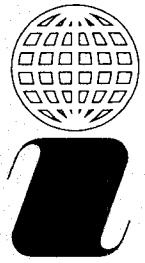
GOVERNMENT OF CANADA
DEPARTMENT OF ENERGY
MINES AND RESOURCES

BRITISH COLUMBIA
HYDROMETRIC NETWORK STUDY

VOLUME II OF II

APRIL 1969



T. Ingledow & Associates Limited
Consulting Engineers

GOVERNMENT OF CANADA
DEPARTMENT OF ENERGY
MINES AND RESOURCES

BRITISH COLUMBIA HYDROMETRIC NETWORK STUDY

VOLUME II OF II

April, 1969

T. Ingledow & Associates Limited
Consulting Engineers

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GOVERNMENT OF CANADA

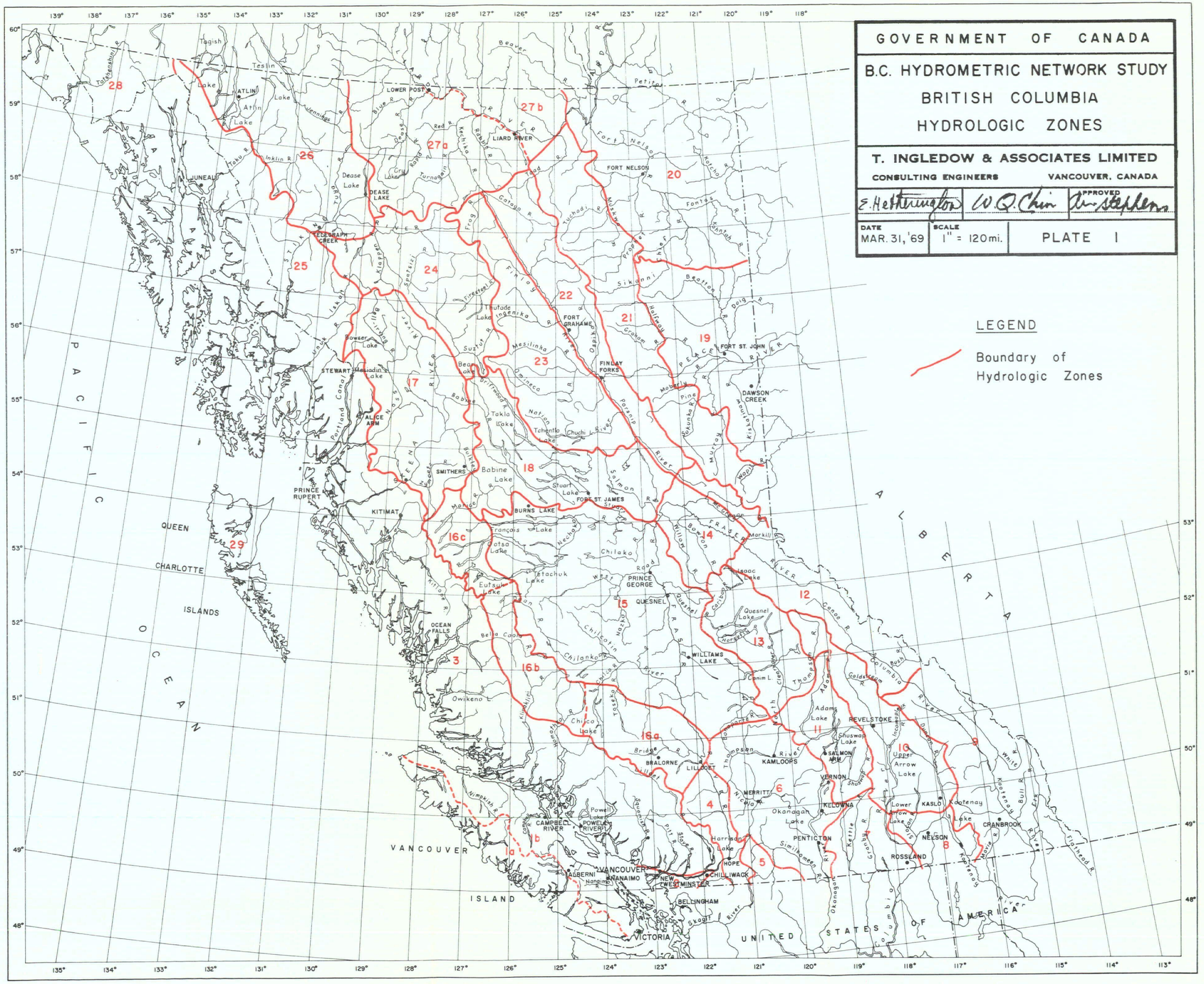
B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
HYDROLOGIC ZONES

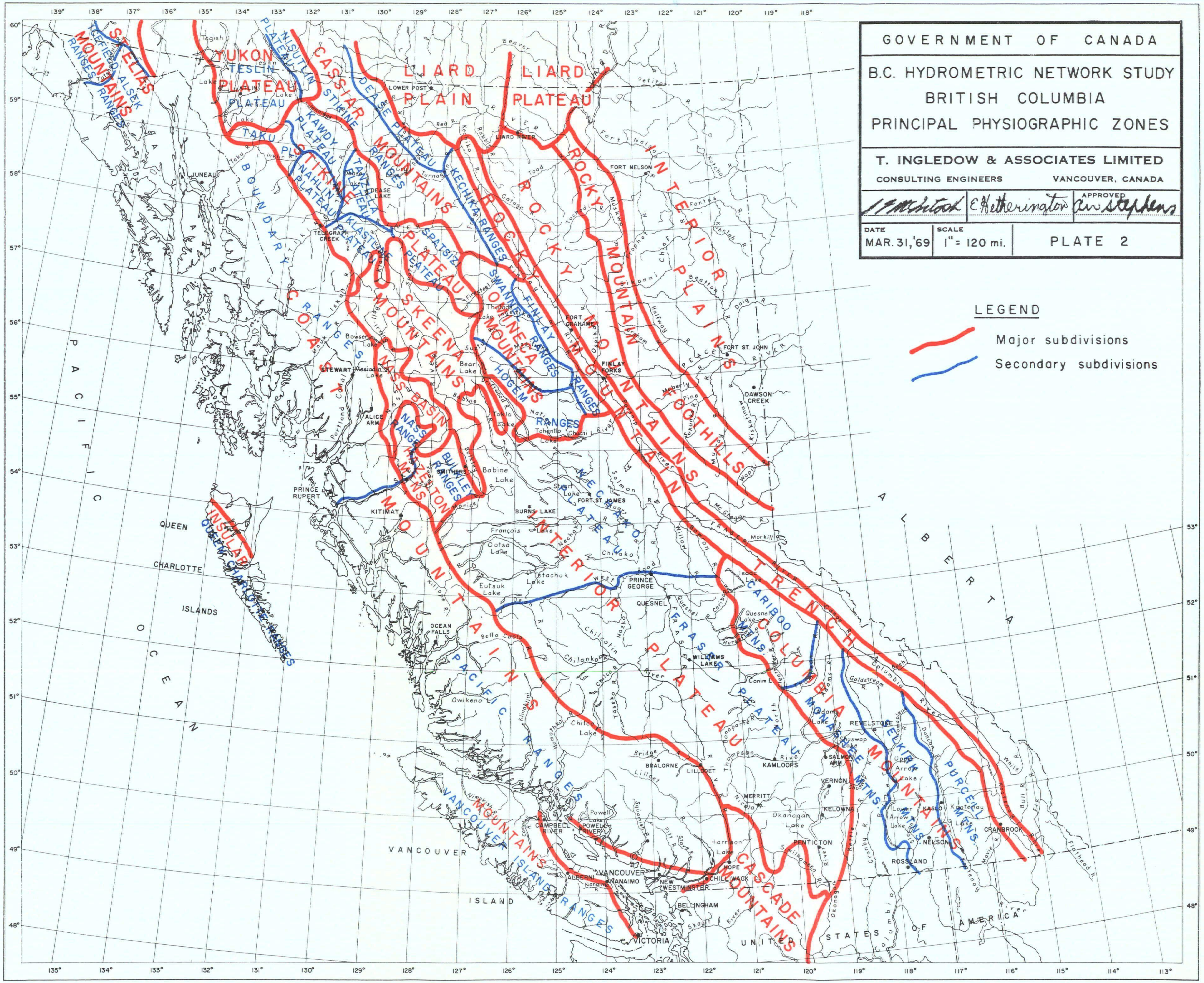
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS — VANCOUVER, CANADA

E. Hetherington	W.Q. Chin	APPROVED
DATE: MAR. 31, '69	SCALE: 1" = 120mi.	PLATE 1

LEGEND

Boundary of Hydrologic Zones




GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
PRINCIPAL PHYSIOGRAPHIC ZONES
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS
VANCOUVER, CANADA
APPROVED
DATE
MAR. 31, '69
SCALE
1" = 120 mi.
PLATE 2
LEGEND
Major subdivisions
Secondary subdivisions
ST. ELIAS MOUNTAINS
YUKON PLATEAU
TESLIN PLATEAU
CASSIAR MOUNTAINS
LIARD PLAIN
LIARD PLATEAU
ROCKY MOUNTAINS
ROCKY MOUNTAIN FOOTHILLS
INTERIOR PLAINS
ROCKY MOUNTAIN TRENCH
COAST MOUNTAINS
BOUNDARY RANGES
COAST RANGES
KITIMAT RANGES
SKEENA MOUNTAINS
NASS BASIN
NASS RANGES
HAZELTON MOUNTAINS
BULKLEY RANGES
OMINECA MOUNTAINS
HOGEM RANGES
INTERIOR PLATEAU
NECHAKO PLATEAU
FRASER PLATEAU
CARIBOO MTNS.
COLUMBIA MOUNTAINS
MONASHEE MTNS.
SELKIRK MTNS.
PURCELL MTNS.
CASCADE MOUNTAINS
PACIFIC RANGES
INSULAR MOUNTAINS
VANCOUVER ISLAND RANGES
QUEEN CHARLOTTE ISLANDS
PACIFIC OCEAN
VANCOUVER ISLAND
ALBERTA
UNITED STATES OF AMERICA
PRINCE RUPERT
PRINCE GEORGE
FORT NELSON
FORT ST. JOHN
DAWSON CREEK
KAMLOOPS
VANCOUVER
VICTORIA
REVELSTOKE
NELSON
CRANBROOK
PENTICTON
KELOWNA
VERNON

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
CLIMATIC ZONES

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

I.C. Ingledow	E. Hetherington	APPROVED Lawrence Stephens
DATE MAR. 31,'69	SCALE 1" = 120 mi.	PLATE 3

LEGEND

- I Littoral
- II Southwest Interior
- III Southeast Wet Interior
- IV Southeast Dry Interior
- V Central Interior West
- VI Central Interior East
- VII North Interior
- VIII Northeast Interior
- IX Yukon Plateau
- X Liard Plain

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
ANNUAL PRECIPITATION

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

J.F. McIntosh	E. Hetherington	APPROVED Chas. Stephens
DATE MAR. 31, '69	SCALE 1" = 120 mi.	PLATE 4

LEGEND

Isohyetal Lines

20 Precipitation in Inches

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
MEAN ANNUAL RUNOFF
1956 - 66 PERIOD

T. INGLEDOW & ASSOCIATES LIMITED

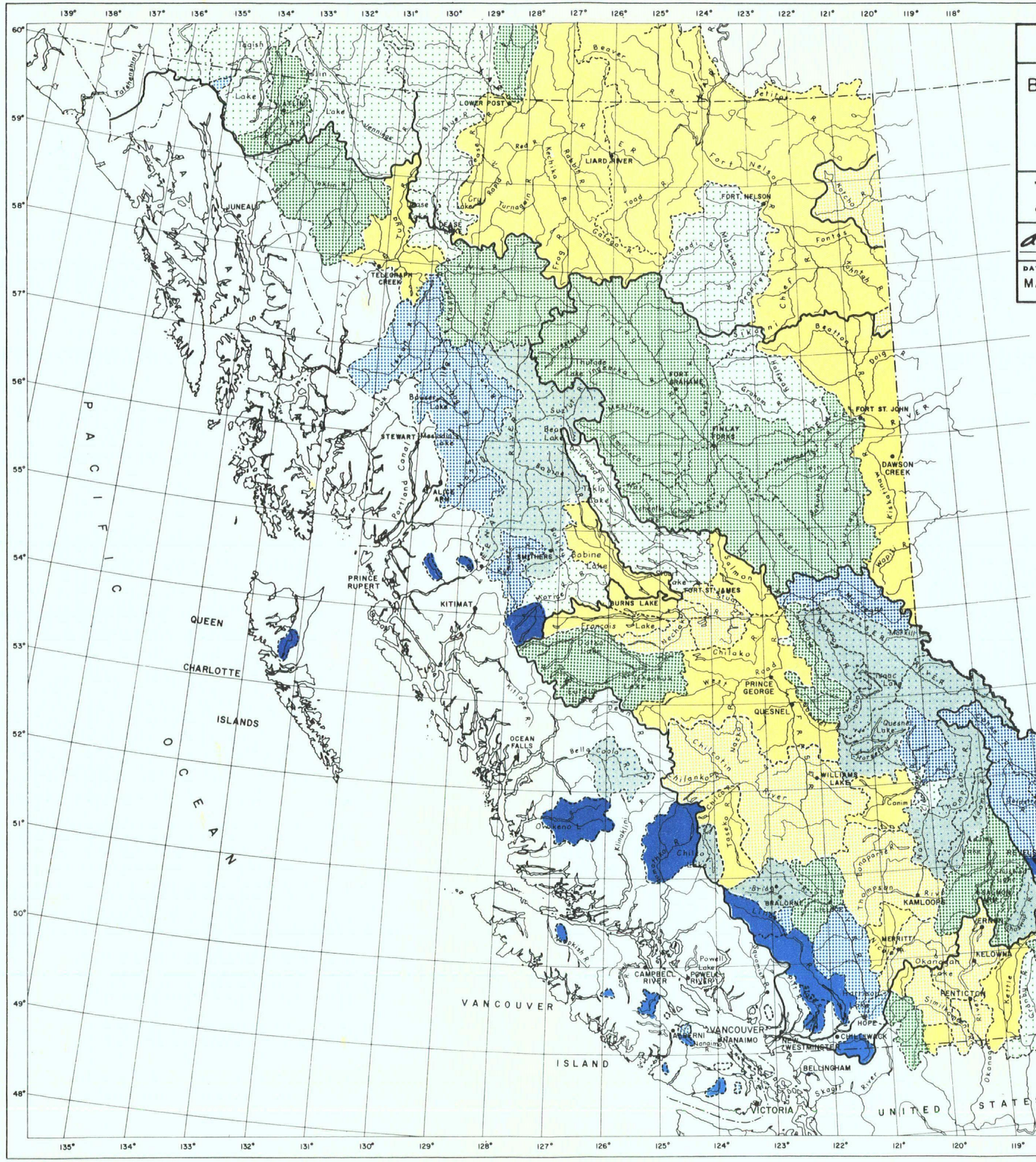
CONSULTING ENGINEERS VANCOUVER, CANADA

A.G. Sewell	W.R. Chin	APPROVED Ian S. Stephen
DATE MAR. 31, '69	SCALE 1" = 120 mi.	PLATE 5

LEGEND

Runoff in inches

- over 60
- 40 - 60
- 25 - 40
- 15 - 25
- 10 - 15
- 5 - 10
- 0 - 5



GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
MEAN DAILY PEAK FLOW
1963 - 64 WATER YEAR

T. INGLEDOW & ASSOCIATES LIMITED

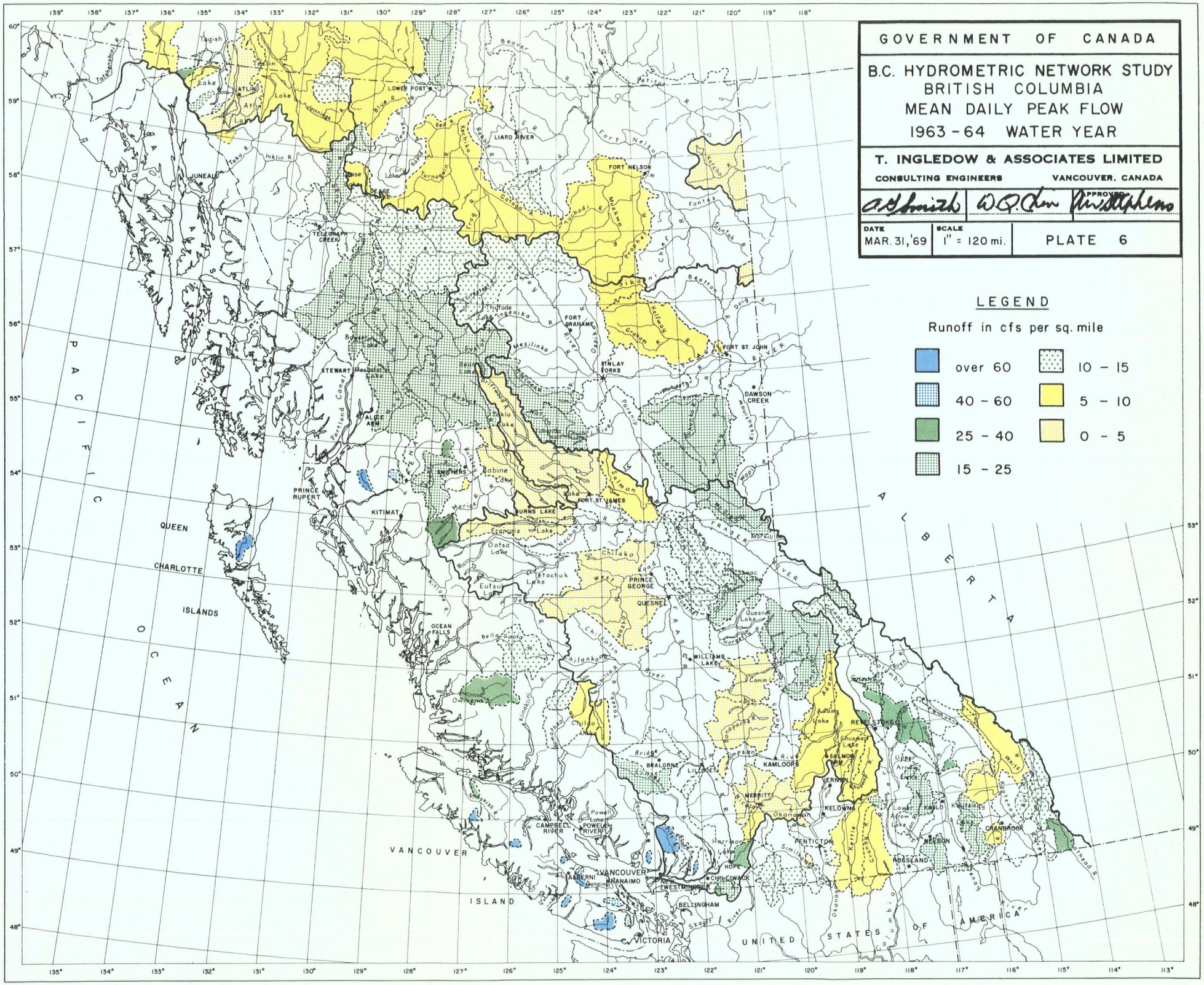
CONSULTING ENGINEERS VANCOUVER, CANADA

A.D. Smith	W.Q. Chow	APPROVED Christophers
DATE MAR. 31, '69	SCALE 1" = 120 mi.	PLATE 6

LEGEND

Runoff in cfs per sq. mile

- over 60
- 40 - 60
- 25 - 40
- 15 - 25
- 10 - 15
- 5 - 10
- 0 - 5



GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
MEAN MARCH FLOWS
1963 - 64 WATER YEAR

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

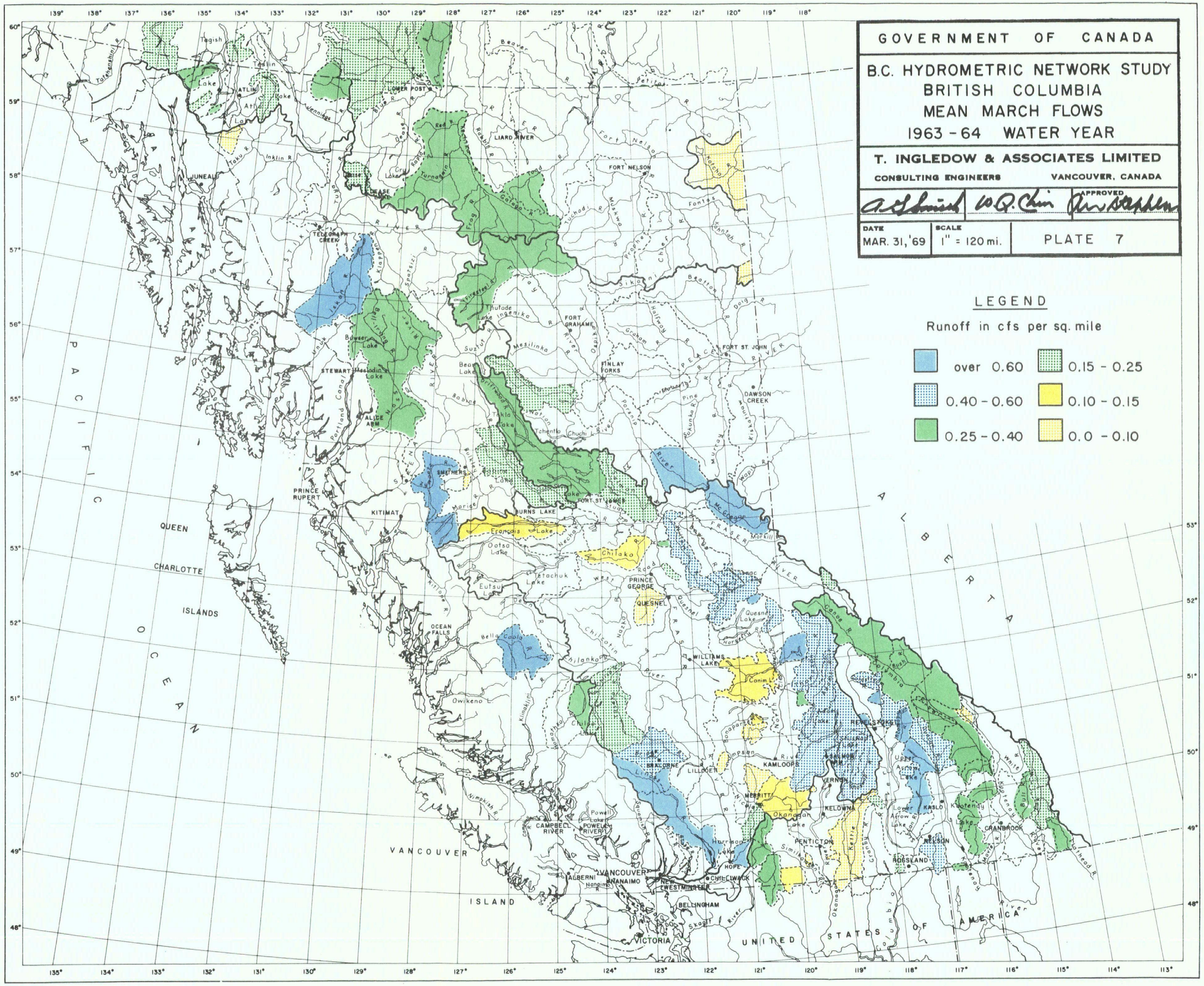
APPROVED

DATE	SCALE	
MAR. 31, '69	1" = 120 mi.	PLATE 7

LEGEND

Runoff in cfs per sq. mile

- over 0.60
- 0.40 - 0.60
- 0.25 - 0.40
- 0.15 - 0.25
- 0.10 - 0.15
- 0.0 - 0.10



GOVERNMENT OF CANADA

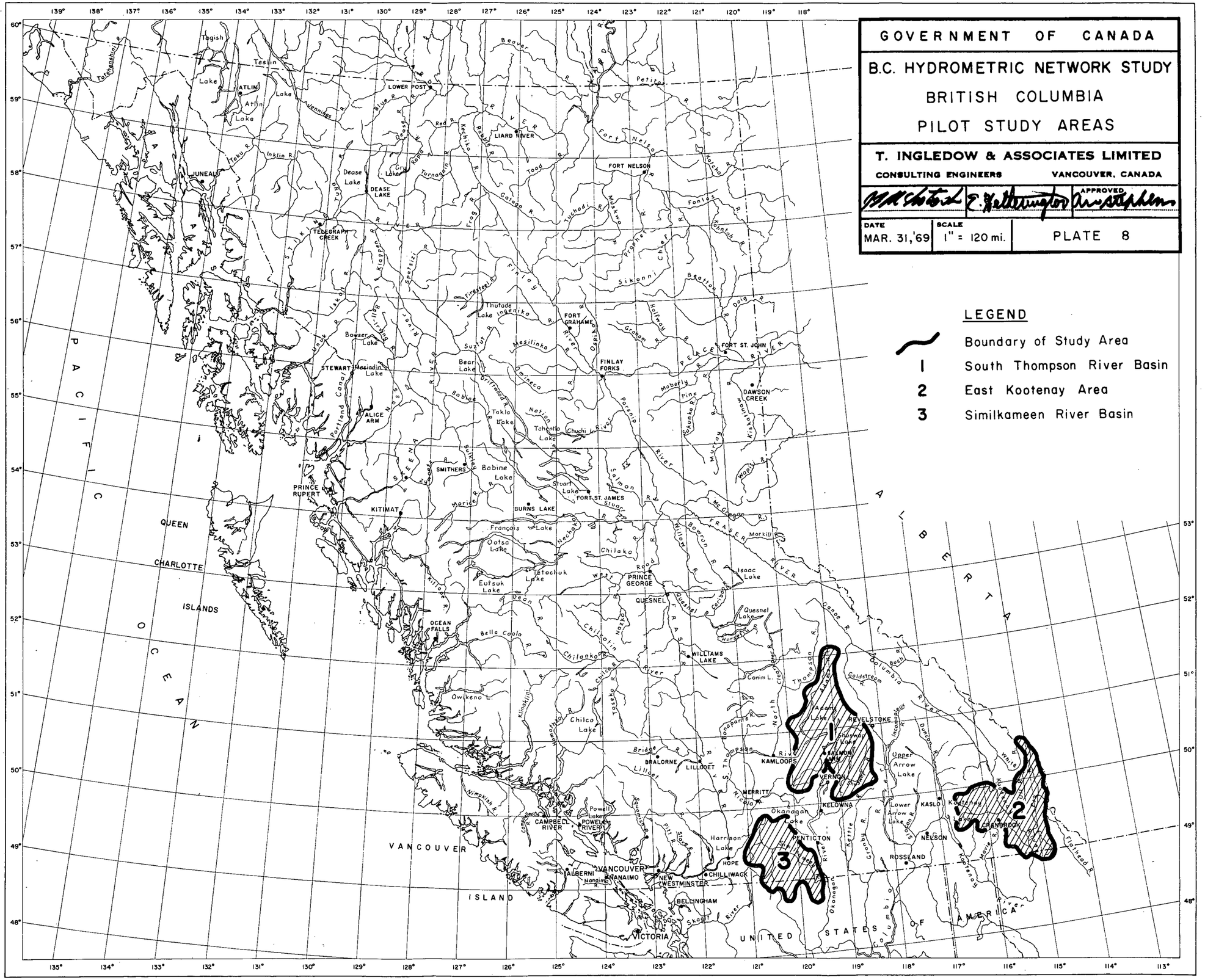
B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
PILOT STUDY AREAS

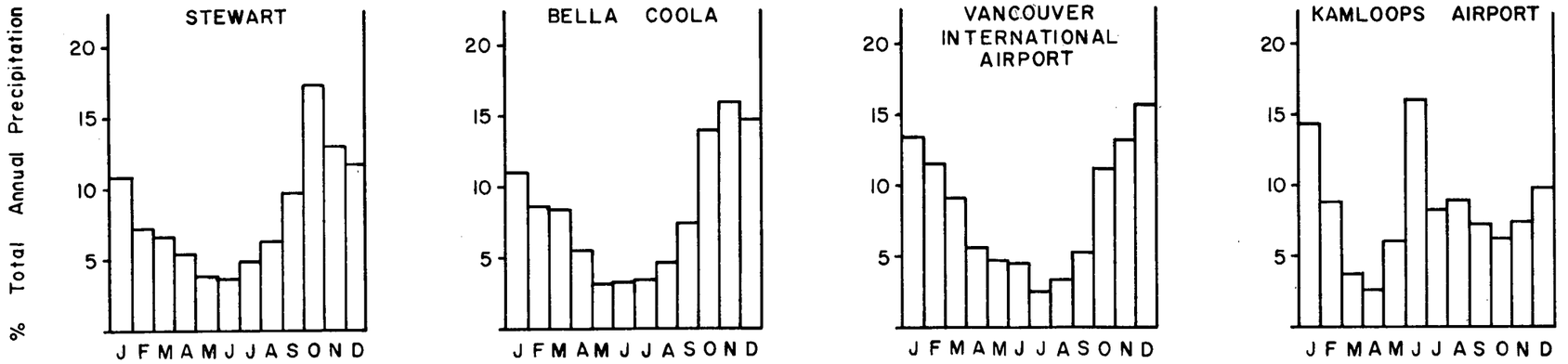
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS — VANCOUVER, CANADA

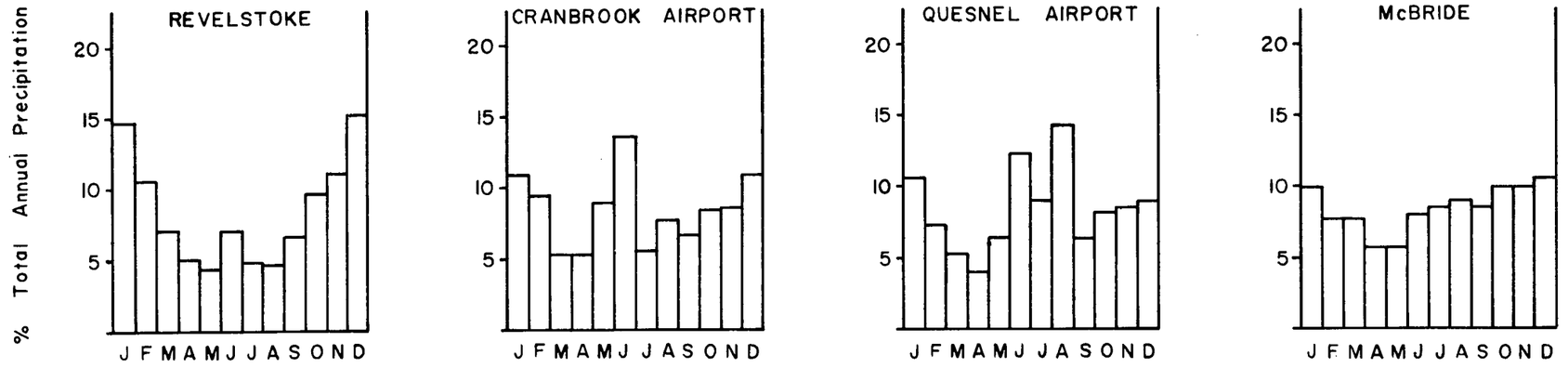
		APPROVED
DATE MAR. 31,'69	SCALE 1" = 120 mi.	PLATE 8

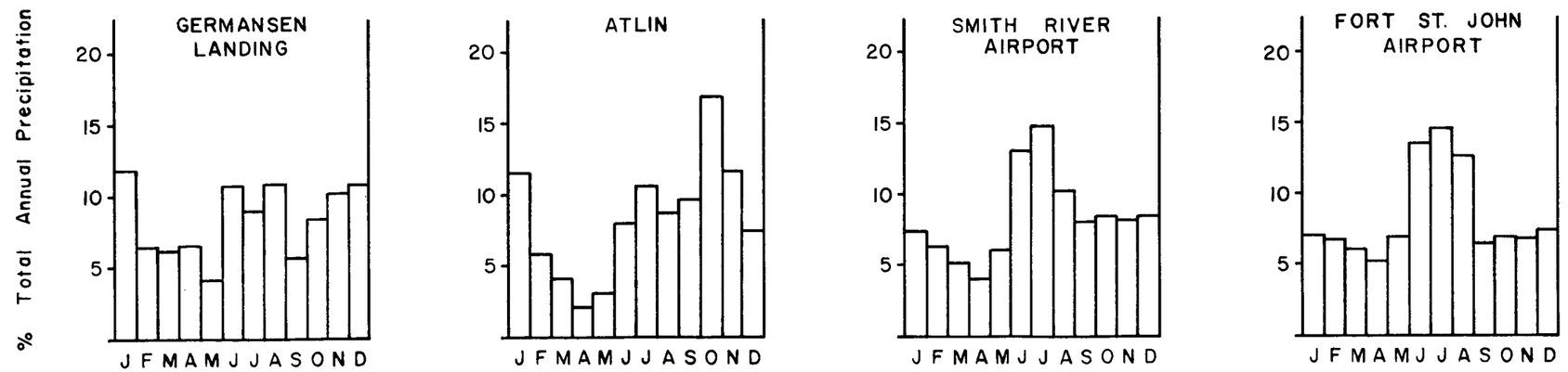
LEGEND

- Boundary of Study Area
- 1 South Thompson River Basin
- 2 East Kootenay Area
- 3 Similkameen River Basin









GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
INDEX PRECIPITATION GRAPHS

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED A. Stephens

DATE MAR. 31, '69 | SCALE AS SHOWN | PLATE 9

CHART OF HYDROMETRIC RECORDS FOR THE EAST KOOTENAY RIVER BASIN

STATION NO.	STATION NAME	DRAINAGE AREA SQ. MI.
8NG-1	Findlay Creek near Canal Flats	308
8NG-2	Bull River near Wardner	578
8NG-3	Mather Creek near Wasa	91
8NG-4	Gold Creek near Newgate	315
8NG-5	Kootenay River at Wardner	5,200
8NG-6	Linklater Creek near Newgate	40
8NG-7	Mark Creek near Marysville	66
8NG-8	Phillipps Creek at Roosville	8
8NG-9	Caithness (Rock) Creek near Galloway	12
8NG-10	Sand Creek near Galloway	52
8NG-11	Little Sand Creek near Jaffray	39
8NG-12	St. Mary River near Wycliffe	922
8NG-13	Mud Creek near Elko	7
8NG-14	Joseph Creek near Cranbrook	85
8NG-15	Joseph Creek at Cranbrook	56
8NG-16	Lussier Creek near Wasa	269
8NG-17	Gold Creek near Cranbrook	44
8NG-21	Tamarack Creek near Skookumchuck	5.2
8NG-22	Findlay Creek near Canal Flats	347
8NG-23	Perry Creek near Wycliffe	59
8NG-24	Jim Smith Creek near Cranbrook	6.9
8NG-26	Ta Ta Creek at Ta Ta Creek	5.6
8NG-27	Lakit Creek near Fort Steele	4.5
8NG-28	Eimer Creek near Kimberley	.70
8NG-29	Flag Creek near Flagstone	1.1
8NG-30	Mause Creek near Fort Steele	7.8
8NG-31	Cassimayook Creek near Baker	10
8NG-32	Wolf Creek near Ta Ta Creek	16
8NG-33	Mark Creek near Kimberley	
8NG-34	Haha Creek near Wardner	12

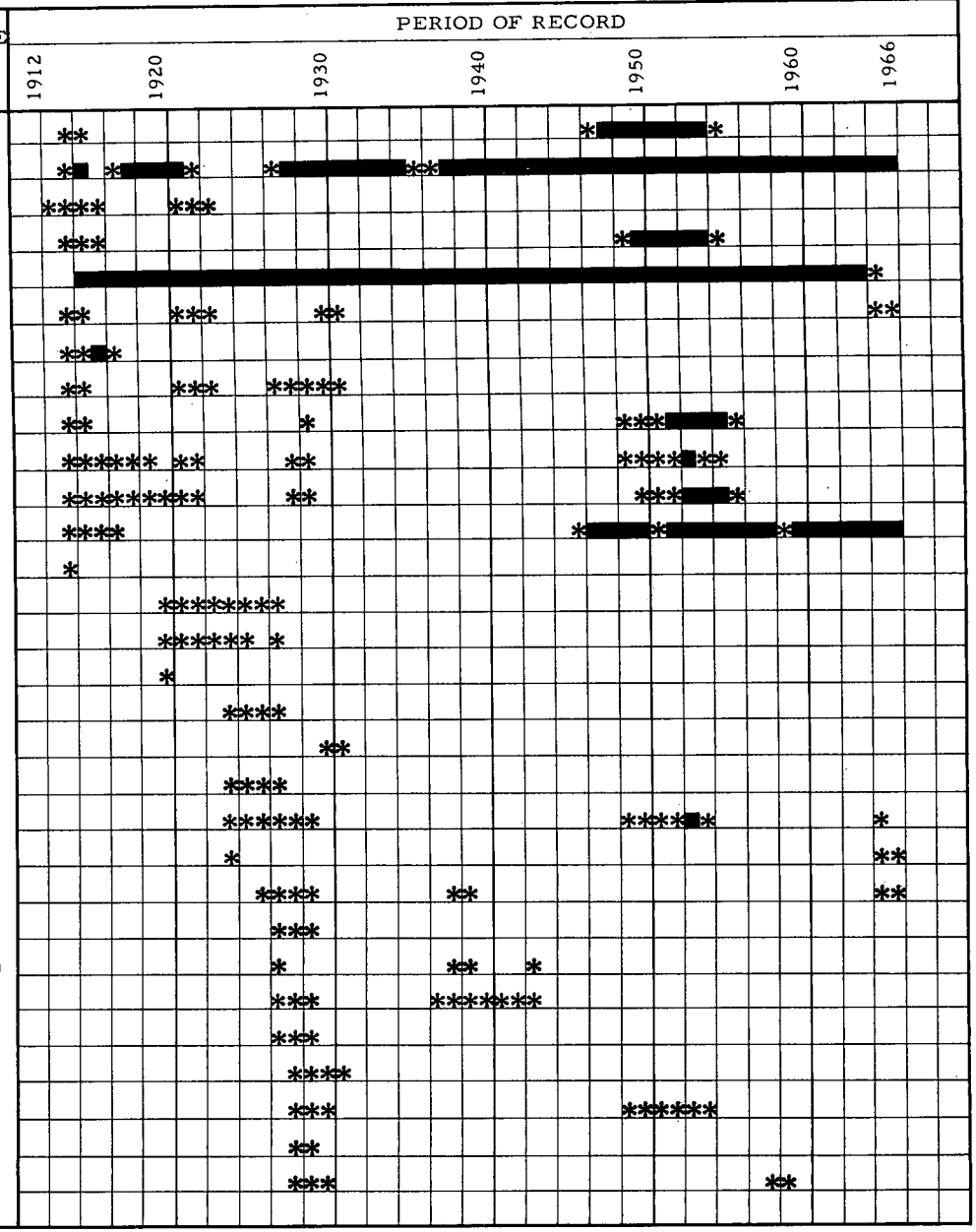


CHART OF HYDROMETRIC RECORDS FOR THE EAST KOOTENAY RIVER BASIN

STATION NO.	STATION NAME	DRAINAGE AREA SQ. MI.
8NG-35	Red Canyon Creek near Flagstone	6.4
8NG-36	Mather Creek near Cranbrook	83
8NG-37	Arnold Creek near Baker	1.4
8NG-38	Angus Creek near Cranbrook	2.2
8NG-39	Kootenai River near Rexford	8,420
8NG-40	Mather Creek near Cranbrook	79
8NG-42	Kootenay River at Newgate	7,660
8NG-43	Gold Creek (Diversion) near Cranbrook	
8NG-44	Lussier River near Canal Flats	166
8NG-45	Archibald Brook near Kimberley	
8NG-46	St. Mary River near Marysville	571
8NG-47	Phillipps Creek (Lower) near Roosville	22
8NG-48	Phillipps Creek (Upper) near Roosville	20
8NG-49	Lewis Creek near Ta Ta Creek	12
8NG-51	Skookumchuck Creek near Skookumchuck	246
8NG-52	Wild Horse River near Fort Steele	72
8NG-53	Kootenay River near Skookumchuck	2,780
8NG-56	Houle Creek near Kimberley	7.4
8NG-58	Norbury Creek near Wardner	44
8NG-59	Lakit Creek near Fort Steele	3.0
8NG-60	Sand Creek near Galloway	54
8NG-61	Chipka River near Wardner	7.0
8NG-62	Little Bull Creek near Bull River	6.5
8NG-63	Norbury Creek at Outlet Norbury Lakes	
8NG-64	Supply Creek near Bull River	3.9
8NG-65	Kootenay River at Fort Steele	4,350
8NK-1	Elk River at Elko	1,370
8NK-2	Elk River at Fernie	1,200
8NK-4	Lizard Creek near Fernie	14
8NK-5	Elk River at Phillips Bridge near Elko	1,720

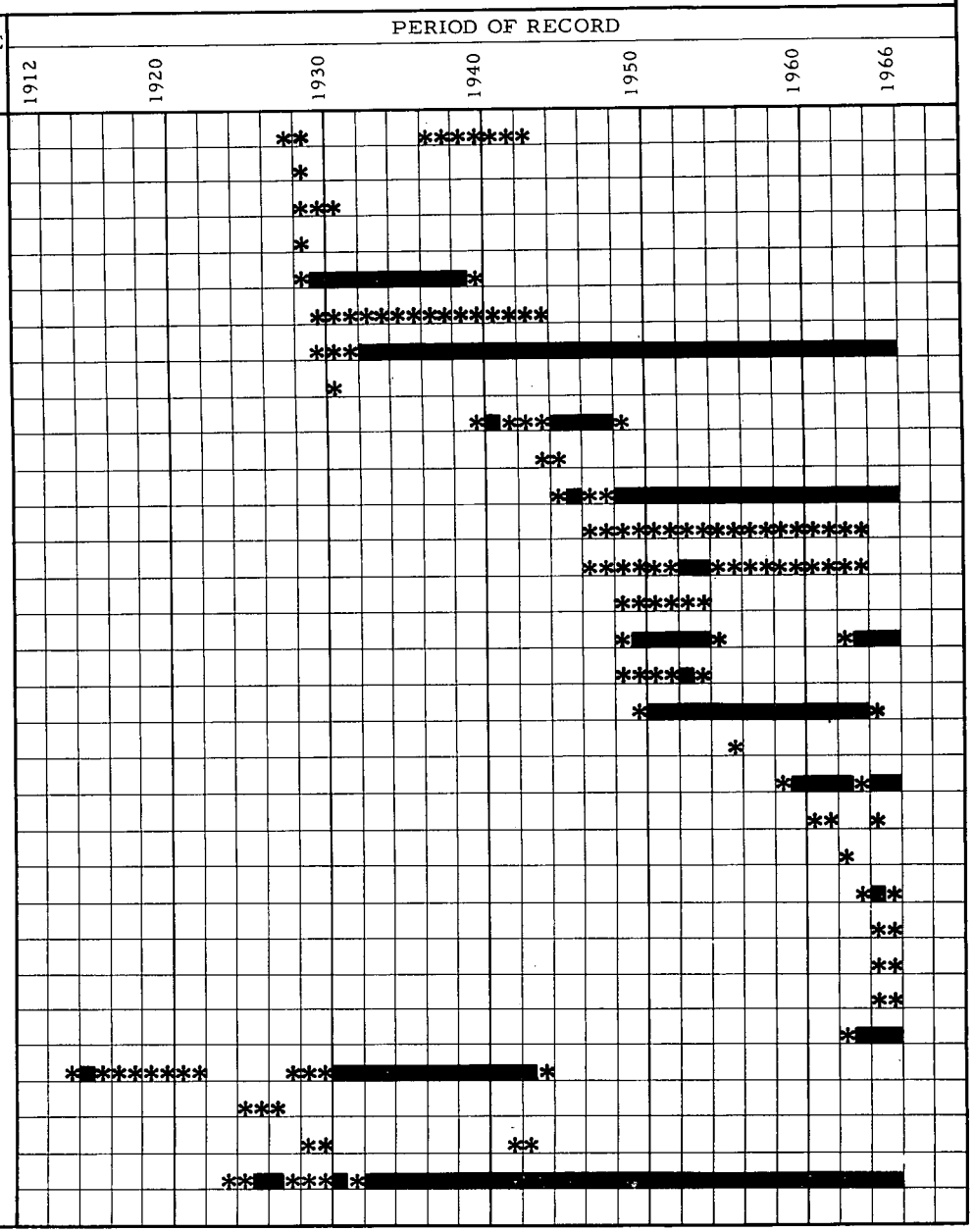


CHART OF HYDROMETRIC RECORDS FOR THE EAST KOOTENAY RIVER BASIN

STATION NO.	STATION NAME	DRAINAGE AREA SQ. MI.
8NK-6	Raymond Creek near Elko	2.6
8NK-7	Quail Creek near Hosmer	
8NK-8	Maguire Creek near Grasmere	7.5
8NK-11	Hartley Creek near Fernie	6.9
8NK-12	Elk River at Stanley Park near Elko	1,370
8NK-13	Aqueduct Creek near Natal	.46
8NK-14	Qualtieri Creek near Natal	.24
8NK-16	Elk River near Natal	760
8NK-17	Whiting Creek near Natal	
8NP-1	Flathead River at Flathead	450

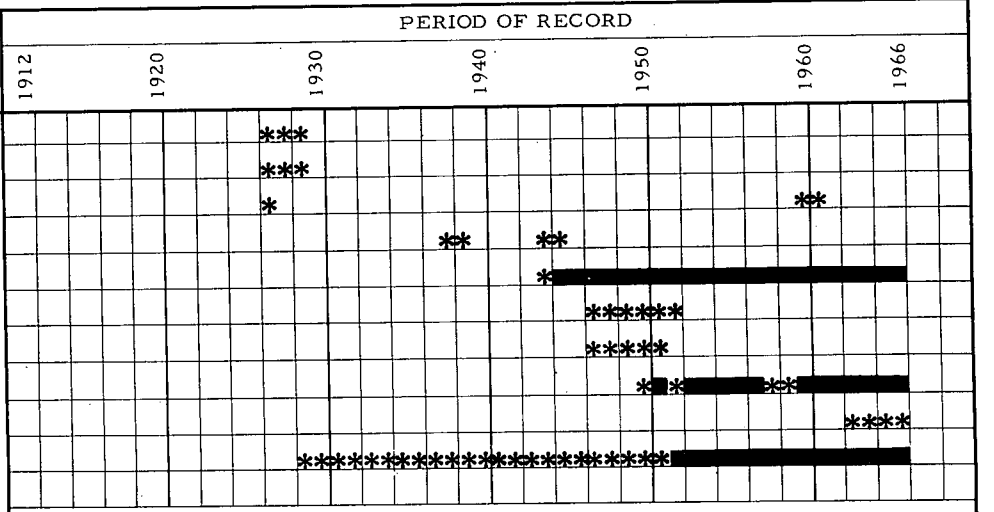
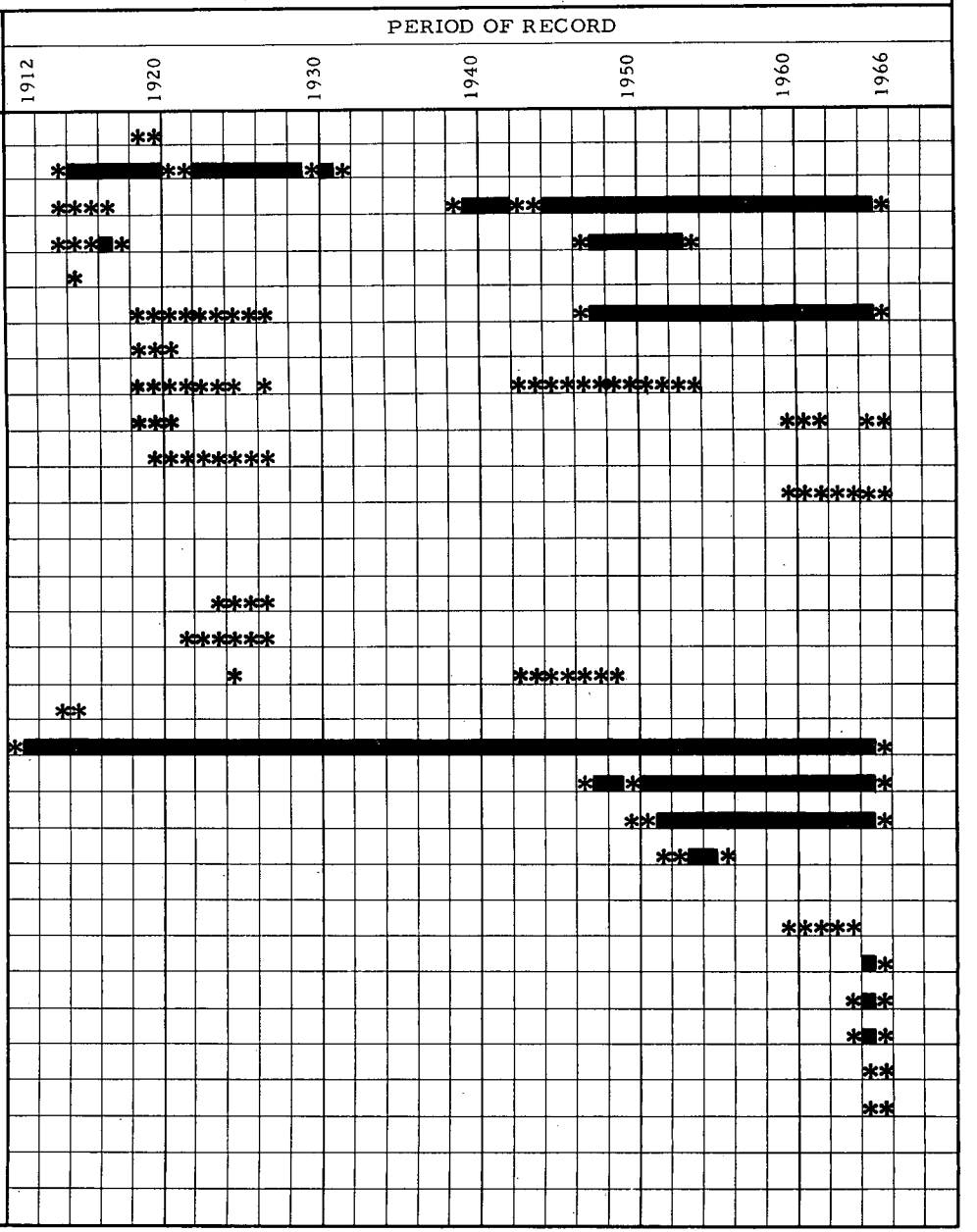
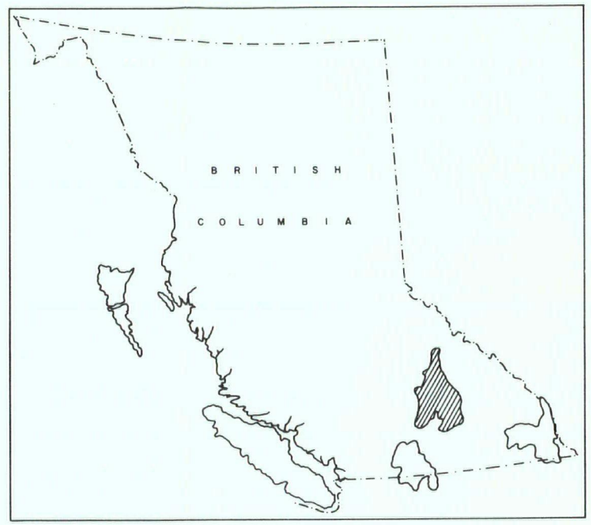


CHART OF HYDROMETRIC RECORDS FOR THE SIMILKAMEEN RIVER BASIN

STATION NO.	STATION NAME	DRAINAGE AREA SQ. MI.
8NL-5	Tulameen River near Princeton	
8NL-6	Similkameen River near Keremeos	2,883
8NL-7	Similkameen River at Princeton	730
8NL-8	Tulameen River at Coalmont	506
8NL-9	Hedley Creek near Hedley	149
8NL-10	Keremeos Creek near Olalla	67
8NL-11	Olalla Creek at Olalla	10
8NL-12	Allison Creek near Princeton	223
8NL-13	Summers Creek near Princeton	126
8NL-14	Keremeos Creek near Olalla	29
8NL-15	Asp Creek near Princeton	20
8NL-16	Arcot Creek near Hedley	
8NL-17	La Lievre Spring near Olalla	
8NL-18	Hayes (Five Mile) Creek near Jura	238
8NL-19	Summers Creek near Princeton	92
8NL-20	Hayes (Five Mile) Creek near Princeton	290
8NL-21	Granite Creek near Coalmont	116
8NL-22	Similkameen River near Nighthawk, Washington	3,508
8NL-23	Otter Creek at Tulameen	260
8NL-24	Tulameen River at Princeton	680
8NL-25	Wolfe Creek near Princeton	85
8NL-32	Cowston Creek near Cowston	
8NL-33	Little Muddy Creek near Manning Park	10
8NL-34	Smith Creek near Hedley	47
8NL-35	Soukup Creek near Hedley	6.3
8NL-36	Whipsaw Creek near Princeton	64
8NL-37	Trehearne Creek at mouth near Princeton	6.8
8NL-38	Similkameen River near Hedley	2,156
8NL-39	Siwash Creek near Princeton	67
8NL-40	Richter Creek near Osoyoos	5.9





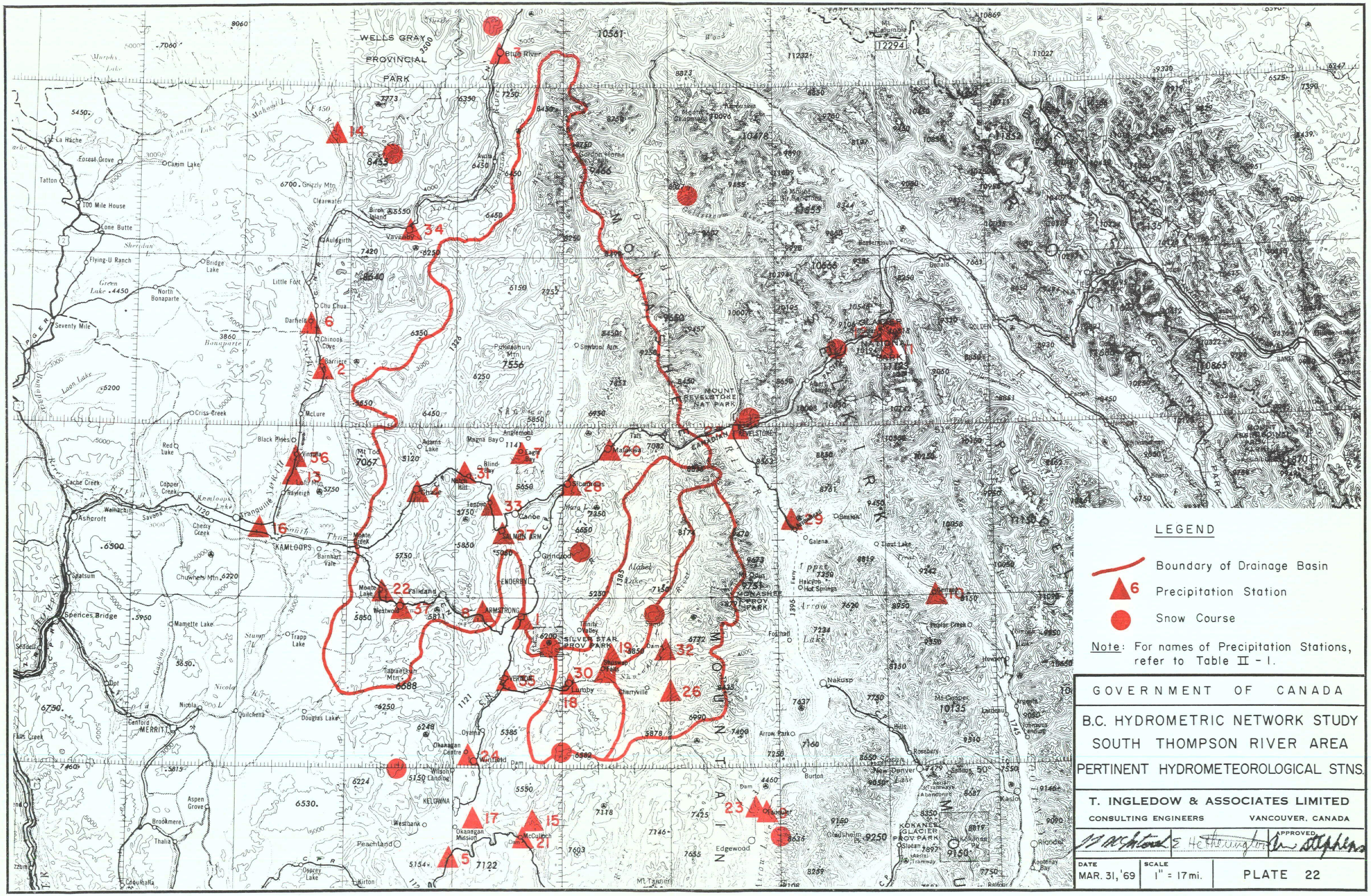
KEY MAP

GOVERNMENT OF CANADA

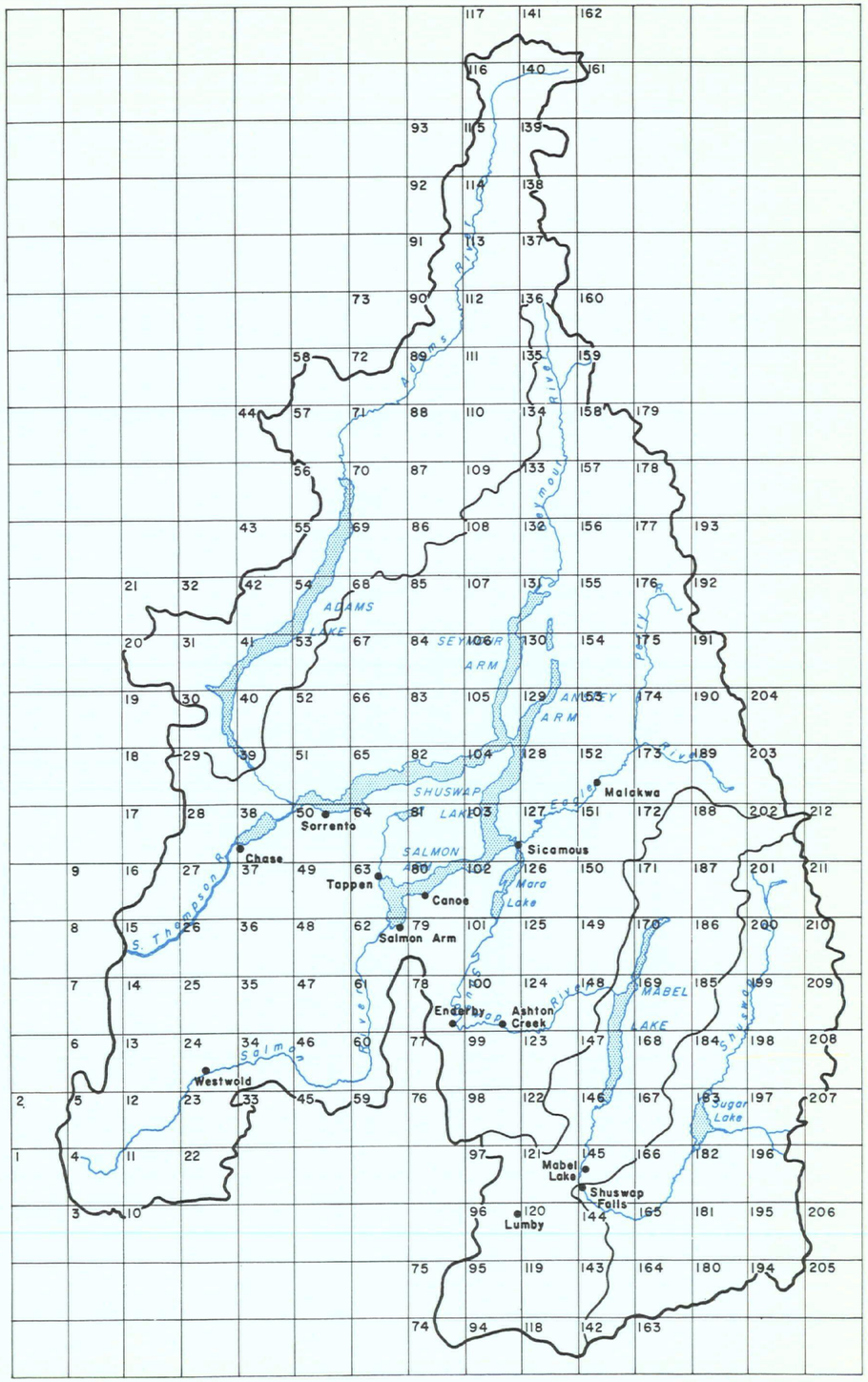
B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
SOUTH THOMPSON RIVER BASIN

