259	113
5	259	27	22				7	153	86	202	229	122
6	215	27	22			16-2	7	132	104	229	215	122
7	142	22	22				7	113	122	274	215	132
8	122	22	22				7	95	202	290	229	132
9	113	22	22				7	78	491	382	215	122
10	104	22	22				7	70	810	423	189	122
11	95	22	22				10	70	740	446	189	122
12	86	22	22				10	86	718	402	189	132
13	86	22	22		11-4		10	104	810	343	189	132
14	95	17	22				10	142	925	325	189	122
15	78	17	17				10	153	787	402	189	122
16	70	17	17				10	177	580	402	202	113
17	70	17	17				10	177	603	402	229	113
18	63	17	17				10	177	671	446	215	122
19	56	17	17				10	132	625	446	189	132
20	56	22	17				10	104	558	491	171	132
21	49	37	13				17	95	580	382	189	142
22	49	43	13				17	86	648	325	202	142
23	43	43	13				17	70	648	307	215	153
24	43	49	13	14-1			22	70	603	259	229	142
25	43	37	13				17	63	558	229	229	122
26	37	32	13				17	56	402	215	259	113
27	37	32	13				17	56	307	189	215	104
28	37	33	13				27	49	259	189	177	113
29	32	32	13				32	63	244	202	142	113
30	32	27	13				43	86	229	229	132	95
31	32		13					113		274	142	

NOTE.—Gauge heights affected by ice during January, February and March, 1917. Mean discharge for these months estimated from climatic conditions and meter measurements under ice conditions.

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Monthly Discharge of Kicking Horse River, at No. 2 Tunnel, for years ending September 30, 1917-18.

[Drainage area 50 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	113	44	56	1-12	1-29	3,440
November	44	22	29	0-58	0-65	1,730
December			14	0-28	0-32	861
January			12	0-24	0-28	738
February			9	0-18	0-19	500
March			6	0-12	0-14	369
April			6	0-12	0-13	357
May	259	10	115	2-30	2-65	7,070
June	535	132	255	5-10	5-70	15,200
July	694	189	465	9-30	10-70	28,600
August	446	165	233	4-66	5-37	14,300
September	132	70	107	2-14	2-30	6,370
The year	694		109	2-18	29-81	79,535
1917-18.						
October	290	32	86	1-72	1-98	5,290
November	49	17	27	0-54	0-60	1,610
December	37	13	19	0-38	0-44	1,170
January			14	0-28	0-32	861
February			11	0-22	0-23	611
March			12	0-24	0-28	738
April	43	7	13	0-26	0-29	774
May	177	56	102	2-04	2-35	6,270
June	925	78	456	9-12	10-20	27,100
July	491	189	313	6-26	7-22	19,200
August	362	132	216	4-32	4-98	13,300
September	153	95	125	2-50	2-79	7,440
The year	925		116	2-32	31-68	84,364

NOTE.—Stage-discharge relation affected by ice from December 26, 1916 to April 23, 1917. Mean monthly discharge during this period estimated from meter measurements and climatic conditions.

KICKING HORSE RIVER AT FIELD—STATION NO. 8 NA7.

Location.—Highway bridge three and one-half miles east of Field.

Records Available.—Daily discharges for open-water seasons June, 1912, to September, 1918, and intermittent records for the winter season.

Drainage Area.—One hundred and thirty square miles.

Gauge.—Chain gauge, read daily by Mr. W. Tarr.

Channel and control.—The channel is straight for fifty yards above and below the section. Bed of stream is composed of gravel and control is not permanent.

Discharge Measurements.—Made from highway bridge.

Winter-flow.—Stage-discharge relation affected by ice.

Accuracy.—"B".

Discharge Measurements of Kicking Horse River, near Field, B.C., during 1917-18.

Date	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Mar. 3	Hughes and Balls		32.4*	Mar. 6	G. K. Beeston	Ice	60.7*
April 24	H. C. Hughes	2-71	36-7	April 18	"	2-58	63-3
June 19	"	5-27	813-0	May 23	"	3-75	298
Oct. 19	"	3-75	212-0	June 4	Balls and Beeston	3-92	282
1918.				June 27	G. K. Beeston	5-71	1,320
Jan. 24	Balls and Beeston	Ice	61-8*	Aug. 2	"	7-28	2,570
Feb. 13	G. K. Beeston	"	60-0*	Sept. 19	Swan and Beeston	5-70	1,390

NOTE.—*Ice conditions.

Daily Discharge in Second-feet of Kicking Horse River, near Field, for period April 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 130 square miles)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1							23	23	500	760	1,230	769
2							23	32	470	995	1,420	638
3							32	32	440	1,230	1,600	519
4							50	32	462	1,320	1,410	400
5							68	32	451	1,360	1,320	400
6							96	32	440	1,410	1,230	380
7							142	32	485	1,500	1,180	360
8							134	23	530	1,450	1,140	400
9							126	27	638	1,410	970	420
10							134	32	584	1,410	900	440
11							142	32	530	1,410	830	511
12							134	43	530	1,600	1,320	582
13							142	43	507	1,800	1,800	484
14							142	43	484	1,900	1,470	440
15							142	46	698	1,900	1,140	400
16							142	49	879	1,900	1,800	465
17							142	81	1,060	1,900	2,120	530
18							96	126	1,020	2,120	2,010	830
19							68	200	970	2,060	1,960	945
20							50	265	830	2,010	1,900	1,060
21							32	330	865	2,120	1,590	1,140
22							32	530	812	1,860	1,230	1,230
23							32	584	760	1,600	1,700	1,030
24							32	638	760	1,420	970	830
25							32	610	760	1,230	1,410	657
26							23	582	699	1,410	1,320	484
27							27	610	638	1,320	1,230	400
28							32	638	668	1,280	1,060	330
29							29	638	653	1,210	1,230	330
30							26	638	638	1,140	1,060	330
31								530		970	900	
1917-18												
1	450	126	81				15	191	345	988	2,720	952
2	500	126	81				15	240	240	1,020	2,530	844
3	550	126	96				15	345	254	1,060	2,340	1,110
4	844	118	88				15	450	268	1,020	2,080	1,380
5	988	111	81				15	359	334	988	1,810	1,220
6	720	118	81				15	268	392	915	1,680	1,060
7	660	118	68			Meter 61	16	241	450	988	1,540	720
8	600	96					18	214	280	1,060	1,140	1,050
9	525	104					20	201	111	1,660	960	1,380
10	450	111					23	188	176	2,250	780	1,180
11	450	104					28	164	240	2,080	960	988
12	410	96					32	216	395	2,040	1,140	1,540
13	369	76				Meter 60	32	268	350	1,990	1,300	1,080
14	352	55					32	318	2,720	2,170	1,460	1,630
15	334	55					32	368	1,900	2,350	1,810	1,460
16	268	49					25	388	1,900	2,530	1,810	1,300
17	254	43					18	408	1,900	2,430	1,810	1,420
18	240	43					25	408	1,990	2,480	1,640	1,540
19	201	62					32	338	2,080	2,530	1,460	1,340
20	240	81					55	268	1,900	2,820	1,340	1,140
21	191	96					44	254	1,720	2,540	1,220	1,140
22	142	111					32	240	1,990	2,250	1,300	1,140
23	126	104					38	214	1,900	1,900	1,380	1,140
24	118	96				Meter 62	43	214	1,810	1,540	1,720	992
25	111	104					38	214	1,480	1,140	1,810	844
26	111	111					32	214	1,140	1,100	1,900	988
27	111	104					32	214	992	1,060	1,720	1,100
28	118	96					68	241	844	1,480	1,580	1,220
29	126	96					105	268	844	1,960	1,440	910
30	118	81					142	368	916	2,360	1,300	600
31	111							450		2,820	1,060	

Norr.—Stage-discharge relation affected by ice from December 8, 1917 to April 4, 1918—Mean monthly discharge for December, January, February and March estimated from meter measurements and climatic conditions

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Monthly Discharge of Kicking Horse River, near Field, for years ending 1917-18.
[Drainage area, 130 square miles]

Month.	Discharge in Second-Feet				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	290	114	189	1-30	1-50	10,390
November			93	0-71	0-79	5,530
December			65	0-50	0-58	4,000
January			50	0-38	0-44	3,070
February			40	0-31	0-32	2,220
March			30	0-23	0-26	1,850
April	42	23	77	0-59	0-66	4,580
May	638	23	244	1-88	2-17	15,000
June	1,060	440	659	5-07	5-66	39,200
July	2,120	760	1,520	11-70	13-50	93,500
August	2,120	830	1,370	10-50	12-10	84,200
September	1,230	330	591	4-55	5-08	35,200
The year	2,120		409	4-14	43-06	298,740
1917-18						
October	988	111	348	2-68	3-09	21,400
November	126	43	94	0-72	0-80	5,590
December			69	0-53	0-61	4,240
January			60	0-46	0-53	3,690
February			55	0-42	0-44	3,050
March			65	0-42	0-48	3,380
April	142	15	35	0-27	0-30	2,080
May	450	164	282	2-17	2-50	17,300
June	2,720	111	1,070	8-23	9-18	63,700
July	2,820	915	1,780	13-70	15-80	109,000
August	2,720	780	1,570	12-10	14-00	96,500
September	1,630	600	1,150	8-85	9-87	68,400
The year	2,820		547	4-21	57-60	398,330

NOTE.—Stage-discharge relation affected by ice from November 9, 1916 to March, 31, 1917. Mean monthly discharge during this period estimated from meter measurements and climatic conditions.

KICKING HORSE RIVER AT GOLDEN—STATION NO. 8 NA₆.

Location.—Downstream side of old highway bridge at Golden.
Records Available.—Daily discharges for open-water seasons April, 1912, to September, 1918, and intermittent records for the winter seasons.

Drainage Area.—Seven hundred square miles.

Gauge.—Vertical staff gauge read twice daily by Mr. W. Wenman.

Channel and Control.—The bed of the stream is composed of gravel and the channel is straight for two hundred yards above and below the section. The control is a gravel bar and is not permanent.

Discharge Measurements.—Made from highway bridge.

Winter-flow.—Stage-discharge relation affected by ice.

Accuracy.—"B" for open-water, October 1, 1916, to June 1, 1917; "C" for open-water, June 1, 1916, to September 30, 1918.

Discharge Measurements of Kicking Horse River, at Golden, during 1917-18.

Date	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.							
Mar. 2	Hughes and Balls		163*	1918.			
April 26	H. C. Hughes	2-24	279	April 16	G. K. Beeston	1-91	398*
May 10	" "	3-10	793	" 24	" "	2-32	672
June 18	" "	5-44	4,500	May 14	" "	4-25	2,734
Aug. 27	" "	4-92	3,340	" 15	" "	4-53	3,042
Oct. 17	" "	2-68	864	" 16	" "	4-60	3,390
1918.							
Jan. 14	Balls and Beeston		184*	" 22	" "	3-45	1,500
Feb. 1	" "		174*	June 8	" "	3-90	1,930
" 5	" "		209*	" 7	" "	4-23	2,440
" 25	G. K. Beeston		188*	" 10	" "	6-80	9,610
				" 25	" "	6-13	7,760
				Aug. 5	" "	4-70	3,490

NOTE.—*Ice conditions.

66232-16

Daily Discharge in Second-feet of Kicking Horse River, at Golden, for period April 1 to September 30, 1917 and year ending September 30, 1918.

[Drainage area, 700 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1							200	260	2,940	4,530	2,340	1,750
2							200	260	3,290	5,650	2,410	1,550
3							200	260	3,290	6,630	3,920	1,340
4							200	260	3,290	7,010	3,110	1,220
5							200	260	3,500	7,320	2,560	1,220
6							200	260	3,540	5,970	2,630	1,160
7							200	310	3,970	5,720	2,560	1,140
8							200	442	4,530	5,250	2,210	1,140
9							200	618	5,390	5,390	2,410	1,140
10							200	735	4,350	5,080	2,630	1,220
11							200	904	3,700	6,080	2,210	1,440
12							200	1,160	3,200	6,710	2,210	1,550
13							200	1,660	2,940	5,550	2,860	1,550
14							200	1,900	3,250	5,970	2,480	1,380
15							200	2,510	4,560	4,940	2,710	1,220
16							200	3,490	6,560	5,230	2,940	1,440
17							200	2,430	6,820	6,330	3,020	1,850
18							230	1,840	4,610	6,080	3,200	1,910
19							230	1,600	4,400	5,900	3,110	1,850
20							230	1,490	4,530	5,860	3,200	1,700
21							290	1,990	4,450	5,720	3,290	1,750
22							260	2,880	4,490	5,900	3,200	1,850
23							260	3,490	3,700	5,080	2,780	1,550
24							260	4,270	3,600	3,600	2,960	1,550
25							260	3,980	3,200	3,330	2,780	1,550
26							275	3,490	3,400	2,780	2,340	1,380
27							275	3,340	3,500	3,830	2,410	1,070
28							260	3,850	3,880	4,720	2,340	1,040
29							260	3,600	4,940	3,700	2,560	940
30							250	2,890	3,749	2,860	2,780	940
31								2,510		2,560	1,850	
1917-18												
1	950	650	520		179			1,280	2,050	3,240	2,650	1,120
2	985	610	520					1,560	1,760	3,540	3,650	1,090
3	1,380	610	520					1,760	1,610	3,290	3,040	1,120
4	2,860	610	520					2,700	1,610	3,140	3,040	1,280
5	2,620	614			209			2,620	1,630	2,810	3,180	1,490
6	2,110	560						2,110	1,810	2,650	2,860	1,330
7	1,820	560						1,690	2,050	2,990	2,620	1,260
8	1,710	560						1,630	3,540	3,440	2,490	1,400
9	1,480	560						1,420	6,180	4,360	2,170	1,490
10	1,420	560						1,310	9,500	4,700	2,050	1,420
11	1,330	560						1,240	8,800	5,100	2,110	1,420
12	1,240	540						1,420	8,280	4,620	2,110	1,510
13	1,200	560						1,820	9,150	4,760	2,070	1,530
14	1,240	528						2,490	13,500	3,880	2,030	1,630
15	1,200	500		184				2,960	11,400	4,360	1,800	1,560
16	1,090	480						398	3,040	5,500	4,900	1,350
17	950	480						440	2,810	6,350	4,750	1,960
18	880	520						480	2,380	7,220	4,900	1,710
19	820	520						488	2,050	7,330	4,750	1,490
20	820	520						560	1,910	5,840	5,100	1,590
21	790	570						710	1,660	5,840	4,480	1,420
22	760	630						760	1,590	3,500	2,200	1,530
23	735	710						735	1,440	8,620	2,490	1,660
24	650	650						755	1,490	8,280	2,540	1,730
25	650	610						735	1,350	7,750	2,460	1,760
26	710	575						675	1,220	4,750	2,860	1,590
27	710	520						660	1,260	6,180	2,310	1,630
28	650	520						735	1,200	4,480	2,110	1,710
29	560	520						894	1,440	2,780	2,380	1,530
30	560	520						1,120	1,590	3,140	2,170	1,460
31	610							1,910		2,380	1,460	

NOTE.—Stage-discharge relation affected by ice from Dec. 5 to April 18. Mean discharges during this period estimated as follows: Dec. 1 to 31—400 c.f.s. Jan. 1 to 14—350 c.f.s. Jan. 15 to 31—180 c.f.s. Feb. 1 to 5—190 c.f.s. Feb. 6 to 25—200 c.f.s. Feb. 26 to 28—190 c.f.s. Mar. 1 to 31—180 c.f.s. Apr. 1 to 15—300 c.f.s.

Discharges shown under head of January and February are meter measurements.

Monthly Discharge of Kicking Horse River, at Golden, for years ending September 30, 1917-18.

[Drainage area, 700 square miles.]

Aug.	Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
			Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
340	1,750							
410	1,550							
920	1,340							
110	1,220							
560	1,220							
630	1,160							
560	1,140							
210	1,140							
410	1,140							
630	1,220							
210	1,440							
210	1,550							
860	1,550							
480	1,380							
710	1,220							
940	1,440							
020	1,850							
200	1,910							
110	1,850							
200	1,700							
290	1,750							
200	1,850							
780	1,550							
960	1,550							
780	1,550							
340	1,380							
410	1,070							
340	1,040							
560	940							
780	940							
850								
1,650	1,120							
1,650	1,090							
3,040	1,120							
3,040	1,280							
1,180	1,490							
2,860	1,330							
2,620	1,260							
2,490	1,400							
2,170	1,490							
2,050	1,420							
2,110	1,420							
2,110	1,510							
2,070	1,530							
2,030	1,630							
1,800	1,560							
1,630	1,350							
1,660	1,510							
1,710	1,590							
1,490	1,660							
1,590	1,930							
1,420	1,930							
1,530	1,710							
1,660	1,610							
1,730	1,510							
1,760	1,060							
1,590	1,150							
1,630	1,200							
1,710	1,090							
1,530	964							
1,460	894							
1,460								
1916-17.			1,180	540	691	0.97	1.12	41,900
October					469	0.67	0.75	27,900
November					350	0.50	0.58	21,500
December					250	0.36	0.40	15,400
January					200	0.29	0.30	11,100
February					165	0.24	0.28	10,100
March					225	0.32	0.36	13,400
April			290	200	1,890	2.70	3.11	116,000
May			4,270	260	4,050	5.79	6.46	241,000
June			6,820	2,940	5,230	7.47	8.62	322,000
July			7,320	2,560	2,710	3.87	4.46	167,000
August			3,920	1,850	1,410	2.02	2.25	84,000
September			1,850	940				
The year			7,320		1,470	2.10	28.69	1,071,300
1917-18.								
October			2,860	560	1,140	1.63	1.88	70,100
November			710	480	564	0.81	0.90	33,600
December					400	0.59	0.68	24,600
January					250	0.36	0.42	15,400
February					200	0.28	0.29	11,100
March					180	0.26	0.30	11,100
April			1,120		488	0.70	0.78	29,000
May			3,040	1,200	1,810	2.59	2.99	111,000
June			13,500	1,610	5,750	8.21	9.16	342,000
July			5,100	2,110	3,500	5.00	5.76	215,000
August			3,650	1,420	2,050	2.93	3.38	126,000
September			1,930	894	1,390	1.99	2.22	82,700
The year			13,500		1,480	2.11	28.76	1,071,600

NOTE.—Stage-discharge relation affected by ice from November 13, 1916 to April 17, 1917. Mean Monthly discharge during this period estimated from meter measurements and climatic conditions.

HOSPITAL CREEK—STATION NO. 8 NB₂.

Location.—At dam above the intake of the old smelter flume, about three miles from Golden.

Records Available.—Daily discharges October 1 to December 6, 1915; January 1 to December 31, 1915; January 1 to June 14, 1916; August 1, 1916, to September 30, 1918.

Drainage Area.—Eighteen square miles.

Gauge.—Staff gauge read daily by Mr. D. C. Robertson.

Discharge Measurements.—Weir station (ten-foot rectangular weir).

Channel.—Irregular.

Winter-Flow.—Weir crest kept clear of ice as much as possible.

g this period
90 c.f.s. Feb. 6

Daily Discharge in Second-feet of Hospital Creek, near Golden, for period January 1 to September 30, 1917 and year ending September 30, 1918.

[Drainage area, 18 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				1-0	0-9	0-8	0-9	1-0	53-0	55-0	9-9	5-1
2				1-0	0-9	0-8	0-9	1-0	53-0	53-0	9-9	5-1
3				1-0	0-9	0-8	0-9	1-0	53-0	51-0	11-5	5-1
4				1-0	0-9	0-8	0-9	1-0	48-0	42-0	10-9	5-1
5				1-0	0-9	0-7	1-0	1-0	48-0	37-0	10-9	4-8
6				1-0	0-9	0-7	1-0	1-5	50-5	34-5	10-5	4-8
7				1-0	0-9	0-7	1-0	2-2	59-0	28-0	10-2	4-8
8				1-0	0-9	0-7	1-0	4-1	71-0	28-0	9-9	4-8
9				1-0	0-9	0-7	1-0	7-1	68-0	28-0	9-9	4-8
10				1-0	0-9	0-7	1-0	12-6	65-0	24-0	9-6	4-8
11				1-0	0-9	0-7	1-1	18-5	53-0	24-0	9-3	4-1
12				1-0	0-9	0-7	1-1	28-0	59-0	24-0	8-9	3-9
13				1-0	0-9	0-9	1-1	28-4	59-0	23-1	8-9	3-9
14				1-0	0-9	0-9	1-1	42-0	74-0	21-6	8-9	3-7
15				0-9	0-9	0-9	1-1	60-8	71-0	21-6	8-3	3-7
16				0-9	0-9	0-9	1-1	48-0	65-0	19-3	8-3	3-5
17				0-9	0-9	0-9	1-1	32-0	59-0	19-3	8-0	3-5
18				0-9	0-9	0-9	1-1	27-2	48-0	18-5	8-0	3-5
19				0-9	0-9	0-9	1-1	13-7	48-0	17-2	7-7	3-5
20				0-9	0-9	0-9	1-1	19-3	48-0	15-1	7-4	3-5
21				0-9	0-9	0-9	1-1	24-0	50-5	14-4	7-4	3-2
22				0-9	0-9	0-9	1-1	32-0	50-5	13-3	7-1	3-2
23				0-9	0-9	0-9	1-1	37-0	48-0	12-2	7-1	3-2
24				0-9	0-9	0-9	1-1	59-0	45-0	11-5	6-8	3-2
25				0-9	0-9	0-9	1-1	74-0	42-0	10-9	6-8	3-2
26				0-9	0-9	0-9	1-1	62-0	37-0	9-9	6-8	3-0
27				0-9	0-9	0-9	1-3	59-0	38-0	11-5	6-2	3-0
28				0-9	0-9	0-9	1-3	59-0	42-0	10-9	5-9	3-0
29				0-9	0-9	0-9	1-3	53-0	37-0	10-9	5-6	3-0
30				0-9	0-9	0-9	1-3	53-0	37-0	9-9	5-3	3-0
31				0-9	0-9	0-9	48-0	48-0	9-9	5-3	5-3	3-0
1917-18.												
1	3-0	2-6	1-9	1-0	0-7	0-7	0-8	17-2	19-3	28-0	8	3-9
2	3-2	2-6	1-9	1-0	0-7	0-7	0-8	19-3	18-5	28-0	6-8	3-9
3	3-7	2-4	1-9	1-0	0-7	0-7	0-9	22-1	18-5	27-2	6-8	3-7
4	3-9	2-4	1-9	1-0	0-7	0-7	0-9	24-0	19-3	27-2	7-7	3-7
5	3-7	2-2	1-9	1-0	0-7	0-7	0-9	26-0	23-1	27-2	7-4	3-7
6	3-5	2-2	1-9	1-0	0-7	0-7	1-0	28-0	24-0	27-2	7-1	3-7
7	3-5	2-2	1-9	0-9	0-7	0-7	1-1	26-0	28-8	26-0	7-1	3-5
8	3-5	2-2	1-7	0-9	0-7	0-7	1-7	19-3	50-5	26-0	7-1	3-5
9	3-2	2-2	1-7	0-9	0-7	0-7	4-2	17-2	68-0	26-0	6-8	3-2
10	3-2	2-0	1-7	0-9	0-7	0-7	3-9	15-1	91-0	26-0	6-8	3-2
11	3-2	2-0	1-7	0-9	0-7	0-7	3-7	19-3	121-0	26-0	6-5	3-2
12	3-2	2-0	1-7	0-9	0-7	0-7	3-5	20-2	121-0	26-1	7-1	3-2
13	3-2	2-0	1-7	0-8	0-7	0-7	3-5	21-6	164-0	25-6	6-8	3-2
14	3-2	2-0	1-7	0-8	0-7	0-7	3-5	28-0	164-0	25-6	6-2	3-0
15	3-0	2-0	1-7	0-8	0-7	0-7	3-5	32-0	146-0	24-8	6-2	3-0
16	3-0	2-0	1-7	0-8	0-7	0-7	3-2	59-0	129-0	24-0	5-9	3-0
17	3-0	2-0	1-5	0-8	0-7	0-7	2-8	28-0	77-0	21-6	5-9	3-0
18	2-8	2-0	1-5	0-7	0-7	0-7	2-4	26-4	65-0	21-6	5-6	3-0
19	2-8	2-0	1-5	0-7	0-7	0-7	2-0	24-0	65-0	19-3	5-3	3-0
20	2-8	2-0	1-5	0-7	0-7	0-7	3-0	23-1	71-0	19-3	5-1	2-8
21	2-8	2-0	1-5	0-7	0-7	0-7	4-2	21-6	65-0	17-2	5-1	2-8
22	2-8	2-0	1-5	0-7	0-7	0-7	5-3	19-3	62-0	16-4	4-8	2-8
23	2-8	2-0	1-5	0-7	0-7	0-7	5-9	18-5	53-0	15-1	4-8	2-8
24	2-8	2-0	1-3	0-7	0-7	0-7	5-6	17-2	50-5	14-4	4-4	2-8
25	2-8	2-0	1-3	0-7	0-7	0-7	5-3	16-8	48-8	13-3	4-2	2-6
26	2-8	1-9	1-3	0-7	0-7	0-7	5-3	16-4	42-0	12-6	4-2	2-6
27	2-8	1-9	1-3	0-7	0-7	0-7	5-6	15-1	39-5	11-5	3-9	2-6
28	2-6	1-9	1-3	0-7	0-7	0-7	7-7	19-3	32-0	9-9	3-9	2-6
29	2-6	1-9	1-1	0-7	0-7	0-7	10-9	17-2	32-0	9-9	3-9	2-6
30	2-6	1-9	1-1	0-7	0-7	0-7	13-3	18-5	28-0	9-9	3-9	2-4
31	2-6	1-9	1-1	0-7	0-7	0-7	19-3	19-3	9-9	9-9	3-9	3-9

THE NATIONAL ARCHIVES AT COLLEGE PARK, MARYLAND

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Monthly Discharge of Hospital Creek, near Golden, for years ending September 30, 1917-18.

[Drainage area, 18 square miles.]

g.	Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
			Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
0.9	5-1	1916-17						
0.9	5-1	October	7.7	5.1	6.03	0.33	0.38	371
1.5	5-1	November	5.3	3.0	3.97	0.22	0.25	236
0.9	5-1	December	3.0	1.0	1.79	0.10	0.12	110
0.9	4.8	January	1.0	0.9	0.95	0.05	0.06	58
0.5	4.8	February	0.9	0.9	0.90	0.05	0.05	50
0.2	4.8	March	0.9	0.7	0.84	0.05	0.06	52
9.9	4.8	April	1.3	0.9	1.08	0.06	0.07	64
9.9	4.8	May	74.0	1.0	29.40	1.63	1.88	1,810
9.6	4.8	June	74.0	37.0	52.60	2.92	3.26	3,130
9.3	4.1	July	53.0	9.9	22.80	1.27	1.46	1,400
8.9	3.9	August	11.5	5.3	8.30	0.46	0.53	510
8.9	3.9	September	5.1	3.0	3.90	0.22	0.24	232
8.3	3.7	The year	74.0	0.7	11.0	0.61	8.36	8,023
8.3	3.5	1917-18						
8.0	3.5	October	3.9	2.6	3.1	0.17	0.20	191
7.7	3.5	November	2.6	1.9	2.1	0.12	0.13	125
7.4	3.5	December	1.9	1.1	1.6	0.09	0.10	98
7.4	3.5	January	1.0	0.7	0.8	0.04	0.05	49
7.4	3.2	February	0.7	0.7	0.7	0.04	0.04	39
7.1	3.2	March	0.7	0.7	0.7	0.04	0.05	43
7.1	3.2	April	13.3	0.8	3.9	0.22	0.24	232
6.8	3.2	May	59.0	15.1	22.4	1.24	1.43	1,380
6.8	3.2	June	164.0	18.5	64.4	3.58	3.99	3,830
6.8	3.0	July	28.0	9.9	20.7	1.15	1.33	1,270
6.2	3.0	August	7.7	3.9	5.7	0.32	0.37	350
5.9	3.0	September	3.9	2.4	3.1	0.17	0.19	184
5.6	3.0	The year	164.0	0.7	10.8	0.60	8.12	7,791

AKOLKOLEX RIVER—STATION No. 8 ND.

Location.—At the highway bridge above the falls, about two miles from Wigwam station.

Records Available.—Daily discharges May 1, 1913, to December 31, 1915; March 1, 1916, to September 30, 1918.

Drainage Area.—One hundred and five square miles.

Gauge.—Chain gauge on highway bridge. Read three times a week by J. A. Lewis.

Channel and Control.—The channel is straight for one hundred yards above and below the section, which is in a box canyon. The control is of rock and is permanent.

Discharge Measurements.—Made from highway bridge. Measurements secured over a range in stage of 706 feet, corresponding to a range in discharge of from 75 to 3000, cubic feet per second.

Winter-Flow.—Station not affected by ice, except for short periods during severe winters.

Accuracy.—The rating curve is well defined but owing to the infrequency of gauge readings the accuracy cannot be placed higher than "C".

Discharge Measurements of Akolkolex River, near Wigwam, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
Feb. 22	Balls and Hughes	0.45	70.8	Jan. 12	Balls and Beeston	.....	198.0*
May 17	H. C. Hughes	4.98	1,150.0	" 30	"	.....	93.9*
June 11	"	5.75	1,410.0	Feb. 22	G. K. Beeston	.....	149.0*
July 2	"	7.02	2,280.0	April 9	"	2.53	382.0
Oct. 13	"	2.40	379.0	June 20	"	8.06	2,870.0
				Sept. 25	Swan and Beeston	2.31	374.0

NOTE.—*Ice conditions

Daily Discharge in Second-feet of Akolkolex River, near Wigwam, for years ending September 30, 1917-18.

[Drainage area, 105 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1	300	221	152	130	115	72	85	228	1,800	1,750	802	440
2	294	230	149	130	110	74	85	236	1,780	2,170	795	390
3	288	233	147	130	105	75	90	244	1,660	2,840	780	380
4	282	236	145	130	101	80	95	252	1,760	3,500	765	380
5	280	240	145	130	98	85	100	260	1,860	2,980	750	370
6	278	226	145	125	98	90	105	380	1,960	2,470	755	366
7	275	212	145	125	95	95	105	500	2,030	1,960	760	360
8	257	197	145	125	95	95	110	620	2,100	1,840	765	350
9	240	185	143	125	95	90	110	780	2,730	2,030	775	396
10	240	174	141	125	95	85	115	940	2,300	2,290	785	442
11	240	163	140	125	95	80	115	1,100	1,860	2,550	795	488
12	240	152	140	125	87	80	115	1,180	1,420	2,310	785	473
13	243	156	140	125	86	85	115	1,260	1,400	2,070	775	459
14	246	160	140	125	79	85	115	1,270	2,000	1,840	765	445
15	250	185	140	125	78	85	120	1,280	2,600	2,060	845	440
16	320	210	140	125	77	85	120	1,300	3,300	2,280	920	435
17	390	235	140	125	76	85	125	1,100	2,700	2,510	1,000	455
18	340	260	140	120	75	85	132	1,030	2,100	2,230	970	475
19	290	234	139	120	74	85	139	960	2,400	1,950	940	455
20	250	208	138	120	73	85	146	892	2,800	1,670	910	435
21	240	182	137	120	72	85	152	1,110	3,200	1,400	805	435
22	250	179	135	120	70	85	160	1,330	2,710	1,230	705	435
23	230	177	133	120	70	85	168	1,550	2,230	1,070	605	400
24	220	175	132	120	70	85	175	1,750	1,750	910	590	360
25	215	173	131	120	70	85	185	1,960	1,730	1,050	576	320
26	210	171	130	120	70	85	195	2,170	1,710	1,200	562	350
27	205	169	130	120	70	85	205	2,140	1,660	1,350	641	380
28	205	167	130	120	70	85	210	2,120	1,860	1,180	720	350
29	205	162	130	120	70	85	215	2,100	2,030	1,020	835	320
30	205	157	130	120	70	85	220	1,960	1,890	858	550	320
31	213	130	120	70	85	220	1,810	810	490	490	490	490
1917-18.												
1	352	248	308	255	.....	162	218	1,080	862	1,420	1,220	455
2	648	267	290	273	.....	164	222	1,370	873	1,310	1,050	460
3	944	287	290	290	.....	166	227	1,650	884	1,200	878	474
4	1,240	307	290	307	.....	168	232	1,700	896	1,100	847	488
5	1,060	302	290	325	.....	170	237	1,750	1,220	1,210	816	502
6	877	297	287	307	.....	172	242	1,500	1,540	1,330	782	524
7	695	292	284	290	.....	174	248	1,260	1,870	1,450	748	546
8	513	287	282	273	.....	176	329	1,020	2,570	1,740	714	470
9	478	282	279	240	.....	176	410	958	3,270	2,030	662	465
10	444	273	276	210	.....	176	444	896	3,980	1,850	610	465
11	410	270	273	204	.....	176	478	1,040	4,290	1,670	558	460
12	394	267	264	198	.....	176	513	1,180	4,610	1,500	588	477
13	379	264	256	.....	.....	176	502	1,470	4,930	1,650	619	495
14	361	261	248	.....	.....	176	492	1,760	4,580	1,810	652	513
15	343	258	256	.....	.....	176	471	2,060	4,230	2,040	686	492
16	325	256	264	.....	.....	178	450	1,810	3,880	2,280	680	471
17	307	248	273	.....	.....	180	435	1,560	37,10	2,460	673	450
18	302	240	270	.....	.....	182	420	1,320	3,540	2,640	600	460
19	298	402	267	.....	.....	185	477	1,180	3,520	2,140	728	470
20	294	565	264	.....	.....	188	534	1,040	3,500	1,640	767	572
21	290	728	258	.....	.....	191	592	1,000	3,510	1,148	807	673
22	284	638	253	.....	.....	195	562	965	3,520	1,050	847	575
23	278	549	248	.....	149	200	532	930	3,540	964	836	477
24	273	460	242	.....	.....	205	502	872	3,020	878	826	380
25	270	430	237	.....	.....	210	538	814	2,500	855	816	361
26	267	400	232	.....	.....	220	574	756	1,990	832	704	370
27	264	370	233	.....	.....	230	610	826	1,810	824	592	380
28	261	355	234	.....	.....	239	646	896	1,630	816	481	390
29	258	340	236	.....	.....	248	790	1,030	1,450	1,120	466	382
30	256	325	238	93.9	.....	238	935	1,160	1,440	1,420	450	375
31	252	240	240	.....	.....	228	.....	961	.....	1,320	455	.....

Note.—Gauge heights affected by ice during January and February, 1918. Mean monthly discharges for these months estimated from climatic conditions and ice measurements.

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Monthly discharge of Akolkolex River, near Wigwam, for years ending September 30, 1917-18.

[Drainage area, 105 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916-17.						
October	390	205	255	2.43	2.80	15,700
November	260	152	194	1.85	2.06	11,500
December	152	130	135	1.29	1.49	8,300
January	130	120	133	1.17	1.35	7,560
February	115	70	84	0.80	0.83	4,660
March	95	72	84	0.80	0.92	5,190
April	220	85	138	1.31	1.46	8,210
May	2,170	228	1,160	11.00	12.70	71,300
June	3,200	1,400	2,110	20.10	22.40	125,000
July	3,500	810	1,850	17.60	20.30	114,000
August	1,000	490	752	7.16	8.25	46,200
September	488	320	403	3.84	4.28	24,000
The year	3,500	70	607	5.78	78.85	462,620
1917-18						
October	1,240	252	439	4.18	4.82	27,000
November	728	240	349	3.32	3.70	20,800
December	308	232	263	2.50	2.88	16,200
January			190	1.80	2.08	11,700
February			110	1.05	1.09	6,100
March	248	162	190	1.80	2.08	11,700
April	935	218	462	4.40	4.91	27,500
May	2,060	756	1,220	11.60	13.40	75,000
June	4,930	862	2,720	25.90	28.90	162,000
July	2,640	816	1,470	14.00	16.10	90,400
August	1,220	558	718	6.84	7.89	44,100
September	673	361	469	4.47	4.99	27,900
The year	4,930		717	6.82	92.84	520,410

INCOMAPPLEX RIVER—STATION NO. 8 NE₁₀.

Location.—Highway bridge one mile above Camborne.

Records available.—Daily discharges open-water periods November 1, 1916, to September 30, 1918, and monthly mean discharge for period stage-discharge relation affected by ice.

Drainage area.—Four hundred and five square miles.

Gauge—Vertical staff downstream side of bridge, read three times a week by Mr. T. Wilkinson.

Channel and control.—The bed of the channel is silt and liable to shift in high stages.

Discharge measurements.—Made from highway bridge. Measurements not secured at high stage.

Winter-flow.—Stage-discharge relation affected by ice.

Accuracy.—“B” to discharge of 4,000 cubic feet per second and “C” above discharge of 4,000 cubic feet per second.

Discharge Measurements of Incomapplex River, near Camborne, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Feb. 17	Balls and Hughes	5.66	214*	Jan. 28	Balls and Beeston	2.10	336*
May 14	H. C. Hughes	3.79	3,320	Feb. 20	G. K. Beeston	1.90	276*
June 13	"	6.70	4,990	April 12	"	3.48	1,290
" 29	"	3.14	990	June 21	"	8.00	5,390
Oct. 15	"			Sept. 27	Swan and Beeston	4.30	1,990

NOTE.—*Ice conditions.

Daily Discharge in Second-feet of Incomappleux River, near Camborne, for years ending September 30, 1917-18.