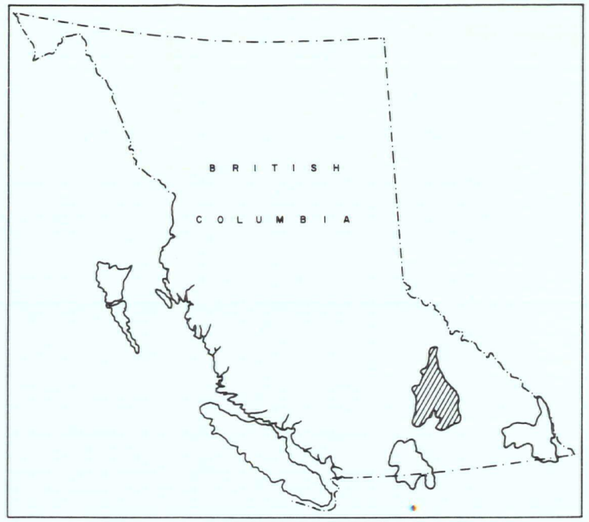
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

J.J. McIntosh	E. Hetherington	APPROVED Chr. Stephens
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 21



LEGEND
Boundary of Drainage Basin
Precipitation Station
Snow Course
Note: For names of Precipitation Stations, refer to Table II - I.
GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER AREA
PERTINENT HYDROMETEOROLOGICAL STNS.
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS
VANCOUVER, CANADA
APPROVED
DATE
MAR. 31, '69
SCALE
1" = 17 mi.
PLATE 22
WELLS GRAY PROVINCIAL PARK
KAMLOOPS
SALMON ARM
ENDERBY
ARMSTRONG
VERNON
KELOWNA
MERRITT
REVELSTOKE
MOUNT REVELSTOKE NAT PARK
SILVER STAR PROV PARK
MONASHEE PROV PARK
KOKANEE GLACIER PROV PARK





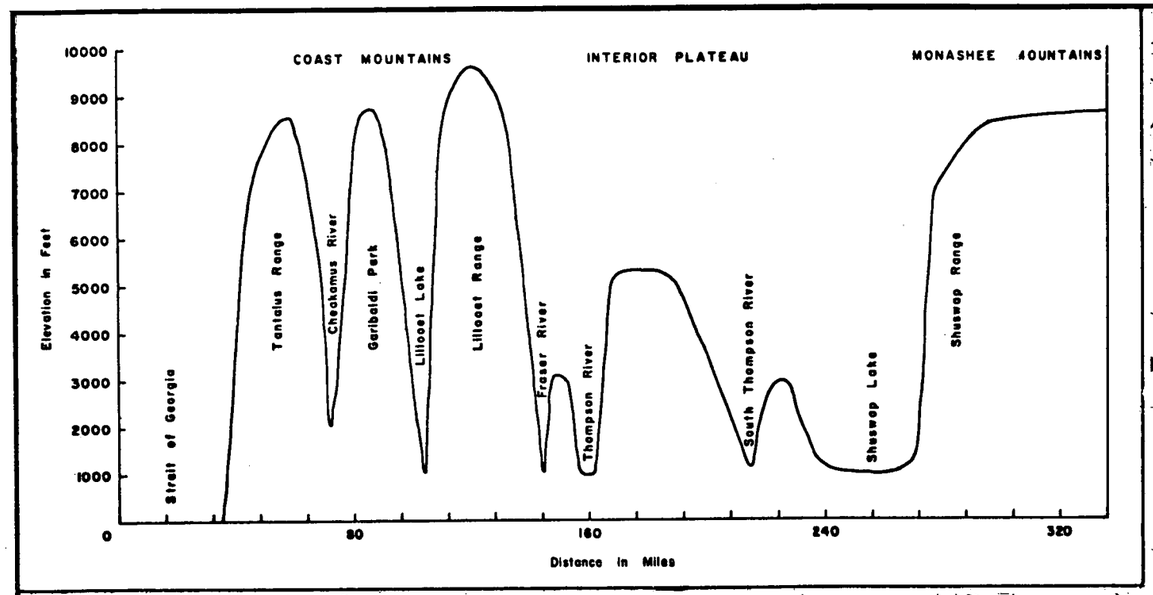
KEY MAP

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
REGRESSION STUDY
GRID SQUARE LAYOUT

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

J.A. McIntosh	E. Hetherington	APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 23



SECTION A-A

LEGEND

Mountain Barrier

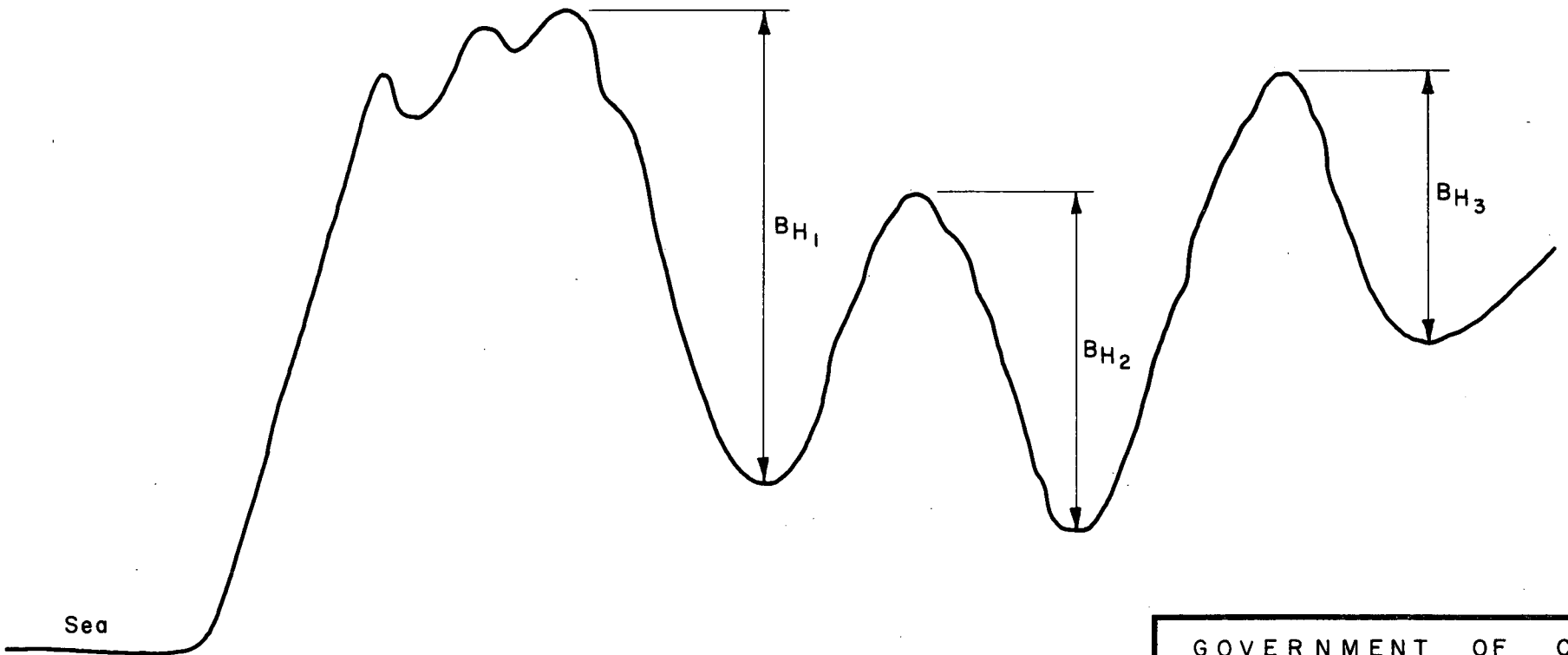
Boundary of Drainage Basin

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
REGRESSION STUDY
PHYSIOGRAPHIC PARAMETERS

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

DATE	SCALE	PLATE
MAR. 31, '69	1" = 30 mi.	24



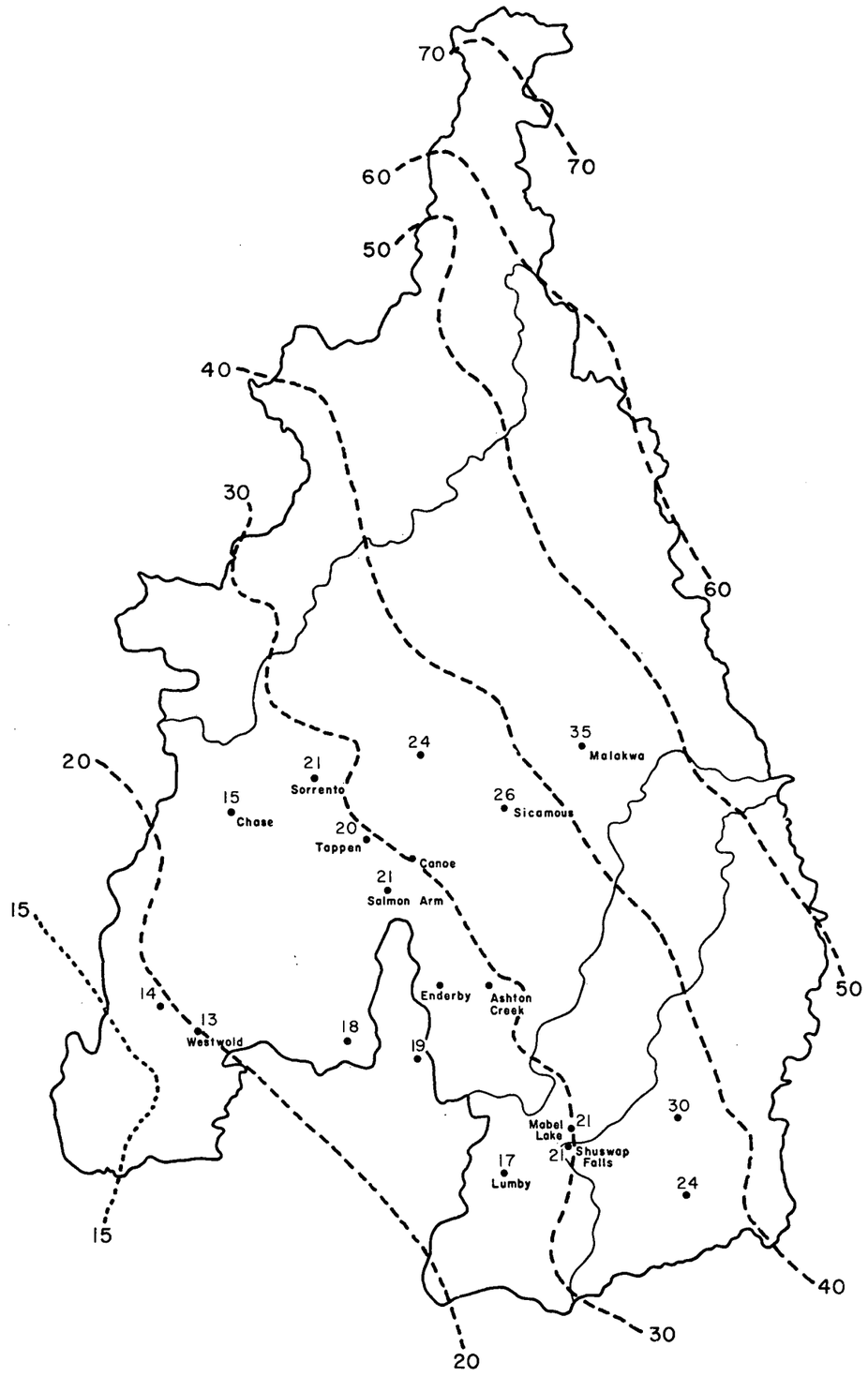
$$Se \text{ (shield effect)} = \Sigma B_{Hi} = B_{H1} + B_{H2} + B_{H3} + \ldots\ldots$$

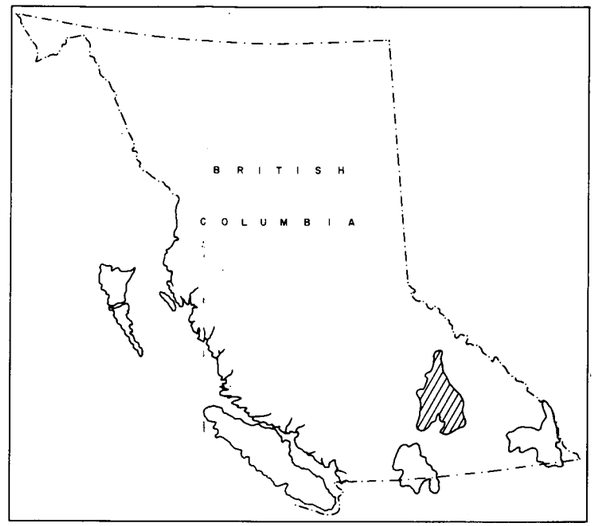
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
REGRESSION STUDY
SHIELD EFFECT DEFINITION SKETCH

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

K.Y. Cyung	Z. Herrington	APPROVED Ian Stephens
DATE MAR. 31, '69	SCALE N T S	PLATE 25





KEY MAP

LEGEND

Isohyetal Lines

60 Precipitation in Inches

24 Observed Precipitation

Note: Isohyetal lines derived from iterative procedure using one K-value for overall basin.

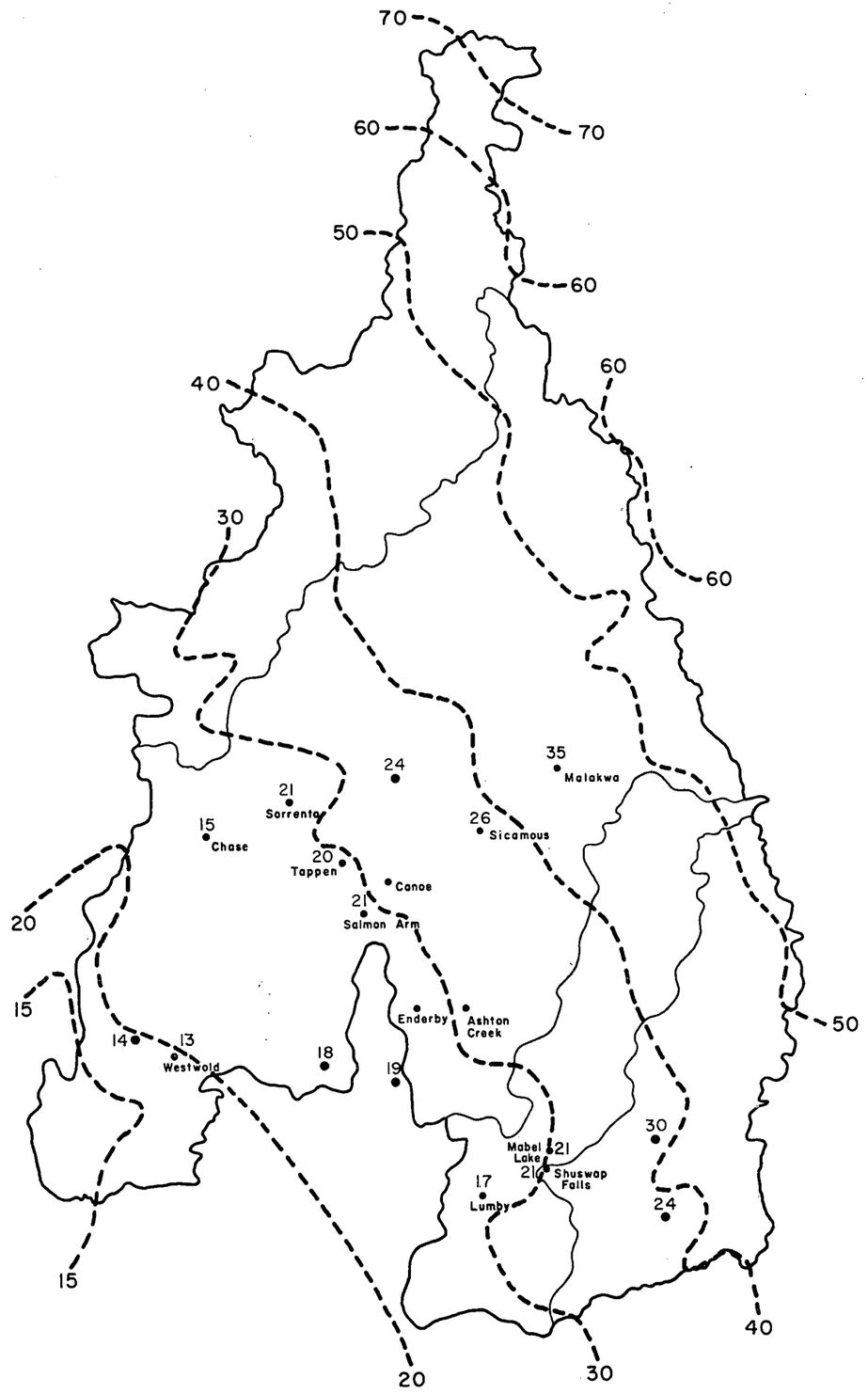
GOVERNMENT OF CANADA

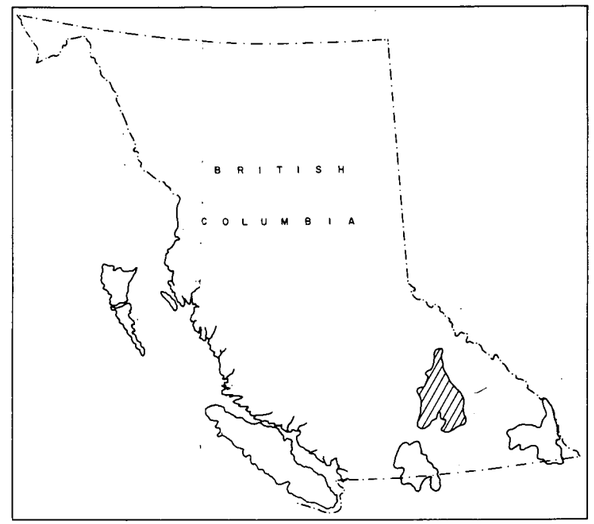
B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
ISOHYETAL LINES

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

K.Y.C. Leung | C. Hetherington | APPROVED Ian Stephen

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 26 A





KEY MAP

LEGEND

Isohyetal Lines

60 Precipitation in Inches

24 Observed Precipitation

Note: Isohyetal lines derived from iterative procedure using separate K-values for each sub-basin.

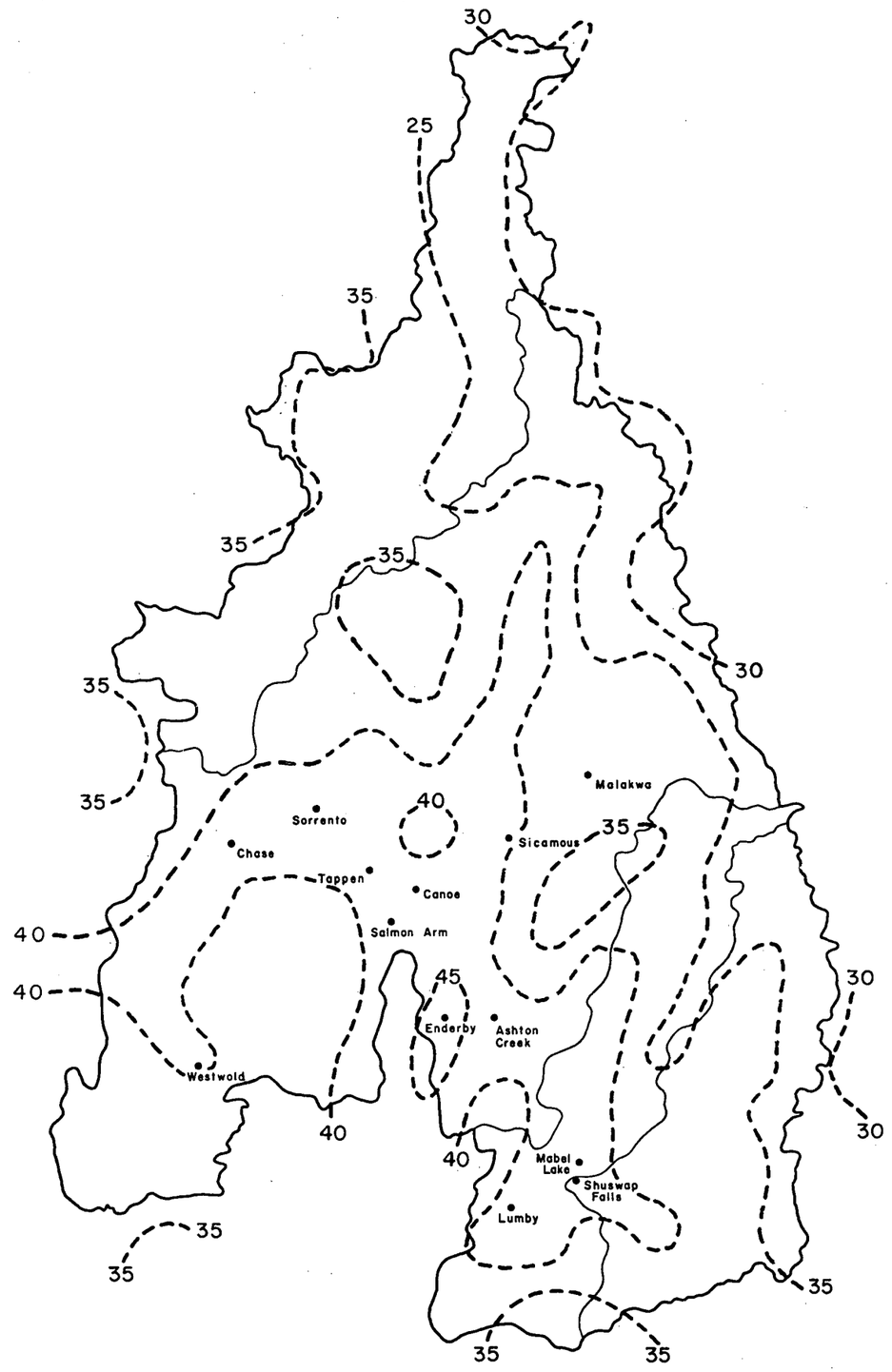
GOVERNMENT OF CANADA

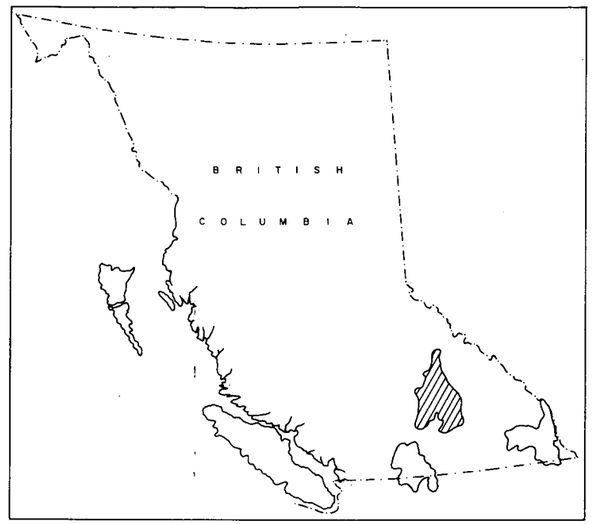
B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
ISOHYETAL LINES

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

K.Y. Cheung | E. Hetherington | APPROVED A.W. Stephens

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 26 B





KEY MAP

LEGEND

Isothermal Lines

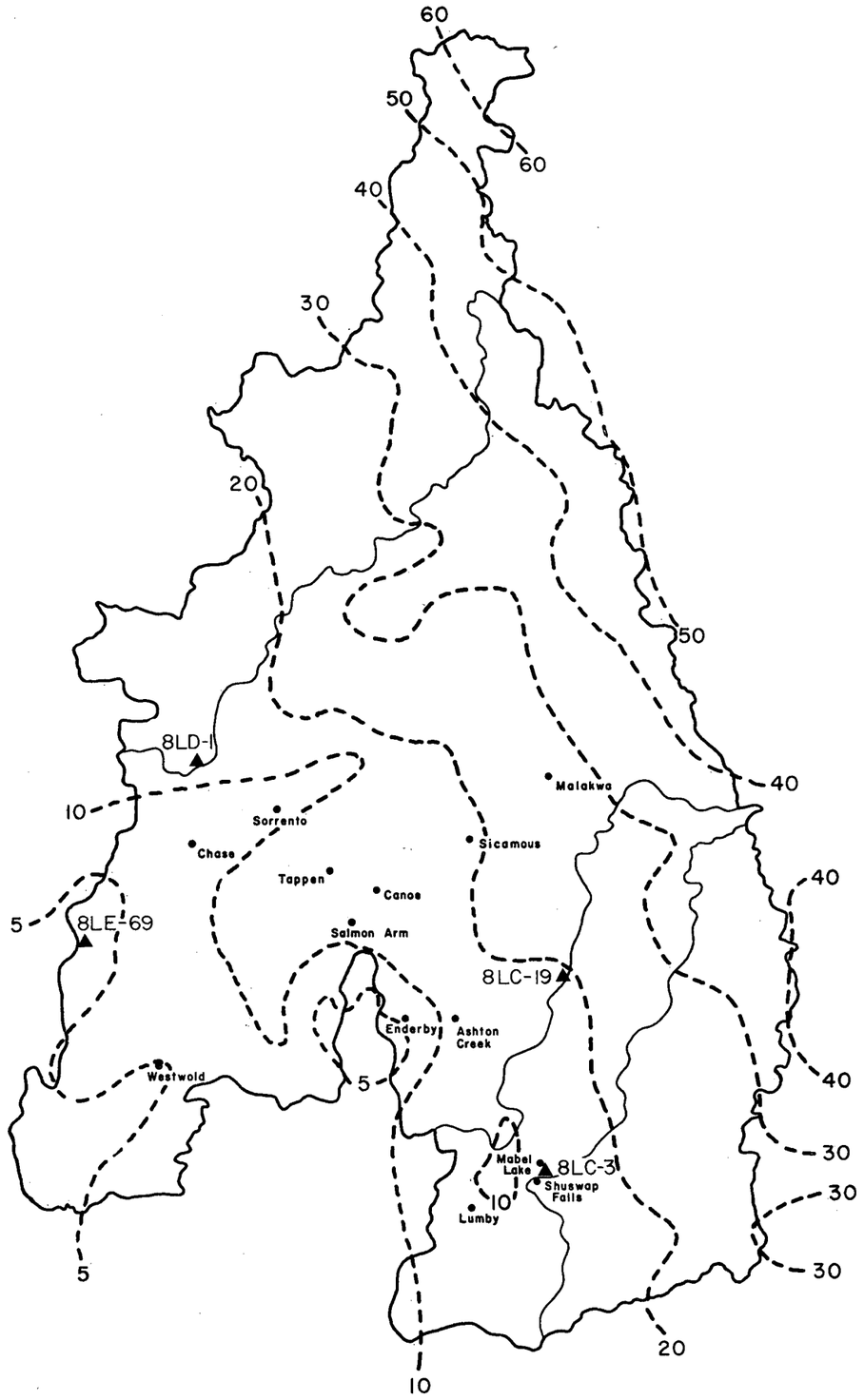
25 Temperature in Degrees Fahrenheit

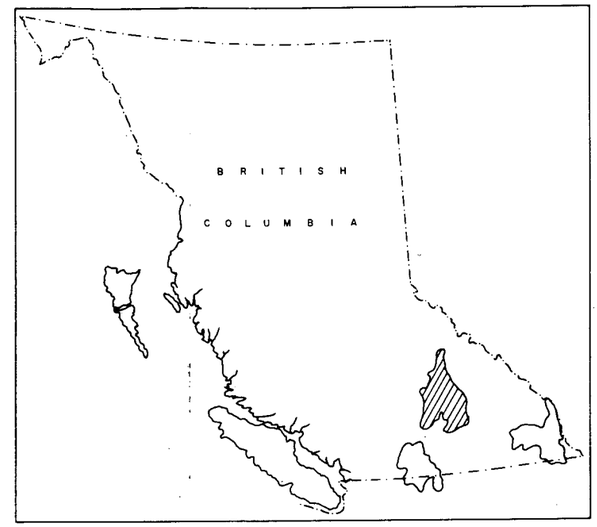
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
ISOTHERMAL LINES

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

		APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 27





KEY MAP

LEGEND

Iso - Runoff Lines

20 Runoff in Inches

8LC-3 ▲ Discharge Stations

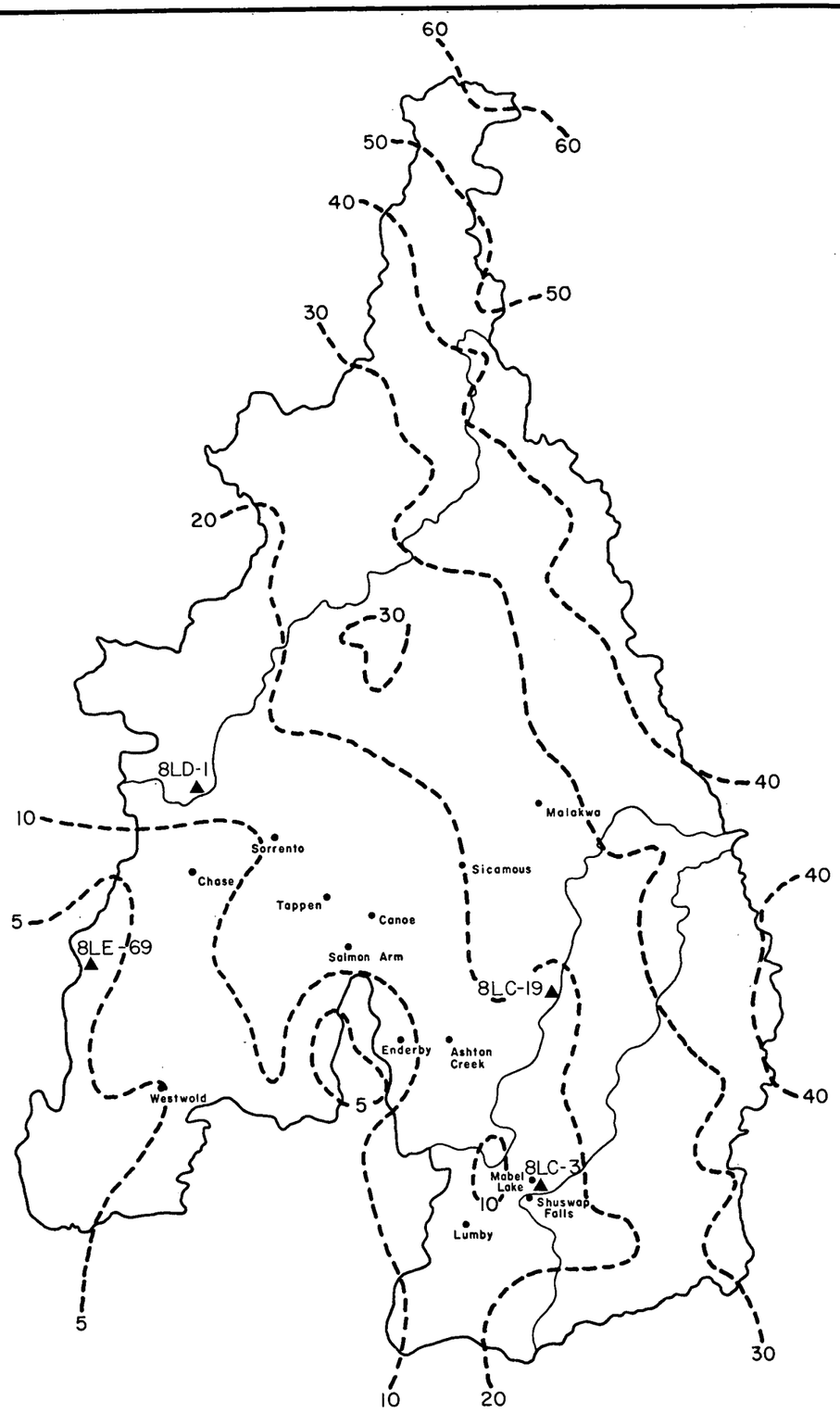
Note: Iso - Runoff lines derived from iterative procedure using one K - value for overall basin.

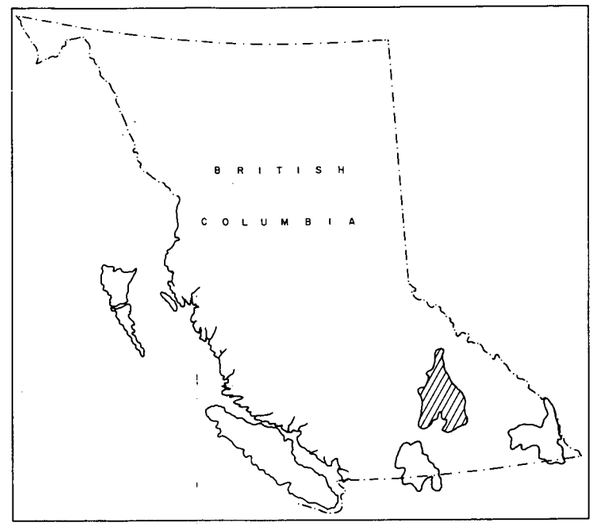
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
ISO - RUNOFF LINES

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

K.Y. Cyma	C. Hetherington	APPROVED A. Sapha
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 28A





KEY MAP

LEGEND

Iso - Runoff Lines

20 Runoff in Inches

8LC-3 ▲ Discharge Stations

Note: Iso - Runoff lines derived from iterative procedure using separate K - values for each sub - basin.

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
SOUTH THOMPSON RIVER BASIN
ISO - RUNOFF LINES

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

K.Y.C. Leung	E. McHarrington	APPROVED R.W. Stephens
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 28 B

GOVERNMENT OF CANADA

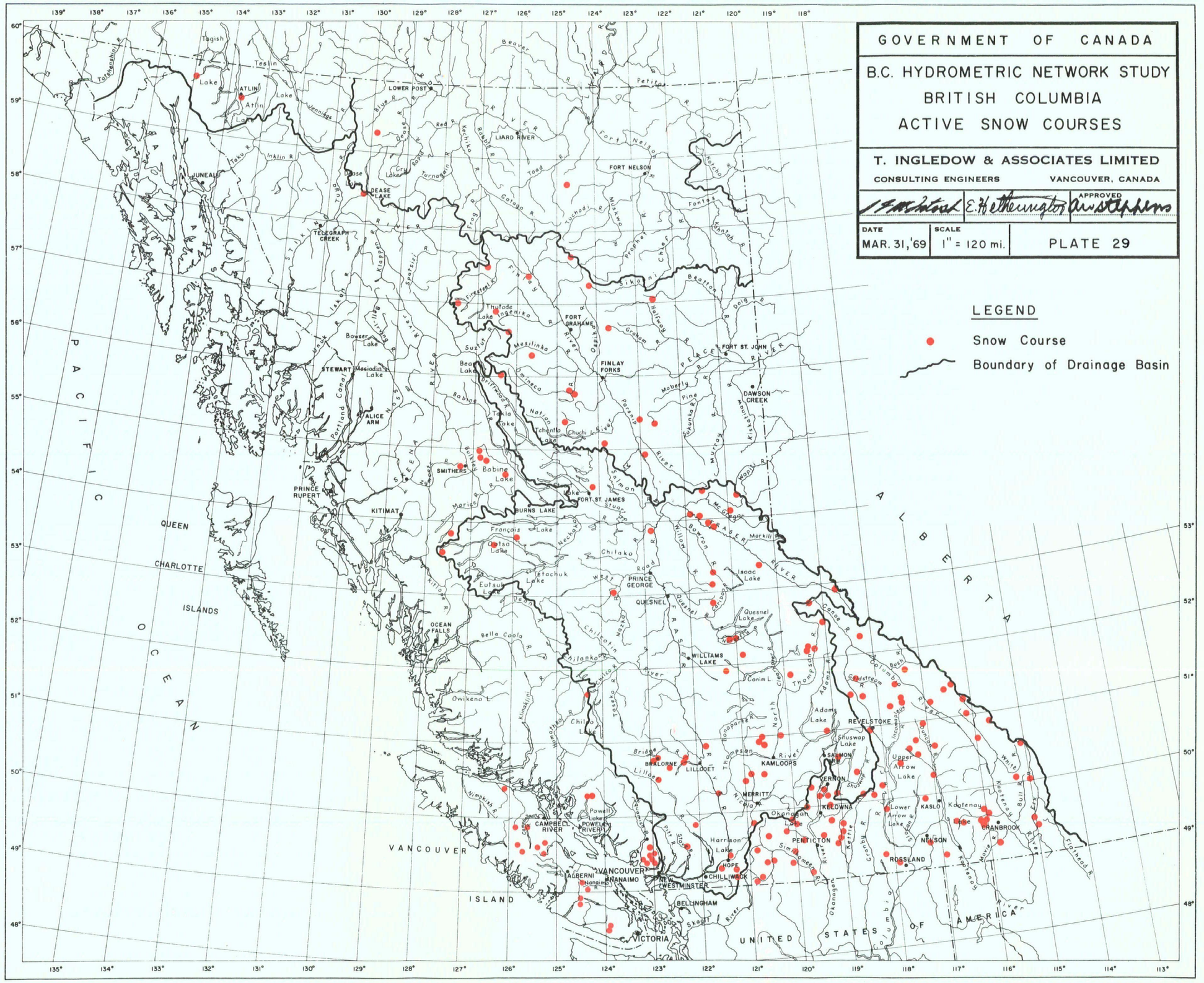
B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
ACTIVE SNOW COURSES

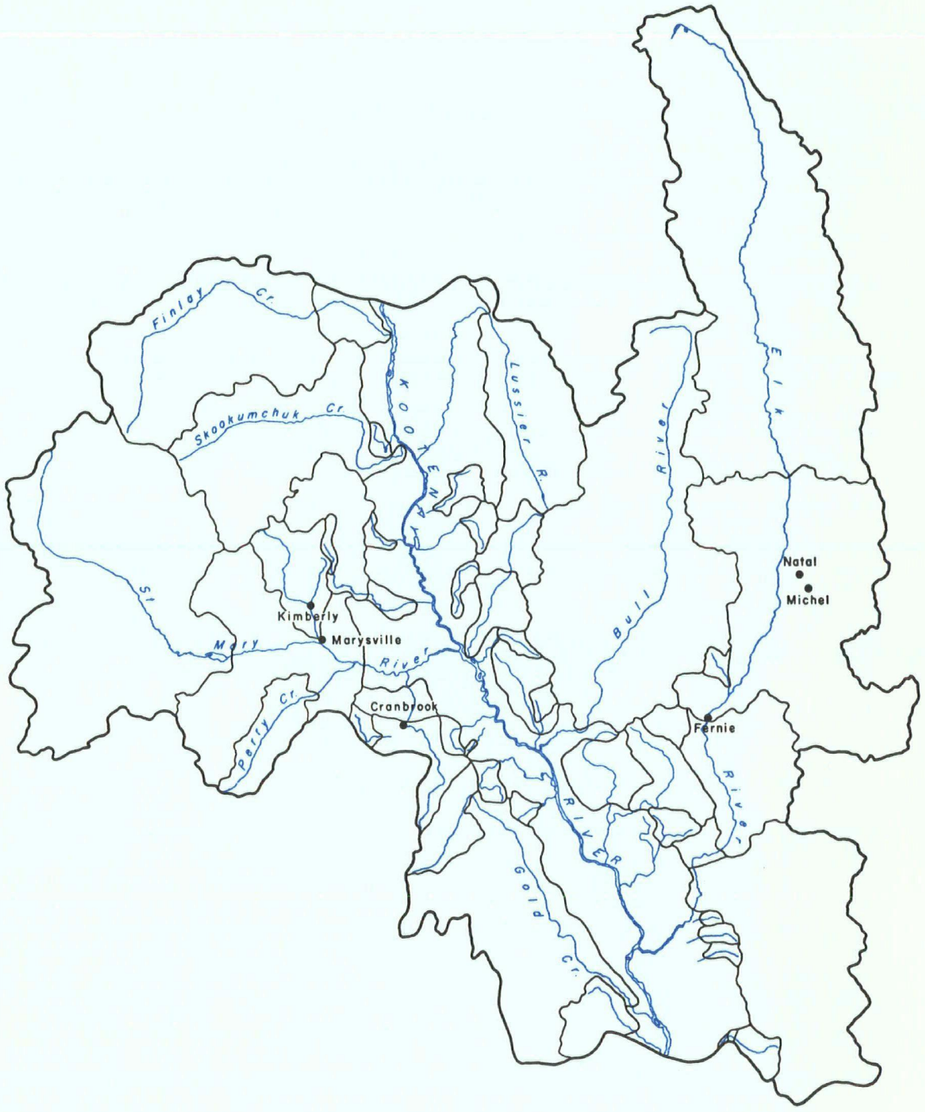
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

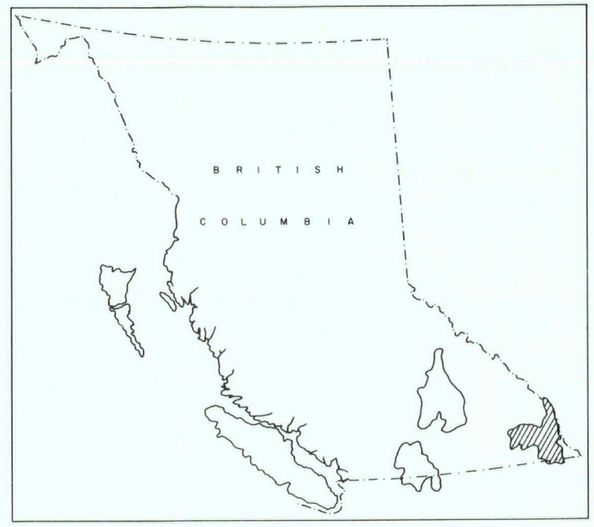
	E. Hetherington	APPROVED Am Stephens
DATE MAR. 31, '69	SCALE 1" = 120 mi.	PLATE 29

LEGEND

- Snow Course
- Boundary of Drainage Basin







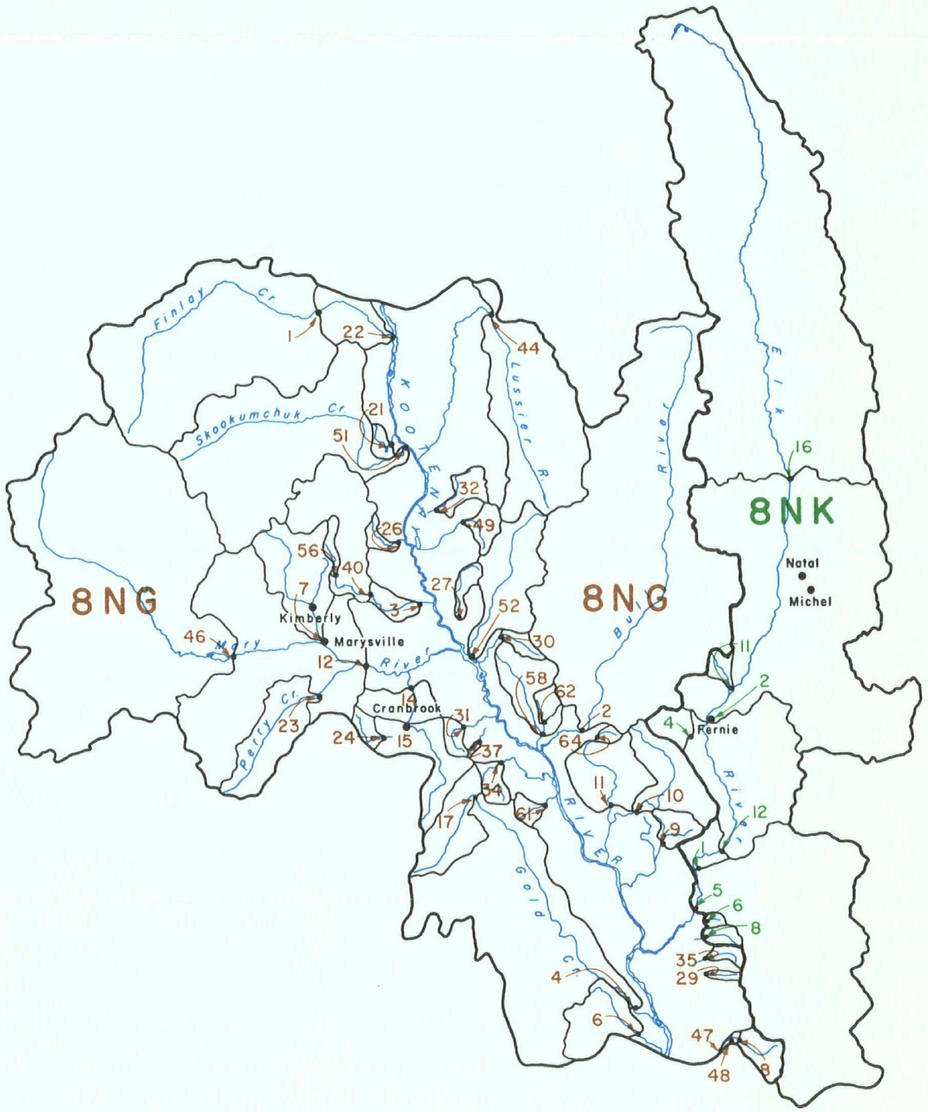
KEY MAP

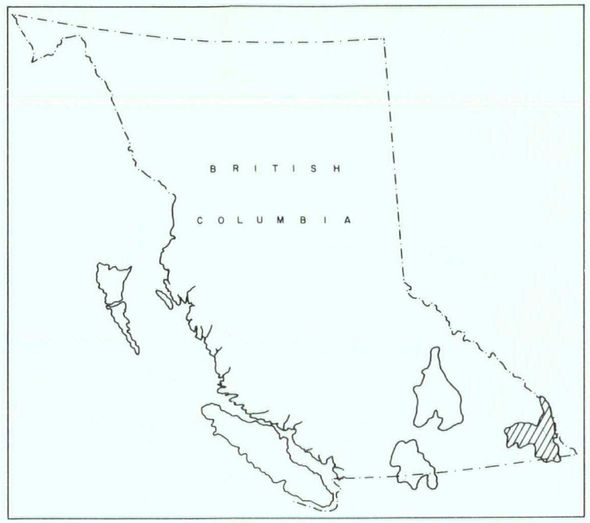
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
EAST KOOTENAY AREA

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

J.J. McCool	E. Hetherington	APPROVED C.A. Stephens
DATE MAR. 31,'69	SCALE 1" = 16 mi.	PLATE 31





KEY MAP

LEGEND

19 — Discharge Station

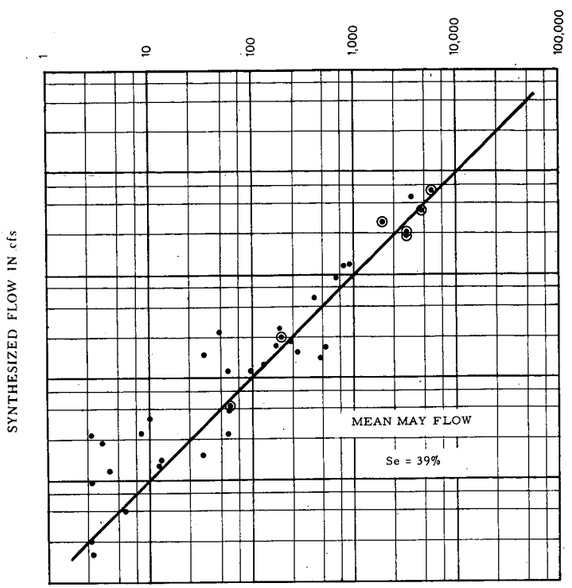
Boundary of Drainage Basin

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
REGRESSION STUDY
PERTINENT DISCHARGE STATIONS

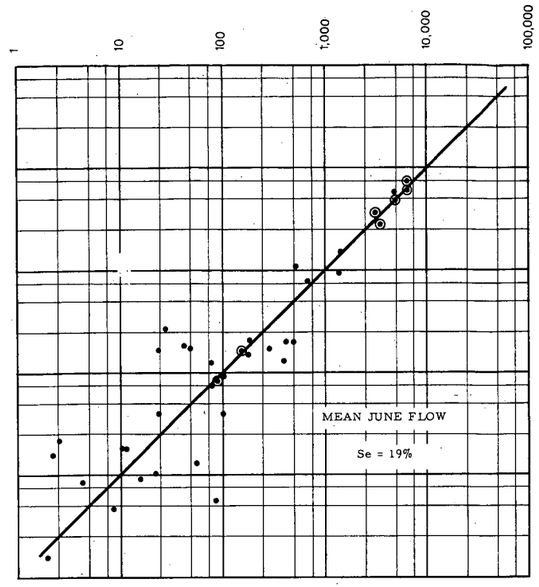
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

	W.Q. Chin	APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 32



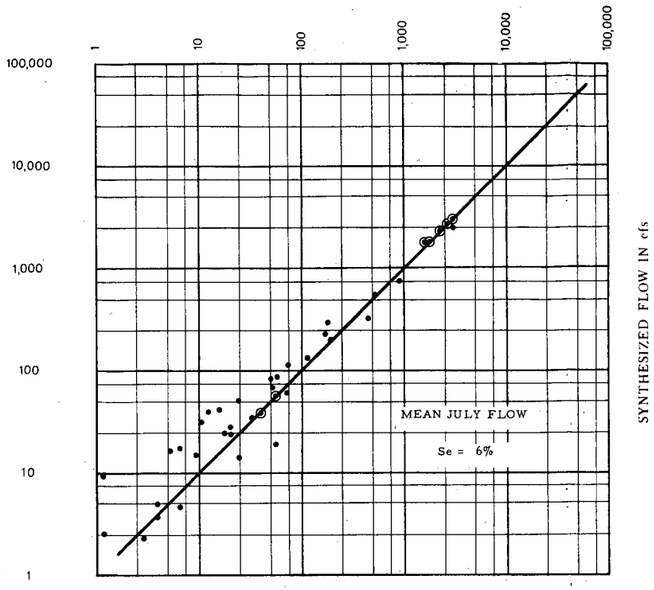
"OBSERVED" FLOW IN cfs

$\log \bar{Q}_{May} = 0.2301 + 1.1452 \log A$



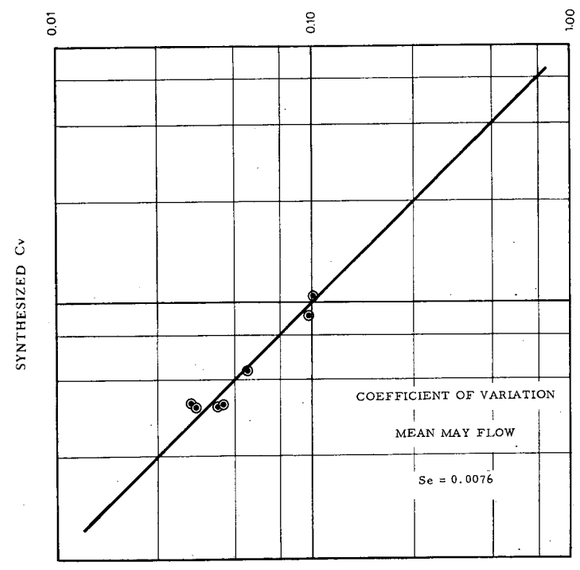
"OBSERVED" FLOW IN cfs

$\log \bar{Q}_{June} = 0.4717 + 0.5277 \log A + 1.5254 \log B$



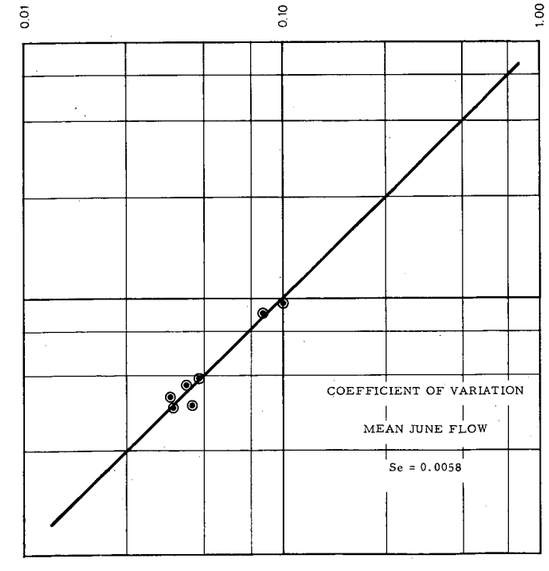
"OBSERVED" FLOW IN cfs

$\log \bar{Q}_{July} = -5.9683 + 0.9935 \log A + 1.8599 \log S + 0.7450 \log S_t$



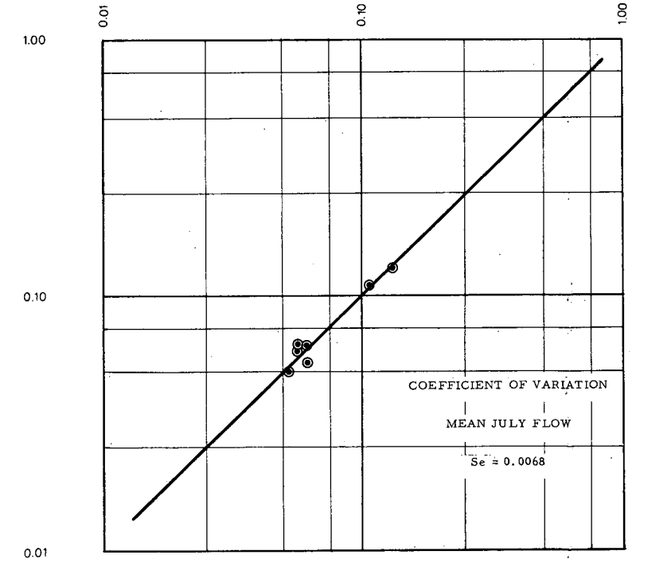
"OBSERVED" Cv

$Cv = 0.0335 + 0.0308 \log M - 0.0568 \log R_{May}$



"OBSERVED" Cv

$Cv = 0.1585 - 0.0311 \log A - 0.0341 \log R_{June}$



"OBSERVED" Cv

$Cv = 0.1879 - 0.0425 \log A - 0.0140 \log R_{July}$

LEGEND

A	=	DRAINAGE AREA
B	=	BASIN SHAPE
S	=	AVERAGE LAND SLOPE
S_t	=	PERCENTAGE OF TOTAL AREA OCCUPIED BY LAKES AND SWAMPS
M	=	MAIN CHANNEL SLOPE
R	=	RUNOFF IN c.f.s. PER SQUARE MILE
Se	=	STANDARD ERROR OF THE ESTIMATE
◉	=	STATIONS WITH 10 OR MORE YEARS OF RECORD USED TO DEVELOP REGIONAL EQUATIONS
•	=	STATIONS WITH LESS THAN 10 YEARS OF RECORD USED TO TEST REGIONAL EQUATIONS

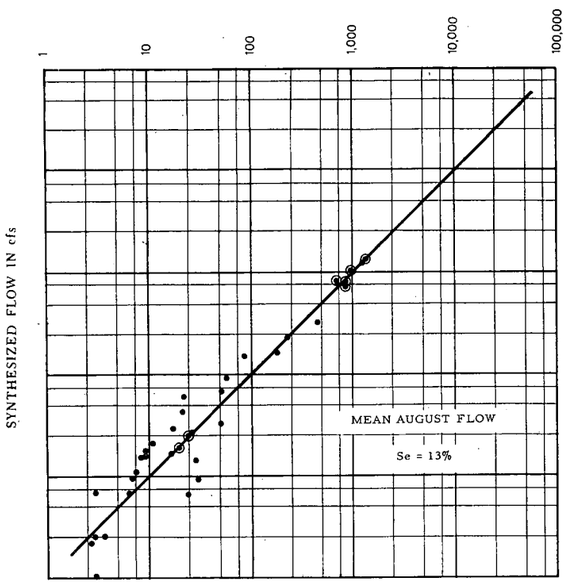
NOTE: OBSERVED DATA ADJUSTED TO THE BASE PERIOD 1927-1966

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
REGRESSION STUDY
OBSERVED Vs SYNTHESIZED DATA

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

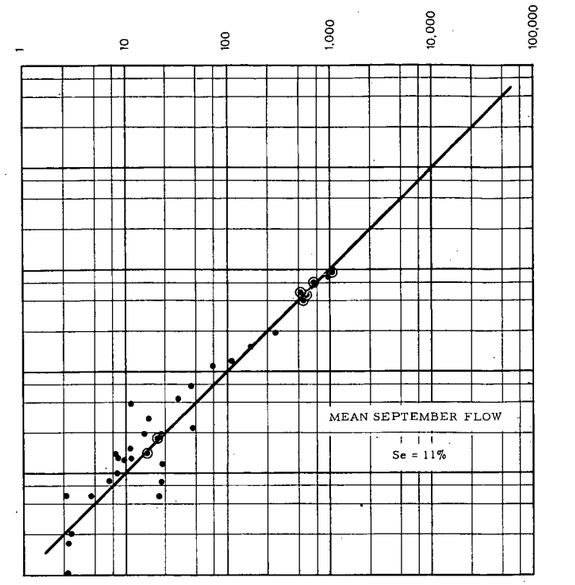
A.G. Smith	W.R. Chin	APPROVED
DATE MAR. 31, '69	SCALE AS SHOWN	PLATE 33



SYNTHESIZED FLOW IN cfs

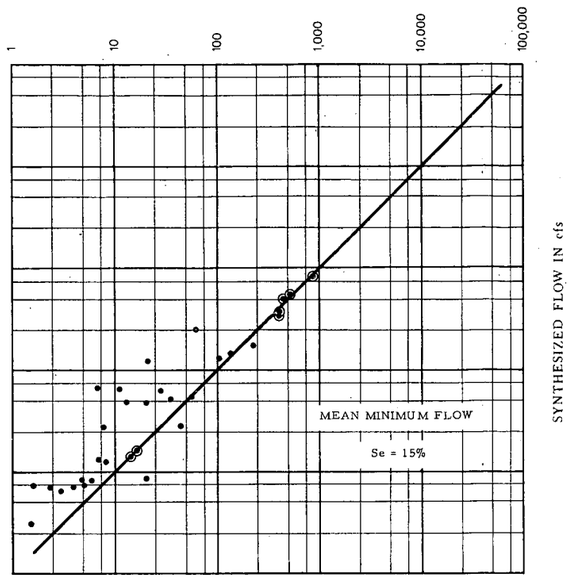
"OBSERVED" FLOW IN cfs

$\log \bar{Q}_{August} = -5.7406 + 1.0259 \log A + 1.6870 \log S$



"OBSERVED" FLOW IN cfs

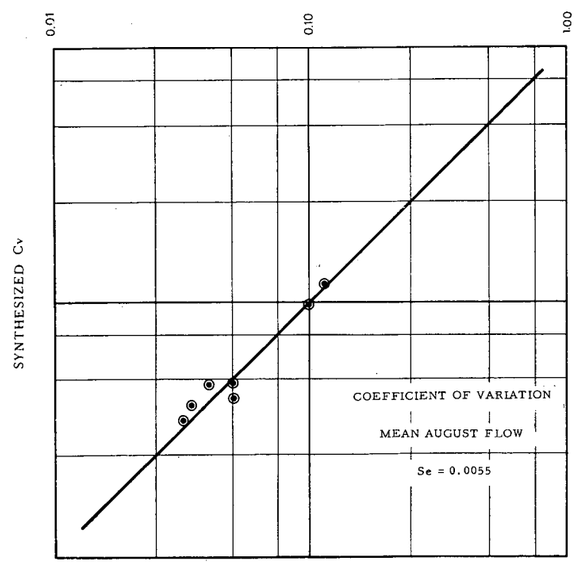
$\log \bar{Q}_{September} = -5.3706 + 0.9776 \log A + 1.5732 \log S$



SYNTHESIZED FLOW IN cfs

"OBSERVED" FLOW IN cfs

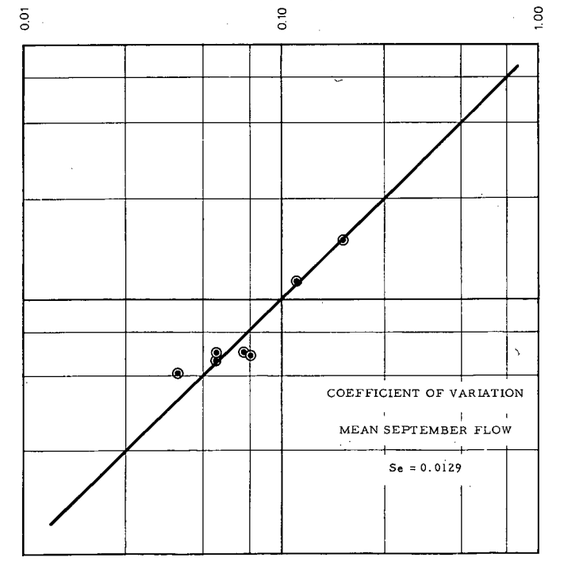
$\log \bar{Q}_{Minimum} = 2.1237 + 0.5265 \log A - 0.6113 \log M$



SYNTHESIZED Cv

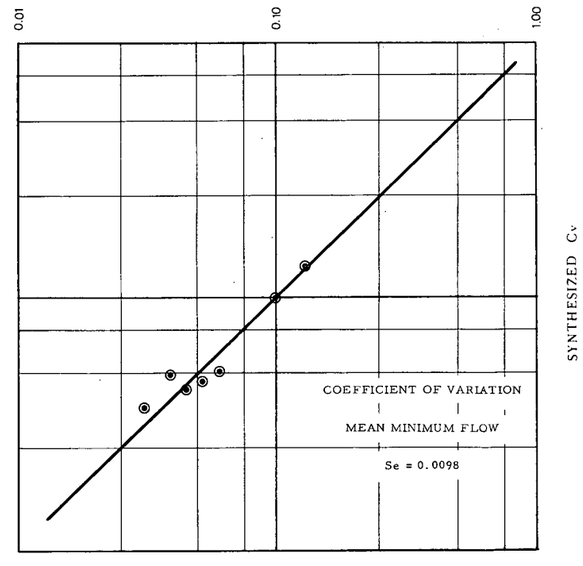
"OBSERVED" Cv

$Cv = -0.0313 + 0.0477 \log M$



"OBSERVED" Cv

$Cv = -0.0256 + 0.0515 \log M - 0.0652 \log R_{Sept.}$



SYNTHESIZED Cv

"OBSERVED" Cv

$Cv = -0.0327 + 0.0482 \log M - 0.0225 \log R_{Min.}$

LEGEND

A = DRAINAGE AREA

S = AVERAGE LAND SLOPE

M = MAIN CHANNEL SLOPE

R = RUNOFF IN c.f.s. PER SQUARE MILE

Se = STANDARD ERROR OF THE ESTIMATE

◉ = STATIONS WITH 10 OR MORE YEARS OF RECORD USED TO DEVELOP REGIONAL EQUATIONS

● = STATIONS WITH LESS THAN 10 YEARS OF RECORD USED TO TEST REGIONAL EQUATIONS

NOTE: OBSERVED DATA ADJUSTED TO THE BASE PERIOD 1927 – 1966

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

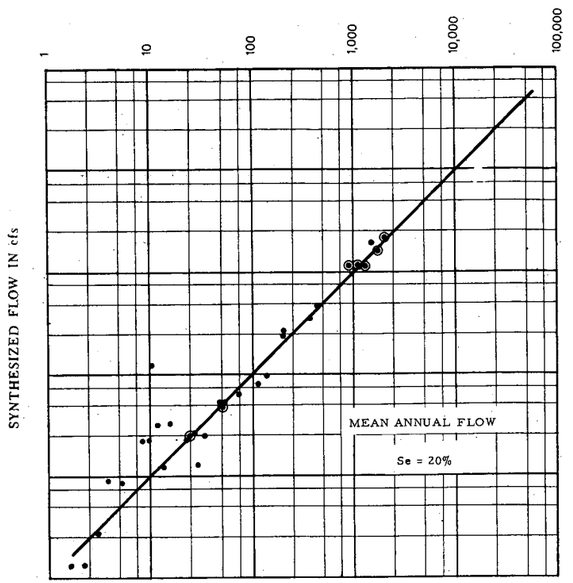
EAST KOOTENAY AREA

REGRESSION STUDY

OBSERVED Vs SYNTHESIZED DATA

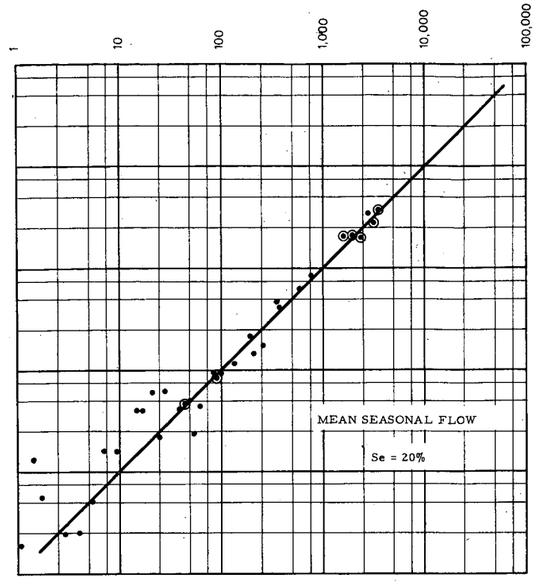
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

A.D. Smith	W.Q. Chin	APPROVED
DATE MAR. 31, '69	SCALE AS SHOWN	PLATE 3.4



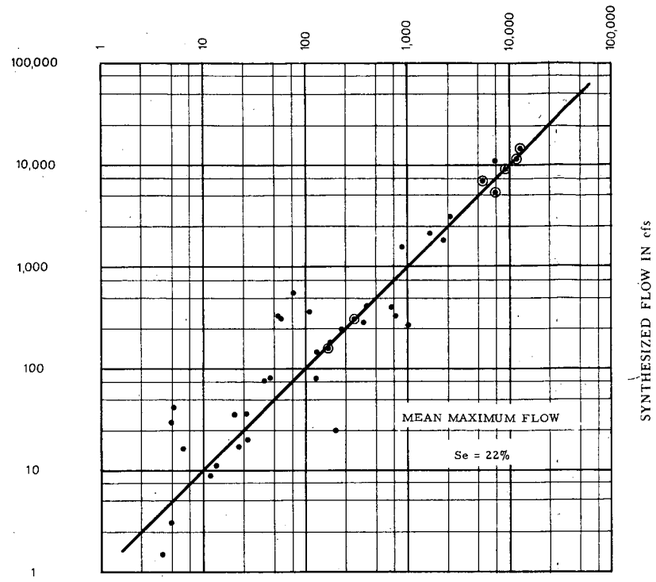
"OBSERVED" FLOW IN cfs

$\log \bar{Q}_{Annual} = -4.3082 + 1.0590 \log A + 1.2892 \log S$



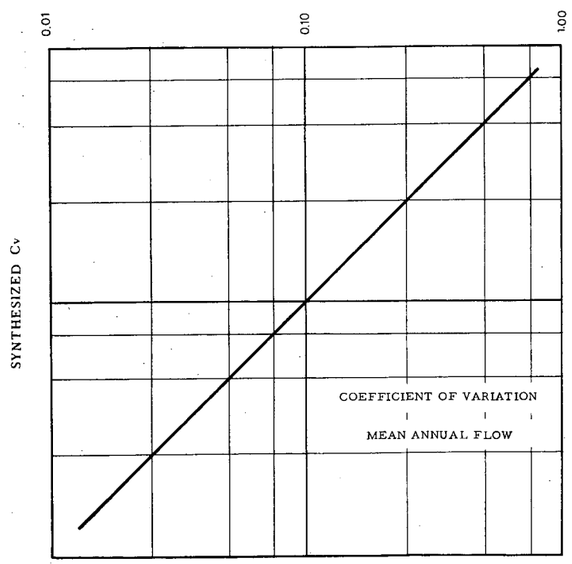
"OBSERVED" FLOW IN cfs

$\log \bar{Q}_{Seasonal} = -4.0046 + 1.0507 \log A + 1.2785 \log S$



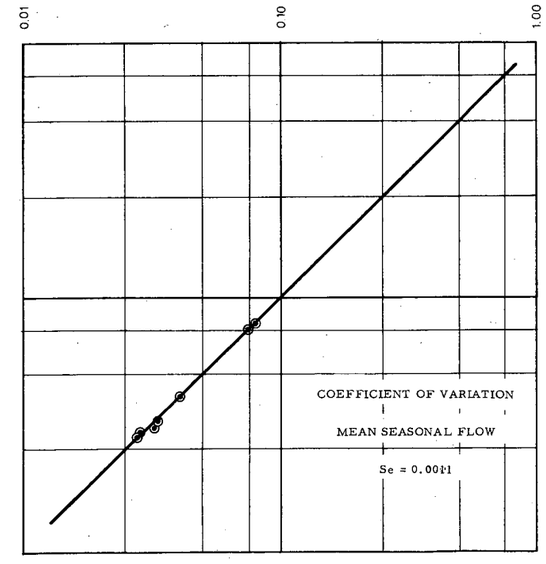
"OBSERVED" FLOW IN cfs

$\log \bar{Q}_{Maximum} = 0.7718 + 0.5132 \log A + 1.5449 \log B$



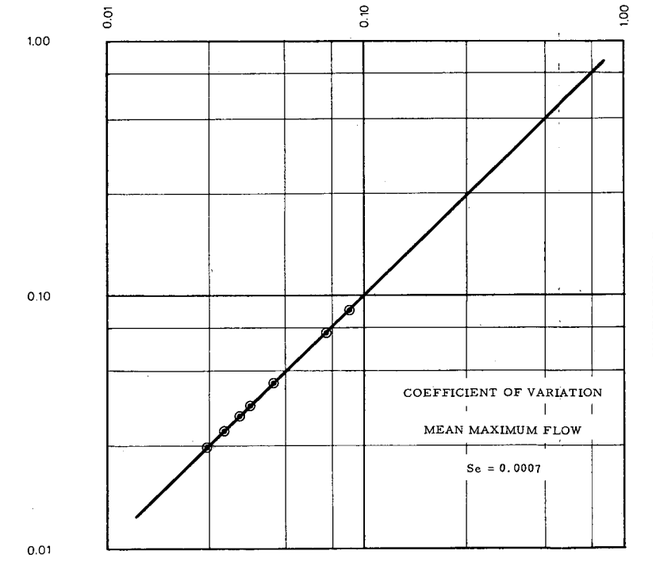
"OBSERVED" Cv

NO RESULTS



"OBSERVED" Cv

$Cv = 0.1258 - 0.0216 \log A - 0.0604 \log R_{Seasonal}$



"OBSERVED" Cv

$Cv = 0.2494 - 0.0184 \log A - 0.0316 \log S - 0.0516 \log R_{Max.}$

LEGEND

A	=	DRAINAGE AREA
S	=	AVERAGE LAND SLOPE
B	=	BASIN SHAPE
R	=	RUNOFF IN c.f.s. PER SQUARE MILE
Se	=	STANDARD ERROR OF THE ESTIMATE
◉	=	STATIONS WITH 10 OR MORE YEARS OF RECORD USED TO DEVELOP REGIONAL EQUATIONS
•	=	STATIONS WITH LESS THAN 10 YEARS OF RECORD USED TO TEST REGIONAL EQUATIONS

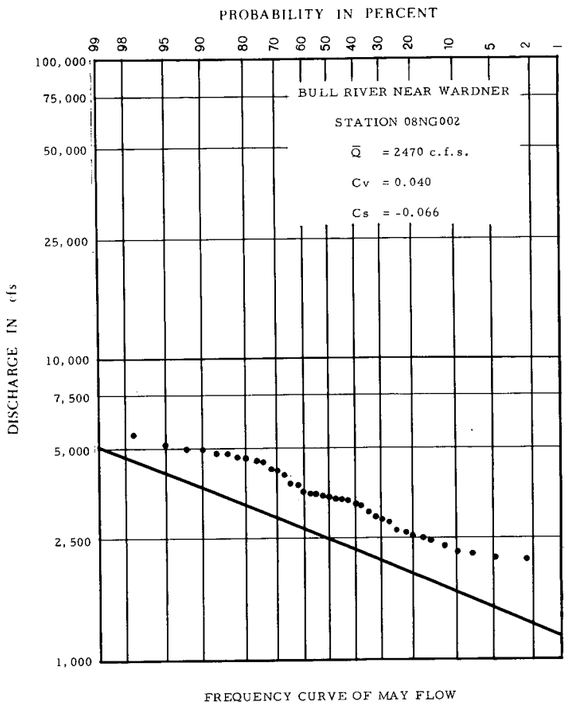
NOTE: OBSERVED DATA ADJUSTED TO THE BASE PERIOD 1927 - 1966

GOVERNMENT OF CANADA

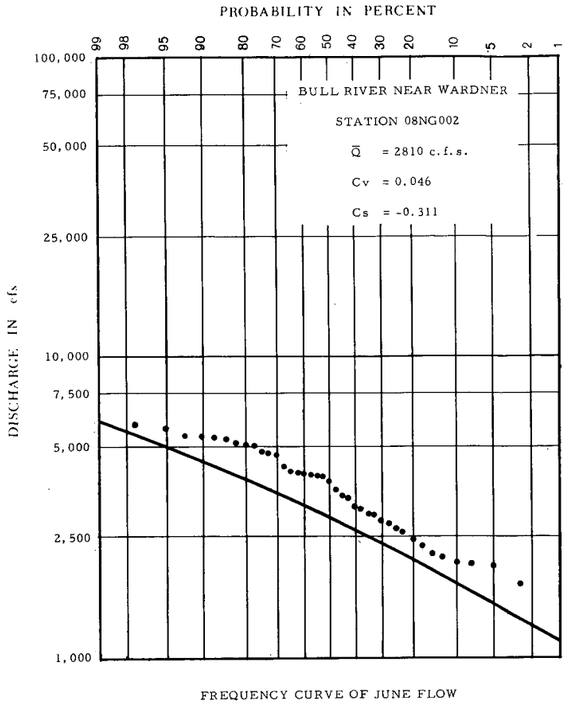
B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
REGRESSION STUDY
OBSERVED Vs SYNTHESIZED DATA

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

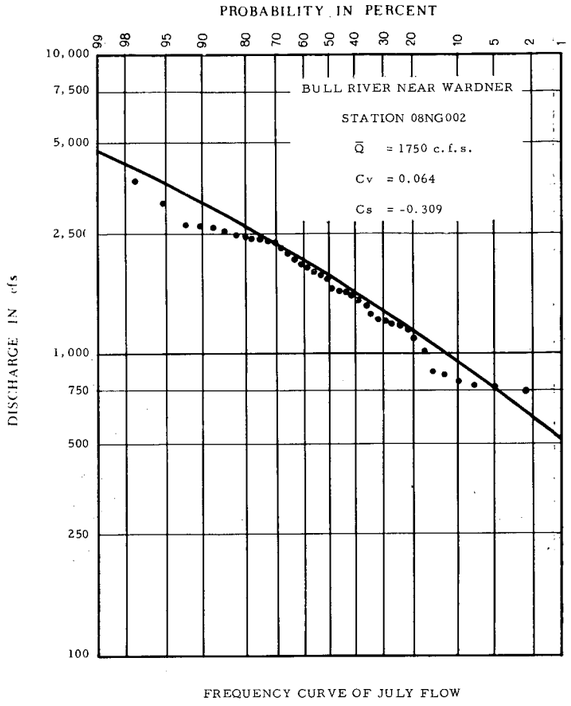
A.D. Smith	W.Q. Chin	APPROVED
DATE MAR. 31, '69	SCALE AS SHOWN	PLATE 35



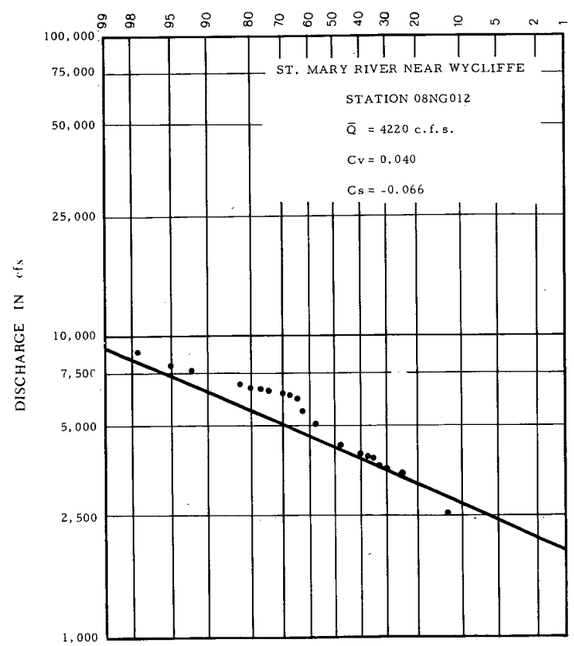
FREQUENCY CURVE OF MAY FLOW



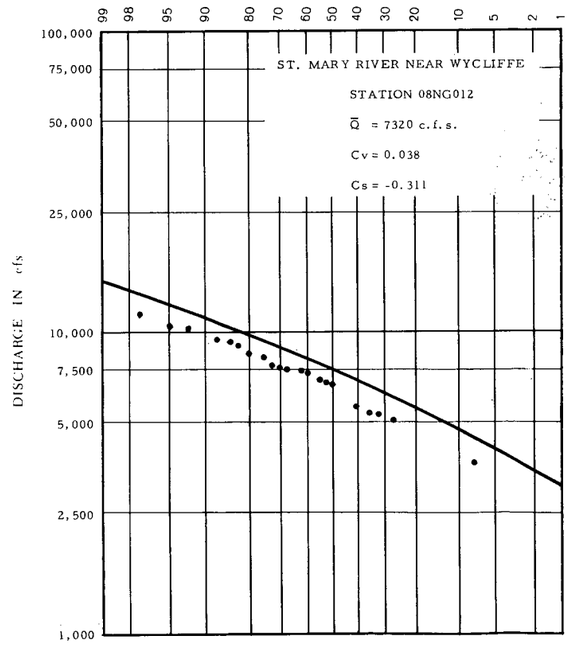
FREQUENCY CURVE OF JUNE FLOW



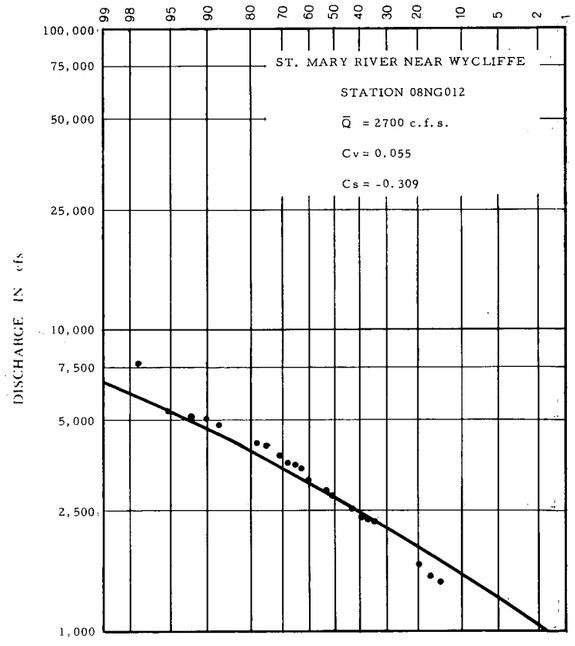
FREQUENCY CURVE OF JULY FLOW



FREQUENCY CURVE OF MAY FLOW



FREQUENCY CURVE OF JUNE FLOW



FREQUENCY CURVE OF JULY FLOW

LEGEND

- OBSERVED DATA
- SYNTHESIZED CURVE

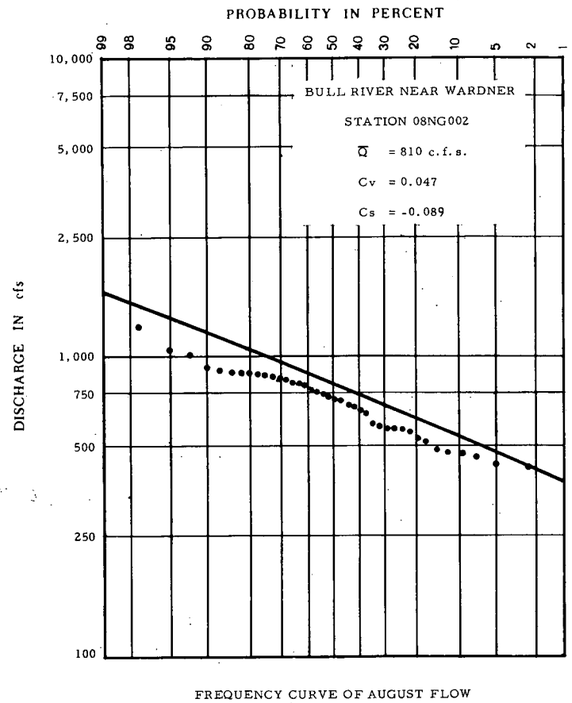
NOTE: OBSERVED DATA ADJUSTED TO THE BASE PERIOD 1927-1966

GOVERNMENT OF CANADA

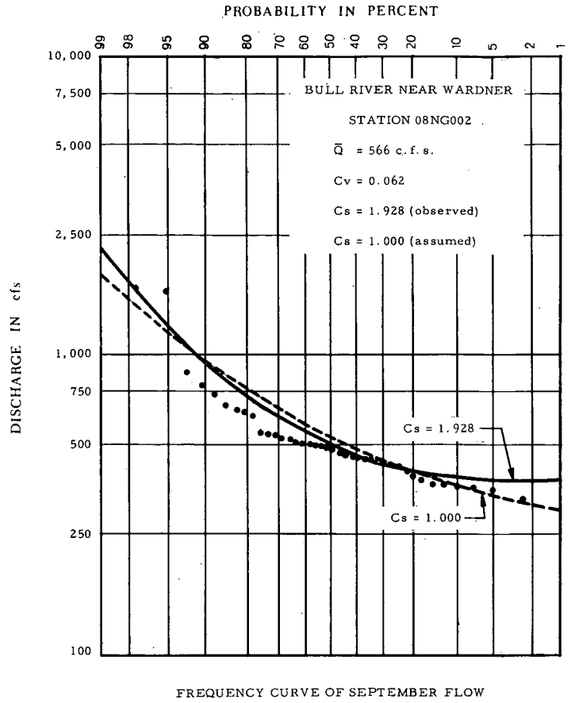
B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
REGRESSION STUDY
CUMULATIVE FREQUENCY CURVES
OBSERVED Vs SYNTHESIZED

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

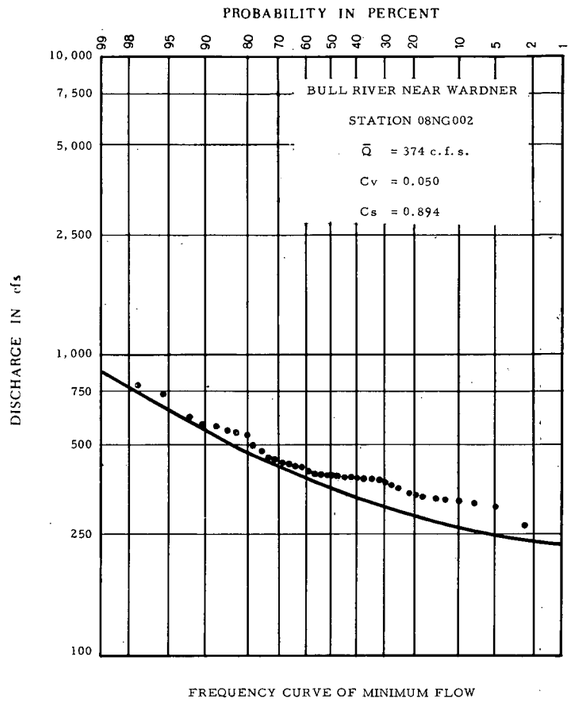
A.D. Smith	W.Q. Chin	Approved Inglestows
DATE MAR. 31,'69	SCALE AS SHOWN	PLATE 36



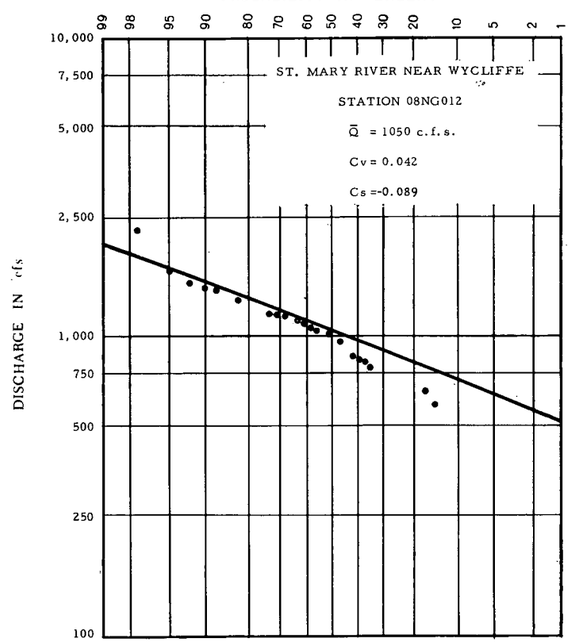
FREQUENCY CURVE OF AUGUST FLOW



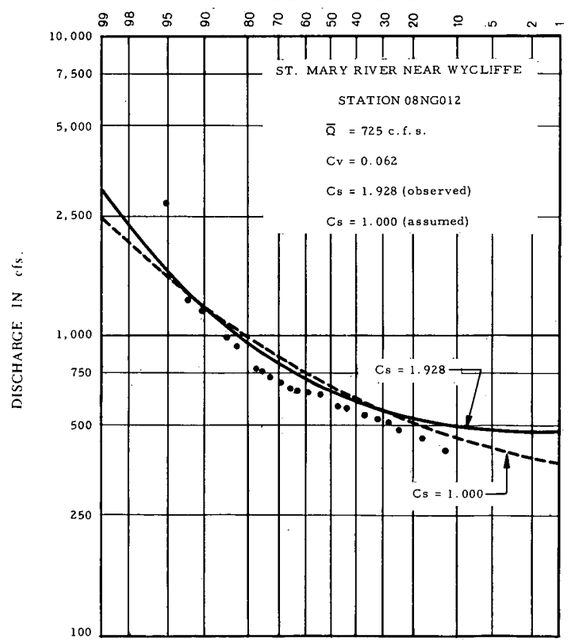
FREQUENCY CURVE OF SEPTEMBER FLOW



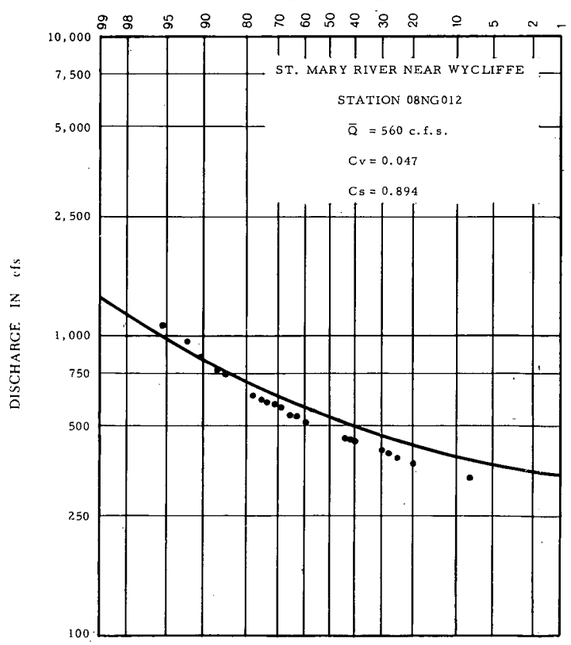
FREQUENCY CURVE OF MINIMUM FLOW



FREQUENCY CURVE OF AUGUST FLOW



FREQUENCY CURVE OF SEPTEMBER FLOW



FREQUENCY CURVE OF MINIMUM FLOW

LEGEND

- OBSERVED DATA
- SYNTHESIZED CURVE

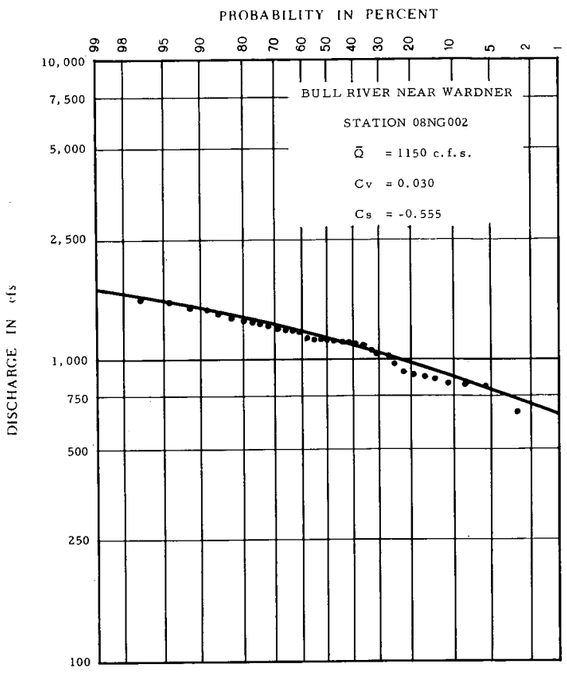
NOTE: OBSERVED DATA ADJUSTED TO THE BASE PERIOD 1927-1966

GOVERNMENT OF CANADA

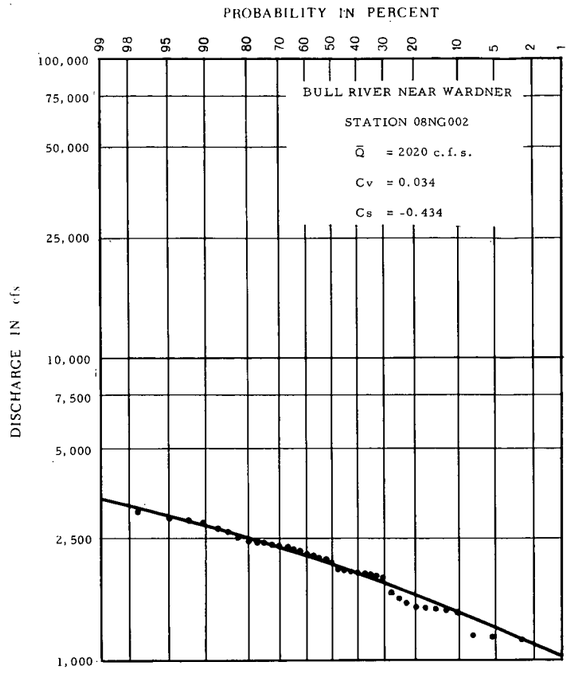
B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
REGRESSION STUDY
CUMULATIVE FREQUENCY CURVES
OBSERVED Vs SYNTHESIZED

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

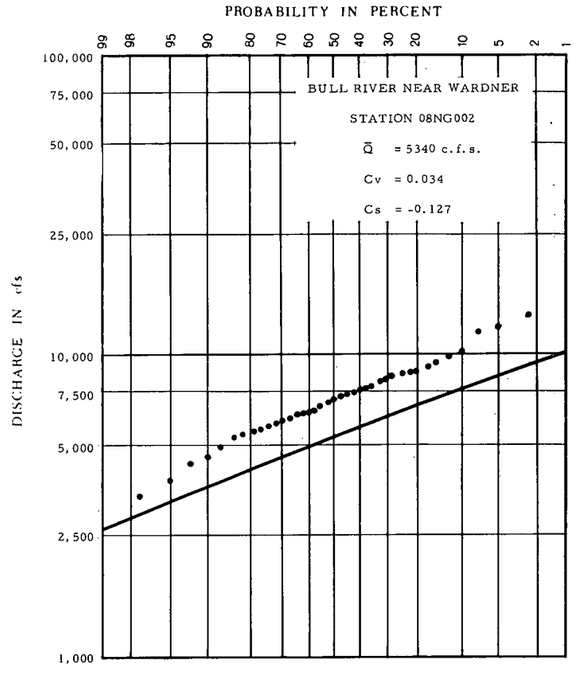
A.D. Smith	W.Q. Chan	APPROVED Ian Stephen
DATE MAR. 31,'69	SCALE AS SHOWN	PLATE 37



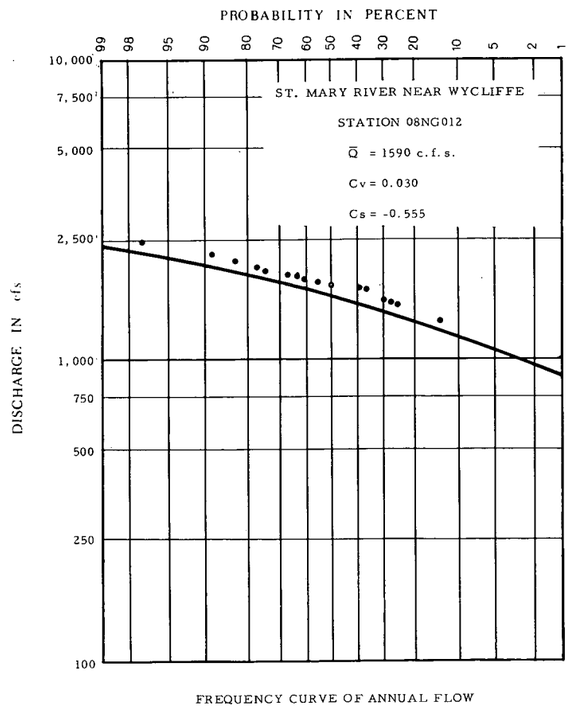
FREQUENCY CURVE OF ANNUAL FLOW



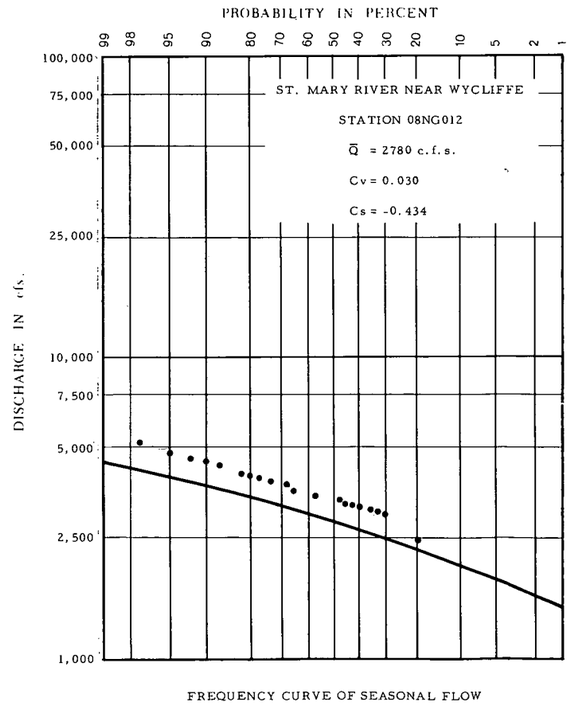
FREQUENCY CURVE OF SEASONAL FLOW



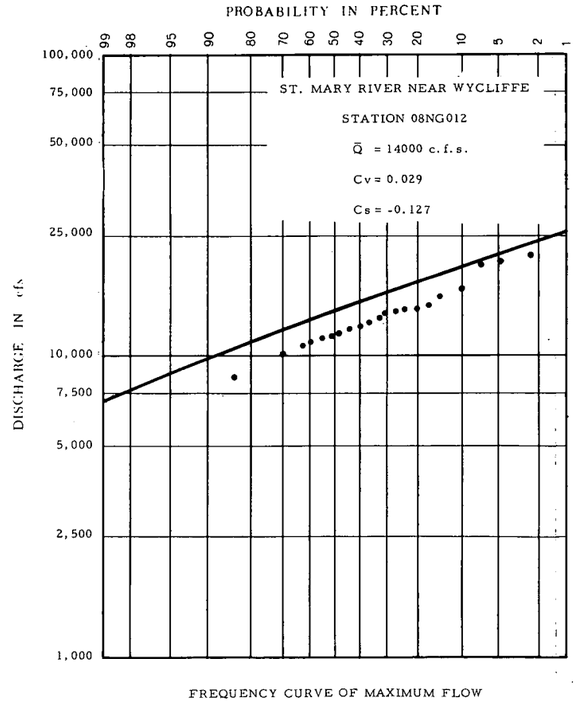
FREQUENCY CURVE OF MAXIMUM FLOW



FREQUENCY CURVE OF ANNUAL FLOW



FREQUENCY CURVE OF SEASONAL FLOW



FREQUENCY CURVE OF MAXIMUM FLOW

LEGEND

- OBSERVED DATA
- SYNTHESIZED CURVE

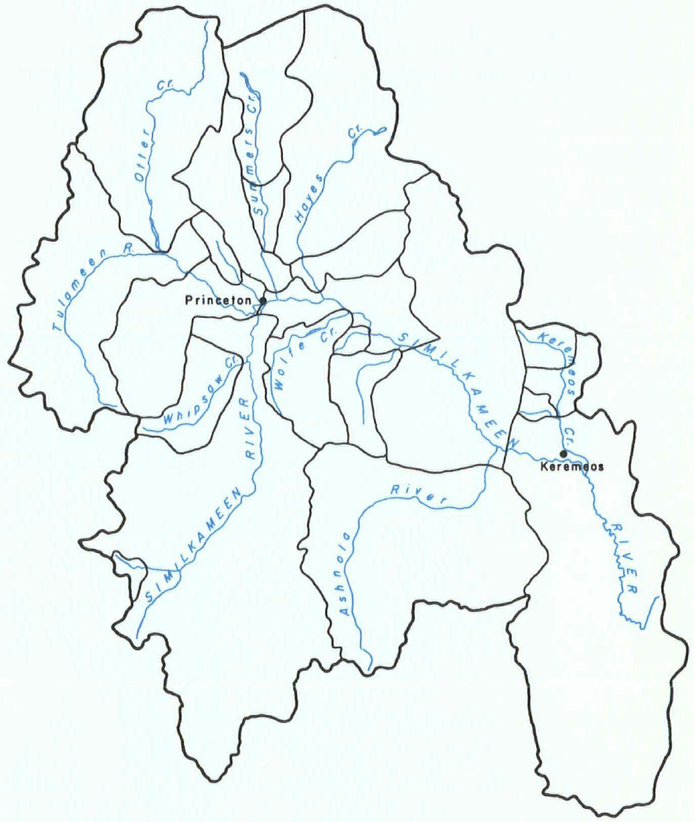
NOTE: OBSERVED DATA ADJUSTED TO THE BASE PERIOD 1927-1966

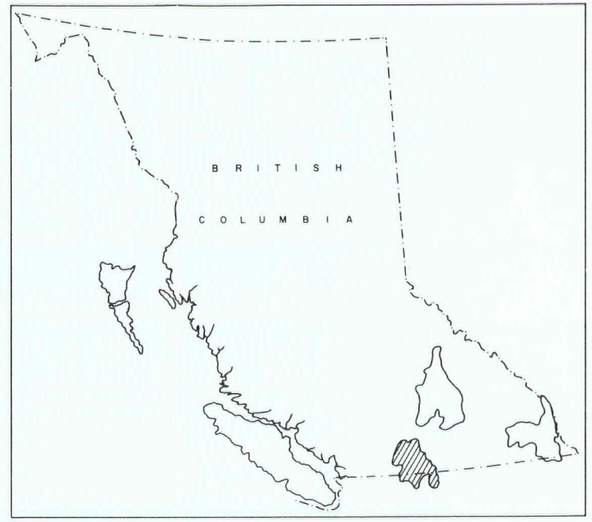
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
REGRESSION STUDY
CUMULATIVE FREQUENCY CURVES
OBSERVED Vs SYNTHESIZED

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

	W.Q. Chin	APPROVED
DATE MAR. 31,'69	SCALE AS SHOWN	PLATE 38





KEY MAP

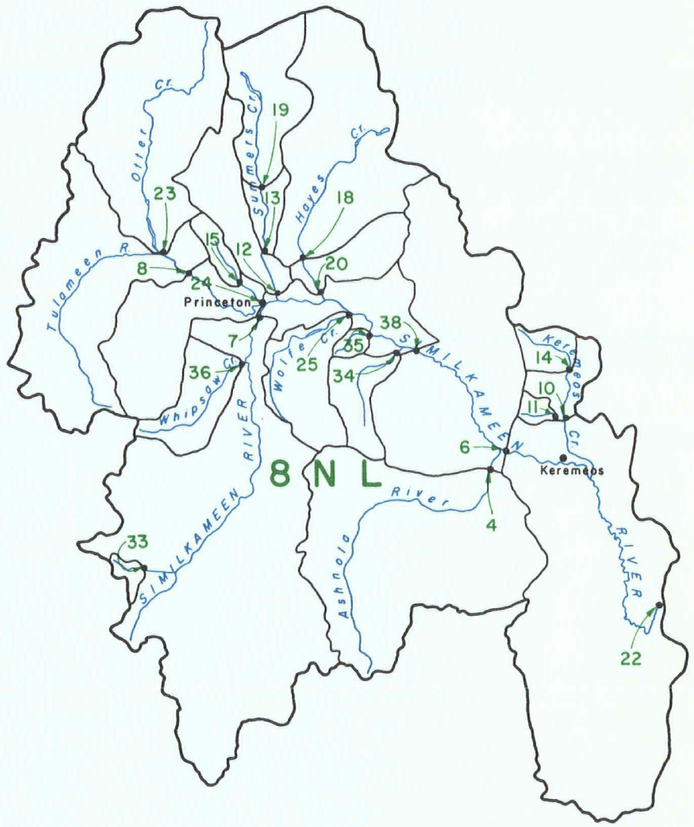
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
BRITISH COLUMBIA
SIMILKAMEEN RIVER BASIN

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

J. Inglestock	E. Hetherington	APPROVED A.W. Stephens

DATE	SCALE	
MAR. 31,'69	1" = 16 mi.	PLATE 51



KEY MAP

LEGEND

13 Discharge Station

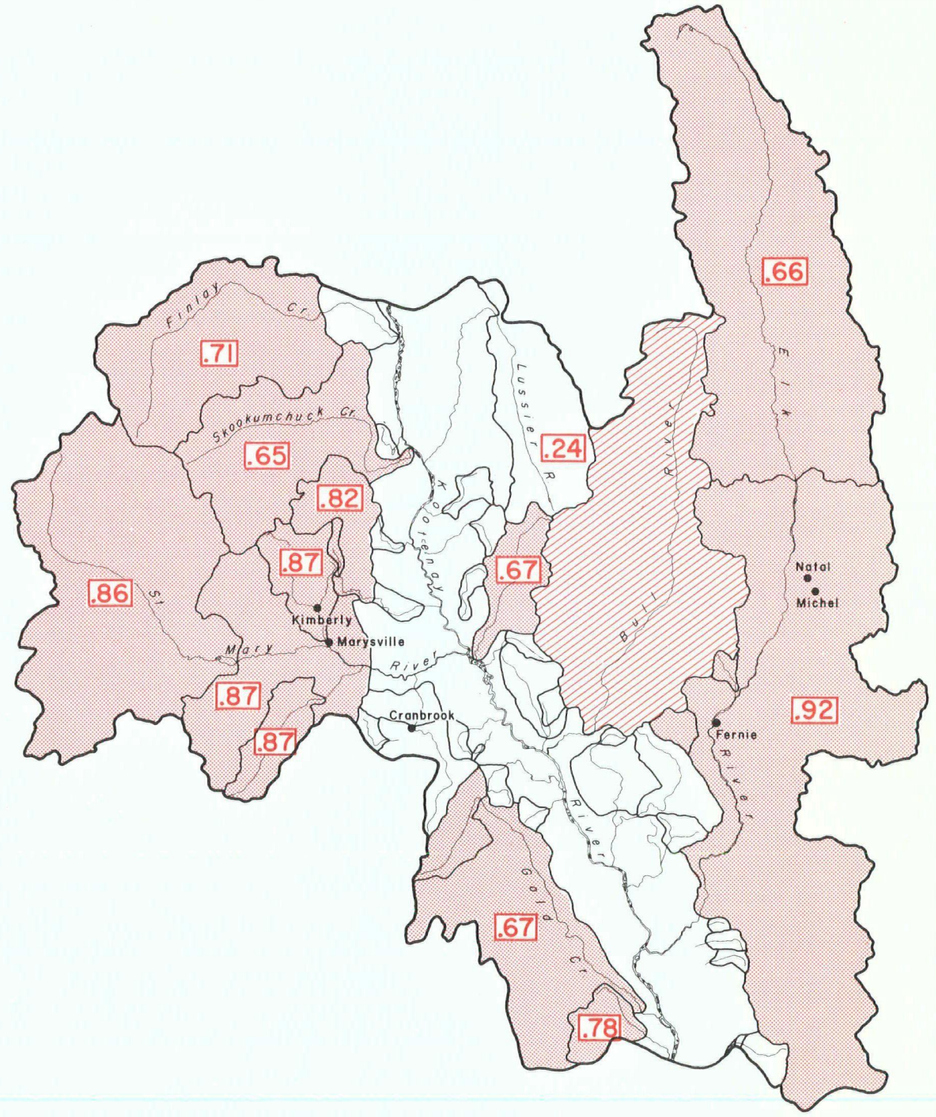
Boundary of Drainage Basin

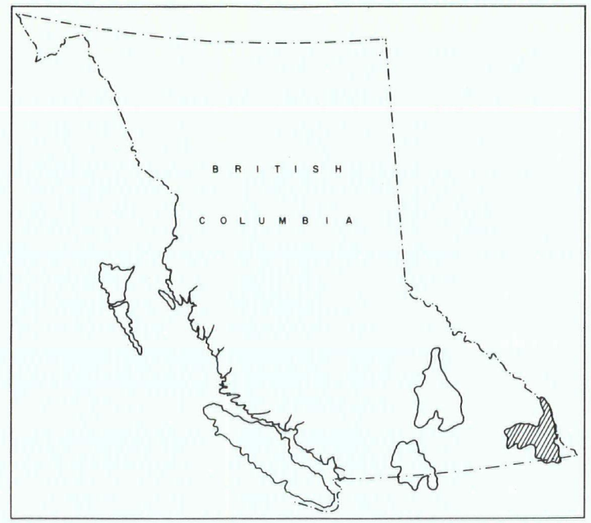
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
SIMILKAMEEN RIVER BASIN
REGRESSION STUDY
PERTINENT DISCHARGE STATIONS

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

A. D. Smith	W. Q. Chin	APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 52





KEY MAP

LEGEND

.65 = R = Coefficient of Correlation

Independent Drainage Area used in Correlation

Dependent Drainage Area used in Correlation

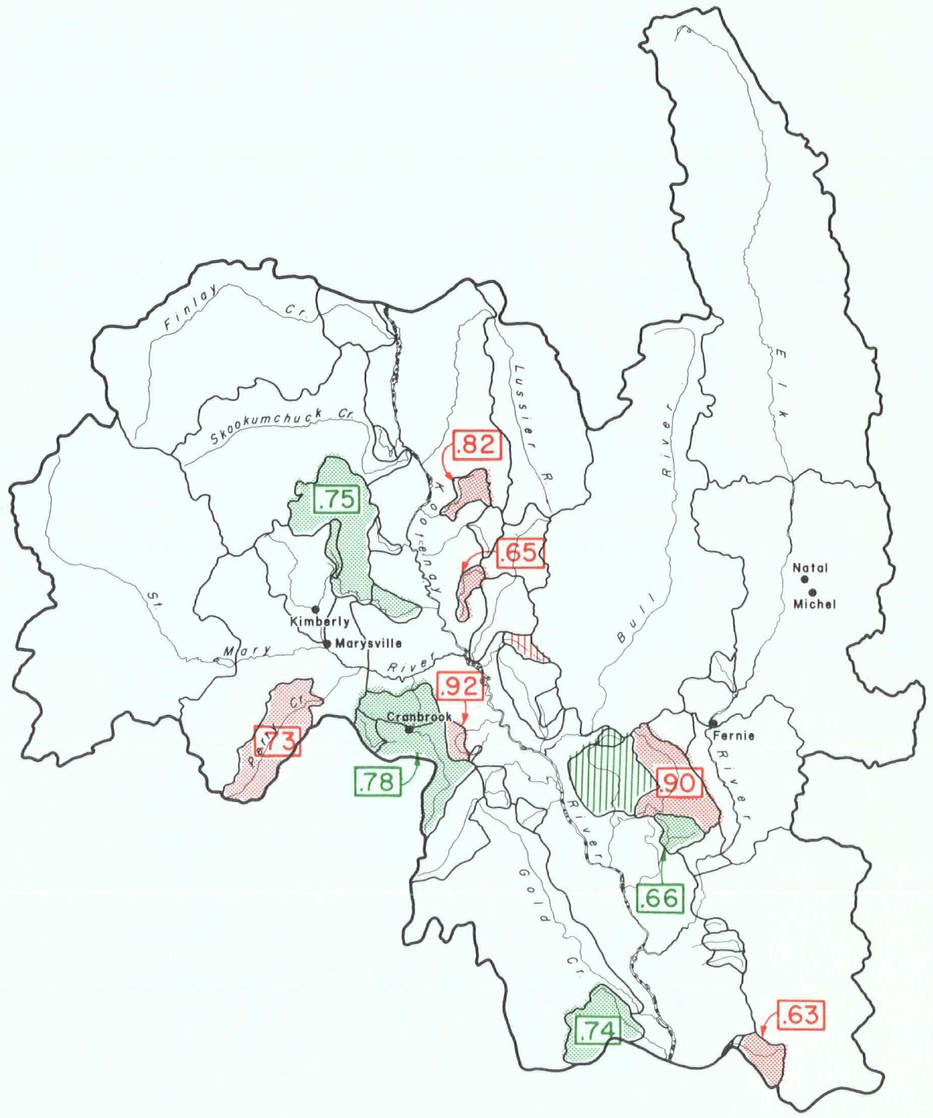
Note See Table IV - 1, for complete summary of correlation results.

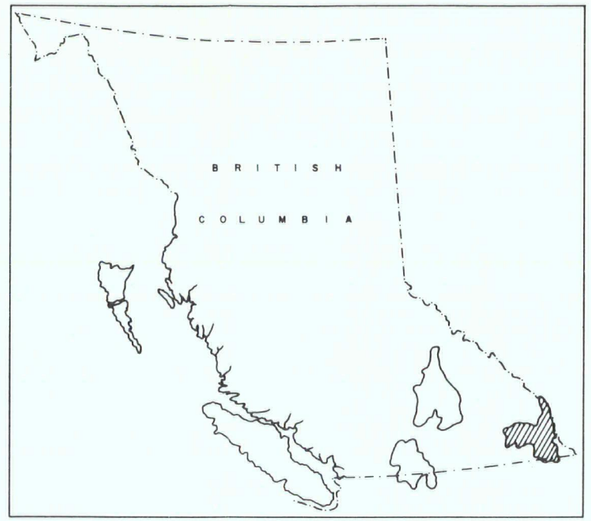
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
CORRELATION OF STREAMFLOW RECORDS
DRAINAGE BASINS GREATER THAN 40 SQ.MI.

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

	W.Q.Chin	APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 71





KEY MAP

LEGEND

.75 .82 = R = Coefficient of Correlation

Independent Drainage Area used in Correlation

Dependent Drainage Area used in Correlation

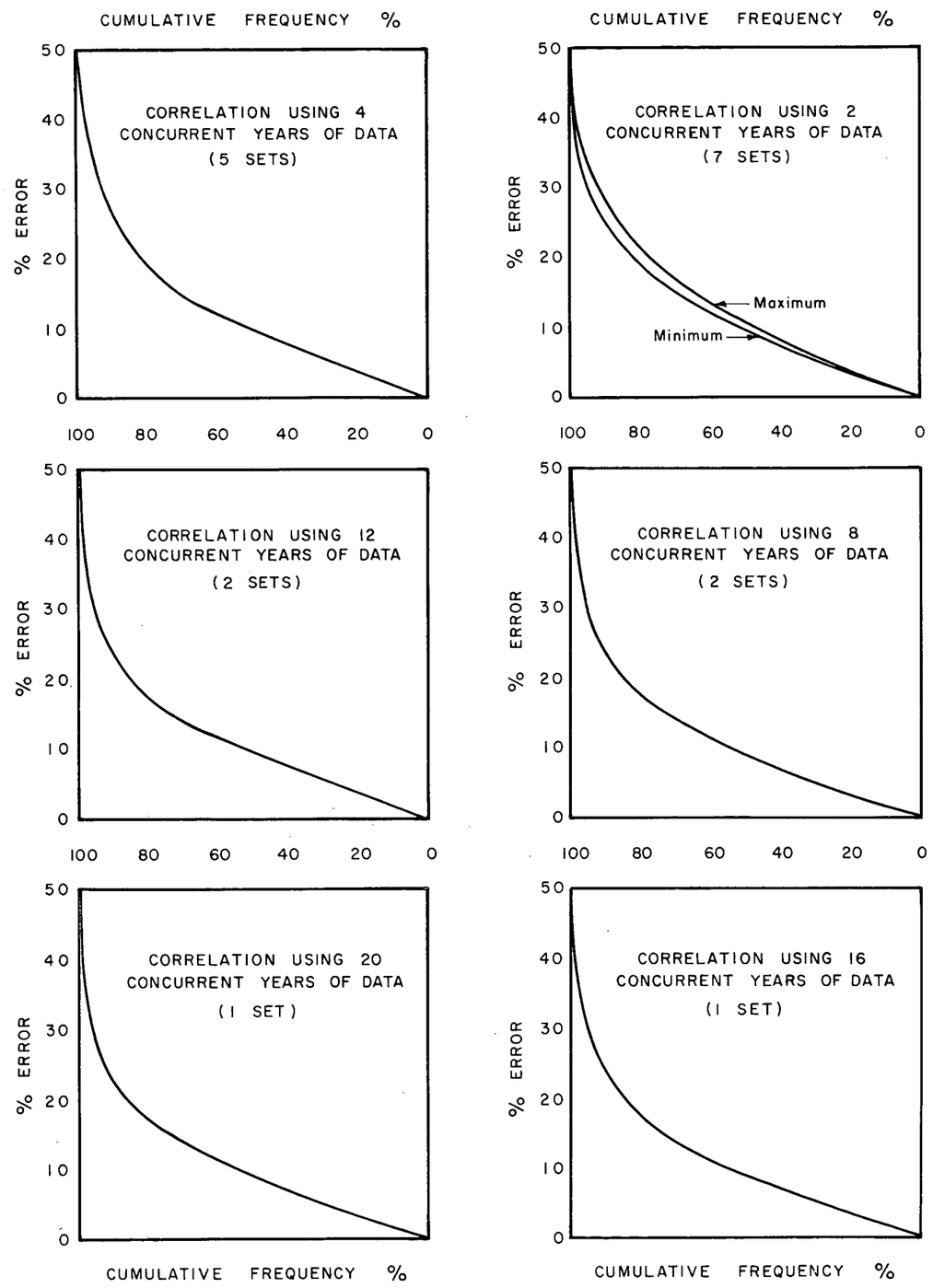
Note See Table IV - 1, for complete summary of correlation results.