[Drainage area, 405 square miles.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April	May	June	July	Aug.	Sept.
1916-17												
1		650	466				345	731	3,640	5,180	2,300	2,080
2		650	463				350	740	3,740	5,770	4,990	1,980
3		650	460				353	735	3,270	6,360	3,850	1,370
4		650	456				356	730	2,800	6,460	2,700	1,450
5		620	454				358	780	2,710	6,560	3,460	1,530
6		580	454				361	830	3,170	6,410	3,230	1,620
7		550	454				364	1,060	5,060	6,260	3,000	1,490
8		560	454				386	1,290	6,960	5,960	2,770	1,370
9		574	454				385	1,780	5,370	6,360	2,900	1,580
10		545	450				390	2,280	3,610	6,760	3,030	1,780
11		520	450				405	2,690	3,320	7,160	3,400	1,700
12		505	450				420	3,100	3,030	6,960	3,770	1,620
13		490	450				428	2,700	3,400	6,760	4,190	1,540
14		505	450				435	3,310	3,770	6,560	4,610	1,450
15		520	454				442	3,080	4,720	6,860	4,190	1,660
16		520	439				450	2,860	5,060	7,160	3,770	1,880
17		520	426				450	2,640	4,260	7,360	4,480	1,980
18		530	400				450	2,390	4,290	7,560	5,180	2,080
19		535	400				460	2,140	4,140	6,860	5,180	1,780
20		520	400				470	2,440	4,090	6,260	4,430	1,800
21		505	400				495	2,740	4,540	5,660	2,640	1,820
22		490	400				520	3,100	4,990	4,880	2,770	1,850
23		480	400				538	3,460	4,800	4,090	2,900	1,880
24		482	400				556	3,540	3,460	2,320	3,040	1,580
25		484	400				584	3,610	3,460	3,560	3,170	1,290
26		480	350				612	4,700	3,460	4,610	2,840	1,580
27		474	350				671	4,560	3,780	4,430	2,520	1,780
28		472	350				730	4,430	4,090	4,260	2,460	1,340
29		470	350				726	4,180	4,990	4,090	2,410	965
30		468	350				722	3,770	3,540	2,580	2,300	885
31			350					3,540		2,280	2,190	
1917-18												
1	1,220	565	715				495	2,630	2,230	4,390	4,500	2,150
2	2,540	580	570				495	2,960	1,640	4,080	4,470	2,100
3	3,850	670	625				508	3,290	1,940	3,740	4,440	2,060
4	4,560	760	643				520	3,320	2,180	3,010	4,330	2,160
5	3,310	715	661				550	3,360	2,420	3,160	4,220	2,250
6	2,060	670	620				550	2,920	2,880	3,360	4,200	2,300
7	1,800	634	580				550	2,480	3,330	4,040	4,190	2,340
8	1,550	648	565				670	2,270	3,950	4,730	3,460	2,200
9	1,490	661	560				800	2,060	5,620	5,180	2,720	2,060
10	1,420	620	556				930	2,100	6,500	5,620	2,700	2,160
11	1,360	580	546				1,060	2,130	7,380	5,510	2,680	2,250
12	1,300	565	535				1,190	2,420	8,260	5,140	2,330	2,200
13	1,240	550	528				1,200	2,720	9,150	4,780	1,980	2,150
14	1,430	550	520				1,200	2,740	7,330	4,940	2,280	2,200
15	970	550	520				380	880	2,760	5,510	2,580	2,250
16	865	535	520				390	550	2,780	5,850	5,280	2,900
17	760	535	550				400	730	2,800	6,190	5,220	3,210
18	751	528	550				406	926	2,820	6,480	5,160	2,960
19	715	520	625				414	1,110	2,540	6,780	5,110	2,720
20	697	1,080	580			Mr 276	420	1,300	2,250	5,780	5,060	2,150
21	679	1,640	535				414	1,490	1,980	5,620	4,620	2,840
22	674	2,150	520				406	1,420	1,800	6,780	4,170	3,520
23	670	1,640	520				400	1,340	1,890	6,840	4,450	3,480
24	648	1,120	550				420	1,340	1,690	6,890	4,730	3,440
25	625	1,090	550				440	1,340	1,490	5,460	3,210	3,350
26	625	1,060	550				460	1,350	1,490	5,080	3,110	3,310
27	625	1,060	550				480	1,360	1,490	4,410	2,890	2,970
28	600	1,060	550	Mr 336	495		1,890	1,620	1,640	3,500	3,120	2,630
29	574	938	550				520	1,890	2,150	3,360	3,360	2,390
30	562	715	550				550	2,260	2,480	3,880	4,040	2,150
31	550		550				520		2,820		4,610	2,150

NOTE.—Stage-discharge relation affected by ice from January 1 to March 14, 1918. Mean discharges during this period estimated as follows: January 1 to January 10, 550 c.f.s.; Jan. 11 to 31, 440 c.f.s.; Feb. 1 to 19, 300 c.f.s.; Feb. 20 to 28, 290 c.f.s.; Mar. 1 to 14, 350 c.f.s.

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Monthly Discharge of Incomappleux River, near Camborne, for years ending September 30, 1917-18.

[Drainage area, 405 square miles.]

Aug.	Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
			Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
2,300	2,080							
4,990	1,980							
3,850	1,370							
2,700	1,450							
3,460	1,530							
		1916-17						
		October	650	468	533	1.31	1.46	31,700
		November			420	1.04	1.20	25,800
3,230	1,620	January			280	0.69	0.80	17,200
3,000	1,490	February			220	0.54	0.56	12,200
2,770	1,370	March			250	0.62	0.71	15,400
2,900	1,580	April	730	345	473	1.17	1.31	28,100
3,030	1,780	May	4,700	730	2,580	6.37	7.34	159,000
		June	5,660	2,710	4,070	10.10	11.30	242,000
3,400	1,700	July	7,560	2,280	5,630	13.90	16.00	346,000
3,770	1,620	August	5,180	2,190	3,380	8.35	9.63	208,000
4,190	1,540	September	2,080	855	1,950	4.82	5.38	116,000
4,610	1,450							
4,190	1,660	The year	7,560		1,799	4.45	55.69	1,201,400
		1917-18						
3,770	1,880	October	4,560	550	1,310	3.23	3.72	80,600
4,480	1,980	November	2,150	520	833	2.06	2.30	49,600
5,180	2,080	December	715	520	566	1.40	1.61	34,800
5,180	1,780	January			470	1.16	1.34	28,900
4,430	1,800	February			295	0.73	0.76	16,400
		March			400	0.99	1.14	24,600
		April	2,260	495	1,050	2.59	2.89	62,500
2,640	1,820	May	3,360	1,490	2,400	5.93	6.84	148,000
2,770	1,850	June	9,150	1,640	5,110	12.00	14.10	304,000
2,900	1,880	July	5,620	2,890	4,350	10.70	12.30	267,000
3,040	1,580	August	4,500	1,980	3,140	7.75	8.94	193,000
3,170	1,290	September	2,580	1,680	2,180	5.38	6.00	130,000
		The year	9,150		1,840	4.54	61.94	1,339,400

NOTE.—Station established Nov. 4, 1916. Stage-discharge relation affected by ice from December 17, 1916, to April 1, 1917. Discharge for this period estimated from gauge records, meter measurements and climatic conditions as follows:—

Daily discharge, Dec. 18 to 25, 400 cubic feet per second.
Dec. 21 to 31, 350 " "
Mean Monthly discharge, Jan., 280 " "
Feb., 220 " "
Mar., 250 " "

INONOAKLIN CREEK—STATION NO. 8 NE₉.

Location.—Highway bridge two miles above mouth and half a mile above falls.

Records Available.—Daily discharges June 1, to December 8, 1915; March to December, 1916; April 1 to December 31, 1917; March 16 to September 30, 1918. Monthly discharges estimated during winter of 1917-18 when stage-discharge relation affected by ice.

Drainage Area.—One hundred and thirty square miles.

Gauge.—Vertical staff gauge attached to cribbing above highway bridge, read daily by Mr. W. R. Colegrave.

Channel and control.—The bed of the channel is composed of clay and gravel and the control, which is about one hundred yards downstream appears permanent.

Discharge Measurements.—Made from highway bridge and cover all stages.

Winter-flow.—Stage-discharge relation affected by ice.

Accuracy.—"A" to discharge of 800 cubic feet per second and "B" above discharge of 800 cubic feet per second.

Discharge Measurements of Inonoaklin Creek, near Edgewood, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.		Date.	Engineer.	Gauge Height.	Discharge.	
			Feet.	Sec.-ft.				Feet.	Sec.-ft.
1917.					1918.				
Feb. 7	J. A. Elliott		30.0*		Jan. 16	Wood and Milner		42.0*	
Mar. 23	Balls and Elliott		23.4*		" 17	" "		40.7*	
May 9	T. R. Patterson	2.90	420.0		" 8	" "		36.4*	
" 10	" "	3.21	497.0		Feb. 8	G. K. Beeston			
June 16	" "	4.80	1,120.0		April 25	Swan and Balls	2.93	408.0	
July 31	" "	1.34	74.7		May 15	" "	5.52	1,362.0	
Oct. 24	Swan and Wood	0.80	23.0		" 16	" "	5.16	1,180.0	
" 25	" "	0.83	26.8		Sept. 3	G. K. Beeston	1.05	41.0	
					" 4	" "	0.98	36.7	

NOTE.—* Ice conditions.

DEPARTMENT OF THE INTERIOR.

Daily Discharge in Second-feet of Inonoaklin Creek, near Edgewood, for period April 1 to September 30, 1917 and year ending September 30, 1918.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1							43	186	1,270	436	57	23
2							40	180	1,150	401	57	23
3							57	180	983	380	49	23
4							67	174	862	385	44	23
5							74	190	782	360	40	30
6							81	210	734	335	44	30
7							106	222	974	292	43	37
8							128	305	1,040	261	43	37
9							111	408	1,180	238	49	37
10							74	492	954	210	44	30
11							84	621	774	220	38	30
12							94	774	794	174	37	37
13							84	602	680	160	40	37
14							78	1,050	822	136	37	30
15							67	1,290	894	132	37	30
16							94	1,200	1,020	132	36	23
17							106	894	924	123	34	23
18							118	697	774	118	34	23
19							94	645	680	114	34	30
20							94	774	662	111	34	37
21							141	914	621	97	34	37
22							150	1,020	587	84	30	30
23							136	1,380	482	70	30	30
24							136	1,290	473	67	30	23
25							139	1,280	523	60	30	23
26							160	1,420	504	54	30	23
27							229	1,810	492	54	30	30
28							222	1,570	436	54	30	30
29							200	1,630	435	94	26	23
30							193	1,390	436	67	25	23
31								1,200		57	23	23
1917-18.												
1	23	23	30				190	716	697	280	97	40
2	30	23	37				150	854	594	234	81	40
3	60	23	30				132	997	467	190	81	40
4	49	37	30				114	1,290	435	170	97	37
5	37	40	30				114	1,200	408	190	81	37
6	30	37	30				132	954	660	170	67	37
7	30	37	30				150	854	498	170	67	30
8	30	37	30			Meter 36	170	734	594	170	54	30
9	30	37	30				268	611	774	170	54	30
10	30	30	30				342	628	1,020	234	67	30
11	30	30	30				330	697	1,020	234	132	30
12	30	30	30				355	914	934	210	132	30
13	23	23	37				355	974	974	210	114	30
14	23	30	37				330	1,180	1,100	190	132	30
15	23	30	37				330	1,340	974	190	114	30
16	23	23	44	Meter 42			342	1,270	974	150	97	30
17	23	23	54	Meter 41			280	1,020	894	132	97	30
18	23	23	44				37	894	774	132	97	23
19	23	23	44				44	734	697	132	81	23
20	23	23	37				44	280	645	560	114	23
21	23	23	30				44	330	594	436	114	23
22	23	23	30				54	467	529	380	114	23
23	23	30	30				67	408	498	330	114	81
24	23	23	30				81	498	467	330	97	67
25	23	23	30				97	436	408	305	97	67
26	23	23	30				132	408	408	305	97	67
27	23	30	30				132	436	408	355	114	54
28	23	30	30				150	467	380	355	132	54
29	23	30	23				150	560	467	305	132	54
30	23	30	23				170	611	697	280	97	44
31	23	23	23				190	697		97	44	23

NOTE.—Stage-discharge relation affected by ice during January, February and March, 1918. Mean monthly discharges for these months estimated from climatic conditions and meter measurements under ice conditions.

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Monthly Discharge of Inonoaklin Creek, near Edgewood, for years ending September 30, 1917-18.

[Drainage area, 130 square miles.]

Aug.	Sept.	Month.	Discharge in Second-Feet.				Run-Off.	
			Maximum.	Minimum.	Mean.	Per square mile	Depth in inches on Drainage area.	Total in acre-feet.
		1916-17						
57	23	October	36	22	28.0	0.21	0.24	1,720
57	23	November			26.0	0.20	0.32	1,550
49	23	December			26.0	0.20	0.23	1,660
44	23	January			26.0	0.20	0.23	1,600
49	37	February			26.0	0.20	0.21	1,440
44	30	March			28.0	0.22	0.25	1,720
		April	229	40	113.0	0.87	0.97	6,720
38	30	May	1,810	174	848.0	6.22	7.17	52,100
37	37	June	1,270	436	764.0	5.88	6.56	45,500
40	37	July	436	54	176.0	1.35	1.56	10,800
37	30	August	57	23	37.1	0.28	0.32	2,280
37	30	September	37	23	28.8	0.22	0.24	1,710
		The year	1,810		177.0	1.34	18.20	128,740
		1917-18						
36	23	October	60	23	27	0.22	0.25	1,660
34	23	November	40	23	28	0.23	0.26	1,670
34	23	December	54	23	32	0.27	0.31	1,970
34	37	January			40	0.33	0.38	2,460
		February			35	0.29	0.30	1,940
34	37	March			70	0.58	0.67	4,300
30	30	April	611	114	315	2.62	2.92	18,700
30	30	May	1,340	380	776	6.47	7.46	47,700
30	23	June	1,100	280	611	5.10	5.69	36,400
30	23	July	280	97	157	1.21	1.51	9,650
30	30	August	132	44	81	0.68	0.78	4,980
30	30	September	40	23	29	0.24	0.27	1,730
26	23	The year	1,340		183	1.53	20.80	133,160

NOTE.—Stage-discharge relation affected by ice from November 1, 1916, to March 31, 1917. Mean monthly discharge during this period estimated from meter measurements and climatic conditions.

KOOTENAY RIVER TRIBUTARY BASIN.

KOOTENAY RIVER AT WARDNER—STATION NO. 8 NG₅.

Location.—Highway bridge at Wardner.

Records Available.—Daily discharges for open-water periods January 1, 1914, to September 30, 1918; and intermittent records for periods in which stage-discharge relation is affected by ice.

Drainage Area.—Five thousand two hundred square miles.

Gauge.—Chain gauge downstream side of bridge read twice daily by Mrs. G. Barnes.

Channel and Control.—Section is uniform and channel is straight for considerable distance above and below. Control is permanent.

Discharge Measurements.—Made from highway bridge. Measurements required at high stage.

Winter-flow.—Stage-discharge relation affected by ice.

Accuracy.—"A" between discharges of 2,000 and 40,000 cubic feet per second and "C" above discharge of 40,000 cubic feet per second.

Discharge Measurements of Kootenay River, at Wardner, during 1917-18.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
1917.				1918.			
Mar. 16	Balls and Elliott.	0.67	1,400	Jan. 20	Wood and Milner.		1,875 ¹
June 29	T. R. Patterson.	8.40	25,100	Feb. 18	"		1,550 ¹
July 25	"	5.40	12,400	Mar. 17	G. K. Beeston.	0.70	1,670
Nov. 5	Wood and Swan.	1.35	2,610	May 9	Swan and Balls.	5.15	11,400
Nov. 24	J. R. Wood.	1.60	2,940	July 29	R. G. Swan.	4.30	9,050
				Aug. 8	G. K. Beeston.	3.64	7,690

NOTE.—¹ Ice conditions.

April

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Daily Discharge in Second-feet of Kootenay River, at Wardner, for period March 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 5,200 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1						1,300	1,420	1,800	19,000	22,900	9,150	5,850
2						1,300	1,420	1,800	19,800	25,200	8,640	5,300
3						1,300	1,430	1,930	20,000	28,500	8,400	5,130
4						1,300	1,480	1,990	18,100	30,600	8,640	4,820
5						1,300	1,530	2,130	16,900	31,000	8,700	4,580
6						1,300	1,570	2,300	16,800	29,800	8,400	4,470
7						1,300	1,570	2,660	18,200	28,000	8,700	4,290
8						1,300	1,720	3,250	22,200	26,400	8,850	4,290
9						1,300	1,720	4,290	28,900	24,600	8,340	4,470
10						1,300	1,800	5,650	34,400	24,000	7,800	4,360
11						1,300	1,770	7,000	28,900	23,800	7,800	4,240
12						1,300	1,800	11,900	23,600	23,600	7,950	4,130
13						1,300	1,720	12,900	20,300	22,600	7,740	4,130
14						1,300	1,770	15,800	19,800	20,500	7,740	4,240
15						1,340	1,650	17,400	23,300	19,000	8,100	4,520
16						1,400	1,610	19,600	32,400	18,200	8,040	4,240
17						1,400	1,570	20,300	39,700	18,700	8,100	4,360
18						1,390	1,480	16,630	38,500	19,200	8,160	4,520
19						1,390	1,530	14,100	34,100	19,100	8,250	4,580
20						1,390	1,550	12,500	33,300	18,200	8,160	4,470
21						1,390	1,570	12,500	32,000	17,000	7,950	4,470
22						1,390	1,650	15,300	31,200	15,800	7,800	4,420
23						1,420	1,800	19,000	27,700	14,800	7,500	4,360
24						1,490	1,680	23,700	24,400	13,900	7,100	4,240
25						1,390	1,650	26,600	23,700	12,500	6,940	4,130
26						1,360	1,720	25,800	23,000	11,900	6,910	3,920
27						1,360	1,720	25,000	23,300	11,500	6,700	3,810
28						1,390	1,800	25,400	24,000	11,800	6,440	3,810
29						1,420	1,800	27,500	25,000	11,800	6,210	3,750
30						1,420	1,800	25,000	24,800	11,100	6,150	3,600
31						1,420		20,900		9,960	6,150	
1917-18												
1	3,400	1,960	2,040			1,420	2,040	9,060	16,200	14,800	8,700	5,380
2	3,210	2,040	1,960			1,420	1,880	10,960	15,000	15,700	9,000	5,850
3	3,270	1,990	1,960			1,420	1,680	13,300	13,200	16,000	9,660	5,300
4	3,600	2,100	2,130			1,360	1,630	16,400	12,200	15,100	9,450	4,820
5	3,920	2,220	2,130			1,360	1,650	19,400	12,200	13,300	8,640	4,520
6	4,650	2,220	2,130			1,340	1,800	18,400	13,600	12,900	8,160	4,360
7	4,540	2,160	2,130			1,340	1,930	15,700	16,300	14,600	7,560	4,420
8	3,920	2,130	1,960			1,340	2,100	13,600	21,400	14,800	7,440	4,420
9	3,810	1,990	2,130			1,340	2,340	12,000	31,200	14,700	7,200	4,470
10	3,600	1,960	2,300			1,360	2,880	10,800	40,500	15,800	7,260	4,240
11	3,360	1,880	2,300			1,360	3,360	10,060	45,200	17,000	7,040	4,130
12	3,300	1,770	1,960			1,360	3,640	10,200	45,600	15,900	7,100	4,130
13	3,170	1,720	1,420			1,360	3,980	11,800	45,200	14,800	7,500	4,200
14	3,170	1,830	1,490			1,360	4,020	15,000	47,800	13,800	7,350	4,240
15	3,000	1,800	1,570			1,360	3,810	17,800	47,400	13,200	7,160	4,240
16	2,980	1,800	1,610			1,360	3,640	19,000	45,200	13,200	7,000	4,060
17	2,930	1,800	1,650			1,360	3,210	17,400	35,500	12,900	7,100	3,980
18	2,880	1,650	2,040		1,550	1,490	3,170	15,800	36,800	12,900	7,350	3,810
19	2,750	1,650	2,130			1,530	3,060	14,400	35,000	12,000	7,500	3,810
20	2,660	1,650	2,480	1,880		1,530	3,360	13,200	32,700	12,800	7,100	3,770
21	2,570	1,650	2,300			1,490	4,290	12,100	30,500	12,500	6,760	3,810
22	2,480	1,880	2,130			1,490	5,560	11,200	30,000	11,600	6,506	4,020
23	2,480	2,300	2,130			1,610	6,300	10,600	31,200	10,400	6,600	4,290
24	2,480	2,620	1,890			1,650	6,300	10,000	30,000	9,960	6,460	4,700
25	2,390	2,520	1,650			1,650	6,300	9,600	27,760	9,840	6,540	4,700
26	2,300	2,300	1,490			1,960	6,000	9,150	25,600	9,240	6,540	4,200
27	2,300	2,300	1,460			2,010	5,480	8,550	21,800	9,540	6,500	3,850
28	2,220	2,130	1,420			1,930	5,430	8,490	18,300	9,960	6,400	3,640
29	2,100	2,040	1,420			1,800	5,910	9,760	16,000	9,300	5,850	3,560
30	1,960	1,960	1,420			1,880	7,040	10,860	15,000	8,760	5,300	3,560
31	1,960		1,420			2,130		14,400		8,700	5,060	

NOTE.—Stage-discharge relation affected by ice during January, February and March. Mean monthly discharges for these months estimated from meter measurements and climatic conditions.

THIS ACCOUNT IS FORWARDED TO THE DEPARTMENT OF THE INTERIOR

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Daily Discharge in Second-feet of Kootenay River, at Nelson, for period January 1 to September 30, 1916, and year ending September 30, 1917.

[Drainage area 17,700 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916.												
1				8,700	6,840	7,200	16,600	34,600	60,000	144,000	81,200	34,400
2				8,550	6,840	7,200	17,300	35,200	60,700	144,000	79,700	33,900
3				8,400	6,810	7,200	17,500	35,800	61,300	141,000	76,900	33,600
4				8,250	6,780	7,200	17,600	39,100	61,700	142,000	73,600	33,400
5				8,250	6,780	7,350	17,800	41,000	63,300	141,000	71,300	33,200
6				8,220	6,780	7,500	18,100	45,700	64,500	140,000	69,900	32,900
7				8,190	6,810	7,500	18,300	45,700	65,600	138,000	68,000	32,700
8				8,190	6,810	7,800	18,400	47,800	66,700	137,000	65,100	32,700
9				8,160	6,810	7,800	21,700	49,900	68,900	136,000	63,800	32,700
10				8,100	6,810	7,800	22,000	56,300	71,900	136,000	60,800	32,200
11				7,950	6,810	7,800	22,500	57,000	72,700	135,000	59,200	32,000
12				7,950	6,840	7,800	22,800	57,700	75,300	134,000	57,000	31,000
13				7,950	6,690	7,800	23,000	60,000	77,800	132,000	54,300	30,700
14				7,860	6,690	7,800	23,600	59,200	79,100	131,000	53,400	29,900
15				7,860	6,690	7,950	27,090	57,700	84,400	130,000	51,200	28,700
16				7,500	6,660	8,100	27,800	57,100	88,400	126,000	49,900	28,600
17				7,200	6,690	8,250	29,100	58,300	93,600	124,000	48,500	28,100
18				7,140	6,780	8,250	29,400	55,100	99,200	123,000	47,700	27,800
19				7,110	6,780	8,400	29,400	55,000	106,000	121,000	48,500	27,800
20				7,050	6,840	9,500	29,700	55,000	116,000	118,000	45,100	26,400
21				7,050	6,840	10,200	29,800	54,900	123,000	115,000	43,200	24,800
22				7,020	6,840	11,700	30,000	55,900	129,000	113,000	42,500	24,400
23				7,080	6,870	13,400	29,700	56,000	133,000	110,000	41,000	24,200
24				7,170	6,870	14,800	29,700	57,000	140,000	107,000	39,800	24,000
25				7,110	6,900	15,200	29,700	57,000	142,000	104,000	39,100	23,400
26				7,050	6,900	16,100	30,000	57,100	144,000	100,000	38,400	22,800
27				6,990	7,000	16,200	30,200	57,100	145,000	98,200	36,600	22,300
28				6,930	7,100	16,200	30,800	57,400	146,000	94,500	35,800	21,800
29				6,900	7,200	16,200	32,300	57,700	145,000	92,100	35,600	21,800
30				6,900		16,300	34,000	60,000	145,000	87,500	35,400	21,200
31				6,840		16,200		60,000		85,000	34,700	
1916-17												
1	19,200	12,800	9,800	6,360	5,700	6,900	5,350	13,200	81,800	103,000	60,000	27,400
2	19,300	12,700	9,800	6,320	5,720	6,600	5,350	13,200	83,100	102,000	56,300	27,000
3	19,400	12,700	9,860	6,240	5,720	5,700	5,440	13,200	83,600	102,000	54,500	26,900
4	19,300	12,700	9,800	6,140	4,660	5,520	5,500	13,200	83,600	102,000	51,900	25,500
5	18,900	12,700	9,800	6,140	6,200	5,500	5,500	13,200	83,600	102,000	47,400	24,800
6	18,300	12,700	9,800	6,140	6,200	5,500	5,500	13,600	84,200	102,000	46,000	23,800
7	18,100	12,700	9,740	6,170	5,900	5,520	5,520	14,300	84,400	101,000	46,500	23,100
8	17,700	12,700	9,740	6,110	6,140	5,520	5,740	14,800	85,800	100,000	45,300	22,600
9	17,400	12,700	9,440	6,050	6,140	5,520	5,760	15,400	86,700	99,800	42,600	22,100
10	17,300	13,100	9,440	5,990	6,140	5,520	5,820	16,600	86,800	99,800	41,100	21,500
11	17,100	13,100	9,440	5,960	6,080	5,050	5,880	18,300	89,900	98,500	40,400	21,100
12	16,700	12,700	9,410	5,900	6,080	5,050	5,930	22,200	90,900	97,500	38,300	20,900
13	16,400	12,200	9,350	5,900	6,020	5,050	6,140	26,400	91,500	95,300	37,300	20,400
14	16,000	12,200	9,290	5,880	5,990	5,050	7,800	30,000	93,000	94,300	36,800	20,000
15	15,700	12,000	9,180	5,860	5,990	5,050	8,400	33,200	93,700	93,200	35,900	19,800
16	15,500	11,800	9,100	5,840	5,880	5,050	8,700	37,800	95,300	92,100	35,800	19,100
17	15,100	11,700	9,000	5,820	5,880	5,050	8,780	41,300	98,500	90,500	35,300	18,900
18	14,900	11,600	8,960	5,820	5,900	5,050	8,820	42,500	99,800	88,100	34,100	18,600
19	14,500	10,800	8,960	5,820	5,900	4,900	8,860	45,700	100,000	86,700	34,100	18,500
20	14,300	10,600	8,960	5,800	5,880	4,900	8,900	48,500	104,000	85,200	34,000	18,300
21	14,000	10,300	8,920	5,800	5,860	4,750	8,900	50,100	106,000	82,700	32,700	18,300
22	13,600	10,200	8,960	5,780	5,860	4,600	8,940	52,000	108,000	81,600	32,700	18,100
23	13,500	9,950	8,960	5,780	5,860	4,750	8,980	53,400	108,000	79,000	32,400	18,100
24	13,300	9,860	8,880	5,780	5,860	4,750	8,980	56,400	109,000	77,400	31,900	17,900
25	13,300	9,800	8,800	5,760	6,780	4,900	9,020	60,100	106,000	75,000	30,900	17,500
26	13,200	9,800	8,760	5,760	5,720	5,050	12,200	63,100	109,000	80,300	30,300	17,300
27	13,200	9,800	8,700	5,760	5,700	5,140	12,900	67,000	108,000	69,900	29,200	17,000
28	13,200	9,860	8,570	5,700	8,100	5,200	13,000	70,000	106,000	68,100	28,600	17,000
29	13,100	9,860	8,480	5,700		5,200	13,100	75,400	102,000	65,700	28,200	17,100
30	13,100	9,860	8,390	5,700		5,350	13,200	76,200	106,000	63,500	27,800	17,000
31	13,100		8,330	5,700		5,350		77,400		62,600	27,600	

TRAINS ACCURATELY PAID FOR BY THE GOVERNMENT

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Daily Discharge in Second-feet of Kootenay River, at Nelson, for year ending September 30, 1918.

[Discharge area 17,700 square miles.]

January 1 to

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917-18.												
1	17,000	10,800	8,460	11,400	10,300	8,340	14,100	32,600	53,500	98,200	44,000	26,200
2	16,800	10,700	8,460	12,200	10,300	8,250	14,400	34,600	53,500	94,700	43,700	25,600
3	16,700	10,500	8,460	13,400	10,200	8,250	14,800	37,800	53,500	92,100	43,600	25,100
4	16,600	10,400	8,460	14,000	9,930	8,250	15,000	40,300	53,500	89,700	43,000	24,800
5	16,600	10,300	8,430	14,900	9,900	8,250	15,200	43,300	53,500	86,900	41,800	24,500
6	16,600	10,200	8,430	15,100	9,820	8,190	15,400	46,700	54,300	84,200	40,600	24,200
7	16,500	10,200	8,430	15,400	9,700	8,190	15,400	50,000	55,600	82,400	39,700	23,700
8	16,500	10,100	8,400	15,700	9,700	8,100	15,800	52,600	57,100	79,700	38,400	23,400
9	16,400	10,000	8,370	15,700	9,700	8,100	16,100	54,100	60,700	77,400	38,100	22,600
10	16,400	9,930	8,310	15,700	9,740	8,040	16,600	54,500	64,400	75,800	36,800	22,300
11	16,100	9,820	8,250	15,600	9,820	8,010	17,500	55,000	69,700	74,800	36,200	21,500
12	15,900	9,660	8,160	15,500	9,900	7,950	18,100	55,000	75,800	73,400	35,700	21,500
13	15,600	9,500	8,100	15,000	9,990	7,950	18,800	55,600	81,600	71,900	34,900	21,200
14	15,400	9,340	8,100	14,800	10,000	7,950	19,600	56,900	85,800	71,100	34,000	21,200
15	15,100	9,060	8,070	14,400	10,100	7,950	21,600	57,700	92,900	68,900	32,000	20,600
16	14,900	8,900	8,100	14,100	10,200	7,950	22,100	60,000	97,100	67,400	31,700	19,900
17	14,700	8,740	8,160	13,800	9,960	7,950	22,800	60,800	103,000	66,100	31,100	20,200
18	14,300	8,610	8,250	13,400	9,820	7,950	23,100	62,200	105,000	64,800	30,200	19,600
19	13,600	8,490	8,550	13,200	9,700	8,040	23,500	63,500	107,000	63,700	30,500	19,600
20	13,400	8,400	8,700	12,900	9,500	8,160	23,800	63,700	110,000	61,800	29,700	19,400
21	13,400	8,460	8,700	12,700	9,260	8,250	24,000	63,900	110,000	60,000	30,000	19,200
22	13,200	8,280	8,670	12,200	8,900	8,340	24,700	63,100	113,000	59,800	29,400	19,000
23	13,000	8,580	8,780	12,200	8,820	8,340	25,900	62,200	112,000	58,000	29,000	19,400
24	12,700	8,490	8,900	12,100	8,740	9,620	26,700	61,000	111,000	56,600	28,800	19,200
25	12,400	8,450	9,060	12,100	8,670	9,960	28,000	60,400	110,000	54,100	28,600	19,000
26	12,100	8,430	9,220	12,000	8,670	10,200	28,800	58,400	110,000	53,000	28,300	18,800
27	12,000	8,430	9,420	12,100	8,610	10,800	29,700	57,100	106,000	51,600	27,800	18,500
28	11,700	8,430	9,660	12,100	8,460	11,700	30,000	55,800	104,000	49,600	27,500	18,500
29	11,400	8,460	9,900	11,600	8,200	12,200	30,800	54,300	102,000	48,600	27,200	18,300
30	11,200	8,460	10,100	10,900	8,100	12,800	31,400	54,100	101,000	47,100	26,700	18,100
31	11,100	.....	10,300	10,600	.....	12,900	.....	53,900	.....	45,700	26,400	.....

Monthly Discharge of Kootenay River, at Nelson, for year 1916, and years ending September 30, 1917-18.

[Drainage area 17,700 square miles.]

60,000 27,400
56,300 27,000
54,500 26,900
51,900 25,500
47,400 24,800

46,000 23,800
46,500 23,100
45,300 22,600
42,600 22,100
41,100 21,500

40,400 21,100
38,300 20,900
37,300 20,400
36,800 20,000
35,900 19,800

35,800 19,100
35,300 18,900
34,100 18,600
34,100 18,500
34,000 18,300

32,700 18,300
32,700 18,100
32,400 18,100
31,900 17,900
30,900 17,500

Month.	Discharge in Second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1916.						
January	8,700	6,840	7,600	0.43	0.50	467,000
February	7,200	6,660	6,830	0.38	0.41	393,000
March	16,300	7,200	10,300	0.58	0.67	633,000
April	34,000	16,600	25,200	1.42	1.58	1,500,000
May	60,000	34,600	52,600	2.97	3.42	3,230,000
June	146,000	60,000	97,600	5.51	6.15	5,810,000
July	144,000	85,000	122,000	6.89	7.94	7,500,000
August	81,200	34,700	53,100	3.00	3.46	3,260,000
September	34,400	21,200	28,400	1.60	1.78	1,690,000
October	19,400	13,100	15,700	0.89	1.03	965,000
November	13,100	9,800	11,500	0.65	0.72	684,000
December	9,860	8,330	9,180	0.52	0.60	564,000
The year	46,000	6,660	36,700	2.07	28.26	26,690,000
1916-17.						
October	19,400	13,100	15,700	0.89	1.03	965,000
November	13,100	9,800	11,500	0.65	0.72	684,000
December	9,860	8,330	9,180	0.52	0.60	564,000
January	6,360	5,700	5,920	0.33	0.38	364,000
February	8,100	5,700	6,020	0.34	0.35	334,000
March	6,900	4,600	5,260	0.29	0.33	323,000
April	13,200	5,350	8,100	0.46	0.51	482,000
May	77,400	13,200	38,400	2.16	2.49	2,360,000
June	109,000	81,800	95,700	5.41	6.04	5,890,000
July	103,000	62,600	88,400	4.99	5.75	5,440,000
August	60,000	27,500	38,300	2.16	2.49	2,360,000
September	27,400	17,000	20,500	1.16	1.29	1,220,000
The year	109,000	4,600	28,600	1.61	21.98	20,786,000

Monthly Discharge of Kootenay River, at Nelson, for year 1916 and years ending September 30, 1917-18—Concluded.

(Drainage area 17,700 square miles.)

Month.	Discharge in Second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches of Drainage Area.	Total in Acre-feet.
1917-18						
October	17,000	11,100	14,500	0.82	0.94	892,000
November	10,800	8,400	9,280	0.52	0.58	552,000
December	10,300	8,070	8,690	0.49	0.56	534,000
January	15,700	10,600	13,490	0.77	0.89	824,000
February	10,300	8,460	9,580	0.54	0.56	532,000
March	12,900	7,950	8,930	0.50	0.58	549,000
April	31,400	14,100	21,500	1.21	1.35	1,280,000
May	63,900	32,600	54,200	3.06	3.53	3,330,000
June	113,000	53,500	85,400	4.82	5.38	5,080,000
July	98,200	45,700	68,700	3.88	4.47	4,220,000
August	44,000	26,400	33,700	1.90	2.19	2,070,000
September	26,200	18,100	21,200	1.20	1.34	1,260,000
The year	113,000	8,070	29,100	1.64	22.37	21,123,000

KOOTENAY RIVER AT GLADE—STATION NO. 8 N.J.

Location.—Near Ferry installed by Doukhobour colony at Glade, about ten miles above mouth.

Records Available.—Daily discharges May 14, 1913, to September 30, 1918.

Drainage Area.—Nineteen thousand, one hundred square miles.

Gauge.—Vertical staff gauge in five sections, read daily by Mr. Moogelsky.

Channel and Control.—The channel is composed of fine gravel and the section is very uniform. Control one thousand yards below station is permanent.

Discharge Measurements.—Made from cable car and cover all stages.

Winter Flow.—Not affected.

Accuracy.—"A" to discharge of 100,000 cubic feet per second and "B" above discharge of 100,000 cubic feet per second.