GOVERNMENT OF CANADA

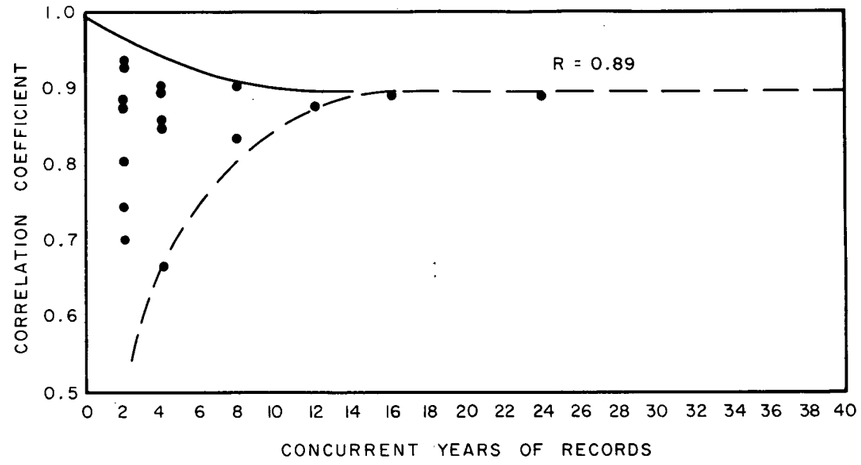
B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
CORRELATION OF STREAMFLOW RECORDS
DRAINAGE BASINS LESS THAN 100 SQ. MI.

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

DATE	SCALE	APPROVED
MAR 31, '69	1" = 16 mi.	PLATE 72



ACCURACY OF SYNTHESIZED MONTHLY MEANS (1946-1966)



VARIATION IN THE CORRELATION COEFFICIENTS
STATION 8NG-2 VS STATION 8NG-12

Note

Accuracy estimates based on comparison of 238 months of observed data for Station 8NG-2 with data synthesized by correlation with Station 8NG-12.

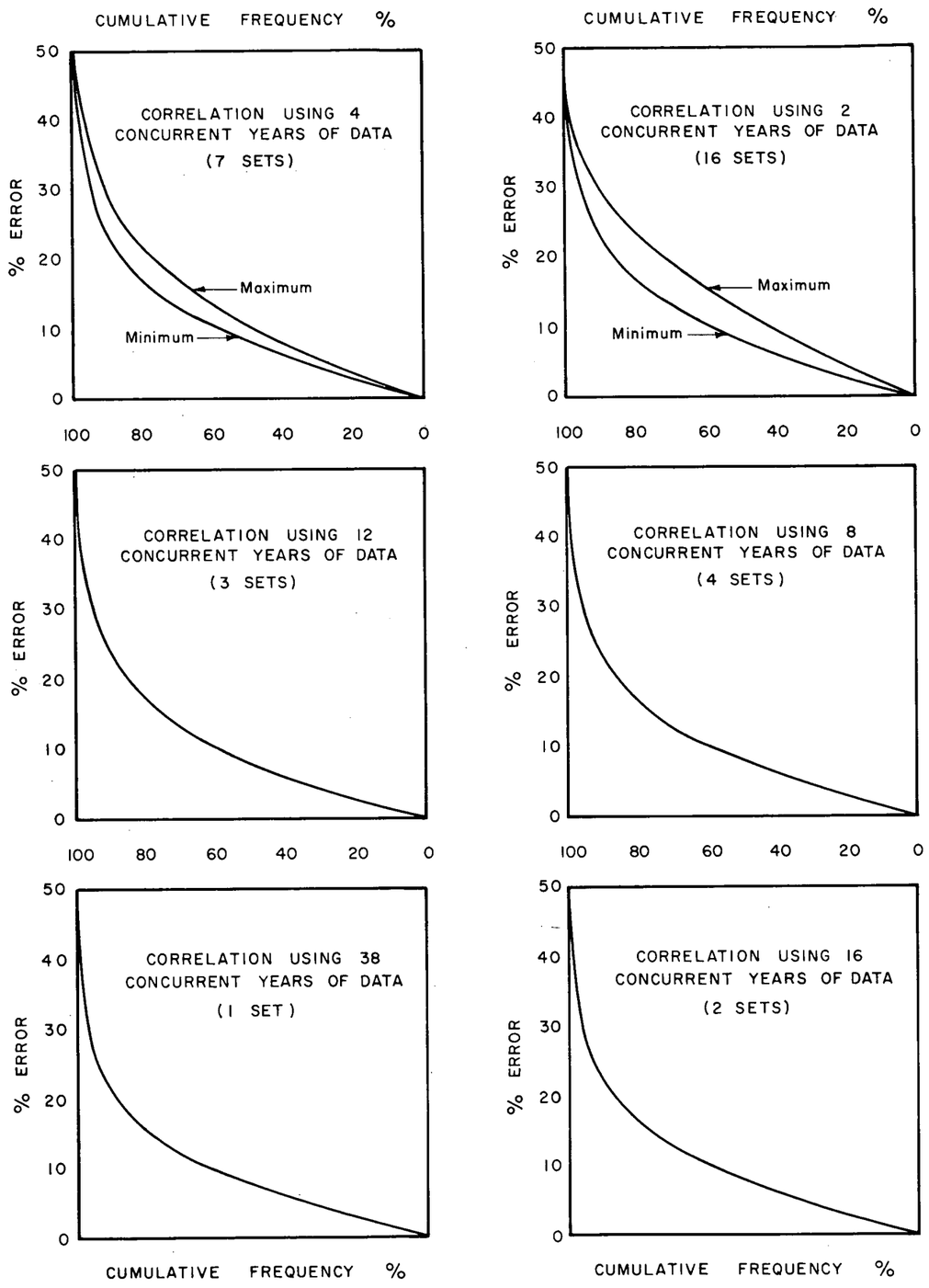
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
CORRELATION OF STREAMFLOW RECORDS
ASSESSMENT OF RESULTS - SHEET 1

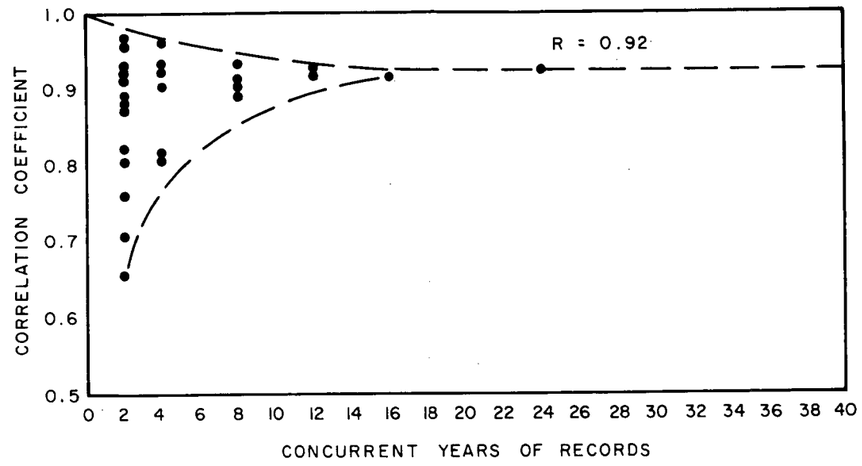
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

APPROVED

DATE MAR. 31, '69 | SCALE N.T.S. | PLATE 73



ACCURACY OF SYNTHESIZED MONTHLY MEANS (1927-1966)



VARIATION IN THE CORRELATION COEFFICIENTS
STATION 8NG-2 VS STATION 8NK-5

Note

Accuracy estimates based on comparison of 452 months of observed data for Station 8NG-2 with data synthesized by correlation with Station 8NK-5.

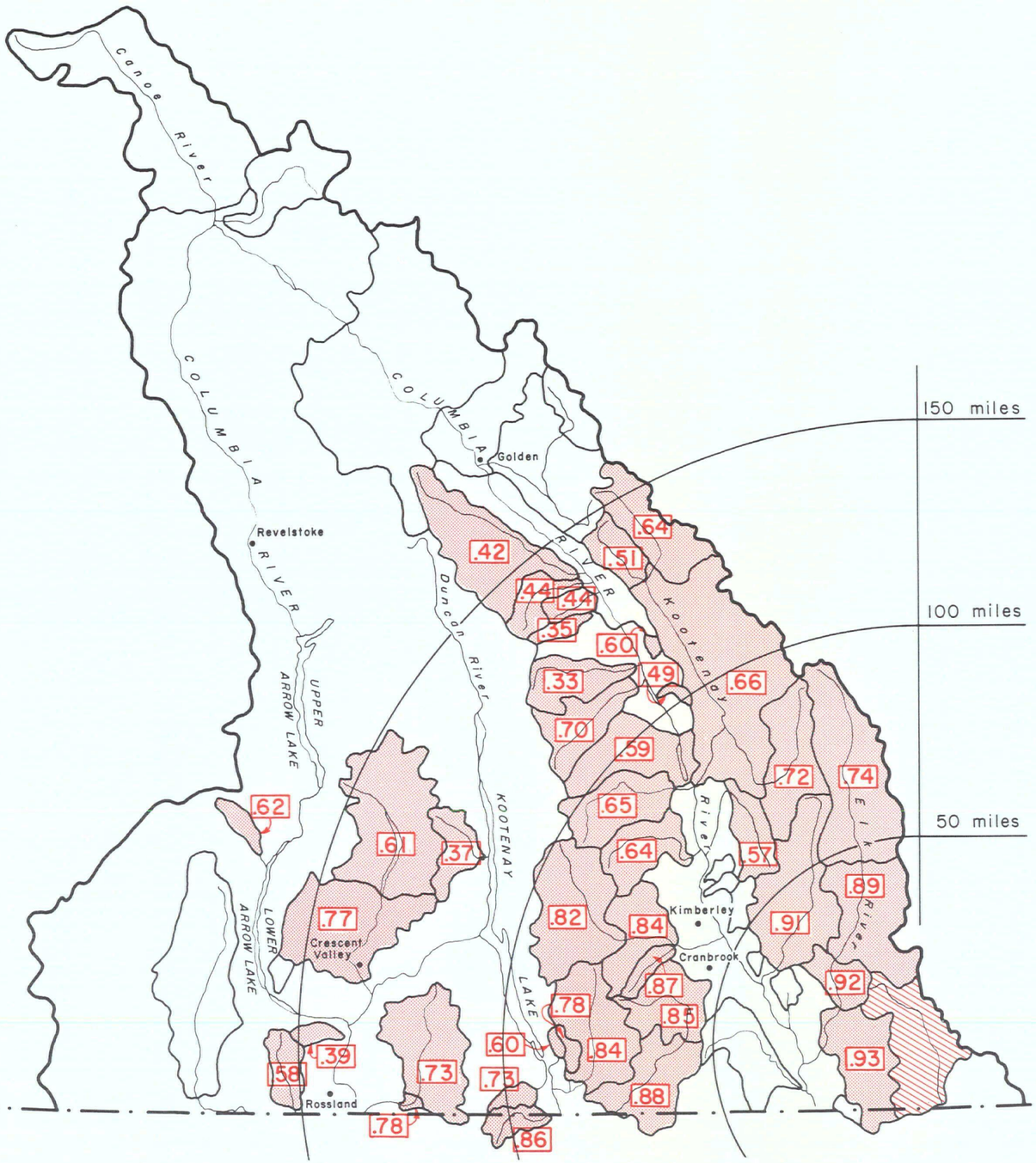
GOVERNMENT OF CANADA

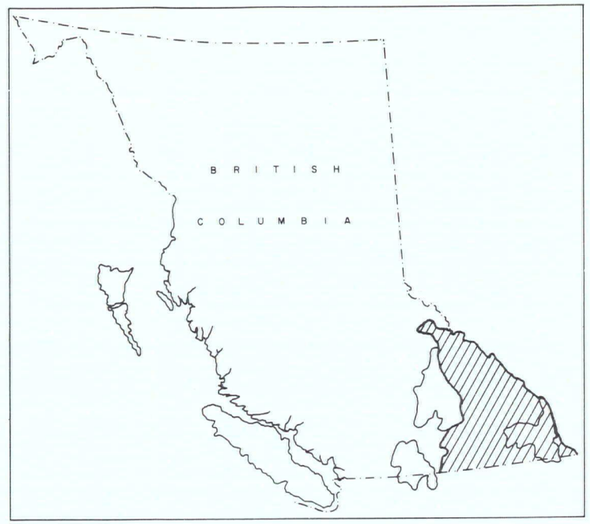
B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA
CORRELATION OF STREAMFLOW RECORDS
ASSESSMENT OF RESULTS - SHEET 2

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

APPROVED

DATE	SCALE	
MAR. 31, '69	N. T. S.	PLATE 74





KEY MAP

LEGEND

.62 = R = Coefficient of Correlation

Independent Drainage Area used in Correlation

Dependent Drainage Area used in Correlation

Note See Table IV – 3, for complete summary of correlation results.

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
EAST KOOTENAY AREA & VICINITY
VARIATION OF COEFFICIENT
OF CORRELATION WITH DISTANCE

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

A.G. Smith | W.D. Chin | APPROVED A.W. Stephens

DATE MAR. 31, '69 | SCALE 1" = 32 mi. | PLATE 75

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL HYDROLOGIC NETWORK

ADDITIONAL BASE STATIONS

T. INGLEDOW & ASSOCIATES LIMITED

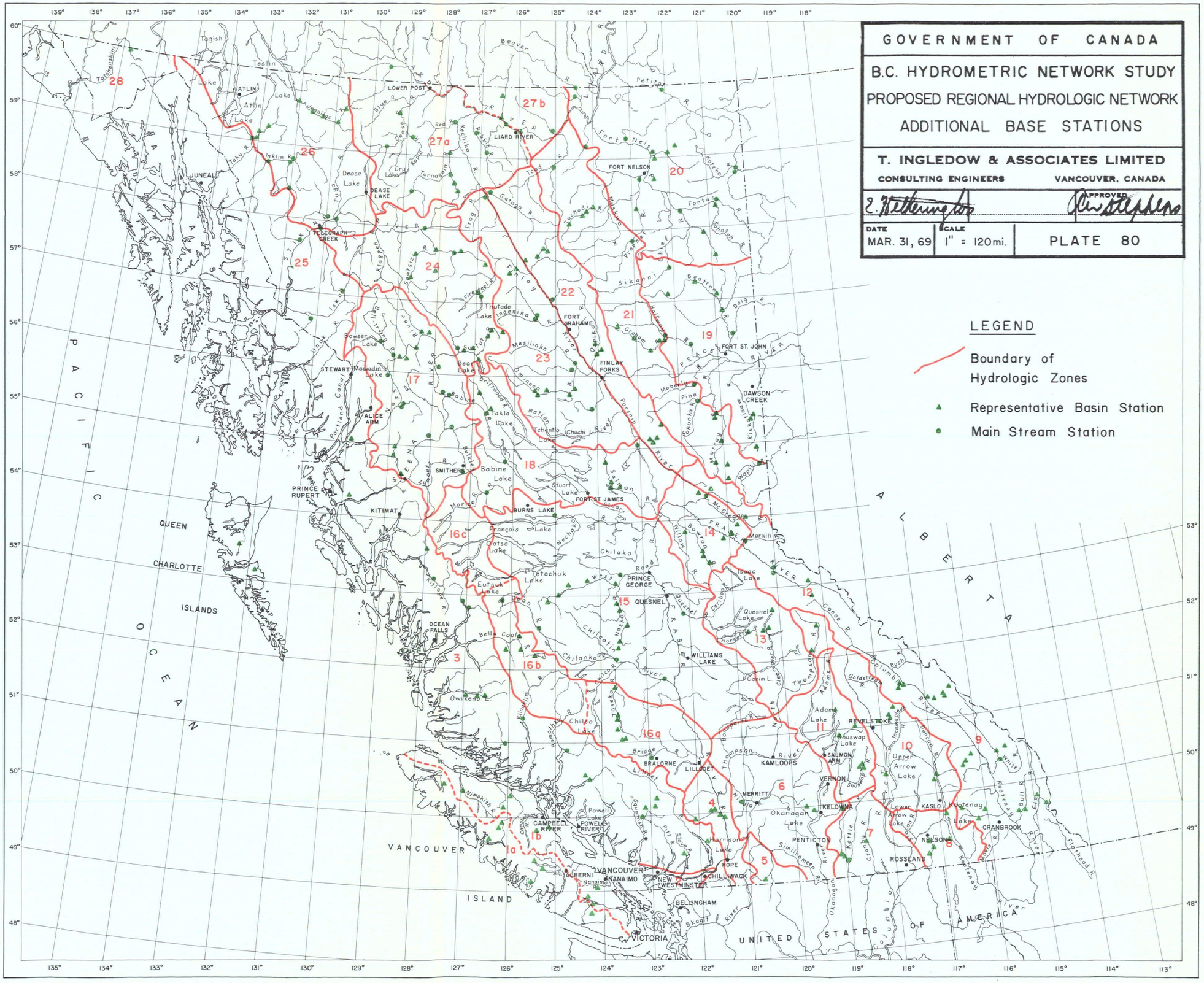
CONSULTING ENGINEERS — VANCOUVER, CANADA

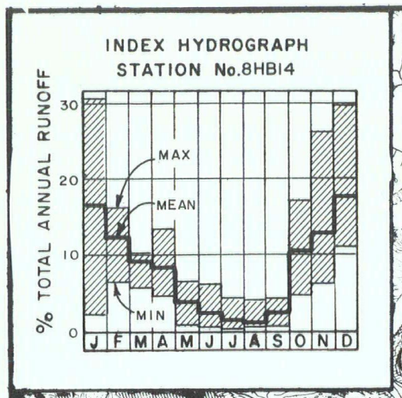
E. Ingledow — APPROVED

DATE	SCALE	
MAR. 31, 69	1" = 120mi.	PLATE 80

LEGEND

- Boundary of Hydrologic Zones
- ▲ Representative Basin Station
- ● Main Stream Station





LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

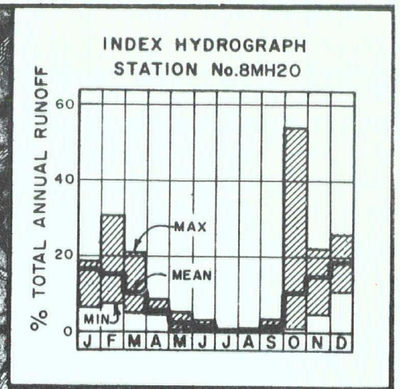
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 1

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Ingledow | W.D.H. | APPROVED A.W. Stephens

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 81



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

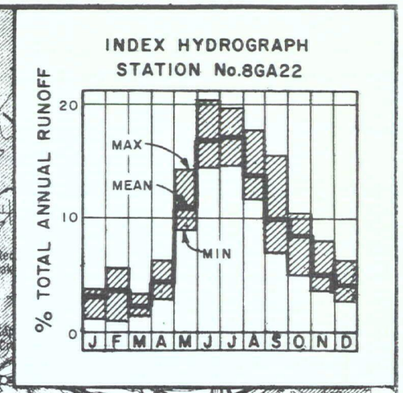
PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONE 2

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

DATE	SCALE	APPROVED
MAR. 31, '69	1" = 16 mi.	PLATE 82



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

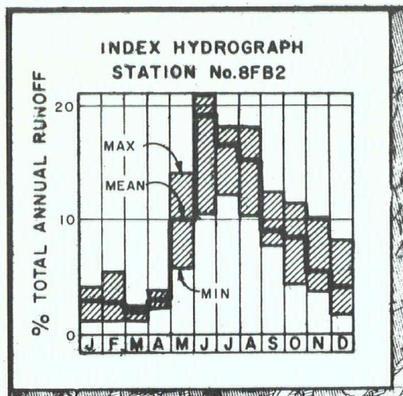
HYDROLOGIC ZONE 3 SOUTH

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Ingledow | APPROVED

DATE MAR. 31, 69 | SCALE 1" = 16 mi. | PLATE 83



16

3

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

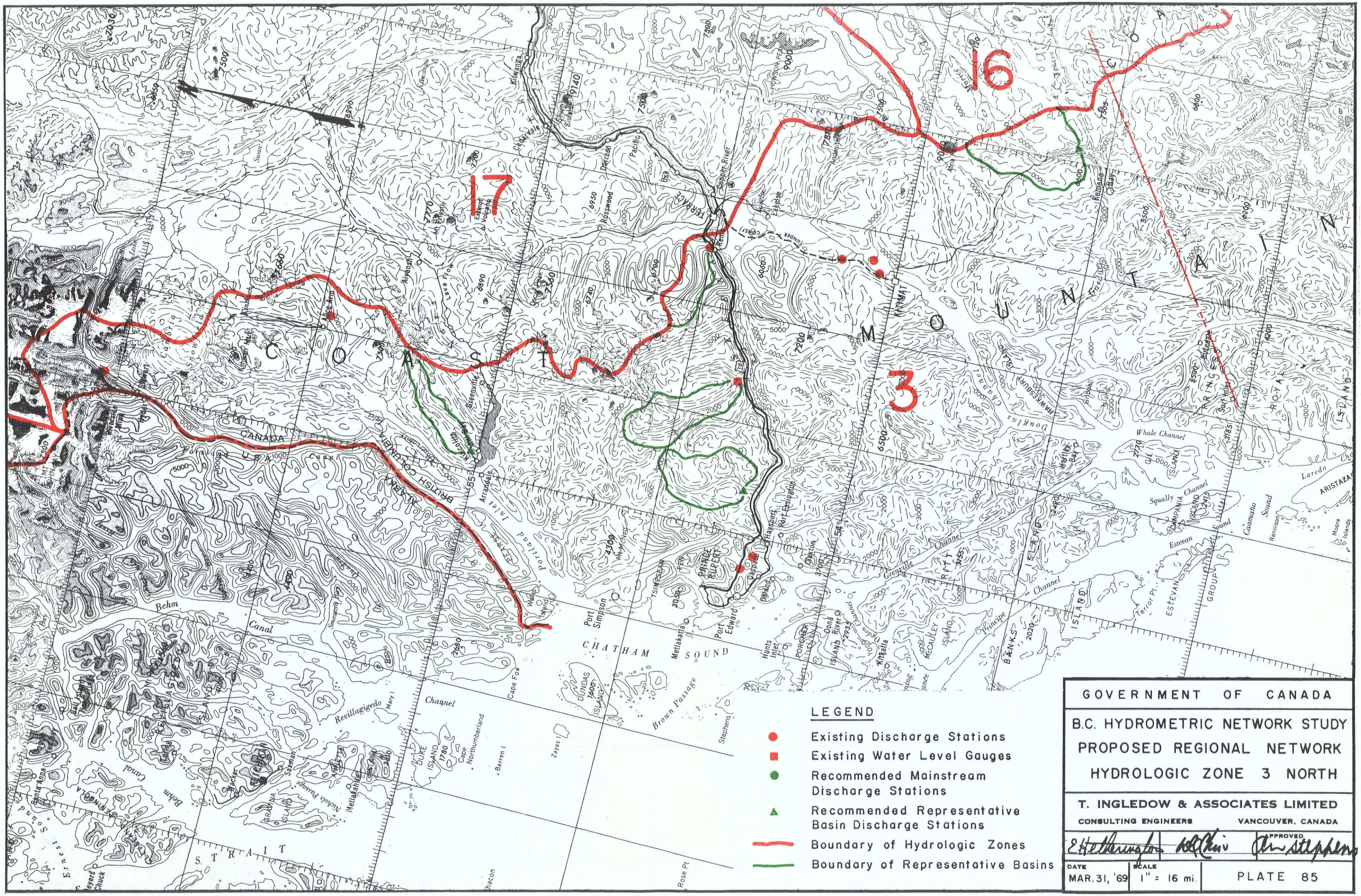
HYDROLOGIC ZONE 3 CENTRAL

T. INGLEDOW & ASSOCIATES LIMITED

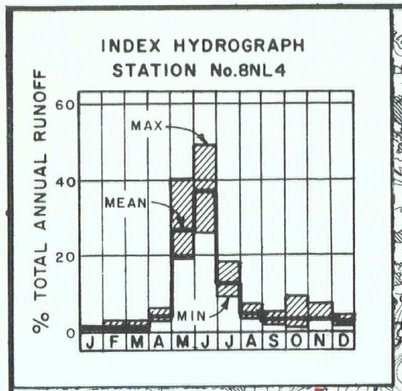
CONSULTING ENGINEERS VANCOUVER, CANADA

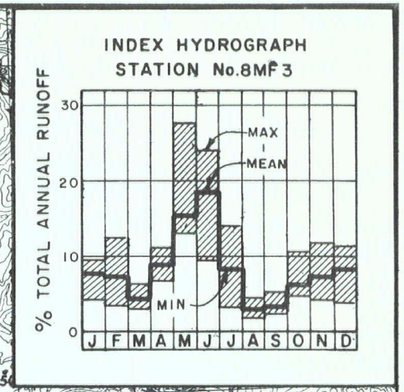
E. Hetherington | W.Q. Chin | APPROVED: D.R. Stephens

DATE	SCALE	
MAR. 31, '69	1" = 16 mi.	PLATE 84



GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 3 NORTH
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS
VANCOUVER, CANADA
APPROVED
DATE
MAR. 31, '69
SCALE
1" = 16 mi.
PLATE 85
LEGEND
Existing Discharge Stations
Existing Water Level Gauges
Recommended Mainstream Discharge Stations
Recommended Representative Basin Discharge Stations
Boundary of Hydrologic Zones
Boundary of Representative Basins
16
17
3
COAST MOUNTAINS
CANADA
U.S.A.
BRITISH COLUMBIA
ALASKA
TERRACE
PRINCE RUPERT
Port Simpson
Port Edward
CHATHAM SOUND
Portland Inlet
Behm Canal
Revillagigedo
Channel
Brown Passage
STRAIT
DUNDAS ISLAND
Grenville Channel
Whale Channel
Squally Channel
Estevan Sound
Laredo
ARISTAZABAL
BANKS ISLAND
PORCHER ISLAND
Kitimat
Douglas Channel
Kitsumkalum
Rosswood
Usk
Pacific
Alyansh
Stewart
Kitwanga
Cedarvale
Hazelton
Pepper River
Kwinitsa
Mary I
Cape Fox
Zayas I
Barren I
Duke Island





16

4

3

6

5

RELIEF

GOTT PEAK 9700

DATA

INCOMPLETE

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

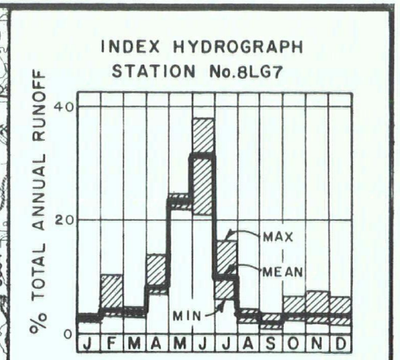
PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONES 4 & 5

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

DATE	SCALE	APPROVED
MAR. 31, '69	1" = 16 mi.	PLATE 86



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

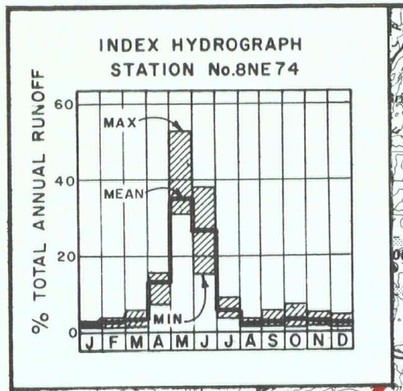
PROPOSED REGIONAL NETWORK

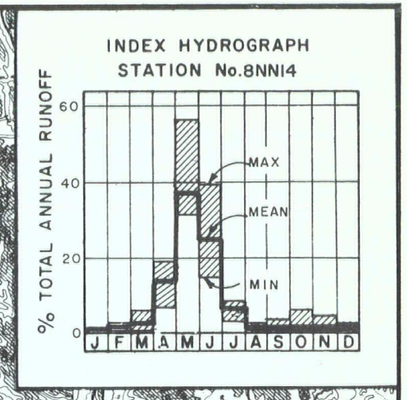
HYDROLOGIC ZONE 6

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

DATE	SCALE	APPROVED
MAR. 31, '69	1" = 16 mi.	PLATE 87





6

7

8

9

10

11

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

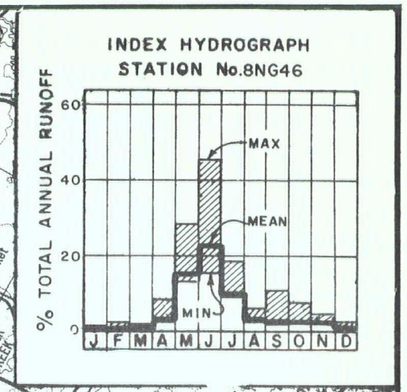
PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONES 7 & 8

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E.H. Hetherington		APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 88



9

10

8

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

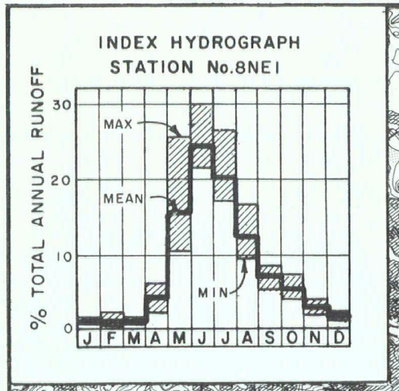
HYDROLOGIC ZONE 9

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E.H. Hetherington | W.D. Chin | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 89



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

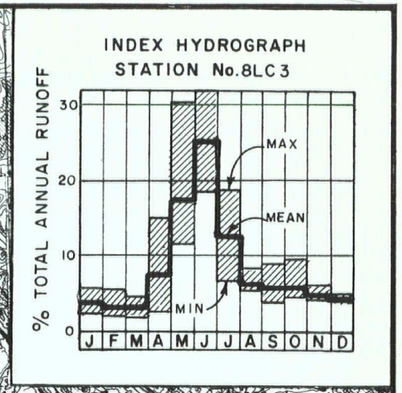
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 10

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 90



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONE II

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 91

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

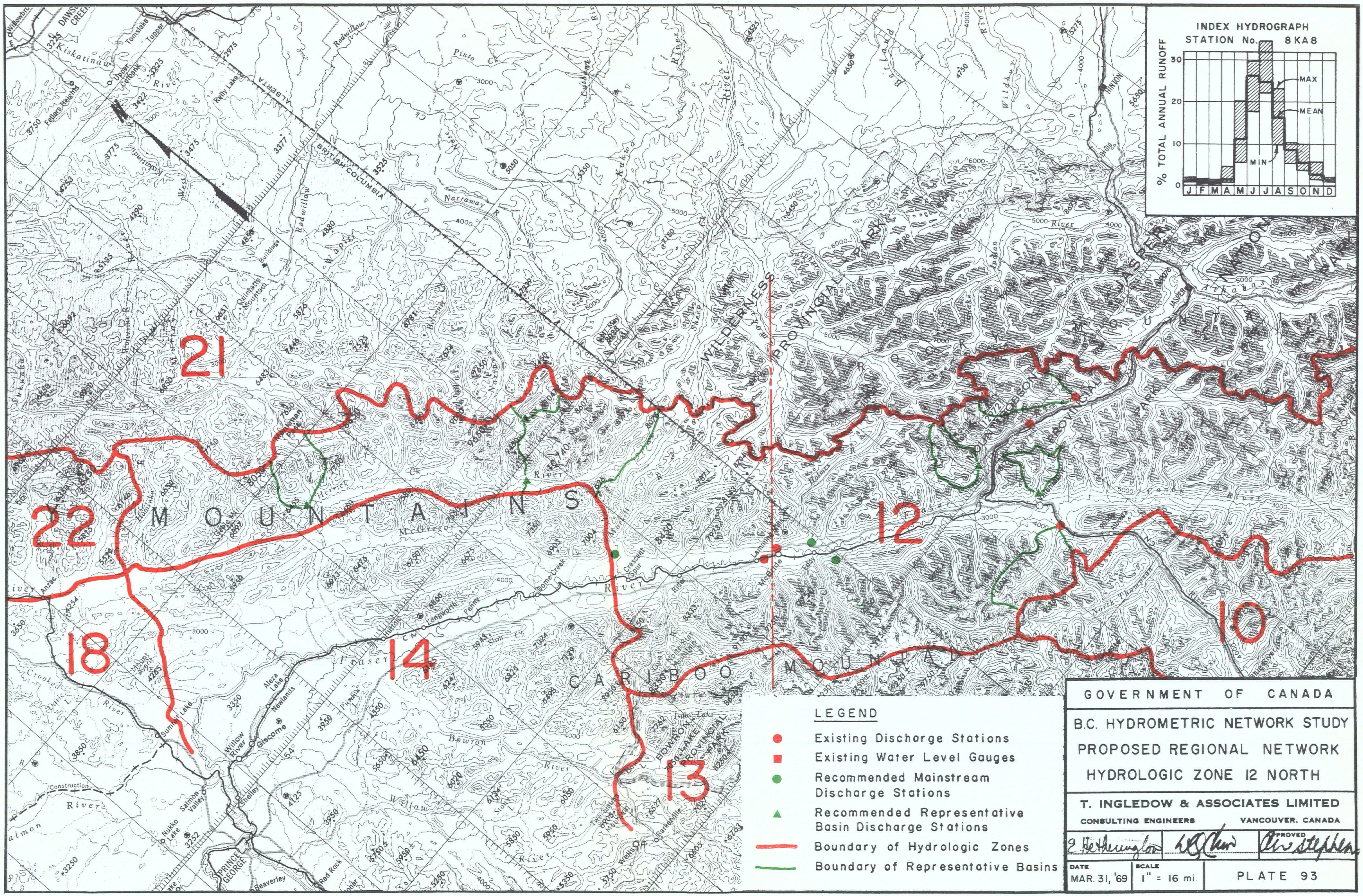
PROPOSED REGIONAL NETWORK

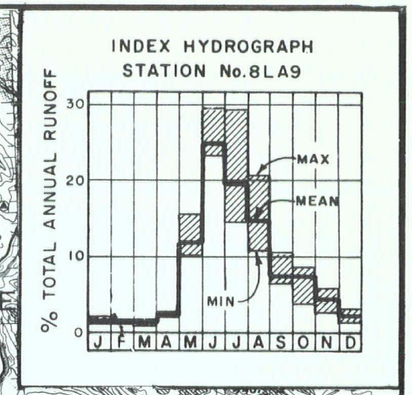
HYDROLOGIC ZONE 12 SOUTH

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington		APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 92


INDEX HYDROGRAPH
STATION No. 8KA8
% TOTAL ANNUAL RUNOFF
MAX
MEAN
MIN
J F M A M J J A S O N D
21
22
18
14
12
13
10
MOUNTAINS
CARIBOO MOUNTAINS
PROVINCIAL PARK
LEGEND
Existing Discharge Stations
Existing Water Level Gauges
Recommended Mainstream Discharge Stations
Recommended Representative Basin Discharge Stations
Boundary of Hydrologic Zones
Boundary of Representative Basins
GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 12 NORTH
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA
DATE MAR. 31, '69
SCALE 1" = 16 mi.
PLATE 93



14

12

13

10

15

6

11

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

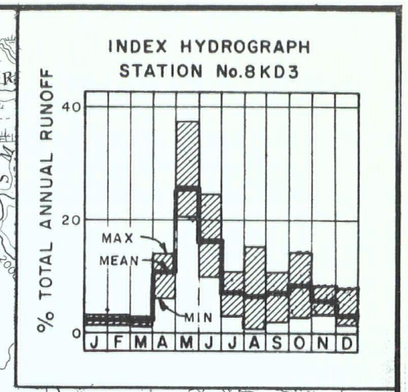
HYDROLOGIC ZONE 13

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | A. Q. Chin | APPROVED Ian Stephen

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 94



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

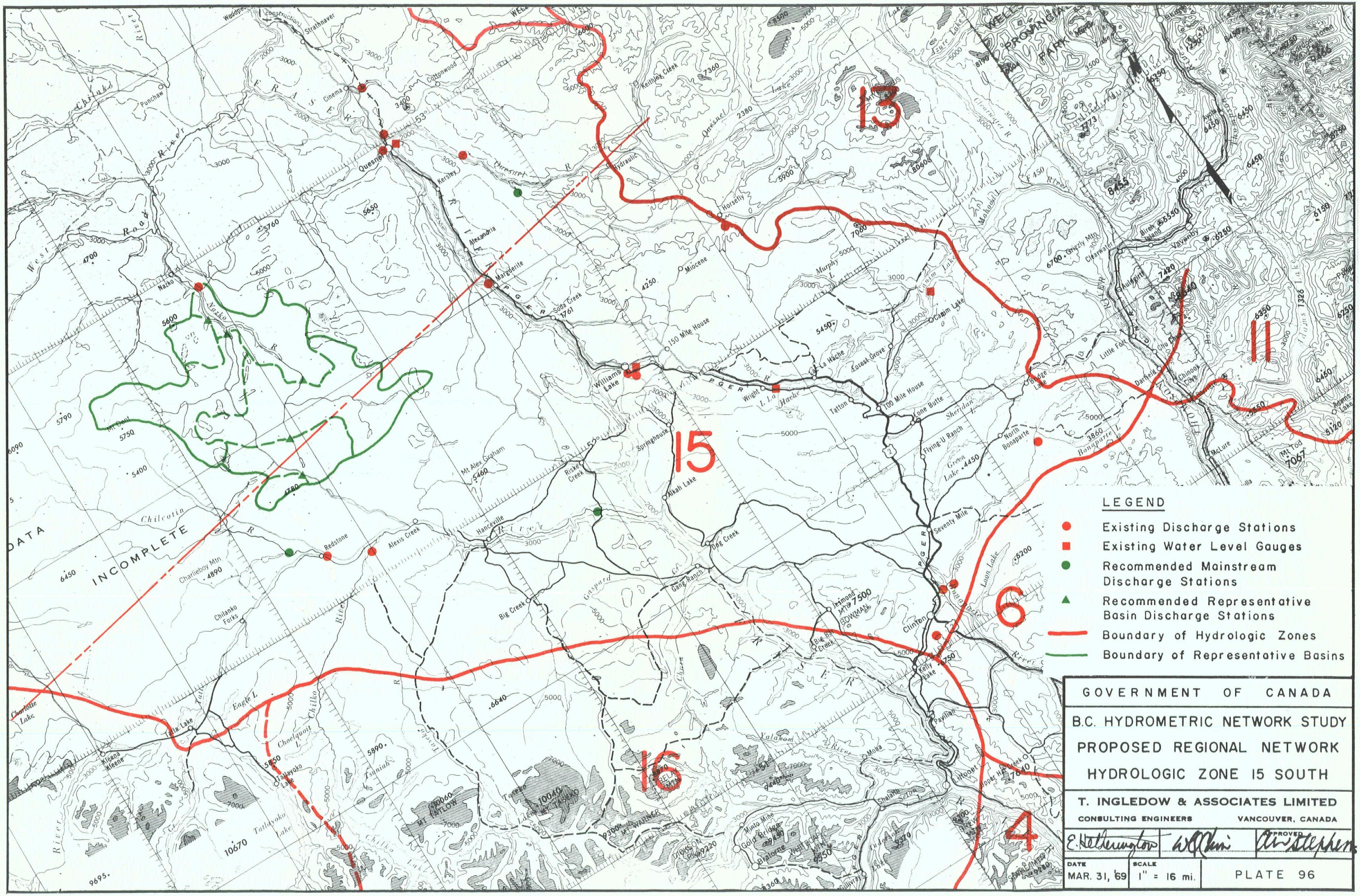
GOVERNMENT OF CANADA

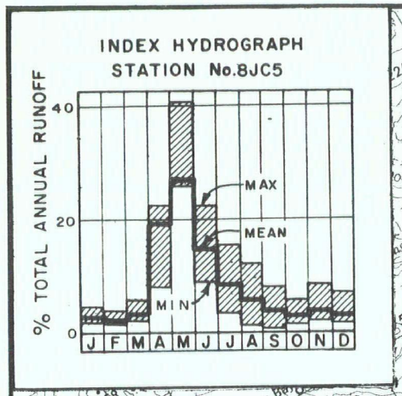
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 14

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Ingledow | | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi | PLATE 95


LEGEND
Existing Discharge Stations
Existing Water Level Gauges
Recommended Mainstream Discharge Stations
Recommended Representative Basin Discharge Stations
Boundary of Hydrologic Zones
Boundary of Representative Basins
GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 15 SOUTH
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS
VANCOUVER, CANADA
APPROVED
DATE
MAR. 31, '69
SCALE
1" = 16 mi.
PLATE 96
13
15
11
6
16
4
DATA INCOMPLETE
Quesnel
Williams Lake
Alexandria
Marguerite
Soda Creek
150 Mile House
100 Mile House
Seventy Mile
Clinton
Kelly Lake
Pavilion
Lillooet
Hanceville
Alexis Creek
Redstone
Riske Creek
Springhouse
Alkali Lake
Dog Creek
Gang Ranch
Big Creek
Chilanko Forks
Tatla Lake
Kleena Kleene
Horsefly
Likely
Lac La Hache
Canim Lake
Forest Grove
Lone Butte
Flying-U Ranch
Green Lake
North Bonaparte
Little Fort
Clearwater
Vavenby
Birch Island
Darfield
Chinook Cove
McLure
Mt Tod 7067
Chilcotin
Nazko
Charlieboy Mtn 4890
Mt Alex Graham 5460
Jesmond
Big Bar Creek
Minto Mine
Gold Bridge
Bralorne
Tatlayoko Lake
Chilko Lake
Choelquoit L.
Eagle L.
Charlotte Lake
Punchaw
Strathnaver
Cinema
Cottonwood
Kersley
Hydraulic
Miocene
Tatton
Wright
Yalakom
Tsuniah
FRASER RIVER
PGER
WELLS GRAY PROVINCIAL PARK



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

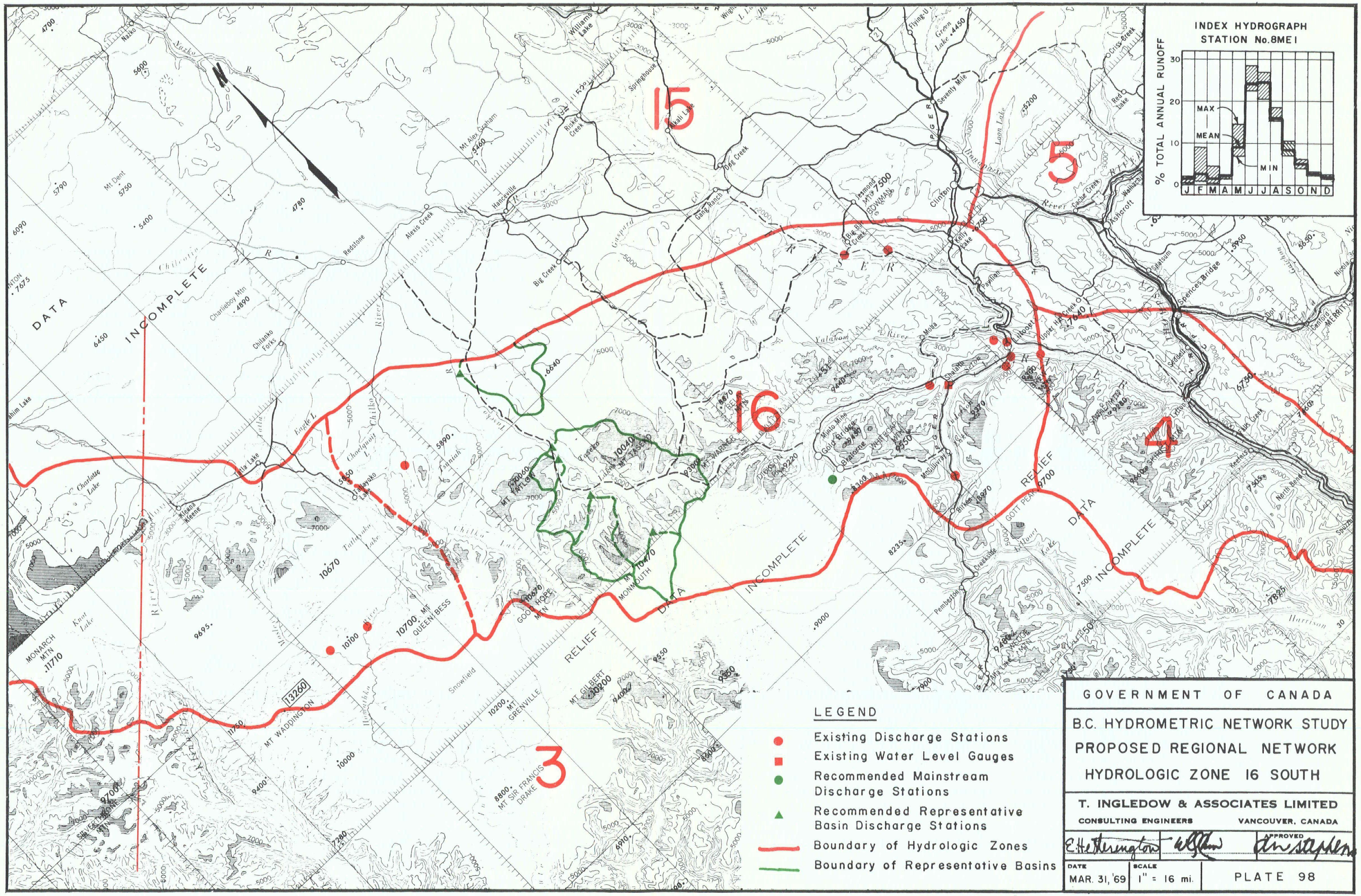
HYDROLOGIC ZONE 15 NORTH

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | W. Ren | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 97



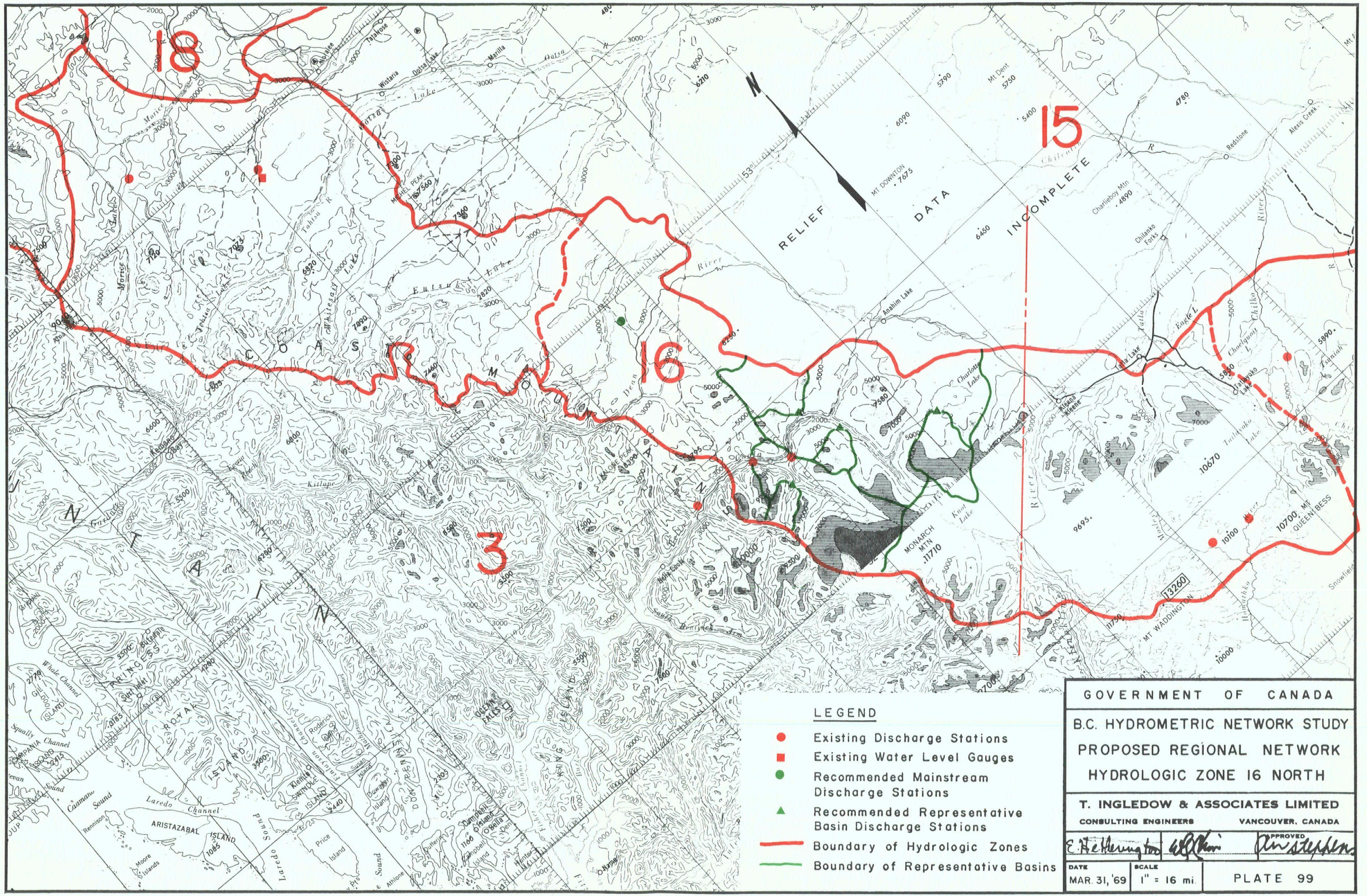
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 16 SOUTH

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | [signature] | APPROVED [signature]

DATE	SCALE	
MAR. 31, '69	1" = 16 mi.	PLATE 98



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

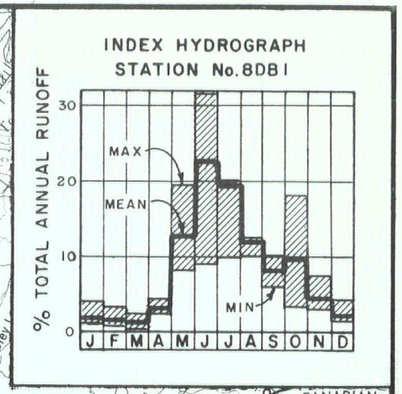
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 16 NORTH

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED

DATE	SCALE	
MAR. 31, '69	1" = 16 mi.	PLATE 99



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

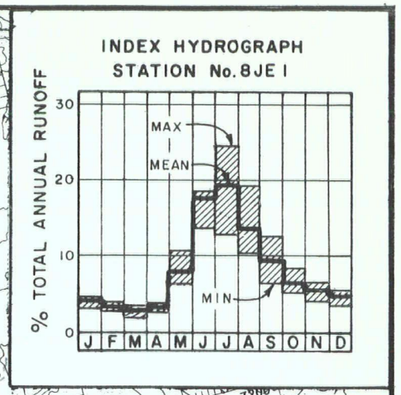
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 17

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 100



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONE 18

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | W.G. Kim | APPROVED A. Sterdenko

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 101

20

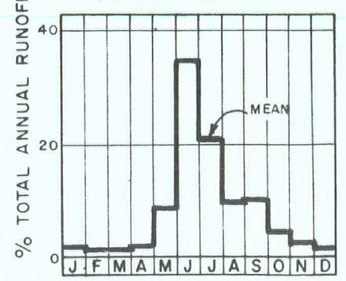
19

21

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

INDEX HYDROGRAPH
STATION No. 10CB1



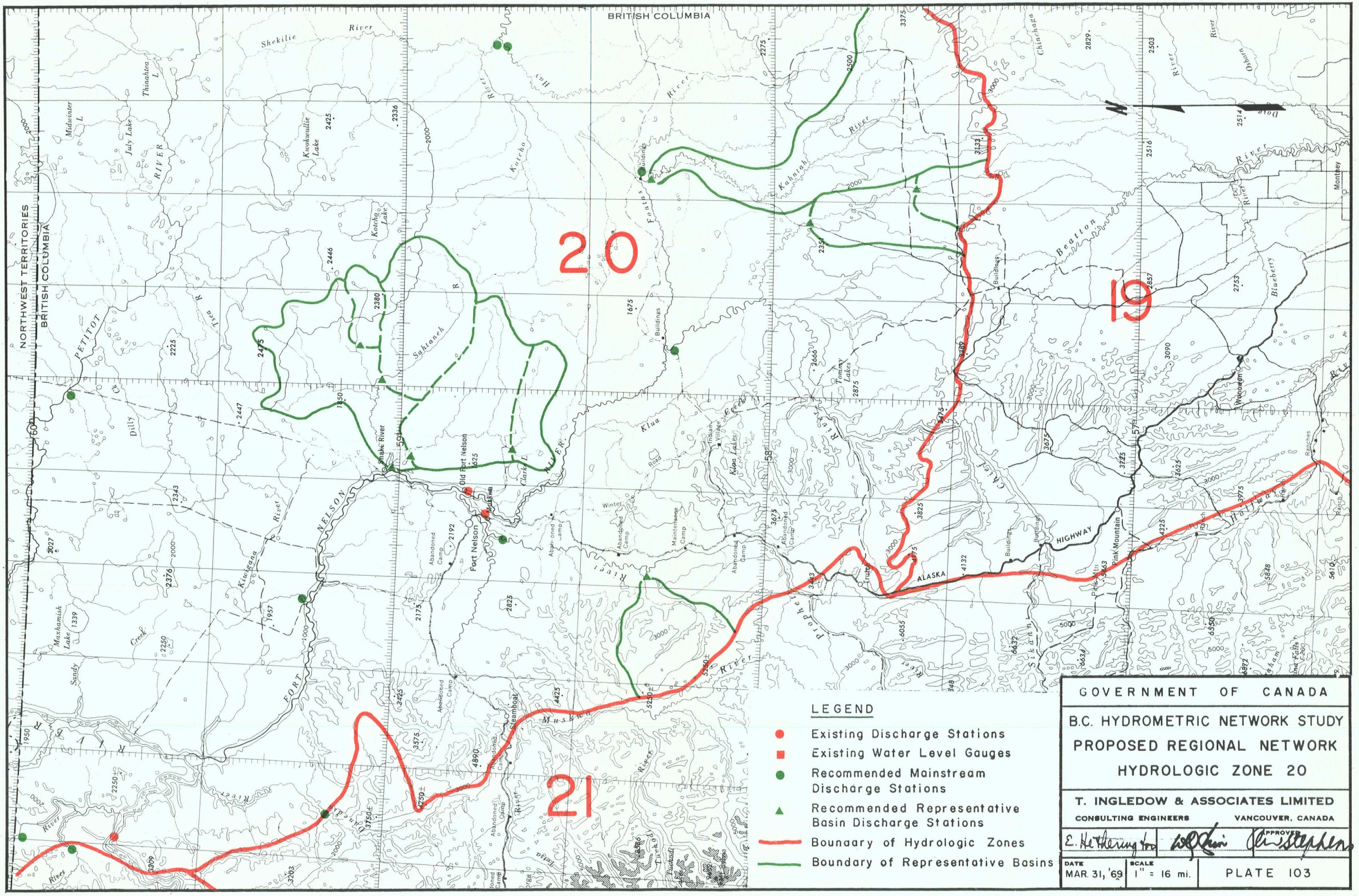
GOVERNMENT OF CANADA

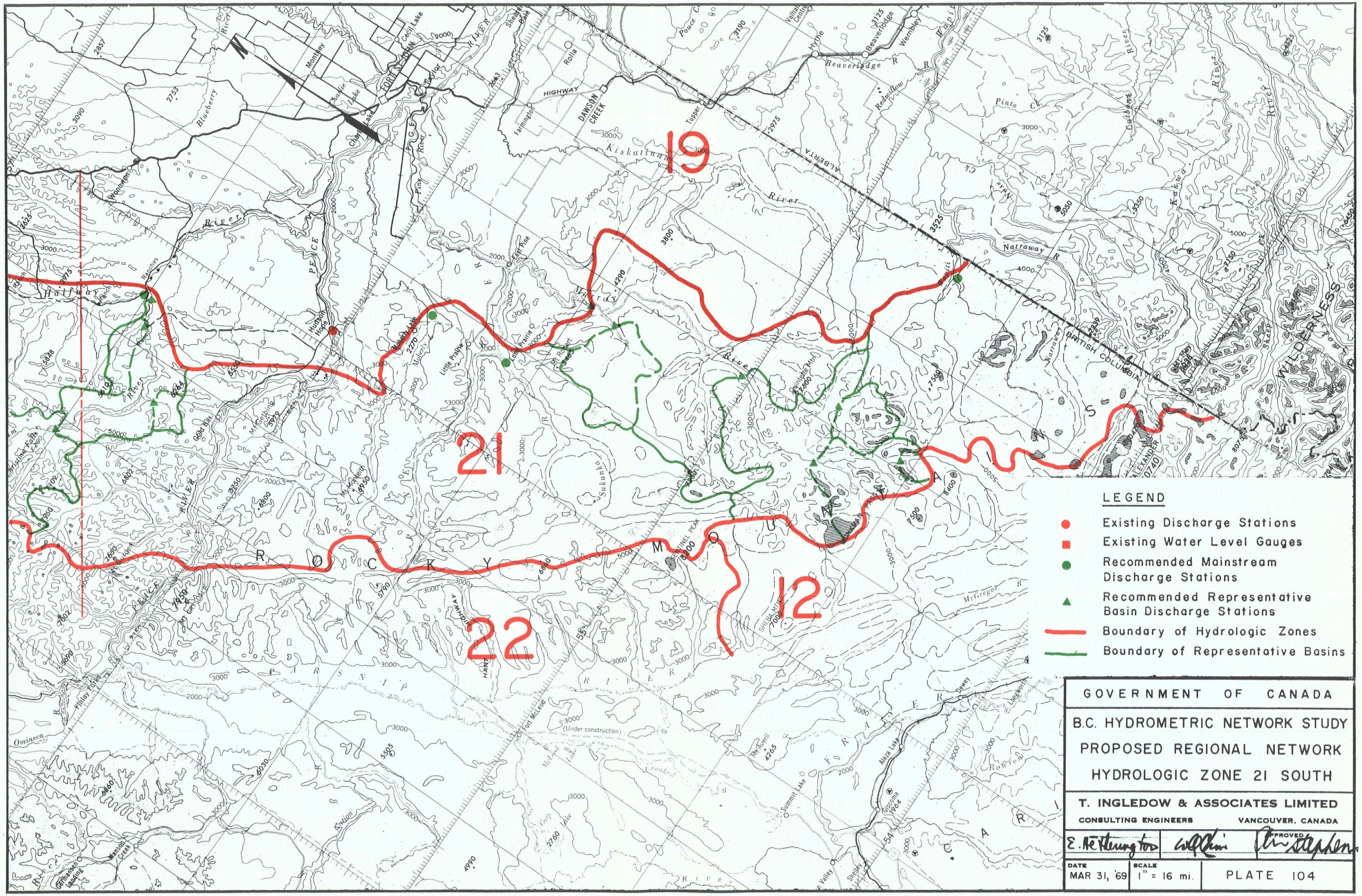
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 19

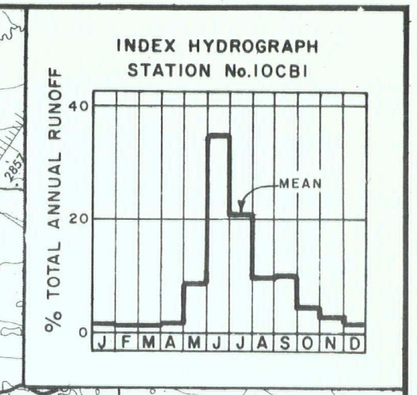
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. H. Herrington | W. G. Kim | APPROVED A. Stephens

DATE	SCALE	
MAR. 31, '69	1" = 16 mi.	PLATE 102


BRITISH COLUMBIA
NORTHWEST TERRITORIES
BRITISH COLUMBIA
20
21
19
Shekilie River
Midwinter L
July Lake
Thinahtea L
RIVER
Kwokwullie Lake
Kotcho River
Kotcho Lake
Sahtaneh R
Fontas River
Kahntah River
Beaton River
Chinchaga River
Osborn River
Blueberry River
Monteney
PETITOT
Dilly Ck
Snake River
Old Fort Nelson
Clark L
NELSON RIVER
Fort Nelson
Kiwigana River
Muskwa River
Steamboat
Kiua Creek
Tommy Lakes
Indian Village
Kiwa Lakes
Road
Winter
Abandoned Camp
Maintenance Camp
Buildings
Tuchodi River
Prophet River
Sikanni Chief River
Pink Mountain
ALASKA HIGHWAY
Hudson Hope
Ranches
Farm
Ranch
Mashamish Lake
Sandy Creek
FORT NELSON RIVER
Tuchodi Lakes
Chatham
Rit
LEGEND
Existing Discharge Stations
Existing Water Level Gauges
Recommended Mainstream Discharge Stations
Recommended Representative Basin Discharge Stations
Bounaary of Hydrologic Zones
Boundary of Representative Basins
GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 20
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS
VANCOUVER, CANADA
E. Hetherington
APPROVED
DATE
MAR. 31, '69
SCALE
1" = 16 mi.
PLATE 103


19
21
22
12
LEGEND
Existing Discharge Stations
Existing Water Level Gauges
Recommended Mainstream Discharge Stations
Recommended Representative Basin Discharge Stations
Boundary of Hydrologic Zones
Boundary of Representative Basins
GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 21 SOUTH
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS
VANCOUVER, CANADA
APPROVED
DATE
MAR 31, '69
SCALE
1" = 16 mi.
PLATE 104



20

19

21

22

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

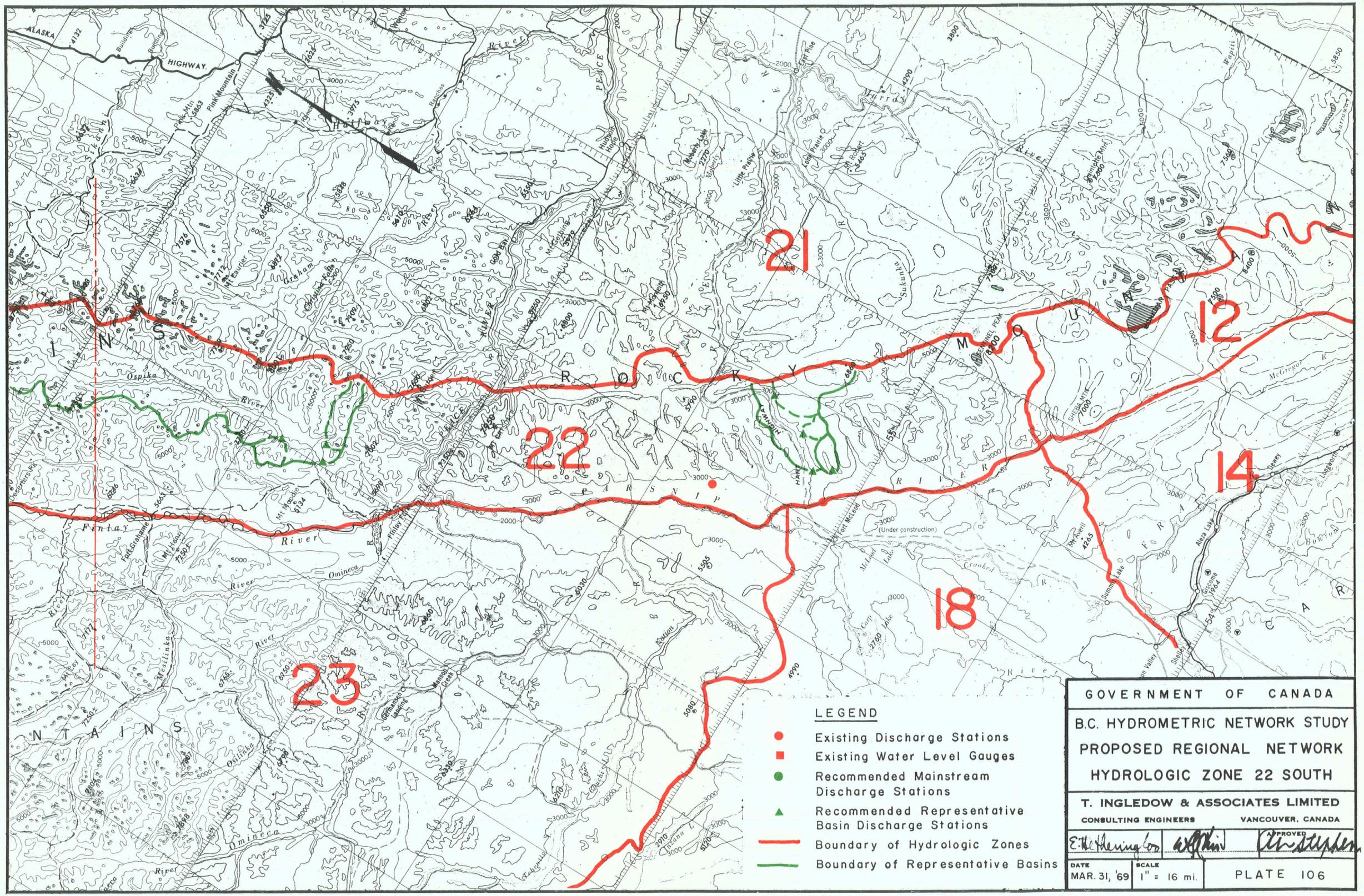
HYDROLOGIC ZONE 21 NORTH

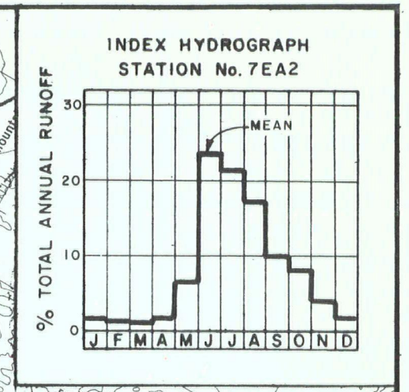
T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E.K. Herrington | W.G. Ross | R.M. Stephens

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 105


ALASKA HIGHWAY
Pink Mountain
Hudson Hope
PEACE RIVER
Fort St. John
Taylor
Dawson Creek
Chetwynd
Pine Pass
Mt. Robert
Mt. McDiarmid
Mt. Laurier
Mt. Selwyn
Mt. Trocadero
Mt. Hasler
Mt. Davie
Mt. Sheba
Mt. Sentinel
Mt. Averill
Mt. Tudyah
Osilinka River
Ospika River
Finlay River
Omineca River
Parsnip River
McGregor River
Crooked River
Fort Grahame
Fort McLeod
Germansen Landing
Manson Creek
Summit Lake
Aleza Lake
Prince George
Chief Lake
Misinchinka River
Sukunka River
Little Prairie
Hart Highway
(Under construction)
21
22
23
18
12
14
LEGEND
Existing Discharge Stations
Existing Water Level Gauges
Recommended Mainstream Discharge Stations
Recommended Representative Basin Discharge Stations
Boundary of Hydrologic Zones
Boundary of Representative Basins
GOVERNMENT OF CANADA
B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 22 SOUTH
T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA
DATE MAR. 31, '69
SCALE 1" = 16 mi.
PLATE 106



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

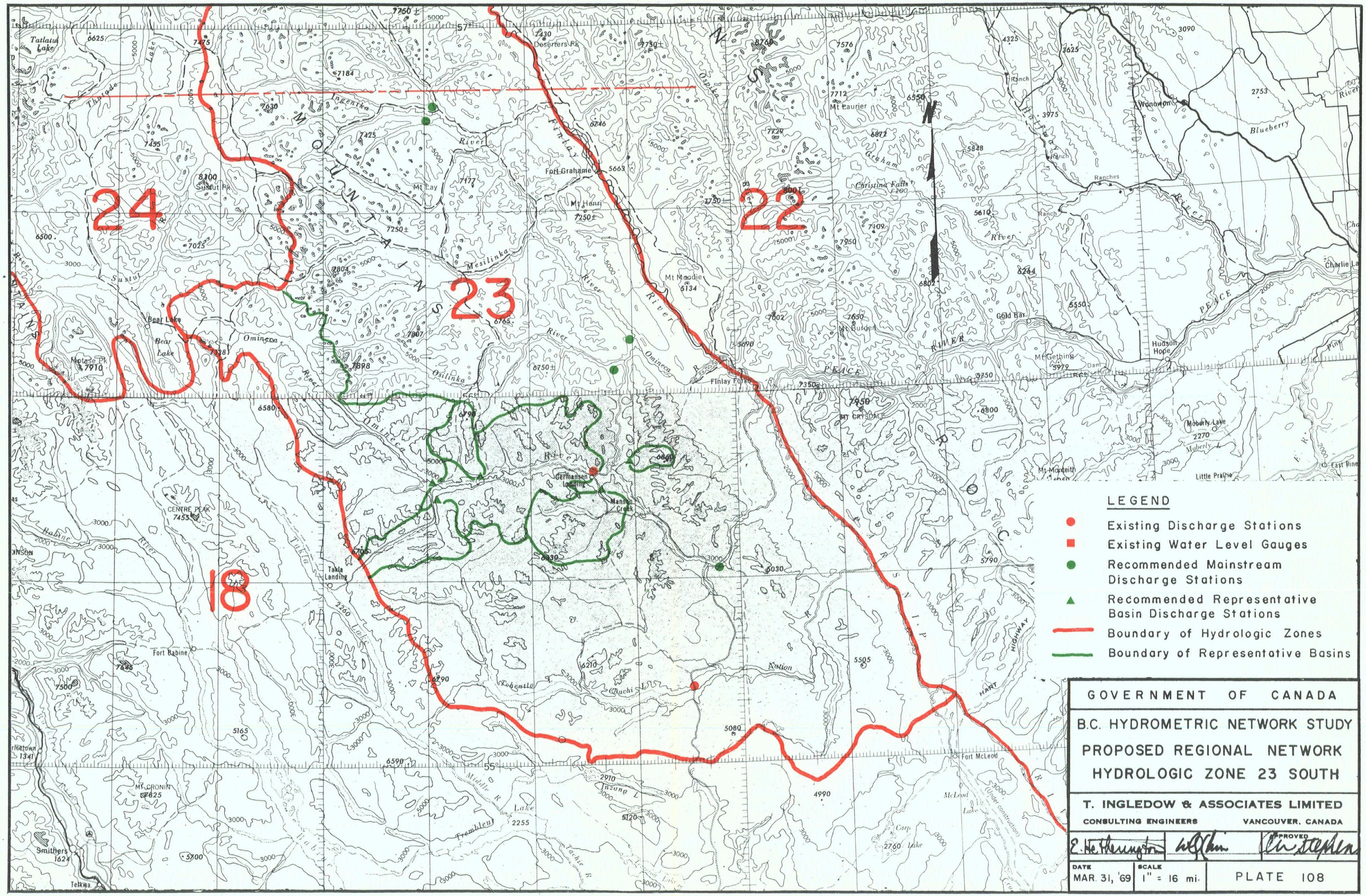
HYDROLOGIC ZONE 22 NORTH

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS — VANCOUVER, CANADA

E. Hetherington | W. Thom | APPROVED M. Stephen

DATE	SCALE	
MAR. 31, '69	1" = 16 mi.	PLATE 107



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

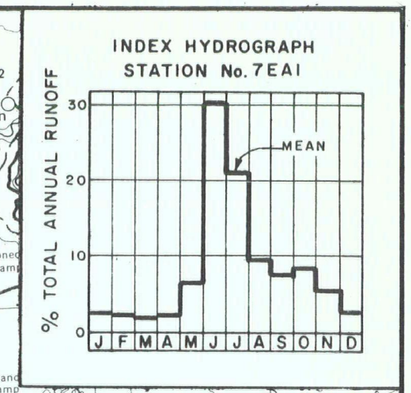
GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 23 SOUTH

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 108



27

22

23

24

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

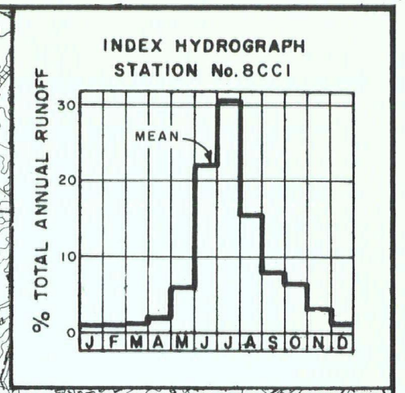
HYDROLOGIC ZONE 23 NORTH

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | W.G.Chin | APPROVED Ian Stephen

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 109



23

27

24

26

25

18

17

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

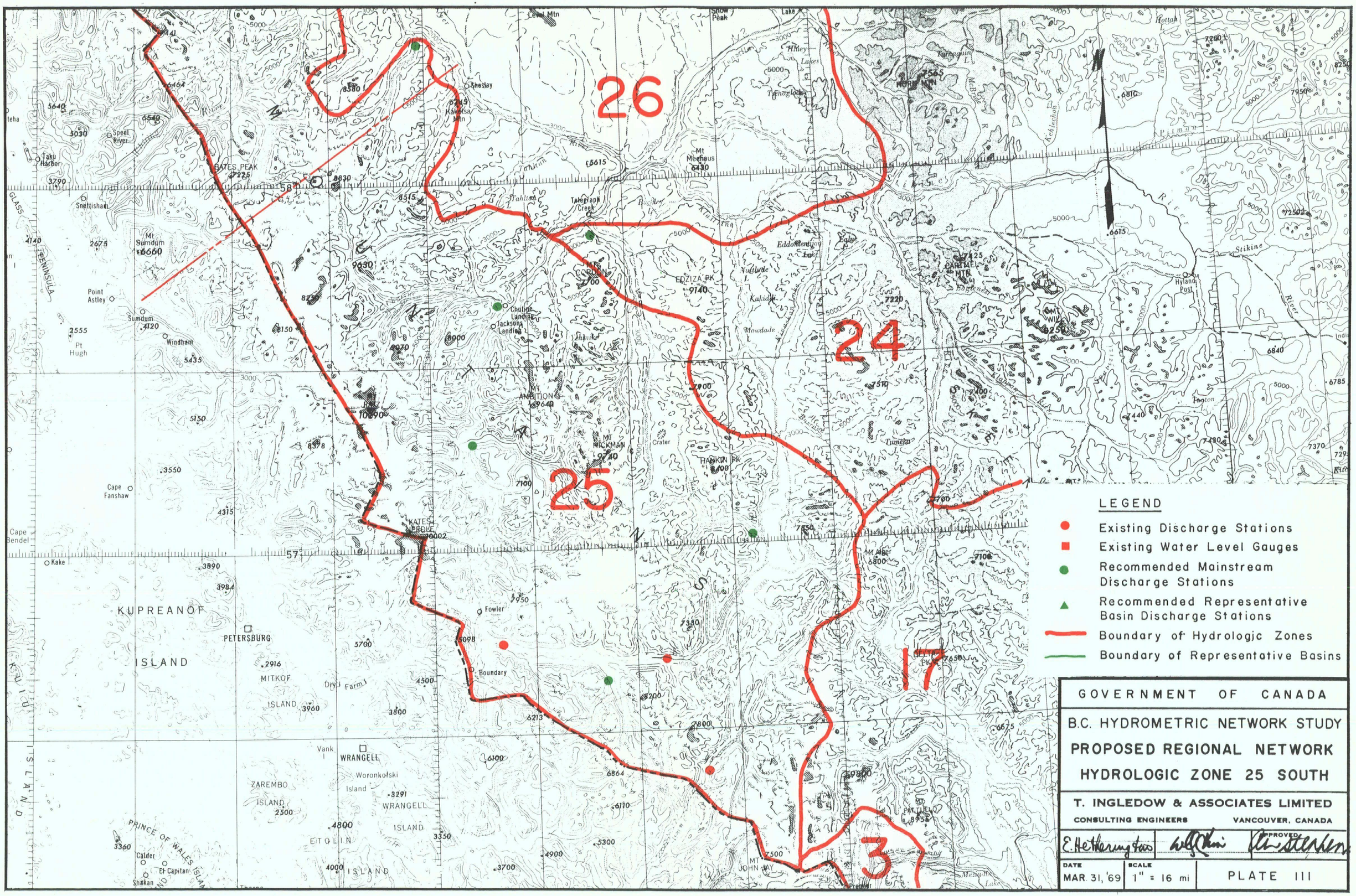
B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK HYDROLOGIC ZONE 24

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

DATE	SCALE	PLATE
MAR. 31, '69	1" = 16 mi.	PLATE 110



GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

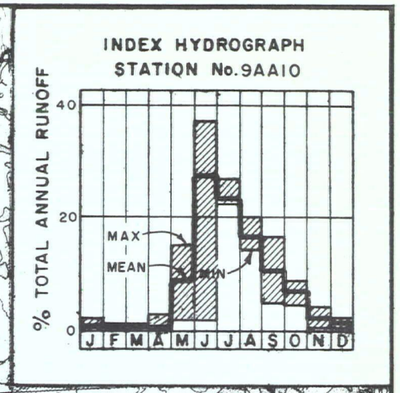
HYDROLOGIC ZONE 25 SOUTH

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi | PLATE III



DATA INCOMPLETE

28

26

25

YUKON TERRITORY
BRITISH COLUMBIA

ALASKA

CANADA
UNITED STATES

LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

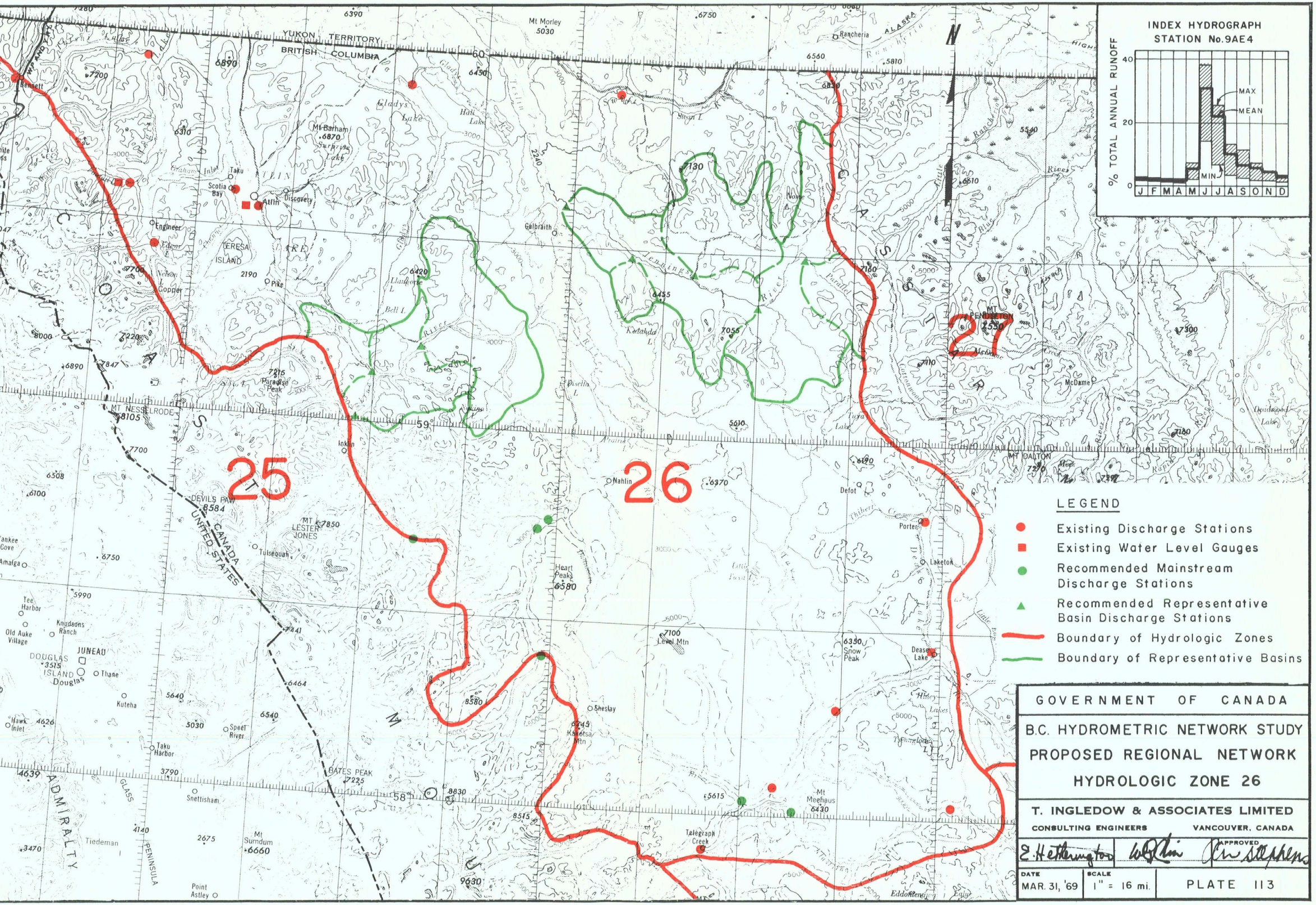
PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONE 25 NORTH

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS — VANCOUVER, CANADA

DATE	SCALE	
MAR. 31, '69	1" = 16 mi.	PLATE 112



GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

PROPOSED REGIONAL NETWORK

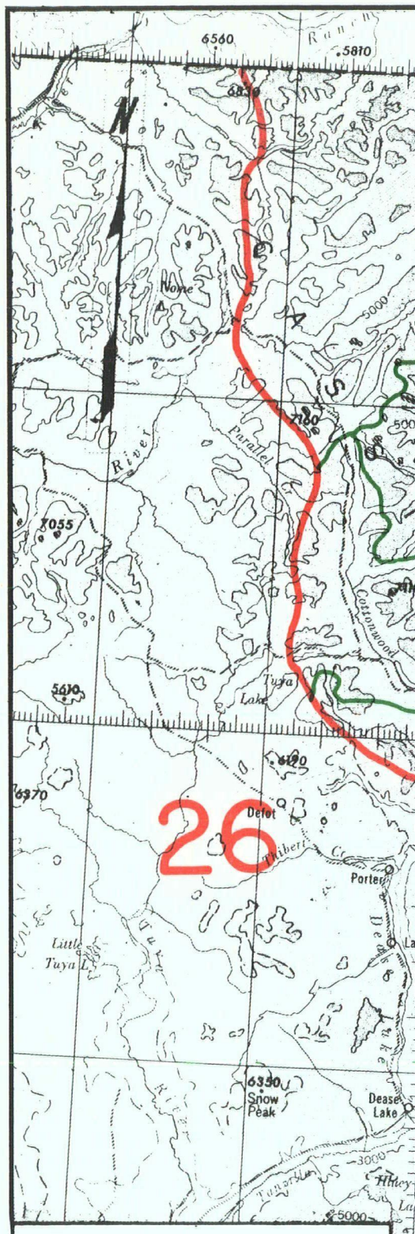
HYDROLOGIC ZONE 26

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS — VANCOUVER, CANADA

E. Hetherington | W. Ingledow | APPROVED | Jim Stephens

DATE: MAR. 31, '69 | SCALE: 1" = 16 mi. | PLATE 113



GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

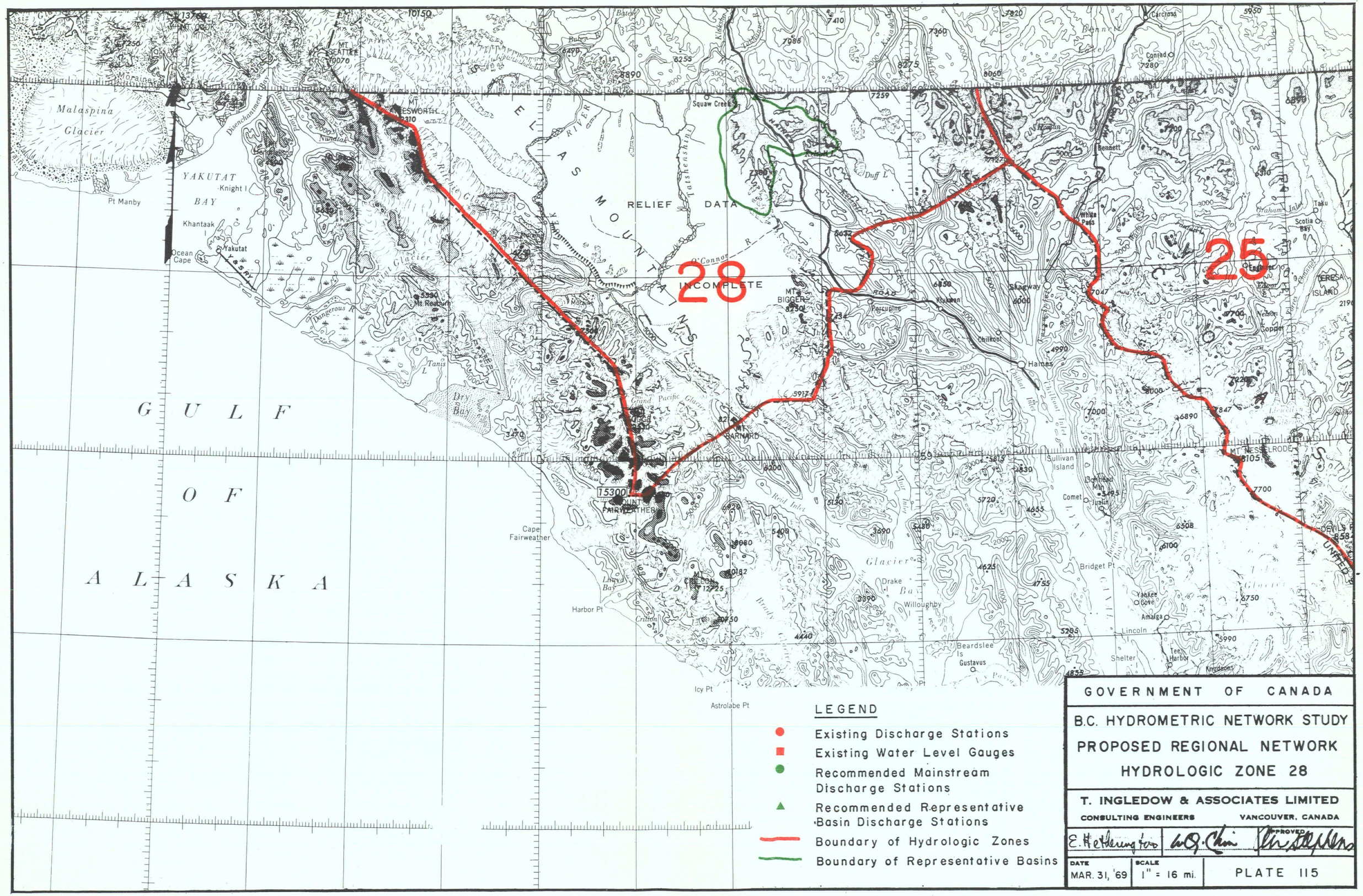
PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONE 27

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

DATE	SCALE	
MAR. 31, '69	1" = 16 mi.	PLATE 114



GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

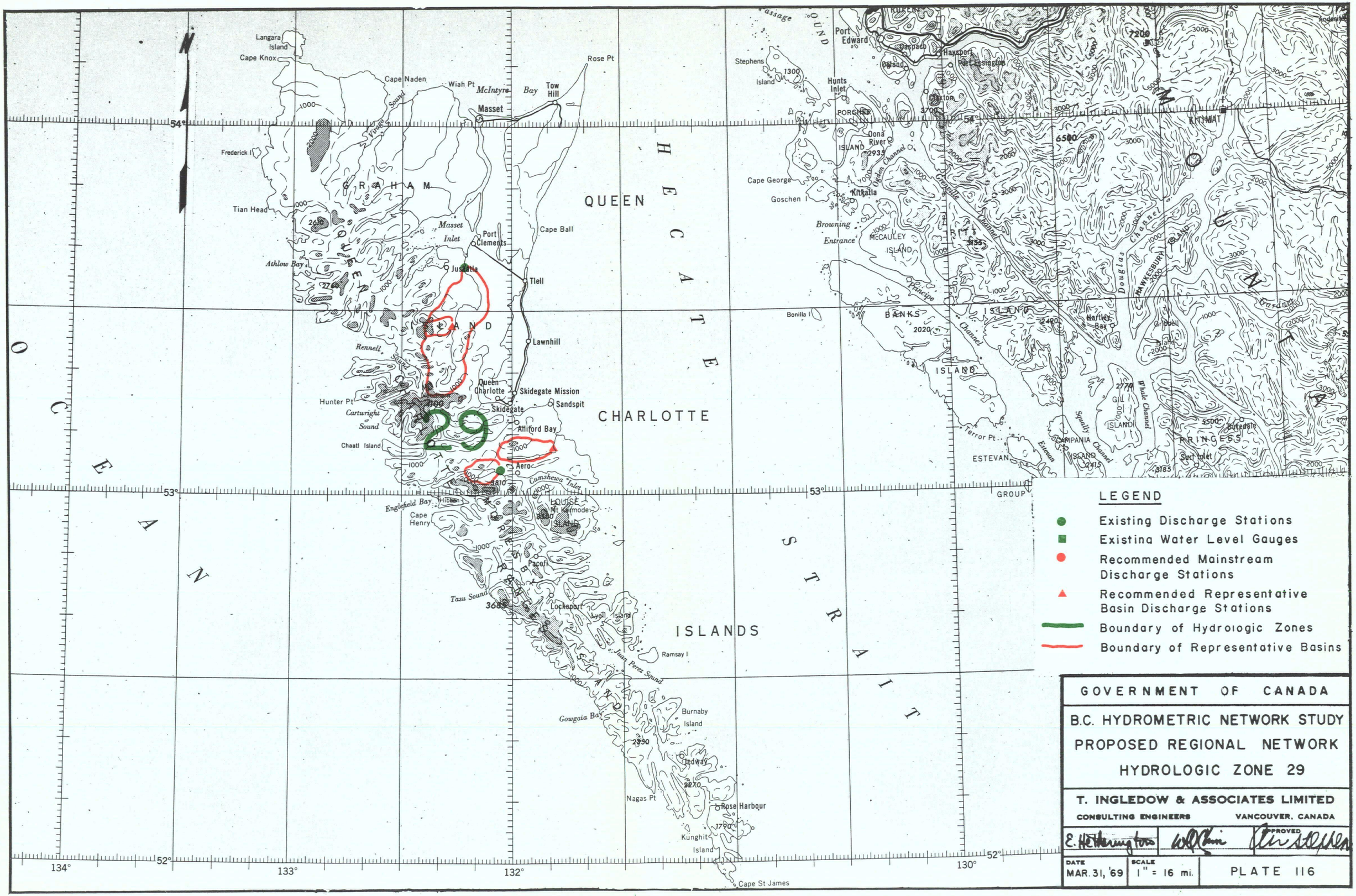
PROPOSED REGIONAL NETWORK

HYDROLOGIC ZONE 28

T. INGLEDOW & ASSOCIATES LIMITED

CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington	W.J. Chin	APPROVED
DATE MAR. 31, '69	SCALE 1" = 16 mi.	PLATE 115



LEGEND

- Existing Discharge Stations
- Existing Water Level Gauges
- Recommended Mainstream Discharge Stations
- Recommended Representative Basin Discharge Stations
- Boundary of Hydrologic Zones
- Boundary of Representative Basins

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY
PROPOSED REGIONAL NETWORK
HYDROLOGIC ZONE 29

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

E. Hetherington | APPROVED

DATE MAR. 31, '69 | SCALE 1" = 16 mi. | PLATE 116

Approximate Areas of the Hydrologic Zones

Zone Number	Area Sq. Mi.	Zone Number	Area Sq. Mi.
1	12,410	16	16,570
2	860	17	15,660
3	52,380	18	13,550
4	3,330	19	13,130
5	1,290	20	22,470
6	12,030	21	17,990
7	4,550	22	10,940
8	3,260	23	14,350
9	13,600	24	13,570
10	9,630	25	13,060
11	5,810	26	15,700
12	9,140	27	18,880
13	7,720	28	3,310
14	5,120	29	3,550
15	32,140		

NOTES:

1. The zone areas were determined from a 32 mile to the inch map and are approximate values only.

2. The total area of the province was assumed to be 366,000 square miles.

3. The area of Zone 3, the coastal zone including the islands close to the coast, was obtained by subtracting the sum of the areas of the other 28 zones from the total area.

TABLE I-0

INDEX PRECIPITATION GRAPH DATA

STATION	PERCENTAGE OF ANNUAL PRECIPITATION												ANNUAL PRECIPITATION (inches)
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
ABBOTSFORD A	13.2	11.8	10.1	6.9	5.0	4.7	2.2	2.9	5.2	11.4	12.7	14.0	58.50
ABERFELDIE	14.8	8.3	4.7	4.6	8.1	13.0	4.5	7.4	7.2	7.4	9.9	10.2	22.33
ADRA	10.8	8.4	7.0	6.1	8.4	10.6	7.7	6.1	6.5	8.6	9.3	10.7	18.40
AGASSIZ CDA	12.8	10.2	9.6	6.9	5.0	5.0	2.9	3.1	5.9	11.5	12.0	14.8	64.37
AIYANSH	13.8	9.8	6.2	4.0	3.4	4.3	4.5	5.2	8.6	12.5	12.9	14.8	43.95
ALBERNI BEAVER CREEK	15.1	11.7	9.1	6.4	3.4	2.8	2.3	1.9	4.2	10.2	14.9	18.2	71.28
ALBERNI LUPSI CUPSI	16.0	12.8	9.0	6.3	2.0	1.8	1.3	2.1	3.5	11.1	18.5	15.7	72.34
ALERT BAY	12.8	8.0	7.9	5.3	4.1	4.1	3.8	4.3	7.3	13.1	14.4	14.8	51.91
ALICE ARM	9.1	8.5	8.2	5.9	3.6	3.6	3.5	6.1	8.6	16.0	11.8	15.1	80.05
ALOUETTE LAKE	13.6	10.7	10.4	7.0	5.3	4.7	3.0	3.0	5.4	10.4	11.8	14.6	106.57
ALOUETTE POWER HOUSE	12.0	11.7	10.4	8.3	5.8	5.2	3.2	3.3	4.7	6.5	12.0	17.0	128.60
ALTA LAKE	15.3	11.2	8.0	6.3	3.3	4.1	2.1	3.6	6.2	12.2	12.7	15.0	57.16
ALTA LAKE 2	14.5	11.0	8.1	5.4	4.0	3.6	3.1	3.8	5.5	11.8	12.9	16.3	55.37
ARMSTRONG	10.5	8.1	5.8	4.7	7.5	10.1	6.8	6.1	7.8	9.4	9.5	13.7	17.18
ASHCROFT	11.4	7.3	4.3	3.7	8.1	14.8	6.9	10.1	7.4	8.1	8.7	9.3	7.66
ASHCROFT R	12.4	7.5	5.1	4.1	6.3	13.9	6.7	11.1	6.8	8.3	8.8	9.1	9.47
ATLIN	11.6	5.8	4.2	2.2	3.1	8.0	10.7	8.7	9.7	16.9	11.7	7.5	10.95
BABINE LAKE	10.7	7.5	5.9	4.9	6.6	9.1	8.4	6.4	7.8	10.9	11.4	10.4	23.16
BALDONNEL	5.9	5.6	5.5	4.6	8.2	14.8	15.2	11.4	7.9	7.0	7.5	6.3	17.24
BAMFIELD	13.8	11.5	10.6	7.2	3.8	3.1	2.5	1.9	4.8	11.0	14.4	15.4	107.10
BARKERVILLE	10.1	8.1	9.1	5.3	5.7	9.6	8.4	9.4	7.4	7.9	9.5	9.4	45.25
BEAR CREEK	14.9	11.9	10.5	6.8	3.3	2.6	1.8	1.9	4.6	11.0	12.6	17.9	127.37
BEATTON RIVER A	5.4	6.7	5.7	6.2	10.1	14.8	17.0	10.4	6.3	5.8	5.7	5.9	16.61
BEAVER LAKE	15.4	10.6	9.1	4.1	3.9	3.7	2.4	2.3	4.2	9.6	15.1	19.6	29.18
BELLA BELLA	9.7	7.1	9.2	7.2	5.3	5.1	5.1	6.1	7.6	12.3	12.9	12.4	107.40
BELLA COOLA	11.1	8.6	8.5	5.5	3.1	3.2	3.4	4.6	7.4	13.9	15.9	14.6	60.40
BIG CREEK	6.5	5.8	7.5	4.3	7.6	15.4	9.9	14.1	8.6	5.9	6.7	7.8	12.63
BLUE RIVER	10.5	8.0	6.9	5.2	6.2	8.0	7.8	7.9	7.1	9.5	10.8	12.2	40.84
BRALORNE	11.8	8.3	6.8	4.6	4.8	5.9	4.5	4.8	6.1	11.4	14.3	16.6	25.86
BRIDGE RIVER	10.3	8.3	7.5	3.9	5.0	8.3	4.7	6.0	3.9	11.6	12.6	18.0	20.36
BRISCO	10.3	6.3	4.4	5.9	8.7	13.6	7.3	8.6	7.1	8.5	8.2	11.5	16.39
BRITANNIA BEACH	12.9	9.9	9.3	6.8	4.5	3.8	2.9	2.9	5.8	12.3	13.3	15.5	78.58
BUCANEER BAY	12.3	9.8	8.2	5.4	5.0	5.9	4.5	3.7	6.2	11.3	12.1	15.6	37.13
BULL HARBOUR	12.0	8.7	8.4	6.1	4.3	3.7	3.6	4.2	6.8	13.2	14.0	15.0	69.25
BUNTZEN LAKE	14.1	10.7	9.6	6.5	4.5	4.2	2.4	2.6	5.3	11.2	12.9	16.1	106.76
BURQUITLAM	14.2	11.0	9.6	5.9	4.8	4.3	2.4	2.9	5.6	11.2	12.6	15.5	67.79
CAMERON LAKE	14.0	10.5	8.7	5.9	4.3	2.6	2.4	2.3	4.8	11.4	14.7	18.3	58.19
CAMPBELL RIVER	14.8	11.4	9.0	5.1	3.3	3.6	2.2	3.2	5.0	10.1	15.9	16.4	58.55
CANAL FLATS	7.7	8.4	5.8	5.6	10.5	13.7	5.9	8.3	7.0	8.3	8.7	10.1	16.15

TABLE I-1

INDEX PRECIPITATION GRAPH DATA

STATION	PERCENTAGE OF ANNUAL PRECIPITATION												ANNUAL PRECIPITATION (inches)
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
CAPE LAZO	15.1	11.0	7.5	5.6	3.6	3.7	2.4	3.3	4.3	10.2	15.2	18.2	40.56
CAPE ST JAMES	11.0	8.4	8.8	7.8	5.8	5.0	4.7	4.6	7.6	12.4	11.8	12.1	58.24
CAPILANO INTAKE	14.0	10.7	10.0	6.5	4.5	3.5	2.6	2.2	4.9	11.7	13.6	15.9	125.88
CARMI	11.2	9.1	6.9	6.5	8.9	10.9	6.5	6.5	6.0	8.1	8.8	10.5	22.05
CHEMAINUS	16.8	11.4	9.4	4.9	3.6	3.5	2.2	2.2	4.0	9.8	14.2	18.0	43.67
CHILLIWACK	13.7	10.2	9.5	6.3	5.3	4.5	2.7	3.0	6.2	11.8	12.5	14.3	66.92
CHINOOK COVE	9.0	6.8	4.1	5.3	7.1	13.0	7.7	8.8	7.3	10.1	9.4	11.2	16.95
CHUTE LAKE	11.4	10.0	8.4	6.3	8.2	8.6	5.6	5.6	6.6	8.3	9.9	11.1	24.67
CLAYOQUOT	13.0	9.7	11.0	7.2	4.4	3.4	3.3	2.4	5.3	10.8	13.5	15.9	103.98
CLOWHOME FALLS	12.7	10.4	9.2	6.9	4.5	3.8	2.9	2.8	5.7	11.7	13.7	15.6	83.44
COLE BAY	16.3	10.9	9.4	3.9	3.4	4.1	2.4	2.3	4.4	8.3	12.7	22.0	38.75
COLUMBIA GARDENS	12.3	9.0	7.7	6.0	7.9	11.0	4.4	3.8	5.6	10.3	10.1	12.1	24.87
COMOX A	16.8	11.3	8.5	5.0	3.0	3.6	2.2	3.4	4.1	10.3	15.6	16.3	46.73
COQUITLAM LAKE	14.1	11.1	10.7	6.8	4.3	3.7	2.3	2.4	5.0	11.1	12.7	15.7	140.32
COURTENAY	15.6	11.1	8.4	5.3	3.2	3.8	2.5	2.9	4.6	10.0	15.2	17.5	55.61
COWICHAN BAY	16.1	11.5	8.9	5.0	3.8	4.1	2.4	2.6	4.0	9.6	14.4	17.6	37.03
COWICHAN LAKE FORESTRY	17.1	12.0	9.9	6.8	2.4	2.6	1.6	1.9	4.1	10.3	14.6	16.8	82.72
COWICHAN LAKE HATCHERY	14.8	11.1	10.0	6.2	3.9	2.4	2.1	1.2	3.7	11.4	13.3	19.8	76.33
CRANBERRY LAKE VALEMOUNT	7.2	6.6	5.2	5.1	7.1	10.0	10.0	8.9	9.3	10.4	10.1	9.9	18.47
CRANBROOK A	10.8	9.3	5.2	5.2	8.9	13.5	5.5	7.6	6.5	8.3	8.5	10.8	16.41
CRESCENT VALLEY	13.7	10.7	7.7	5.1	6.7	8.2	4.1	4.5	6.2	9.7	9.9	13.3	30.91
CRESTON	12.9	8.8	7.1	5.2	6.3	10.0	4.0	5.3	5.9	9.4	11.7	13.5	18.94
CROFTON	16.6	12.2	9.2	5.2	3.7	3.7	2.5	2.1	4.0	9.0	14.2	17.5	40.31
CULTUS LAKE	12.3	10.3	9.6	6.6	5.4	4.9	3.2	3.3	5.6	11.8	12.1	15.0	57.09
CUMBERLAND	14.8	10.5	8.7	5.3	3.4	3.5	2.7	2.7	4.6	10.8	15.0	17.9	57.60
DEAD TREE POINT	12.0	8.8	8.5	6.7	3.9	3.9	4.3	4.0	6.8	13.5	14.4	13.0	45.37
DEASE LAKE	7.5	6.2	6.0	2.8	4.7	9.7	14.0	13.8	10.0	8.7	8.1	8.6	15.25
DEER PARK	10.0	7.5	6.7	5.3	9.0	12.0	5.8	6.3	7.1	10.5	8.5	11.2	17.69
DENMAN ISLAND	14.9	10.7	8.2	5.4	3.2	2.9	2.5	2.2	3.9	10.4	16.1	19.6	49.17
DEPARTURE BAY	14.6	10.0	7.8	5.4	4.2	4.7	3.5	3.2	5.0	10.2	15.1	16.4	34.15
DOG CREEK A	8.5	7.3	6.9	4.4	7.4	17.2	8.5	11.9	6.2	6.3	6.4	9.0	14.90
DOME CREEK	9.7	6.9	5.5	4.5	6.7	8.9	10.6	9.4	9.7	9.6	9.2	9.3	29.83
DUNCAN	16.5	11.7	9.0	4.9	3.7	3.7	2.4	2.4	3.9	9.4	13.9	18.5	41.15
EAGLE BAY	12.4	8.1	6.3	5.5	6.8	8.9	6.7	6.5	7.5	9.2	9.6	12.5	22.39
ELKO	10.5	6.9	5.4	5.7	8.6	13.0	5.5	7.2	7.2	10.2	10.0	9.8	19.70
ESQUIMALT PNL	15.9	12.5	8.8	4.2	3.0	3.4	1.8	2.0	3.9	9.6	14.6	20.2	32.84
ESTEVAN POINT	13.0	10.4	10.1	7.4	4.4	3.5	3.1	2.7	5.5	11.2	13.9	14.8	115.39
ETHELDA BAY	11.3	9.7	9.5	6.7	4.9	3.7	3.1	5.6	7.9	13.9	12.2	11.6	125.78
FALLS RIVER	11.3	8.2	9.2	7.5	4.4	3.2	3.1	4.2	7.5	14.7	13.3	13.5	144.74

TABLE I-1

INDEX PRECIPITATION GRAPH DATA

STATION	PERCENTAGE OF ANNUAL PRECIPITATION												ANNUAL PRECIPITATION (inches)
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
FAUQUIER	10.9	7.2	5.3	5.8	8.8	10.7	6.8	6.2	7.8	10.1	8.7	11.6	21.41
FERNIE	13.4	10.2	8.1	6.3	5.6	7.4	3.6	4.2	5.7	11.0	10.2	14.4	41.43
FORT NELSON A	5.5	6.1	6.0	4.3	9.0	15.2	14.9	11.6	7.8	5.9	7.2	6.5	17.13
FORT ST JAMES	9.0	7.6	5.4	4.3	6.9	10.3	11.2	8.8	8.8	8.5	9.8	9.5	17.73
FORT ST JOHN A	7.0	6.7	6.0	5.2	6.9	13.5	14.5	12.6	6.4	6.9	6.8	7.4	17.42
GARIBALDI	14.8	11.1	8.5	6.4	4.3	3.5	2.7	2.7	5.1	12.1	13.0	15.8	60.81
GERMANSEN LANDING	11.7	6.4	6.1	6.5	4.1	10.7	8.9	10.8	5.6	8.3	10.2	10.7	21.08
GERRARD	15.7	10.2	6.5	4.6	4.7	6.9	5.1	3.1	5.2	9.2	13.2	15.6	31.96
GLACIER	14.0	11.0	9.1	5.6	4.6	5.9	5.2	5.0	6.8	9.1	12.1	11.5	57.10
GOLDEN	12.1	8.5	4.6	5.3	6.1	8.3	6.7	7.5	7.0	8.7	10.5	14.5	18.45
GOLDSTREAM LAKE	17.6	12.9	9.6	4.8	3.4	2.8	1.8	1.6	3.7	9.5	13.2	19.2	60.33
GRAND FORKS	11.2	8.5	6.8	5.6	8.8	12.0	4.2	5.5	6.0	9.8	9.4	12.1	17.21
GREENWOOD	10.3	7.6	6.8	6.4	11.3	14.6	5.7	5.6	6.0	8.1	8.5	9.0	17.11
HANEY UBC FOREST	14.4	4.4	11.0	7.7	5.0	5.2	2.9	3.9	5.2	10.8	13.0	16.4	85.34
HEDLEY	10.1	7.3	5.9	5.2	10.1	12.3	8.2	8.3	7.5	7.4	8.6	9.2	11.09
HEFFLEY CREEK	9.3	6.5	6.2	5.8	8.9	12.4	9.2	8.8	7.6	7.4	8.2	9.6	17.14
HELLS GATE	18.8	10.9	8.8	5.2	2.0	2.9	1.5	2.4	5.2	12.3	13.3	16.7	45.45
HOLLYBURN	13.0	10.2	10.5	6.3	5.0	3.7	3.0	2.9	5.5	12.6	12.2	14.9	68.20
HOPE	13.2	11.1	9.4	7.0	4.1	3.7	2.1	2.7	6.0	11.3	13.7	15.7	62.27
HOPE LITTLE MOUNTAIN	14.2	11.4	9.1	5.4	4.4	4.3	2.3	2.4	6.2	11.1	12.8	16.3	56.37
HORSEFLY LAKE	8.1	5.6	6.9	5.0	7.8	16.1	9.5	11.8	8.4	8.1	6.1	6.6	27.72
HUDSON HOPE	4.8	3.9	5.3	5.3	8.3	15.9	14.3	10.5	12.7	6.6	7.4	5.1	17.81
INVERMERE	6.4	4.9	3.9	4.6	11.2	16.2	9.5	11.0	9.4	8.2	6.9	7.7	11.76
IOCO REFINERY	13.8	10.4	10.1	6.4	4.9	4.3	2.7	2.7	5.4	11.2	12.6	15.6	82.99
JAMES ISLAND	16.0	11.2	8.8	4.5	3.6	4.0	2.4	3.0	4.3	9.7	14.6	17.8	29.21
JOE RICH CREEK	9.2	6.2	6.8	6.4	10.1	11.4	7.7	7.2	8.8	7.9	7.6	10.7	21.51
KAMLOOPS A	14.4	8.8	3.7	2.6	6.2	16.1	8.3	9.0	7.3	6.3	7.5	9.9	9.71
KAMLOOPS CDA	14.0	8.6	3.6	3.7	6.1	13.5	8.4	8.2	6.8	6.6	8.0	12.4	9.65
KAMLOOPS MISSION FLATS	8.4	5.1	3.6	5.3	7.5	14.9	9.0	8.8	6.7	9.7	11.3	9.7	10.84
KASLO	13.4	10.4	7.2	5.0	5.6	7.4	4.6	5.2	5.6	9.6	10.9	15.1	29.84
KELOWNA	10.3	8.4	5.9	4.6	8.2	9.2	7.5	7.1	8.2	9.6	9.1	12.0	12.48
KELOWNA CDA	12.0	9.2	6.3	5.3	9.5	9.3	4.5	7.2	7.5	9.0	9.2	11.0	11.66
KEMANO	9.8	10.5	7.5	5.8	1.6	2.5	1.9	4.3	8.8	16.4	13.7	17.3	70.13
KEREMEOS	10.0	8.0	6.3	5.6	8.8	12.4	7.9	7.6	7.1	7.3	9.4	9.5	10.22
KILDONAN	12.6	10.7	9.3	7.3	4.6	3.0	2.7	2.3	4.9	12.9	14.0	15.7	129.66
KIMBERLEY A	11.8	8.2	5.5	5.0	8.4	13.1	4.9	9.1	6.0	8.0	9.0	10.9	15.03
KINGSGATE	13.2	8.2	6.6	5.4	9.3	9.8	3.5	4.4	7.4	7.9	11.5	12.7	22.10
KIRTON	12.3	9.6	6.4	4.6	8.1	10.5	6.5	6.5	6.5	6.5	9.9	12.6	16.12
KITIMAT	10.9	7.6	7.5	6.1	3.4	3.6	2.8	4.3	7.6	16.5	15.0	14.5	96.78

TABLE I-1

INDEX PRECIPITATION GRAPH DATA

STATION	PERCENTAGE OF ANNUAL PRECIPITATION												ANNUAL PRECIPITATION (inches)
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
KLEENA KLEENE	11.6	5.5	4.2	5.7	7.1	13.3	6.6	10.8	5.3	7.4	10.7	11.9	13.57
KYUQUOT	11.9	9.3	9.5	7.4	4.9	3.9	3.7	3.5	6.8	11.6	13.0	14.4	116.06
LADNER	14.6	9.1	9.2	4.4	4.4	6.1	3.3	3.4	7.2	9.7	14.5	14.1	37.70
LANGARA	9.2	7.4	8.7	7.1	4.9	4.9	5.1	6.5	8.8	14.3	11.9	11.2	66.39
LILLOOET	10.4	7.2	5.2	4.1	5.7	8.3	6.5	8.0	8.1	10.1	10.5	15.8	13.80
LITTLE SSANICH MTN	16.9	13.0	8.7	4.2	3.1	3.9	1.9	2.1	4.1	9.6	14.5	18.0	30.01
LOIS RIVER DAM	12.6	9.7	8.3	5.6	4.9	5.2	3.9	4.3	6.4	11.2	13.3	14.5	59.12
LYNCH CREEK	11.5	8.3	6.6	5.5	7.4	12.2	5.8	4.2	6.5	9.7	9.8	12.5	18.41
LYTTON	15.7	12.0	6.4	4.0	3.2	5.3	2.1	4.0	4.8	11.4	15.4	15.6	18.22
LYTTON 2	11.8	9.4	4.3	3.6	5.7	6.5	4.0	4.3	5.8	9.7	13.4	21.5	17.97
MABEL LAKE	10.8	7.8	5.7	5.5	8.1	11.4	7.5	7.1	8.1	8.9	8.2	10.9	19.23
MACLURE LAKE	9.3	5.7	5.3	4.0	6.3	10.8	9.5	7.8	8.0	11.7	10.7	10.8	17.83
MALAKWA	12.3	9.3	5.9	4.8	6.5	9.0	5.5	6.4	8.0	10.1	9.4	12.8	31.55
MAMIT LAKE	8.8	6.6	6.4	4.6	9.5	12.5	7.2	9.6	8.7	7.3	8.6	10.2	13.38
MASSET	10.8	7.9	8.2	7.1	5.2	4.8	4.8	5.1	8.1	12.7	12.9	12.3	56.27
MAYNE ISLAND	16.5	8.9	9.8	4.5	4.6	4.4	3.4	2.4	5.4	9.1	11.6	19.5	28.88
MCBRIDE	9.9	7.6	7.6	5.6	5.6	7.9	8.4	8.8	8.4	9.9	9.9	10.4	21.31
MCCULLOCH	10.6	9.0	8.2	6.4	8.5	10.1	6.6	5.5	7.0	7.8	9.0	11.6	28.34
MCINNES ISLAND	10.9	9.1	8.7	6.4	4.1	5.3	2.9	5.8	8.5	13.5	12.0	12.9	99.72
MERRITT	8.8	10.1	6.1	5.5	8.7	9.5	5.9	6.5	7.6	8.2	8.6	14.6	9.20
MILL BAY	11.1	8.7	7.9	5.7	4.1	3.7	4.3	5.7	8.9	14.1	12.5	13.2	84.09
MILLSTREAM	19.2	9.7	9.0	4.4	2.8	4.4	2.2	2.1	4.0	9.1	13.4	19.8	42.26
MILNES LANDING	10.9	13.4	10.1	5.4	3.0	2.9	1.9	1.5	4.0	11.6	15.2	20.1	46.41
MOHA	10.5	7.4	6.3	3.2	6.8	11.0	5.7	7.6	7.1	8.2	11.7	14.7	12.86
NADINA RIVER	10.1	7.6	5.6	3.9	4.8	8.7	9.4	9.3	7.3	10.0	11.7	11.8	18.88
NAKUSP	11.6	8.2	6.4	4.6	8.4	9.1	6.2	4.1	7.6	9.6	9.3	14.9	31.34
NAMU	11.6	7.8	10.5	8.0	5.4	4.4	3.9	3.9	6.2	11.0	13.4	13.9	107.37
NANAIMO	15.5	10.8	8.2	5.6	4.0	4.6	3.1	2.9	4.3	9.5	14.5	17.0	41.46
NANAIMO A	16.4	11.8	8.9	5.6	3.3	3.9	2.3	2.7	3.6	9.6	15.2	16.7	41.41
NANOOSE BAY	15.3	9.5	9.1	4.0	4.4	4.0	4.5	2.6	4.9	9.1	12.0	20.6	33.93
NELSON 2	13.1	9.4	7.1	5.5	7.1	9.4	4.3	4.7	5.9	10.1	9.8	13.6	28.62
NEW DENVER	12.6	9.1	7.7	5.4	7.2	8.6	4.7	5.3	6.2	10.2	9.5	13.6	28.56
NEWGATE	12.3	7.9	7.0	5.3	8.8	11.4	5.0	6.1	6.3	8.0	10.0	12.0	15.03
NEW HAZELTON	7.7	5.6	3.8	3.9	6.1	10.7	10.5	8.8	11.7	11.7	10.5	9.0	19.17
NEW WESTMINSTER	14.1	10.4	9.7	6.1	4.8	4.6	2.5	3.0	5.5	11.0	12.6	15.6	59.54
NITINAT LAKE	13.3	11.4	10.7	7.5	4.3	3.2	2.6	2.3	4.9	11.3	13.4	15.0	113.32
OCEAN FALLS	10.4	7.9	9.0	6.9	4.5	4.4	3.9	5.0	8.0	13.5	13.6	13.1	176.77
OKANAGAN CENTRE	10.9	8.4	6.4	4.9	8.0	9.3	7.0	7.1	7.2	9.2	9.0	12.4	13.66
OLD GLORY MOUNTAIN	10.3	9.2	9.4	7.2	7.5	11.8	5.3	6.2	6.8	9.1	7.6	9.6	28.33