Discharge Measurements of Kootenay River, at Glade, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
Feb. 15	J. A. Elliott	0.82	6,550	April 5	G. K. Beeston	3.60	16,100
Mar. 22	Balls and Elliott	0.45	5,360	May 24	M. Balls	1.11	66,500
May 11	T. R. Patterson	5.44	25,150	Aug. 29	G. K. Beeston	6.00	30,300
July 7	"	15.5	106,690				

Daily Discharge in Second-feet of Kootenay River, at Glade, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage-area, 19,100 square miles.]

un-off.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
Total in Acre-feet	1917.												
	1				7,050	6,300	6,000	5,850	16,500	91,200	112,000	62,800	29,600
	2				7,200	6,360	6,000	6,000	16,800	92,500	112,000	60,900	29,000
	3				6,900	6,600	6,000	5,850	17,200	93,000	112,000	57,600	27,900
	4				6,600	6,900	6,000	6,000	17,600	92,200	112,000	56,800	27,200
	5				7,200	6,900	6,000	6,150	18,100	92,000	112,000	54,600	26,700
	6				7,050	6,900	6,000	6,360	18,600	91,800	111,000	52,600	25,600
	7				7,200	6,900	6,150	6,660	19,000	93,200	110,000	51,000	25,300
	8				7,200	6,900	6,000	7,050	20,200	95,000	109,000	49,400	24,600
	9				7,200	6,900	6,000	7,440	21,900	97,200	108,000	47,500	24,100
	10				7,500	6,900	6,000	7,860	23,800	97,000	107,000	45,800	23,600
	11				7,260	6,900	6,000	8,300	26,400	98,500	106,000	44,500	23,200
	12				7,350	6,900	5,940	8,860	28,800	98,000	104,000	43,000	23,200
	13				7,350	6,750	5,700	9,250	32,900	99,000	102,000	41,900	22,500
	14				7,200	6,750	5,700	9,720	36,300	100,000	101,000	41,200	22,400
15				7,200	6,750	5,700	10,100	40,600	104,000	99,200	39,900	22,000	
16				7,200	6,300	5,640	10,500	44,900	108,000	99,500	39,100	21,800	
17				7,050	6,660	5,700	10,500	47,900	109,000	95,800	38,400	21,200	
18				6,990	6,840	5,550	10,700	50,800	111,100	94,800	37,800	21,000	
19				6,900	6,840	5,400	10,800	52,800	113,000	92,500	37,100	21,000	
20				6,900	6,900	5,400	11,700	55,200	114,000	90,500	37,100	20,800	
21				6,900	6,600	5,550	11,700	57,200	117,000	88,500	36,100	20,500	
22				6,750	6,600	5,400	12,400	49,400	118,000	86,000	35,800	20,500	
23				6,600	6,600	5,400	12,800	62,800	117,000	83,600	35,100	19,800	
24				6,600	6,540	5,400	13,100	66,600	117,000	81,200	34,500	19,800	
25				6,600	6,600	5,550	13,700	70,400	118,000	78,900	33,800	19,200	
26				6,600	6,300	5,550	14,400	73,400	117,000	76,500	33,200	19,100	
27				6,600	6,060	5,400	15,000	77,000	116,000	74,200	32,600	19,100	
28				6,600	6,000	5,640	17,500	82,200	116,000	71,800	31,300	18,500	
29				6,540	6,000	5,700	16,400	85,500	115,000	70,000	30,500	18,500	
30				6,150	6,000	5,700	17,000	87,000	113,000	67,700	30,500	18,200	
31				6,060	6,000	5,700	17,000	88,000	113,000	64,900	30,400	18,200	
	1917-18.												
1		18,000	12,200	10,400	13,100	12,100	8,950	16,400	39,400	61,200	104,000	49,000	29,000
2		18,000	12,200	10,200	14,400	11,500	9,100	17,000	41,900	60,700	100,000	48,100	28,400
3		18,000	12,000	10,200	15,700	11,400	9,100	17,000	45,600	61,200	97,500	47,500	27,500
4		18,600	12,000	10,400	16,300	11,400	9,250	17,100	49,400	61,200	94,500	46,800	27,000
5		18,500	12,200	9,880	17,000	15,300	9,100	17,300	53,400	61,400	91,500	45,600	26,400
6		18,400	11,800	10,000	17,600	11,500	8,800	17,600	55,400	62,400	88,500	44,700	25,800
7		16,200	11,600	9,800	17,700	11,100	8,950	17,800	57,400	64,100	83,500	43,500	25,300
8		18,200	11,400	9,400	17,700	11,200	9,100	17,200	59,900	66,200	83,600	42,300	25,000
9		18,200	11,400	9,400	11,100	11,200	8,800	19,300	60,700	70,900	81,700	41,200	25,000
10		18,000	11,200	9,250	17,400	11,000	8,800	20,500	61,400	81,200	812,000	40,800	24,000
11		17,700	11,000	9,250	17,300	11,200	8,800	21,400	61,800	81,700	79,800	40,200	23,800
12		17,700	10,800	9,100	17,100	11,400	8,800	22,200	62,600	86,500	70,000	39,200	23,200
13		17,300	10,700	9,340	16,600	11,200	8,740	22,900	63,600	95,000	76,700	38,400	23,000
14		17,100	10,600	9,400	16,800	11,200	8,650	24,000	66,000	102,000	74,700	37,700	22,900
15		16,600	10,400	9,100	16,000	11,200	8,650	24,800	68,200	105,000	73,800	36,300	22,500
16		16,500	10,100	9,400	15,800	11,400	8,500	25,700	69,800	108,000	72,400	35,100	22,200
17		16,300	10,200	9,100	15,800	11,400	8,650	25,800	78,200	112,000	70,600	34,500	22,000
18		15,800	10,000	9,600	15,400	11,300	8,800	26,200	70,600	116,000	69,800	34,500	21,600
19		15,100	10,000	9,800	14,700	11,000	8,950	26,800	71,100	118,000	68,200	34,200	21,500
20		14,900	9,600	10,000	14,700	10,400	8,950	27,300	71,100	119,000	67,000	33,700	21,200
21		14,700	9,400	10,500	14,300	10,200	9,250	28,400	70,600	121,000	65,800	32,900	21,000
22		14,700	9,880	10,900	14,100	9,800	9,720	29,200	70,200	121,000	64,500	32,600	20,500
23		14,100	10,200	10,800	13,800	9,600	10,400	30,000	61,400	122,000	62,600	31,900	20,000
24		13,700	10,400	10,800	13,600	9,250	10,800	31,200	67,700	122,000	61,200	31,900	20,000
25		13,400	10,200	10,600	13,500	9,250	11,700	32,200	66,600	120,000	59,000	31,600	20,500
26		13,200	10,200	10,800	13,400	9,250	12,700	33,200	64,900	118,000	57,800	31,200	20,200
27		13,200	10,300	10,600	13,100	9,340	13,300	34,200	63,400	116,000	56,000	30,700	20,100
28		13,400	10,200	10,600	13,000	9,250	13,700	35,100	62,200	112,000	54,800	30,100	19,800
29		12,900	10,400	10,900	12,700	9,250	14,400	36,100	61,200	110,000	52,800	29,500	19,500
30		12,600	11,200	11,200	13,000	9,250	14,900	37,400	60,700	108,000	51,600	28,900	19,500
31		12,400	11,900	12,200	12,900	9,250	15,800	37,400	61,200	108,000	50,000	28,400	19,500

Monthly Discharge of Kootenay River, at Glade, for years ending
September 30, 1917-18.

[Drainage area, 19, 100 square miles] -

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
1916-17.						
October	22,800	13,500	17,000	0.89	1.03	1,040,000
November	14,100	10,600	12,500	0.65	0.72	744,000
December	10,900	7,830	9,470	0.49	0.56	582,000
January	7,500	6,060	6,920	0.36	0.42	425,000
February	6,900	6,000	6,660	0.35	0.36	370,000
March	6,150	5,400	5,740	0.30	0.35	353,000
April	18,400	5,850	10,200	0.53	0.59	607,000
May	88,000	16,500	45,700	2.39	2.76	2,810,000
June	118,000	91,200	105,000	5.49	6.12	6,250,000
July	112,000	64,900	94,600	4.95	5.71	5,820,000
August	62,800	30,400	42,100	2.20	2.54	2,590,000
September	29,600	18,200	22,500	1.18	1.32	1,340,000
The year	118,000	5,400	31,500	1.65	22.48	2,293,100
1917-18.						
October	18,600	12,400	16,000	0.84	0.97	984,000
November	12,200	9,400	10,800	0.57	0.64	643,000
December	11,900	9,100	10,100	0.53	0.61	621,000
January	18,100	12,200	15,200	0.80	0.92	935,000
February	12,100	9,250	10,800	0.57	0.59	600,000
March	15,800	8,500	10,100	0.53	0.61	621,000
April	37,400	16,400	25,100	1.31	1.46	1,490,000
May	71,100	39,400	61,800	3.23	3.72	3,800,000
June	122,000	60,700	95,200	4.98	5.56	5,660,000
July	104,000	50,000	73,400	3.84	4.43	4,510,000
August	49,000	28,400	37,200	1.95	2.25	2,290,000
September	29,000	19,500	23,000	1.20	1.34	1,370,000
The year	122,000	8,500	32,400	1.70	23.10	23,524,000

ST. MARY RIVER—STATION NO. 8 NG₁₂.

Location.—This station is located at the highway bridge near Wycliffe, 10 miles above the mouth and 14 miles from Cranbrook.

Records Available.—April 1 to December 31, 1914; April 1 to September 30, 1915; April 1 to September 30, 1916; April 22 to September 30, 1917.

Drainage Area.—The drainage area of St. Mary river above Wycliffe is one thousand, one hundred and ten square miles.

Gauge.—A vertical staff nailed to the pier of the traffic bridge near Wycliffe is read daily by Mr. D. H. Foster.

Channel.—The channel above and below the gauge is smooth, straight and uniform. The Control is a very pronounced riffle and seems permanent.

Discharge Measurements.—The rating curve is based on nineteen measurements, three of which were made during 1917.

Winter Flow.—The St. Mary river is affected by severe ice conditions from November to March.

Accuracy.—Between 400 and 16,000 cubic feet per second—"A". Between 16,000 and 38,000 cubic feet per second—"D".

Discharge Measurements of St. Mary River, near Wycliffe, during 1917.

Date.	Engineer.	Gauge height.	Discharge.	Remarks.
		Feet.	Sec.-ft.	
1917.				
Feb. 2	J. A. Elliott		172	Ice conditions
" 24	"		164	"
Mar. 15	Elliott and Balls		220	"
May 24	Patterson and Swan	6.25	8,280	
June 28	T. R. Patterson	6.00	7,580	
July 23	"	4.05	3,040	

Daily Discharge in Second-feet of St. Mary River, near Wycliffe, for period April 22 to September 30, 1917.

[Drainage area, 1,100 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1								1,400	7,240	8,030	2,220	1,190
2								1,590	6,940	8,710	2,160	1,150
3								1,780	6,640	9,790	2,160	1,150
4								2,110	5,540	10,400	2,110	1,110
5								2,599	5,540	10,200	2,000	1,110
6								2,860	5,030	9,600	2,000	1,070
7								3,010	5,800	8,710	2,000	1,070
8								3,170	8,200	8,770	1,890	1,070
9								3,910	11,600	7,550	1,890	1,070
10								3,790	12,900	7,390	1,780	1,070
11								5,540	9,240	7,550	1,780	1,070
12								6,350	7,240	6,904	1,750	1,070
13								6,640	5,800	6,490	1,730	1,070
14								6,070	6,350	5,930	1,730	1,070
15								5,280	9,240	5,280	1,730	1,070
16								4,560	13,300	4,910	1,730	1,070
17								3,910	15,600	4,560	1,680	990
18								3,520	13,800	4,230	1,680	990
19								3,520	12,000	3,810	1,630	990
20								3,520	12,900	3,710	1,630	990
21								3,520	11,400	3,520	1,630	990
22							424	3,910	11,600	3,340	1,630	990
23							424	6,940	9,420	3,170	1,540	990
24							424	8,540	8,890	3,010	1,500	910
25							424	9,600	7,870	2,860	1,400	910
26							424	9,240	7,550	2,720	1,310	910
27							424	9,980	7,550	2,590	1,310	910
28							458	11,200	8,710	2,460	1,270	910
29							458	10,800	8,540	2,340	1,270	836
30							458	8,890	7,876	2,220	1,230	836
31							7,870			2,220	1,190	

Monthly Discharge of St. Mary River, near Wycliffe, for period May to September, 1917.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
May	11,200	1,400	5,370	4.88	5.63	330,000
June	15,600	5,030	9,010	8.20	9.15	536,000
July	10,400	2,200	5,550	5.05	5.82	341,000
August	2,200	1,190	1,700	1.55	1.79	105,000
September	1,190	836	1,020	0.93	1.04	60,700
The period	15,600	836	4,530	4.12	23.43	1,372,700

Note.—No gauge records available from September 30 to December 31, 1916. Stage—discharge relation affected by ice during January, February and March.

MARK CREEK—STATION NO. 8 NG7.

Location.—Near the mouth of the creek at Marysville, about 14 miles from Cranbrook.

Records Available.—Daily discharges April 1 to December 31, 1914; April 1, 1915 to June 19, 1916; July 6, 1916 to September 30, 1917.

Note.—Daily discharge estimated during ice conditions.

Drainage Area.—Ninety square miles.

Gauge.—Staff gauge, read daily by Mr. P. Rabichand.

Channel.—The channel is straight above and below the section. The bed is composed of solid rock, boulders and gravel. The control is not permanent.

Discharge Measurements.—The rating curve used from July 7, 1916, to May 24, 1917, is based on nine meter measurements made during that period. The rating curve used subsequent to May 24 is based on seven meter measurements.

Winter Flow.—The winters are severe, and the creek is usually frozen from November to March. Frazil ice is noticeable.

Accuracy.—Owing to a shift in control affecting the gauge height-discharge relation, two rating curves were used in the preparation of 1916-17 data.

January 1 to May 24—Accuracy "C" to 40 cubic feet per second; Accuracy "B" 40 to 380 cubic feet per second.

May 25 to September 30—Accuracy "B" 40 to 380 cubic feet per second.

Discharge Measurements of Mark Creek, at Marysville, during 1917.

Date.	Engineer.	Gauge height.		Discharge.
		Feet.	Sec.-ft.	
1917.				
Feb. 1	J. A. Elliott		8.8*	
Mar. 14	Balls and Elliott		12.6*	
May 24	Swan and Patterson	2.08	285.0	
June 27	T. R. Patterson	1.60	209.0	
July 23	" "	0.78		

*Ice conditions.

Daily Discharge in Second-feet of Mark Creek, at Marysville, for period March 1 to September 30, 1917.

[Drainage area, 90 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1						12	12	38	270	185	33	23
2						12	13	33	287	210	35	23
3						12	13	33	264	236	37	23
4						11	14	30	242	236	31	23
5						12	15	30	242	210	26	23
6						13	16	30	236	185	27	23
7						13	16	38	223	162	47	23
8						13	16	64	270	140	33	23
9						12	16	83	354	140	33	23
10						13	15	101	354	140	33	23
11						13	17	125	323	130	33	23
12						13	18	142	317	110	33	23
13						13	19	159	293	100	29	23
14						13	16	154	270	83	27	23
15						13	14	159	370	83	29	23
16						13	14	173	432	25	26	19
17						13	16	178	360	67	26	23
18						13	16	195	323	67	24	23
19						13	16	154	323	66	21	23
20						13	16	144	338	53	17	19
21						12	16	183	323	47	20	23
22						11	17	217	308	53	20	17
23						12	20	269	250	53	20	17
24						12	22	339	236	50	22	17
25						13	20	338	210	42	21	17
26						13	17	354	210	44	20	17
27						13	17	348	210	47	21	17
28						13	19	370	210	47	23	17
29						13	20	400	210	37	20	17
30						13	28	348	173	37	20	17
31						13		299		33	21	

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TRAINING AND RESEARCH DIVISION
 U. S. GEOLOGICAL SURVEY

Monthly Discharge of Mark Creek, at Marysville, for year ending September 30, 1917.

[Drainage area, 90 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	21.0	16.0	17.0	0.19	0.22	1,040
November	33.0	11.0	17.0	0.91	0.21	1,010
December	16.0	13.0	15.0	0.17	0.20	922
January			12.0	0.13	0.15	738
February			10.0	0.11	0.12	555
March	13.0	11.0	12.6	0.14	0.16	775
April	28.0	12.0	16.8	0.19	0.21	1,000
May	400.0	30.0	177.0	1.97	2.27	10,900
June	432.0	173.0	286.0	3.12	3.48	16,700
July	236.0	33.0	102.0	1.13	1.30	6,270
August	47.0	17.0	26.7	0.30	0.35	1,640
September	23.0	17.0	20.9	0.23	0.26	1,240
The year	432.0		59.0	0.66	8.93	42,790

NOTES. Stage-discharge relation affected by ice January 1 to February 28. Daily discharge estimated from gauge records, meter measurements and climatic conditions; January 1 to January 31—12 cubic feet per second. February 1 to February 28—10 cubic feet per second.

BULL RIVER—STATION NO. 8 NG2.

Location.—On highway bridge in Village of Bull River.

Records Available.—April 29 to December 8, 1914; April 1 to December 31, 1915; April 1, 1917, to September 30, 1918.

Drainage Area.—Four hundred and twenty square miles.

Gauge.—Chain gauge read daily by Mr. Benjamin Luck.

Channel and Control.—The channel is composed of gravelly clay and is liable to change. This would also apply to the control below.

Discharge Measurements.—Made from highway bridge and are well distributed over the range in stage.

Winter Flow.—Stage-discharge relation affected by ice; Gauge readings discontinued during winter.

Accuracy.—“B” up to discharge of 5,000 cubic feet per second and “C” above 5,000 cubic feet per second.

Discharge Measurements of Bull River, at Bull River, during 1917-18.

Date.	Engineer.	Gauge height.		Date.	Engineer.	Gauge height.	
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
May 25	Patterson and Swan	5.32	4.735	Jan 21	Wood and Milner		241*
June 2	T. R. Patterson	4.88	4.140	Feb 16	" "		172*
July 25	"	2.54	1.510	Mar 16	G. K. Beeston	1.70	218*
Nov 5	Swan and Wood	0.94	403	May 9	Swan and Balls	3.42	2,380
Nov. 24	J. R. Wood	0.84	308	July 30	R. G. Swan	2.00	998
				Aug. 7	G. K. Beeston	1.73	752

*Ice conditions.

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Daily Discharge in Second-feet of Bull River, at Bull River, for period April 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 420 square miles.]

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	
1916-17.													
1							335	620	3,560	3,440	1,150	590	
2							335	750	4,060	3,940	1,150	620	
3							335	685	3,820	3,940	1,100	590	
4							335	620	3,560	3,940	1,060	620	
5							335	750	3,560	3,940	1,060	560	
6							350	750	3,440	3,940	980	590	
7							350	1,240	3,440	3,940	1,150	590	
8							350	1,830	4,690	3,440	1,150	560	
9							350	2,160	5,710	3,080	1,100	560	
10							350	2,380	5,330	3,080	1,020	560	
11							370	2,730	4,310	3,080	1,020	590	
12							370	3,080	3,560	2,960	980	560	
13							335	3,940	3,200	2,850	940	560	
14							335	4,190	3,320	2,490	940	560	
15							335	4,690	3,940	2,490	940	590	
16							175	3,450	5,450	2,490	940	560	
17							335	4,310	5,840	3,490	940	560	
18							225	3,440	4,560	2,380	940	560	
19							335	3,080	4,560	2,270	940	532	
20							335	3,080	4,560	2,160	900	532	
21							335	3,080	4,560	2,050	900	532	
22							505	3,440	4,440	1,830	900	505	
23							505	3,940	4,310	1,720	862	505	
24							460	4,310	4,190	1,720	862	482	
25							620	4,690	3,560	1,330	825	460	
26							620	4,560	3,560	1,370	825	460	
27							620	4,560	3,560	1,420	787	460	
28							620	4,820	3,560	1,420	685	460	
29							620	4,820	3,820	1,420	620	460	
30							620	4,190	3,320	1,190	590	460	
31								3,560		1,150	590		
1917-18.													
1	460	335	318				652	2,850	3,200	2,050	1,060	590	
2	460	318	288				505	3,200	3,080	2,050	980	590	
3	460	318	262				482	3,820	2,440	2,050	940	590	
4	460	318	238				560	3,820	2,490	1,880	900	590	
5	482	335	318				560	4,620	2,610	1,720	862	560	
6	482	318	318				590	4,310	2,900	1,610	788	560	
7	460	300					685	3,080	3,690	1,610	750	560	
8	460	300					718	2,730	4,880	1,560	750	560	
9	438	300					980	2,380	5,840	1,560	750	560	
10	438	318					1,280	2,160	6,750	1,510	718	560	
11	458	318					1,420	1,940	6,360	1,510	718	560	
12	415	300					1,560	2,490	5,710	1,460	718	560	
13	415	288					1,510	3,080	6,100	1,460	750	560	
14	392	288					1,460	3,560	5,840	1,460	788	788	
15	370	300					2,610	3,500	4,820	1,420	825	505	
16	370	300				Meter172	1,420	3,260	4,440	1,420	750	482	
17	352	300				Meter218	1,240	2,850	4,190	1,380	750	482	
18	352	300					900	2,670	4,060	1,380	718	482	
19	352	300					718	2,380	3,940	1,330	685	482	
20	352	300					1,060	2,270	3,820	1,330	652	460	
21	335	288				Meter241	1,240	2,160	3,820	1,330	652	460	
22	335	288					1,720	2,050	3,690	1,280	652	460	
23	335	288					1,830	1,830	3,560	1,280	685	460	
24	318	356					1,880	1,830	3,500	1,240	685	460	
25	318	335					370	1,830	1,720	3,290	1,240	652	460
26	318	335					590	1,420	1,610	2,850	1,240	652	438
27	318	335					590	1,280	1,510	2,160	1,280	620	415
28	318	318					482	1,330	1,330	2,160	1,240	620	392
29	335	300					438	2,270	1,720	2,160	1,250	590	370
30	335	318					590	2,380	2,490	2,050	1,200	590	352
31	335						685	3,440		1,150	590		

NOTES: Stage-discharge relation affected by ice from December 7 to March 24. Daily discharge estimated during March as follows: March 1 to 15—205 cubic feet per second. March 17 to 24—295 cubic feet per second.

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Monthly Discharge for Bull River, at Bull River, for periods April to September 1917, October and November, 1917, and March to September, 1918.

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet
1917						
April	620	175	403	0-96	1-07	24,000
May	4,950	620	3,070	7-31	8-43	189,000
June	5,840	3,200	4,110	9-79	10-92	245,000
July	3,940	1,150	2,540	6-05	6-97	156,000
August	1,150	590	930	2-22	2-56	57,200
September	620	460	540	1-29	1-44	32,100
The period	5,840	175	1,932	4-60	31-39	703,300
1917-18						
October	482	318	387	0-92	1-06	23,800
November	356	288	310	0-74	0-83	18,500
December						
January						
February						
March			300	0-71	0-82	18,400
April	2,610	482	1,280	3-05	3-40	76,200
May	4,620	1,330	2,670	6-35	7-32	164,000
June	6,750	2,050	3,880	9-24	10-30	231,000
July	2,050	1,150	1,500	3-57	4-12	92,200
August	1,060	590	737	1-75	2-02	45,300
September	788	352	502	1-20	1-34	29,900
The periods	6,750		1,280	3-06	31-21	699,300

LITTLE SAND CREEK—STATION NO. 8 N G₁.

Location.—Small highway bridge near Jaffray.

Records Available.—Irrigation season of 1914 to 1918.

Drainage Area.—Thirty-three square miles.

Gauge.—Vertical staff read daily by Mr. A. Rosen.

Channel and Control.—The bed of stream is of light gravel and silt. The control is not permanent.

Discharge Measurements.—Made from highway bridge and cover all stages.

Winter Flow.—Not observed.

Accuracy.—"B".

Discharge measurements of Little Sand Creek, at Jaffray, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
May 26	Swan and Patterson	1-30	156	May 10	M. Balls	0-93	86-8
July 3	T. R. Patterson	1-09	112	July 28	R. G. Swan	0-51	39-2
July 26		0-64	47-6	Aug. 9	G. K. Beeston	0-44	32-9
Nov. 6	Swan and Wood	0-20	11-8				

Daily Discharge in Second-feet of Little Sand Creek, near Jaffray, for period April to September, 1917-18.

[Drainage area, 33 square miles]

Day.	1917						1918					
	April.	May.	June.	July.	Aug.	Sept.	April.	May.	June.	July.	Aug.	Sept.
1	12	30	158	119	36	30	32	67	91	67	37	20
2	12	27	182	102	36	30	32	78	104	60	30	30
3	12	27	182	102	34	30	32	104	85	50	28	20
4	12	32	172	110	34	30	32	121	81	48	28	20
5	12	34	158	102	34	30	32	121	77	48	54	20
6	12	43	154	86	34	25	32	130	74	50	30	20
7	12	40	150	73	45	25	32	107	74	63	63	20
8	12	36	163	73	43	25	32	104	85	50	60	20
9	12	40	176	73	43	25	32	104	107	60	58	20
10	12	67	187	73	43	25	32	101	152	50	60	20
11	12	110	176	73	43	25	35	101	164	46	42	20
12	12	133	172	70	40	25	32	118	164	42	50	20
13	12	116	158	67	40	30	32	121	159	42	60	20
14	12	119	158	64	36	30	35	130	159	42	46	20
15	12	133	158	51	36	30	35	130	164	84	58	20
16	17	145	176	51	34	30	37	135	152	81	54	20
17	19	131	176	57	34	34	37	121	141	81	71	20
18	19	136	182	57	34	70	37	104	130	63	28	20
19	22	116	176	51	34	64	37	96	130	71	20	20
20	25	110	176	51	34	22	39	96	141	39	24	20
21	34	105	172	47	34	60	42	96	121	37	37	20
22	30	119	170	47	34	78	42	96	104	35	20	20
23	34	140	158	45	34	22	48	96	104	32	20	28
24	40	150	158	34	34	45	48	88	101	32	20	32
25	70	163	154	45	34	75	54	81	88	32	20	20
26	34	172	154	45	34	70	54	81	88	32	14	20
27	34	168	145	43	34	64	54	77	81	39	20	20
28	34	176	150	40	34	45	54	74	81	42	20	20
29	34	176	136	40	34	18	54	74	74	37	20	20
30	30	176	122	40	30	15	60	74	67	37	20	20
31		163		40	30			77		37	20	

Monthly Discharge of Little Sand Creek, near Jaffray, for periods April to September, 1917-18.

[Drainage area, 33 square miles]

Month.	Discharge in Second Feet				Run-Off.	
	Maximum.	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area	Total in Acre-feet.
1917						
April	70	12	22.0	0.67	0.75	1,310
May	176	27	107.0	3.24	3.74	6,580
June	187	122	*163.0	4.94	5.51	9,700
July	119	40	63.9	1.94	2.24	3,930
August	45	30	35.9	1.09	1.26	2,210
September	78	15	37.5	1.14	1.27	2,240
The period	187	12	71.6	2.17	14.77	25,870
1918						
April	60	32	40	1.22	1.36	2,380
May	135	67	100	3.03	3.49	6,150
June	164	67	111	3.37	3.76	6,600
July	84	32	49	1.48	1.71	3,010
August	71	14	36	1.09	1.26	2,210
September	32	20	21	0.64	0.71	1,250
The period	164	14	60	1.80	12.29	21,600

BIG SAND CREEK—STATION NO. 8 NG₁₀.

Location.—Near Jaffray at private bridge three hundred yards below highway bridge.

Records Available.—May 1 to September 30, 1914; April 1 to September 30, 1915; April 1 to September 30, 1916; April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage Area.—Forty square miles.

Gauge.—Vertical staff gauge read daily by Mr. C. Beck.

Channel and Control.—The section is uniform and the current regular. The bed of stream is composed of light gravel and the control is not permanent.

Discharge Measurements.—Made from private bridge at gauging section. Measurements not secured at high stage.

Winter Flow.—Not observed.

Accuracy.—"B" up to discharge of 250 cubic feet per second and "C" above discharge of 250 cubic feet per second.

Discharge Measurements of Big Sand Creek, near Jaffray, during 1917-18.

Date.	Engineer.	Gauge height.	Dis-charge.	Date.	Engineer.	Gauge height.	Dis-charge.
		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
May 26	Swan and Patterson	3.22	647.0	May 10	Swan and Balls	2.17	231.0
July 3	T. R. Patterson	2.59	417.0	Aug. 8	G. K. Beoston	0.94	26.8
July 26	"	1.36	81.4	July 28	R. G. Swan	1.14	47.0
Nov. 6	Swan and Wood	0.10	0.92				

Daily Discharge in Second-feet of Sand Big Creek, near Jaffray, for April to September, 1917-18.

[Drainage area, 40 square miles.]

Day.	1917.							1918.						
	April	May	June	July	Aug	Sept.	April	May	June	July	Aug.	Sept.		
1	6.0	29.0	418	383	62.0	15.3	43	436	331	144	42	10		
2	6.0	30.2	527	411	52.0	15.3	39	497	284	144	37	10		
3	6.0	36.6	509	425	52.0	15.3	35	584	227	144	34	10		
4	6.0	39.0	436	436	54.0	15.3	35	678	235	144	32	10		
5	6.0	47.5	383	376	54.0	13.0	35	565	263	144	38	10		
6	6.0	64.4	418	332	43.0	13.0	39	458	358	134	28	8		
7	6.0	103.0	527	315	62.0	13.0	52	248	458	124	28	8		
8	6.0	206.0	602	282	44.8	13.0	62	299	504	126	28	8		
9	6.0	266.0	716	289	23.8	12.2	68	246	690	134	28	8		
10	6.0	299.0	678	266	35.0	11.0	103	232	768	124	32	5		
11	6.0	401.0	602	241	39.0	12.2	139	240	729	103	32	5		
12	6.0	490.0	509	132	39.0	15.3	172	263	729	94	37	5		
13	6.0	631.0	401	180	35.0	16.6	192	331	729	80	30	4		
14	6.0	602.0	435	167	39.0	13.9	172	440	710	77	28	4		
15	6.0	621.0	565	167	33.8	13.0	139	421	652	77	28	4		
16	6.0	659.0	716	155	32.0	13.0	112	304	496	74	23	3		
17	6.0	527.0	735	143	32.0	12.2	91	338	516	67	23	3		
18	6.0	472.0	640	139	32.0	11.0	88	315	516	32	23	3		
19	6.0	383.0	640	113	30.2	11.0	96	299	477	64	23	3		
20	6.0	315.0	602	103	29.0	10.6	143	254	421	64	23	3		
21	6.0	366.0	602	103	27.8	9.8	235	226	372	64	23	3		
22	17.5	453.0	527	103	26.9	9.9	266	200	465	62	23	3		
23	21.9	509.0	472	88	24.2	9.0	220	188	365	50	19	3		
24	23.0	584.0	490	72	23.0	9.0	244	176	338	44	19	5		
25	23.0	602.0	527	68	23.0	9.0	226	165	293	52	19	5		
26	23.0	640.0	527	74	20.2	9.0	192	148	254	52	19	4		
27	24.2	678.0	490	74	20.2	9.0	187	144	218	54	19	3		
28	23.0	659.0	460	74	17.5	7.5	206	161	200	44	16	3		
29	26.0	621.0	446	74	17.5	6.0	266	193	170	42	16	3		
30	29.0	527.0	390	62	17.5	6.0	366	254	148	42	13	3		
31	453.0			78	16.2			348		42	10			

Monthly Discharge of Big Sand Creek, near Jaffray, for periods April to September, 1917-18.

[Drainage area, 40 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum	Mean	Per Square Miles	Depth in inches on Drainage Area.	Total in Acre-feet.
1917						
April	29.0	6.0	11.2	0.38	0.42	666
May	678.0	29.0	397.0	9.92	11.40	24,400
June	735.0	383.0	533.0	13.40	14.90	31,700
July	346.0	62.0	191.0	0.48	0.55	11,700
August	436.0	16.2	34.1	0.85	0.98	2,100
September	16.6	6.0	11.6	0.29	0.32	690
The period	735.0	6.0	196.0	4.22	28.57	71,256
1918						
April	366	35	142	3.55	3.96	8,450
May	678	144	317	7.92	9.13	19,500
June	798	148	430	10.75	11.90	25,600
July	144	32	85	2.12	2.44	5,230
August	42	10	25	0.62	0.72	1,540
September	10	3	5	0.12	0.13	298
The period	768	3	167	4.17	28.28	60,618

ELK RIVER—STATION NO. 8 NK₁.

Location.—Highway bridge, about one-half mile from Elko.

Records Available.—Daily discharges for open-water periods. April 1, 1914, to September 30, 1918. Monthly mean discharge for periods in which stage-discharge relation is affected by ice.

Drainage Area.—One thousand six hundred square miles.

Gauge.—Chain gauge downstream side of highway bridge, read daily by Miss Irene McKee.

Channel and Control.—Bed of river is gravel and boulders, below bridge channel is canyon and control is permanent.

Discharge Measurements.—Made from cable car, one-half mile above highway bridge, well distributed over range in stage.

Winter Flow.—Stage-discharge relation affected by ice.

Accuracy.—"B" to discharge of 8,000 cubic feet per second and "C" above discharge of 8,000 cubic feet per second.

Discharge Measurements of Elk River, near Elko, during 1917-18.

Date	Engineer	Gauge Height	Discharge	Date	Engineer	Gauge Height	Discharge
		Feet	Sec.-ft.			Feet	Sec.-ft.
1917				1918			
Feb. 26	J. A. Elliott		349*	Jan. 19	Wood and Milner		572*
Mar. 17	Balls and Elliott		325*	Feb. 19	"		349*
May 26	T. R. Patterson	7.58	7,070	Mar. 18	G. K. Beeston	4.10	916*
June 30	"	7.47	7,210	May 10	Swan and Balls	5.53	3,760
July 26	"	4.74	2,370	July 28	R. G. Swan	4.35	2,020
Nov. 6	Wood and Swan	2.70	708	Aug. 8	G. K. Beeston	3.93	1,660
" 25	J. R. Wood	2.60	625				

NOTE. *Ice conditions.

Daily Discharge in Second-feet of Elk River, near Elko, for period April 15 to September 30, 1917, and year ending September 30, 1918.

[Drainage area 1,600 square miles.]

	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
	1916-17.												
Total in acre-feet.	1								935	6,310	6,880	1,860	1,220
	2								990	6,600	7,160	1,790	1,180
	3								1,080	6,310	7,360	1,730	1,140
	4								1,080	5,930	7,460	1,670	1,110
	5								1,050	5,740	7,660	1,670	1,080
666	6								1,300	6,310	7,260	1,860	1,080
24,400	7								1,520	7,160	6,880	2,050	1,050
31,700	8								2,050	8,760	6,120	1,980	1,020
11,700	9								2,310	11,000	5,460	1,790	1,050
2,100	10								2,680	12,100	5,550	1,790	1,050
690													
71,256	11								3,230	10,800	5,640	1,980	1,020
	12								4,080	8,860	5,260	1,920	1,020
	13								4,880	7,560	4,880	1,790	1,020
8,450	14								5,930	7,360	4,430	1,730	1,020
19,500	15							590	6,310	9,460	4,080	1,670	1,020
25,600													
5,230	16								640	6,600	11,100	3,820	1,620
1,540	17								680	6,690	13,000	3,820	1,570
298	18								720	5,260	12,300	3,820	1,470
	19								765	4,610	11,600	3,820	1,470
60,618	20								810	4,000	11,100	3,820	1,570
	21								990	4,340	10,600	3,570	1,520
	22								1,080	4,880	10,200	3,320	1,520
	23								1,020	5,360	9,160	3,070	1,470
	24								960	6,310	8,360	2,750	1,420
	25								990	7,260	8,560	2,680	1,380
	26								990	7,460	7,560	2,520	1,340
	27								935	7,660	7,660	2,380	1,300
	28								935	8,060	7,560	2,380	1,260
	29								960	7,560	7,760	2,310	1,260
	30								1,080	6,980	7,360	2,240	1,260
	31								6,020			2,050	1,260
	1917-18												
	1	960	720	640				1,380	3,570	4,430	3,400	1,620	1,080
	2	935	720	640				1,140	4,250	4,430	3,230	1,620	1,080
	3	935	720	640				1,080	5,460	4,080	3,150	1,620	1,080
	4	910	720	640				1,140	7,460	3,740	3,070	1,620	1,050
	5	885	720	640				1,220	7,660	4,250	2,990	1,570	1,020
	6	885	720	680				1,220	6,880	4,980	2,910	1,470	990
	7	885	720	680				1,180	5,550	6,310	2,750	1,420	990
	8	860	700	680				1,380	4,700	7,660	2,680	1,380	990
	9	860	700	680				1,670	3,910	11,500	2,600	1,380	990
	10	860	700	680				1,860	3,570	14,100	2,600	1,340	990
	11	860	680					2,120	3,570	15,100	2,680	1,380	935
	12	835	660					2,180	3,570	14,500	2,680	1,420	935
	13	835	660					2,180	4,610	14,600	2,450	1,470	910
	14	810	660					1,980	4,980	13,700	2,310	1,520	860
	15	810	640					1,730	5,360	12,700	2,240	1,570	860
	16	810	640					1,570	4,980	11,500	2,180	1,570	910
	17	810	640					1,420	4,610	10,100	2,180	1,670	910
	18	788	640					1,340	4,250	9,860	2,180	1,730	885
	19	788	640		Met'r 572	Met'r 349		1,470	3,910	9,160	2,050	1,570	885
	20	788	640					1,670	3,570	8,060	2,050	1,470	885
	21	788	640					2,450	3,480	7,460	2,050	1,420	885
	22	765	640					2,600	3,150	7,070	1,920	1,380	885
	23	765	640					2,380	2,910	6,980	1,790	1,340	885
	24	765	640					2,450	2,750	6,780	1,860	1,300	885
	25	765	640					2,310	2,600	6,310	1,670	1,220	860
	26	765	640					2,050	2,450	5,930	1,790	1,260	860
	27	765	640					1,980	2,380	5,170	1,920	1,220	810
	28	742	640					2,180	3,070	4,250	1,920	1,220	810
	29	742	640					2,380	3,740	3,910	1,790	1,180	810
3,780	30	720	640					2,910	4,250	3,570	1,790	1,140	788
2,020	31	720							4,340		1,670	1,080	
1,660													

Note.—Stage-discharge relation affected by ice from December 11, 1917, to April 1, 1918. Mean monthly discharge for December, January, February and March estimated from meter measurements and climatic conditions.

Monthly Discharge of Elk River, near Elko, for years ending September 30, 1917-18.

[Drainage area 1,600 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	1,280	1,140	1,180	0.74	0.85	72,600
November	1,330	1,040	1,160	0.72	0.80	69,000
December			1,080	0.67	0.77	66,400
January			750	0.47	0.54	46,100
February			460	0.29	0.30	25,500
March			400	0.25	0.29	24,900
April	1,080		720	0.45	0.50	42,800
May	8,060	935	4,480	2.80	3.23	275,000
June	13,000	5,740	8,800	5.50	6.14	524,000
July	7,660	2,050	4,530	2.82	3.25	279,000
August	2,050	1,260	1,610	1.00	1.15	99,000
September	1,220	935	1,020	0.64	0.71	60,700
The year	13,000		2,183	1.36	18.53	1,584,700
1917-18						
October	960	720	820	0.51	0.59	50,400
November	720	640	668	0.42	0.47	39,800
December			650	0.41	0.47	40,000
January			570	0.36	0.42	35,900
February			400	0.25	0.26	22,200
March			750	0.46	0.53	46,100
April	2,910	1,080	1,820	1.14	1.27	108,000
May	7,660	2,380	4,240	2.65	3.06	261,000
June	15,100	3,570	8,070	5.04	5.62	480,000
July	3,400	1,670	2,340	1.46	1.68	144,000
August	1,620	1,080	1,420	0.89	1.03	87,300
September	1,080	788	924	0.58	0.65	55,000
The year	15,100		1,890	1.18	16.05	1,368,800

NOTE.—Stage-discharge relation affected by ice from December 14, 1916, to April 15, 1917. Mean monthly discharge during this period estimated from gauge records, meter measurements and climatic conditions.