TABLE I-1

INDEX PRECIPITATION GRAPH DATA

STATION	PERCENTAGE OF ANNUAL PRECIPITATION												ANNUAL PRECIPITATION (inches)
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
OLIVER	9.2	8.3	7.0	6.7	9.1	11.6	7.8	5.4	6.4	8.6	9.8	10.1	10.79
150 MILE HOUSE	9.7	5.6	4.5	3.0	7.6	15.8	10.1	12.8	6.8	7.5	6.7	10.0	16.38
OSPREY LAKE	12.8	10.5	7.1	4.9	5.7	8.6	6.0	5.9	5.6	8.3	9.7	14.9	22.75
PACHENA POINT	14.0	11.6	10.1	6.7	3.6	3.3	2.8	2.6	5.1	11.2	14.0	15.0	114.05
PEACHLAND TREPANIER CR	13.0	9.6	6.3	4.6	6.5	8.4	5.5	4.1	6.0	8.5	12.3	15.2	17.03
PEMBERTON MEADOWS	13.3	9.7	7.3	4.0	3.8	3.8	2.8	3.3	5.7	13.0	15.0	18.3	37.05
PENDER ISLAND	15.3	10.8	9.3	4.7	4.1	4.5	2.5	2.9	4.6	10.1	14.1	16.9	31.44
PENTICTON	10.4	7.6	6.6	6.2	9.5	11.5	8.0	6.6	6.6	8.0	9.2	9.7	11.73
PENTICTON A	10.8	7.6	5.6	7.3	9.6	12.3	8.4	7.5	5.8	7.6	8.8	8.7	12.08
PORT ALBERNI	14.7	11.9	10.4	6.5	3.2	2.4	1.9	1.6	4.1	10.8	14.9	17.6	74.49
PORT ALICE	12.8	10.3	9.0	7.8	3.5	2.3	2.0	2.2	5.0	13.0	14.8	17.2	116.42
PORT HARDY A	11.5	9.6	8.4	6.2	3.7	3.9	3.2	4.0	7.1	13.0	14.3	15.2	64.48
POWELL RIVER	13.0	9.2	7.5	5.5	4.8	5.8	3.8	4.7	6.0	11.1	13.6	15.0	37.25
PREMIER	14.3	8.5	7.7	5.6	3.3	3.2	3.7	5.1	8.3	14.4	13.0	12.9	87.66
PRINCE GEORGE A	9.0	7.1	5.8	4.5	6.9	9.9	10.3	10.4	8.9	9.4	9.1	9.0	24.67
PRINCE GEORGE	8.4	6.0	6.1	4.9	7.3	9.9	10.4	8.6	10.1	9.1	10.2	8.9	25.30
PRINCE RUPERT	9.4	7.4	8.2	7.2	5.4	4.5	4.9	6.2	9.0	14.0	12.2	11.6	94.41
PRINCE RUPERT A	9.4	7.4	8.2	7.2	5.4	4.5	4.9	6.2	9.0	14.0	12.2	11.6	94.41
PRINCETON A	13.6	9.7	5.6	3.9	7.0	8.5	5.9	6.3	6.0	7.8	11.6	14.2	14.17
QUATSINO	12.2	9.7	8.2	6.9	3.4	2.7	2.2	2.7	6.1	15.8	14.1	16.1	93.45
QUEEN CHARLOTTE CITY	13.9	7.2	9.2	6.8	3.7	4.3	2.9	2.6	8.2	14.8	14.5	11.9	73.21
QUENSEL	8.9	5.8	5.3	4.4	7.0	12.0	11.3	11.5	8.0	9.0	8.3	8.6	19.72
QUENSEL A	10.5	7.2	5.1	3.8	6.3	12.2	8.9	14.2	6.3	8.1	8.4	8.9	21.24
RED PASS JUNCTION	11.5	7.8	7.9	4.6	4.7	7.1	7.3	8.3	6.7	8.8	11.8	13.5	26.74
REVELSTOKE	14.7	10.6	7.1	5.0	4.3	7.0	4.7	4.6	6.6	9.5	10.9	15.1	42.54
RIVER JORDON	14.3	11.8	9.9	6.4	3.5	3.0	1.9	2.1	4.6	11.2	14.0	17.4	75.99
RIVERS INLET	11.2	7.0	9.1	6.2	4.8	3.6	3.9	4.0	6.9	14.5	15.2	13.5	113.04
ROBERTS CREEK	14.0	9.5	8.9	5.7	4.9	5.0	3.7	3.3	6.1	10.2	13.1	15.6	47.38
ROBSON	14.4	8.6	8.4	5.6	7.1	9.7	3.6	4.9	5.6	8.8	10.3	12.9	27.52
ROCK CREEK	10.8	7.5	5.1	6.5	9.3	14.6	7.7	4.2	7.2	7.9	8.4	10.8	13.18
ROSSLAND	13.1	9.5	7.7	5.9	7.5	9.3	4.4	4.0	4.9	9.9	10.8	13.0	31.02
ROSSWOOD	13.3	7.2	5.7	4.1	3.4	4.4	5.0	5.4	8.8	15.8	14.4	12.8	32.15
ROY	11.9	9.1	8.7	6.6	5.3	4.3	4.1	3.4	4.4	11.7	15.4	15.0	81.63
RUTLAND MISSION CREEK	7.4	6.1	6.2	6.8	10.7	13.3	8.3	5.9	9.8	9.2	7.1	9.2	20.30
SAANICHTON CDA	16.1	11.7	9.0	4.6	3.6	4.1	2.4	2.8	4.1	9.4	14.1	18.1	32.95
SALMON ARM	11.2	8.5	6.6	5.3	7.2	9.4	6.7	6.4	6.8	9.1	10.0	12.7	21.03
SALMON ARM 2	13.9	7.7	6.9	4.9	6.3	9.9	5.6	8.3	6.0	8.3	9.7	12.5	22.64
SALT SPRING ISLAND	16.6	11.1	9.2	4.8	3.6	3.8	2.3	2.4	3.9	9.1	13.5	19.8	40.84
SANDON	10.8	8.7	7.6	6.4	7.1	8.7	4.9	7.1	7.4	10.1	9.7	11.4	40.42

INDEX PRECIPITATION GRAPH DATA

STATION	PERCENTAGE OF ANNUAL PRECIPITATION												ANNUAL PRECIPITATION (inches)
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
SANDSPIT A	11.8	8.7	8.6	6.9	3.9	3.8	3.7	4.1	6.0	13.7	14.4	14.4	49.56
SANDWICK	15.0	9.4	8.0	4.7	3.0	3.6	3.0	2.6	5.5	9.3	14.5	21.3	49.63
SAVARY ISLAND	12.6	8.8	7.6	5.7	4.6	5.0	4.2	3.8	5.8	11.3	14.2	16.4	37.91
SECHELT	13.1	9.6	8.7	5.5	4.9	5.0	3.9	3.5	6.6	11.0	13.5	14.9	38.49
SEYMOUR CREEK	14.1	9.7	10.4	6.4	4.6	3.2	2.4	1.8	5.2	11.8	13.2	17.2	142.72
SEYMOUR FALLS	13.0	10.4	9.5	6.9	4.2	3.5	2.3	2.5	5.4	12.4	14.1	15.8	136.03
SHAWNIGAN LAKE	17.0	12.3	9.7	4.8	3.3	3.4	2.0	2.0	3.7	9.3	14.0	18.4	46.14
SHUSWAP FALLS	10.8	8.2	5.5	5.2	9.0	11.1	7.0	7.0	8.4	8.2	9.3	10.5	19.52
SIDMOUTH	14.8	11.8	7.3	4.7	3.4	6.3	4.5	4.9	4.2	8.1	11.3	18.6	43.82
SINCLAIR PASS	7.6	7.4	6.2	6.2	11.1	13.6	8.8	9.0	7.2	8.3	5.5	9.1	22.13
SKAGIT RIVER	16.5	12.5	7.5	5.2	3.6	4.8	3.1	3.6	4.7	9.3	13.2	16.1	42.52
SMITHERS A	10.0	6.4	4.9	4.5	6.5	8.7	9.2	7.0	8.6	11.1	11.4	11.8	20.27
SMITHERS CDA	8.6	5.9	5.2	4.4	7.3	9.5	9.5	8.3	7.8	11.0	11.1	11.2	18.67
SMITH RIVER A	7.4	6.3	5.1	4.0	6.1	13.0	14.8	10.2	8.0	8.4	8.2	8.4	18.28
SOOKE LAKE	16.7	12.7	9.7	5.4	2.7	2.6	1.4	1.5	3.9	9.9	14.5	19.0	66.23
SORRENTO	11.5	8.2	6.3	5.0	7.1	9.8	7.3	6.6	7.5	9.2	9.7	11.8	19.93
SOUTH SLOCAN	13.6	9.6	7.0	5.2	6.9	8.5	4.3	5.1	6.0	9.6	11.0	13.1	31.11
SPRING ISLAND	11.2	11.1	9.4	7.0	4.0	4.3	2.9	3.7	6.4	12.1	13.1	14.8	110.11
STAVE FALLS	12.7	9.8	10.0	6.8	5.7	5.4	3.1	3.4	6.1	11.3	11.7	14.0	80.60
STEVESTON	14.4	9.9	8.7	5.7	4.6	4.9	2.8	3.3	5.6	11.1	13.5	15.7	39.27
STEWART	10.9	7.3	6.7	5.4	3.8	3.6	4.8	6.2	9.7	17.2	12.9	11.5	70.92
STILLWATER POWER HOUSE	12.4	10.0	8.4	5.6	4.8	5.2	4.0	4.3	6.5	11.1	13.5	14.3	49.27
STUIE TWEEDSMUIR LODGE	13.7	6.5	7.9	4.6	3.2	3.8	2.7	4.0	7.7	13.7	19.1	13.1	30.55
SUMMERLAND CDA	9.6	7.4	6.1	5.9	9.3	11.8	8.4	7.0	6.7	8.5	8.8	10.5	11.47
SUMMERLAND CDA EL	13.8	7.1	6.2	5.0	10.6	12.4	7.6	9.0	4.8	7.8	8.0	7.8	10.39
SWANSON BAY	11.0	7.5	8.5	6.8	5.6	4.2	4.1	4.6	7.0	13.2	14.3	13.3	203.40
SWEETWATER	5.9	5.8	7.7	5.0	7.7	11.5	14.5	8.9	11.4	7.0	8.9	5.6	21.01
TAHTSA LAKE WEST	12.0	10.4	8.5	6.8	2.5	2.8	2.1	3.6	8.5	12.6	12.4	17.8	72.27
TAPPEN	12.8	8.4	6.5	5.2	6.8	9.6	6.2	5.9	7.1	8.8	10.0	12.8	21.14
TARRYS	13.9	8.3	7.7	5.1	7.0	8.7	4.7	3.0	5.7	9.6	10.8	15.4	25.26
TATLAYOKO LAKE	10.6	7.6	5.4	4.1	5.9	7.9	5.8	8.4	6.7	10.2	13.3	14.1	16.63
TELEGRAPH CREEK	11.0	7.4	5.1	2.9	2.8	5.6	9.4	10.0	11.5	15.6	8.9	9.8	12.59
TELKWA	9.1	6.0	4.7	4.3	6.4	11.1	11.0	8.3	8.0	10.3	9.9	11.0	16.96
TERRACE	12.0	7.7	6.9	5.7	3.6	4.1	4.3	4.8	7.8	15.0	14.7	13.5	47.18
TERRACE A	11.4	9.3	6.4	4.6	2.3	3.3	4.1	4.8	6.9	16.9	13.8	16.2	53.31
TOFINO A	14.2	11.8	11.0	8.9	3.3	2.9	2.9	2.8	4.6	11.1	13.2	13.2	125.83
TRANQUILLE	10.6	8.2	4.7	4.7	7.4	13.3	6.7	10.6	6.6	7.2	8.1	11.9	9.38
TUNNEL CAMP	12.6	10.6	9.8	7.1	4.9	4.2	3.1	2.7	5.4	11.7	12.8	15.1	105.57
UCLUELET	14.9	10.4	10.6	7.8	4.2	3.6	3.2	2.4	4.9	10.7	12.6	14.7	113.79

INDEX PRECIPITATION GRAPH DATA

STATION	PERCENTAGE OF ANNUAL PRECIPITATION												ANNUAL PRECIPITATION (inches)
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	
VANANDA	12.8	9.2	8.2	6.0	4.5	5.4	4.1	3.6	5.7	11.0	13.5	16.1	34.47
VANCOUVER BROCKTON POINT	13.9	10.4	9.8	6.0	4.3	4.3	2.8	2.7	5.5	11.1	13.2	16.1	61.75
VANCOUVER CITY HALL	14.6	10.6	9.6	5.7	4.4	4.4	2.8	2.8	5.6	10.9	12.6	16.2	49.64
VANCOUVER INT A	13.4	11.5	9.1	5.6	4.7	4.5	2.5	3.3	5.2	11.2	13.2	15.7	41.12
VANCOUVER PMO	14.0	10.6	9.8	5.9	4.5	4.3	2.6	2.9	5.4	11.3	12.9	15.9	60.23
VANDERHOOF	9.1	9.8	5.8	4.3	6.7	11.4	8.8	8.6	7.6	8.3	8.8	10.9	16.89
VAVENBY	9.1	6.2	4.7	5.5	8.3	11.9	8.8	10.6	8.4	9.0	8.3	9.2	16.86
VERNON	10.7	8.0	5.9	4.6	7.8	10.6	7.3	6.8	7.6	9.1	9.0	12.5	15.56
VERNON COLDSTREAM RANCH	10.0	7.9	5.9	4.7	9.2	10.9	7.1	7.4	7.8	8.9	8.6	11.5	15.44
VICTORIA GONZALES HTS	16.1	11.7	8.2	4.4	3.5	3.9	2.1	2.6	4.6	10.4	14.3	18.4	27.41
VICTORIA INTERNATIONAL A	15.9	12.3	8.5	5.1	3.7	3.9	2.0	2.9	4.1	10.2	14.9	16.3	33.52
WANETA	12.0	8.9	8.2	5.6	8.3	9.9	5.2	4.1	5.6	9.8	9.6	12.8	24.25
WARFIELD TRAIL	13.4	10.0	8.2	6.1	6.8	9.4	4.1	3.4	5.4	9.6	10.5	13.0	26.94
WASA	9.4	7.0	5.9	5.7	9.9	13.4	6.3	7.8	7.3	9.5	7.7	10.0	14.66
WESTWOLD	9.2	7.9	5.7	4.8	8.3	12.2	8.1	8.7	8.1	8.5	8.0	10.5	13.75
WHITE ROCK	14.1	10.5	9.3	6.0	5.1	5.0	2.7	3.2	5.7	10.6	13.0	14.8	41.23
WILLIAMS LAKE A	7.1	5.4	5.4	4.6	8.8	13.1	12.3	11.5	9.0	8.6	5.8	8.5	14.93
WISTARIA	9.1	6.4	6.2	4.6	5.8	9.4	9.4	8.5	7.4	9.6	11.2	12.3	17.82
WOODPECKER	11.4	7.4	6.3	5.5	6.3	9.4	9.8	9.4	9.7	8.2	8.7	7.9	24.69

MEAN ANNUAL FLOW
(1956-1966)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		COLUMBIA RIVER BASIN			
1	8NA-45	Columbia near Fairmont Hot Springs	370	377	13.8
2	8NA-11	Spillimacheen River near Spillimacheen	580	1,260	29.5
3	8NA- 2	Columbia River at Nicholson	2,570	4,010	21.2
4	3-2-1	Columbia River Inflow	1,620	2,373	19.9
5	8NB-5	Columbia River at Donald	3,700	6,510 e	23.9
6	5-3	Columbia River Inflow	1,130	2,500	30.0
7	8NB-6	Columbia River at Surprise Rapids	5,420	12,200	30.5
8	7-5	Columbia River Inflow	1,720	5,690	44.8
9	8ND-7	Columbia River above Nagle Creek	8,220	21,000 e	34.7
10	9-7	Columbia River Inflow	2,800	8,800	42.6
11	8ND-11	Columbia River above Steamboat Rapids	10,300	29,400	38.7
12	11-9	Columbia River Inflow	2,080	8,400	54.8
13	8ND-6	Columbia R. at Twelve Mile Ferry nr. Revelstoke	11,000	33,200	41.0
14	13-11	Columbia River Inflow	700	3,800	73.7
15	8NE-1	Incomappleux River near Beaton	387	2,010	70.4
16	8NE-77	Barnes Creek near Needles	81	145	24.3
17	8NJ-113	Kootenay River at Corra Linn	17,800	29,300	
18	8NJ-14	Slocan River at Slocan City	640	1,910	40.4
19	8NJ-13	Slocan River near Crescent Valley	1,270	3,270	34.9
20	19-18	Slocan River Inflow	630	1,360	29.3
21	8NE-49	Columbia River at Birchbank	34,000	74,800	29.9
22	21-19-17 16-15-13	Columbia River Inflow	3,462	6,875	27.0
23	8NE-74	Salmo River near Salmo	450	1,050	31.6
24	8NE-39	Big Sheep Creek near Rossland	140	182	17.6
25	8NN-13	Kettle River near Ferry	2,220	1,520	9.3
26	8NN-12	Kettle River near Laurier	3,800	2,840	10.1
27	26-25	Kettle River Inflow	1,580	1,320	11.3
		FRASER RIVER BASIN			
19	8KA-8	Moose River near Red Pass	192	557	39.4
20	8KA-7	Fraser River at Red Pass	615	1,660	36.7
20	20-19	Fraser River Inflow	423	1,103	35.4
21	8KA-5	Fraser River at McBride	2,690	7,050 e	37.8
22	21-20	Fraser River Inflow	2,075	5,390	35.2
23	8KD-4	Bowron River near Hansard	1,390	2,700 e	26.4
24	8KA-4	Fraser River at Hansard	7,060	17,400	33.4
25	24-23-21	Fraser River Inflow	2,980	7,650	34.8
26	8KD-3	Willow River at Willow River	1,200	1,690	19.1
27	8KC-1	Salmon River near Prince George	1,680	1,130 e	9.1
28	8KB-1	Fraser River at Shelly	12,500	30,900	33.5
29	28-27-26-24	Fraser River Inflow	2,560	10,680	56.6
30	8JE-1	Stuart River near Fort St. James	5,400	4,900	12.3
31	8JB-2	Stellako River at Glenannan	1,500	871	7.9
32	8JB-3	Nautley River near Fort Fraser	2,430	1,250	7.0
33	32-31	Nautley River Inflow	930	379	5.5
34	8FE-2	Kemano Powerhouse		2,300	
(35+34)	8JA-13	Skins Lake Spillway (Nechako Reservoir)	5,400	8,090	20.3
(36+34)	8JC-1	Nechako River at Vanderhoof	9,550	9,670	13.7
37	36-35-32	Nechako River Inflow	1,720	330	2.6
(38+34)	8JC-2	Nechako River at Isle Pierre	16,200	15,200	12.7
39	38-36-30	Nechako and Stuart River Inflow	1,250	630	6.8
40	8KE-15	Cale Creek near Red Rock	62	58.7	12.8
41	8KH-1	Quesnel River at Likely	2,330	5,100	29.7
42	8KH-3	Caribou River below Kangaroo Creek near Likely	1,310	3,560 e	36.9
43	8ME-1	Bridge River near Shalalth	1,350	3,440	34.6
(44+34)	8ME-40	Fraser River near Lillooet	59,000	69,900	17.1
45	44-43-42-41-40-38-28	Fraser River Inflow	25,248	11,641	6.3
46	8MF-3	Coquihalla River near Hope	360	1,180 e	44.5

TABLE I-2

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		FRASER RIVER BASIN (continued)			
(47+34)	8MF-5	Fraser River at Hope	83,700	109,000	18.5
48	47-46-44-17	Fraser River Inflow	2,740	10,120	50.1
		KOOTENAY RIVER BASIN			
1	8NF-1	Kootenay River at Kootenay Crossing near Radium Hot Springs	160	176 e	14.9
2	8NG-53	Kootenay River near Skookumchuck	2,780	4,050	19.7
3	2-1	Kootenay River Inflow	2,620	3,874	20.0
4	8NG-46	St. Mary River near Marysville	571	1,450	34.5
5	8NG-12	St. Mary River near Wycliffe	922	1,850	27.2
6	5-4	St. Mary River Inflow	351	400	15.5
7	8NG-2	Bull River near Wardner	578	1,210	28.4
8	8NG-5	Kootenay River at Wardner	5,200	7,640	19.9
9	8-7-5-2	Kootenay River Inflow	920	530	7.8
10	8NK-16	Elk River near Natal	760	954	17.1
11	8NK-12	Elk River at Stanley Park near Elko	1,370	2,140	21.2
12	11-10	Elk River Inflow	610	1,186	26.4
13	8NK-5	Elk River at Phillips Bridge near Elko	1,720	2,820	22.2
14	13-11	Elk River Inflow	350	680	26.4
15	8NG-42	Kootenay River at Newgate	7,660	11,100	19.6
16	15-13-8	Kootenay River Inflow	740	640	11.7
17	8NH-34	Moyie River At Moyie	280	297	14.4
18	8NH-6	Moyie River at Eastport	570	718	17.1
19	18-17	Moyie River Inflow	290	421	19.7
20	8NH-32	Boundary Creek near Porthill	97	196	27.4
21	8NH-21	Kootenay River at Porthill	13,700	16,700	16.5
22	8NH-4	Goat River near Erickson	430	935	29.5
23	8NH-1	Duncan River near Howser	815	3,440	57.3
24	8NH-7	Lardeau River at Marblehead	610	2,130	47.4
25	8NJ-113	Kootenay River at Corra Linn	17,800	29,300	22.3
26	25-24-23-22-21	Kootenay River Inflow	2,245	6,095	36.8
27	8NP-1	Flathead River at Flathead	450	973	29.3
		PEACE & LIARD RIVER BASINS			
1	7EB-1	Finlay River at Finlay Forks	16,600	23,600 e	19.5
2	7EE-2	Parsnip River near Finlay Forks	7,750	13,500 e	23.6
3	7EF-1	Peace River at Hudson Hope	27,800	41,700 e	20.4
4	3-2-1	Peace River Inflow	3,450	4,600	18.0
5	7FD-2	Peace River near Taylor	38,300	55,300 e	19.5
6	5-4	Peace River Inflow	10,500	13,600	17.6
7	7HA-1	Peace River at Peace River	72,000	72,400 e	13.6
8	7-6	Peace River Inflow	33,700	17,100	6.9
9	10AC-3	Dease River at outlet of Dease Lake near Telegraph Creek	612	522 e	12.2
10	10BE-1	Liard River at Lower Crossing	40,300	41,600 e	14.1
11	10-9	Liard River Inflow	39,688	41,078	14.0
12	10CB-1	Sikanni Chief River near Fort Nelson	800	944 e	16.0
13	10CD-1	Muskwa River near Fort Nelson	7,600	7,300 e	13.0
14	10ED-1	Liard River at Fort Liard	85,700	68,900 e	10.9
15	14-13-12-10	Liard River Inflow	37,000	19,056	7.0
		SIMILKAMEEN & OKANAGAN RIVER BASINS			
1	8NL-23	Otter Creek at Tulameen	260	105	5.5
2	8NL-24	Tulameen River at Princeton	680	801	15.9
3	2-1	Tulameen River Inflow	420	696	22.5
4	8NL-7	Similkameen River at Princeton	730	849	15.8
5	8NL-4	Ashnola River near Keremeos	400	269	9.1
6	8NL-10	Keremeos Creek near Olalla	67	24.4	4.9
7	8NL-22	Similkameen River near Nighthawk	3,508	2,350	9.1
8	7-6-5-4-2	Similkameen River Inflow	1,631	407	3.4
9	8NM-50	Okanagan River at Penticton	2,340	503	2.9

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CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		SIMILKAMEEN & OKANAGAN RIVER BASINS (continued)			
10	8NM-127	Okanagan River at Oroville	3,210	592	2.4
11	10-9	Okanagan River Inflow	870	89	1.4
		THOMPSON RIVER BASIN			
1	8LC-3	Shuswap River near Lumby	772	1,800	31.6
2	8LC-19	Shuswap River (at Mable Lake) near Enderby	1,560	2,890 e	25.1
3	2-1	Shuswap River Inflow	788	1,090	18.8
4	8LD-1	Adams River near Squilax	1,200	2,560	28.9
5	8LE-69	South Thompson River at Monte Creek	6,340	10,700 e	22.9
6	5-4-2	South Thompson River Inflow	3,580	5,250	19.9
7	8LA-7	Clearwater River at Outlet of Clearwater Lake	1,180	5,080 e	58.4
8	8LA-4	Murtle River near Clearwater Station	505	1,580 e	42.5
9	8LA-8	Mahood River at Outlet of Mahood Lake near Clearwater Station	1,780	1,220 e	9.3
10	8LA-1	Clearwater River near Clearwater Station	3,950	8,320	28.6
11	10-9-8-7	Clearwater River Inflow	485	440	12.3
12	8LB-64	North Thompson River at McLure	7,870	15,700 e	27.1
13	12-11	North Thompson River Inflow	3,920	7,380	25.6
14	8LG-7	Nicola River near Merritt	1,800	488 e	3.7
15	8LG-6	Nicola River near Spences Bridge	2,960	942 e	4.3
16	15-14	Nicola River Inflow	1,160	454	5.3
17	8LF-51	Thompson River near Spences Bridge	21,600	27,800	17.4
18	17-16-12- 5	Thompson River Inflow	4,430	458	1.4
		VANCOUVER ISLAND			
1	8HA-1	Chemainus River near Westholme	146	642	59.7
2	8HB-14	Sarita River near Bamfield	62	700	153.2
		LOWER FRASER RIVER, WEST COAST & YUKON RIVER BASINS			
1	8MH-1	Chilliwack River at Vedder Crossing	484	2,330	65.3
2	8MG-5	Lillooet River near Pemberton	800	4,410	74.8
3	8MG-8	Birkenhead River at Mount Currie	230	835	49.3
4	8MG-13	Harrison River near Harrison Hot Springs	3,220	15,800	66.6
5	4-3-2	Harrison River Inflow	2,190	10,555	65.4
6	8MH-38	Alouette River near Haney	79	800	137.4
7	8MH-40	Stave River at Stave Falls	440	3,830	118.1
8	8GD-4	Homathko River near Stuart Island	2,140	10,000 e	63.4
9	8FB-2	Bella Coola River near Hagensborg	1,570	4,250	36.7
10	8EE-4	Bulkley River at Quick	2,800	5,120	24.8
11	8EC-1	Babine River at Babine	2,490	1,760 e	9.6
12	8EF-1	Skeena River at Usk	15,000	34,900	31.6
13	12-11-10	Skeena River Inflow	9,710	28,020	39.4
14	8EF-3	Zymoetz River near Terrace	1,200	4,710 e	53.3
15	8DB-1	Nass River above Shumal Creek	6,940	28,600 e	55.9
16	8CE-1	Stikine River at Telegraph Creek	11,300	14,400 e	17.2
17	9AA-6	Atlin River near Atlin	2,520	3,350	18.0
18	9AA-10	Lindeman River near Bennett	92	360	53.1
19	9AB-1	Yukon River at Whitehorse	7,500	8,810	15.9
20	19-18-17	Yukon River Inflow	4,888	5,100	14.2
21	9AE-1	Teslin River at Teslin	11,700	11,100	12.9
22	9AC-1	Takhini River near Whitehorse	2,640	2,250 e	11.6

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MEAN ANNUAL FLOW
(1965-1966)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		COLUMBIA RIVER BASIN			
1	8NA-45	Columbia River near Fairmont Hot Springs	370	394	14.5
2	8NA-11	Spillimacheen River near Spillimacheen	580	1,420	33.2
3	8NA-2	Columbia River at Nicholson	2,570	4,100	21.6
4	3-2-1	Columbia River Inflow	1,620	2,286	19.1
5	8NB-5	Columbia River at Donald	3,700	6,800	24.9
6	5-3	Columbia River Inflow	1,130	2,700	32.4
7	8NB-6	Columbia At Surprise Rapids	5,420	12,600	31.5
8	7-5	Columbia River Inflow	1,720	5,800	45.8
9	8NC-1	Wood River near Donald	356	1,500	57.2
10	8NC-2	Canoe River near Donald	1,350	4,020	40.4
11	8ND-7	Columbia River above Nagle Creek	8,220	22,300	36.8
12	11-10-9-7	Columbia River Inflow	1,094	4,180	51.8
13	8ND-12	Goldstream River below Old Camp Creek	362	1,470	55.1
14	8ND-9	Donnie Creek near Revelstoke	250	1,180	64.1
15	8ND-11	Columbia River Above Steamboat Rapids	10,300	31,000	40.8
16	15-14-13 -7	Columbia River Inflow	1,468	6,050	55.9
17	8ND-14	Jordan River above Kirkup Creek	105	639	82.6
18	8ND-13	Illecillewaet River at Greely	443	2,090	64.0
19	8ND-6	Columbia River at Twelve Mile Ferry near Revelstoke	11,000	35,100	43.3
20	19-18- 17-15	Columbia River Inflow	152	1,371	122.4
21	8NE-1	Incomappleux River near Beaton	387	2,070	72.6
22	8NE-6	Kuskanax Creek near Nakusp	135	532	53.5
23	8NE-77	Barnes Creek near Needles	81	147	24.6
24	8NJ-113	Kootenay River at Corra Linn	17,800	29,500	
25	8NJ-14	Slocan River at Slocan City	640	1,930	40.9
26	8NJ-13	Slocan River near Crescent Valley	1,270	3,250	34.7
27	26-25	Slocan River Inflow	630	1,320	28.4
28	8NE-49	Columbia River at Birchbank	34,000	76,000	30.3
29	28-26-25 23-22-21 -19	Columbia River Inflow	3,327	5,401	22.0
30	8NE-74	Salmo River near Salmo	450	978	29.4
31	8NE-39	Big Sheep Creek near Rossland	140	137	13.3
32	8NN-15	West Kettle River near McCulloch	96	947	13.4
33	8NN-13	Kettle River near Ferry	2,220	1,080	6.6
34	33-32	Kettle River Inflow	2,124	985.3	6.3
35	8NN-12	Kettle River near Laurier	3,800	2,130	7.6
36	35-33	Kettle River Inflow	1,580	1,050	9.0
		FRASER RIVER BASIN			
33	8KA-8	Moose River near Red Pass	192	601	42.5
34	8KA-7	Fraser River at Red Pass	615	1,760	38.8
35	34-33	Fraser River Inflow	423	1,159	37.2
36	8KA-5	Fraser River at McBride	2,690	7,450	37.6
37	36-34	Fraser River Inflow	2,075	5,690	37.2
38	8KD-1	Bowron River near Wells	170	330	26.3
39	8KD-4	Bowron River near Hansard	1,390	3,280	32.0
40	39-38	Bowron River Inflow	1,220	2,950	32.8
41	8KA-4	Fraser River at Hansard	7,060	19,000	36.5
42	41-39-36	Fraser River Inflow	2,980	8,270	37.7
43	8KB-3	McGregor River near Upper Fraser	1,840	9,350	68.9
44	8KD-3	Willow River at Willow River	1,200	1,670	18.9
45	8KC-1	Salmon River near Prince George	1,680	1,040	8.4
46	8KB-1	Fraser River at Shelley	12,500	32,300	35.1
47	46-45-44 -43-41	Fraser River Inflow	720	1,240	23.4
48	8KE-15	Cale Creek near Red Rock	62	63.3	13.9
49	8KE-14	Naver Creek at Hixon	254	307	16.4
50	8KE-9	Cottonwood River at Cinema	683	883	17.5
51	8KH-3	Cariboo River below Kangaroo Creek near Likely	1,310	3,600	37.3

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		FRASER RIVER BASIN (continued)			
52	8KH-20	McKinley Creek below outlet of McKinley Lake	165	157	12.9
53	8KH-1	Quesnel River at Likely	2,330	5,120	29.8
54	53-52	Quesnel River Inflow	2,165	4,963	31.1
55	8JE-1	Stuart River near Fort St. James	5,400	5,020	12.6
56	8JB-2	Stellako River at Glenannan	1,500	851	7.7
57	8JB-3	Nautley River near Fort Fraser	2,430	1,210	6.8
58	57-56	Nautley River Inflow	930	359	5.2
59	8FE-2	Kemano Powerhouse		2,790	
(60+59)	8JA-8	Skins Lake Spillway (Nechako Reservoir)	5,400	6,810	17.1
(61+59)	8JC-1	Nechako River at Vanderhoof	9,550	8,200	11.7
62	61-60-57	Nechako River Inflow	1,720	180	1.4
(63+59)	8JC-2	Nechako River at Isle Pierre	16,200	13,490	11.3
64	63-61-55	Nechako and Stuart River Inflow	1,250	270	2.9
65	8JC-5	Chilako River near Prince George	1,320	463	4.8
66	8KF-1	Nazko River above Michelle Creek near Nazko	1,270	211	2.3
67	8KE-16	Baker Creek at Quesnel	618	201	4.4
(68+59)	8MC-18	Fraser River near Marquerite	43,900	59,390	18.4
69	68-67-66-65-63-53-51-50-49-48-46	Fraser River Inflow	7,353	2,752	5.1
70	8MB-4	Chilanko River near Redstone	690	41.8	0.8
71	8MA-2	Chilko River at outlet of Chilko Lake	762	1,640	29.2
72	8MA-1	Chilko River near Redstone	3,230	3,420	14.4
73	72-71	Chilko River Inflow	2,468	1,780	9.8
(74+59)	8MD-13	Fraser River at Big Bar Creek	56,000	63,890	15.5
75	74-72-70-68	Fraser River Inflow	8,180	1,038	1.7
76	8ME-1	Bridge River near Shalalth	1,350	3,440	34.6
77	8ME-2	Cayoosh Creek near Lillooet	350	688	26.7
(78+59)	8MF-40	Fraser River near Lillooet	59,000	69,690	16.0
79	78-77-76-74	Fraser River Inflow	1,300	1,672	17.5
80	8MF-3	Coquihalla River near Hope	360	1 090	41.1
(81+59)	8MF-5	Fraser River at Hope	83,700	106,790	17.3
82	81-80-78-32	Fraser River Inflow	2,740	8,810	43.6
		KOOTENAY RIVER BASIN			
1	8NF-1	Kootenay River at Kootenay Crossing near Radium Hot Springs	160	224	19.0
2	8NF-2	Kootenay River at Canal Flats	2,080	3,700	24.1
3	2-1	Kootenay River Inflow	1,920	3,476	24.6
4	8NG-51	Skookumchuck Creek near Skookumchuck	246	388	21.4
5	8NG-53	Kootenay River near Skookumchuck	2,780	4,490	21.9
6	5-4-2	Kootenay River Inflow	454	402	12.0
7	8NG-46	St. Mary River near Marysville	571	1,500	35.6
8	8NG-12	St. Mary River near Wycliffe	922	1,930	28.4
9	8-7	St. Mary River Inflow	351	430	16.6
10	8NG-65	Kootenay River at Fort Steele	4,350	7,280	22.7
11	10-8-5	Kootenay River Inflow	648	860	18.0
12	8NG-2	Bull River near Wardner	578	1,240	29.1
13	8NK-16	Elk River near Natal	760	1,030	18.4
14	8NK-12	Elk River at Stanley Park near Elko	1,370	2,270	22.5
15	14-13	Elk River Inflow	610	1,240	27.6
16	8NK-5	Elk River at Phillips Bridge near Elko	1,720	2,950	23.3
17	16-14	Elk River Inflow	350	680	26.4
18	8NG-42	Kootenay River at Newgate	7,660	11,700	20.7
19	18-16-12-10	Kootenay River Inflow	1,012	230	3.1
20	8NP-1	Flathead River at Flathead	450	994	30.0
21	8NH-34	Moyie River at Moyie	280	339	16.4
22	8NH-6	Moyie River at Eastport	570	756	18.0
23	22-21	Moyie River Inflow	290	417	19.5
24	8NH-32	Boundary Creek near Porthill	97	186	26.0
25	8NH-4	Goat River near Erickson	430	1,000	31.6
26	8NH-21	Kootenay River at Porthill	13,700	16,800	16.6

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		KOOTENAY RIVER BASIN (continued)			
27	8NH-119	Duncan River below B. B Creek	499	2,240	60.9
28	8NH-1	Duncan River near Howser	815	3,370	56.1
29	28-27	Duncan River Inflow	316	1,130	48.5
30	8NH-7	Lardeau River at Marblehead	610	2,110	46.9
31	8NN-118	Duncan River below Lardeau River	1,560	5,760	50.1
32	31-30-29	Duncan River Inflow	135	280	28.1
33	8NJ-113	Kootenay River at Corra Linn	17,800	29,500	22.5
34	33-31-26-25-24	Kootenay River Inflow	2,110	5,940	38.2
		LIARD RIVER BASIN			
1	10AA-1	Liard River at upper Crossing	12,500	11,200	12.2
2	10AC-3	Dease River at outlet of Dease Lake near Telegraph Creek	612	476	10.6
3	10AC-5	Cottonwood River above Bass Creek near Cassiar	343	652	25.8
4	10AC-2	Dease River at McDame near Cassiar	2,700	3,190	16.0
5	4-3-2	Dease River Inflow	1,745	2,062	16.0
6	10AC-4	Blue River near Mouth	668	558	11.3
7	10AD-1	Hyland River near Lower Post	2,600	4,150	21.7
8	10BE-1	Liard River at Lower Crossing	40,300	33,200	11.2
9	8-7-6-4-1	Liard River Inflow	21,832	14,102	8.8
10	10CD-1	Muskwa River near Fort Nelson	7,600	6,920	12.4
11	10CB-1	Sikanni Chief River near Fort Nelson	800	772	13.1
12	10CC-1	Fort Nelson River at Fort Nelson	17,200	9,620	7.6
13	12-11-10	Fort Nelson River Inflow	8,800	1,928	3.0
14	10ED-1	Liard River at Fort Liard	85,700	58,800	9.3
15	14-12-8	Liard River Inflow	28,200	15,980	7.7
16	70B-1	Hay River near Hay River	18,500	2,220	1.6
		LOWER FRASER RIVER BASIN			
1	8MG-5	Lillooet River near Pemberton	800	4,450	75.5
2	8MG-8	Birkenhead River at Mt. Currie	230	902	53.2
3	8MG-13	Harrison River near Harrison Hot Springs	3,220	16,400	69.1
4	3-2-1	Harrison River Inflow	2,190	11,048	68.5
5	8MH-16	Chilliwack River near Vedder Crossing	131	675	69.9
6	8MH-103	Chilliwack River above Slesse Creek	254	1,240	66.3
7	6-5	Chilliwack River Inflow	123	565	62.3
8	8MH-1	Chilliwack River at Vedder Crossing	484	2,270	63.6
9	8-6	Chilliwack River Inflow	230	1,030	60.8
10	8MH-29	Sumas River near Huntingdon	57.6	110	25.9
11	8MH-38	Alouette River near Haney	79	700	120.2
12	8MH-40	Stave River at Stave Falls	440	4,160	128.3
		PEACE RIVER BASIN			
1	7EA-1	Finley River at Ware	4,280	6,690	21.2
2	7EA-2	Kwadacha River near Ware	932	1,540	22.4
3	7EC-1	Omineca River near Germansen Landing	1,960	3,240	22.4
4	7EB-1	Finlay River at Finlay Forks	16,600	24,500	20.0
5	4-3-2-1	Finlay River Inflow	9,428	13,030	18.8
6	7EE-2	Parsnip River near Finlay Forks	7,750	14,700	25.7
7	7EF-1	Peace River at Hudson Hope	27,800	43,200	21.1
8	7-6-4	Peace River Inflow	3,450	4,000	15.7
9	7FA-1	Halfway River near Farrell Creek	3,630	2,420	9.1
10	7FB-1	Pine River near East Pine	4,650	7,640	22.3
11	7FD-2	Peace River near Taylor	38,300	57,200	20.3
12	11-10-9-7	Peace River Inflow	2,220	3,940	24.1
13	7FC-3	Blueberry River below Aitken Creek	676	144	2.9
14	7FC-1	Beatton River near Fort St. John	6,200	1,310	2.9
15	14-13	Beatton River Inflow	5,524	1,166	2.9
16	7HA-1	Peace River at Peace River	72,000	76,100	14.3
17	16-14-11	Peace River Inflow	27,500	17,590	8.7

TABLE I-3

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		SIMILKAMEEN & OKANAGAN RIVER BASINS			
1	8NL-23	Otter Creek at Tulameen	260	77.1	4.0
2	8NL-24	Tulameen River at Princeton	680	720	14.4
3	2-1	Tulameen River Inflow	420	642.9	20.8
4	8NL-36	Whipsaw Creek below Lamont Creek near Princeton	64	24.2	5.1
5	8NL-7	Similkameen River at Princeton	730	554	10.3
6	5-4	Similkameen River Inflow	666	529.8	10.8
7	8NL-34	Smith Creek near Hedley	47	9	2.6
8	8NL-38	Similkameen River near Hedley	2,156	1,350	8.5
9	8-7-5-2	Similkameen River Inflow	699	67	1.3
10	8NL-4	Ashnola River near Keremeos	400	165	5.6
11	8NL-10	Keremeos Creek near Olalla	67	12.2	2.5
12	8NL-22	Similkameen River near Nighthawk	3,508	1,640	6.3
13	12-11-10-8	Similkameen River Inflow	885	113	1.7
14	8NM-50	Okanagan River at Penticton	2,340	345	2.0
15	8NM-127	Okanagan River at Oroville	3,210	362	1.5
16	15-14	Okanagan River Inflow	870	17	0.3
		THOMPSON RIVER BASIN			
1	8LC-3	Shuswap River near Lumby	772	1,900	33.4
2	8LC-19	Shuswap River (at Mable Lake) near Enderby	1,560	3,110	27.0
3	2-1	Shuswap River Inflow	788	1,210	20.8
4	8LC-2	Shuswap River at Enderby	1,810	3,360	25.2
5	4-2	Shuswap River Inflow	250	250	13.6
6	8LD-1	Adams River near Squilax	1,200	2,580	29.2
7	8LE-69	South Thompson River at Monte Creek	6,340	11,000	23.5
8	7-6-4	South Thompson River Inflow	3,330	5,060	20.6
9	8LA-13	Clearwater River at Outlet Hobson Lake	387	1,680	58.9
10	8LA-7	Clearwater River at Outlet of Clearwater Lake	1,180	5,110	58.8
11	10-9	Clearwater River Inflow	793	3,430	58.7
12	8LA-4	Murtle River near Clearwater Station	505	1,550	41.6
13	8LA-8	Mahood River at Outlet of Mahood Lake near Clearwater Station	1,780	968	7.4
14	8LA-1	Clearwater River near Clearwater Station	3,950	8,050	27.7
15	14-13-12-10	Clearwater River Inflow	485	422	11.8
16	8LB-47	North Thompson River at Birch Island	1,750	5,620	43.5
17	8LB-50	Mann Creek near Blackpool	120	121	13.7
18	8LB-64	North Thompson River at McLure	7,870	15,100	26.0
19	18-17-16-14	North Thompson River Inflow	2,050	1,309	8.7
20	8LF-7	Criss Creek near Savona	193	66	4.6
21	8LF-27	Deadman River above Criss Creek	300	59	2.7
22	8LF-61	Hat Creek near Upper Hat Creek	144	28.1	2.6
23	8LF-15	Hat Creek near Cache Creek	257	34	1.8
24	23-22	Hat Creek Inflow	113	5.9	0.7
25	8LF-62	Bonaparte River near Bridge Lake	272	90	4.5
26	8LF-60	Bonaparte River near Cache Creek	1,330	182	1.9
27	26-25	Bonaparte River Inflow	1,058	92	1.1
28	8LG-7	Nicola River near Merritt	1,800	391	2.9
29	8LG-4	Guichon Creek near Lower Nicola	467	22	0.6
30	8LG-6	Nicola River near Spences Bridge	2,960	870	4.0
31	30-29-28	Nicola River Inflow	693	457	8.9
32	8LF-51	Thompson River near Spences Bridge	21,600	27,200	17.1
		VANCOUVER & CHARLOTTE ISLANDS			
1	8HA-1	Chemainus River near Westholme	146	739	68.7
2	8HA-3	Koksilah River at Cowichan Station	86	333	52.5
3	8HA-10	San Juan River near Port Renfrew	224	1,910	115.7
4	8HB-4	Little Qualicum River at Outlet Cameron Lake	52	329	85.9
5	8HB-29	Little Qualicum River at Qualicum Beach	95	468	66.8
6	5-4	Little Qualicum River Inflow	43	139	43.9
7	8HB-6	Puntledge River at Courtenay	200	1,590	107.9
8	8HB-11	Tsolum River near Courtenay	97.1	472	66.0
9	8HB-24	Tsable River near Fanny Bay	41.3	334	109.7

TABLE I-3

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (inches)
		VANCOUVER & CHARLOTTE ISLANDS (Continued)			
10	8HB-14	Sarita River near Bamfield	62	734	160.6
11	8HC-2	Unco River near Muchalet	73	783	145.6
12	8HF-3	Kokish River below Bonanza River	104	690	90.0
13	8OA-2	Yakoun River near Port Clements	189	1,500	107.7
		WESTCOAST			
1	8GA-10	Capilano River near North Vancouver	68	786	156.9
2	8GB-7	Long Creek near Powell River	49.6	134	36.7
3	8GD-4	Homathko River near Stuart Island	2,140	9,830	62.3
4	8FA-2	Wannock River at Outlet of Owikeno Lake	1,630	13,200	109.9
5	8FB-2	Bella Coola River near Hagensborg	1,570	4,710	40.7
6	8EC-4	Pinkut Creek near Tintagel	306	200	8.9
7	8EC-1	Babine River at Babine	2,490	1,750	9.5
8	7-4	Babine River Inflow	2,184	1,550	9.6
9	8EE-9	Richfield Creek near Topley	100	33.5	4.5
10	8ED-2	Morice River near Houston	395	3,060	105.1
11	8EE-4	Bulkley River at Quick	2,800	5,500	26.7
12	11-10-9	Bulkley River Inflow	2,305	2,407	14.2
13	8EB-3	Skeena River at Glen Vowell near Hazelton	10,000	21,800	29.5
14	13-7	Skeena River Inflow	7,510	20,050	36.2
15	8EE-8	Goathorn Creek near Telkwa	51	71	18.9
16	8EF-4	Kitsequecla River near Skeena Crossing	315	527	22.7
17	8EF-1	Skeena River at Usk	15,000	33,300	30.1
18	17-16-14-13-11	Skeena River Inflow	1,834	5,402	40.0
19	8EF-5	Zymoetz River above O. K. Creek	1,100	3,900	48.1
20	8EF-3	Zymoetz River near Terrace	1,200	4,880	55.2
21	20-19	Zymoetz River Inflow	100	980	133.0
22	8EG-11	Zymagotitz River near Terrace	142	860	82.2
23	8EG-12	Exchamsiks River near Terrace	145	1,540	144.1
24	8DB-1	Nass River above Shumal Creek	6,940	26,200	51.2
25	8CG-1	Iskut River near Telegraph Creek	3,610	14,300	53.8
26	8CC-1	Klappan River near Telegraph Creek	1,360	2,460	24.5
27	8CB-1	Stikine River above Grand Canyon near Telegraph Creek	7,300	10,500	19.5
28	27-26	Stikine River Inflow	5,940	8,040	18.4
29	8CB-2	Tanzilla River near Telegraph Creek	616	572	12.6
30	8CE-1	Stikine River at Telegraph Creek	11,300	13,100	15.7
31	30-29	Stikine River Inflow	3,384	2,028	8.1
32	8BB-2	Sloko River near Atlin	286	306	14.5
33	8BB-1	Taku River near Tulsequah	6,000	7,830	17.7
34	33-32	Taku River Inflow	5,714	7,524	17.9
		YUKON & TESLIN RIVER BASINS			
1	9AA-8	Pine Creek near Atlin	269	160	8.1
2	9AA-6	Atlin River near Atlin	2,520	3,210	17.3
3	2-1	Atlin River Inflow	2,251	3,050	18.4
4	9AA-15	Wann River near Atlin	104	228	29.7
5	9AA-14	Fantail River at Outlet of Fantail Lake near Atlin	289	738	34.7
6	9AA-13	Tutshi River at Outlet of Tutshi Lake near Atlin	366	497	18.4
7	9AA-10	Lindeman River near Bennett	92	329	48.5
8	9AA-12	Wheaton River near Carcross Station	337	232	9.3
9	9AB-1	Yukon River at Whitehorse	7,500	7,930	14.3
10	9-8-7-6-5-4-2	Yukon River Inflow	3,792	2,696	9.6
11	9AE-3	Swift River near Swift River	1,280	1,470	15.6
12	9AE-4	Gladys River at Outlet Gladys Lake	737	430	7.9
13	9AE-1	Teslin River at Teslin	11,700	9,720	11.3
14	13-12-11	Teslin River Inflow	9,683	7,820	11.0
15	9AC-4	Takhini River at Kusana Lake	1,570	1,780	15.4

TABLE I-3

PEAK RUNOFF
(1963 - 1964)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (cfs/sq. mi.)
		COLUMBIA RIVER BASIN			
1	8NA-45	Columbia River near Fairmont Hot Springs	370	1,480	4.0
2	8NA-11	Spillimacheen River near Spillimacheen	580	6,780	11.7
3	8NA-2	Columbia River at Nicholson	2,570	16,700	6.5
4	8NB-5	Columbia River at Donald	3,700	24,300	6.6
5	8NB-6	Columbia River at Surprise Rapids	5,420	50,300	9.3
6	8NC-2	Canoe River near Donald	1,350	19,200	14.2
7	8ND-7	Columbia River above Nagle Creek	8,220	93,800	11.4
8	8ND-12	Goldstream River below Old Camp Creek	362	7,960	22.0
9	8ND-9	Downie Creek near Revelstoke	250	7,170	28.7
10	8ND-11	Columbia River above Steamboat Rapids	10,300	133,000	12.9
11	8ND-14	Jordan River above Kirkup Creek	105	3,940	37.5
12	8ND-13	Illecillewaet River at Greely	443	11,100	25.1
13	8ND-6	Columbia River at Twelve Mile Ferry nr. Revelstoke	11,000	156,000	14.2
14	8NE-1	Incomappleux River near Beaton	387	12,800	33.1
15	8NE-6	Kuskanax Creek near Nakusp	135	3,310	24.5
16	8NE-77	Barnes Creek near Needles	81	1,450	17.9
17	8NJ-14	Slocan River at Slocan City	640	10,000	15.6
18	8NJ-13	Slocan River near Cresent Valley	1,270	18,500	14.6
19	8NE-49	Columbia River at Birchbank	34,000	292,000	8.6
20	8NE-39	Big Sheep Creek near Rossland	140	1,460	10.4
21	8NE-74	Salmo River near Salmo	450	7,770	17.3
22	8NN-13	Kettle River near Ferry	2,220	13,100	5.9
23	8NN-12	Kettle River near Laurier	3,800	21,400	5.6
24	8NN-1	Boundary Creek at Greenwood	164	840	5.1
25	8NL-7	Similkameen River at Princeton	730	8,790	12.0
26	8NL-4	Ashnola River near Keremeos	400	4,160	10.4
27	8NL-10	Keremeos Creek near Olalla	67	287	4.3
28	8NL-22	Similkameen River near Nighthawk	3,508	21,600	6.2
29	8NM-46	Whiteman Creek near Vernon	76	162	2.1
30	8NM-15	Vaseux Creek near Oliver	97	434	4.5
31	8NM-41	Trepanier Creek near Peachland	72	355	4.9
		FRASER RIVER BASIN			
1	8KA-8	Moose River near Red Pass	192	3,100	16.1
2	8KA-7	Fraser River at Red Pass	615	9,320	15.2
3	8KA-5	Fraser River at McBride	2,690	38,100	14.2
4	8KD-1	Bowron River near Wells	170	1,700	10.0
5	8KD-4	Bowron River near Hansard	1,390	15,300	11.0
6	8KA-4	Fraser River at Hansard	7,060	80,300	11.4
7	8KB-3	McGregor River near Upper Fraser	1,840	45,400	24.7
8	8KD-3	Willow River at Willow River	1,200	12,200	10.2
9	8KC-1	Salmon River near Prince George	1,680	9,340	5.6
10	8KB-1	Fraser River at Shelley	12,500	144,000	11.5
11	8KE-15	Cale Creek near Red Rock	62	679	11.0
12	8KE-14	Naver Creek at Hixon	254	3,260	12.8
13	8KE-9	Cottonwood River at Cinema	683	7,700	11.3
14	8KE-16	Baker Creek at Quesnel	618	1,010	1.6
15	8KG-1	West Road River near Cinema	4,630	5,110	1.1
16	8KH-14	Mitchell River at Outlet of Mitchell Lake near Keithley Creek	93	1,770	19.0
17	8KH-13	Cariboo River near Keithley Creek	1,160	18,900	16.3
18	8KH-3	Cariboo River below Kangaroo Creek near Likely	1,310	17,900	13.7
19	8KH-1	Quesnel River at Likely	2,330	18,700	8.0
20	8KH-6	Quesnel River near Quesnel	4,690	34,500	7.4
21	8JE-1	Stuart River near Fort St. James	5,400	17,700	3.3
22	8JB-2	Stellako River at Glenannan	1,500	3,130	2.1
23	8JB-3	Nautley River near Fort Fraser	2,430	4,470	1.8
24	8JC-5	Chilako River near Prince George	1,320	2,420	1.8
25	8MA-2	Chilko River at Outlet of Chilko Lake	762	5,380	7.1
26	8MA-1	Chilko River near Redstone	3,230	12,200	3.8
27	8FE-2	Kemano Powerdraft		2,480	
(28+27)	8MC-18	Fraser River near Marquerite	43,900	201,480	4.6
(29+27)	8MD-13	Fraser River at Big Bar Creek	56,000	265,480	4.7
30	8ME-2	Cayoosh Creek near Lillooet	350	4,430	12.7

TABLE I-4

PEAK RUNOFF

(1963 - 1964)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (cfs/sq. mi.)
		FRASER RIVER BASIN (continued)			
(31+27)	8MF-40	Fraser River near Lillooet	59,000	268,480	4.6
32	8MF-3	Coquihalla River near Hope	360	10,000	27.8
(33+27)	8MF-5	Fraser River at Hope	83,700	410,480	4.9
		KOOTENAY RIVER BASIN			
1	8NF-1	Kootenay River at Kootenay Crossing near Radium Hot Springs	160	938	5.9
2	8NF-2	Kootenay River at Canal Flats	2,080	17,200	8.3
3	8NG-51	Skookumchuck Creek near Skookumchuck	246	2,250	9.1
4	8NG-53	Kootenay River near Skookumchuck	2,780	22,700	8.2
5	8NG-46	St. Mary River near Marysville	571	9,470	16.6
6	8NG-12	St. Mary River near Wycliffe	922	12,800	13.9
7	8NG-65	Kootenay River at Fort Steele	4,350	34,800	8.0
8	8NG-2	Bull River near Wardner	578	7,720	13.4
9	8NG-5	Kootenay River at Wardner	5,200	42,300	8.1
10	8NK-16	Elk River near Natal	760	7,720	10.2
11	8NK-12	Elk River at Stanley Park near Elko	1,370	18,100	13.2
12	8NK-5	Elk River at Phillips Bridge near Elko	1,720	27,500	16.0
13	8NG-42	Kootenay River at Newgate	7,660	68,800	9.0
14	8NP-1	Flathead River at Flathead	450	13,500	30.0
15	8NH-34	Moyie River at Moyie	280	2,440	8.7
16	8NH-6	Moyie River at Eastport	570	6,250	11.0
17	8NH-32	Boundary Creek near Porthill	97	1,680	17.3
18	8NH-4	Goat River near Erickson	430	7,200	16.7
19	8NH-119	Duncan River below B.B. Creek	499	14,700	29.5
20	8NH-1	Duncan River near Howser	815	17,600	21.6
21	8NH-7	Lardeau River at Marblehead	610	10,600	17.4
22	8NH-118	Duncan River below Lardeau River	1,560	28,000	17.9
23	8NH-5	Kaslo River at Kaslo	207	2,850	13.8
24	8NH-3	Glacier Creek near Howser	108	3,010	27.9
		LOWER FRASER AND WEST COAST			
1	8MG-5	Lillooet River near Pemberton	800	19,900	24.9
2	8MG-8	Birkenhead River at Mt Currie	230	4,460	19.4
3	8MG-13	Harrison River near Harrison Hot Springs	3,220	53,000	16.5
4	8MH-16	Chilliwack River near Vedder Crossing	131	2,600	19.8
5	8MH-103	Chilliwack River above Slesse Creek	254	4,810	18.9
6	8MH-1	Chilliwack River at Vedder Crossing	484	13,000	26.9
7	8MH-56	Slesse Creek near Vedder Crossing	62.7	1,620	25.8
8	8MH-29	Sumas River near Huntingdon	57.6	772	13.4
9	8MH-58	Norrish Creek near Dewdney	44.1	7,580	171.9
10	8MH-17	Pitt River near Alvin	177	11,500	65.0
11	8GA-10	Capilano River near North Vancouver	68	8,860	130.3
12	8GB-7	Lang Creek near Powell River	49.6	862	17.4
13	8GD-5	Homathko River below Nude Creek near Tatla Lake	727	6,140	8.4
14	8GD-6	Homathko River at Tradgedy Canyon	1,574	21,700	13.8
15	8GD-7	Mosley Creek near Dumbell Lake	598	8,670	14.5
16	8GD-4	Homathko River near Stuart Island	2,140	39,800	18.6
17	8FA-2	Wannock River at Outlet of Owikeno Lake	1,630	44,600	27.4
18	8FB-2	Bella Coola River near Hagensborg	1,570	23,600	15.0
19	8EC-1	Babine River at Babine	2,490	6,080	2.4
20	8EB-3	Skeena River at Glen Vowell near Hazelton	10,000	169,000	16.9
21	8ED-2	Morice River near Houston	395	12,200	30.9
22	8EE-4	Bulkley River at Quick	2,800	29,900	10.7
23	8EE-8	Goathorn Creek near Telkwa	51	497	9.7
24	8EF-4	Kitseguecla River near Skeena Crossing	315	9,500	30.2
25	8EF-1	Skeena River at Usk	15,000	264,000	17.6
26	8EF-5	Zymoetz River above O.K. Creek	1,100	24,500	22.3
27	8EF-3	Zymoetz River near Terrace	1,200	32,900	27.4
28	8EG-11	Zymagotitz River near Terrace	142	5,800	40.8
29	8EG-12	Exchamsiks River near Terrace	145	8,790	60.6