GOAT RIVER—STATION No. 8 NH₄.

Location.—Immediately above highway and Canadian Pacific Railway bridge at Canyon Station.

Records Available.—Daily discharges during open-water periods 1914, 1915, 1917 and 1918. Monthly mean discharges when station was affected by ice during winter, 1917-18.

Drainage Area.—Four hundred and thirty square miles.

Gauge.—Vertical staff gauge above head of canyon.

Channel and Control.—Bed of channel is composed of gravel and boulders. Control is permanent, rock ledge fifty yards below gauge.

Discharge Measurements.—Made from highway bridge near Erickson and covers a range in stage of six feet which corresponds to a range in discharge of from 150 cubic feet per second to 5,250 cubic feet per second.

Winter Flow.—Stage-discharge relation affected by ice.

Accuracy.—"B" for open-water.

Discharge Measurements of Goat River, at Erickson, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
Mar. 19	Elliott and Balls		138*	Jan. 26	Wood and Milner	1-30	148
May 23	Patterson and Swan	7-00	4,640	Feb. 21	" "		*73.3
" 30	T. R. Patterson	7-20	5,260	Mar. 19	G. K. Beeston	1-50	269
June 24	" "	6-15	3,640	May 8	Swan and Balls	5-43	2,770
July 5	" "	5-05	2,460	July 27	R. G. Swan	2-48	637
" 29	" "	2-15	515	Aug. 11	G. K. Beeston	1-95	360
Nov. 2	Swan and Wood	1-40	160				
" 26	J. R. Wood	1-40	162				

NOTE.—*Ice conditions

Daily Discharge in Second-feet of Goat River, at Erickson, for period May 23 to September 30, 1917, and year ending September 30, 1918.

[Drainage area 430 square miles]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1									3,680	2,700	410	130
2									4,060	2,800	385	130
3									3,880	2,650	385	130
4									3,310	2,500	385	130
5									3,200	2,500	385	130
6									3,820	2,320	485	130
7									4,450	2,160	435	130
8									5,090	1,920	385	130
9									7,350	1,690	340	130
10									4,450	1,610	340	130
11									4,080	1,500	310	130
12									3,720	1,400	295	130
13									3,360	1,270	295	130
14									3,000	1,270	272	130
15									4,880	1,270	250	100
16									6,770	1,140	250	100
17									6,770	1,020	250	100
18									5,720	900	250	130
19									4,670	790	205	130
20									4,750	680	205	130
21									4,750	630	205	130
22									4,370	580	205	130
23								4,750	4,000	532	165	115
24								4,090	3,620	485	165	100
25								3,430	3,590	485	165	100
26								4,450	3,310	485	165	100
27								4,450	3,100	485	165	100
28								4,450	2,800	485	132	115
29								4,730	2,700	508	130	130
30								5,050	2,600	435	130	130
31										435	130	
1917-18												
1	130	165					850	2,660	2,280	865	367	250
2	122	100					765	3,090	2,400	835	358	250
3	115	152					680	4,750	2,600	865	349	250
4	115	205					680	5,690	2,800	775	340	250
5	130	185					680	4,750	3,050	745	340	250
6	130	177					970	3,430	3,310	715	340	250
7	130	171					1,260	3,130	3,800	685	340	228
8	130	165					1,550	2,830	4,980	655	340	205
9	130	156					1,840	2,240	6,160	630	340	195
10	130	147					1,920	2,240	7,350	630	375	185
11	100	138					1,920	2,240	6,490	630	410	175
12	100	130					1,960	2,420	5,860	580	410	165
13	100	130					2,000	2,600	5,520	580	410	165
14	100	130					1,820	3,520	4,320	532	375	165
15	100	130					1,640	4,450	3,800	485	340	165
16	100	130					1,460	3,930	3,000	460	325	165
17	100	130					1,240	3,430	3,200	435	310	165
18	100	130					1,020	3,000	2,760	435	295	165
19	100	130					1,630	2,800	2,320	435	272	165
20	94	130					2,240	2,600	2,320	435	250	165
21	88	130					2,320	2,400	2,160	435	250	165
22	88	130					2,400	2,080	2,000	410	250	165
23	82	130					2,360	2,000	2,000	385	250	172
24	75	130					2,320	1,920	2,000	385	250	177
25	83	130					2,320	1,760	1,840	410	250	185
26	91	165					2,320	1,610	1,610	435	250	175
27	100	130					2,320	1,610	1,530	435	250	165
28	91	130					2,320	1,610	1,270	485	250	165
29	83	130					2,320	1,920	1,080	385	250	165
30	75	130					2,320	2,040	900	385	250	185
31	120						2,160			376	250	

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BRITISH COLUMBIA
GOVERNMENT PRINTING OFFICE
1918

Monthly Discharge of Goat River, at Erickson, for periods June to September, 1917,
and year ending September 30, 1918.

[Drainage area 430 square miles.]

Month	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum	Mean.	Per Square Mile	Depth in inches on Drainage Area.	Total in Acre-feet
1917						
June	7,350	2,600	4,210	9.79	10.90	251,000
July	2,800	435	1,280	2.98	3.44	78,700
August	485	130	267	0.62	0.72	16,400
September	130	100	122	0.28	0.31	7,300
The period	7,350	100	1,470	3.42	15.37	353,400
1917-18						
October	130	75	104	0.24	0.28	6,400
November	205	100	142	0.33	0.37	8,450
December						
January						
February						
March						
April	2,400	680	1,710	3.98	4.44	102,000
May	5,690	1,610	2,800	6.51	7.50	172,000
June	7,350	900	3,160	7.35	8.20	188,000
July	885	376	546	1.27	1.46	33,600
August	410	250	311	0.72	0.83	19,100
September	250	165	190	0.44	0.49	11,300
The year	7,350		1,120	2.60	23.57	540,950

NOTE.—The revised drainage area as published in this report was scaled from provincial map No. 1E, Department of Lands, 1915.

DUNCAN RIVER—STATION NO. 8 NH₁.

Location.—Highway bridge one mile below Howser lake and ten miles above mouth.

Records Available.—December, 1914, to December, 1915; April to December, 1916; January to September, 1918.

Drainage Area.—Eight hundred and twenty square miles.

Gauge.—Vertical staff gauge on wharf at Howser lake, about one mile above metering section. Read daily by Mr. Wm. Simpson.

Channel and Control. The discharge is confined within banks at all stages and channel is straight for about seven hundred and fifty yards above and below metering section.

Discharge Measurements.—Made from highway bridge and cover all stages.

Winter Flow.—Not affected by ice conditions.

Accuracy.—"A" to discharge of 12,000 cubic feet per second and "B" above discharge of 12,000 cubic feet per second.

Discharge Measurements of Duncan River, near Howser, during 1918.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917		Feet	Sec.-ft.	1918.		Feet.	Sec.-ft.
June 6	T. R. Patterson	5.56	6,040	Mar. 28	G. K. Beeston	1.05	495
July 17	"	8.96	12,200	May 22	M. Balls	4.50	4,560
Nov. 15	J. R. Wood	1.40	920	Aug. 23	G. K. Beeston	4.92	5,180

Monthly Discharge of Duncan River, near Howser, for years ending September 30, 1917-18.

[Drainage area 820 square miles.]

Month	Discharge in Second-feet.				Run-Off.	
	Maximum	Minimum	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	1,880	1,060	1,320	1-61	1-86	81,160
November	1,060	690	863	1-05	1-17	51,350
December	690	410	549	0-67	0-77	33,760
January	460	410	423	0-52	0-60	26,000
February	410	320	374	0-45	0-47	20,800
March	320	278	303	0-36	0-42	18,000
April	830	278	493	0-60	0-67	29,300
May	8,380	886	4,320	5-27	6-08	266,000
June	9,680	6,220	7,880	9-61	10-70	469,000
July	12,400	6,880	10,200	12-40	14-30	627,000
August	7,900	4,950	6,170	7-52	8-67	379,000
September	4,720	2,450	3,500	4-27	4-76	208,000
The year	12,400	278	3,032	3-69	50-47	2,209,370
1917-18						
October	5,420	1,020	2,390	2-91	3-36	147,000
November	1,880	830	11,700	1-43	1-60	69,600
December	1,400	760	948	1-15	1-33	58,200
January	1,020	660	832	1-01	1-16	51,200
February	642	510	584	0-71	0-74	32,400
March	795	450	518	0-63	0-73	31,900
April	2,690	830	1,630	1-99	2-22	97,000
May	6,960	2,940	4,800	5-85	6-73	295,000
June	18,600	4,200	11,100	13-50	15-06	660,000
July	12,400	6,540	9,380	11-40	13-10	577,000
August	9,320	4,350	6,160	7-50	8-66	379,000
September	4,950	4,620	4,340	5-29	5-90	258,000
The year	18,600	450	3,650	4-45	60-59	2,659,000

LARDEAU RIVER—STATION No. 8 N H₇.

Location.—About five miles above the mouth, near the railway station of Howser.

Records Available.—April 1 to September 30, 1917; April 1 to September 30, 1918.

Drainage Area.—Five hundred and ninety square miles.

Gauge.—Vertical staff. Read by Mr. Wm. Simpson.

Channel and Control.—The measuring section is uniform and the channel is straight for about one hundred yards above and below the metering section. Control is not permanent.

Discharge Measurements.—The rating curve is based on five measurements fairly well distributed over the range of stage.

Winter Flow.—Not observed.

Accuracy.—"B" to discharge of 7,000 cubic feet per second, "C" above discharge of 7,000 cubic feet per second.

Discharge Measurements of Lardeau River, near Howser, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918			
June 7	T. R. Patterson	4-62	5,660	Mar. 28	G. K. Beeston	-0-35	600
July 19	" "	5-09	6,930	May 23	M. Balls	3-32	3,950
Nov. 16	J. R. Wood	-0-19	744	Aug. 23	G. K. Beeston	1-69	2,140

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Feb. 1-28

Daily Discharge in Second-feet of Lardeau River, at Howser, for period April 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 590 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1917.												
1							600	770	5,900	7,630	3,290	1,560
2							600	780	5,900	8,120	3,230	1,390
3							600	790	5,870	8,610	3,410	1,360
4							600	810	5,700	8,270	3,250	1,330
5							600	830	5,500	8,180	3,090	1,290
6							600	890	5,300	8,100	2,930	1,260
7							600	1,100	5,930	8,020	2,800	1,240
8							600	1,300	6,280	7,460	2,660	1,220
9							600	1,470	6,200	7,560	2,550	1,220
10							600	2,000	6,200	7,670	2,560	1,270
11							600	2,500	6,200	7,780	2,570	1,320
12							620	3,050	6,200	7,620	2,580	1,380
13							700	2,840	6,200	7,620	2,600	1,320
14							700	3,500	6,660	7,580	2,580	1,270
15							800	4,030	7,500	7,540	2,550	1,220
16							800	3,650	8,440	7,500	2,580	1,220
17							900	3,400	8,100	7,460	2,600	1,220
18							900	3,300	8,000	7,140	2,550	1,270
19							1,000	3,170	8,000	7,140	2,490	1,320
20							1,000	2,990	7,940	6,690	2,550	1,310
21							1,100	3,500	8,270	6,240	2,600	1,300
22							1,150	4,000	7,860	5,790	2,390	1,290
23							1,100	4,440	7,600	5,340	2,290	1,220
24							1,100	4,800	7,300	4,890	2,290	1,170
25							1,010	5,100	7,000	4,440	2,150	1,120
26							950	5,450	6,800	4,580	2,020	2,080
27							950	5,300	6,500	4,720	1,890	1,120
28							920	5,500	6,500	4,860	2,040	1,150
29							760	5,790	6,800	4,030	2,190	1,120
30							760	6,050	7,140	3,780	1,950	1,080
31								5,900		3,530	1,710	
1917-18												
1	2,640	920	1,030	930			700	3,170	4,580	5,450	3,650	1,580
2	2,490	1,020	980	1,010			710	3,810	4,440	5,320	3,350	1,560
3	2,340	1,120	965	1,020			720	4,450	4,300	5,190	3,050	1,540
4	1,980	1,220	950	1,040			720	5,100	4,180	5,060	2,930	1,530
5	1,860	1,110	920	1,040			720	5,750	4,030	4,930	2,820	1,490
6	1,740	1,000	890	1,040			747	5,290	4,300	5,300	2,710	1,450
7	1,620	890	880	970			774	4,830	5,340	5,150	2,600	1,420
8	1,550	860	870	900			802	4,370	6,380	5,960	2,490	1,400
9	1,490	830	860	830			830	4,210	7,380	6,660	2,290	1,390
10	1,420	805	850	860			970	4,050	8,380	6,580	2,110	1,380
11	1,320	780	840	833			1,150	3,900	9,380	6,130	2,100	1,380
12	1,220	770	930	806			1,380	4,760	9,800	5,680	2,100	1,390
13	1,160	770	830	806			620	4,420	5,630	10,600	5,520	2,090
14	1,110	760	830	766			620	4,450	6,500	11,430	5,540	2,150
15	1,060	740	830	753			620	4,370	6,320	10,800	5,570	2,220
16	1,010	744	890	740			624	4,290	5,960	10,100	5,600	2,290
17	962	742	900	740			628	4,260	5,600	10,500	5,790	2,240
18	926	740	910	733			632	4,200	5,300	10,900	5,980	1,990
19	890	740	920	726			636	4,150	5,000	10,100	5,490	2,010
20	890	740	905	720			640	4,130	4,580	9,290	5,000	2,030
21	890	1,620	890	720			640	4,520	4,400	9,460	4,550	2,050
22	875	1,990	860	720			660	4,710	4,220	9,630	4,100	2,070
23	860	1,710	830	720			668	4,900	4,030	9,200	3,880	2,090
24	830	1,380	822	720			668	2,090	3,820	8,780	3,650	2,090
25	830	1,300	814	720			672	1,890	3,610	8,360	3,470	2,040
26	820	1,220	805	720			676	1,760	3,410	7,910	3,290	1,990
27	830	1,180	792	720			680	1,970	3,450	7,460	3,110	1,930
28	830	1,150	780	720			680	2,180	3,500	6,350	3,050	1,770
29	830	1,120	780	720			686	2,390	3,550	6,050	3,200	1,710
30	830	1,080	780	720			692	3,290	5,000	5,750	3,350	1,660
31	830		850	720			700		4,750		3,500	1,620

Note.—Gauge height discharge relation affected by ice conditions from January 27 to March 12, 1918. Mean discharges during this period estimated from meter measurements and climatic conditions as follows: Jan. 28-31, 720 c.f.s., Feb. 1-28, 650 c.f.s., March 1-2, 600 c.f.s.

Monthly Discharge of Lardeau River, at Howser, for period April to September, 1917, and year ending September 30, 1918.

(Drainage area, 590 square miles.)

Month	Discharge in Second-Feet				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1917.						
April	1,150	600	794	1.35	1.51	47,200
May	6,050	770	3,190	5.41	6.24	196,000
June	8,440	5,300	6,790	11.50	12.83	404,000
July	8,610	3,530	6,640	11.20	12.91	408,000
August	3,410	1,710	2,550	4.32	4.98	157,000
September	1,560	1,080	1,250	2.12	2.36	74,400
The period	8,610	600	3,535	5.98	40.83	1,286,600
1917-18						
October	2,640	830	1,260	2.13	2.46	77,500
November	1,990	740	1,030	1.74	1.94	61,300
December	10,030	780	864	1.46	1.68	53,100
January	1,040	720	812	1.37	1.58	49,900
February			650	1.10	1.14	36,100
March			633	1.07	1.23	38,900
April	3,290	700	1,380	2.34	2.61	82,100
May	6,500	3,170	4,590	7.78	8.97	282,000
June	11,400	4,030	7,840	13.30	14.80	466,000
July	6,660	3,050	4,870	8.25	9.51	299,000
August	3,650	1,620	2,270	3.85	4.44	140,000
September	1,580	1,140	1,360	2.20	2.57	80,900
The year	11,400		2,300	3.89	52.75	1,666,000

Note.—Stage-discharge relation affected by ice December 18, 1916, to April 12, 1917. No data available for January, February and March.

KASLO CREEK—STATION NO. 8 N H₃.

Location.—Second highway bridge above mouth, in Kaslo.

Records Available.—Daily discharges May 23, 1914, to December 31, 1915; March 1 to December 31, 1916; April 1 to December 31, 1917; March 1 to September 30, 1918. Monthly mean discharge estimated for January and February, 1918.

Drainage Area.—One hundred and seventy square miles.

Gauge.—Chain gauge downstream side of highway bridge, read daily by Mr. H. A. Calvert.

Channel and Control.—The bed of stream is composed of gravel and large boulders, the section is very uneven and the control is not permanent.

Discharge Measurements.—Made from highway bridge; measurements required at high stage.

Winter Flow.—The stage-discharge relation is affected by ice.

Accuracy.—"B" to discharge of 2,000 cubic feet per second, "C" above discharge of 2,000 cubic feet per second.

Discharge Measurements of Kaslo Creek, at Kaslo, during 1917-18.

Date	Engineer	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec-ft.			Feet.	Sec-ft.
1917.							
Jan. 24	J. A. Elliott	Ice	82.7	Aug. 8	T. R. Patterson	1.75	500.0
Feb. 20	"	0.25	81.6	Oct. 31	Wood and Swan	0.70	163.0
Mar. 20	Balls and Elliott	0.20	73.0	Nov. 1	"	0.70	164.0
May 18	Swan and Patterson	2.30	960.0	Nov. 19	J. R. Wood	0.60	152.0
June 22	T. R. Patterson	3.50	2,920.0	1918.			
July 13	"	3.20	1,900.0	Jan. 29	Wood and Milner	0.50	123.0
				Feb. 26	J. R. Wood		138.0
				Mar. 26	G. K. Beeston	0.90	222.0
				May 22	R. G. Swan	2.19	800.0

*Measurement taken at power plant tailrace owing to ice at regular section.

Daily Discharge in Second-feet of Kaslo Creek, at Kaslo, for period May 23 to Sept. 30, 1914 and year ending September 30, 1915.

(Drainage area, 170 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1914												
Total in acre-feet.									1,760	2,080	710	300
									2,200	2,270	654	294
									3,370	2,450	654	285
									2,840	2,500	591	306
									1,910	2,050	495	291
47,200												
196,000									1,640	1,980	530	270
404,000									1,280	1,840	570	300
408,000									1,130	1,780	455	325
157,000									1,130	1,720	395	285
74,400									1,180	1,720	380	246
286,600									1,230	1,720	380	276
									1,380	1,870	395	285
77,500									1,780	1,910	445	246
61,300									2,350	1,840	395	255
53,100									2,810	1,720	430	261
49,900												
36,100									3,130	1,300	445	240
38,900									3,410	1,130	430	255
82,100									3,370	1,230	358	321
282,000									2,730	1,230	370	560
466,000									2,120	1,280	350	430
299,000									1,720	940	350	350
140,000									1,350	710	358	330
80,900									1,660	1,180	675	338
666,000									1,060	1,130	766	324
									1,780	1,280	745	315
available									1,510	1,600	675	315
									1,300	1,620	710	315
									1,180	1,600	675	324
									1,050	1,740	640	338
									1,030	1,910	605	338
									1,230		675	315
1914-15												
	324	330	196	146	100	110	234	940	1,110	1,260	745	338
	330	395	200	150	100	110	285	988	1,110	1,210	724	300
	315	370	200	144	100	106	460	876	1,030	1,250	745	294
	300	321	176	130	100	120	445	860	1,080	1,130	696	294
	270	330	180	130	100	114	420	844	1,230	1,210	584	315
	264	330	184	144	100	114	410	900	1,190	1,180	584	315
	264	315	156	124	110	120	395	1,150	1,450	1,210	584	306
	246	315	170	150	100	110	370	1,380	1,210	1,080	560	294
	240	276	170	140	110	90	330	1,450	1,080	1,010	545	246
	234	285	170	140	100	104	330	1,430	924	900	510	294
	261	315	165	134	100	114	362	1,150	900	820	520	255
	240	285	160	136	120	114	370	958	900	710	530	246
	240	300	155	130	110	114	470	900	940	720	495	225
	231	255	150	144	104	134	470	1,010	1,110	820	470	210
	219	270	150	130	130	146	445	1,080	1,280	900	495	234
	225	216	150	130	110	150	570	900	1,280	1,030	450	255
	261	261	150	130	110	160	710	876	1,250	1,080	495	255
	321	225	150	110	130	184	940	940	1,180	1,080	495	270
	342	234	150	124	114	160	1,030	985	1,030	985	470	276
	315	255	150	116	85	200	1,080	985	940	958	675	246
	285	231	150	104	94	194	900	1,110	985	985	570	240
	276	216	150	110	96	231	710	1,180	1,010	958	495	255
	255	225	150	100	100	264	654	1,150	1,080	940	480	246
	246	234	150	100	94	276	605	1,140	1,150	876	460	285
	255	255	150	100	90	264	570	1,130	1,250	766	445	255
	255	225	150	100	110	219	605	1,050	1,310	780	410	240
	255	254	150	100	110	206	710	1,050	1,030	985	380	255
	255	225	150	100	110	210	605	1,480	985	844	395	246
	255	246	150	100	.....	206	745	1,540	1,030	745	410	225
	285	194	150	100	.....	206	1,080	1,150	1,130	696	445	216
	315	.....	150	100	.....	210	.....	1,030	.....	780	420	.....
Discharge.												
Sec-ft.												
500-0												
163-0												
164-0												
152-0												
123-0												
135-0												
222-0												
800-0												

Daily Discharge in Second-feet of Kaslo Creek, at Kaslo, for years ending September 30, 1916-17.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1915-16.												
1	210	300	180			114	210	654	1,030	1,720	860	430
2	300	300	180			126	246	796	1,030	2,120	780	430
3	250	270	170			130	270	985	1,050	2,890	796	430
4	240	270	174			130	285	1,350	1,330	2,200	966	520
5	264	245	174			126	285	1,430	1,330	1,810	675	430
6	240	234	170			140	285	1,640	1,230	1,780	584	350
7	216	225	170			130	315	1,520	1,230	1,980	570	324
8	216	234	174			110	324	1,250	1,360	2,650	780	410
9	216	225	200			150	370	1,050	1,660	3,130	766	420
10	234	225	174			166	420	924	1,720	2,970	570	330
11	210	225	166			166	420	780	1,540	2,200	560	300
12	216	216	170			200	395	745	1,640	1,980	545	300
13	206	210	170			210	410	724	1,720	2,120	530	276
14	210	225	166			194	420	640	2,280	1,780	545	264
15	206	234	166			180	445	640	3,630	1,380	570	264
16	206	234	170			160	430	710	4,860	2,420	530	264
17	190	216	166			170	430	780	4,490	2,280	545	264
18	206	210	170			186	420	900	4,140	1,780	520	255
19	246	206	160			174	410	1,080	5,620	1,380	480	255
20	240	206	160			206	370	1,180	4,310	1,250	420	246
21	225	206	166			228	350	1,050	3,290	1,250	362	225
22	225	206	166			194	338	958	2,650	1,180	362	240
23	234	200	154			206	330	876	2,500	1,110	410	240
24	255	200	154			194	362	860	2,280	1,050	420	240
25	276	206	150			190	370	820	2,050	985	410	264
26	276	194	150			190	510	876	2,590	900	410	285
27	330	186	150			194	820	1,030	3,460	860	445	276
28	315	166	150			200	796	1,330	3,460	745	410	240
29	302	180	150			200	696	1,230	2,840	780	450	234
30	324	170	150			206	654	1,180	1,910	766	430	225
31	306		150			206		1,080		780	430	
1916-17.												
1	225	174	146				110	350	1,600	2,730	570	330
2	210	180	150				100	305	1,440	3,050	640	330
3	206	180	150				100	305	1,230	3,050	640	300
4	194	216	150				100	420	1,230	3,050	570	300
5	194	194	150				120	445	1,080	2,810	570	300
6	194	190	130				140	495	1,230	2,500	545	300
7	194	180	130				140	545	1,480	2,500	570	300
8	194	180	130				140	605	1,660	2,280	545	300
9	194	206	130				150	745	2,120	2,200	545	300
10	194	186	130				160	900	1,840	2,200	570	300
11	190	166	146				170	1,130	1,230	2,200	570	300
12	186	146	150				160	1,430	1,190	2,050	520	300
13	186	146	150				160	1,480	1,330	1,910	520	330
14	186	146	130				180	1,660	1,540	1,840	520	350
15	186	146	130				180	1,430	2,280	1,780	570	285
16	186	146	130				180	1,540	3,210	1,780	520	300
17	190	146	130				180	1,230	2,970	1,660	495	315
18	194	146	120				190	940	2,500	1,480	470	315
19	190	146	100				190	985	2,500	1,430	495	300
20	186	144	90				190	1,030	2,580	1,280	520	300
21	180	144	90				225	1,180	2,500	1,180	495	300
22	186	140	90				240	1,280	2,350	1,080	470	270
23	170	134	90				255	1,600	1,910	1,030	470	270
24	170	134	90				270	1,840	1,780	940	470	270
25	174	150	90				255	1,980	1,720	860	470	270
26	200	150	90				270	2,120	1,040	820	470	270
27	190	150	90				315	1,980	1,780	1,030	420	270
28	174	150	90				330	2,200	1,840	1,030	370	255
29	180	134	90				330	2,230	2,120	860	370	240
30	166	140	90				330	1,720	2,420	710	370	210
31	174		90					1,480		605	370	

THE NATIONAL ARCHIVES AT COLLEGE PARK, MARYLAND
 RG 226, ENTRY 100A, BOX 100A, FOLDER 100A

Daily Discharge in Second-feet of Kaslo Creek, at Kaslo, for year ending September 30, 1918.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1	430												
2	430												
3	520												
4	430												
5	350												
6	324												
7	410												
8	420												
9	330												
10	300												
11	300												
12	300												
13	276												
14	264												
15	264												
16	225												
17	240												
18	240												
19	240												
20	264												
21	285												
22	276												
23	240												
24	234												
25	225												
26	330												
27	330												
28	300												
29	300												
30	300												
31	300												
1	300												
2	300												
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29	300												
30	300												
31	300												

THE NATIONAL ARCHIVE
 100 COLLEGE AVENUE
 OXFORD, ENGLAND

Monthly Discharge of Kaslo Creek, at Kaslo, for period June to December, 1917,
and years 1915-18.

[Drainage area, 170 square miles.]

Month.	Discharge in Second-Feet				Run Off	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area	Total in Acre-feet
1914						
June	3,410	1,130	1,930	11.30	12.60	11,500
July	2,500	605	1,400	8.24	9.50	85,100
August	710	315	421	2.48	2.86	25,900
September	570	240	334	1.97	2.20	19,900
October	342	219	270	1.59	1.83	16,600
November	395	194	271	1.59	1.77	16,100
December	200	150	162	0.95	1.09	9,960
The period	3,410	150	684	4.02	31.80	186,060
1915						
January	150		122	0.72	0.83	7,500
February	130	85	105	0.62	0.65	5,830
March	276	90	163	0.96	1.11	10,000
April	1,080	234	577	3.40	3.79	34,300
May	1,540	844	1,080	6.35	7.32	64,400
June	1,450	900	1,110	6.53	7.29	66,000
July	1,260	696	967	5.69	6.56	59,500
August	745	380	526	3.10	3.37	32,300
September	338	210	264	1.55	1.73	15,700
October	362	190	247	1.45	1.67	15,200
November	300	170	221	1.30	1.45	13,200
December	200	150	165	0.97	1.12	10,100
The year	1,540		462	2.72	37.09	336,030
1916						
March	228	110	173	1.02	1.18	10,600
April	730	210	413	2.43	2.71	24,600
May	1,640	640	1,030	5.90	6.80	61,500
June	5,620	1,030	2,470	14.50	16.20	147,000
July	3,130	745	1,680	9.88	11.40	130,000
August	860	362	543	3.19	3.68	33,400
September	520	225	308	1.81	2.02	18,300
October	225	166	188	1.11	1.28	11,600
November	216	134	160	0.94	1.05	9,520
December	150	90	119	0.70	0.81	7,320
The period	5,620	90	705	4.15	47.13	426,840
1916-17						
October	225	166	158	1.11	1.28	11,600
November	216	134	160	0.94	1.05	9,520
December	150	90	119	0.70	0.81	7,320
January			83	0.49	0.56	5,100
February			82	0.48	0.50	4,550
March			80	0.47	0.54	4,920
April	330	100	195	1.15	1.28	11,600
May	2,280	350	1,220	7.18	8.28	75,000
June	3,210	1,080	1,880	11.10	12.40	112,000
July	3,050	605	1,740	10.20	11.80	107,000
August	640	370	507	2.98	3.44	31,200
September	350	210	293	1.72	1.92	17,400
The year	3,210		546	3.21	43.86	397,210
1917-18						
October	545	170	247	1.45	1.67	15,200
November	270	150	190	1.12	1.25	11,300
December	190	150	166	0.98	1.13	10,200
January			135	0.79	0.91	8,300
February			125	0.74	0.77	6,940
March	240	110	143	0.84	0.97	8,790
April	900	210	459	2.70	3.01	27,300
May	1,780	570	1,090	6.41	7.39	67,000
June	4,760	860	2,240	13.20	14.70	133,000
July	1,280	470	851	5.00	5.76	52,300
August	675	300	405	2.38	2.74	24,900
September	330	190	259	1.52	1.70	15,400
The year	4,760		526	3.09	42.00	380,630

NOTE.—Stage-discharge relation affected by ice during January, February and March, 1917. Mean monthly discharge for this period estimated from meter measurements and climatic conditions.

SLOCAN RIVER, SLOCAN CITY—STATION NO. 8 N J14.

Location.—Outlet of Slocan lake at Slocan city.

Records Available.—April 1, 1916, to September 30, 1918.

Drainage Area.—Seven hundred and ten square miles.

Gauge.—Vertical staff on pile at end of Canadian Pacific Railway Co. wharf.

Channel and Control.—The channel is uniform, the stream bed is composed of fine gravel. The control is permanent.

Discharge Measurements.—Made from highway bridge and cover all stages.

Winter Flow.—Not affected by ice.

Accuracy.—"A" between discharges of 300 and 4,000 cubic feet per second.
"B" above discharge of 4,000 cubic feet per second.

Discharge Measurements of Slocan River, at Slocan City, during 1917-18.

Date.	Engineer	Gauge height.	Discharge	Date.	Engineer	Gauge height.	Discharge
1917		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Mar. 29	Balls and Elliott	0-15	297	Mar. 23	G. K. Beeston	0-65	587
May 21	Patterson and Swan	3-72	2,910	Mar. 23	" "	2-40	1,870
June 18	T. R. Patterson	7-00	7,250				
Aug. 6	"	3-49	2,940				
Aug. 10	"	3-08	2,380				
Oct. 29	Swan and Wood	1-05	858				

Daily Discharge in Second-feet of Slocan River, at Slocan City, for period January 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 710 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1				385	320	320	320	470	4,630	6,950	3,110	1,530
2				385	320	320	320	500	4,790	7,120	2,960	1,420
3				385	320	320	320	500	4,950	7,350	2,830	1,360
4				385	340	320	320	530	5,140	7,670	2,770	1,300
5				360	340	320	320	555	5,370	7,810	2,720	1,260
6				360	340	320	340	628	5,470	7,760	2,670	1,220
7				360	340	320	340	730	5,540	7,630	2,540	1,140
8				360	340	320	340	844	5,540	7,440	2,470	1,080
9				360	340	300	340	956	5,620	7,350	2,360	1,080
10				360	340	300	340	1,080	5,620	7,290	2,380	1,040
11				360	340	300	340	1,230	5,660	7,170	2,260	1,080
12				360	340	300	340	1,490	5,970	7,120	2,180	1,120
13				344	340	300	360	1,700	5,970	7,080	2,070	1,160
14				340	340	300	360	1,870	5,900	6,890	2,030	1,200
15				340	340	300	360	2,200	5,820	6,730	1,970	1,160
16				340	340	300	360	2,590	5,940	6,470	1,930	1,120
17				340	340	300	360	2,820	5,900	6,260	1,890	1,120
18				340	340	300	360	2,940	7,540	6,040	1,850	1,120
19				340	340	300	385	3,010	7,670	5,850	1,850	1,080
20				340	340	300	385	3,060	7,900	5,760	1,850	1,040
21				340	340	300	385	3,160	8,100	5,540	1,810	1,030
22				340	340	280	385	3,240	8,240	4,980	1,770	970
23				340	340	280	385	3,420	8,200	4,730	1,770	970
24				340	340	280	370	3,680	7,720	4,450	1,740	935
25				340	340	280	410	3,830	7,720	4,490	1,690	935
26				340	320	280	410	3,920	7,440	4,250	1,690	900
27				340	320	280	410	3,960	7,300	4,080	1,690	935
28				340	320	280	440	4,080	7,080	3,860	1,640	970
29				340		280	440	4,140	7,350	3,640	1,640	949
30				320		280	440	4,160	7,080	3,420	1,640	935
31				320		280		4,490		3,230	1,600	

Daily Discharge in Second-feet of Slovan River, at Slovan City, for period January 1 to September 30, 1917, and year ending September 30, 1918.—Con.

[Drainage area 710 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917-18												
1	935	670	658	700	640	470	610	2,120	3,590	6,360	2,420	1,640
2	984	640	640	730	640	470	700	2,270	3,590	6,120	2,490	1,580
3	1,040	640	652	640	610	470	700	2,450	3,590	5,900	2,400	1,580
4	1,080	640	652	712	580	470	700	2,550	3,640	5,540	2,380	1,310
5	1,120	640	640	700	580	470	712	2,970	3,590	4,980	2,380	1,490
6	1,160	640	652	724	580	482	730	3,290	3,540	4,850	2,340	1,430
7	1,160	640	652	748	580	518	745	3,500	3,700	4,750	2,290	1,430
8	1,120	640	670	760	460	482	760	3,520	4,210	4,610	2,200	1,400
9	1,080	640	628	760	628	470	830	3,540	4,550	4,490	2,100	1,360
10	1,040	640	652	760	610	470	914	3,480	4,980	4,490	2,060	1,360
11	1,020	640	700	700	592	470	956	3,480	6,440	4,490	2,150	1,320
12	1,000	640	700	700	580	470	1,030	3,510	7,260	4,610	2,120	1,280
13	1,000	640	700	700	580	470	1,120	3,540	8,000	4,490	2,060	1,280
14	970	640	640	700	580	410	1,220	3,570	10,700	4,320	2,010	1,240
15	1,000	640	670	700	580	410	1,320	4,010	10,900	4,140	2,010	1,200
16	970	640	712	700	580	410	1,350	4,550	10,800	4,080	2,880	1,200
17	949	670	730	700	568	418	1,360	4,610	10,700	4,050	2,860	1,200
18	928	652	640	700	555	422	1,430	4,590	10,900	3,920	2,400	1,160
19	907	628	688	700	530	440	1,430	4,540	10,700	3,810	1,930	1,160
20	886	628	709	700	530	470	1,430	4,490	10,500	3,810	1,930	1,120
21	865	610	652	700	500	470	1,500	4,480	10,000	3,620	1,890	1,080
22	844	652	700	700	500	470	1,580	4,430	10,000	3,420	1,890	1,080
23	830	640	688	628	500	500	1,560	4,510	9,900	3,320	1,890	1,080
24	830	640	640	595	500	540	1,690	4,250	9,810	3,210	1,850	1,040
25	795	652	610	700	500	580	1,710	3,980	9,600	3,010	1,810	1,040
26	795	670	552	640	470	580	1,770	3,800	9,200	3,010	1,770	1,000
27	760	640	700	634	500	610	1,830	3,610	8,600	2,880	1,770	1,000
28	742	655	670	628	500	610	1,880	3,500	7,850	2,800	1,770	1,000
29	730	670	712	640	.....	640	1,970	3,390	7,350	2,720	1,770	985
30	700	652	670	640	.....	628	1,970	3,320	6,850	2,590	1,690	970
31	670	.....	730	640	.....	634	.....	3,460	.....	2,520	1,690	.....

Monthly Discharge of Slovan River, at Slovan City, for years ending September 30, 1917-18.

[Drainage area, 710 square miles.]

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	.....	.....	1,100	1.55	1.79	67,600
November	1,030	530	630	0.89	0.99	37,500
December	530	385	464	0.65	0.75	28,500
January	385	320	349	0.49	0.56	21,500
February	340	320	336	0.47	0.49	18,700
March	320	280	299	0.42	0.48	18,400
April	440	320	366	0.52	0.58	21,800
May	4,430	470	2,310	3.25	3.75	142,000
June	8,240	4,630	6,430	9.06	10.10	383,000
July	7,810	3,230	6,020	8.48	9.78	370,000
August	3,110	1,600	2,110	2.97	3.42	130,000
September	1,530	900	1,100	1.55	1.73	65,500
The year	7,810	.....	1,800	2.53	34.42	1,304,500
1917-18						
October	1,160	670	933	1.31	1.51	57,400
November	670	610	645	0.91	1.01	38,400
December	730	610	671	0.94	1.08	41,300
January	795	628	696	0.98	1.13	42,800
February	640	470	562	0.79	0.82	31,200
March	640	410	498	0.70	0.81	30,600
April	1,970	640	1,250	1.76	1.96	74,400
May	4,610	2,120	3,650	5.14	5.93	224,000
June	10,900	3,540	7,500	10.60	11.80	446,000
July	6,360	2,520	4,000	5.76	6.64	251,000
August	2,880	1,690	2,100	2.96	3.41	129,000
September	1,640	970	1,240	1.75	1.95	73,800
The year	10,900	410	1,990	2.80	38.05	1,439,900

CARPENTER CREEK AT SANDON—STATION NO. 8 NJ₄.

Location.—The station is located in the town of Sandon in a timber flume which confines the creek. The gauge is located back of the Canadian Pacific Railway depot.

Records Available.—April 25, 1914, to September 30, 1917.

Drainage Area.—The drainage area of Carpenter creek above Sandon is twelve square miles.

Gauge.—Enamel staff gauge, 0 to 3 feet, nailed to side of flume. Daily readings are made by Mrs. E. A. Cameron.

Channel.—Stream is confined to a flume for several hundred feet through the townsite of Sandon. The flume is of timber; it is 11.50 feet wide and has a slope of 6 per cent; Kutter's formula for flow in open channels is used to determine discharges.

Winter Flow.—Owing to the high velocities in the flume, the station is not affected by ice conditions.

Accuracy.—During high-water the results are probably within 10 per cent, but at low stages, due to the gauge being read only to tenths, the degree of accuracy is materially lessened.

Daily Discharge in Second-feet of Carpenter Creek, at Sandon, for period January 1 to September 30, 1917.

[Drainage area, 12 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1				16	16	16	16	28.8	294	546	53.5	16
2				16	16	16	16	28.8	243	576	53.3	16
3				16	16	16	16	28.8	232	576	43.5	16
4				16	16	16	16	28.8	152	576	53.5	16
5				16	16	16	16	33.7	117	546	53.5	16
6				16	16	16	16	41.2	124	546	53.5	16
7				16	16	16	16	48.6	182	486	53.5	16
8				16	16	16	16	59.1	341	486	53.5	16
9				16	16	16	16	67.5	456	456	53.5	16
10				16	16	16	16	76.0	318	427	53.5	16
11				16	16	16	16	88.7	243	398	53.5	16
12				16	16	16	16	99.3	189	370	53.5	16
13				16	16	16	16	99.3	170	318	53.5	16
14				16	16	16	16	10.0	294	318	53.5	16
15				16	16	16	16	117.0	606	318	53.5	16
16				16	16	16	16	117.0	816	294	53.5	16
17				16	16	16	16	99.3	698	268	41.2	16
18				16	16	16	16	81.6	667	284	41.2	16
19				16	16	16	16	81.6	606	243	41.2	16
20				16	16	16	16	88.7	576	200	41.2	16
21				16	16	16	16	110.0	546	159	41.2	16
22				16	16	16	16	124.0	516	124	28.8	16
23				16	16	16	16	145.0	516	110	28.8	16
24				16	16	16	16	216.0	486	88	28.8	16
25				16	16	16	16	294.0	456	81.6	28.8	16
26				16	16	16	28.8	332.0	456	76.0	28.8	16
27				16	16	16	28.8	352.0	427	67.5	28.8	16
28				16	16	16	28.8	369.0	486	76.0	25.8	16
29				16	16	16	28.8	352.0	456	53.5	28.8	16
30				16	16	16	28.8	341.0	486	53.5	28.8	16
31				16	16	16	16	303.0	.....	53.5	28.8	.....

Monthly Discharge of Carpenter Creek, at Sandon, for year ending September 30, 1917.

[Drainage area, 12 square miles.]

Month.	Discharge in Second-Foot				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area	Total in Acre-feet
1916-17						
October	41.0	16.0	23.9	1.99	2.29	1,470
November	16.0	16.0	16.0	1.33	1.48	952
December	16.0	16.0	16.0	1.33	1.53	984
January	16.0	16.0	16.0	1.33	1.53	984
February	16.0	16.0	16.0	1.33	1.38	888
March	16.0	16.0	16.0	1.33	1.53	984
April	28.8	16.0	18.1	1.51	1.48	1,080
May	369.0	28.8	141.0	11.80	13.60	8,670
June	698.0	117.0	405.0	33.80	37.70	24,100
July	576.0	53.5	296.0	24.70	28.50	18,200
August	53.5	28.8	43.5	3.62	4.17	2,670
September	16.0	16.0	16.0	1.33	1.48	952
The year	698.0	16.0	85.3	7.12	96.9	61,934

SILVERTON CREEK—STATION NO. 8 NJ₆.

Location.—Immediately above Hewitt mill flume intake.

Records Available.—Open-water records for years 1914-18 and intermittent records for periods in which stage-discharge relation is affected by ice.

Drainage Area.—Thirty square miles.

Gauge.—Vertical staff read daily by Mr. W. H. Gilmore.

Channel and Control.—Bed of stream composed of gravel. Control—Hewitt Mill diversion dam.

Discharge Measurements.—Made by cable carrier and wading. Upper part of rating curve not well defined.

Winter Flow.—Stage-discharge relation affected by ice.

Accuracy.—"B" to discharge of 350 cubic feet per second and "C" above discharge of 350 cubic feet per second.

Discharge Measurements of Silverton Creek, above Hewitt Intake, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917		Feet.	Sec.-Ft.	1917.		Feet.	Sec.-ft.
May 20	Patterson and Swan	1-20	94.0	Mar 22	G. K. Beeston	0-12	11.1
June 19	T. R. Patterson	2-77	331.0	May 19	Swan and Balls	1-80	154.0
July 12	"	2-47	269.0				
Aug. 9	"	1-05	68.9				
Oct. 28	Swan and Wood	0-30	21.0				

Daily Discharge in Second-feet of Silverton Creek, above Hewitt Intake, for years ending September 30, 1917-18.

(Drainage area, 30 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1	29.2	21.2	19.5	18.4	18.4	18.4	18.4	18.4	213	314	83.5	37.0
2	29.2	21.7	19.7	18.4	18.4	18.4	19.4	18.9	213	322	83.5	37.0
3	30.6	22.6	19.8	18.4	18.4	18.4	18.4	19.5	197	331	77.8	37.0
4	22.9	22.9	19.8	18.4	18.4	18.4	18.4	19.5	181	314	72.0	31.5
5	27.9	22.4	19.8	18.6	18.4	18.4	18.4	19.5	181	297	61.5	31.5
6	27.0	21.4	19.8	19.0	18.4	18.4	18.4	21.2	189	297	61.5	31.5
7	27.0	20.9	19.5	19.0	18.4	18.4	18.4	21.2	197	280	72.0	31.5
8	26.3	21.2	19.3	19.0	18.4	18.4	18.4	21.2	213	263	72.0	31.5
9	26.3	21.7	19.3	19.0	18.4	18.4	18.4	18.4	246	246	61.5	31.5
10	26.3	21.7	19.0	19.0	18.4	18.4	18.4	52.0	246	246	61.5	31.5
11	25.2	21.0	19.0	19.0	18.4	18.4	18.4	72.0	238	246	61.5	37.0
12	24.2	20.4	19.0	18.6	18.4	18.4	18.4	83.5	229	229	61.5	37.0
13	24.2	20.4	19.0	18.6	18.4	18.4	18.4	89.8	229	220	61.5	37.0
14	24.2	20.4	18.6	18.6	18.4	18.4	18.4	96.0	254	213	61.5	37.0
15	23.5	20.4	18.6	18.4	18.4	18.4	18.4	144.0	322	197	52.0	31.5
16	23.5	20.4	18.6	18.4	18.4	18.4	18.4	144.0	416	181	52.0	31.5
17	24.2	20.4	18.6	18.4	18.4	18.4	18.4	116.0	399	181	52.0	31.5
18	23.8	20.4	18.6	18.4	18.4	18.4	18.4	96.0	374	181	44.0	31.5
19	23.1	20.4	18.6	18.4	18.4	18.4	18.4	83.5	331	181	44.0	31.5
20	23.5	20.4	18.6	18.4	18.4	18.4	18.4	83.5	297	166	44.0	31.5
21	22.9	19.8	18.6	18.4	18.4	18.4	18.4	102.0	314	151	44.0	31.5
22	21.9	19.8	19.6	18.4	18.4	18.4	18.4	144.0	306	136	44.0	31.5
23	21.2	19.8	18.6	18.4	18.4	18.4	18.4	166.0	297	122	44.0	31.5
24	21.2	19.8	18.6	18.4	18.4	18.4	18.4	229.0	297	109	44.0	37.0
25	21.2	19.8	18.6	18.4	18.4	18.4	18.4	280.0	288	102	44.0	27.0
26	21.9	19.8	18.6	18.4	18.4	18.4	18.4	306.0	263	96	37.0	27.0
27	21.4	19.8	19.6	18.4	18.4	18.4	18.4	314.0	280	102	37.0	31.5
28	21.0	19.8	18.6	18.4	18.4	18.4	18.4	297.0	297	109	37.0	31.5
29	20.9	19.5	18.4	18.4	18.4	18.4	18.4	263.0	288	96	37.0	27.0
30	21.9	19.5	18.4	18.4	18.4	18.4	18.4	229.0	288	96	37.0	27.0
31	21.2	18.4	18.4	18.4	18.4	18.4	213.0	84	37.0			
1917-18												
1	29.0	20.4				15.4	17.6	60	122	151	56	42.4
2	24.0	20.4				15.4	17.6	74	136	151	56	41.0
3	52.0	20.4				16.5	17.6	74	136	151	56	41.0
4	44.5	24.0				16.5	17.6	65	136	151	56	41.0
5	41.0	24.0				16.5	17.6	151	136	151	56	41.0
6	41.0	24.0				16.5	17.6	814	151	151	56	41.0
7	35.0	24.0				16.5	17.6	189	154	151	56	41.0
8	35.0	24.0				16.5	20.4	180	197	154	58	41.0
9	35.0	24.0				16.5	20.4	180	280	154	58	41.0
10	35.0	24.0				16.5	20.4	144	283	154	58	41.0
11	35.0	24.0				16.5	20.4	166	367	166	58	36.2
12	35.0	24.0				16.5	24.0	166	450	169	58	36.2
13	35.0	20.4				16.5	24.0	166	492	169	58	36.2
14	35.0	20.4				16.5	29.0	169	484	151	58	35.0
15	29.0	20.4				16.5	29.0	183	484	151	58	35.0
16	29.0	20.4				17.6	29.0	169	317	137	58	35.0
17	29.0	20.4				16.5	29.0	169	314	125	58	35.0
18	29.0	20.4				16.5	30.2	125	280	122	60	35.0
19	29.0	20.4				16.5	30.2	125	280	122	58	35.0
20	24.0	27.7				16.5	29.0	125	280	122	56	35.0
21	24.0	35.0				16.5	35.0	125	266	122	50	35.0
22	24.0	35.0				15.8	36.2	125	263	122	48	35.0
23	24.0	35.0				15.8	41.0	125	197	122	48	35.0
24	24.0	35.0				15.8	41.0	122	184	109	48	35.0
25	24.0	29.0				15.8	42.4	122	184	109	48	30.2
26	24.0	24.0				16.5	48.0	122	181	96	48	30.2
27	20.4	24.0				16.5	48.0	122	181	96	48	30.2
28	20.4	24.0				17.6	52.0	122	181	65	48	30.2
29	17.6	24.0				17.6	52.0	122	181	65	48	30.2
30	17.6	24.0				17.6	56.0	122	151	58	48	30.2
31	20.4					17.6		122	58	48		

Notes:—November 13 to 19, 1916—Gauge height affected by ice.

Monthly Discharge of Silverton Creek, above Intake, for years ending September 30, 1917-18.

(Drainage area, 39 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage	Total in Acre-feet
1916-17.						
October	30.6	20.9	24.4	0.81	0.93	1,500
November	22.9	19.5	20.7	0.69	0.77	1,230
December	19.8	18.4	18.9	0.63	0.73	1,160
January	19.0	18.4	18.5	0.62	0.72	1,140
February	18.4	18.4	18.4	0.61	0.64	1,020
March	18.4	18.4	18.4	0.61	0.70	1,130
April	18.4	18.4	18.4	0.61	0.68	1,090
May	314.0	18.4	123.0	4.10	4.73	7,560
June	416.0	181.0	269.0	8.96	10.00	16,000
July	331.0	84.0	197.0	6.59	7.60	12,100
August	83.5	37.0	54.3	1.81	2.09	3,340
September	37.0	27.0	32.0	1.07	1.19	1,900
The year	416.0	18.4	67.7	2.26	30.78	49,170
1917-18						
October	74.0	17.6	30.7	1.02	1.18	1,890
November	35.0	20.4	24.0	0.82	0.92	1,460
December						
January						
February						
March	17.6	15.4	16.5	0.55	0.63	1,010
April	56.0	17.6	30.3	1.01	1.13	1,800
May	189.0	60.0	136.0	4.53	5.22	8,360
June	492.0	122.0	249.0	8.30	9.26	14,800
July	169.0	58.0	128.0	4.27	4.92	7,870
August	60.0	48.0	54.0	1.80	2.08	3,320
September	42.4	30.2	36.2	1.21	1.35	2,150
The year	492.0	15.4	78.4	2.61	26.69	42,660

SILVERTON CREEK—STATION No. 8 N₂E.

Location.—At bridge, about three miles from the mouth, and about a mile below Hewitt mill.

Records Available.—Daily discharges May 1, 1914, to December 31, 1915; July 1, 1916, to September 30, 1917.

Gauge.—Vertical staff with enamel facings, read daily by Mr. G. Stilwell.

Drainage Area.—Forty-one square miles.

Channel and Control.—Channel is irregular with boulder and gravel bed, water is swift, control is not permanent.

Discharge Measurements.—A change in control occurred about June 30, 1917. The rating curve for data prior to this date is based on six discharge measurements. The new rating curve is based on four measurements.

Accuracy.—October 1, 1916, to June 30, 1917, "B" to discharge of 500 cubic feet per second. "C" above discharge of 500 cubic feet per second.

July 1 to September 30, 1917, "B" to discharge of 400 cubic feet per second. "C" above discharge of 400 cubic feet per second.

Daily Discharge in Second-feet of Silverton Creek, below Mill, for year ending September 30, 1917.

(Drainage area, 41 square miles.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1	34	29	29	24	24	24	24	24	356	395	106	32
2	34	34	24	24	24	24	24	24	333	423	106	32
3	34	34	29	24	24	24	24	29	333	480	106	32
4	34	34	29	24	24	24	24	32	333	466	98	32
5	34	34	29	24	24	24	24	36	311	443	98	32
6	34	34	29	24	24	24	24	40	390	423	90	28
7	34	34	29	24	24	24	24	43	392	491	82	25
8	34	34	29	24	24	24	24	61	463	395	79	25
9	29	32	29	24	24	24	24	71	499	395	67	25
10	29	29	29	24	24	24	24	87	418	390	67	25
11	29	29	29	24	24	24	24	130	351	382	67	25
12	29	24	29	24	24	24	24	172	311	398	67	25
13	29	24	29	24	24	24	24	189	311	368	64	25
14	29	24	29	24	24	24	24	213	368	368	69	25
15	29	24	29	24	24	24	24	240	528	356	60	25
16	29	24	24	24	24	24	24	245	634	356	60	25
17	29	24	24	24	24	24	24	202	585	358	52	25
18	29	24	24	24	24	24	24	170	536	343	52	25
19	29	24	24	24	24	24	24	142	485	336	52	25
20	29	24	24	24	24	24	24	161	485	396	52	25
21	29	24	24	24	24	24	24	184	507	254	52	25
22	29	24	24	24	24	24	24	245	458	198	52	25
23	29	24	24	24	24	24	24	269	458	164	52	25
24	29	24	24	24	24	24	24	338	431	159	52	25
25	29	29	24	24	24	24	24	495	426	141	52	25
26	29	29	24	24	24	24	24	463	405	132	45	25
27	29	29	34	24	24	24	24	499	405	132	45	25
28	29	29	24	24	24	24	24	480	431	123	38	25
29	29	29	24	24	24	24	24	418	431	123	38	25
30	29	29	24	24	24	24	24	392	431	115	35	25
31	29	24	24	24	24	24	24	380	380	115	32	25

Monthly Discharge of Silverton Creek, below Mill, for year ending September 30, 1917.

(Drainage area, 41 square miles.)

Month.	Discharge in Second feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	34	29	30.0	0.73	0.84	1,840
November	34	24	28.0	0.68	0.76	1,670
December	34	24	26.0	0.63	0.73	1,600
January	24	24	24.0	0.58	0.67	1,480
February	24	24	24.0	0.58	0.60	1,330
March	24	24	24.0	0.58	0.67	1,480
April	24	24	24.0	0.58	0.65	1,430
May	499	24	205.0	8.00	5.76	12,600
June	634	300	424.0	10.30	11.50	25,200
July	480	115	303.0	7.39	8.52	18,600
August	106	32	63.8	1.55	1.79	3,920
September	32	25	26.3	0.64	0.71	1,560
The year	634	24	100.0	2.44	33.20	72,710

Note.—A change in control occurs on July 1, 1917.

L. H. CREEK—STATION NO. 8 NJ₁₂.

Location.—Below small bridge on road between Silverton and Enterprise.

Records Available.—October 31, 1916, to September 30, 1918.

Drainage Area.—Two and one-half square miles.

Gauge.—Staff gauge, ten feet back of weir crest.

Winter Flow.—Stage-discharge relation affected by ice.

Accuracy.—"B".

Daily Discharge in Second-feet of Silverton Creek, at Silverton, for period November 1, 1916, to September 30, 1917 and year ending September 30, 1918.

(Drainage area, 2.5 square miles.)

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17												
1		0.64	0.45	0.39	0.39	0.33	0.31	0.57	7.05	6.64	0.86	0.56
2		0.68	0.45	0.39	0.39	0.33	0.33	0.57	7.08	6.20	0.90	0.55
3		0.71	0.45	0.39	0.39	0.33	0.33	0.61	7.11	5.76	0.94	0.53
4		0.94	0.45	0.39	0.39	0.33	0.37	0.66	7.44	5.31	0.89	0.51
5		0.92	0.45	0.39	0.39	0.33	0.39	0.71	7.17	4.86	0.84	0.53
6		0.86	0.42	0.39	0.39	0.33	0.41	0.79	7.20	5.00	0.79	0.55
7		0.86	0.39	0.39	0.39	0.33	0.43	0.90	7.24	4.79	0.79	0.57
8		0.86	0.39	0.39	0.39	0.33	0.45	1.02	7.28	4.58	0.79	0.60
9		0.86	0.45	0.39	0.38	0.33	0.42	1.58	6.74	4.37	0.79	0.63
10		0.68	0.45	0.39	0.38	0.32	0.39	2.14	6.30	4.16	0.79	0.67
11		0.51	0.42	0.39	0.37	0.31	0.41	2.59	5.66	3.71	0.77	0.71
12		0.51	0.39	0.39	0.37	0.30	0.43	3.05	5.12	3.26	0.74	0.71
13		0.51	0.39	0.39	0.36	0.29	0.45	3.51	4.58	3.08	0.71	0.71
14		0.48	0.39	0.39	0.36	0.28	0.43	3.90	4.92	2.90	0.71	0.69
15		0.45	0.39	0.39	0.35	0.28	0.41	4.86	5.26	2.79	0.71	0.67
16		0.45	0.39	0.39	0.34	0.28	0.39	4.58	5.60	2.68	0.69	0.64
17		0.45	0.39	0.39	0.34	0.28	0.39	4.30	5.94	2.46	0.87	0.60
18		0.45	0.39	0.39	0.33	0.28	0.39	4.13	6.28	2.24	0.64	0.57
19		0.45	0.39	0.39	0.33	0.28	0.39	3.95	6.62	2.11	0.64	0.57
20		0.45	0.39	0.39	0.33	0.28	0.39	3.77	6.96	1.98	0.64	0.57
21		0.45	0.39	0.39	0.33	0.28	0.42	4.90	6.80	1.85	0.64	0.57
22		0.45	0.39	0.39	0.33	0.28	0.45	6.03	6.65	1.64	0.64	0.56
23		0.45	0.39	0.39	0.33	0.28	0.45	6.47	6.49	1.42	0.64	0.55
24		0.45	0.39	0.39	0.33	0.28	0.45	6.91	6.33	1.20	0.64	0.53
25		0.45	0.39	0.39	0.33	0.28	0.54	7.35	6.46	1.16	0.64	0.51
26		0.45	0.39	0.39	0.33	0.28	0.64	7.79	6.60	1.11	0.64	0.51
27		0.45	0.39	0.39	0.33	0.28	0.60	7.52	5.73	1.67	0.64	0.51
28		0.45	0.39	0.39	0.33	0.28	0.57	7.24	5.44	2.24	0.60	0.51
29		0.45	0.39	0.39	0.33	0.28	0.57	6.96	5.15	1.90	0.57	0.51
30		0.45	0.39	0.39	0.33	0.28	0.57	6.90	4.86	1.56	0.57	0.48
31		0.45	0.39	0.39	0.33	0.28	0.57	7.02	.....	1.21	0.57	.....
1917-18												
1	0.45	0.51	0.71	.....	.....	0.33	0.57	4.86	4.14	3.06	1.17	0.86
2	3.13	1.08	0.67	.....	.....	0.33	0.57	4.86	3.70	2.87	1.20	0.86
3	2.94	1.65	0.4	.....	.....	0.33	0.57	4.86	3.26	2.87	1.03	0.82
4	0.94	1.22	0.61	.....	.....	0.33	0.57	4.86	3.66	2.57	0.86	0.79
5	0.86	0.79	0.59	.....	.....	0.33	0.57	4.86	4.06	2.46	0.86	0.75
6	0.79	0.75	0.57	.....	.....	0.33	0.59	4.86	4.46	2.35	0.86	0.71
7	0.75	0.71	0.57	.....	.....	0.33	0.61	4.86	4.86	2.30	0.86	0.70
8	0.71	0.67	0.57	.....	.....	0.33	0.64	4.18	2.24	2.04	0.86	0.69
9	0.71	0.64	0.57	.....	.....	0.33	1.11	3.51	2.46	2.46	0.86	0.68
10	0.71	0.64	0.57	.....	.....	0.33	1.16	3.86	2.68	1.16	0.67	.....
11	0.71	0.64	0.55	.....	.....	0.33	1.20	4.21	.....	2.43	1.47	0.66
12	0.71	0.62	0.53	.....	.....	0.33	1.34	4.56	.....	2.19	1.32	0.65
13	0.71	0.60	0.52	.....	.....	0.33	1.47	4.91	.....	1.95	1.17	0.64
14	0.64	0.58	0.51	.....	.....	0.34	1.52	5.26	.....	1.79	1.02	0.64
15	0.64	0.57	0.51	.....	.....	0.35	1.56	5.61	.....	1.63	0.99	0.64
16	0.64	0.58	0.51	.....	.....	0.36	1.34	5.97	.....	1.47	0.96	0.64
17	0.64	0.59	0.51	.....	.....	0.37	1.11	6.33	.....	1.41	0.94	0.64
18	0.64	0.60	0.51	.....	.....	0.39	1.24	4.86	.....	1.35	1.08	0.61
19	0.64	0.61	0.51	.....	.....	0.39	1.38	4.67	.....	1.29	1.23	0.59
20	0.64	0.62	0.51	.....	.....	0.39	1.60	4.48	.....	1.20	1.38	0.57
21	0.64	0.64	0.45	.....	.....	0.45	1.82	4.30	.....	1.11	1.32	0.57
22	0.64	0.83	0.45	.....	.....	0.51	2.04	3.87	.....	1.02	1.26	0.57
23	0.64	2.02	0.45	.....	.....	0.57	2.01	3.44	.....	0.94	1.20	0.57
24	0.64	0.94	0.45	.....	.....	0.64	1.99	3.01	.....	0.86	1.16	0.57
25	0.62	0.86	0.45	.....	.....	0.71	1.97	2.75	4.72	0.94	1.11	0.57
26	0.60	0.84	0.45	.....	.....	0.62	1.95	2.49	4.36	1.02	1.05	0.57
27	0.58	0.82	0.45	.....	.....	0.53	2.10	2.24	4.00	1.04	0.99	0.57
28	0.57	0.80	0.45	.....	.....	0.45	2.24	2.57	3.64	1.06	0.94	0.57
29	0.55	0.79	0.45	.....	.....	0.54	2.82	2.90	3.44	1.08	0.90	0.57
30	0.54	0.75	0.45	.....	.....	0.64	3.39	3.74	3.25	1.11	0.88	0.57
31	0.53	.....	0.45	.....	.....	0.60	.....	4.58	.....	1.14	0.86	.....

Notes: Stage-discharge relation affected by ice during January, February, 1917. Mean Monthly discharge for these months estimated from gauge records and climatic conditions.

THE ABOVE RECORDS ARE THE PROPERTY OF THE U. S. GEOLOGICAL SURVEY AND ARE NOT TO BE REPRODUCED WITHOUT THE WRITTEN CONSENT OF THE CHIEF OF BUREAU

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Monthly Discharge of L. H. Creek, near Silvertown, for years ending September 30,
1917-18.

(Drainage area, 2.5 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum	Minimum	Mean	Per Square Mile	Depth in inches on Drainage Area	Total in Acre-feet.
1916-17						
October						
November	0.94	0.45	0.57	0.24	0.27	33.9
December	0.45	0.39	0.41	0.17	0.20	25.2
January	0.39	0.39	0.39	0.16	0.18	24.0
February	0.39	0.33	0.36	0.15	0.16	20.0
March	0.33	0.28	0.30	0.12	0.14	18.4
April	0.64	0.31	0.44	0.18	0.20	26.2
May	7.79	0.57	3.98	1.66	1.91	245.0
June	7.28	4.86	6.26	2.61	2.81	372.0
July	6.64	1.11	3.09	1.29	1.49	190.0
August	0.94	0.57	0.71	0.30	0.35	44.0
September	0.71	0.48	0.57	0.24	0.27	35.0
The year	7.79	0.28	1.55	0.65	8.08	1,033.7
1917-18						
October	3.13	0.45	0.78	0.32	0.37	48.0
November	1.65	0.51	0.76	0.32	0.36	45.2
December	0.71	0.45	0.52	0.22	0.25	32.0
January			0.45	0.19	0.22	27.7
February			0.39	0.16	0.17	21.7
March	0.71	0.33	0.42	0.18	0.21	25.8
April	3.39	0.57	1.44	0.60	0.67	85.7
May	6.33	2.24	4.27	1.78	2.05	263.0
June						
July	3.06	0.86	1.73	0.72	0.83	106.0
August	1.47	0.86	1.06	0.44	0.51	65.2
September	0.86	0.57	0.65	0.27	0.30	38.7
The year			1.13	0.47	5.94	759.0

Note.—Station established October 31, 1916.

PEND D'OREILLE (CLARK FORK) RIVER.

(At Metaline Falls, Washington).

Location.—In S.E. $\frac{1}{4}$, Section 21, Township 38 N., Range 436, opposite town of Metaline Falls in Pend d'Oreille County, Washington.

Drainage Area.—Twenty-five thousand six hundred square miles.

Records Available.—October 1, 1912, to September 30, 1918.

Supplied by United States Geological Survey, Water Resources Branch.

Gauge.—Vertical and inclined staff, in five sections reading from 0 to 55 feet, on right bank, three-eighths of a mile above the falls; installed December 10, 1916. Gauge read by M. C. Wilmer, W. A. Snure and C. N. West.

Discharge Measurements.—Made from cable three-eighths of a mile above the falls. Flow of Sullivan creek added to flow measured at cable.

Channel and Control.—Banks high and not subject to overflow. Sensitive and practically permanent, control formed by Metaline falls where water surface drops twenty feet in a distance of one thousand two hundred feet.

Winter Flow.—Stage-discharge relation not affected by ice.

Accuracy.—Stage-discharge relation for low and medium stages changed January 6, 1918, when slide occurred. Rating curve used before and after the change well defined. Gauge read to half-tenths once daily. No diurnal

fluctuation. Daily discharge ascertained by applying daily gauge height to rating table. Records for year accuracy "A".
 Co-operation. Maintained by the United States Geological Survey, Water Resources Branch in co-operation with this Survey.

Discharge Measurements of Pond d'Orville (Clark Fork) River, at Middle Falls, during 1918.

Date	Engineer	Height	Discharge
July 2	I. D. Williams	28.75	85,600
July 1	I. D. Williams	29.75	89,800
May 4	R. H. Williams	18.89	46,300
May 2	R. H. Williams	18.89	44,400
Sept. 1		Foot	

Daily Discharge in Second-foot of Pond d'Orville (Clark Fork) River, at Middle Falls, for years ending September 30, 1917-18.

Year	Discharge
1916-17	29,700
1915	13,900
1914	18,900
1913	13,900
1912	18,400
1911	13,900
1910	17,100
1909	18,400
1908	13,900
1907	17,100
1906	18,400
1905	13,900
1904	17,100
1903	18,400
1902	13,900
1901	17,100
1900	18,400
1899	13,900
1898	17,100
1897	18,400
1896	13,900
1895	17,100
1894	18,400
1893	13,900
1892	17,100
1891	18,400
1890	13,900
1889	17,100
1888	18,400
1887	13,900
1886	17,100
1885	18,400
1884	13,900
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1523	17,100
1522	18,400
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1519	18,400
1518	13,900
1517	17,100
1516	18,400
1515	13,900
1514	17

Daily Discharge in Second-feet of Pend d'Oreille (Clark Fork) River, at Metaline Falls, for years ending September 30, 1917-18—Con.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1917-18.												
1	11,700	9,800	9,210	24,700	23,200	17,000	21,400	41,900	63,600	88,100	28,800	16,800
2	11,700	9,800	9,070	28,600	21,900	17,000	22,800	43,100	62,700	85,800	28,100	16,600
3	11,800	9,850	9,070	32,200	21,000	16,800	23,600	44,100	61,800	82,900	26,200	16,200
4	11,700	9,850	9,070	35,100	20,400	16,400	23,900	46,400	61,400	79,200	25,700	16,800
5	11,700	9,850	9,070	36,800	20,200	15,800	24,100	47,800	60,900	76,800	25,500	15,500
6	11,700	9,800	9,210	38,500	20,000	15,800	24,100	50,800	60,400	74,500	25,000	15,100
7	11,500	9,650	9,210	36,600	20,200	15,500	24,600	54,400	60,900	71,300	24,600	14,800
8	11,500	9,650	9,210	27,100	19,800	15,500	24,800	58,200	60,900	68,600	23,900	14,600
9	11,500	9,650	9,210	36,800	20,200	15,500	25,200	62,700	62,700	65,800	23,200	14,200
10	11,400	9,650	9,210	37,400	20,200	15,300	25,500	65,400	64,000	63,200	22,500	14,000
11	11,200	9,650	9,210	36,800	20,400	15,100	25,700	67,200	66,300	60,000	22,300	13,700
12	11,200	9,650	9,210	36,600	20,400	15,100	26,400	68,600	69,500	58,200	22,100	13,200
13	11,200	9,650	9,350	35,500	20,600	14,900	27,400	69,900	73,600	55,700	21,600	13,300
14	11,200	9,650	9,350	34,600	20,200	15,100	28,400	69,900	78,200	53,600	21,200	13,000
15	10,900	9,650	9,300	33,300	20,600	15,100	29,300	71,800	81,100	51,600	21,000	12,800
16	10,900	9,650	9,500	32,800	20,200	15,100	30,300	71,800	84,800	50,000	20,200	12,700
17	10,600	9,350	9,650	32,300	20,000	14,900	31,300	72,700	88,600	47,500	19,800	12,500
18	10,600	9,350	9,650	31,800	19,800	15,100	32,000	73,600	92,400	45,700	19,400	12,200
19	10,400	9,210	10,100	30,800	19,400	15,300	32,800	74,500	94,300	40,600	19,000	12,000
20	10,200	9,070	10,400	30,000	18,200	15,500	33,300	75,000	98,200	42,200	19,000	12,000
21	10,200	9,070	10,900	29,300	16,200	15,100	33,300	75,500	98,200	40,600	18,800	11,800
22	10,200	9,070	11,400	28,400	16,000	15,600	34,100	75,500	98,200	39,100	18,600	11,700
23	10,100	9,070	12,400	27,900	16,800	15,600	34,600	74,500	98,600	38,000	18,400	11,500
24	9,950	9,070	13,400	27,400	16,600	16,600	36,000	73,600	99,100	36,800	18,200	11,300
25	9,800	9,070	14,500	26,900	16,200	16,800	36,000	72,700	98,200	35,700	18,000	11,200
26	9,650	9,070	15,800	26,200	15,500	17,600	37,700	71,800	97,200	34,400	17,800	11,000
27	9,650	9,070	16,600	26,000	16,200	18,200	38,600	70,900	96,200	33,600	17,400	11,000
28	9,650	9,070	17,000	25,200	17,000	18,600	39,400	69,000	94,300	32,800	17,400	11,000
29	9,650	9,070	17,900	24,600	17,000	19,400	40,300	68,100	92,800	31,500	17,000	11,000
30	9,650	9,070	19,500	24,000	17,000	20,400	41,200	66,300	90,500	30,500	17,000	11,000
31	9,800	9,070	21,500	24,600	17,000	21,000	41,200	64,500	88,600	29,800	16,800	11,000

Monthly Discharge of Pend d'Oreille (Clark Fork) River, at Metaline Falls, for years ending September 30, 1917-18.

(Drainage area 25,600 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	20,200	13,900	16,800	.....	.....	1,030,000
November	13,900	11,800	13,200	.....	.....	786,000
December	12,600	5,960	10,800	.....	.....	664,000
January	10,600	8,240	9,490	.....	.....	584,000
February	10,200	8,240	9,620	.....	.....	534,000
March	9,650	8,240	8,870	.....	.....	545,000
April	28,100	9,800	18,180	.....	.....	1,080,000
May	103,000	28,600	55,700	.....	.....	3,420,000
June	122,000	106,000	115,000	.....	.....	6,840,000
July	117,000	49,900	84,900	.....	.....	5,220,000
August	47,800	18,700	30,100	.....	.....	1,850,000
September	18,300	11,900	14,500	.....	.....	863,000
The year	122,000	5,960	43,200	.....	.....	23,400,000
1917-18						
October	11,700	9,650	10,700	.....	.....	658,000
November	9,950	9,070	9,450	.....	.....	552,000
December	21,500	9,070	11,600	.....	.....	713,000
January	38,500	24,600	31,300	.....	.....	1,920,000
February	23,200	15,500	19,200	.....	.....	1,070,000
March	21,000	14,900	16,300	.....	.....	1,000,000
April	41,200	21,400	30,300	.....	.....	1,800,000
May	75,500	41,900	64,900	.....	.....	3,990,000
June	99,100	60,400	80,300	.....	.....	4,780,000
July	88,100	29,800	53,000	.....	.....	3,260,000
August	28,800	16,800	21,100	.....	.....	1,300,000
September	16,800	11,000	13,100	.....	.....	780,000
The year	99,100	9,070	30,200	.....	.....	21,800,000

KETTLE RIVER TRIBUTARY BASIN.

KETTLE RIVER, WEST FORK—STATION NO. 8 NN₃.

Location.—One-half mile above mouth, near Westbridge station, Kettle Valley Railway.

Records Available.—February 23 to September 30, 1914; January 1 to February 6, and March 29 to December 31, 1915; February 27 to December 31, 1916; January 1 to December 31, 1917; January 1 to September 30, 1918.

Drainage Area.—Seven hundred square miles.

Gauge.—Standard vertical staff gauge, read twice daily.

Channel.—Straight for five hundred feet above and below measuring section. Bed composed of gravel and boulders.

Discharge Measurements.—Fifteen meter measurements have been made during 1913 to 1918, and give a rating curve closely defined up to a discharge of 1800 cubic feet per second. The high-water curve has been developed from the area and mean velocity curve.

Winter Flow.—Ice conditions prevail from November to March. The 1916–1917 discharge was estimated from one meter measurement. The discharge for the winter of 1917–1918 was estimated from one meter measurement and from a study of the proportional flow at this station and at the Cascade station which remained open during the winter.

Accuracy.—Considered quite reliable except at extreme high water.

Discharge Measurements of West Fork of Kettle River, at Westbridge, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917		Feet.	Sec. ft.	1918		Feet.	Sec. ft.
Jan. 15	A. L. McNaughton	Ice.	33	Feb. 9	K. G. Chisholm	Ice.	48
March 28	C. G. Cline	0.23	37	Oct. 24	A. L. McNaughton	0.42	60
May 11	"	2.78	1,235				
June 13	A. L. McNaughton	3.12	1,490				
June 17	"	3.62	1,800				

Daily
to SDa
1916

1917 18

Daily Discharge in Second-feet of Kettle River at Westbridge, for period January 15 to September 30, 1917, October 1 to December 2, 1917, and April 1 to September 30, 1918.

(Drainage area, 700 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1							37	240	2,400	830	100	35
2							40	240	2,200	850	100	35
3							40	260	1,940	760	95	35
4							45	270	1,750	730	90	35
5							47	270	1,720	700	90	35
6							50	330	1,720	570	80	35
7							50	380	2,000	490	75	35
8							58	490	2,050	420	70	42
9							62	700	2,000	390	70	45
10							70	890	1,750	380	70	50
11							80	1,180	1,550	350	70	55
12							80	1,470	1,470	330	65	60
13							80	2,040	1,470	270	60	80
14							80	2,380	1,570	240	55	70
15					33		80	2,600	1,880	225	55	55
16							80	2,530	2,150	205	55	53
17							80	2,270	1,920	190	53	50
18							85	1,750	1,600	180	50	45
19							90	1,680	1,400	165	50	45
20							95	1,740	1,300	150	47	42
21							120	1,880	1,240	145	45	42
22							130	1,980	1,170	135	45	41
23							130	2,300	1,090	130	42	40
24							140	2,570	1,000	125	42	40
25							150	2,650	1,060	120	41	42
26							180	2,770	900	110	40	42
27							225	2,800	900	115	39	45
28						37	245	2,800	1,200	110	37	45
29						40	260	3,000	950	110	37	45
30						35	240	2,750	890	110	35	45
31						35		2,500		105	35	
1917-18.												
1	45	45	55				165	1,600	1,050	210	100	70
2	45	45	55				165	1,725	850	210	90	70
3	45	50					165	1,950	800	180	90	60
4	45	55					165	2,200	800	180	90	60
5	55	70					180	2,100	800	180	90	55
6	55	90					210	1,750	850	150	80	55
7	50	100					210	1,550	950	150	80	55
8	45	100					225	1,400	1,200	150	70	50
9	45	90					270	1,250	1,350	150	70	50
10	45	80					440	1,200	1,700	165	80	50
11	45	70					500	1,225	1,600	350	110	45
12	45	70					575	1,550	1,500	290	150	45
13	45	60					600	1,800	1,550	240	150	45
14	45	60					600	2,000	1,700	225	120	45
15	45	55					575	2,200	1,200	180	130	45
16	45	55					525	2,000	950	180	120	45
17	45	55					440	1,600	750	165	110	45
18	45	55					440	1,450	750	150	120	40
19	45	55					440	1,225	600	150	180	40
20	45	55					550	1,100	550	130	210	40
21	45	55					825	1,050	500	130	165	35
22	45	55					1,050	950	440	130	150	35
23	45	55					1,050	850	440	130	130	35
24	45	60					1,075	850	700	130	110	35
25	45	70					1,075	800	550	140	90	40
26	45	70					950	750	440	150	90	40
27	45	60					950	650	370	140	90	40
28	45	55					1,050	600	310	140	80	40
29	45	55					1,225	775	270	130	70	40
30	45	55					1,450	1,150	230	110	70	40
31	45							1,225		100	70	40

Monthly Discharge of Kettle River, at Westbridge, for years ending September 30, 1917-18.