TABLE I-4

PEAK RUNOFF
(1963 - 1964)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (cfs/sq. mi.)
		LOWER FRASER AND WEST COAST (continued)			
30	8DB-1	Nass River above Shumal Creek	6,940	166,000	23.9
31	8CG-1	Iskut River near Telegraph Creek	3,610	70,500	19.5
32	8CC-1	Klappan River near Telegraph Creek	1,360	20,500	15.1
33	8CB-1	Stikine River above Grand Canyon near Telegraph Creek	7,300	84,400	11.6
		PEACE & LIARD RIVER BASINS			
1	7EA-1	Finlay at Ware	4,280	60,900	14.2
2	7EA-2	Kwadacha River near Ware	932	11,000	11.8
3	7EC-1	Omineca River near Germansen Landing	1,960	30,700	15.7
4	7EB-1	Finlay River at Finlay Forks	16,600	193,000	11.6
5	7EE-3	Parsnip River at PGE Railway Bridge	1,520	34,300	22.6
6	7ED-1	Nation River near Ft. St. James	1,600	24,800	15.5
7	7EE-2	Parsnip River near Finlay Forks	7,750	99,600	12.9
8	7EF-1	Peace River at Hudson Hope	27,800	311,000	11.2
9	7FA-1	Halfway River near Farrell Creek	3,630	24,100	6.6
10	7FB-1	Pine River near East Pine	4,650	87,200	18.8
11	7FD-2	Peace River near Taylor	38,300	353,000	9.2
12	7FC-2	St. John Creek near Montney	69	530	7.7
13	7FC-1	Beatton River near Fort St. John	6,200	27,600	4.5
14	7HA-1	Peace River at Peace River	72,000	498,000	6.9
15	10AA-1	Liard River at Upper Crossing	12,500	104,000	8.3
16	10AC-3	Dease River at outlet of Dease Lake near Telegraph Creek	612	5,070	8.3
17	10AC-5	Cottonwood River above Bass Creek near Cassiar	343	7,110	20.7
18	10AC-2	Dease River at McDame near Cassiar	2,700	30,000	11.1
19	10AC-4	Blue River near Mouth	668	5,110	7.6
20	10AD-1	Hyland River near Lower Post	2,600	41,000	15.8
21	10BB-1	Kechika River at Mouth	8,790	69,800	7.9
22	10BC-1	Coal River at Mouth	3,650	36,300	9.9
23	10BE-1	Liard River at Lower Crossing	40,300	301,000	7.5
24	10BE-4	Toad River above Nonda Creek	993	10,300	10.4
25	10CB-1	Sikanni Chief River near Fort Nelson	800	5,370	6.7
26	10CD-1	Muskwa River near Fort Nelson	7,600	46,400	6.1
27	10CC-1	Fort Nelson River near Fort Nelson	17,200	63,200	3.7
28	10DB-1	Liard River at Fort Liard	85,700	403,000	4.7
29	7DB-1	Hay River near Hay River	18,500	25,600	1.4
		THOMPSON RIVER BASIN			
1	8LD-1	Adams River near Squilax	1,200	10,100	8.4
2	8LE-69	South Thompson River at Monte Creek	6,340	39,200	6.2
3	8LA-13	Clearwater River at outlet Hobson Lake	387	8,290	21.4
4	8LA-9	Clearwater River at inlet to Clearwater Lake	900	19,800	22.0
5	8LA-7	Clearwater River at outlet of Clearwater Lake	1,180	26,000	22.0
6	8LA-4	Murtle River near Clearwater Station	505	8,990	17.8
7	8LA-8	Mahood River at outlet of Mahood Lake near Clearwater Station	1,780	6,620	3.7
8	8LA-1	Clearwater River near Clearwater Station	3,950	41,300	10.5
9	8LB-47	North Thompson River at Birch Island	1,750	42,200	24.1
10	8LB-50	Mann Creek near Blackpool	120	1,160	9.7
11	8LB-69	Barriere River below Sprague Creek	240	2,310	9.6
12	8LB-20	Barriere River at Mouth near Barriere	440	3,060	7.0
13	8LB-64	North Thompson River at McLure	7,870	77,000	9.8
14	8LF-7	Criss Creek near Savona	193	678	3.5
15	8LF-27	Deadman River above Criss Creek	300	335	1.1
16	8LF-61	Hat Creek near Upper Hat Creek	144	517	3.6
17	8LF-15	Hat Creek near Cache Creek	257	700	2.7
18	8LF-62	Bonaparte River near Bridge Lake	272	348	1.3
19	8LF-60	Bonaparte River near Cache Creek	1,330	761	0.6
20	8LG-10	Coldwater River at Merritt	360	3,030	8.4

TABLE I-4

PEAK RUNOFF
(1963 - 1964)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (cfs/sq. mi.)
		THOMPSON RIVER BASIN (continued)			
21	8LG-7	Nicola River near Merritt	1,800	3,660	2.0
22	8LG-4	Guichon Creek near Lower Nicola	467	235	0.5
23	8LG-6	Nicola River near Spences Bridge	2,960	6,880	2.3
24	8LF-33	Thompson River near Savona	16,000	113,000	7.1
25	8LF-51	Thompson River near Spences Bridge	21,600	124,000	5.7
		VANCOUVER AND CHARLOTTE ISLANDS			
1	8HA-1	Chemainus River near Westholme	146	8,500	58.2
2	8HA-3	Koksilah River at Cowichan Station	86	4,740	55.1
3	8HA-10	Sansuan River near Port Renfrew	224	28,800	128.6
4	8HB-4	Little Qualicum River at outlet Cameron Lake	52	4,410	84.8
5	8HB-29	Little Qualicum River at Qualicum Beach	95	4,940	52.0
6	8HB-14	Sarita River near Bamfield	62	21,000	338.7
7	8HB-24	Tsable River near Fanny Bay	41.3	5,630	136.3
8	8MC-2	Ucono River near Muchalet	73	10,600	145.2
9	8HE-6	Zeballos River near Zeballos	68	10,900	160.2
10	8HF-3	Kokish River below Bonanza River	104	3,700	35.6
11	8OA-2	Yakoun River near Port Clements	189	21,600	114.3
		YUKON AND WEST COAST			
34	8CB-2	Tanzilla River near Telegraph Creek	616	6,440	10.5
35	8CD-1	Tuya River near Telegraph Creek	1,360	20,500	15.1
36	8CE-1	Stikine River at Telegraph Creek	11,300	119,000	10.5
37	8BB-2	Sloko River near Atlin	286	1,840	6.4
38	8BB-1	Taku River near Tulsequah	6,000	87,900	14.7
1	9AA-1	Lubbock River near Atlin	650	654	1.0
2	9AA-6	Atlin River near Atlin	2,520	8,570	3.4
3	9AA-15	Wann River near Atlin	104	1,960	18.8
4	9AA-14	Fantail River at Outlet of Fantail Lake near Atlin	289	4,580	15.9
5	9AA-13	Tutshi River at Outlet of Tutshi Lake near Atlin	366	3,650	10.0
6	9AA-10	Lindeman River near Bennett	92	2,500	27.2
7	9AB-1	Yukon River at Whitehorse	7,500	20,900	2.8
8	9AE-3	Swift River near Swift River	1,280	15,200	11.9
9	9AE-4	Gladys River at Outlet of Gladys Lake	737	4,240	5.8
10	9AE-1	Teslin River at Teslin	11,700	60,500	5.2
11	9AC-4	Takhini River at Kusawa Lake	1,570	9,850	6.3

TABLE I-4

MEAN MARCH RUNOFF
(1963 - 1964)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (cfs/sq. mi.)
		COLUMBIA RIVER BASIN			
1	8NA-45	Columbia River near Fairmont Hot Springs	370	116	0.31
2	8NA-11	Spillimacheen River near Spillimacheen	580	159	0.27
3	8NA-2	Columbia River at Nicholson	2,570	742	0.29
4	8NB-5	Columbia River at Donald	3,700	1,110	0.30
5	8NB-6	Columbia River at Surprise Rapids	5,420	1,950	0.36
6	8NC-2	Canoe River near Donald	1,350	470	0.35
7	8ND-7	Columbia River above Nagle Creek	8,220	2,970	0.36
8	8ND-12	Goldstream River below Old Camp Creek	362	153	0.42
9	8ND-9	Downie Creek near Revelstoke	250	203	0.81
10	8ND-11	Columbia River above Steamboat Rapids	10,300	4,300	0.42
11	8ND-14	Jordan River above Kirkup Creek	105	75.5	0.72
12	8ND-13	Illecillewaet River at Greely	443	200	0.45
13	8ND-6	Columbia River at Twelve Mile Ferry near Revelstoke	11,000	4,980	0.45
14	8NE-1	Incomappleux River near Beaton	387	270	0.70
15	8NE-6	Kuskanax Creek near Nakusp	135	76	0.56
16	8NE-77	Barnes Creek near Needles	81	17.7	0.22
17	8NJ-14	Slocan River at Slocan City	640	464	0.73
18	8NJ-13	Slocan River near Crescent Valley	1,270	650	0.51
19	8NE-49	Columbia River at Birchbank	34,000	17,800	0.52
20	8NE-74	Salmo River near Salmo	450	200	0.44
21	8NE-39	Big Sheep Creek near Rossland	140	25.3	0.18
22	8NN-13	Kettle River near Ferry	2,220	184	0.08
23	8NN-12	Kettle River near Laurier	3,800	411	0.11
		FRASER RIVER BASIN			
1	8KA-8	Moose River near Red Pass	192	46	0.24
2	8KD-1	Bowron River near Wells	170	96	0.56
3	8KB-3	McGregor River near Upper Fraser	1,840	1,140	0.62
4	8KD-3	Willow River near Willow River	1,200	550	0.46
5	8KC-1	Salmon River near Prince George	1,680	322	0.19
6	8JB-2	Stellako River at Glenannan	1,500	222	0.15
7	8JB-3	Nautley River near Fort Fraser	2,430	321	0.13
8	8JE-1	Stuart River near Fort St. James	5,400	1,410	0.26
9	8JC-5	Chilako River near Prince George	1,320	148	0.11
10	8KE-15	Cale Creek Near Red Rock	62	15.6	0.25
11	8KE-14	Naver Creek at Hixon	254	57	0.22
12	8KH-14	Mitchell River near Keithley Creek	93	75.9	0.82
13	8KH-1	Quesnel River at Likely	2,330	1,090	0.47
14	8KH-3	Cariboo River below Kangaroo Creek	1,310	587	0.45
15	8KH-6	Quesnel River near Quesnel	4,690	1,900	0.41
16	8KE-16	Baker Creek at Quesnel	618	36.3	0.06
17	8MA-1	Chilko River near Redstone	3,230	631	0.20
18	8ME-1	Bridge River near Shalalth	1,350	610	0.45
19	8MF-40	Fraser River near Lillooet	59,000	22,100	0.37
20	8MF-3	Coquihalla River near Hope	360	516	1.43
21	8MF-5	Fraser River at Hope	83,700	33,600	0.40
	8FE-2	Kemano Powerhouse		2,480	
		KOOTENAY BASIN			
1	8NF-1	Kootenay River at Kootenay Crossing near Radium Hot Springs	160	2.8	0.02
2	8NF-2	Kootenay River at Canal Flats	2,080	519	0.25
3	8NG-51	Skookumchuck Creek near Skookumchuck	246	84.2	0.34
4	8NG-53	Kootenay River near Skookumchuck	2,780	852	0.31
5	8NG-46	St. Mary River near Marysville	571	220	0.39
6	8NG-12	St. Mary River near Wycliffe	922	278	0.30
7	8NG-65	Kootenay River at Fort Steele	4,350	1,270	0.29
8	8NG-2	Bull River near Wardner	578	225	0.39
9	8NG-5	Kootenay River at Wardner	5,200	1,460	0.28
10	8NK-16	Elk River near Natal	760	147	0.19

TABLE I-5

MEAN MARCH RUNOFF
(1963 - 1964)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq.mi.)	FLOW (cfs)	RUNOFF (cfs/sq.mi.)
		KOOTENAY RIVER BASIN (continued)			
11	8NK-12	Elk River at Stanley Park near Elko	1,370	311	0.23
12	8NK-5	Elk River at Phillips Bridge near Elko	1,720	550	0.32
13	8NG-42	Kootenay River at Newgate	7,660	2,290	0.30
14	8NP-1	Flathead River at Flathead	450	148	0.33
15	8NH-34	Moyie River at Moyie	280	49.1	0.18
16	8NH-6	Moyie River at Eastport	570	123	0.22
17	8NH-32	Boundary Creek near Porthill	97	31.1	0.32
18	8NH-4	Goat River near Erickson	430	159	0.37
19	8NH-119	Duncan River below B. B. Creek	499	225	0.45
20	8NH-1	Duncan River near Howser	815	481	0.59
21	8NH-118	Duncan River below Lardeau River	1,560	924	0.59
22	8NH-7	Lardeau River at Marblehead	610	381	0.62
23	8NH-3	Glacier Creek near Howser	108	52	0.48
		LIARD RIVER BASIN			
1	10AA-1	Liard River at Upper Crossing	12,500	3,000	0.24
2	10AC-3	Dease River at Outlet of Dease Lake near Telegraph Creek	612	141	0.23
3	10AC-2	Dease River at McDame near Cassiar	2,700	760	0.28
4	10AD-1	Hyland River near Lower Post	2,600	880	0.34
5	10BB-1	Kechika River at Mouth	8,790	2,400	0.27
6	10BE-1	Liard River at Lower Crossing	40,300	10,000	0.25
7	10BE-4	Toad River above Nonda Creek	993	300	0.30
8	7DB-1	Hay River near Hay River	18,500	114	0.01
		LOWER FRASER RIVER BASIN			
1	8MG-5	Lillooet River near Pemberton	800	882	1.10
2	8MG-8	Birkenhead River at Mt. Currie	230	211	0.92
3	8MG-13	Harrison River near Harrison Hot Springs	3,220	4,760	1.48
		PEACE RIVER BASIN			
1	7EA-1	Finley River at Ware	4,280	1,200	0.28
2	7EA-2	Kwadacha River near Ware	932	256	0.27
3	7EC-1	Omineca River near Germansen Landing	1,960	480	0.24
4	7EE-3	Parsnip River at PGE Railway Bridge	1,520	1,060	0.70
5	7EE-2	Parsnip River near Finlay Forks	7,750	3,040	0.39
6	7EF-1	Peace River at Hudson Hope	27,800	8,650	0.31
7	7FD-2	Peace River near Taylor	38,300	9,180	0.24
8	7HA-1	Peace River at Peace River	72,000	9,220	0.13
		SIMILKAMEEN & OKANAGAN RIVER BASINS			
1	8NL-24	Tulameen River at Princeton	680	216	0.32
2	8NL-7	Similkameen River at Princeton	730	234	0.32
3	8NL-4	Ashnola River near Keremeos	400	48.1	0.12
4	8NL-10	Keremeos Creek near Olalla	67	6.5	0.10
5	8NL-22	Similkameen River near Nighthawk	3,508	685	0.20
6	8NM-46	Whiteman Creek near Vernon	76	6.0	0.08
7	8NM-15	Vaseux near Oliver	97	8.6	0.09

TABLE I-5

MEAN MARCH RUNOFF
(1963 - 1964)

CODE	STATION	STATION NAME	DRAINAGE AREA (sq. mi.)	FLOW (cfs)	RUNOFF (cfs/sq. mi.)
		THOMPSON RIVER BASIN			
1	8LC-19	Shuswap River (at Mabel Lake) near Enderby	1,560	802	0.51
2	8LC-2	Shuswap River at Enderby	1,810	889	0.49
3	8LD-1	Adams River near Squilax	1,200	508	0.42
4	8LE-69	South Thompson River at Monte Creek	6,340	2,740	0.43
5	8LA-13	Clearwater River at Outlet Hobson Lake	387	230	0.59
6	8LA-7	Clearwater River at Outlet of Clearwater Lake	1,180	716	0.61
7	8LA-4	Murtle River near Clearwater Station	505	369	0.73
8	8LA-8	Mahood River at Outlet of Mahood Lake near Clearwater Station	1,780	273	0.15
9	8LA-1	Clearwater River near Clearwater Station	3,950	1,420	0.36
10	8LB-47	North Thompson River at Birch Island	1,750	805	0.46
11	8LB-50	Mann Creek near Blackpool	120	18.6	0.16
12	8LB-68	Barriere River below Lee Creek	226	66.7	0.30
13	8LB-20	Barriere River near Barriere	440	90.4	0.21
14	8LB-64	North Thompson River at McLure	7,870	2,760	0.35
15	8LF-33	Thompson River near Savona	16,000	5,300	0.33
16	8LF-7	Criss Creek near Savona	193	4.8	0.03
17	8LF-27	Deadman River above Criss Creek	300	16.9	0.06
18	8LF-61	Hat Creek near Upper Hat Creek	144	9.3	0.07
19	8LF-15	Hat Creek near Cache Creek	257	14.5	0.06
20	8LF-62	Bonaparte River near Bridge Lake	272	37.6	0.14
21	8LF-60	Bonaparte River near Cache Creek	1,330	70.4	0.05
22	8LG-10	Coldwater River at Merritt	360	87.9	0.24
23	8LG-7	Nicola River near Merritt	1,800	181	0.10
24	8LG-4	Guichon Creek near Lower Nicola	467	15.1	0.03
25	8LG-6	Nicola River near Spences Bridge	2,960	365	0.12
26	8LF-51	Thompson River near Spences Bridge	21,600	5,970	0.28
		WEST COAST			
1	8GD-5	Homathko River near Tatlayoko Lake	727	272	0.37
2	8GD-6	Homathko River near Tragedy Creek	1,574	901	0.57
3	8GD-4	Homathko River near Stuart Island	2,140	1,700	0.79
4	8FB-2	Bella Coola River near Hagensborg	1,570	952	0.61
5	8EC-1	Babine River at Babine	2,490	566	0.23
6	8EB-3	Skeena River at Glen Vowell near Hazelton	10,000	3,100	0.31
7	8ED-2	Morice River near Houston	395	661	1.67
8	8EE-4	Bulkley River at Quick	2,800	770	0.28
9	8EE-8	Goathorn Creek near Telkwa	51	4.0	0.08
10	8EF-1	Skeena River at Usk	15,000	5,180	0.35
11	8EF-5	Zymoetz River above O.K. Creek	1,100	773	0.70
12	8EF-3	Zymoetz River near Terrace	1,200	937	0.78
13	8DB-1	Nass River above Shumal Creek	6,940	2,240	0.32
14	8CG-1	Iskut River near Telegraph Creek	3,610	2,530	0.70
15	8BB-2	Sloko River near Atlin	286	27.6	0.10
16	9AA-7	Lubback River near Atlin	650	126	0.19
17	9AA-6	Atlin River near Atlin	2,520	1,600	0.63
18	9AA-15	Wann River near Atlin	104	37.7	0.36
19	9AA-14	Fantail River at Outlet of Fantail Lake near Atlin	289	63.0	0.22
20	9AA-13	Tutshi River at Outlet of Tutshi Lake near Atlin	366	138	0.38
21	9AA-10	Lindeman River near Bennett	92	32.6	0.35
22	9AB-1	Yukon River at Whitehorse	7,500	3,940	0.53
23	9AE-3	Swift River near Swift River	1,280	390	0.30
24	9AE-4	Gladys River at Outlet Gladys Lake	737	153	0.21
25	9AE-1	Teslin River at Teslin	11,700	3,070	0.26
26	9AC-4	Takhini River at Kusawa Lake	1,570	360	0.23

TABLE I-5

INDEX HYDROGRAPH DATA

AVERAGE MONTHLY RUNOFF AS PERCENTAGE OF ANNUAL TOTAL

STATION	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
8LC 003	4.0	3.0	3.0	7.4	17.2	25.1	12.7	6.3	5.9	5.9	4.9	4.6
8LC 019	3.8	3.4	3.1	6.0	17.4	26.4	12.8	6.0	5.3	6.1	5.4	4.4
8LD 001	2.7	2.2	2.1	3.3	12.2	23.9	18.4	11.2	8.3	6.9	5.3	3.6
8LE 069	3.5	3.0	2.7	4.0	10.2	23.4	19.6	10.4	7.3	6.7	5.9	3.5
8LA 007	1.5	1.4	1.3	2.6	11.9	27.1	20.8	12.6	8.3	6.5	3.8	2.1
8LA 004	2.4	2.0	1.9	4.3	14.5	31.1	15.3	7.1	6.4	6.6	5.0	3.4
8LA 008	2.7	2.6	2.7	5.8	24.4	29.6	11.1	5.3	3.8	4.8	4.0	3.1
8LA 001	1.7	1.6	1.5	3.3	17.3	27.6	17.8	10.5	7.1	5.7	3.6	2.2
8LB 064	1.8	1.7	1.7	4.0	14.2	26.7	18.4	10.6	7.6	6.7	4.2	2.4
8LG 007	3.0	4.2	3.5	8.1	23.3	31.3	10.2	3.2	2.3	3.3	3.6	3.8
8LG 006	3.0	3.6	3.2	8.3	28.7	30.3	8.8	2.5	2.2	2.9	3.4	3.1
8LF 051	2.5	2.3	2.2	3.9	14.7	25.9	18.0	9.8	6.9	6.0	4.7	3.2
8LC 002	3.8	3.5	3.3	6.3	15.4	26.6	13.9	6.9	5.8	5.8	4.6	4.1
8LC 004	1.4	1.6	2.4	16.5	27.5	26.9	7.7	3.9	5.0	3.4	2.0	1.6
8LA 006	2.8	2.6	2.7	8.0	24.5	25.2	11.1	4.4	4.4	5.2	5.3	3.7
8LA 009	1.7	1.5	1.4	2.8	11.9	24.9	19.7	14.8	7.5	7.4	4.2	2.2
8LA 013	1.7	1.4	1.2	2.7	10.4	22.9	21.4	16.7	8.9	6.9	3.6	2.2
8LE 031	3.0	2.6	2.8	4.2	14.4	29.1	17.5	8.3	4.9	4.7	4.6	3.7
8LE 020	3.0	2.8	3.6	7.1	33.2	21.3	7.7	4.1	4.3	5.2	4.4	3.4
8LE 024	1.6	1.6	1.6	9.6	24.6	25.1	12.8	5.9	4.4	5.8	4.7	2.3
8LB 050	1.5	1.4	2.0	9.1	33.1	29.8	5.3	3.8	3.6	5.0	3.5	2.0
8LB 022	1.7	1.5	1.7	3.7	25.8	26.8	14.7	8.8	5.9	4.5	3.0	1.9
8LB 047	1.5	1.3	1.4	4.5	12.3	26.1	20.2	13.4	7.0	6.3	3.6	2.3
8LB 017	.9	.8	.7	7.4	46.6	24.0	8.7	3.4	2.1	3.0	1.6	.8
8LB 020	1.7	1.5	1.4	3.0	17.4	40.5	17.4	5.3	5.6	1.9	2.2	1.8
8LF 007	1.2	1.1	1.1	9.7	34.0	34.2	6.2	2.2	3.6	3.3	2.2	1.2
8LF 015	2.6	2.6	4.0	9.1	17.9	36.7	8.8	4.0	4.7	3.7	3.3	2.8
8LF 060	3.2	4.0	4.0	9.9	19.2	21.8	13.4	8.0	6.0	4.1	3.4	2.8
8LF 033	2.7	2.5	2.4	3.6	11.7	26.3	17.9	10.5	6.8	6.9	5.2	3.5
8LF 027	2.3	2.5	2.6	8.6	38.4	23.8	7.9	2.6	2.5	3.2	3.1	2.5
8LF 061	2.5	2.3	3.1	7.3	17.2	37.2	10.7	4.5	5.1	3.9	3.4	2.8
8LF 062	2.8	3.5	3.3	7.8	19.2	26.0	14.6	8.6	6.0	2.9	2.9	2.5
8LG 004	3.5	4.7	3.7	12.1	24.9	27.7	9.1	2.3	2.8	2.6	4.0	2.8
8LG 010	3.8	6.3	3.7	9.5	24.5	27.7	8.4	2.2	1.6	4.0	4.1	4.1
8KA 008	1.1	.9	.7	1.7	10.9	26.0	24.4	16.0	8.4	5.6	2.8	1.4
8KA 007	1.3	1.1	.9	1.3	10.7	28.3	23.6	14.0	8.6	5.5	2.9	1.8
8KA 005	1.5	1.6	1.4	2.4	9.0	24.4	23.7	16.0	8.8	5.9	3.5	1.9
8KD 004	3.1	3.0	2.8	7.4	20.5	19.8	9.4	6.0	7.8	9.9	6.4	4.0
8KD 003	2.6	2.4	2.6	11.1	26.0	16.6	7.0	6.7	6.9	8.7	5.8	3.5

TABLE I-6

AVERAGE MONTHLY RUNOFF AS PERCENTAGE OF ANNUAL TOTAL

STATION	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
8KC 001	2.8	2.7	3.1	18.3	36.6	12.8	5.0	3.8	2.5	3.8	5.0	3.6
8JE 001	4.2	3.5	2.9	3.3	8.2	17.8	19.5	13.9	9.3	6.7	5.7	4.9
8JB 002	3.8	3.4	2.9	3.5	14.1	23.4	18.3	10.7	6.7	4.7	4.3	4.0
8JB 003	3.9	3.5	3.2	4.9	18.4	22.0	15.2	9.8	6.1	4.8	4.1	4.1
8KD 001	3.4	3.2	2.8	5.3	14.6	22.8	12.5	8.9	7.4	8.2	6.6	4.4
7EE 002	2.1	2.2	2.0	4.9	22.7	28.4	10.8	5.7	5.0	7.9	5.6	2.7
8NM 127	4.0	6.8	9.3	11.4	17.7	18.1	6.7	4.1	5.6	6.8	4.8	4.6
7EF 001	2.0	1.6	1.5	2.6	15.1	36.1	11.3	7.1	5.3	6.2	7.6	3.6
7FD 002	1.7	1.4	1.3	1.9	29.1	25.7	15.0	8.2	5.1	6.1	2.9	1.8
0AC 003	2.5	2.5	1.8	1.6	10.8	39.6	15.4	5.8	5.8	6.9	4.5	2.8
0CB 001	1.5	1.5	1.5	1.8	9.0	34.7	20.5	9.9	10.2	4.9	2.8	1.8
0CD 001	.9	.8	.8	3.0	12.6	22.9	23.3	13.8	11.3	6.3	3.2	1.2
8MH 001	7.0	6.5	4.6	6.8	12.7	16.8	11.2	5.8	4.6	7.2	8.3	8.4
8MG 005	2.0	2.1	1.8	3.4	9.3	17.9	19.0	15.8	16.6	6.4	3.4	2.3
8MG 008	2.9	3.4	2.7	4.9	14.7	24.7	18.2	8.8	5.2	6.0	4.8	3.8
8MG 013	5.0	4.6	3.2	4.5	9.8	18.7	16.4	10.8	7.1	7.1	7.0	5.9
8MH 038	10.8	10.2	6.5	9.9	9.3	7.6	3.7	2.8	4.0	9.8	12.2	13.1
8MH 040	8.0	8.5	4.8	8.0	10.7	12.3	8.1	4.6	4.9	10.0	10.4	9.9
8GD 004	2.3	2.1	1.6	2.8	7.7	18.0	23.4	18.8	10.0	7.4	3.2	2.8
8FB 002	2.8	2.7	1.9	2.9	10.1	19.2	18.3	15.2	9.1	8.4	5.4	4.0
8EE 004	3.0	2.3	1.8	4.4	17.4	22.4	15.2	9.3	6.1	6.9	6.9	4.3
8EC 001	4.0	3.4	2.9	3.0	10.1	20.9	17.7	12.2	8.1	6.8	5.9	4.9
8EF 001	2.0	2.0	1.6	3.7	16.3	26.1	17.0	8.3	6.1	8.0	5.6	3.5
8EF 003	2.6	2.2	2.0	4.0	15.7	20.1	15.5	9.1	7.7	10.5	6.2	4.2
8DB 001	2.0	1.8	1.3	3.1	12.6	22.8	19.4	12.2	8.2	10.0	4.7	2.0
8CE 001	1.7	1.3	1.3	2.6	14.7	32.8	18.4	7.9	7.1	7.1	3.3	1.8
9AA 006	4.8	3.9	3.2	2.6	2.9	6.2	12.0	18.4	18.1	13.0	8.6	6.2
9AA 010	.9	.6	.5	.7	9.0	27.1	23.2	16.7	10.8	6.8	2.3	1.4
9AB 001	4.0	3.5	2.9	2.6	3.6	10.9	15.7	17.6	16.2	11.8	6.6	4.7
9AE 001	2.8	2.3	2.1	2.1	6.8	27.6	21.2	10.8	8.5	7.5	4.8	3.4
9AC 001	1.8	1.4	1.3	1.5	3.3	17.2	24.7	21.0	13.5	7.9	4.0	2.5
8HA 001	15.9	13.8	9.8	11.2	7.0	3.1	.9	.6	.7	6.5	12.7	17.6
8HB 014	16.8	12.6	9.3	8.5	3.9	2.4	1.4	1.2	2.3	10.6	12.9	17.9
8KA 004	1.9	1.9	1.7	4.4	15.0	23.5	17.5	11.0	8.5	7.5	4.5	2.5
8KB 001	2.0	2.0	1.8	5.7	17.0	21.9	15.3	10.4	8.2	7.8	5.2	2.6
8JC 001	4.6	4.4	4.7	5.8	13.3	13.3	11.5	10.6	10.9	8.5	7.4	5.1
8NH 001	1.5	1.5	1.4	3.5	14.2	26.3	21.3	13.0	7.0	4.9	3.2	2.0
8NH 007	2.0	1.9	1.8	4.4	16.7	29.0	18.4	8.7	5.5	5.2	3.9	2.6
8NP 001	1.5	1.6	1.5	7.0	33.6	32.0	9.0	3.2	2.7	3.3	2.7	1.9

TABLE I-6

AVERAGE MONTHLY RUNOFF AS PERCENTAGE OF ANNUAL TOTAL

STATION	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
8JC 002	4.3	4.0	4.0	5.5	11.8	14.8	14.4	11.7	10.2	7.8	6.7	4.9
8KE 015	2.0	2.4	2.6	29.0	16.1	7.9	3.6	6.6	8.1	10.0	8.9	2.9
8KH 001	2.9	2.5	2.3	3.4	10.5	21.4	18.9	11.2	8.9	7.6	6.1	4.2
8ME 001	1.6	2.8	1.9	2.4	8.4	24.7	24.1	15.5	8.7	5.2	2.6	2.1
8MF 040	3.0	3.0	2.9	5.9	14.5	19.7	15.6	10.9	8.4	7.4	5.3	3.5
8MF 003	7.8	7.6	4.5	9.0	15.4	18.7	8.4	3.1	3.4	6.3	7.4	8.3
8MF 005	3.1	2.8	2.7	5.4	15.4	21.6	15.6	9.8	7.7	7.0	5.3	3.7
8KD 001	3.4	3.2	2.8	5.3	14.6	22.8	12.5	8.9	7.4	8.2	6.6	4.4
8NA 045	3.1	3.0	2.9	3.2	9.7	28.7	21.1	9.6	6.2	5.1	4.0	3.3
8NA 011	1.3	1.2	1.1	2.1	14.6	29.2	23.1	13.3	6.4	3.9	2.1	1.5
8NA 002	2.0	1.9	1.9	3.0	10.2	26.3	23.5	14.1	7.4	4.6	2.9	2.2
8NB 005	1.7	1.6	1.7	3.0	11.9	26.8	22.3	14.5	7.4	4.5	2.8	2.0
8NB 006	1.6	1.5	1.5	3.2	12.5	24.6	23.4	14.8	7.7	4.6	2.7	1.9
8ND 011	1.6	1.6	1.5	3.3	13.3	24.7	21.8	14.2	7.9	5.1	3.1	2.0
8ND 006	1.6	1.6	1.5	3.3	13.2	25.7	21.8	13.9	7.4	5.0	3.0	2.0
8NE 001	1.5	1.4	1.5	4.7	15.4	24.6	20.3	12.6	7.3	5.5	3.2	2.0
8NE 077	1.5	1.4	1.5	6.7	34.4	31.5	8.1	3.3	3.3	3.6	2.8	1.9
8NJ 014	2.6	2.3	2.3	4.3	15.3	29.7	17.7	8.0	5.4	5.0	4.3	3.1
8NJ 013	2.2	2.1	2.0	6.0	20.3	30.6	15.2	6.2	4.5	4.4	3.8	2.7
8NE 049	2.4	2.5	2.6	4.3	13.4	26.4	19.4	11.2	6.3	5.0	3.8	2.7
8NE 074	2.0	2.3	3.1	13.4	34.9	26.4	5.8	2.0	2.1	2.9	2.8	2.3
8NE 039	1.3	1.7	3.8	21.0	43.0	19.4	3.3	1.1	1.0	1.3	1.5	1.5
8NN 013	1.1	1.2	1.7	12.1	38.3	28.8	6.4	2.3	2.3	2.5	1.9	1.3
8NN 012	1.3	1.5	2.5	14.0	37.2	27.1	6.5	2.1	2.0	2.3	2.0	1.5
8NF 001	.4	.2	.2	1.6	23.0	37.0	19.4	8.1	4.6	3.2	1.4	.7
8MG 053	1.9	1.8	1.8	2.9	14.8	32.3	19.0	9.2	6.4	4.7	3.1	2.2
8NG 046	1.0	.9	1.0	3.3	15.7	23.2	9.9	36.1	2.9	2.8	1.9	1.3
8NG 012	1.5	1.4	1.4	4.8	25.6	35.2	13.4	4.8	4.1	3.5	2.6	1.8
8NG 002	1.9	1.9	2.0	7.3	26.0	29.9	12.8	5.1	4.3	3.7	2.9	2.2
8NG 005	1.9	1.8	1.9	4.1	19.1	32.0	16.5	7.4	5.4	4.5	3.2	2.3
8NK 016	1.7	1.6	1.5	3.1	20.5	33.4	17.3	7.4	4.7	3.9	3.0	2.0
8NK 012	1.7	2.2	2.1	6.8	21.3	32.2	13.7	5.9	4.1	4.1	3.4	2.3
8NK 005	2.1	2.4	2.3	6.8	25.0	30.9	11.9	4.9	3.9	3.9	3.3	2.6
8NG 042	5.0	5.0	5.8	12.7	5.2	7.9	3.8	16.7	12.6	10.9	8.3	6.0
8NH 034	1.3	1.2	1.4	6.8	29.0	21.3	4.0	1.1	.9	13.9	2.0	17.2
8NH 006	1.7	2.0	2.9	15.1	40.8	23.7	4.3	1.4	1.3	2.0	2.6	2.3
8NH 032	2.0	2.1	2.4	9.6	37.3	29.8	5.0	1.5	1.7	3.0	3.2	2.5
8NH 021	5.2	5.8	6.7	2.0	5.3	6.2	26.7	11.6	8.6	8.3	7.5	6.2
8NH 004	1.7	1.9	2.7	11.8	35.2	29.3	5.8	1.9	2.2	2.7	2.6	2.0

TABLE I-6

AVERAGE MONTHLY RUNOFF AS PERCENTAGE OF ANNUAL TOTAL

STATION	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
8NL 023	2.6	3.0	6.4	18.5	39.9	16.7	3.6	1.8	1.2	1.1	2.4	2.9
8NL 024	2.7	2.5	2.1	9.1	33.8	29.0	6.1	1.6	1.7	3.5	4.5	3.3
8NL 007	2.2	2.3	2.0	6.4	29.0	33.3	9.7	2.7	2.2	3.3	3.8	3.1
8NL 004	1.6	1.6	1.6	3.9	26.8	37.0	12.3	4.4	3.2	2.9	2.7	2.1
8NL 010	2.2	2.2	2.5	5.0	29.2	32.6	10.0	4.4	3.1	2.8	3.1	2.8
8NL 022	2.6	2.7	2.5	5.6	27.3	33.3	10.0	3.2	2.5	3.2	3.6	3.4
8NM 050	6.4	7.0	7.5	8.6	9.5	11.9	10.9	9.2	8.9	6.9	6.7	6.7

TABLE I-6

SOUTH THOMPSON RIVER BASIN
METEOROLOGICAL STATION DATA

	STATION	MEAN ANNUAL TEMP. (°F.)	MEAN ANNUAL PRECIPITATION (inch)	STATION ELEVATION (ft.)	AVERAGE LAND SLOPE HORTON (ft./mi.)	AVERAGE LAND SLOPE SOLOMON (ft./mi.)	DISTANCE TO BARRIER (km.)	LATITUDE INDEX (km.)	BARRIER HEIGHT (ft.)	SHIELD EFFECT (ft.)
1	Armstrong	45.0	18.82	1,190	506	587	201	151	4,790	9,600
2	Barriere	44.5	14.23	1,280	695	479	217	235	6,690	11,100
3	Blue River	40.0	48.67	2,240	822	570	333	335	6,430	10,300
4	Chase	45.9	15.36	1,160	822	304	208	193	7,420	7,400
5	Chute Lake	39.1	23.29	3,920	885	540	127	73	3,380	8,000
6	Darfield	-	16.40	1,250	695	404	225	249	6,600	11,500
7	Eagle Bay	-	24.14	1,180	822	431	241	204	7,320	7,400
8	Falkland (Salmon R.)	44.6	18.39	1,500	758	378	194	153	5,210	10,300
9	Faquier	45.8	25.07	1,600	1,454	832	208	85	4,010	16,400
10	Gerrard	43.2	34.37	2,350	2,149	1,159	299	155	4,290	18,100
11	Glacier	37.2	57.11	4,090	2,402	1,069	350	239	3,320	12,500
12	Glacier Avalanche	36.5	69.71	3,860	2,655	955	348	237	3,440	7,400
13	Heffley Creek	42.1	12.87	2,240	442	771	184	199	6,830	8,300
14	Hemp Creek	39.5	23.77	2,100	822	523	277	314	7,390	9,600
15	Joe Rich Creek	40.3	22.92	2,870	885	532	154	86	3,300	7,600
16	Kamloops A	47.4	10.05	1,130	632	420	164	182	7,510	7,600
17	Kelowna	46.2	11.54	1,590	316	230	141	86	5,030	6,700
18	Lumby	44.0	17.33	1,700	758	315	195	128	4,080	7,300
19	Mable Lake	-	21.20	1,310	1,138	607	210	136	3,560	10,600
20	Malakwa	-	35.02	1,200	1,074	961	261	204	5,940	7,500
21	McCulloch	37.0	25.08	4,100	253	287	147	77	2,920	8,900
22	Monte Lake	-	14.51	2,240	822	400	176	160	5,660	9,000
23	Needles	-	26.06	1,420	822	396	207	85	5,330	16,400
24	Okanagan Centre	48.0	12.66	1,155	506	275	155	107	4,600	7,300
25	Revelstoke	45.1	43.17	1,500	1,264	679	295	201	6,470	7,200
26	Richland	43.8	25.53	2,350	948	527	215	126	3,480	9,600
27	Salmon Arm	46.0	21.29	1,660	822	600	217	179	7,340	11,000
28	Sicamous	46.0	25.93	1,400	885	542	243	193	7,240	11,000
29	Sidmouth	43.0	43.16	1,410	1,074	720	284	180	6,210	17,400
30	Shuswap Falls	-	21.10	1,450	1,011	376	206	133	3,990	7,600
31	Sorrento	-	21.15	1,280	442	595	223	199	7,500	7,400
32	Sugar Lake	43.0	30.53	2,000	1,390	615	224	139	2,700	10,600
33	Tappen	45.1	20.13	1,450	822	600	221	188	7,030	10,400
34	Vavenby	43.4	17.05	1,465	1,138	538	269	279	6,310	16,000
35	Vernon (Coldstream)	45.4	15.28	1,580	1,074	648	182	131	3,810	7,800
36	Vinsulla	-	12.90	1,170	948	600	190	206	6,590	9,400
37	Westwold	43.6	12.63	2,025	1,074	564	176	154	5,290	8,800

TABLE II-1

PHYSIOGRAPHIC DATA FOR GRID SQUARES

SQUARE NO.	AVERAGE ELEVATION (ft.)	AVERAGE LAND SLOPE HORTON (ft./mi.)	AVERAGE LAND SLOPE SOLOMON (ft./mi.)	DISTANCE TO BARRIER (km.)	LATITUDE INDEX (km.)	SHIELD EFFECT (ft.)	AREA OF SQUARE IN BASIN (sq.km.)	AREA OF LAKE IN SQUARE (sq.km.)
1	3,944	190	202	160	135	6,722	4.37	1.00
2	4,233	316	193	168	145	6,712	6.25	6.45
3	3,689	126	192	160	125	6,466	9.37	10.48
4	3,500	126	93	168	135	6,589	96.87	7.26
5	4,233	695	254	176	145	6,744	96.87	2.42
6	4,533	316	222	184	155	6,722	35.62	2.42
7	3,478	695	255	193	165	7,000	22.50	7.66
8	2,333	632	419	201	175	7,066	9.37	0.80
9	3,500	506	466	209	185	7,466	2.50	0.00
10	4,878	885	299	168	125	6,267	5.62	0.80
11	4,111	1,011	295	176	135	6,755	95.62	0.80
12	3,700	1,138	272	184	145	11,211	100.00	1.61
13	3,756	1,264	428	192	155	6,789	100.00	3.63
14	3,178	695	522	201	165	6,789	100.00	0.00
15	2,100	506	535	209	175	7,200	97.50	6.45
16	3,189	885	274	217	185	7,311	66.25	3.63
17	3,744	1,391	352	225	195	7,611	13.75	2.82
18	4,578	1,138	529	234	205	8,234	7.50	0.00
19	4,533	1,327	520	242	215	8,522	7.50	0.00
20	3,733	1,138	647	250	225	11,200	70.50	0.80
21	3,433	569	484	258	235	10,677	21.70	2.82
22	5,111	1,580	200	184	135	6,400	77.50	1.21
23	4,211	948	387	192	145	11,422	99.37	1.21
24	3,011	1,075	564	200	155	11,068	100.00	0.00
25	3,489	759	365	209	165	6,789	100.00	0.80
26	3,000	1,075	629	217	175	7,045	100.00	1.21
27	2,444	1,075	634	225	185	7,356	100.00	10.08
28	2,856	253	487	233	195	7,556	94.37	9.68
29	3,889	1,264	506	241	205	7,900	95.62	0.00
30	3,578	1,327	656	250	215	8,411	81.87	14.11
31	3,422	2,023	687	258	225	8,389	100.00	17.74
32	3,933	1,138	456	266	235	11,100	37.50	5.65
33	4,411	948	340	200	145	11,289	13.75	2.82
34	3,322	1,391	523	208	155	6,744	93.12	0.00
35	3,844	1,327	413	216	165	10,966	100.00	2.02
36	3,867	1,580	361	225	175	6,867	100.00	0.00
37	3,322	1,643	445	233	185	7,122	100.00	0.00
38	2,022	632	316	241	195	7,477	100.00	21.77
39	2,633	1,770	847	249	205	7,833	100.00	5.65
40	4,056	1,454	751	258	215	8,278	100.00	2.42
41	3,100	1,201	1,044	266	225	8,345	100.00	25.00
42	3,278	948	612	274	235	10,999	93.12	7.50
43	4,278	1,201	304	282	245	10,711	20.00	0.00
44	5,256	1,201	527	299	265	14,333	21.87	1.21
45	3,511	1,643	624	208	145	11,522	25.62	0.00
46	3,322	1,707	781	216	155	11,211	100.00	0.80
47	4,211	1,075	496	224	165	11,089	100.00	4.44
48	4,222	948	706	233	175	7,000	100.00	1.61
49	3,689	1,138	330	241	185	7,156	100.00	1.61
50	2,178	1,327	539	249	195	7,311	100.00	4.44
51	2,200	1,075	446	257	205	7,655	100.00	18.54
52	4,067	1,011	599	265	215	8,167	100.00	0.00
53	4,000	1,201	659	274	225	8,522	100.00	0.00
54	3,089	759	741	282	235	11,200	28.63	100.00
55	3,222	1,327	723	290	245	10,633	30.24	88.12
56	4,711	948	254	298	255	13,411	6.45	53.75
57	3,589	1,580	635	307	265	14,477	0.00	96.87
58	4,189	1,011	561	315	275	11,200	1.21	74.37
59	2,256	695	486	216	145	11,278	2.02	18.50
60	2,544	758	300	224	155	11,288	1.21	66.87
61	2,911	1,327	160	232	165	11,134	1.21	75.00
62	2,600	948	539	241	175	10,888	1.61	95.62
63	2,422	948	622	249	185	10,901	24.19	100.00
64	2,211	695	519	257	195	7,389	2.82	100.00
65	1,767	442	356	265	205	7,556	34.27	100.00
66	3,200	2,212	531	273	215	7,900	0.00	100.00
67	4,489	1,643	653	282	225	8,411	0.00	100.00

TABLE II-2

SQUARE NO.	AVERAGE ELEVATION (ft.)	AVERAGE LAND SLOPE HORTON (ft./mi.)	SOLOMON (ft./mi.)	DISTANCE TO BARRIER (km.)	LATITUDE INDEX (km.)	SHIELD EFFECT (ft.)	AREA OF SQUARE IN BASIN (sq.km.)	AREA OF LAKE IN SQUARE (sq.km.)
68	5,311	2,023	566	290	235	8,389	1.21	100.00
69	3,567	1,138	771	298	245	10,677	6.85	100.00
70	3,078	1,391	578	306	255	10,411	8.87	100.00
71	3,156	1,580	863	315	265	13,767	2.42	100.00
72	4,200	1,454	911	323	275	14,734	1.61	71.25
73	4,000	1,011	530	331	285	14,499	1.61	0.62
74	4,578	190	126	191	105	7,011	10.48	21.75
75	4,378	253	159	198	115	7,456	12.90	32.50
76	2,911	1,075	733	224	145	11,345	1.21	25.62
77	1,622	569	331	232	155	11,289	1.21	46.62
78	2,144	759	364	240	165	11,289	5.65	61.75
79	2,433	859	501	248	175	10,966	1.61	88.12
80	2,489	1,011	732	257	185	10,723	24.19	100.00
81	3,000	1,327	553	265	195	7,122	3.63	100.00
82	2,178	822	431	273	205	7,589	30.65	100.00
83	4,078	1,643	593	281	215	7,889	0.00	100.00
84	5,078	1,391	715	290	225	8,322	0.00	100.00
85	5,500	1,327	488	298	235	8,345	0.00	100.00
86	3,656	1,327	606	306	245	10,999	4.03	100.00
87	4,100	1,580	736	314	255	10,488	2.42	100.00
88	3,889	1,011	518	322	265	13,767	4.84	100.00
89	3,300	1,264	424	331	275	14,333	2.82	100.00
90	3,867	1,517	891	347	285	14,733	0.00	71.87
91	3,733	1,580	1,104	347	295	14,678	0.80	40.62
92	3,989	1,580	728	355	305	15,300	4.84	21.25
93	4,089	1,264	812	364	315	12,156	2.82	3.12
94	4,978	506	260	199	105	6,966	3.23	31.10
95	4,289	759	227	207	115	7,355	9.68	100.00
96	2,744	822	489	215	125	7,667	0.40	72.50
97	3,378	695	401	223	135	10,833	0.40	48.12
98	3,933	1,391	359	232	145	11,223	0.00	95.00
99	2,633	1,201	715	240	155	11,389	0.00	100.00
100	2,567	1,454	573	248	165	11,045	5.24	100.00
101	3,189	1,138	877	256	175	11,144	4.84	100.00
102	2,444	1,327	892	265	185	11,022	22.18	100.00
103	2,144	379	503	273	195	7,156	33.87	100.00
104	2,089	442	739	281	205	7,444	37.09	100.00
105	2,711	569	556	289	215	7,877	23.39	100.00
106	3,489	1,264	821	297	225	8,145	17.34	100.00
107	3,633	1,264	664	306	235	8,522	4.84	100.00
108	3,500	1,201	945	314	245	8,034	5.65	100.00
109	4,522	1,327	675	322	255	10,633	2.02	100.00
110	4,400	1,011	397	330	265	13,411	1.61	100.00
111	4,811	1,770	619	339	275	14,477	6.45	100.00
112	4,544	3,224	636	347	285	11,200	2.42	100.00
113	4,856	2,844	959	355	295	14,778	0.00	100.00
114	4,378	2,149	750	363	305	14,955	3.63	100.00
115	4,700	1,517	1,101	371	315	12,156	3.63	83.12
116	5,000	2,212	846	380	325	12,444	2.42	64.37
117	5,378	2,212	814	388	335	12,133	4.44	20.62
118	5,722	506	246	207	105	6,956	4.84	49.25
119	4,656	1,327	464	215	115	7,267	0.80	100.00
120	2,889	569	481	223	125	7,489	1.61	100.00
121	2,567	948	297	231	135	10,578	0.80	100.00
122	2,933	632	278	240	145	10,001	1.21	100.00
123	2,800	1,264	575	248	155	11,278	0.00	100.00
124	3,078	1,517	701	256	165	11,288	3.23	100.00
125	4,944	1,517	547	264	175	11,134	0.00	100.00
126	4,678	1,327	611	272	185	10,888	2.82	100.00
127	3,167	1,517	890	281	195	7,200	5.24	100.00
128	3,567	1,075	822	289	205	7,311	3.63	100.00
129	3,356	1,391	934	297	215	7,556	20.16	100.00
130	2,356	1,517	552	305	225	7,900	18.95	100.00
131	2,489	1,011	498	314	235	8,322	16.93	100.00
132	2,800	1,011	703	322	245	8,389	1.61	100.00
133	3,989	1,770	858	330	255	10,677	1.61	100.00
134	5,200	1,264	323	338	265	10,411	1.61	100.00

TABLE II-2

SQUARE NO.	AVERAGE ELEVATION (ft.)	AVERAGE LAND SLOPE HORTON (ft./mi.)	AVERAGE LAND SLOPE SOLOMON (ft./mi.)	DISTANCE TO BARRIER (km.)	LATITUDE INDEX (km.)	SHIELD EFFECT (ft.)	AREA OF SQUARE IN BASIN (sq. km.)	AREA OF LAKE IN SQUARE (sq. km.)
135	5,433	2,781	793	346	275	13,756	5.24	100.00
136	5,422	1,580	323	355	285	14,734	4.44	83.75
137	6,133	2,465	969	363	295	14,555	0.80	87.50
138	5,756	2,718	1,117	371	305	14,900	1.61	47.50
139	6,189	2,908	823	379	315	15,244	1.61	63.12
140	5,867	2,908	672	388	325	12,555	1.61	71.25
141	6,033	2,592	559	396	335	12,267	0.80	35.00
142	5,633	190	174	215	105	7,289	4.84	38.70
143	4,456	758	579	223	115	7,011	4.03	100.00
144	3,422	1,138	459	231	125	7,456	4.84	100.00
145	3,200	1,327	640	239	135	10,589	3.23	100.00
146	2,789	1,201	429	247	145	11,011	7.26	100.00
147	3,089	1,580	776	256	155	11,367	25.40	100.00
148	2,489	1,075	271	264	165	11,244	19.35	100.00
149	3,089	1,327	481	272	175	11,090	1.61	100.00
150	4,900	1,833	792	280	185	10,966	0.80	100.00
151	4,489	1,707	899	289	195	10,856	0.80	100.00
152	3,356	1,391	961	297	205	7,333	2.42	100.00
153	3,967	2,086	920	305	215	7,589	0.00	100.00
154	4,300	3,160	775	313	225	7,889	0.00	100.00
155	5,167	3,097	475	321	235	8,189	0.00	100.00
156	4,900	2,086	651	330	245	8,322	2.42	100.00
157	4,222	1,770	509	338	255	10,655	3.23	100.00
158	5,122	2,149	816	346	265	10,532	2.82	96.87
159	5,711	1,707	475	354	275	13,767	6.45	35.00
160	5,633	2,275	396	363	285	14,489	2.42	9.37
161	5,111	1,896	837	396	325	12,244	0.00	8.12
162	5,422	2,971	641	404	335	12,600	0.00	3.75
163	4,944	569	317	222	105	7,322	0.80	0.62
164	3,756	1,896	728	231	115	7,011	0.00	95.00
165	3,089	759	427	239	125	7,355	1.21	100.00
166	3,444	1,327	626	247	135	7,667	2.42	100.00
167	4,056	1,391	575	255	145	10,833	2.02	100.00
168	4,944	1,075	480	264	155	11,256	0.00	100.00
169	4,467	2,465	696	272	165	11,389	4.44	100.00
170	3,677	2,339	719	280	175	11,178	15.32	100.00
171	3,256	1,327	744	288	185	11,144	1.21	100.00
172	4,489	1,833	1,036	297	195	11,022	0.80	100.00
173	3,989	2,023	799	305	205	7,066	0.00	100.00
174	3,256	1,833	1,000	313	215	7,444	0.00	100.00
175	4,500	2,339	881	321	225	7,877	1.21	100.00
176	6,156	3,413	239	329	235	8,278	2.02	100.00
177	6,256	3,160	442	338	245	8,345	0.80	88.75
178	5,189	1,770	442	346	255	8,034	6.45	84.37
179	5,467	2,655	635	354	265	10,633	2.02	26.25
180	3,822	2,149	761	239	115	6,956	0.00	66.87
181	3,533	1,391	461	247	125	7,267	0.00	100.00
182	4,422	1,770	721	255	135	7,489	2.42	100.00
183	4,044	1,391	703	263	145	10,578	23.79	100.00
184	4,311	1,770	786	272	155	11,001	4.03	100.00
185	4,822	1,075	564	280	165	11,522	1.21	100.00
186	5,522	2,212	423	288	175	11,288	0.80	100.00
187	4,856	1,896	750	296	185	11,011	1.61	100.00
188	4,144	1,833	1,118	304	195	10,922	2.42	100.00
189	4,200	2,086	870	313	205	7,200	3.23	100.00
190	4,889	1,707	751	321	215	7,311	2.02	96.87
191	5,956	2,275	1,006	329	225	7,556	3.23	65.62
192	7,067	2,149	432	337	235	8,234	0.00	12.50
193	6,489	2,465	752	346	245	8,522	0.80	6.25
194	5,178	1,770	300	247	115	7,289	0.00	38.12
195	5,200	2,592	591	255	125	7,344	0.00	97.50
196	4,756	1,580	399	263	135	7,456	0.40	89.37
197	5,089	2,275	644	271	145	10,589	1.21	93.75
198	4,478	1,707	931	279	155	11,011	2.02	100.00
199	4,467	2,781	797	288	165	11,278	0.40	100.00
200	4,756	1,770	625	296	175	11,422	2.02	100.00
201	5,578	2,212	885	304	185	11,068	4.03	100.00

TABLE II-2

SQUARE NO.	AVERAGE ELEVATION (ft.)	AVERAGE LAND SLOPE HORTON (ft./mi.)	AVERAGE LAND SLOPE SOLOMON (ft./mi.)	DISTANCE TO BARRIER (km.)	LATITUDE INDEX (km.)	SHIELD EFFECT (ft.)	AREA OF SQUARE IN BASIN (sq. km.)	AREA OF LAKE IN SQUARE (sq. km.)
202	5,344	3,097	523	312	195	10,922	2.02	92.50
203	4,878	1,959	671	321	205	10,856	1.61	55.00
204	4,633	2,149	626	329	215	7,333	0.00	1.87
205	4,711	1,959	661	254	115	7,322	0.00	1.25
206	5,667	3,540	669	263	125	7,011	2.42	5.00
207	4,900	2,023	872	279	145	7,667	0.80	10.00
208	6,244	1,580	680	287	155	10,922	6.00	47.50
209	5,744	3,287	1,297	296	165	11,366	2.02	69.37
210	5,911	2,592	921	304	175	11,289	4.43	56.25
211	5,467	2,465	854	312	185	11,233	0.00	20.62
212	4,200	2,592	465	302	195	10,966	0.80	3.75

TABLE II-2

SUB BASINS

AREAS OF GRID SQUARES

SQ. NO.	AREA OF SQUARE IN SUB-BASIN (SQ.KM.)				
	SUGAR LAKE	MABLE LAKE	ADAMS LAKE	SHUSWAP LAKE	TOTAL
1	-	-	-	4.37	4.37
2	-	-	-	6.25	6.25
3	-	-	-	9.37	9.37
4	-	-	-	96.87	96.87
5	-	-	-	96.87	96.87
6	-	-	-	35.62	35.62
7	-	-	-	22.50	22.50
8	-	-	-	9.37	9.37
9	-	-	-	2.50	2.50
10	-	-	-	5.62	5.62
11	-	-	-	95.62	95.62
12	-	-	-	100.00	100.00
13	-	-	-	100.00	100.00
14	-	-	-	100.00	100.00
15	-	-	-	97.50	97.50
16	-	-	-	66.25	66.25
17	-	-	-	13.75	13.75
18	-	-	0.62	6.88	7.50
19	-	-	7.50	-	7.50
20	-	-	70.50	-	70.50
21	-	-	21.70	-	21.70
22	-	-	-	77.50	77.50
23	-	-	-	99.37	99.37
24	-	-	-	100.00	100.00
25	-	-	-	100.00	100.00
26	-	-	-	100.00	100.00
27	-	-	-	100.00	100.00
28	-	-	-	94.37	94.37
29	-	-	20.62	75.00	95.62
30	-	-	81.87	-	81.87
31	-	-	100.00	-	100.00
32	-	-	37.50	-	37.50
33	-	-	-	13.75	13.75
34	-	-	-	93.12	93.12
35	-	-	-	100.00	100.00
36	-	-	-	100.00	100.00
37	-	-	-	100.00	100.00
38	-	-	-	100.00	100.00
39	-	-	18.75	81.25	100.00
40	-	-	56.25	43.75	100.00
41	-	-	98.13	1.87	100.00
42	-	-	93.12	-	93.12
43	-	-	20.00	-	20.00
44	-	-	21.87	-	21.87
45	-	-	-	25.62	25.62
46	-	-	-	100.00	100.00
47	-	-	-	100.00	100.00
48	-	-	-	100.00	100.00
49	-	-	-	100.00	100.00
50	-	-	-	100.00	100.00
51	-	-	-	100.00	100.00
52	-	-	-	100.00	100.00
53	-	-	35.62	64.38	100.00
54	-	-	87.50	12.50	100.00
55	-	-	88.12	-	88.12
56	-	-	53.75	-	53.75
57	-	-	96.87	-	96.87
58	-	-	74.37	-	74.37
59	-	-	-	18.50	18.50
60	-	-	-	66.87	66.87
61	-	-	-	75.00	75.00
62	-	-	-	95.62	95.62
63	-	-	-	100.00	100.00
64	-	-	-	100.00	100.00
65	-	-	-	100.00	100.00
66	-	-	-	100.00	100.00
67	-	-	-	100.00	100.00
68	-	-	5.63	94.37	100.00
69	-	-	4.37	95.63	100.00
70	-	-	100.00	-	100.00
71	-	-	100.00	-	100.00

TABLE II-3

SQ. NO.	AREA OF SQUARE IN SUB-BASIN (SQ.KM.)				
	SUGAR LAKE	MABLE LAKE	ADAMS LAKE	SHUSWAP LAKE	TOTAL
72	-	-	71.25	-	71.25
73	-	-	0.62	-	0.62
74	-	21.75	-	-	21.75
75	-	32.50	-	-	32.50
76	-	-	-	25.62	25.62
77	-	-	-	46.62	46.62
78	-	-	-	61.75	61.75
79	-	-	-	88.12	88.12
80	-	-	-	100.00	100.00
81	-	-	-	100.00	100.00
82	-	-	-	100.00	100.00
83	-	-	-	100.00	100.00
84	-	-	-	100.00	100.00
85	-	-	-	100.00	100.00
86	-	-	55.63	44.37	100.00
87	-	-	100.00	-	100.00
88	-	-	100.00	-	100.00
89	-	-	100.00	-	100.00
90	-	-	71.87	-	71.87
91	-	-	40.62	-	40.62
92	-	-	21.25	-	21.25
93	-	-	3.12	-	3.12
94	-	31.10	-	-	31.10
95	-	100.00	-	-	100.00
96	-	72.50	-	-	72.50
97	-	48.12	-	-	48.12
98	-	13.12	-	81.88	95.00
99	-	-	-	100.00	100.00
100	-	-	-	100.00	100.00
101	-	-	-	100.00	100.00
102	-	-	-	100.00	100.00
103	-	-	-	100.00	100.00
104	-	-	-	100.00	100.00
105	-	-	-	100.00	100.00
106	-	-	-	100.00	100.00
107	-	-	-	100.00	100.00
108	-	-	3.75	96.25	100.00
109	-	-	46.87	53.13	100.00
110	-	-	100.00	-	100.00
111	-	-	100.00	-	100.00
112	-	-	100.00	-	100.00
113	-	-	100.00	-	100.00
114	-	-	100.00	-	100.00
115	-	-	83.12	-	83.12
116	-	-	64.37	-	64.37
117	-	-	20.62	-	20.62
118	-	49.25	-	-	49.25
119	-	100.00	-	-	100.00
120	-	100.00	-	-	100.00
121	-	93.75	-	6.25	100.00
122	-	36.25	-	63.75	100.00
123	-	20.00	-	80.00	100.00
124	-	-	-	100.00	100.00
125	-	-	-	100.00	100.00
126	-	-	-	100.00	100.00
127	-	-	-	100.00	100.00
128	-	-	-	100.00	100.00
129	-	-	-	100.00	100.00
130	-	-	-	100.00	100.00
131	-	-	-	100.00	100.00
132	-	-	-	100.00	100.00
133	-	-	1.25	98.75	100.00
134	-	-	37.50	62.50	100.00
135	-	-	33.13	66.87	100.00
136	-	-	28.13	55.62	83.75
137	-	-	87.50	-	87.50
138	-	-	47.50	-	47.50
139	-	-	63.12	-	63.12
140	-	-	71.25	-	71.25
141	-	-	35.00	-	35.00
142	26.20	12.50	-	-	38.70

TABLE II-3

SQ. NO.	AREA OF SQUARE IN SUB-BASIN (SQ.KM.) SUGAR LAKE	MABLE LAKE	ADAMS LAKE	SHUSWAP LAKE	TOTAL
143	48.13	51.87	-	-	100.00
144	50.62	49.38	-	-	100.00
145	40.00	60.00	-	-	100.00
146	-	100.00	-	-	100.00
147	-	87.50	-	12.50	100.00
148	-	46.87	-	53.13	100.00
149	-	11.25	-	88.75	100.00
150	-	3.75	-	96.25	100.00
151	-	-	-	100.00	100.00
152	-	-	-	100.00	100.00
153	-	-	-	100.00	100.00
154	-	-	-	100.00	100.00
155	-	-	-	100.00	100.00
156	-	-	-	100.00	100.00
157	-	-	-	100.00	100.00
158	-	-	-	96.87	96.87
159	-	-	-	35.00	35.00
160	-	-	-	9.37	9.37
161	-	-	8.12	-	8.12
162	-	-	3.75	-	3.75
163	.62	-	-	-	0.62
164	95.00	-	-	-	95.00
165	100.00	-	-	-	100.00
166	93.75	6.25	-	-	100.00
167	38.13	61.87	-	-	100.00
168	21.81	78.19	-	-	100.00
169	-	100.00	-	-	100.00
170	-	100.00	-	-	100.00
171	-	93.75	-	6.25	100.00
172	-	56.25	-	43.75	100.00
173	-	6.25	-	93.75	100.00
174	-	-	-	100.00	100.00
175	-	-	-	100.00	100.00
176	-	-	-	100.00	100.00
177	-	-	-	88.75	88.75
178	-	-	-	84.37	84.37
179	-	-	-	26.25	26.25
180	66.87	-	-	-	66.87
181	100.00	-	-	-	100.00
182	100.00	-	-	-	100.00
183	100.00	-	-	-	100.00
184	98.75	1.25	-	-	100.00
185	48.12	51.88	-	-	100.00
186	8.75	91.25	-	-	100.00
187	13.13	86.87	-	-	100.00
188	1.25	95.00	-	3.75	100.00
189	-	11.25	-	88.75	100.00
190	-	-	-	96.87	96.87
191	-	-	-	65.62	65.62
192	-	-	-	12.50	12.50
193	-	-	-	6.25	6.25
194	38.12	-	-	-	38.12
195	97.50	-	-	-	97.50
196	89.37	-	-	-	89.37
197	93.75	-	-	-	93.75
198	100.00	-	-	-	100.00
199	100.00	-	-	-	100.00
200	100.00	-	-	-	100.00
201	96.87	3.13	-	-	100.00
202	30.62	45.62	-	16.26	92.50
203	-	-	-	55.00	55.00
204	-	-	-	1.87	1.87
205	1.25	-	-	-	1.25
206	5.00	-	-	-	5.00
207	10.00	-	-	-	10.00
208	47.50	-	-	-	47.50
209	69.37	-	-	-	69.37
210	56.25	-	-	-	56.25
211	20.62	-	-	-	20.62
212	1.87	1.88	-	-	3.75
					16,447 sq.km. (6,350 sq.mi.)