(Drainage area, 700 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Acre.	Total in Acre-feet.
1916-17.						
October	67	52	55	0.08	0.09	3,380
November	67	50	53	0.08	0.09	3,150
December	45	35	41	0.06	0.07	2,520
January			35	0.05	0.06	2,100
February			35	0.05	0.06	1,950
March			35	0.05	0.06	2,100
April	260	37	105	0.15	0.17	6,040
May	3,000	240	1,670	2.38	2.74	103,000
June	2,400	800	1,540	2.20	2.45	88,600
July	850	105	315	0.45	0.52	19,400
August	100	35	60	0.09	0.10	3,700
September	80	35	45	0.06	0.07	2,600
The year	3,000	35	335	0.47	6.48	238,540
1917-18.						
October	55	45	45	0.06	0.07	2,800
November	100	45	65	0.09	0.10	3,900
December			45	0.06	0.07	2,800
January			60	0.09	0.10	3,700
February			55	0.08	0.08	3,050
March			65	0.09	0.10	4,000
April	1,450	165	600	0.86	0.96	35,700
May	2,200	600	1,375	1.96	2.26	84,500
June	1,700	230	860	1.23	1.37	51,000
July	350	100	170	0.24	0.28	10,500
August	210	70	110	0.16	0.18	6,800
September	70	38	45	0.06	0.07	2,700
The year	2,200	35	290	0.41	5.64	211,450

KETTLE RIVER AT NICHOLSON'S BRIDGE—STATION NO. 8 NN₄.

Location.—Near Kettle Valley Post Office. Ten miles above Midway.

Records Available.—March 1 to December 11, 1914; February 18 to November 30, 1915; March 1 to November 13, 1916; January 1 to December 31, 1917; January 1 to September 30, 1918.

Drainage Area.—Twenty-two hundred square miles.

Gauge.—Standard chain gauge, read daily.

Channel.—Average width one hundred and fifty feet; bed of stream gravel and sand; control permanent.

Discharge Measurements.—Thirteen meter measurements have been made during 1914 to 1918. The rating curve is well defined at all stages.

Winter Flow.—The stream is frozen from November to March. For this period during the season of 1916-1917 the discharge was estimated from the results of two meter measurements. For the same period during the season of 1917-1918 the discharge was estimated from one meter measurement and from a study of the proportional flow at this station and at the Cascade station which remained open during the winter.

Accuracy.—Results should be quite reliable at all stages during the open water period.

Discharge Measurements of Kettle River, at Nicholson's Bridge, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
1917.		Feet.	Sec.-ft.	1918		Feet.	Sec.-ft.
Jan. 14	A. L. McNaughton	Ice	100	Feb. 9	A. L. McNaughton	Ice	258
Mar. 28	C. G. Cline	Ice	152	Oct. 25	"	1.60	218
May 12	C. G. Cline	6.35	4,460				
June 12	A. L. McNaughton	6.95	6,070				
June 18	"	7.88	7,590				

Daily Discharge in Second-feet of Kettle River, at Nicholson's Bridge, for period January 14 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 2,200 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1							170	870	8,850	3,700	490	170
2							170	870	8,600	3,770	465	170
3							170	920	7,330	3,700	425	170
4							170	940	6,600	3,550	380	155
5							170	950	6,200	3,150	350	140
6							185	1,100	6,020	2,840	350	140
7							185	1,310	6,950	2,580	320	140
8							200	1,820	7,700	2,200	310	140
9							230	2,400	8,400	2,000	290	155
10							250	2,840	7,450	1,850	270	155
11							270	3,770	6,200	1,570	270	170
12							280	5,000	6,020	1,440	300	185
13							260	6,740	5,800	1,440	310	200
14				100			270	7,870	6,300	1,270	270	220
15							270	8,600	7,450	1,140	240	230
16							270	8,280	8,900	1,050	230	205
17							270	6,830	8,170	975	230	190
18							270	5,500	7,450	900	230	170
19							290	5,220	6,100	800	230	155
20							310	5,250	6,020	695	230	145
21							330	5,950	5,870	660	230	170
22							360	6,740	5,370	630	230	170
23							425	7,450	4,720	515	215	145
24							465	7,830	4,500	440	200	140
25							490	8,900	4,500	440	175	155
26							580	9,250	4,270	440	170	155
27							640	9,820	4,100	440	170	155
28						152	815	10,000	3,850	440	170	155
29							870	10,700	4,350	450	170	155
30							870	9,820	4,100	465	170	155
31								8,940		490	170	
1917-18.												
1	150	170	170	140			630	5,400	4,350	1,350	440	350
2	150	170	170	140			630	6,200	3,700	1,250	440	350
3	150	170	170	140			630	7,100	3,200	1,100	440	310
4	150	170	170	140			570	8,000	3,000	1,050	460	310
5	170	210	170	200			660	8,100	3,250	940	440	310
6	200	330	170	310			760	7,100	3,900	940	390	270
7	200	310	150	350			800	6,000	4,650	870	390	270
8	200	310	140	270	Meter		900	5,300	5,600	800	350	270
9	200	290	140	200	258		1,150	4,700	6,300	730	250	250
10	180	270	180	200			1,650	4,350	7,450	900	350	230
11	170	270					2,050	4,500	7,950	1,450	410	230
12	170	250	170		Ice		2,200	5,500	7,100	1,300	630	230
13	170	230					2,300	6,450	5,700	1,150	730	215
14	150	230					2,200	7,450	8,000	1,150	600	200
15	160	215					2,000	8,400	6,400	970	540	200
16	150	215					1,850	8,600	5,000	870	490	200
17	150	200					1,650	7,100	4,300	800	440	185
18	150	200				350	1,550	6,200	4,500	730	490	185
19	150	200				330	1,650	5,400	3,500	630	540	185
20	150	200				330	2,500	4,650	3,150	600	800	185
21	150	200				330	2,900	4,000	2,900	600	760	170
22	150	215				350	3,400	3,500	2,650	600	600	170
23	150	215				370	3,300	3,250	2,550	540	600	170
24	150	230				350	3,500	2,950	3,250	540	540	170
25	150	230				410	3,500	2,080	2,950	540	540	150
26	150	200				540	3,100	2,600	2,350	540	490	170
27	150	200				600	3,150	2,450	2,000	510	490	170
28	150	200				600	3,300	2,500	1,850	600	440	170
29	150	200				600	3,850	2,950	1,600	540	410	170
30	170	200				570	4,700	3,900	1,500	490	390	170
31						660		4,800		440	350	

Discharge
Sec. ft.
253
218

THE UNIVERSITY OF BRITISH COLUMBIA
 LIBRARY
 1917-18

Monthly Discharge of Kettle River, at Nicholson's Bridge, for years ending September 30, 1917-18.

(Drainage area, 2,200 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	270	170	220	0-10	0-12	13,500
November	200	150	170	0-08	0-09	10,000
December	50	100	130	0-06	0-07	8,000
January			100	0-05	0-06	6,000
February			125	0-06	0-07	7,000
March			150	0-07	0-08	9,200
April	870	170	350	0-16	0-18	20,800
May	10,700	870	5,550	2-52	2-90	341,000
June	8,900	3,850	6,300	2-86	3-19	375,000
July	3,770	440	1,500	0-68	0-78	92,000
August	490	170	265	0-12	0-14	16,300
September	230	140	165	0-07	0-08	9,800
The year	10,700	100	1,250	0-57	7-76	908,600
1917-18.						
October	200	150	160	0-07	0-08	110,000
November	330	170	220	0-10	0-11	13,000
December			180	0-08	0-09	11,000
January			260	0-12	0-14	16,000
February			230	0-10	0-10	13,000
March			300	0-14	0-16	18,000
April	4,700	570	2,100	0-95	1-06	125,000
May	8,600	2,080	5,200	2-36	2-72	320,000
June	8,000	1,500	4,200	1-91	2-13	250,000
July	1,450	440	820	0-37	0-43	50,000
August	800	350	500	0-23	0-26	31,000
September	350	150	220	0-10	0-11	13,000
The year	8,600		1,200	0-55	7-39	870,000

KETTLE RIVER AT CARSON—STATION NO. 8 N N₈.

Location.—At Carson, on the International Boundary.

Records Available.—September 5 to December 31, 1913; January 1 to 22, and February 25 to December 9, 1914; March 1 to November 30, 1915; March 1 to December 31, 1916; April 1 to December 31, 1917; January 1 to September 30, 1918.

Drainage Area.—Three thousand square miles.

Gauge.—Chain gauge on highway bridge four miles from Grand Forks.
Channel.—Straight at measuring section; bed of stream gravel and sand; control good.

Discharge Measurements.—Sixteen meter measurements taken during 1914 to 1918, agree very well and cover nearly the whole range of stage.

Winter Flow.—Ice cover from November to March. Winter flow estimated from two meter measurements during winter of 1917 and one during 1918.

Accuracy.—"B".

Discharge Measurements of Kettle River, at Carson, for 1917 and 1918.

Date.	Engineer.	Gauge height.	Discharge.	Date	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Jan. 7	A. L. McNaughton	Ice	136	Feb. 7	Chisholm and McNaughton	Ice	300
Mar. 27	C. G. Cline	1-57	206	Oct. 24	A. L. McNaughton	1-90	273
May 10	Cline and Swan	4-75	3,080				
June 14	A. L. McNaughton	6-72	6,300				
June 16	"	8-20	9,660				

Daily Discharge in Second-feet of Kettle River, at Carson, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 3,000 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June	July.	Aug.	Sept.
1917.												
1				150	140	170	280	790	11,000	3,250	510	260
2				150	140	170	220	860	8,700	3,250	430	250
3				150	140	170	200	860	8,000	3,100	390	250
4				150	140	170	220	940	8,000	2,950	350	220
5				150	140	170	230	990	7,800	2,800	350	220
6				140	140	170	230	1,030	6,800	2,500	330	220
7				140	140	170	230	1,410	6,800	2,390	310	230
8				140	140	170	250	1,570	6,800	2,130	310	230
9				140	140	170	250	2,130	7,000	2,000	310	250
10				140	140	170	250	2,950	8,500	1,930	310	250
11				140	150	180	260	3,250	8,000	1,870	330	260
12				140	150	180	280	4,300	8,000	1,630	310	260
13				140	150	180	260	6,000	7,200	1,520	300	260
14				140	150	180	250	8,000	6,400	1,410	310	260
15				140	150	180	250	9,400	8,000	1,310	310	260
16				140	150	180	250	9,700	9,650	1,260	310	250
17				135	150	180	280	7,200	8,700	1,210	310	250
18				135	150	180	280	6,400	8,000	1,170	310	250
19				135	150	180	280	6,400	7,000	1,170	310	250
20				135	150	180	300	6,600	6,600	1,120	310	250
21				135	160	190	300	6,000	6,200	1,080	310	250
22				135	160	190	310	6,400	5,000	860	310	350
23				135	160	190	310	6,600	4,800	790	310	230
24				135	160	190	350	8,000	4,650	790	300	250
25				135	160	190	350	9,800	5,800	720	280	250
26				135	160	200	350	11,000	5,000	690	280	250
27				135	160	210	540	11,200	5,000	660	280	250
28				135	160	220	660	11,700	4,650	600	280	250
29				135		240	750	12,500	4,150	540	260	250
30				135		250	790	12,500	4,150	540	260	230
31				135		250		11,200		540	260	
1917-18.												
1	250	220	280				720	4,300	4,150	1,750	540	390
2	250	220	280				720	5,600	4,150	1,500	480	390
3	250	230	280				660	6,400	3,700	1,500	480	390
4	230	250	280				540	5,000	4,300	1,300	480	390
5	250	270	270				540	5,000	5,000	1,100	430	390
6	250	280	250		Meter 300		660	4,800	6,300	1,030	430	390
7	270	350	250				720	4,800	6,400	1,030	430	390
8	270	350	250				720	4,650	6,800	1,030	430	390
9	270	350	250				720	4,650	6,800	1,100	390	390
10	250	350	270				860	4,650	7,400	1,100	390	350
11	250	350	280				1,500	4,650	7,800	1,200	390	350
12	250	350					2,000	4,800	7,800	1,300	430	310
13	250	350					2,000	4,800	8,700	1,300	540	310
14	250	350					2,250	5,600	8,200	1,300	660	310
15	250	350					2,150	6,200	7,400	1,400	540	310
16	250	330					2,000	7,000	8,700	1,120	480	280
17	250	280					1,750	8,000	7,400	1,030	480	280
18	250	280					1,750	7,000	6,200	940	480	250
19	250	280					1,650	6,200	5,800	940	540	250
20	230	280					2,000	5,800	5,000	940	660	250
21	250	280					2,500	4,800	4,500	790	720	250
22	250	280					2,250	4,650	3,700	660	660	250
23	250	280					2,250	4,300	4,000	660	660	250
24	250	280					2,500	3,850	4,300	600	660	250
25	230	280					2,800	3,700	3,700	660	540	250
26	220	280					3,400	2,800	3,400	660	480	250
27	220	280					3,400	2,500	2,950	660	430	250
28	220	280					3,400	2,800	2,500	660	430	250
29	220	280					3,700	3,250	2,000	660	430	220
30	220	280					3,850	3,250	1,750	600	390	220
	220							4,000		540	390	

total in re-feet.
13,500
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6,000
7,000
9,200
20,800
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75,000
92,000
16,300
9,800
98,600
10,000
43,000
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31,000
13,000
170,000
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RECEIVED AT THE OFFICE OF THE DISTRICT ENGINEER
 VANCOUVER, B.C. SEPTEMBER 30 1918

Monthly Discharge of Kettle River, at Carson, for years ending September 30, 1917-18.

(Drainage area 3,000 square miles)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	420	340	390	0-13	0-15	24,000
November	415	260	305	0-10	0-11	18,100
December	250	150	200	0-07	0-08	12,300
January	150	135	140	0-05	0-06	8,600
February	160	140	150	0-05	0-05	8,300
March	250	170	185	0-06	0-07	11,400
April	790	200	325	0-11	0-12	19,300
May	12,500	790	6,050	2-02	2-33	372,000
June	11,000	4,150	6,890	2-30	2-57	410,000
July	3,250	540	1,540	0-51	0-59	95,000
August	510	260	320	0-11	0-13	19,700
September	260	220	245	0-08	0-09	14,600
The year	12,500	135	1,400	0-47	6-35	1,013,300
1917-18.						
October	270	220	240	0-08	0-09	14,800
November	350	220	300	0-10	0-11	17,900
December			220	0-07	0-08	13,500
January			300	0-10	0-11	18,500
February			270	0-09	0-09	15,900
March			350	0-12	0-14	21,500
April	3,850	540	1,860	0-62	0-69	110,000
May	8,000	2,500	4,850	1-62	1-87	298,000
June	8,700	1,750	5,350	1-78	1-99	318,000
July	1,750	540	1,000	0-33	0-38	61,500
August	660	390	500	0-17	0-20	30,800
September	390	220	310	0-10	0-11	18,500
The year	8,700		1,300	0-43	5-86	938,000

KETTLE RIVER AT CASCADE—STATION No. 8 N N₆.

Location.—At Cascade, below Cascade rapids and power plant of West Kootenay Power and Light Company.

Records Available.—Continuous records from April 1, 1916, to September 30, 1918.

Drainage Area.—Four thousand square miles.

Gauge.—Standard vertical staff gauge read twice a day.

Channel.—Wide and comparatively shallow; water swift.

Discharge Measurements.—Ten meter measurements, well distributed, have been made since the station was established in March 1916.

Winter Flow.—During the winter of 1916-1917 ice conditions prevailed and the flow was estimated from one meter measurement. During the winter of 1917-1918 open-water conditions prevailed.

Accuracy.—"B".

Discharge Measurements of Kettle River, at Cascade, during 1918.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917				1918.			
Jan. 18	A. L. McNaughton	Ice	200	Feb. 6	K. G. Chisholm	0-99	505
Mar. 26	C. G. Cline	0-48	340	Oct. 23	A. L. McNaughton	0-83	473
May 11	Cline and Swan	5-00	7,330				
June 15	A. L. McNaughton	7-05	12,560				
" 16	" "	8-00	15,640				

Daily Discharge in Second-feet of Kettle River, at Cascade, for period March 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 4,000 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1						280	280	2,800	17,300	7,450	870	340
2						270	280	2,800	16,600	7,050	840	325
3						270	280	2,800	15,600	6,850	780	310
4						270	270	2,950	13,700	6,650	740	295
5						270	270	3,100	12,550	6,350	700	295
6						260	270	3,250	13,850	6,050	700	295
7						290	280	3,500	13,000	5,450	700	295
8						260	290	4,500	12,400	5,300	660	280
9						260	300	5,550	12,400	4,950	620	270
10						260	300	7,150	12,250	4,800	620	260
11						260	310	9,000	12,550	4,650	620	2 0
12						260	340	10,850	12,550	4,650	660	280
13						270	350	12,850	12,400	4,600	560	350
14						270	370	14,800	12,400	4,450	560	380
15						270	390	17,000	13,300	3,600	560	380
16						270	410	17,150	16,300	2,800	510	350
17						270	440	16,450	17,500	2,500	510	340
18						270	500	15,000	16,150	2,400	500	340
19						270	590	13,300	15,000	2,300	460	325
20						270	640	12,400	12,250	2,100	460	325
21						270	720	11,000	11,400	1,900	460	340
22						270	870	11,800	10,850	1,640	460	340
23						270	1,160	14,450	10,150	1,600	440	325
24						280	1,260	17,500	9,650	1,430	420	300
25						280	1,330	20,000	8,650	1,200	420	285
26						280	1,560	20,500	8,500	1,100	380	280
27						280	2,000	20,950	8,000	1,050	380	280
28						280	2,500	19,800	8,000	970	380	280
29						280	2,650	19,100	7,450	890	360	280
30						280	2,750	18,000	7,150	870	360	280
31						280		17,300		870	340	280
1917-18.												
1	280	310	420	360	460	420	2,000	8,500	7,800	2,900	780	620
2	300	310	400	360	510	420	2,000	9,500	7,100	2,700	780	620
3	300	310	340	420	510	400	1,800	11,800	6,600	2,550	740	560
4	310	310	380	420	510	400	1,800	14,100	5,800	2,350	700	620
5	330	310	340	440	560	400	1,800	14,300	6,100	2,300	700	560
6	340	310	310	510	500	380	2,200	12,800	6,600	2,000	700	560
7	380	310	280	700	560	380	2,000	11,200	7,800	1,800	700	560
8	360	320	270	780	510	380	2,450	10,200	8,400	1,700	620	560
9	360	320	300	780	510	400	3,000	8,300	9,900	1,650	620	560
10	340	380	310	620	510	400	3,500	7,500	12,000	1,500	620	560
11	340	380	340	620	460	400	5,400	8,100	13,700	1,500	740	560
12	340	420	360	510	420	400	5,800	9,200	13,100	1,650	920	490
13	340	380	320	460	380	400	5,600	10,600	14,400	1,800	1,020	420
14	340	380	340	550	380	380	5,500	12,400	16,000	1,800	1,080	420
15	320	380	340	590	380	380	4,500	14,100	13,100	1,650	1,080	420
16	320	380	380	590	380	380	4,100	15,300	9,000	1,650	970	420
17	320	400	380	560	420	400	3,800	13,800	8,500	1,500	870	420
18	320	360	380	560	420	420	3,800	10,200	7,900	1,300	780	420
19	320	340	380	510	420	460	4,000	9,800	7,600	1,200	780	420
20	340	420	360	510	420	490	4,000	8,600	6,400	1,080	870	380
21	320	420	360	510	420	500	5,300	7,000	6,100	970	970	380
22	310	420	360	510	420	530	7,000	6,500	5,700	970	1,080	380
23	320	420	380	460	420	590	7,100	6,400	5,600	870	970	380
24	320	420	420	460	420	620	6,800	5,900	5,600	870	920	380
25	320	420	460	460	420	700	6,500	5,500	5,600	870	870	380
26	320	460	490	460	420	780	6,400	5,300	4,850	870	870	380
27	320	460	460	460	440	920	6,600	5,050	4,500	970	780	340
28	320	460	340	460	440	1,080	6,900	4,850	3,900	920	780	340
29	310	460	340	460		1,300	7,300	5,050	3,600	870	700	310
30	310	420	340	460		1,550	7,700	5,700	3,200	870	620	340
31	310		420	460		1,900		7,400		830	620	

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Monthly Discharge of Kettle River, at Cascade, for years ending September 30, 1917-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October	450	410	410	0-40	0-11	25,000
November	410	330	365	0-09	0-10	22,000
December	310	200	245	0-06	0-07	15,000
January			200	0-05	0-06	12,300
February			250	0-06	0-07	13,900
March	280	260	270	0-07	0-08	16,600
April	2,750	270	800	0-20	0-22	47,600
May	20,950	2,800	11,850	2-97	3-42	730,000
June	17,500	7,150	12,350	3-09	3-45	735,000
July	7,450	870	3,500	0-87	1-00	215,000
August	870	340	550	0-14	0-16	34,000
September	380	260	310	0-08	0-09	18,500
The year	20,950		2,600	0-65	8-83	1,884,900
1917-18.						
October	380	280	350	0-09	0-10	21,500
November	460	310	380	0-09	0-10	22,500
December	490	270	365	0-09	0-10	22,500
January	780	360	515	0-13	0-15	31,500
February	560	420	450	0-11	0-12	25,000
March	1,900	380	600	0-15	0-17	37,000
April	7,100	1,800	4,550	1-14	1-27	270,000
May	15,300	4,850	9,200	2-30	2-65	565,000
June	16,900	3,200	7,900	1-98	2-21	470,000
July	2,900	830	1,500	0-37	0-43	92,000
August	1,080	620	20	0-20	0-23	50,500
September	620	310	460	0-11	0-12	27,500
The year	16,000	270	2,260	0-56	7-65	1,635,000

BOUNDARY CREEK—STATION No. 8 N N₁.

Location.—At Greenwood.

Records Available.—January 1 to December 7, 1914; February 21 to December 22, 1915; February 22 to December 31, 1916; March 23 to December 31, 1917; January 1 to September 30, 1918.

Drainage Area.—One hundred and twenty-five square miles.

Gauge.—Standard vertical staff gauge situated on up-stream side of traffic bridge, read daily.

Channel.—Straight for about three hundred feet above and below measuring section; bed of stream rocky and permanent.

Discharge Measurements.—Fifteen measurements made during 1914 to 1918 agree very well and cover all stages except for discharges between 100 and 250, and above 400 cubic feet per second.

Ice conditions.—Stream frozen from December to March.

Accuracy.—"B" for all discharges below 500 cubic feet per second.

Discharge Measurements of Boundary Creek, at Greenwood, during 1917-18.

Date.	Engineer.	Gauge height.	Discharge.	Date.	Engineer.	Gauge height.	Discharge.
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Jan. 16	A. L. McNaughton	Ice	10-0	Feb. 6	A. L. McNaughton	0-80	11-4
Mar. 16	C. G. Chie	0-76	11-5	Oct. 24	"	0-85	12-2
May 12	"	3-15	435-0				
June 13	A. L. McNaughton	2-73	334-0				

Daily Discharge in Second-feet of Boundary Creek, at Greenwood, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 126 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				10	10	11	11	70	530	230	25	11
2				10	10	11	11	70	500	210	25	11
3				10	10	11	13	85	500	190	25	11
4				10	10	11	13	100	500	190	25	11
5				10	10	11	13	115	470	190	18	11
6				10	10	11	13	135	450	190	18	11
7				10	10	11	13	165	420	190	18	11
8				10	10	11	18	240	395	175	18	11
9				10	10	11	18	300	420	155	18	11
10				10	10	11	18	335	450	135	18	11
11				10	10	11	18	380	450	115	18	12
12				10	10	11	25	420	395	110	18	13
13				10	10	11	25	510	370	100	18	13
14				10	10	11	18	610	345	100	18	13
15				10	10	11	25	610	370	85	18	13
16				10	10	11	25	550	370	70	13	13
17				10	10	11	25	500	395	57	12	12
18				10	10	11	25	420	370	57	11	12
19				10	10	11	25	420	345	57	11	12
20				10	10	11	25	420	345	57	10	12
21				10	10	11	25	450	325	57	10	11
22				10	10	11	30	450	300	44	10	11
23				10	10	11	35	500	275	44	10	11
24				10	10	11	40	580	275	44	10	11
25				10	10	11	45	660	250	44	9	11
26				10	10	11	50	660	230	34	9	11
27				10	10	11	55	610	230	39	10	11
28				10	10	13	60	610	230	39	11	11
29				10		11	65	680	230	34	11	11
30				10		11	70	530	230	34	11	11
31				10		11				34	11	
1917-18.												
1	10	10	10	11			44	325	190	100	23	11
2	10	10	10	12			50	375	190	85	23	12
3	10	11	10	14			57	400	190	85	16	12
4	10	11	10	14			57	420	200	70	16	12
5	10	11	10	14			65	450	210	70	16	12
6	10	12		14	Meter.	11	70	420	210	57	16	12
7	10	12		14			85	375	210	57	16	12
8	10	12		14			100	340	230	44	16	12
9	10	12		14			135	300	250	57	16	12
10	10	11					190	325	325	70	16	12
11	10	11					230	350	325	85	23	12
12	10	11					230	350	350	85	23	12
13	10	10					250	350	375	70	23	12
14	10	10					210	375	375	57	23	12
15	11	10				10	190	410	350	57	23	11
16	11	10				10	190	375	325	57	23	11
17	11	10				10	175	325	230	44	23	11
18	11	10				10	175	325	210	44	23	11
19	11	10				10	210	300	190	44	23	11
20	11	10				12	250	290	175	44	23	11
21	11	10				12	300	275	155	32	23	10
22	11	10				23	325	250	175	32	23	10
23	11	10				16	300	250	175	32	23	11
24	11	10				23	300	250	190	32	23	11
25	11	10				32	300	240	155	32	16	11
26	11	10				32	260	210	135	32	12	11
27	11	10				38	250	190	115	32	10	11
28	11	10	10			38	250	190	100	27	10	11
29	11	10	10			44	275	210	100	27	10	11
30	10	10	10			44	325	220		27	10	11
31	10		10			44		190		27	10	

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Monthly Discharge of Boundary Creek, at Greenwood, for years ending September 30, 1917-18.

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Drainage	Depth in inches on Mile. Area.	Total in Acre-feet.
1916-17.						
October	15	12	13	0-10	0-11	800
November	17	15	17	0-14	0-16	1,000
December	15	10	13	0-10	0-11	800
January	10	10	10	0-08	0-09	610
February	10	10	10	0-08	0-08	550
March	13	11	11	0-09	0-10	680
April			280	2-24	2-50	16,700
May	660	70	410	3-28	3-78	25,000
June	530	230	370	2-96	3-30	22,000
July	230	34	100	0-80	0-92	6,100
August	25	9	15	0-12	0-14	900
September	13	11	12	0-10	0-11	700
The year	660	9	105	0-84	11-40	75,840
1917-18.						
October	11	10	10	0-08	0-09	610
November	12	10	10	0-08	0-09	590
December			10	0-08	0-09	610
January			11	0-09	0-10	670
February			11	0-09	0-09	610
March			18	0-14	0-16	1,100
April	325	44	195	1-56	1-74	11,600
May	450	190	310	2-48	2-86	19,000
June	375	100	215	1-72	1-92	12,800
July	100	27	52	0-42	0-48	3,200
August	23	10	18	0-14	0-16	1,100
September	12	10	11	0-09	0-10	650
The year	450	10	72	0-58	7-88	52,540

OKANAGAN RIVER TRIBUTARY BASIN.

OKANAGAN RIVER AT OKANAGAN FALLS—STATION NO. 8 NM₂.

Location.—At outlet of Dog lake, three hundred feet above Okanagan falls.

Records Available.—At old station near Fairview:—April 8 to December 31, 1914. At Okanagan falls:—January 1 to December 31, 1915; and continuous records from March 18, 1916, to September 30, 1918.

Drainage Area.—Three thousand square miles. Some artificial regulation by dam at outlet of Okanagan lake.

Gauge.—Standard vertical staff gauge spiked to bridge pile; readings six times a week.

Channel.—Clean gravel and rocks; current moderately slow at gauging station; control is solid rock near the falls.

Discharge Measurements.—Fifteen meter measurements have been made during 1915 to 1918. They define the rating curve accurately at all stages.

Winter Flow.—Open-water conditions all winter.

Accuracy.—"B".

Discharge Measurements of Okanagan River, at Okanagan Falls, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Mar. 12	A. L. McNaughton	2-07	230	Feb. 14	K. G. Chisholm	1-99	191
May 9	Cline and Swan	2-12	222	Oct. 29	A. L. McNaughton	2-00	180
June 8	A. L. McNaughton	3-37	995				
Sept. 20	Chisholm and Cline	2-57	490				

Daily Discharge in Second-feet of Okanagan River, near Okanagan Falls, for period January 1 to September 30, 1917, and year ending September 30, 1918.

[Drainage area, 3,000 square miles.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				240	210	210	200	210	940	1,130	830	570
2				240	210	210	200	210	950	1,130	810	560
3				240	210	210	200	210	950	1,130	800	550
4				240	210	210	200	210	950	1,130	760	550
5				240	220	220	200	210	990	1,120	750	540
6				240	220	220	200	220	950	1,120	750	540
7				240	220	230	200	220	960	1,100	730	520
8				240	220	230	200	230	990	1,090	730	520
9				240	220	230	200	240	1,000	1,080	710	510
10				240	220	240	200	250	1,010	1,080	700	510
11				240	220	240	200	270	1,020	1,050	700	510
12				240	220	240	200	300	1,020	1,050	690	510
13				240	220	240	200	320	1,050	1,020	680	510
14				240	210	240	200	330	1,080	1,020	680	500
15				230	210	240	200	400	1,100	1,010	660	500
16				230	210	240	200	420	1,100	1,000	660	490
17				230	210	240	200	420	1,100	980	650	480
18				220	210	240	200	450	1,100	980	650	480
19				220	210	230	210	450	1,100	970	640	480
20				220	210	230	210	480	1,100	970	630	490
21				220	210	220	220	510	1,100	970	630	460
22				220	210	220	220	520	1,100	960	610	460
23				210	210	220	220	560	1,100	950	610	460
24				210	210	220	220	580	1,110	930	610	460
25				210	210	220	220	650	1,120	920	600	450
26				210	210	210	210	730	1,120	920	600	450
27				210	210	210	210	760	1,130	910	600	450
28				210	210	210	210	830	1,130	900	600	450
29				210		200	210	900	1,140	880	580	450
30				210		200	210	920	1,140	860	580	450
31				210		200		940		850	570	
1917-18.												
1	440	390	190	190	190	170	170	300	970	1,020	600	290
2	450	390	190	190	190	170	170	300	980	1,000	600	290
3	440	390	190	190	170	170	170	340	960	950	290	290
4	440	390	190	190	190	170	170	350	1,000	960	580	290
5	420	390	190	190	190	170	170	360	1,000	960	580	290
6	420	370	190	190	190	160	170	390	1,000	940	570	290
7	420	370	190	190	190	160	170	400	1,020	920	570	290
8	420	370	190	190	190	160	170	410	1,050	900	580	290
9	420	370	190	190	190	160	170	440	1,070	900	580	290
10	410	370	190	190	190	160	170	460	1,100	900	600	290
11	410	370	190	190	190	160	170	510	1,100	900	580	290
12	400	370	190	190	190	160	170	550	1,100	860	570	290
13	400	350	190	190	190	160	170	620	1,100	830	520	290
14	400	340	190	190	190	160	170	660	1,100	800	510	290
15	400	330	190	190	190	160	190	700	1,100	800	480	290
16	400	320	190	190	190	160	190	760	1,100	800	450	290
17	400	290	190	190	190	170	190	810	1,100	770	420	290
18	400	280	190	190	190	180	190	830	1,100	760	400	290
19	400	270	190	190	190	180	190	860	1,100	740	390	290
20	400	250	190	190	190	180	190	880	1,100	730	370	290
21	400	250	190	190	190	170	190	900	1,100	700	350	290
22	400	220	190	190	190	170	200	900	1,100	700	340	290
23	400	200	190	190	190	170	200	900	1,100	680	330	290
24	400	190	190	190	190	170	210	900	1,080	660	320	290
25	400	190	190	190	190	170	230	900	1,080	650	320	270
26	400	190	190	190	190	170	240	900	1,050	630	300	250
27	400	190	190	190	180	170	250	900	1,050	630	300	250
28	400	190	190	190	180	170	260	910	1,020	630	290	240
29	400	190	190	190		170	270	910	1,020	630	290	240
30	400	190	190	190		170	190	920	1,020	620	290	240
31	400		190	190		170		960		620	290	

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Monthly Discharge of Okanagan River at Okanagan Falls, for years ending September 30, 1917-18.

(Drainage area, 3,000 square miles.)

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916-17.						
October	520	315	410	0-14	0-16	25,000
November	300	265	285	0-09	0-16	17,000
December	265	265	265	0-09	0-10	16,000
January	240	210	227	0-08	0-09	14,000
February	220	210	213	0-07	0-07	12,000
March	240	200	223	0-07	0-08	14,000
April	220	200	206	0-07	0-08	12,000
May	940	210	449	0-15	0-17	28,000
June	1,140	940	1,054	0-35	0-39	63,000
July	1,130	850	1,007	0-34	0-39	62,000
August	830	570	671	0-22	0-25	41,000
September	570	450	495	0-16	0-18	29,000
The year	1,140	200	495	0-15	2-06	333,000
1917-18						
October	450	400	410	0-14	0-16	25,200
November	390	190	300	0-10	0-11	17,800
December	190	190	190	0-06	0-07	11,700
January	190	190	190	0-06	0-07	11,700
February	190	180	190	0-06	0-06	10,500
March	180	160	170	0-06	0-07	10,500
April	290	170	195	0-07	0-08	11,600
May	950	300	680	0-23	0-26	41,800
June	1,100	970	1,060	0-35	0-39	63,000
July	1,020	620	800	0-27	0-31	49,200
August	600	290	450	0-15	0-17	27,700
September	290	240	280	0-09	0-10	16,000
The year	1,100	160	410	0-14	1-85	297,300

SIMILKAMEEN RIVER—STATION NO. 8 NL₆.

Location.—Near Ashnola, just below the mouth of Ashnola creek.

Records Available.—Continuous records from April 8, 1914, to September 30, 1918.

Drainage Area.—Two thousand three hundred square miles.

Gauge.—Standard vertical staff gauge, read daily.

Channel.—Very rocky; water swift at all stages.

Discharge Measurements.—Twenty meter measurements taken during 1914 to 1918 agree very well and cover nearly all ranges of stage.

Winter Flow.—Practically no disturbance of open-water conditions.

Accuracy.—"B".

Discharge Measurements of Similkameen River, at Ashnola, during 1917-18.

Date.	Engineer.	Gauge Height.	Discharge.	Date.	Engineer.	Gauge Height.	Discharge.
1917.		Feet.	Sec.-ft.	1918.		Feet.	Sec.-ft.
Jan. 20	A. L. McNaughton	0-30	274	Feb. 11	Chisholm and McNaughton	1-07	755
June 9	"	7-50	15,600	Oct. 27	A. L. McNaughton	0-75	528
Sept. 19	Cline and Chisholm	0-42	351				

Daily Discharge in Second-feet of Similkameen River, at Ashnola, for period January 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 2,300 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				320	280	260	300	800	15,600	7,800	1,480	410
2				350	300	270	300	760	12,300	7,800	1,330	400
3				350	310	300	310	870	10,100	7,800	1,170	380
4				350	330	300	320	880	9,200	7,650	1,040	370
5				350	350	320	320	960	9,400	7,100	980	370
6				370	370	330	330	1,080	10,400	6,200	940	370
7				370	370	330	350	1,170	11,100	5,800	900	380
8				380	400	320	350	1,650	12,800	4,800	870	400
9				400	400	300	360	2,650	14,400	4,800	870	370
10				400	420	270	370	4,050	10,800	4,800	800	370
11				350	420	270	370	6,000	9,200	4,400	760	370
12				270	400	280	380	7,500	8,000	4,000	740	400
13				270	400	300	400	8,100	9,000	3,600	720	370
14				250	430	300	400	8,250	10,400	3,450	700	420
15				220	440	270	400	7,100	14,300	3,300	670	420
16				210	470	270	410	5,850	16,800	3,000	660	400
17				240	470	270	420	4,950	15,300	2,700	630	400
18				260	430	270	420	4,500	13,600	2,600	650	370
19				270	420	300	430	5,150	13,000	2,350	660	370
20				270	370	300	450	4,800	12,300	2,120	660	370
21				270	350	320	450	5,550	11,600	2,000	650	370
22				300	320	320	470	6,350	10,400	1,820	630	400
23				300	320	320	480	6,650	9,600	1,760	590	400
24				320	280	310	520	8,250	7,500	1,650	540	400
25				330	270	320	540	9,000	7,100	1,600	500	400
26				350	260	320	610	11,300	7,600	1,450	730	400
27				370	280	320	700	14,000	8,100	1,450	510	370
28				300	250	320	760	16,400	8,500	1,500	470	370
29				320		300	800	15,800	7,800	1,520	450	370
30				280		300	830	14,100	6,900	1,600	430	370
31				270		300		14,000		1,550	420	
1917-18.												
1	370	320	470	5,700	270	530	830	8,800	8,700	3,600	1,100	600
2	400	320	450	4,800	300	530	730	10,500	7,300	3,550	1,100	600
3	400	320	400	3,700	450	470	660	12,200	6,200	3,200	1,100	530
4	420	370	420	3,050	700	500	660	14,500	6,800	2,800	1,100	530
5	420	450	420	2,900	800	500	730	11,300	8,700	2,650	1,060	530
6	420	450	400	2,500	730	420	800	8,700	9,600	2,450	940	500
7	420	530	370	2,050	730	450	830	8,000	13,000	2,250	870	470
8	400	560	370	1,950	730	470	870	7,500	14,600	2,200	830	420
9	400	560	370	1,700	760	500	980	7,100	15,500	2,200	870	420
10	370	470	420	1,250	800	530	1,250	7,000	18,700	2,700	870	400
11	370	470	400	1,060	760	470	1,550	8,000	15,300	2,700	870	370
12	370	420	400	1,250	660	470	1,870	9,600	13,300	2,250	980	370
13	400	420	370	1,300	660	530	1,870	12,200	17,000	2,100	870	350
14	370	420	320	1,300	600	530	1,650	14,200	16,000	1,900	870	320
15	370	420	320	1,200	500	320	1,600	15,300	12,300	2,000	1,060	320
16	350	400	470	1,100	500	350	1,500	13,000	9,300	2,050	1,080	350
17	350	370	530	1,060	600	470	1,500	11,200	10,300	2,000	940	320
18	350	370	630	1,100	530	530	1,400	9,500	11,000	1,900	940	320
19	320	370	730	1,060	420	560	1,550	7,800	8,400	1,950	940	320
20	320	370	940	940	370	530	1,950	7,000	8,100	1,750	900	320
21	320	1,100	830	870	370	560	3,600	6,200	8,600	1,650	870	312
22	350	1,305	800	940	350	600	4,200	5,800	8,400	1,550	870	320
23	350	980	700	1,020	370	530	4,300	5,700	7,800	1,450	870	320
24	350	870	500	940	530	530	4,900	5,400	7,300	1,250	870	320
25	350	730	350	900	530	560	4,700	5,150	6,500	1,100	760	320
26	320	630	320	800	630	600	4,300	4,800	5,150	1,100	730	320
27	320	530	370	730	560	600	4,300	4,500	4,700	1,650	660	320
28	350	600	370	760	500	600	4,600	5,000	4,400	1,500	660	320
29	350	400	1,100	870		600	5,800	7,600	4,100	1,450	660	320
30	350	420	3,900	600		600	7,600	10,500	3,800	1,250	600	320
31	320		4,600	300		660		11,800		1,100	600	

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Discharge.
Sec.-ft.
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528

SIMILKAMEEN RIVER AT ASHOLA
 BRITISH COLUMBIA
 1917-18

Monthly Discharge of Similkameen River, at Ashnola, for years ending September 30, 1917-18.

(Drainage area, 2,300 square miles.)

Month.	Discharge in Second-Foot.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916-17.						
October	520	400	440	0.19	0.22	27,000
November	490	320	395	0.17	0.91	23,500
December	380	255	330	0.14	0.16	20,300
January	400	210	310	0.13	0.15	19,000
February	470	230	360	0.16	0.17	20,000
March	330	260	300	0.13	0.15	18,000
April	830	300	450	0.20	0.22	27,000
May	16,400	760	6,400	2.78	3.20	394,000
June	16,800	6,900	10,800	4.70	5.24	642,000
July	7,800	1,450	3,700	1.61	1.86	227,000
August	1,480	420	750	0.33	0.38	46,000
September	420	370	390	0.17	0.19	23,200
The year	16,800	210	2,050	0.89	12.13	1,487,400
1917-18.						
October	420	320	370	0.16	0.18	22,700
November	1,350	320	530	0.23	0.26	31,500
December	4,600	320	740	0.32	0.37	45,500
January	5,700	300	1,600	0.70	0.81	98,000
February	800	270	550	0.24	0.25	31,000
March	660	320	520	0.23	0.26	32,000
April	7,600	730	2,430	1.06	1.18	145,000
May	15,300	4,500	8,900	3.87	4.45	550,000
June	18,700	3,800	9,700	4.21	4.70	575,000
July	3,600	1,100	2,050	0.89	1.03	125,000
August	1,100	650	880	0.38	0.44	54,000
September	690	320	390	0.17	0.19	23,000
The year	18,700	270	2,400	1.04	14.13	1,732,700

SOUTH SIMILKAMEEN RIVER—STATION NO. 8 N L7.

Location.—At Princeton, one-quarter mile above its junction with the Tulameen river.

Records Available.—May 14 to December 19, 1914; March 22 to November 30, 1915; March 27 to November 12, 1916; January 1 to September 30, 1917.

Drainage Area.—Four hundred and forty square miles.

Gauge.—Chain gauge attached to highway bridge, read daily.

Channel.—The bed of the stream is composed of gravel and loose boulders. The control is liable to shift during the spring freshet.

Discharge Measurements.—A change of section occurred in the freshet of 1916; a slight change has also taken place during 1917. The rating curve has been drawn from eight meter measurements made in 1917, and in 1916 after the flood.

Winter Flow.—Ice conditions prevailed from December to March. The flow during these months was estimated from two meter measurements.

Accuracy.—The results for the open-water period should be reliable except at low water.

Discharge Measurements of South Similkameen River, at Princeton, during 1917-18.

Date	Engineer.	Gauge Height.	Dis-charge.	Date	Engineer.	Gauge Height.	Dis-charge.
		Feet.	Sec.-ft.	1917			
Jan. 12	Alex. L. McNaughton	2.50	109*	June 9	A. L. McNaughton	5.30	4,700
Mar. 13	"	2.80	101*	Spt. 18	Cline and Chisholm	1.50	133
May 9	Cline and Swan	2.98	980	1918			
				Oct. 28	A. L. McNaughton	2.70	382

* Note.—Ice conditions.

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Daily Discharge in Second-feet of South Similkameen River, at Princeton, for period April 1 to September 30, 1917.

(Drainage area, 440 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.
1							150	300	5,200	3,050	590	130
2							150	300	4,050	2,850	520	130
3							150	350	3,050	2,850	520	130
4							150	350	2,750	2,850	460	130
5							150	350	2,750	2,670	400	130
6							150	370	3,350	2,670	400	125
7							150	400	3,800	2,220	350	125
8							150	590	4,350	1,970	350	125
9							150	950	5,500	2,090	300	125
10							150	1,430	4,600	2,090	300	125
11							260	2,030	3,050	1,730	280	125
12				met'r 1.00			260	2,450	2,700	1,730	280	125
13					met'r 0.01		260	2,750	2,950	1,610	280	125
14							225	2,750	3,900	1,610	280	125
15							225	2,150	5,350	1,610	260	125
16							190	1,790	6,850	1,370	300	125
17							190	1,550	6,400	1,260	300	125
18							225	1,550	6,100	1,150	300	125
19							190	1,790	5,200	1,000	260	115
20							190	1,790	4,900	1,000	260	115
21							190	1,910	4,600	950	260	115
22							175	2,090	4,050	900	225	115
23							190	2,150	3,600	850	225	115
24							190	2,600	2,750	800	190	115
25							225	2,750	2,600	750	190	115
26							225	3,800	2,450	700	190	115
27							260	4,600	2,750	650	190	115
28							260	6,100	3,350	650	160	115
29							300	5,650	2,750	680	160	115
30							300	4,750	2,750	680	160	115
31								4,600		620	160	115

Monthly Discharge of South Similkameen River, at Princeton, for year ending September 30, 1917.

(Drainage area, 440 square miles.)

Month.	Discharge in Second-Feet.				Run-Off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on Drainage area.	Total in acre-feet.
1916-17						
October	170	120	150	0.34	0.30	9,200
November	170	65	115	0.26	0.29	6,800
December	100	100	100	0.23	0.25	6,150
January			110	0.25	0.29	6,800
February			105	0.24	0.25	5,800
March			100	0.23	0.26	6,100
April	300	150	200	0.46	0.15	11,900
May	6,100	300	2,160	4.91	5.66	132,880
June	6,850	2,450	3,950	8.99	10.03	235,000
July	3,050	620	1,540	3.50	4.03	94,700
August	590	160	290	0.66	0.76	17,800
September	130	115	120	0.27	0.30	7,100
The year	6,850	65	750	1.70	23.03	540,150

TULAMEEN RIVER—STATION No 8 N L₈.

Location.—At Coalmont, fourteen miles above mouth.

Records Available.—May 15 to December 31, 1914; April 11 to December 31, 1915; February 17 to December 31, 1916; January 1 to December 31, 1917; January 1 to September 30, 1918.

Drainage Area.—Four hundred square miles.

Gauge.—A staff gauge in two sections. The second section was installed September 16, 1917. Previous to that date low-water readings were taken on the chain gauge and high-water readings on the staff gauge.

Channel.—Bed of stream of clean gravel. There has been shifting of the control.

Discharge Measurements.—Thirteen meter measurements made since May, 1916, agree fairly well and cover practically the whole range of stage.

Winter Flow.—Ice conditions prevailed for several short periods in December, January and February, 1917. During the winter of 1918 open-water conditions prevailed.

Accuracy.—Owing to instability of the control and some shifting of the gauge datum the accuracy of the returns is not considered high.

Discharge Measurements of Tulameen River, at Coalmont, during 1917-18.

Date	Engineer	Gauge height.		Date	Engineer	Discharge.	
		Feet.	Sec.-ft.			Feet.	Sec.-ft.
1917.				1918.			
Jan. 11	A. L. McNaughton		76	Feb. 14	A. L. McNaughton	2.50	185
May 13	C. G. Cline	5.75	3,635	Oct. 24	"	1.90	145
June 9	Alex. L. McNaughton	5.85	3,450				
July 16	C. G. Cline	2.41	236				
Sept. 17	K. G. Chisholm	1.27	47				

Daily Discharge in Second-feet of Tulameen River, at Coalmont, for period January 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 400 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1				70	75	80	80		4,700	2,150	195	55
2				70	75	80	75	480	3,600	2,300	175	55
3				70	75	80	75	540	2,850	2,100	175	55
4				70	80	80	75	510	2,800	2,150	155	50
5				70	85	85	90	630	3,000	1,900	145	50
6				80	115	80	90	750	3,400	1,900	145	50
7				75	145	80	90	750	3,350	1,650	135	50
8				75	145	80	95	1,300	3,950	1,400	130	50
9				80	105	80	100	1,900	3,950	1,300	120	50
10				85	100	80	100	2,750	3,200	1,250	120	50
11				85	90	75	100	3,200	2,500	1,200	110	55
12				85	90	75	100	3,200	2,600	1,200	110	60
13				85	90	75	100	3,500	2,450	1,100	105	60
14				85	90	75	100	3,350	3,050	750	100	55
15				85	90	75	100	2,750	4,000	710	100	55
16				80	90	75	105	2,300	4,250	670	100	55
17				80	90	70	120	2,050	4,000	570	95	47
18				80	90	70	155	1,900	3,700	420	95	47
19				80	90	75	165	2,050	3,350	380	95	45
20				80	90	75	165	2,300	3,300	360	95	45
21				75	90	75	175	2,750	3,100	340	90	45
22				75	85	75	185	2,900	2,800	300	85	45
23				75	80	75	220	2,750	2,450	250	80	42
24				70	80	75	220	3,200	2,200	235	80	42
25				70	80	75	270	3,350	2,400	220	75	45
26				70	80	80	360	3,800	2,300	185	70	45
27				65	80	80	360	4,400	2,300	235	65	47
28				65	80	80	400	5,400	2,300	270	65	85
29				70		80	480	5,050	2,150	270	60	90
30				70		80	420	4,700	2,150	220	60	90
31				70		80		4,400		195	60	
1917-18.												
1	120	125	150	2,800	230	150	280	3,600	2,500	1,050	140	120
2	130	125	160	2,600	300	160	210	3,750	2,100	870	170	120
3	320	190	150	1,700	190	150	210	4,100	1,850	720	170	120
4	180	230	150	1,450	260	150	230	4,500	2,250	650	150	120
5	160	180	150	1,150	260	150	260	3,700	2,900	650	140	120
6	140	190	150	870	230	150	300	3,600	3,100	570	140	110
7	120	180	140	870	230	140	320	2,950	4,000	520	140	110
8	120	165	150	800	210	140	380	2,600	4,300	470	140	110
9	120	155	150	570	210	140	450	2,500	4,000	470	140	100
10	120	145	150	520	210	140	720	2,500	4,900	1,150	140	100
11	110	140	140	650	210	140	800	2,850	4,050	520	170	100
12	110	140	140	570	210	140	870	3,200	4,050	420	160	100
13	105	160	140	520	210	140	870	3,900	4,400	340	140	100
14	100	160	140	520	190	140	800	4,200	4,000	340	140	100
15	100	140	150	120	190	140	720	4,500	2,800	570	180	95
16	100	140	170	380	190	140	650	3,700	2,550	380	170	95
17	100	140	210	340	190	140	570	3,400	2,500	340	150	90
18	100	140	190	340	160	140	520	2,800	2,400	280	150	90
19	100	140	420	300	170	140	680	2,500	2,300	280	160	90
20	110	260	340	210	170	140	1,150	2,000	2,250	230	150	90
21	120	1,550	260	190	210	140	1,800	1,800	2,400	210	140	90
22	120	1,050	220	230	180	140	2,100	1,550	2,550	190	140	100
23	120	1,400	190	230	170	140	2,200	1,550	2,100	190	150	100
24	120	380	150	210	170	160	2,300	1,350	2,100	180	140	100
25	120	230	140	190	170	175	2,100	1,300	1,800	190	140	100
26	120	180	160	180	160	170	1,900	1,250	1,700	180	135	100
27	120	210	160	210	150	170	1,900	1,350	1,450	210	135	100
28	100	210	150	210	150	170	2,100	1,750	1,450	170	130	100
29	115	180	1,500	190		180	2,500	2,950	1,350	160	130	100
30	115	180	3,000	140		280	2,800	4,400	1,150	150	120	90
31	115		1,900	140		340		3,500		150	120	

Monthly Discharge of Tulameen River, at Coalmont, for years ending September 30,
1917-18.

(Drainage area, 400 square miles.)

Month.	Discharge in Second-Foot				Run-Off.	
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17						
October	170	50	72	0-18	0-21	4,200
November	1,020	65	175	0-44	0-49	10,400
December	220	75	96	0-24	0-28	5,900
January			75	0-18	0-21	4,800
February			90	0-22	0-23	5,000
March	85	70	77	0-19	0-22	4,700
April	480	75	170	0-43	0-48	10,400
May	5,400	400	2,560	6-40	7-38	157,000
June	4,700	2,150	3,070	7-67	8-56	181,500
July	2,300	195	910	2-28	2-63	56,000
August	195	60	105	0-26	0-30	6,500
September	90	42	55	0-14	0-16	3,300
The year	5,400	42	621	1-56	21-22	449,500
1917-18						
October	320	100	120	0-30	0-35	7,400
November	1,550	125	290	0-72	0-80	17,000
December	3,000	140	370	0-92	1-06	22,700
January	2,800	140	640	1-60	1-84	30,400
February	300	150	200	0-50	0-52	11,000
March	340	140	160	0-40	0-46	9,800
April	2,800	210	1,100	2-75	3-07	65,500
May	4,500	1,250	2,900	7-25	8-36	178,000
June	4,900	1,150	2,700	6-75	7-53	160,500
July	1,150	150	410	1-02	1-18	25,000
August	180	120	150	0-37	0-43	9,000
September	120	90	100	0-25	0-28	6,000
The year	4,500	90	760	1-90	25-88	551,300

ASHNOLA CREEK—STATION No. 8 N 14.

Location.—Tributary of Similkameen river seven miles above Keremeos and above main diversions near mouth.

Records Available.—June 27 to December 19, 1914; March 1 to December 11, 1915; March 1 to November 14, 1916; April 1 to December 7, 1917; March 12 to September 30, 1918.

Drainage Area.—Five hundred square miles.

Gauge.—Standard chain gauge equipment. Readings taken about three times a week.

Channel.—Bed of stream, rocks and gravel.

Discharge Measurements.—Eleven meter measurements made during 1914 to 1918 define the curve well at low and medium stages.

Accuracy.—"B" for discharges less than 1,000 cubic feet per second; "D" for discharges greater than that amount.

Discharge Measurements of Ashnola Creek, at Ashnola, during 1917-18.

Date.	Engineer.	Gauge height	Discharge	Date.	Engineer.	Gauge height	Discharge
1917.		Feet.	Sec-ft	1918.		Feet	Sec-ft
Jan. 19	A. I. McNaughton	1-36	41	Feb. 12	Chisholm and McNaughton	1-36	47
Sept. 19	Cline and McNaughton	1-36	58	Oct. 27	A. I. McNaughton	1-55	71

Daily Discharge in Second-feet of Ashnola Creek, at Ashnola, for period April 1 to September 30, 1917, and year ending September 30, 1918.

(Drainage area, 500 square miles.)

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.
1916-17.												
1							40	30	1,100	1,140	200	60
2							40	35	1,040	1,120	195	60
3							40	40	1,060	1,100	180	55
4							40	35	1,080	1,120	165	55
5							40	30	1,100	1,040	160	50
6							40	45	1,160	960	155	45
7							45	50	1,210	880	150	50
8							40	80	1,240	860	150	55
9							35	165	1,270	840	150	50
10							30	250	1,300	820	140	50
11							30	290	1,340	760	125	45
12							30	330	1,380	710	115	60
13							35	390	1,130	660	110	70
14							40	450	1,490	610	100	65
15							35	510	1,550	600	95	60
16							35	485	1,600	580	90	65
17							30	460	1,560	560	95	65
18							30	415	1,520	540	100	70
19							25	370	1,490	510	100	58
20							20	400	1,380	470	100	45
21							15	430	1,270	430	100	45
22							15	460	1,150	420	90	45
23							20	560	1,040	420	80	45
24							20	660	1,020	410	75	45
25							20	825	1,000	450	70	45
26							25	990	990	480	70	45
27							35	1,000	1,040	370	70	45
28							40	1,020	1,100	270	70	45
29							35	1,040	1,130	250	70	45
30							35	1,100	1,160	230	70	45
								1,160		210	65	
1917-18.												
1	40	30	35				70	670	900	550	360	115
2	40	35	40				70	850	900	500	320	115
3	40	40	40				70	960	880	470	320	115
4	35	40	50				75	1,070	850	450	320	115
5	40	40	60				75	930	960	400	280	115
6	40	40	75				80	820	960	360	280	115
7	40	40	80				80	670	1,020	450	240	100
8	40	50	Ice				80	670	1,120	550	240	100
9	35	40					80	670	1,250	600	240	100
10	35	40					90	740	1,450	550	240	100
11	35	40				60	100	800	1,570	500	240	90
12	35	40				60	100	900	1,600	450	280	90
13	35	40			45	60	100	1,020	1,620	400	280	90
14	35	40				60	90	1,120	1,500	400	360	90
15	35	40				60	90	1,070	1,350	360	450	90
16	30	40					50	80	1,020	1,270	360	450
17	30	35					50	80	930	1,250	340	380
18	30	35					50	80	850	1,200	320	360
19	30	35					50	80	850	1,100	320	360
20	30	35					40	90	730	1,050	280	340
21	30	40					40	90	730	1,000	280	320
22	30	40					40	90	670	930	240	300
23	30	50					35	100	620	880	240	280
24	30	40					40	140	600	770	260	240
25	30	40					40	185	570	650	240	240
26	30	40					40	220	620	650	400	200
27	35	40					40	260	730	620	600	185
28	30	40					50	340	800	600	550	170
29	30	40					50	420	880	600	500	140
30	30	40					60	520	960	550	450	130
31	30						60	930		400	115	

Discharge
Sec-ft
47
71

BRITISH COLUMBIA DEPARTMENT OF MINES AND TECHNICAL SURVEYS

Monthly Discharge of Ashnola Creek, near Ashnola, for years ending September 30,
1917-18.

(Drainage area, 500 square miles.)

Month.	Discharge in Second-Feet.			Run-Off.		
	Maximum.	Minimum.	Mean.	Per Square Mile.	Depth in inches on Drainage Area.	Total in Acre-feet.
1916-17.						
October.....	78	48	61	0-13	0-15	3,750
November.....	78	70	68	0-14	0-16	4,050
December.....	55	40	48	0-10	0-11	2,950
January.....			40	0-08	0-09	2,500
February.....			35	0-07	0-08	2,100
March.....			35	0-07	0-08	1,900
April.....	45	15	32	0-06	0-07	1,900
May.....	1,160	30	450	0-90	1-04	27,700
June.....	1,600	990	1,240	2-47	2-76	73,800
July.....	1,140	210	640	1-28	1-48	39,400
August.....	200	658	115	0-23	0-26	7,100
September.....	70	45	53	0-11	0-12	3,150
The year.....	1,600	30	235	0-47	6-40	170,300
1917-18.						
October.....	40	30	34	0-07	0-08	2,100
November.....	50	30	40	0-08	0-09	2,400
December.....						
January.....						
February.....						
March.....						
April.....	320	70	135	0-27	0-30	8,000
May.....	1,120	570	820	1-64	1-89	50,000
June.....	1,620	550	1,030	2-06	2-30	61,000
July.....	600	240	410	0-82	0-94	25,000
August.....	450	115	280	0-56	0-65	17,000
September.....	115	75	90	0-18	0-20	5,300
The year.....						

CHAPTER VII.

MISCELLANEOUS MEASUREMENTS.

Miscellaneous Measurements.

Date.	Stream.	Tributary to	Locality.	Engineer.	Discharge.
<i>Squamish River Drainage Basin—SGA.</i>					
1917.					
Jan. 28	Cheakamus	Squamish	Chec-kye	M. Balls and H. C. Hughes	521
April 22	"	"	"	C. E. Webb	1,440
July 6	"	"	"	F. MacLachlan	6,520
" 16	"	"	"	J. A. Elliott	5,670
" 17	"	"	"	" "	5,950

Date.	Stream.	Tributary to	Locality.	Engineer.	Discharge.
<i>Fraser River Drainage Basin—SMF.</i>					
1917.					
May 1	Fraser River	Strait of Georgia	Lillooet	M. Balls and C. E. Webb	46,400
July 12	"	"	"	C. E. Webb	164,000
Oct. 9	"	"	"	M. Balls	92,500
1918.					
Jan. 19	"	"	"	R. G. Swan	41,000
Feb. 14	"	"	"	"	29,900
April 19	"	"	"	C. E. Webb	58,700
June 27	"	"	"	"	239,000
1917.					
April 27	Island Bar	Fraser	Lillooet	M. Balls and C. E. Webb	2.69
July 8	"	"	"	C. E. Webb	40.60
Oct. 6	"	"	"	M. Balls and A. T. Milner	7.76
1918.					
April 18	"	"	"	C. E. Webb	6.80
July 2	"	"	"	"	35.70
Sept. 12	"	"	"	"	11.50
1917.					
April 27	Riley	Fraser	Lillooet	C. E. Webb	2.95
July 8	"	"	"	"	44.90
Oct. 6	"	"	"	M. Balls and A. T. Milner	6.76
1918.					
April 18	"	"	"	C. E. Webb	3.92
July 2	"	"	"	"	35.30
Sept. 17	"	"	"	"	13.20
1917.					
Feb. 7	Laluwissin	Fraser	Lillooet	M. Balls	2.37
May 4	"	"	"	M. Balls and C. E. Webb	5.53
July 13	"	"	"	C. E. Webb	7.12
Oct. 13	"	"	"	M. Balls	2.90
1918.					
April 26	"	"	"	C. E. Webb	4.84
June 19	"	"	"	"	3.76
Sept. 9	"	"	"	"	2.13
1917.					
May 5	Swartz	Fraser	Lillooet	M. Balls and C. E. Webb	3.64
July 13	"	"	"	C. E. Webb	19.10
Oct. 13	"	"	"	M. Balls	7.72
1918.					
April 26	"	"	"	C. E. Webb	4.79
June 26	"	"	"	"	15.40
1917.					
July 20	Dunville	Fraser	Chilliwack	H. C. Hughes	12.30
" 20	Hutchison	"	"	"	4.90
" 20	Jackman	"	"	"	1.78

Date.	Stream.	Tributary to	Locality.	Engineer.	Discharge.
<i>North Thompson River Tributary Basin—SLB.</i>					
1917.					
Sept. 29	Barriere (East Fork).	Barriere	Above Junction	C. G. Cline	9.0
" 29	Barriere (North Fork).	"	Two miles above Junction.	"	85.0

Date.	Stream.	Tributary to	Locality.	Engineer.	Discharge.
<i>South Thompson River Tributary Basin—SLE.</i>					
1918.					
May 12	Broderick	Shuswap Lake	Notch Hill	C. G. Cline	2.9
12	Newman	"	"	"	1.0
1917.					
Aug. 3	Niskonlith	S. Thompson	Above Niskonlith	C. G. Cline	0.1
Nov. 8	"	"	"	A. L. McNaughton	0.7
April 19	Campbell	S. Thompson	Above Scuittoe	"	2.0

Miscellaneous Measurements—Continued.

Date.	Stream.	Tributary to	Locality.	Engineer.	Discharge.
<i>Thompson River Tributary Basin—SLF—SLG.</i>					
1917. May 25	Alkali	Cherry	Above Alkali L.	C. G. Cline	2.4
1918. June 11	Cherry	Bowers Diversion	"	A. L. McNaughton	1.0
" 11	"	"	"	"	2.1
" 5	Hat Creek	Hammonds Diversion.	Outlet of Lake No. 3	C. G. Cline	10.8
" 5	"	"	Flow into Lake No. 3	"	11.5
" 6	"	"	Outlet of Lake No. 2	"	14.7
" 6	"	"	Above Lake No. 1	"	12.0
1917. May 29	Quilchena	Nicola Lake	Near Mouth.	A. L. McNaughton	247.0
July 25	"	"	"	"	6.4
June 3	Guichon	Nicola	Above Leighton's diversion.	G. C. Cline	52.0
" 1	"	"	Near mouth Leighton's diversion.	"	408.0
" 3	"	"	Leighton's diversion	"	4.0
<i>Columbia River Drainage Basin—SND—SNE.</i>					
1917. Feb 12	Ileellewaet	Columbia	Revelstoke	M. Balls and H. C. Hughes	276
May 12	"	"	"	H. C. Hughes	3,360
June 11	"	"	"	"	3,690
" 16	"	"	"	"	7,010
July 1	"	"	"	"	4,480
Feb. 19	Incomappleux	Arrow Lakes	Beaton	M. Balls and H. C. Hughes	247
May 15	"	"	"	H. C. Hughes	4,770
June 13	"	"	"	"	3,980
" 29	"	"	"	"	5,800
<i>Kootenay River Tributary Basin—SNG—SNH—SNJ.</i>					
1917. May 24	Cherry	Kootenay	Wasa	R. G. Swan and T. R. Patterson	191
June 27	"	"	"	"	198
July 23	"	"	"	"	59.3
Mar. 18	Movie	"	Kingsgate	J. A. Elliott and M. Balls	75.2
May 28	"	"	"	T. R. Patterson	5,370
June 25	"	"	"	"	2,950
July 28	"	"	"	"	326
Feb. 14	Slocan	"	Crescent Valley	J. A. Elliott	637
Mar. 26	"	"	"	" and M. Balls	501
May 14	"	"	"	T. R. Patterson and R. G. Swan	5,834
June 3	"	"	"	T. R. Patterson	9,690
July 16	"	"	"	"	8,950
Aug. 4	"	"	"	"	3,690
" 11	"	"	"	"	2,810
Oct. 23	"	"	"	R. G. Swan and J. R. Wood	1,100
1918. Jan. 15	"	"	"	J. R. Wood and A. T. Milner	1,160
Feb. 17	"	"	"	G. K. Beeston	960
April 1	"	"	"	"	1,920
May 13	"	"	"	R. G. Swan	8,120
Aug. 19	"	"	"	G. K. Beeston	2,530
1917. Feb. 17	Wilson	Slocan Lake	Roseberry	J. A. Elliott	150
Mar. 27	"	"	"	J. A. Elliott and M. Balls	96.3
May 19	"	"	"	T. R. Patterson and R. G. Swan	1,086
July 12	"	"	"	T. R. Patterson	2,280
Aug. 7	"	"	"	"	591

Mis

Day

Sept.

June

Sept.

Sept.

June

Sept.

June

Sept.

May

Sept.

CHAPTER IV.

DOMINION GOVERNMENT PEACE RIVER BLOCK.

Miscellaneous Measurements on Peace River in British Columbia during the period
January 1, 1917, to September 30, 1917.

Date.	Engineer.	Stream.	Location.	Discharge.
Sept. 8	C. McGavin	Cache Ck	Sec. 20-84-21-6	1.8
June 3	"	Farrel Ck	Sec. 19-82-24-6	131.0
Sept. 11	"	"	Sec. 19-82-24-6	2.0
Sept. 7	"	Halfway R	Sec. 29-83-22-6	792.0
June 6	"	Kiskatinaw	Sec. 18-82-14-6	867.0
Sept. 8	"	"	Sec. 18-82-14-6	18.1
June 4	"	Mobeily R	Sec. 12-83-20-6	1,472.0
Sept. 8	"	"	Sec. 12-83-20-6	90.0
June 6	"	Moose Ck	Sec. 22-82-14-6	50.0
Sept. 9	"	"	Sec. 22-82-14-6	0.5
June 5	"	North Pine	Sec. 27-82-16-6	5,474.0
Sept. 8	"	"	Sec. 27-82-16-6	64.0
June 5	"	Pine River	Sec. 27-82-18-6	59,007.0
Sept. 8	"	"	Sec. 27-82-18-6	1,921.0
May 31	"	Peace River	Sec. 18-81-25-6	132,074.0
Sept. 6	"	"	Sec. 18-81-25-6	17,444.0

REPRODUCED BY THE NATIONAL ARCHIVES OF CANADA

2.4
 1.0
 1.4
 2.1
 10.8
 11.5
 14.7
 12.0
 247.0
 6.4
 52.0
 408.0
 4.0
 276
 360
 690
 1,010
 480
 247
 1,770
 1,980
 1,800
 191
 198
 59.3
 75.2
 5,370
 2,950
 326
 637
 501
 5,834
 9,690
 8,950
 3,690
 2,810
 1,100
 1,160
 960
 1,620
 8,120
 2,530
 150
 96.3
 1,086
 2,280
 591

CHAPTER V.
METEOROLOGICAL DATA

Coast Division.

MEAN MONTHLY TEMPERATURE (DEGREES F.)—SOUTHERN DISTRICT FOR YEARS—1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17													
Britannia Beach	49	36	30	30	31	35	41	50	55	60	65	58	45
Vancouver	47	40	34	34	35	39	46	54	57	63	64	58	48
Steveston	45	39	34	35	34	39	46	52	55	61	61	56	46
Ladner	46	37	35	35	35	38	48	51	56	61	61	56	47
Buntzen Lake	52	41	32	33	33	38	44	53	56	64	66	59	48
Coquitlam Lake	48	39	33	32	33	37	42	52	56	65	68	60	47
New Westminster	47	39	32	33	34	38	45	53	56	63	65	58	47
Stave Falls	49	39	32	32	32	38	45	54	56	66	66	60	47
North Nicomen	48	39	31	33	32	39	46	54	57	64	65	59	47
Agassiz	49	40	32	32	33	39	44	53	56	63	65	58	47
Jones Lake	42	31	24	26	25	29	36	44	51	61	63	54	40
Chilliwack	47	39	30	32	32	38	47	54	57	63	64	58	47
Hope	47	36	27	30	30	37	45	54	56	64	65	57	40
1917-18													
Britannia Beach	50	47	36	36	35	39	49	55	63	66	63	64	50
Vancouver	50	47	39	40	37	41	49	54	61	64	62	60	50
Steveston	49	48	39	40	37	42	47	52	59	62	62	57	49
Ladner	50	49	41	42	39	40	47	52	60	62	60	57	50
Buntzen Lake	50	48	37	38	34	37	47	50	58	63	61	63	49
Coquitlam Lake	50	48	37	38	35	38	49	53	61	65	64	65	50
New Westminster	50	47	38	39	36	41	49	54	61	64	63	62	50
Stave Falls	51	48	37	38	36	38	50	54	61	65	64	64	50
North Nicomen	51	47	36	38	36	41	50	54	62	66	63	63	50
Agassiz	49	45	36	37	36	40	50	53	62	64	62	66	50
Alouette Lake	50	46	36	37	32	37	47	52	60	65	63	62	49
Jones Lake	44	40	32	31	27	33	40	46	57	61	58	58	44
Chilliwack	51	46	33	37	36	40	50	53	61	64	63	62	50
Hope	49	44	41	33	31	37	49	52	61	65	62	65	49

MEAN MONTHLY TEMPERATURE (DEGREES F.)—LILLOOET DISTRICT FOR YEARS—1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17													
Pemberton Hatchery	44	33	22	24	26	35	45	53	56	64	67	56	44
Pemberton Meadows	43	33	19	21	24	34	45	56	58	62	63	57	43
1917-18													
Pemberton Hatchery	47	43	26	29	28	38	47	53	60	66	63	61	47
Pemberton Meadows	47	44	25	27	24	34	44	53	60	66	62	58	45

MEAN MONTHLY TEMPERATURE (DEGREES F.)—VANCOUVER ISLAND DISTRICT FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17													
Victoria	49	42	37	38	36	40	46	50	55	59	60	56	47
Sooke	47	42	36	36	37	39	45	50	54	58	59	55	46
Shawnigan Lake	46	39	32	32	33	37	43	51	55	63	65	60	46
Code Hill	46	39	34	34	35	39	45	50	54	60	61	60	46
Cowichan (Tsouhalem)	46	39	35	34	37	39	46	53	56	62	63	60	47
Ladysmith	48	39	34	33	35	39	44	52	56	63	66	60	47
Nanaimo	48	41	35	36	37	40	45	53	56	64	66	58	48
Nanoose Bay	45	36	31	32	34	36	43	51	55	62	65	58	45
Alberni	49	38	32	33	36	39	45	53	57	63	64	58	47
Clayoquot	48	41	37	37	38	39	46	48	53	55	53	54	46
Quatsino	47	40	36	36	37	39	44	51	54	58	61	60	47
Holberg	50	41	36	35	36	37	44	51	55	58	62	56	47
1917-18													
Victoria	50	48	41	42	40	43	49	52	58	59	59	60	50
Sooke	50	47	41	42	38	41	47	51	57	59	60	58	50
Shawnigan Lake	48	43	38	38	34	48	47	51	60	64	64	59	49
Cobble Hill	49	45	38	39	35	40	46	51	58	62	59	59	49
Cowichan (Tsouhalem)	51	46	39	40	37	42	48	53	61	64	62	60	50
Ladysmith	50	46	38	40	36	41	49	54	62	64	62	62	50
Nanaimo	52	48	40	41	38	42	49	54	62	64	63	62	51
Nanoose Bay	50	46	37	39	37	41	47	52	60	63	61	60	50
Nanoose Bay	50	46	37	39	37	41	47	52	60	63	61	60	50
Alberni	52	47	35	39	37	40	49	53	61	64	64	64	50
Clayoquot	50	48	42	43	39	41	46	48	51	54	53	49	49
Quatsino	49	48	38	41	37	39	45	49	56	58	58	57	48
Holberg	50	47	37	41	37	40	44	51	6	60	59	60	49

Coast Division—Continued.

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.)—SOUTHERN DISTRICT—1916-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Year.
1916-17														
Vancouver	16	-3	-3	-4	-1	-3	-3	-1	-1	-1	-3	2	2	.....
Steveston	21	-4	-3	-5	-1	-4	-2	.....	.....	-2	1	-3	2	.....
Ladner	16	-4	-6	-3	.....	-2	-4	1	-1	-1	-3	1	-1	.....
New Westminster	29	-2	-3	-6	-2	-4	-5	-3	-1	-3	.....	2	1	.....
North Nicomen	25	-2	-3	-7	-1	-6	-4	-3	-1	-2	.....	2	1	.....
Agassiz	26	-2	-2	-6	-3	-4	-4	-5	-3	-3	-1	2	3	.....
Chilliwack	15	-3	-2	-7	-4	-6	-5	-3	-1	-3	-1	2	1	.....
1917-18														
Vancouver	17	1	5	0	5	-1	-1	2	0	3	1	0	4	.....
Steveston	22	1	6	0	4	-1	1	1	0	2	2	3	3	.....
Ladner	17	1	5	3	7	2	-2	0	0	3	-2	1	2	.....
New Westminster	30	1	5	0	4	-2	-2	1	0	2	1	1	5	.....
North Nicomen	25	1	4	-2	4	-2	-1	1	-1	3	2	0	5	.....
Agassiz	27	-2	4	-1	2	-1	-1	1	-3	3	0	-1	.....
Chilliwack	17	1	5	-3	1	-2	-3	0	-2	1	0	0	5	.....

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.)—LILLOOET DISTRICT—1917-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June.	July.	Aug.	Sept.	Year
Pemberton Hatchery.	10	1	7	-2	7	-1	.....	2	0	2	2	-1	6	.....

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.)—VANCOUVER ISLAND DISTRICT FOR YEARS—1916-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June.	July.	Aug.	Sept.	Year.
1916-17														
Victoria	25	-1	-3	-4	-1	-4	-3	-2	-3	-2	-1	.....	.....	.....
Nanaimo	16	-1	-2	-3	.....	-2	-2	-1	-1	-2	.....	3	2	.....
Alberni	20	-2	-2	-5	-1	-2	-3	-3	-2	-2	-2	-1	-1	.....
Clayoquot	18	-3	-4	-5	-3	-3	-3	.....	-2	-1	-3	-5	-1	.....
Quatsino	26	-1	-3	-4	.....	-1	-2	.....	.....	1	.....	3	-2	.....
1917-18														
Victoria	29	0	4	-1	3	0	0	1	-1	1	-1	-1	4	.....
Cowichan	13	2	2	0	5	-1	0	0	0	3	1	0	4	.....
Nanaimo	18	2	5	1	5	-1	0	3	0	4	0	0	5	.....
Alberni	23	1	6	-2	5	-1	-2	1	-2	2	-1	-1	6	.....
Clayoquot	19	-1	3	0	3	-2	-1	0	-2	-3	-4	-5	.....
Quatsino	23	1	6	-2	5	-1	-2	1	-2	3	0	0	4	.....

NOTE.—All quantities are plus unless otherwise designated.

Coast Division—Continued.

TOTAL MONTHLY PRECIPITATION (INCHES)—SOUTHERN DISTRICT—1916-18.

Locality.	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Year.
1916-17													
Britannia Beach	3.83	8.29	3.84	6.51	5.72	6.33	7.59	1.82	5.07	2.32	1.38	4.25	56.95
Vancouver	2.16	6.37	5.71	9.33	3.87	5.61	8.20	1.09	5.40	0.48	0.93	3.30	55.05
Steveston	1.47	4.60	4.92	3.10	2.77	2.85	5.38	1.17	2.89	0.32	0.71	2.05	32.23
Ladner	1.80	2.30	4.30	2.40	1.60	2.60	4.55	0.60	4.10	0.45	0.60	2.55	27.85
Buntzen Lake	5.53	10.67	9.75	14.02	8.96	10.36	11.55	2.41	7.48	1.48	1.67	7.07	90.95
Coquitlam Lake	6.83	13.94	12.42	18.13	9.27	14.17	13.93	2.59	8.29	1.61	1.80	7.50	110.48
New Westminster	2.18	6.57	5.57	9.64	6.04	4.26	8.47	1.73	5.74	0.50	0.95	3.60	55.25
Stave Falls	2.70	11.24	7.07	11.23	7.99	8.40	10.43	2.40	10.62	1.39	1.61	3.53	78.61
North Nicomen	2.20	8.61	6.11	10.15	7.11	6.86	7.50	1.77	7.49	0.77	1.04	2.76	62.37
Agassiz	1.76	7.83	6.72	10.10	4.92	5.60	9.84	2.22	4.30	0.59	1.10	3.44	58.42
Jones Lake	5.70	10.00	6.47	12.67	8.18	8.15	6.99	2.79	9.80	2.14	0.86	4.44	77.94
Chilliwack	1.76	7.21	6.09	9.10	7.08	5.08	5.51	1.40	5.41	0.80	1.14	2.51	53.09
Hope	2.89	4.55	4.61	6.97	4.68	6.26	3.94	1.08	3.42	1.10	1.18	1.88	42.56
1917-18													
Britannia Beach	4.81	10.08	10.41		13.19	11.37	1.80	1.95	2.43	2.55	2.84	0.22	
Vancouver	3.49	5.23	11.7		11.05	10.51	7.48	1.70	1.00	2.29	4.59	3.0	60.52
Steveston	1.96	2.54	8.44	4.96	4.37	3.98	0.57	0.89	0.56	1.61	2.13	0.20	32.21
Ladner	3.70	2.75	9.10	7.30	5.70	3.25	0.30	0.45	0.85	1.15	3.14	0.25	37.95
Buntzen Lake	8.96	13.56	25.80	20.90	18.97	14.37	2.39	3.28	1.81	3.73	6.27	0.33	120.37
Coquitlam Lake	9.39	15.80	29.64	23.69	20.68	21.81	2.98	4.36	2.31	3.46	5.56	0.33	140.01
New Westminster	4.24	6.19	12.69	11.69	9.60	6.75	1.54	1.52	1.23	2.54	2.20	0.37	60.56
Stave Falls	5.49	10.05	20.17	13.98	10.65	11.68	1.72	3.50	2.29	4.67	7.06	0.53	91.79
North Nicomen	6.39	9.12	21.23	10.95	9.38	9.87	1.41	3.90	1.74	2.29	4.47	0.37	80.87
Agassiz	8.65	11.15	22.95	17.92	15.10	14.74	2.42	3.61	1.96	3.57	7.40	0.50	109.97
Agassiz	6.84	8.71	14.79	9.76	7.02	10.66	1.38	4.64	1.74	2.28	7.94	0.26	76.02
Jones Lake	7.63	10.27	26.15	13.47	10.93	8.67	3.16	10.01	1.78	3.80	6.36	0.45	102.68
Chilliwack	5.35	7.63	19.49	9.61	8.33	7.62	1.17	3.09	0.73	0.78	3.70	0.33	67.83
Hope	3.55	7.42	14.20	7.91	8.31	7.12	1.31	3.30	1.07	1.36	3.14	0.67	59.36

TOTAL MONTHLY PRECIPITATION (INCHES)—LILLOOET DISTRICT—1916-18.

Locality.	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Year Total.
1816-17													
Pemberton Hatchery	1.77	3.38	1.90	2.37	1.25	1.76	1.37	0.73	3.17	0.90	1.36	2.08	22.04
Pemberton Meadows	1.42	2.60	1.94	2.62	1.68	2.98	1.19	0.34	2.31	0.58	1.18	1.88	20.72
1917-18													
Pemberton Hatchery	2.14	5.66	6.02	4.65	4.55		0.70	0.75	1.72	2.25	2.05	0.00	
Pemberton Meadows	1.63	6.07	7.02	4.53	7.55	7.81	1.05	0.81	1.70	1.21	2.07	0.00	41.45

TOTAL MONTHLY PRECIPITATION (INCHES)—VANCOUVER ISLAND DISTRICT—1916-18.

Locality.	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Year.
1916-17													
Victoria	1.56	2.26	4.92	4.41	2.11	2.63	2.41	0.56	0.93	0.16	0.19	1.06	23.20
Sooke	2.86	5.63	6.26	5.03	3.59	3.86	2.19	0.56	1.13	0.17	0.35	1.68	33.31
Shawnigan Lake	3.18	4.43	6.22	3.00	5.30	3.11	4.76	1.10	0.90	0.05	0.69	1.66	34.40
Coble Hill	2.12	3.85	6.26	3.45	4.51	2.10	4.69	0.95	1.72	0.10	0.74	1.84	32.33
Cowichan (Tzouhalem)	2.35	3.78	5.92	4.51	3.58	3.19	5.37	0.93	1.59	0.10	0.67	1.58	33.93
Ladysmith	4.09	4.42	7.33	3.75	5.05	4.86	7.27	1.02	1.82	0.22	0.45	2.39	42.67
Nanaimo	2.11	3.74	4.74	3.59	2.74	2.49	4.57	1.24	1.54	0.30	0.52	1.93	29.49
Nanoose Bay	2.39	3.34	3.50	2.18	2.23	2.34	3.53	1.28	1.63	0.46	0.47	1.99	25.34
Alberni	4.70	6.15	7.04	5.35	2.65	5.70	6.34	1.24	2.77	0.56	0.73	3.81	47.04
Comox Lake	1.71	5.75	3.00	2.52	4.05	4.74	6.77	1.13	1.88	0.17	0.33	4.01	36.06
Clayoquot	5.93	13.71	13.08	10.25	11.94	13.12	13.34	1.02	3.13	3.28	2.78	10.88	102.46
Quatsino	6.10	12.72	9.00	10.18	6.33	7.45	4.50	1.87	4.13	2.98	0.82	8.78	74.86
Holberg	11.27	17.13	13.73	15.21	6.70	10.65	5.05	1.74	3.94	2.87	1.35	9.23	98.87
1917-18													
Victoria	1.02	2.28	13.02	4.05	3.87	2.79	0.35	0.70	0.33	0.48	1.78	0.10	30.77
Sooke	2.22	2.02	13.85	5.48	4.24	5.48	0.78	1.10	0.67	0.49	1.42	0.07	37.82
Coble Hill	0.92	2.88	12.64	6.43	5.98	6.72	0.53	0.50	0.51	0.73	1.51	0.15	39.50
Shawnigan Lake	1.15	3.09	14.75	7.26	8.77	8.42	0.66	0.68	0.55	0.74			
Cowichan (Tzouhalem)	1.11	3.68	11.25	7.24	6.37	5.83	0.96	0.62	0.36	1.05	1.25	0.17	39.86
Ladysmith	0.36	3.82	12.21	7.97	5.16	7.73	0.60	0.42	0.25	1.01	1.65	0.10	41.28
Nanaimo	1.04	3.41	8.98	5.83	6.06	4.96	0.80	0.26	0.24	1.32	1.49	0.05	34.53
Nanoose Bay	1.29	1.77	6.79	4.17	6.00	5.77	0.57	0.69	0.46	1.44	2.19	0.04	29.18
Alberni	2.74	6.16	11.38	8.15	14.80	17.61	1.80	1.13	2.14	2.36	2.89	0.10	73.26
Clayoquot	8.00	17.64	20.16	18.82	20.09	23.43	4.89	3.06	3.20	1.70	6.36	0.31	127.06
Quatsino	8.54	16.01	16.09	15.93	16.47	16.01	4.68	3.00	3.33	0.83	3.70	0.31	104.90
Holberg	11.38	19.42	18.28	17.90	12.41	20.16	4.33	4.94	2.76	1.35	4.07	0.48	117.48

Coast Division—Concluded.

DIFFERENCE FROM AVERAGE PRECIPITATION (INCHES)—SOUTHERN DISTRICT—1916-18.

Difference of total for month, from monthly average, for previous ten years or more.

Year.	Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.	
	1916-17															
56-95	Vancouver	16	-3.66	-4.54	-1.75	-0.77	-0.35	1.15	5.11	-1.87	2.58	-0.85	-0.53	-0.70	.....
55-05	Steveston	21	-1.94	-1.76	-0.36	-1.95	-1.26	0.32	3.46	-1.18	1.03	-0.64	-0.31	-2.09	.....
32-23	Ladner	16	-2.22	-4.15	-0.37	-2.19	-2.32	-0.40	2.74	-1.80	2.45	-0.75	-0.40	-0.05	.....
27-85	Buntzen Lake	14	-7.18	-8.70	-2.91	-0.78	-0.93	0.50	5.15	-3.19	3.37	-1.10	-1.02	-1.58	.....
90-95	Coquitlam Lake	13	-10.33	-14.65	-6.64	-2.21	-4.94	1.72	5.39	-5.10	3.22	-1.46	-1.82	-1.90	.....
10-48	New Westminster	29	-3.05	-3.30	-1.69	-1.79	-0.64	-1.13	5.25	-17.0	2.98	-1.00	-0.48	-0.32	.....
55-25	North Nicomen	24	-5.36	-3.81	-2.97	1.58	-1.05	0.78	2.55	-2.88	3.42	-1.05	-0.99	1.89	.....
78-61	Agassiz	26	-4.10	-0.18	-0.66	3.66	-0.86	0.51	5.52	-2.59	-0.52	1.67	-1.35	-0.97	.....
62-37	Chilliwack	14	-4.04	-2.27	-1.70	1.96	0.70	0.78	1.81	-2.68	2.20	0.87	-0.77	-1.31	.....
58-42	1917-18															
77-94	Vancouver	17	-2.20	-6.05	4.16	2.49	4.29	3.02	-1.39	-2.41	-1.82	0.96	2.88	-3.99	.....
53-09	Steveston	22	-1.39	-4.50	3.13	-0.09	0.34	1.45	-1.35	-1.46	-1.30	0.65	0.99	-2.28	.....
42-56	Ladner	17	-0.41	-3.41	4.20	2.71	1.58	1.26	-1.51	-1.95	-0.80	-0.05	1.05	-2.51	.....
60-52	New Westminster	30	-0.16	-2.94	4.68	3.84	2.92	1.36	-1.68	-1.91	-1.43	1.04	2.97	-3.26	.....
32-21	North Nicomen	25	-1.23	-3.54	11.56	2.38	1.22	3.97	-3.54	-0.75	-2.33	0.47	2.11	-4.45	.....
120-37	Agassiz	27	1.04	-0.20	7.42	3.32	1.24	5.57	-2.39	-0.71	-3.08	0.02	5.19	-4.20	.....
140-01	Chilliwack	17	-0.58	-1.71	10.78	2.47	1.95	3.32	-2.53	0.99	-2.48	-0.89	1.60	-3.77	.....

DIFFERENCE FROM AVERAGE PRECIPITATION LILLOET DISTRICT—1917-18.

Difference of total for month, from monthly average, for previous ten years or more.

Year Total.	Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
	Pemberton Hatchery	10	-1.54	-0.85	2.74	0.65	2.10	.....	-0.82	0.73	0.19	1.15	0.56	-2.10	.....

NOTE.—All quantities are plus unless otherwise designated.

DIFFERENCE FROM AVERAGE PRECIPITATION (INCHES) VANCOUVER ISLAND DISTRICT—1916-18.

Difference of total for month, from monthly average, for previous ten years or more.

Year.	Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May.	June	July.	Aug.	Sept.	Year.	
	1916-17															
23-20	Victoria	25	-1.16	-2.65	-0.99	-0.10	-1.42	-0.08	0.58	-0.74	0.00	-0.20	-0.39	-0.51	.....
33-31	Nanaimo	16	-1.02	-4.65	-1.69	-2.59	-2.69	-0.91	2.87	-0.78	-0.36	-0.50	-0.28	-0.21	.....
34-40	Alberni	20	-1.56	-6.18	-4.09	-4.29	-5.81	0.25	2.03	-1.82	0.47	-0.41	-0.27	0.67	.....
32-33	Clayoquot	18	-6.57	-6.29	-3.19	-4.43	-1.04	3.15	4.97	-5.71	-1.11	1.27	-0.32	3.89	.....
33-93	Quatsino	20	-5.50	-4.53	-8.34	-2.45	-4.76	-1.66	-3.19	-3.95	-0.50	0.21	-2.71	1.66	.....
42-67	1917-18															
29-49	Victoria	28	-1.53	-4.18	7.11	-0.46	0.34	0.24	-1.38	-0.60	-0.60	0.12	1.13	1.91	.....
25-34	Cowichan	13	-1.81	-4.79	4.29	0.60	1.63	2.96	-0.24	-1.23	-0.91	0.41	0.24	-1.45	.....
47-04	Nanaimo	17	-2.05	-5.36	1.81	-0.35	0.63	1.56	-0.81	-1.76	-1.66	0.52	0.85	-2.02	.....
36-06	Alberni	22	-3.00	-4.23	0.76	-1.49	6.34	12.16	-2.51	-1.93	-0.16	1.39	1.75	-2.99	.....
102-46	Clayoquot	18	-4.79	-1.94	3.77	4.14	7.11	13.46	-3.48	-3.67	-1.04	-0.31	2.82	-6.75	.....
74-86	Quatsino	22	-3.06	-1.24	-1.25	3.30	5.38	6.90	-3.01	-2.82	-1.30	-1.94	-0.35	-6.75	.....

NOTE.—All quantities are plus unless otherwise designated.

Year.
56-95
55-05
32-23
27-85
90-95
10-48
55-25
78-61
62-37
58-42
77-94
53-09
42-56

60-52
32-21
37-95
120-37
140-01
60-50
91-79
80-87
109-97
76-02
102-68
67-83
59-36

Year Total.

22-04
20-72

41-45

Year.
23-20
33-31
34-40
32-33
33-93
42-67
29-49
25-34
47-04
36-06
102-46
74-86
98-87

30-77
37-82
39-50

39-85
41-28
34-53
29-18
73-26
127-66
104-90
117-48

Kamloops Division.

MEAN MONTHLY TEMPERATURE (DEGREES F.)—KAMLOOPS DISTRICT—FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Year.
1916-17													
Tranquille	45	33	21	19	21	35	48	57	61	70	70	59	45
Kamloops	45	31	18	17	19	33	46	57	61	71	70	59	44
Chimook Cove	42	29	16	14	16	28	42	52	56	63	62	54	40
Vavenby	41	27	12	11	15	28	42	52	54	64	62	54	39
Monte Creek	43	30	18		20	32	45	57	57	66	64	54	40
Tappen	45	32	18	22	25	34	46	56	61	70	68	58	45
Glennema	49	34	25	25	28	33	46	57	58	65	61	55	45
1917-18													
Tranquille	48	43	24	28	27	40	51	57	67	71	60	63	48
Kamloops	48	42	22	25	26	38	50	57	66	71	66	63	48
Chimook Cove	44	39	18	21	20	34	44	51	58	64	60	57	43
Vavenby	42	36	17	21	21	34	44	50	59	65	60	57	42
Monte Creek	44	40	20	20	21	34	46	53	62	67	63	58	44
Tappen	47	41	25	27	26	26	47	54	66	71			44

MEAN MONTHLY TEMPERATURE (DEGREES F.)—OKANAGAN DISTRICT—FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17													
Enderby	44	30	20	18	21	30	45	55	59	67	66	56	43
Armstrong	42	30	20	18	20	30	44	54	58	65	65	55	42
Vernon	44	30	20	18	19	30	44	54	59	69	68	57	43
Okanagan Mission	44	33	25	24	24	33	43	53	57	66	65	56	44
Summerland	46	30	21	20	22	31	44	55	59	70	58	57	44
Penticton	46	33	24	25	26	34	46	55	60	69	68	59	45
Princeton	41	26	14	17	20	29	41	52	55	63	64	55	40
Hedley	46	28	19	19	22	31	42	53	58	70	69	58	43
Hedley (Nickel Plate)	25	18	8	14	20	19	30	43	47	58	58	50	33
Greenwood	41	25	13	14	21	27	41	51	56	65	65	55	35
Grand Forks	44	26	14	17	24	29	43	55	59	71	70	59	43
1917-18													
Enderby	46	40	24	24	22	35	47	53	63	69	63	59	45
Armstrong	45	39	23	24	21	34	46	52	60	68	62	57	44
Vernon	46	39	24	25	22	34	47	52	62	68	63	62	45
Okanagan Mission	47	41	28	29	26	37	45	53	61	66	62	57	46
Summerland	48	39	27	27	25	37	48	50	64	68	63	62	47
Penticton	49	42	29	31	28	41	48	55	64	69	66	61	49
Princeton	45	36	22	24	22	33	45	50	60	65	61	58	44
Hedley	48	39	26	28	27	37	48	53	65	70	65	65	48
Greenwood	46	36	22	22	22	34	45	49	63	65	60	58	44
Grand Forks	47	38	24	24	22	35	48	53	65	70	63	63	46

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.)—KAMLOOPS DISTRICT—FOR YEARS 1916-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Year.
1916-17														
Kamloops	26	-2.3	-4.8	-10.6	-5.0	-7.0	-5.0	-4.0	-1.0	-4.0	1.0	1.70	1.3	.....
1917-18														
Kamloops	25	0	6	-7	3	0	0	0	-1	1	1	-2	5	.....

NOTE.—All quantities are plus unless otherwise designated.

Kamloops Division—Continued.

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.)—OKANAGAN DISTRICT—
FOR YEARS 1916-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17														
Enderby	15	-0.3	-2.1	-7.1	-4.0	-4.0	-4.0	-1.0	0.0	-2.0	1.0	1.5	1.2	
Vernon	23	-0.3	-4.6	-7.4	-2.0	-7.0	-5.0	-2.0	0.0	-2.0	3.0	2.1	2.2	
Okanagan Mission	17			0.0	-2.0	-4.0	-4.0	-2.0	-4.0	-1.0				
Princeton	21	-2.70	-5.3	-7.7	-1.0	-3.0	-3.0	0.0	-2.0	0.0		1.5	1.7	
Hedley	13	-2.0	-7.1	-9.9	-1.0	-6.0	-6.0	-5.0	-1.0	-2.0	-3.0	4.8	2.3	
Hedley (Nickel Plate)	13				-3.0	-1.0	-7.0	-5.0	2.0	0.0	2.0	4.6	4.5	
1917-18														
Enderby	24	2	8	-4	2	-3	1	1	-2	2	3	-1	6	
Vernon	24	1	5	-4	5	-4	-1	1	-1	1	2	-2	7	
Okanagan Mission	19	2	5	-2	5	0	0	-2	-2	0	-1	-2	7	
Summerland	11	2	4	0	7	-1	0	1	-1	2	1	-3	6	
Penticton	11	2	3	-3	5	-2	3	2	0	2	3	2	4	
Princeton	21	2	5	0	8	-1	1	1	-2	3	2	-1	5	
Hedley	14	2	3	-2	8	-1	0	1	-1	5	3	0	8	

NOTE.—All quantities are plus unless otherwise designated.

TOTAL MONTHLY PRECIPITATION (INCHES)—KAMLOOPS DISTRICT—FOR YEARS 1916-18.

Locality	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17													
Tranquille	0.03	0.18	0.60	1.18	0.18	0.03	0.59	1.35	2.32	0.02	0.11	0.03	6.62
Kamloops	0.06	0.63	1.06	0.84	0.59	0.10	0.80	1.64	2.53	0.11	1.18	0.25	9.79
Chinook Cove	0.13	1.01	0.72	2.66	1.13	0.60	1.29	1.99	3.20	0.77	0.46	1.16	15.12
Vavenby	0.62	1.35	0.70	3.35	0.33	0.50	0.90	1.78	2.12	0.70	0.38	1.18	13.91
Monte Creek	0.13	1.34	0.53	0.49	0.35	0.40	0.46	2.08	0.38	T	0.94	0.31	7.41
Tappen	0.34	1.51	2.40	2.38	1.60	1.73	1.70	2.14	2.78	0.28	1.93	1.58	20.37
Glenenna	0.87	2.84	4.55	3.25	1.05	2.51	4.55	2.89	4.11	0.72	1.35	1.25	29.94
Canoe Point	0.23	1.72	2.32		1.23	1.05	1.93	2.76	2.40	0.40	2.13	2.63	18.80
1917-18													
Tranquille	0.21	T	1.13	0.53	0.05	0.10	0.10	0.55	0.18	0.72		0.45	
Kamloops	0.41	0.08	2.74	1.87	0.44	0.23	0.09	1.12	0.33	1.23	3.17	0.38	12.09
Chinook Cove	2.07	0.46	4.15	4.86	1.38	0.42	0.39	1.93	0.73	1.81	2.44	0.57	21.21
Vavenby	1.27	0.34	2.45	2.40	0.70	0.46	0.40	1.48	0.98	0.84	2.35	0.44	14.11
Monte Creek	0.34	0.00	1.87	0.80	0.28	0.25	0.20	1.24	0.29	0.92	2.41	0.29	8.09
Tappen	1.86	1.03	5.04	4.37	2.07	0.78	0.70	1.10	0.66	1.13	2.43	0.14	21.31

TOTAL MONTHLY PRECIPITATION (INCHES)—OKANAGAN DISTRICT—FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17													
Enderby	0.20	1.18	1.97	2.65	1.15	1.74	2.48	2.10	2.31	0.63	0.99	1.79	19.19
Armstrong	0.12	1.32	0.85	1.88	0.93	0.79	2.09	1.97	1.96	0.33	0.77	1.67	14.68
Vernon	0.52	0.81	0.59	1.11	0.73	0.82	2.03	1.41	1.44	0.40	0.61	1.66	12.13
Okanagan Mission	0.13	0.52	0.95	0.46	0.82	0.42	1.20	1.21	0.96	0.44	0.18	0.61	7.90
Summerland	0.07	0.29	1.35	0.32	0.80	0.34	0.69	1.77	0.54	0.29	0.21	0.63	7.30
Penticton	0.04	0.41	0.69	0.33	0.55	0.31	1.44	1.82	1.12	0.26	-0.22	1.37	8.56
Princeton	0.33	1.31	1.24	0.67	0.55	1.11	0.67	1.08	0.84	0.17	0.83	0.48	8.28
Hedley	0.35	0.31	1.61	1.44	1.45	1.29	0.74	1.45	0.92	0.28	0.59	0.71	11.84
Hedley (Nickel Plate)	0.40	2.25	3.60	2.60	1.75	4.40	1.03	1.98	2.62	0.46	0.42	0.22	21.73
Greenwood	0.02	1.56	2.90	2.15	3.10	0.70	4.50	4.54	2.41	0.37	0.22	2.40	24.87
Grand Forks	0.16	1.87	1.88	1.95	1.30	1.06	2.05	2.27	2.39	0.14	0.12	1.07	16.26
1917-18													
Enderby	1.90	0.68	5.80	4.06	2.17	1.13	0.28	0.98	1.17	0.94	2.76	0.23	22.10
Armstrong	1.35	0.32	4.30	2.65	1.22	0.70	0.34	1.07	1.46	1.28	2.69	0.49	17.87
Vernon	1.06	0.42	3.87	1.99	0.85	0.98	0.34	0.77	1.03	2.41	2.34	0.35	16.41
Okanagan Mission	0.47	0.35	4.45	2.22	0.66	0.79	0.27	0.33	0.88	1.11	1.45	0.18	18.16
Summerland	0.18	0.14	2.39	1.37	0.64	0.39	0.13	0.58	0.33	1.17	1.85	0.10	9.27
Penticton	0.13	0.39	3.25	2.22	0.23	0.29	0.22	0.39	0.36	2.19	0.98	0.14	10.79
Princeton	0.31	0.56	4.65	1.24	1.35	0.61	0.16	0.47	0.29	2.01	1.39	0.25	13.29
Hedley	0.74	0.25	2.70	2.81	0.65	0.36	0.24	0.83	0.45	1.38	1.92	0.13	12.46
Greenwood	0.20	1.15	2.78	2.20	0.20		0.43	0.63	1.07	0.70	2.37	0.55	
Grand Forks	0.43	0.78	3.35	2.51	0.40	1.56	0.55	1.10	1.37	0.53	1.75	0.74	15.07

Kamloops Division—Concluded.

DIFFERENCE FROM AVERAGE PRECIPITATION (INCHES)—KAMLOOPS DISTRICT—FOR YEARS, 1916-18

Difference of total for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year
1916-17														
Kamloops	26	-0.57	-0.36	0.31	-0.05	-0.21	-0.22	0.44	0.71	1.30	-1.16	0.17	-0.64	-0.29
1917-18														
Kamloops	25	-0.18	-0.97	1.19	0.97	-0.36	-0.09	-0.27	0.19	-0.90	-0.04	2.12	-0.56	

NOTE.—All quantities are plus unless otherwise designated.

DIFFERENCE FROM AVERAGE PRECIPITATION (INCHES)—OKANAGAN DISTRICT—FOR YEARS 1916-18.

Difference of total for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year
1916-17														
Enderby	15	-1.28	-1.37	-0.23	0.06	-0.47	0.63	1.71	0.79	0.18	-0.85	-0.13	-0.18	
Vernon	23	-0.30	-1.08	-0.96	-0.05	-0.39	-0.10	1.51	0.18	-0.36	-0.96	-0.39	-0.26	
Okanagan Mission	17				-0.87	-0.28	-0.42	0.74	0.18	-0.36	-0.73			
Princeton	21	-0.45	-0.52	-0.09	-0.69	-0.38	0.51	0.14	-0.26	-0.25	-1.08	0.00	-0.56	
Hedley	13	-0.35	-0.66	0.90	0.41	-0.24	-0.85	0.29	-0.11	-0.47	-0.93	-0.22	-0.22	
Hedley (Nickel Plate)	13				0.45	-0.13	3.00	-2.67	-1.88	-0.12	-1.02	-0.92	-1.24	
1917-18														
Enderby	24	0.39	-2.06	3.50	1.47	0.55	0.02	-0.49	-0.33	-0.96	-0.54	1.53	-1.47	
Vernon	24	0.27	-1.07	2.60	0.83	-0.27	0.26	-0.18	-0.46	-0.73	1.05	1.01	-1.03	
Okanagan Mission	19	-0.38	-1.64	3.07	0.89	-0.44	-0.55	-0.19	-0.17	-0.44	-0.06	0.42	-1.01	
Summerland	11	-0.50	-0.72	1.47	0.40	-0.30	-0.10	-0.45	-0.84	-1.16	-0.01	0.93	-0.92	
Penticton	11	-0.52	-0.32	2.50	0.44	-0.63	-0.01	-0.16	-0.17	-1.26	-1.33	-0.31	-0.82	
Princeton	21	-0.50	-0.31	3.31	0.36	0.42	-0.01	-0.37	-0.87	-0.80	0.26	0.49	-0.80	
Hedley	14	0.04	-0.72	2.00	1.78	-0.56	-0.08	-0.21	-0.73	-0.84	0.17	0.94	-0.55	

NOTE. All quantities are plus unless otherwise designated.

Nelson Division.

MEAN MONTHLY TEMPERATURE (DEGREES F.)—NELSON DISTRICT—FOR YEARS 1916-18

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year
1916-17													
Nakusp	41	29	20	21	21	27	40	51	54	64	61	52	40
Nelson	44	31	20	23	27	31	42	53	56	69	66	57	43
Waneta	42	28	17	20	26	28	41	52	56	68	67	58	42
1917-18													
Nakusp	43	37	25	25	23	33	42	49	59	65	60	55	43
Nelson	47	41	28	27	26	37	47	52	62	66	61	59	46
Waneta	45	33	26	25	24	32	46	51	63	67	61	61	46

MEAN MONTHLY TEMPERATURE (DEGREES F.)—REVELSTOKE DISTRICT—FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year
1916-17													
Golden	40	21	4			25	40	52	54	64	62	53	45
Wilmer	39	23	7	14	17	25	33	51	54	66	62	53	37
Glacier	36	20	12	14	14	21	33	45	47	60	59	50	34
Revelstoke	43	28	15	19	20	29	41	51	55	65	63	54	40
1917-18													
Golden	41	34	15	16	17	30	44	50	58	64	59	56	40
Wilmer	41	32	17	17	17	33	43	48	60	65	60	57	40
Glacier	39	30	15	16	12	24	35	42	52	59	54	56	36
Revelstoke	41	38	23	24	22	33	44	51	59	65	60	57	43

Nelson Division.—Continued

MEAN MONTHLY TEMPERATURE (DEGREES F.) CRANBROOK DISTRICT FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17													
Cranbrook	40	25	10	18	19	23	38	50	54	65	60	52	38
Baines Lake	40	27	9	15	15	27	39	51	54	63	60	52	28
Lorne	38	24	10	17	16	22	36	47	53	64	60	52	37
1917-18													
Cranbrook	41	34	19	20	18	35	42	48	61	64	61	56	41
Lorne	43	36	17	20	16	34	40	46	59	62	58	54	40

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.)—NELSON DISTRICT—FOR YEARS 1916-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17														
Nelson	15	-1.0	-5.0	-9.0	-2.0	-1.0	-6.0	-4.0	-1.0	-5.0	3.0	2.0	1.0	
1917-18														
Nelson	17	2	4	-2	2	-2	0	1	-2	1	0	-2	3	

NOTE: All quantities are plus unless otherwise designated.

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.) REVELSTOKE DISTRICT—FOR YEARS 1916-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17														
Golden	15	-1.0	-8.0	-14.0	-1.0	-4.0	-2.0	1.0	-3.0	3.0	3.0	3.0	3.0	
Glauber	15	-2.0	-5.0	-6.0	-1.0	-4.0	-1.0	-3.0	-4.0	4.0	4.0	4.0	4.0	
Revelstoke	16	-6.0	-2.0	-1.0	-3.0	-4.0	-1.0	-4.0	4.0	1.0	1.0	1.0	1.0	
1917-18														
Golden	16	1	6	-4	6	1	1	2	-1	1	3	1	6	
Glauber	20	2	4	-3	0	-6	-1	-1	-3	1	3	-1	10	
Revelstoke	20	-2	4	-4	4	-1	0	2	-1	0	1	-1	4	

NOTE: All quantities are plus unless otherwise designated.

DIFFERENCE FROM AVERAGE TEMPERATURE (DEGREES F.) CRANBROOK DISTRICT FOR YEARS 1916-18.

Difference of average for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17														
Cranbrook	19	-2.0	-4.0	-11.0			-8.0	-4.0	-1.0	-3.0	5.0	-1.0	1.0	
1917-18														
Cranbrook	19	-1	5	-1	3	-1	4	0	-3	4	4	1	5	

NOTE: All quantities are plus unless otherwise designated.

TOTAL MONTHLY PRECIPITATION (INCHES) NELSON DISTRICT FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Year.
1916-17													
Nakusp	0.58	2.18	2.33	3.29	3.44	1.45	3.01	1.44	2.54	0.94	0.46	1.55	23.21
Nelson	0.92	3.49	1.90	1.80	2.45	1.70	3.08	2.46	3.22	1.01	0.09	1.42	23.54
Waneta	0.76	3.97	4.55	2.80	4.15	2.40	3.92	2.33	1.54	0.05	0.10	1.10	27.67
1917-18													
Nakusp	2.05	1.31	7.24	5.19	4.46	2.00	0.53	1.32	0.92	1.39	0.58	0.13	28.02
Nelson	1.53	1.23	7.42	2.15	2.60	2.50	0.64	3.37	2.41	1.96	2.26	1.02	28.91
Waneta	0.45	0.95	4.53	2.55	5.47	3.30	0.46	1.54	2.30	2.54	3.31	0.71	26.11

Nelson Division—Concluded.

TOTAL MONTHLY PRECIPITATION (INCHES)—REVELSTOKE DISTRICT—FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17													
Golden	0.77	1.40	0.70	..	0.49	0.60	0.60	2.40	1.32	1.51	1.66	0.90	11.86
Wilmer	0.65	1.16	0.69	0.49	0.55	0.70	0.32	2.45	2.09	0.19	1.55	0.73	9.57
Glacier	3.92	11.00	6.60	14.05	6.00	5.25	1.90	2.51	5.45	3.86	2.24	1.85	64.63
Revelstoke	1.37	4.68	4.00	5.13	3.70	1.88	3.12	2.36	3.05	1.70	1.59	2.29	34.87
1917-18													
Golden	1.58	1.14	7.10	5.18	0.88	0.99	0.16	1.38	2.36	1.42	0.95	0.78	23.92
Wilmer	0.61	0.22	4.03	1.14	1.74	0.66	0.22	1.14	0.43	1.15	2.26	1.61	15.21
Glacier	8.20	5.61	18.63	12.73	14.23	6.50	0.93	3.74	2.88	1.46	5.83	1.24	81.98
Revelstoke	4.56	2.48	8.70	7.60	6.50	4.46	0.95	2.79	1.74	1.90	3.65	0.26	45.59

TOTAL MONTHLY PRECIPITATION (INCHES)—CRANBROOK DISTRICT—FOR YEARS 1916-18.

Locality.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17													
Cranbrook	0.64	0.90	1.16	0.60	1.25	1.74	0.79	1.46	1.48	0.25	0.62	0.60	11.40
Haynes Lake	0.51	0.99	0.87	1.35	1.15	0.97	1.73	0.73	1.90	T			19.20
Ferne	1.19	3.60	2.36	2.75	1.72	3.88	5.20	2.84	4.16	0.64	2.46	1.29	32.09
1917-18													
Cranbrook	0.23	0.49	3.50	1.30	1.38	1.44	0.12	0.66	0.56	2.31	1.70	1.15	14.84
Ferne	2.04	0.91	8.94	4.09	3.61	3.84	0.88	3.39	1.34	2.24	2.53	1.06	34.87

DIFFERENCE FROM AVERAGE PRECIPITATION (INCHES)—NELSON DISTRICT—
FOR YEARS 1916-17.

Difference of total for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17														
Nelson	13	-1.35	-0.25	-0.71	-1.55	0.14	0.06	1.79	0.29	0.43	-0.99	-1.47	-0.39	.....
1917-18														
Nelson	17	-1.77	-2.28	4.88	-1.20	0.29	0.86	-0.65	3.37	-0.38	-0.04	0.32	-0.77	.....

NOTE.—All quantities are plus unless otherwise designated.

DIFFERENCE FROM AVERAGE PRECIPITATION (INCHES)—REVELSTOKE DISTRICT—
FOR YEARS 1916-18.

Difference of total for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17														
Golden	15	-0.58	-1.27	-0.75	.....	.....	-0.45	-0.08	1.48	-0.32	-0.01	0.24	-0.63	.....
Glacier	15	0.38	1.95	-0.97	6.41	-0.29	-0.20	-0.73	0.91	2.46	1.52	-0.36	-2.52	.....
Revelstoke	16	-2.64	-0.65	-0.42	-0.08	-0.84	-0.95	1.16	0.14	0.08	-0.80	-0.83	-1.00	.....
1917-18														
Golden	16	0.11	-1.53	5.57	2.65	-0.28	-0.06	-0.52	0.46	0.72	-0.10	-0.68	-0.87	.....
Glacier	20	4.28	-3.49	10.56	5.09	7.94	1.05	-1.70	2.14	-0.11	-0.88	3.23	-2.90	.....
Revelstoke	20	0.58	-3.05	4.14	2.39	1.96	1.63	-1.01	0.57	-1.23	-0.60	0.99	-3.13	.....

NOTE.—All quantities are plus unless otherwise designated.

DIFFERENCE FROM AVERAGE PRECIPITATION (INCHES)—CRANBROOK DISTRICT—
FOR YEARS 1916-17.

Difference of total for month, from monthly average, for previous ten years or more.

Locality.	No. of Years Records.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Year.
1916-17														
Cranbrook	14	-0.06	-0.76	-0.41	.....	-0.23	0.63	-0.35	-0.01	-0.23	-1.15	-0.32	0.68	.....
1917-18														
Cranbrook	19	-0.47	-1.20	1.93	-1.38	-0.10	0.33	-1.02	0.66	-1.15	0.91	1.38	-0.24

NOTE.—All quantities are plus unless otherwise designated.

5-18.

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11-86
9-57
64-63
34-87

23-92
15-21
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