TABLE II-3

ESTIMATED DISTRIBUTION
OF PRECIPITATION TEMPERATURE AND RUNOFF

SQUARE NO.	MEAN ANNUAL TEMPERATURE (Inch)	MEAN ANNUAL PRECIPITATION (Inch)	MEAN ANNUAL RUNOFF (Inch)	SQUARE NO.	MEAN ANNUAL TEMPERATURE (Inch)	MEAN ANNUAL PRECIPITATION (Inch)	MEAN ANNUAL RUNOFF (Inch)
1	37.7	11.87	2.21	61	40.5	19.01	5.27
2	36.6	11.80	2.55	62	41.4	26.91	9.99
3	38.6	12.78	2.40	63	41.8	28.50	10.87
4	39.1	9.80	1.11	64	42.3	30.72	12.21
5	36.6	14.51	4.12	65	43.6	29.79	10.49
6	35.5	14.21	4.47	66	38.9	34.12	17.87
7	38.7	14.63	3.31	67	34.6	37.53	24.23
8	42.2	17.25	3.35	68	31.9	39.72	28.40
9	38.4	19.12	6.20	69	37.3	39.56	23.92
10	34.8	17.34	7.10	70	38.7	41.26	24.10
11	37.1	16.51	5.19	71	38.3	41.65	24.87
12	38.3	13.81	2.95	72	34.9	43.61	29.38
13	38.0	18.95	6.35	73	35.3	46.49	31.20
14	39.7	20.30	6.33	74	36.1	19.20	8.35
15	43.0	20.34	4.59	75	36.6	20.08	8.60
16	39.4	17.69	4.89	76	40.8	26.47	10.22
17	37.4	20.28	7.62	77	44.8	23.42	5.39
18	34.6	24.21	12.46	78	43.0	25.17	7.65
19	34.6	25.11	13.20	79	42.0	28.44	10.75
20	37.1	25.17	11.56	80	41.6	31.19	13.24
21	37.9	25.58	11.34	81	39.8	33.99	17.06
22	33.9	16.71	7.33	82	42.3	33.70	14.61
23	36.7	17.67	6.11	83	36.1	37.88	23.43
24	40.4	19.51	5.37	84	32.8	41.01	28.97
25	38.7	20.21	6.92	85	31.3	42.22	31.22
26	40.1	23.23	8.21	86	37.0	42.39	26.51
27	41.7	23.69	7.48	87	35.5	45.45	30.61
28	40.3	23.74	8.44	88	36.0	44.77	29.23
29	36.8	25.53	12.11	89	37.7	45.85	28.76
30	37.7	27.56	13.22	90	35.8	49.67	34.08
31	38.0	28.91	14.12	91	36.1	49.38	34.04
32	36.3	27.88	14.32	92	35.1	55.90	39.95
33	36.0	18.73	7.34	93	34.6	61.54	45.75
34	39.4	23.10	8.61	94	34.8	24.53	13.49
35	37.6	20.86	7.96	95	36.8	23.47	11.07
36	37.3	23.03	9.91	96	41.6	27.38	10.36
37	38.9	24.77	10.16	97	39.5	25.76	10.68
38	42.9	23.04	6.37	98	37.6	26.31	12.50
39	40.8	27.60	11.19	99	41.6	29.35	11.84
40	36.2	30.37	16.83	100	41.6	30.20	12.37
41	39.1	28.47	13.57	101	39.5	31.42	15.39
42	38.4	31.47	15.90	102	41.7	32.68	14.51
43	35.0	30.35	17.42	103	42.6	35.78	16.05
44	31.6	36.33	25.07	104	42.6	38.29	18.17
45	38.9	22.79	8.62	105	40.5	39.66	21.29
46	39.4	23.51	8.98	106	37.8	42.14	26.00
47	36.4	24.02	11.22	107	37.2	44.82	28.68
48	36.3	28.22	15.07	108	37.5	45.80	29.71
49	37.8	25.38	11.54	109	34.1	49.01	34.85
50	42.4	28.50	10.44	110	34.4	47.36	32.88
51	42.2	28.73	10.79	111	32.9	52.15	38.33
52	36.1	32.41	18.53	112	33.6	56.97	42.33
53	36.2	34.37	20.20	113	32.5	56.26	42.79
54	39.0	34.18	17.83	114	33.9	60.31	44.98
55	38.4	36.50	20.29	115	32.7	61.96	48.26
56	33.5	32.85	20.64	116	31.6	69.24	55.26
57	36.9	38.66	23.04	117	30.2	73.47	60.31
58	34.9	43.21	28.82	118	32.4	26.65	17.36
59	42.9	23.10	6.28	119	35.7	29.80	17.21
60	41.8	21.12	5.75	120	41.2	29.37	12.32

TABLE II-4

ESTIMATED DISTRIBUTION
OF PRECIPITATION, TEMPERATURE AND RUNOFF

SQUARE NO.	MEAN ANNUAL TEMPERATURE (Inch)	MEAN ANNUAL PRECIPITATION (Inch)	MEAN ANNUAL RUNOFF (Inch)	SQUARE NO.	MEAN ANNUAL TEMPERATURE (Inch)	MEAN ANNUAL PRECIPITATION (Inch)	MEAN ANNUAL RUNOFF (Inch)
121	42.1	25.70	8.82	167	37.2	35.69	20.93
122	40.7	26.46	10.35	168	34.2	36.94	24.41
123	41.0	31.37	13.84	169	35.6	39.15	25.24
124	40.0	33.14	16.24	170	7.9	40.27	24.21
125	33.9	35.32	23.00	171	39.1	41.70	24.39
126	34.6	37.12	24.00	172	35.1	42.21	28.80
127	39.3	39.16	22.33	173	36.5	48.17	32.63
128	37.9	41.63	25.62	174	38.7	47.77	30.63
129	38.4	42.37	25.96	175	34.6	52.11	37.79
130	41.4	44.47	24.45	176	29.2	51.36	41.84
131	40.9	46.47	26.74	177	28.7	58.07	48.31
132	39.7	49.97	31.06	178	32.0	59.80	46.51
133	35.8	51.46	35.91	179	31.0	63.20	50.44
134	31.8	52.20	39.62	180	38.3	36.77	21.37
135	30.9	56.44	44.22	181	39.1	36.07	19.83
136	30.8	55.67	43.32	182	36.1	39.21	25.25
137	28.4	61.45	51.56	183	37.2	38.73	23.70
138	29.4	61.50	50.69	184	36.2	40.27	25.93
139	27.9	68.81	58.42	185	34.4	41.60	28.34
140	28.8	74.70	62.74	186	32.1	42.62	31.26
141	28.2	78.16	66.57	187	34.0	45.89	32.56
142	32.7	26.50	17.14	188	36.2	43.19	28.99
143	36.3	32.71	19.30	189	35.9	51.01	35.88
144	39.5	31.48	15.53	190	33.5	54.40	40.70
145	40.0	32.16	15.49	191	30.0	55.56	45.44
146	41.2	30.97	13.43	192	26.3	59.48	52.98
147	40.1	34.16	17.12	193	28.0	63.55	54.39
148	41.9	30.75	12.72	194	34.0	36.06	24.44
149	39.8	36.00	18.72	195	33.8	40.87	28.81
150	33.9	40.03	27.39	196	35.1	39.69	26.54
151	35.1	41.11	27.51	197	33.9	42.09	29.56
152	38.5	43.19	26.66	198	35.7	41.68	27.91
153	36.5	45.99	30.84	199	35.6	44.57	30.29
154	35.2	49.29	34.53	200	34.5	46.58	32.76
155	32.3	51.01	38.30	201	31.7	48.85	37.52
156	33.0	54.81	41.14	202	32.3	50.75	38.26
157	35.1	54.80	39.25	203	33.7	53.77	39.83
158	32.1	58.99	45.78	204	34.3	57.48	42.70
159	30.0	59.36	47.53	205	35.5	41.69	28.22
160	30.1	61.19	48.99	206	32.3	44.23	33.32
161	31.2	78.11	63.63	207	34.5	45.44	41.99
162	30.1	82.19	68.15	208	30.0	47.50	38.09
163	34.9	30.75	18.91	209	28.6		41.12
164	38.5	34.61	19.22	210	30.8	49.84	39.50
165	40.5	33.07	15.97	211	32.1	52.07	40.08
166	39.3	35.92	19.51	212	36.0	52.43	36.63

TABLE II-4

SNOW COURSE DATA

STATION	APRIL 1 WATER EQUIVALENT (inch)	ELEVATION (ft.)	AVERAGE LAND SLOPE (ft./mi.)		DISTANCE TO BARRIER (km.)	LATITUDE INDEX (km.)	BARRIER HEIGHT (ft.)	SHIELD EFFECT (ft.)
			HORTON	SOLOMON				
Albreda Mountain	26.8	6,300	2,971	505	373	381	7,100	14,800
Enderby	32.0	6,250	1,201	547	227	172	4,200	14,800
Fidelity Mountain	52.5	6,150	3,097	764	336	235	5,500	11,000
Koch Creek	29.3	6,100	2,402	950	206	83	6,000	16,400
Mission Creek	19.7	6,000	632	260	174	104	4,300	10,200
Mount Abbot	45.5	6,800	2,465	1,031	352	241	5,500	11,000
Mount Cook	54.1	6,000	2,149	738	335	345	6,800	12,300
Park Mountain	33.3	6,200	1,327	505	231	151	4,900	14,200
Revelstoke Mountain	45.6	6,000	1,833	1,021	300	216	5,400	10,300
Silver Star Mountain	23.0	6,050	1,138	411	200	141	4,900	14,200
Trophy Mountain	25.0	6,250	1,643	393	285	304	6,600	15,400
Upper Goldstream	43.3	6,300	2,339	808	340	288	6,600	22,300
White Rock Mountain	19.6	6,000	758	174	137	103	3,000	5,800

TABLE II-5

PHYSIOGRAPHIC CHARACTERISTICS OF RIVER BASINS
EAST KOOTENAY AREA

STATION	STATION NAME	DRAINAGE AREA (sq.mi.)	AVERAGE LANDSLOPE (ft./mile)	MAIN CHANNEL LENGTH (miles)	MEAN CHANNEL SLOPE (ft./mile)	MEAN BASIN ELEVATION (feet)	STREAM DENSITY (mi/sq.mi.)	BASIN SHAPE (sq.mi./mi)	AREA OF LAKES, SWAMPS (% total area)
8NG-001	Findlay Creek near Canal Flats	308	2,365	36.8	87	6,464	0.89	8.3	0.33
8NG-002	Bull River near Wardner	578	2,802	58.4	44	5,910	1.10	9.9	0.19
8NG-003	Mather Creek near Wasa	91	1,150	32.0	58	4,420	0.74	2.8	0.46
8NG-004	Gold Creek near Newgate	315	1,491	47.2	54	4,806	1.13	6.6	0.18
8NG-006	Linklater Creek near Newgate	40	1,630	9.6	333	4,590	0.91	4.2	0.15
8NG-007	Mark Creek near Marysville	66	1,498	16.8	190	5,243	0.78	3.9	0.31
8NG-008	Phillipps Creek at Roosville	18	2,300	6.0	511	5,960	1.43	3.1	0.0
8NG-009	Caithness Creek near Galloway	12	2,157	4.8	694	3,892	1.04	2.4	0.0
8NG-010	Sand Creek near Galloway	52	2,588	16.8	119	4,920	1.53	3.1	0.12
8NG-009 &010	Caithness plus Sand Creeks	64	2,517	16.8	119	4,732	1.44	3.8	0.94
8NG-011	Little Sand Creek near Jaffray	39	1,303	14.4	129	3,691	1.38	2.7	3.88
8NG-012	St. Mary River near Wycliffe	922	2,452	58.4	34	5,841	1.11	15.8	0.59
8NG-014	Joseph Creek at Cranbrook	85	866	20.0	140	3,984	0.72	4.2	0.80
8NG-015	Joseph Creek at Cranbrook	56	910	16.0	179	4,265	0.88	3.5	1.02
8NG-017	Gold Creek near Cranbrook	44	1,270	13.6	88	5,317	1.26	3.2	0.02
8NG-021	Tamarack Creek near Skookumchuck	5.2	650	5.2	359	3,750	1.62	0.9	5.22
8NG-022	Findlay Creek near Canal Flats	347	2,316	48.0	72	6,286	0.89	7.2	0.29
8NG-023	Perry Creek near Wycliffe	59	1,946	16.3	111	5,806	1.14	3.5	0.56
8NG-024	Jim Smith Creek near Cranbrook	6.9	680	4.8	153	4,130	1.30	1.4	38.91
8NG-026	Ta Ta Creek at Ta Ta Creek	5.6	670	5.2	308	3,170	1.56	1.1	3.03
8NG-027	Lakit Creek near Fort Steele	4.6	1,770	5.6	524	4,520	1.99	0.8	3.96
8NG-029	Flag Creek near Flagstone	1.1	2,444	2.7	1,550	4,712	1.18	0.4	0.0
8NG-030	Mause Creek near Fort Steele	7.8	2,820	6.0	666	6,250	2.46	1.3	0.13
8NG-031	Cassimayook Creek near Baker	9.8	800	5.6	619	4,210	1.83	1.7	0.0
8NG-032	Wolf Creek near Ta Ta Creek	16	2,556	7.2	472	4,833	0.72	2.1	0.58
8NG-034	Haha Creek near Wardner	11	1,360	8.8	379	4,600	1.67	1.3	0.26
8NG-035	Red Canyon Creek near Flagstone	6.4	2,550	5.6	607	5,380	0.91	1.1	0.0
8NG-037	Arnold Creek near Baker	1.4	1,750	2.4	1,444	5,500	1.40	0.6	0.0
8NG-040	Mather Creek near Cranbrook	79	1,219	24.8	1,250	4,603	0.76	3.1	0.37
8NG-044	Lussier River near Canal Flats	166	2,317	24.8	86	6,226	1.22	6.7	0.06
8NG-046	St. Mary River near Marysville	571	2,787	40.8	46	6,131	1.20	14.0	0.72
8NG-048	Phillipps Creek near Roosville	20	2,313	6.4	500	5,890	1.33	3.2	0.0
8NG-049	Lewis Creek near Ta Ta Creek	12	2,350	4.8	833	6,120	1.83	2.4	0.09
8NG-051	Skookumchuck Creek near Skookumchuck	246	2,267	37.6	96	6,232	1.03	6.5	0.29
8NG-052	Wild Horse River near Fort Steele	72	2,734	19.2	184	5,838	1.19	3.7	0.14
8NG-056	Houle Creek near Kimberley	7.4	1,580	4.8	166	4,750	1.51	1.5	0.68
8NG-058	Norbury Creek near Wardner	44	2,033	11.2	333	4,100	0.69	3.9	0.34
8NG-061	Chipka River near Wardner	7.1	1,360	4.0	633	4,380	2.33	1.7	0.0
8NG-062	Little Bull Creek near Bull River	6.5	2,503	5.2	692	4,580	1.75	1.2	0.0
8NG-064	Supply Creek near Bull River	3.9	2,271	3.5	846	5,625	1.23	1.1	0.26
8NK-001	Elk River at Elko	1,370	2,265	118.4	23	5,978	1.48	11.6	0.27
8NK-002	Elk River at Fernie	1,200	2,292	96.8	25	6,120	1.47	12.4	0.16
8NK-004	Lizard Creek near Fernie	14.2	2,553	4.8	472	5,235	1.45	2.9	0.21
8NK-006	Raymond Creek near Elko	2.6	2,210	2.4	1,030	5,600	1.38	1.1	0.0
8NK-008	Maguire Creek near Grasmere	7.5	2,150	5.2	564	5,430	1.28	1.4	0.0
8NK-011	Hartley Creek near Fernie	6.9	2,465	4.0	666	4,950	1.69	1.7	0.15
8NK-012	Elk River at Stanley Park near Elko	1,370	2,269	113.6	23	5,998	1.47	12.1	0.27
8NK-016	Elk River near Natal	720	2,360	65.6	30	6,468	1.43	10.9	0.35

TABLE III-1

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN ANNUAL FLOW

STATION	YEARS OF RECORD 1927-65	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN ANNUAL FLOW cfs	COEFFICIENT OF VARIATION (Cv)	MEAN ANNUAL FLOW cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	7	465	0.034	431	0.033
-2(2)	35	1,140	0.030		
-3				54	
-4	5	236	0.030	209	0.040
-6				15.5	
-7				49	
-8				22	
-9	4	35		30	
-10				112	
-11	3	41		34	
-12	16	1,820	0.022	1,748	0.027
-14				12	
-15				9.4	
-17				27	
-23				74	
-26				2.2	
-29				1.6	
-30				13.9	
-31				0.9	
-32				8.5	
-34				0.8	
-35				5.4	
-37				0.6	
-40				50	
-44	3	215		203	
-46	18	1,436	0.022	1,355	0.026
-48				25	
-51	7	393	0.029	366	0.046
-52				105	
-9 & -10				141	
8NK-1	10	2,064	0.032	2,116	0.038
-2				1,521	
-6				2.9	
-11				3.9	
-12	21	2,201	0.025	2,072	0.029
-16	11	986	0.025	910	0.036

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN ANNUAL FLOOD
(Daily Peak)

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN ANNUAL FLOOD cfs	COEFFICIENT OF VARIATION (Cv)	MEAN ANNUAL FLOOD cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	7	2,810	0.035	2,570	0.039
-2(2)	39	6,990	0.034		
-3				379	
-4	6	1,710	0.026	1,650	0.031
-6	2	54	0.078	109	
-7				399	
-8	4	124		132	
-9	7	136	0.024	127	0.041
-10	7	903		988	
-11	8	177	0.044	177	
-12	21	13,600	0.025	12,600	0.029
-14				76	
-15				56	
-17				228	
-23	7	740		772	
-26	3	5		6.3	
-27	2	11		12.0	
-29	8	2	0.133	4	0.127
-30	2	108		201	
-31	4	5		5.3	
-32	8	30		40	
-34	2	4		5.0	
-35	7	21	0.047	22.0	0.045
-37				4.9	
-40	13	240	0.091	301	0.087
-44	8	818	0.053	895	0.045
-46	21	10,300	0.022	9,430	0.027
-48	17	187	0.065	171	0.071
-49	5	49	0.044	45	0.064
-51	8	3,040		2,240	
-52	5	763	0.029	692	0.041
-58	6	61	0.073	54	0.076
-61				27	
-62				27	
8NK-1	17	11,100	0.045	13,600	0.047
-2				7,180	
-6	2	4		13.5	
-11	2	20		20	
-12	22	13,500	0.030	11,900	0.036
-16	15	6,160	0.039	5,480	0.045

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN MINIMUM FLOW
(Mean 5 day flow for May to September inclusive)

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN MINIMUM FLOW cfs	COEFFICIENT OF VARIATION (Cv)	MEAN MINIMUM FLOW cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	8	236	0.030	232	0.035
-2(2)	40	416	0.039		
-3				21	
-4	6	67	0.053	66	0.054
-6	4	8	0.442	8.0	0.408
-7				13	
-8	5	12			
-9	8	20	0.079	20	0.080
-10	7	5	0.669	5.8	0.671
-11	8	20	0.078	20	0.082
-12	21	556	0.050	522	0.052
-14					
-15					
-17				7.0	
-21	2	.08		0.2	
-23	9	12	0.264	11.2	0.258
-24	2	.45		0.4	
-26	7	4.0			
-27	3	3		3.0	
-29	10	3			
-30	2	3.2		5.2	
-31	4	3.5		0.3	
-32	9	7	0.207	7.1	0.211
-34	4	0.41		0.4	
-35	8	4	0.228	4.0	0.264
-37	3	.12		0.15	
-40	15	15	0.114	17	0.131
-44	6	109		108	
-46	20	447	0.060	412	0.061
-48	18	15	0.096	14	0.101
-49	6	6		5.9	
-51	9	152	0.050	141	0.050
-52	6	37		36	
-56				0.35	
-58	8	46	0.050	43.8	0.047
-61	2	2		1.6	
-9 & -10	6	25	0.123	29	0.130
8NK-1	17	756	0.036		
-4	3	7.5		8.5	
-6	3	1.6		1.6	
-8	3	4.6		4.8	
-11	4	1.6		2.4	
-12	22	925	0.030	886	0.031
-16	15	461	0.042	450	0.045

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.
(2) Base station is 8NG-2.

TABLE III-7

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN SEASONAL FLOW
(May to September inclusive)

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN SEASONAL FLOW cfs	COEFFICIENT OF VARIATION (Cv)	MEAN SEASONAL FLOW cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	7	912	0.035	782	0.037
-2(2)	39	1,990	0.035	1,960	0.035
-3				97	
-4	6	387	0.043	357	0.042
-6				28	
-7				89	
-8	3	42		40	
-9	6	59	0.026	54	0.027
-10	6	224	0.037	203	0.042
-11	8	68	0.043	62	
-12	20	3,660	0.022	3,110	0.029
-14				21	
-15				17	
-17				49	
-23	7	155	0.075	134	0.089
-26	3	4		4	
-29	8	2		2.9	
-30	2	27		25	
-31	3	2		1.7	
-32	8	14	0.108	15.0	
-34				1.5	
-35	7	9	0.090	9.7	
-37				1.1	
-40	11	70	0.092	90	0.081
-44	6	363	0.058	366	0.057
-46	20	2,840	0.021	2,400	0.028
-48	13	53	0.068	45	0.077
-51	8	767	0.029	603	0.051
-52	4	237		190	
-9 & -10	4	278		257	
8NK-1	17	3,270	0.041	3,740	0.041
-2				2,750	
-6	2	4		5.3	
-11	2	7		7.0	
-12	22	4,030	0.026	3,520	0.034
-16	15	1,930	0.028	1,630	0.042

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN MAY FLOW

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN MAY FLOW cfs	COEFFICIENT OF VARIATION (Cv)	MEAN MAY FLOW cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	7	908	0.041	825	0.045
-2 (2)	39	3,420	0.034		
-3				189	
-4	6	972	0.035	930	0.038
-6				59	
-7				176	
-8	3	47	0.101	58	
-9	7	57	0.094	58	
-10	7	489	0.025	477	0.025
-11	8	98	0.077	96	0.075
-12	20	5,210	0.039	4,710	0.044
-14				48	
-15				34	
-17				129	
-23	7	291	0.069	279	0.069
-26	3	3.9		4.2	
-27	2	2.7		2.8	
-29	8	1.7		2.8	
-30	2	45		34	
-31	3	3.3		3.5	
-32	8	10	0.260	10.4	0.242
-34	2	1.7		2.8	
-35	7	11.8		12.5	
-37				2.6	
-40	11	137	0.098	193	0.101
-44	8	389	0.075	414	0.066
-46	21	3,840	0.040	3,420	0.045
-48	15	66	0.093	60	0.097
-49	5	9	0.325	8.4	0.360
-51	8	762	0.053	684	0.066
-52	5	281	0.089	243	0.093
-9 & -10	6	537		535	
8NK-1	17	5,590	0.040	6,260	0.040
-2				3,750	
-6	2	6.3		5.9	
-11	2	17		13.1	
-12	22	6,360	0.031	5,800	0.035
-16	15	2,190	0.051	1,910	0.056

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN JUNE FLOW

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1) MEAN JUNE FLOW cfs	OBSERVED VALUES (1) COEFFICIENT OF VARIATION (Cv)	ADJUSTED VALUES (1) MEAN JUNE FLOW cfs	ADJUSTED VALUES (1) COEFFICIENT OF VARIATION (Cv)
8NG-1	7	1,570	0.043	1,400	0.046
-2(2)	39	3,520	0.043		
-3				176	
-4	6	562	0.071	519	0.074
-6	2	25	0.115	43	
-7				185	
-8	7	81		82	
-9	7	106	0.020	102	0.028
-10	7	418	0.055	391	0.067
-11	8	118	0.039	106	
-12	21	7,370	0.031	6,460	0.038
-14				28	
-15				24	
-17				79	
-23	7	312	0.086	280	0.107
-26	3	3.7		4.4	
-27	2	7.6		8.6	
-29	8	1.9	0.193	3	
-30	2	51		57	
-31	4	1.9		2.6	
-32	8	23		24.4	
-34	4	1.9		2.2	
-35	7	14	0.101	15.6	
-37				2.0	
-40	14	130	0.090	154	0.086
-44	8	604	0.070	664	0.068
-46	20	5,620	0.030	4,880	0.037
-48	17	104	0.086	89	0.100
-51	8	1,590	0.021	1,390	0.037
-52	4	474		417	
-58	6	37		48	
-61	2	4.7		10.5	
-62				23	
-9 & -10	6	572		480	
8NK-1	17	5,750	0.051	7,080	0.052
-2				4,730	
-6	2	7.0		8.6	
-11	2	9.4		11.1	
-12	22	7,440	0.036	6,400	0.045
-16	15	3,650	0.035	3,090	0.048

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN JULY FLOW

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN JULY FLOW cfs	COEFFICIENT OF VARIATION (Cv)	MEAN JULY FLOW cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	7	1,150	0.066	928	0.059
-2(2)	40	1,650	0.057		
-3				71	
-4	6	202	0.082	180	0.076
-6	3	13	0.322	16	
-7				53	
-8	4	29	0.212	33	
-9	6	67	0.079	57	0.079
-10	6	138	0.118	115	0.123
-11	8	60	0.073	56	0.078
-12	21	3,210	0.054	2,720	0.063
-14				12.3	
-15				10.5	
-17				20	
-23	8	102	0.141	73	0.164
-26	6	4	0.231	3.9	0.368
-27	3	6.8		6.4	
-29	9	1.8		2.9	
-30	3	31		20	
-31	4	1.1		1.2	
-32	8	18	0.107	24.0	
-34	4	1.4		1.2	
-35	8	9	0.187	9.4	0.169
-37	2	.28		0.46	
-40	14	49	0.118	56	0.109
-44	7	455	0.059	456	0.059
-46	20	2,700	0.053	2,260	0.062
-48	17	45	0.122	40.0	0.130
-49	5	20	0.109	18.0	0.130
-51	8	921	0.059	531	0.100
-52	5	235	0.042	187	0.054
-58	8	52		51	
-61				3.9	
-62	2	23		24	
-9 & -10	4	204		172	
8NK-1	17	2,550	0.060	3,040	0.057
-2					
-6	3	3.8		6.4	
-11	3	3.8		5.2	
-12	22	3,400	0.045	2,960	0.053
-16	15	2,100	0.047	1,770	0.057

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN AUGUST FLOW

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN AUGUST FLOW cfs	COEFFICIENT OF VARIATION (Cv)	MEAN AUGUST FLOW cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	8	508	0.041	463	0.038
-2(2)	40	694	0.041		
-3				27	
-4	6	89		85	
-6	4	9.8	0.341	11	
-7				17	
-8	5	14	0.225	17.0	0.215
-9	7	33		31	
-10	7	24	0.204	22	0.187
-11	8	32	0.055	29	
-12	21	1,090	0.045	977	0.051
-14				9.1	
-15				7.6	
-17				8.5	
-23	9	25	0.162	21	0.157
-26	7	4.2	0.168	4.2	0.217
-27	3	3.8		3.6	
-29	9	1.8		2.9	
-30	3	10.9		7.0	
-31	4	.46		0.5	
-32	9	9.0	0.150	9.2	0.144
-34	4	.55		0.5	
-35	8	6.1	0.211	6.4	0.209
-37	3	.15		0.26	
-40	14	23	0.119	25	0.115
-44	7	186	0.065	184	0.072
-46	20	958	0.045	861	0.050
-48	16	21	0.097	19.0	0.099
-51	9	275	0.055	232	0.056
-52	6	66	0.084	58	
-58	8	53		51	
-61	2	1.8		2.9	
-62	2	21		24	
-9 & -10	5	59		53	
8NK-1	17	1,210	0.039		
-2				1,310	
-6	3	2.1		2.7	
-11	4	2.6		3.0	
-12	22	1,480	0.029	1,390	0.032
-16	15	913	0.030	846	0.035

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

STREAMFLOW CHARACTERISTICS OF RIVER BASINS

EAST KOOTENAY AREA

MEAN SEPTEMBER FLOW

STATION	YEARS OF RECORD 1927-66	OBSERVED VALUES (1)		ADJUSTED VALUES (1)	
		MEAN SEPTEMBER FLOW cfs	COEFFICIENT OF VARIATION (Cv)	MEAN SEPTEMBER FLOW cfs	COEFFICIENT OF VARIATION (Cv)
8NG-1	8	297	0.037	293	0.046
-2[2]	40	514	0.056		
-3				22	
-4	6	70	0.064	73	
-6	4	10	0.325	11	
-7				16	
-8	4	13	0.264	11.3	0.189
-9	8	23	0.084	23.0	0.090
-10	7	10	0.342	11.5	0.413
-11	8	24		23	
-12	21	720	0.066	671	0.071
-14				9.6	
-15				8.2	
-17				8.1	
-23	9	18	0.197	17	0.230
-26	7	4.3	0.141	3.5	
-29	10	1.7		2.8	
-30	2	5.1		7.0	
-31	4	.46		0.6	
-32	9	7.7	0.178	8.4	0.194
-34	4	.60		0.8	
-35	9	5.3		4.6	
-37	3	0.14		0.20	
-40	15	19	0.135	21	0.173
-44	6	125		112	
-46	20	612	0.071	565	0.075
-48	17	17	0.114	16.6	0.114
-51	9	186	0.060	173	0.074
-52	6	48		45	
-58	8	45	0.058	46	0.054
-61	2	1.72		3.0	
-62	2	20		22	
-9 & -10	6	35		34	
8NK-1	17	920	0.037		
-2				980	
-6	3	2.1		2.8	
-11				2.6	
-12	22	1,080	0.037	1,040	0.040
-16	15	565	0.041	551	0.056

NOTES: (1) Statistical parameters based on logarithmic transformation of the streamflow data.

(2) Base station is 8NG-2.

PILOT REGRESSION STUDY - EAST KOOTENAY AREA

CASE 1 - MEAN FLOW ($\bar{Q}$)

FLOW CHARACTERISTIC	REGRESSION EQUATION MEAN FLOW ($\bar{Q}$)	STANDARD ERROR IN PERCENT	COEFFICIENT OF LINEAR MULTIPLE DETERMINATION	NUMBER OF STATIONS
Mean May Flow	$\text{Log } \bar{Q} = 0.2301 + 1.1452 \text{ Log } A$	39	0.969	7
Mean June Flow	$\text{Log } \bar{Q} = 0.4717 + 0.5277 \text{ Log } A + 1.5254 \text{ Log } B$	19	0.995	7
Mean July Flow	$\text{Log } \bar{Q} = -5.9683 + 0.9935 \text{ Log } A + 1.8599 \text{ Log } S + 0.7450 \text{ Log } S_t$	6	0.999	7
Mean August Flow	$\text{Log } \bar{Q} = -5.7406 + 1.0259 \text{ Log } A + 1.6870 \text{ Log } S$	13	0.998	7
Mean September Flow	$\text{Log } \bar{Q} = -5.3706 + 0.9776 \text{ Log } A + 1.5732 \text{ Log } S$	11	0.998	7
Mean Maximum Flow (Daily Peak)	$\text{Log } \bar{Q} = 0.7718 + 0.5132 \text{ Log } A + 1.5449 \text{ Log } B$	22	0.993	7
Mean Minimum Flow (Mean 5 Day Min. May to Sept.)	$\text{Log } \bar{Q} = 2.1237 + 0.5265 \text{ Log } A - 0.6113 \text{ Log } M$	15	0.997	7
Mean Seasonal Flow (May to Sept.)	$\text{Log } \bar{Q} = -4.0046 + 1.0507 \text{ Log } A + 1.2785 \text{ Log } S$	20	0.995	7
Mean Annual Flow	$\text{Log } \bar{Q} = -4.3082 + 1.0590 \text{ Log } A + 1.2892 \text{ Log } S$	20	0.995	7

LEGEND

A = Drainage Area
B = Basin Shape
S = Average Land Slope
S_t = Percentage of Total Area Occupied by Lakes and Swamps
M = Main Channel Slope

PILOT REGRESSION STUDY - EAST KOOTENAY AREA

CASE 1 - COEFFICIENT OF VARIATION (C_v)

FLOW CHARACTERISTIC	REGRESSION EQUATION	STANDARD ERROR OF THE ESTIMATE	COEFFICIENT OF LINEAR MULTIPLE DETERMINATION	NUMBER OF STATIONS
Mean May Flow	$C_v = 0.0335 + 0.0308 \text{ Log } M - 0.0568 \text{ Log } R_{May}$	0.0076	0.964	7
Mean June Flow	$C_v = 0.1585 - 0.0311 \text{ Log } A - 0.0341 \text{ Log } R_{June}$	0.0058	0.974	7
Mean July Flow	$C_v = 0.1879 - 0.0425 \text{ Log } A - 0.0140 \text{ Log } R_{July}$	0.0068	0.976	7
Mean August Flow	$C_v = -0.0313 + 0.0477 \text{ Log } M$	0.0055	0.977	7
Mean September Flow	$C_v = -0.0256 + 0.0515 \text{ Log } M - 0.0652 \text{ Log } R_{Sept.}$	0.0129	0.960	7
Mean Maximum Flow (Daily Peak)	$C_v = 0.2494 - 0.0184 \text{ Log } A - 0.0316 \text{ Log } S - 0.0516 \text{ Log } R_{Max.}$	0.0007	0.999	7
Mean Minimum Flow (Mean 5 Day Min. May to Sept.)	$C_v = -0.0327 + 0.0482 \text{ Log } M - 0.0225 \text{ Log } R_{Min.}$	0.0098	0.964	7
Mean Seasonal Flow (May to Sept.)	$C_v = 0.1258 - 0.0216 \text{ Log } A - 0.0604 \text{ Log } R_{Seasonal}$	0.0011	0.999	7
Mean Annual Flow	No Results			

LEGEND

A = Drainage Area
M = Main Channel Slope
S = Average Land Slope
R = Runoff in c.f.s. per Square Mile

PILOT REGRESSION STUDY - EAST KOOTENAY AREA

CASE 1 - COEFFICIENT OF SKEW (C_s)

FLOW CHARACTERISTIC	C_s (STATION 8NG-2)
Mean May Flow	-0.0657
Mean June Flow	-0.3111
Mean July Flow	-0.3088
Mean August Flow	-0.0886
Mean September Flow	1.9276
Mean Maximum Flow (Daily Peak)	-0.1269
Mean Minimum Flow (Mean 5 Day Min. May to Sept.)	0.8940
Mean Seasonal Flow (May to Sept.)	-0.4336
Mean Annual Flow	-0.5546

PILOT REGRESSION STUDY - EAST KOOTENAY AREA

CASE 2 - MEAN FLOW ($\bar{Q}$)

FLOW CHARACTERISTIC	REGRESSION EQUATION MEAN FLOW ($\bar{Q}$)	STANDARD ERROR IN PERCENT	COEFFICIENT OF LINEAR MULTIPLE DETERMINATION	NUMBER OF STATIONS
Mean May Flow	$\text{Log } \bar{Q} = -2.6604 + 0.9576 \text{ Log } A + 1.2008 \text{ Log } S - 0.4118 \text{ Log } D_i$	35	0.958	15
Mean June Flow	$\text{Log } \bar{Q} = -4.6838 + 1.0114 \text{ Log } A + 1.5587 \text{ Log } S + 1.1410 \text{ Log } D$	37	0.964	16
Mean July Flow	$\text{Log } \bar{Q} = -5.8305 + 1.0793 \text{ Log } A + 1.7660 \text{ Log } S + 0.4427 \text{ Log } S_t$	19	0.990	16
Mean August Flow	$\text{Log } \bar{Q} = -2.4425 + 1.5238 \text{ Log } A + 0.6420 \text{ Log } M$	26	0.980	15
Mean September Flow	$\text{Log } \bar{Q} = -2.7133 + 1.5248 \text{ Log } A + 0.7109 \text{ Log } M$	22	0.984	15
Mean Maximum Flow (Daily Peak)	$\text{Log } \bar{Q} = 0.4040 + 1.2127 \text{ Log } A$	62	0.903	14
Mean Minimum Flow (Mean 5 day min. May to September)	$\text{Log } \bar{Q} = -0.5884 + 1.1382 \text{ Log } A$	61	0.893	15
Mean Seasonal Flow (May-September)	$\text{Log } \bar{Q} = -2.9382 + 1.0027 \text{ Log } A + 1.1166 \text{ Log } S - 0.2387 \text{ Log } D_i$	13	0.995	15
Mean Annual Flow	$\text{Log } \bar{Q} = -3.2504 + 1.0117 \text{ Log } A + 1.1244 \text{ Log } S - 0.2297 \text{ Log } D_i$	14	0.994	15

LEGEND

A = Drainage Area
S = Average Land Slope
D_i = Distance Index
D = Stream Density
S_t = Percentage of Total Area Occupied by Lakes and Swamps
M = Main Channel Slope

STATION	STATION NAME	DRAINAGE AREA	CORRELATION COEFFICIENTS
8NK-16	Elk River near Natal	720	0.49 0.66 0.42 0.68 0.64 0.71 0.71 0.32 0.64 0.45 0.68 0.19 0.64 0.98 0.72 0.72
8NK-12	Elk River at Stanley Park near Elko	1,370	0.73 0.89 0.82 0.73 0.26 0.66 0.79 0.82 0.39 0.76 0.54 0.79 0.59 0.50 0.66 0.94
8NK-11	Hartley Creek near Fernie	6.9	0.10 0.56 0.14
8NK-6	Raymond Creek near Elko	2.64	0.18 0.28 0.52 0.90 0.64 0.10
8NK-5	Elk River at Phillips Bridge near Elko	1,720	0.76 0.92 0.81 0.79 0.79 0.47 0.79 0.83 0.70 0.58 0.86 0.80 0.19 0.70 0.82 0.88 0.41 0.46 0.66 0.87 0.30 0.81 0.60 0.83 0.65 0.52 0.79 0.92 0.94
8NK-2	Elk River at Fernie	1,200	0.63
8NK-1	Elk River at Elko	1,370	0.88 0.85 0.56 0.65 0.34 0.64 0.63 0.73 0.65 0.53 0.29 0.82 0.89 0.63 0.85
8NG-62	Little Bull Creek near Bull River	6.5	0.20 0.87
8NG-61	Chipka River near Wardner	7.0	0.87
8NG-58	Norbury Creek near Wardner	44	0.19 0.12 0.37
8NG-52	Wildhorse River near Fort Steele	72	0.46 0.67 0.41 0.42 0.37 0.44 0.71 0.59 0.26 0.66 0.07 0.71 0.59
8NG-51	Skookumchuck Creek near Skookumchuck	246	0.78 0.65 0.58 0.63 0.64 0.70 0.82 0.52 0.71 0.72
8NG-49	Lewis Creek near Ta Ta Creek	12	0.11
8NG-48	Phillipps Creek (Upper Station) near Roosville	20	0.66 0.81 0.80 0.81 0.21 0.75 0.79 0.65 0.45 0.75 0.67
8NG-47	Phillipps Creek (Lower Station) near Roosville	22	0.56 0.51 0.41 0.68 0.57 0.55 0.45 0.40 0.41
8NG-46	St. Mary River near Marysville	571	0.78 0.86 0.73 0.57 0.50 0.55 0.97 0.83 0.28
8NG-44	Lussier River near Canal Flats	166	0.45 0.24 0.50 0.74 0.47
8NG-40	Mather Creek near Cranbrook	79	0.82 0.46 0.64
8NG-37	Arnold Creek near Baker	1.39	0.82
8NG-35	Red Canyon Creek near Flagstone	6.4	0.58 0.40
8NG-34	Haha Creek near Wardner	12	0.83 0.97 0.59
8NG-32	Wolf Creek near TaTa Creek	16	0.47 0.35 0.70 0.42 0.27 0.39 0.26 0.28 0.82 0.61
8NG-31	Cassimayook Creek near Baker	9.8	0.79 0.82 0.63 0.68 0.67 0.92
8NG-30	Mause Creek near Fort Steele	7.8	0.69 0.63 0.90 0.73 0.55 0.65
8NG-29	Flag Creek near Flagstone	1.1	
8NG-27	Lakit Creek near Fort Steele	4.6	0.67 0.68
8NG-26	TaTa Creek at TaTa Creek	5.6	0.39 0.53 0.51 0.64
8NG-23	Perry Creek near Wycliffe	59	0.78 0.87 0.79 0.42 0.73 0.65 0.59 0.88
8NG-17	Gold Creek near Cranbrook	44	0.63 0.69
8NG-15	Joseph Creek at Cranbrook	56	0.28 0.69
8NG-14	Joseph Creek at Cranbrook	85	0.30 0.28 0.84 0.27 0.78
8NG-12	St. Mary River near Wycliffe	922	0.73 0.87 0.60 0.42 0.85 0.60 0.49 0.53
8NG-11	Little Sand Creek near Jaffray	39	0.49 0.64 0.75 0.74 0.60 0.66 0.46
8NG-10	Sand Creek near Galloway	52	0.27 0.65 0.63 0.54 0.57 0.52 0.27
8NG-9	Caithness Creek near Galloway	12	0.57 0.71 0.58
8NG-8	Phillipps Creek at Roosville	18	0.64 0.77
8NG-7	Mark Creek near Marysville	66	0.85 0.87 0.33
8NG-6	Linklater Creek near Newgate	40	0.78 0.56
8NG-4	Gold Creek near Newgate	315	0.40 0.67 0.71
8NG-3	Mather Creek near Wasa	91	0.43
8NG-2	Bull River near Wardner	578	0.71
8NG-1	Findlay Creek near Canal Flats	308	

8NG-1 8NG-2 8NG-3 8NG-4 8NG-6 8NG-7 8NG-8 8NG-9 8NG-10 8NG-11 8NG-12 8NG-14 8NG-15 8NG-17 8NG-23 8NG-26 8NG-27 8NG-29 8NG-30 8NG-31 8NG-32 8NG-34 8NG-35 8NG-37 8NG-40 8NG-44 8NG-46 8NG-47 8NG-48 8NG-49 8NG-51 8NG-52 8NG-58 8NG-61 8NG-62 8NK-1 8NK-2 8NK-5 8NK-6 8NK-11 8NK-12

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

TABLE IV-1

EAST KOOTENAY AREA

CORRELATION COEFFICIENTS

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

A.H. Smith | W.Q. Chin | APPROVED

DATE MAR. 31,'69 | SCALE N T S | TABLE IV-1

STATION	STATION NAME	DRAINAGE AREA	CORRELATION COEFFICIENTS
8NL-36	Whipsaw Creek below Lamont Creek near Princeton	64	0.92 0.61 0.84 0.77 0.61 0.35
8NL-35	Soukup Creek near Hedley	6.3	0.33 0.82 0.41
8NL-34	Smith Creek near Hedley	47	0.73 0.59 0.44
8NL-33	Little Muddy Creek near Manning Park	10	0.34
8NL-25	Wolfe Creek near Princeton	85	0.48 0.74 0.28 0.27 0.76 0.74 0.39
8NL-24	Tulameen River at Princeton	680	0.60 0.85 0.48 0.34 0.30 0.64 0.87 0.66
8NL-23	Otter Creek at Tulameen	260	0.52 0.77 0.68 0.33 0.78 0.42 0.52 0.86 0.78
8NL-22	Similkameen River near Nighthawk	3,508	0.76 0.98 0.91 0.87 0.62 0.72 0.59 0.76 0.72 0.98 0.76 0.87
8NL-21	Granite Creek	116	0.70
8NL-20	Hayes (Five Mile) Creek near Princeton	290	0.93 0.54 0.90 0.74 0.77
8NL-19	Summers Creek near Princeton	92	0.66 0.44
8NL-18	Hayes (Five Mile) Creek near Jura	238	0.97 0.75 0.78
8NL-15	Asp Creek near Princeton	20	0.71 0.57 0.07
8NL-14	Keremeos Creek near Olalla	29	0.77 0.90 0.66
8NL-13	Summers Creek near Princeton	126	0.56 0.18 0.38
8NL-12	Allison Creek near Princeton	223	0.67 0.45 0.63 0.67 0.54
8NL-10	Keremeos Creek near Olalla	67	0.54 0.75 0.45
8NL-8	Tulameen River at Coalmont	506	0.51 0.93 0.79
8NL-7	Similkameen River at Princeton	730	0.66 0.96
8NL-6	Similkameen River near Keremeos	2,885	0.55
8NL-4	Ashnola River near Keremeos	400	

8NL-4 8NL-6 8NL-7 8NL-8 8NL-10 8NL-12 8NL-13 8NL-14 8NL-15 8NL-18 8NL-19 8NL-20 8NL-21 8NL-22 8NL-23 8NL-24 8NL-25 8NL-33 8NL-34 8NL-35

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

TABLE IV-2

SIMILKAMEEN RIVER BASIN

CORRELATION COEFFICIENTS

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

A.D. Smith | W.O. Chow | APPROVED Ian Stephens

DATE MAR. 31, '69 | SCALE N T S | TABLE IV-2

STATION	STATION NAME	DRAINAGE AREA	CORRELATION COEFFICIENTS
8NK-16	Elk River near Natal	760	0.42 0.62 0.57 0.54 0.64 0.43 0.67 0.51 0.59 0.51 0.41 0.74 0.34 0.40 0.31 0.50 0.21 0.35 0.42 0.41 0.49 0.66 0.71 0.71 0.64 0.64 0.72 0.72
8NK-12	Elk River at Stanley Park near Elko	1,370	0.55 0.56 0.42 0.45 0.63 0.60 0.66 0.39 0.53 0.27 0.52 0.44 0.89 0.81 0.83 0.57 0.77 0.78 0.60 0.74 0.58 0.83 0.36 0.69 0.52 0.52 0.67 0.58 0.73 0.89 0.80 0.82 0.76 0.59 0.94
8NK-5	Elk River at Phillips Bridge near Elko	1,720	0.74 0.58 0.67 0.28 0.50 0.66 0.64 0.42 0.65 0.38 0.57 0.20 0.55 0.49 0.21 0.18 0.93 0.84 0.03 0.86 0.55 0.83 0.82 0.63 0.75 0.89 0.58 0.73 0.25 0.71 0.59 0.53 0.78 0.63 0.76 0.92 0.83 0.80 0.30 0.81 0.65 0.92
8NK-1	Elk River at Elko	1,370	0.64 0.64 0.31 0.65 0.23 0.67 0.28 0.57 0.92 0.74 0.48 0.87 0.80 0.53 0.69 0.70 0.56 0.88 0.53
8NG-51	Skookumchuck Creek near Skookumchuck	246	0.54 0.70 0.44 0.64 0.54 0.56 0.59 0.20 0.75 0.27 0.50 0.44 0.52 0.42 0.64 0.33 0.37 0.31 0.42 0.10 0.08 0.17 0.51 0.50 0.78 0.65 0.70 0.82 0.71
8NG-46	St. Mary River near Marysville	571	0.56 0.71 0.62 0.65 0.69 0.19 0.66 0.69 0.56 0.68 0.32 0.62 0.44 0.67 0.65 0.35 0.41 0.82 0.78 0.40 0.74 0.77 0.79 0.38 0.68 0.55 0.47 0.74 0.76 0.70 0.90 0.84 0.78 0.86 0.97 0.83
8NG-44	Lussier River near Canal Flats	165.5	0.39 0.53 0.10 0.57 0.07 0.45 0.24
8NG-23	Perry Creek near Wycliffe	58.6	0.51 0.59 0.35 0.49 0.62 0.37 0.61 0.21 0.60 0.54 0.45 0.38 0.87 0.82 0.81 0.57 0.79 0.84 0.58 0.67 0.42 0.64 0.17 0.75 0.55 0.78 0.87 0.88
8NG-12	St. Mary River near Wycliffe	922	0.52 0.75 0.78 0.72 0.70 0.71 0.44 0.67 0.73 0.52 0.72 0.41 0.68 0.44 0.69 0.65 0.35 0.38 0.84 0.80 0.73 0.78 0.35 0.78 0.80 0.50 0.76 0.55 0.49 0.74 0.73 0.67 0.86 0.81 0.73 0.87
8NG-2	Bull River near Wardner	578	0.59 0.76 0.65 0.57 0.69 0 65 0.26 0.39 0.19 0.56 0.69 0.69 0.47 0.66 0.43 0.53 0.59 0.53 0.25 0.09 0.91 0.85 0.62 0.86 0.57 0.85 0.82 0.63 0.79 0.79 0.61 0.79 0.34 0.75 0.62 0.61 0.81 0.69 0.71
8NG-1	Findlay Creek near Canal Flats	308	0.62 0.80 0.75 0.71 0.58 0.71 0.58 0.55 0.65 0.42 0.88 0.52 0 29 0.57 0.53 0.43 0.61 0 19 0.45 0.26 0.51 0.63
8NJ-14	Slocan River at Slocan City	640	0.44 0.66 0.58 0.55 0.67 0.63 0.32 0.30 0.41 0.66 0.61 0.60 0.28 0.68 0.54 0.64 0.38 0.69 0.70 0.48 0.52 0.61 0.65 0.31 0.62 0.25 0.68 0.64 0.31 0.55 0.53 0.42 0.71 0.76 0.94
8NJ-13	Slocan River near Crescent Valley	1,270	0.53 0.63 0.25 0.58 0.72 0.69 0.08 0.46 0.61 0.58 0.55 0.40 0.65 0.47 0.54 0.35 0.68 0.69 0.52 0.51 0.77 0.82 0.77 0.37 0.84 0.73 0.52 0.68 0.86 0.68 0.84 0.57 0.83 0.83
8NE-87	Deer Creek at Deer Park	31	0.35 0.74 0.20 0.14 0.20
8NE-77	Barnes Creek near Needles	81	0.18 0.51 0.52 0.43 0.50 0.18 0.18 0.47 0.16 0.41 0.50 0.50 0.43 0.47 0.62 0.64 0.58 0.66 0.61 0.69 0.51 0.74
8NE-74	Salmo River near Salmo	450	0.36 0.18 0.20 0.62 0.35 0.33 0.29 0.25 0.43 0.06 0.32 0.37 0.28 0.13 0.73 0.89 0.87 0.34 0.93 0.82 0.67 0.72 0.82 0.87
8NE-73	Blueberry Creek near Blueberry Creek	56	0.25 0.37 0.24 0.39 0.68 0.66 0.66 0.58 0.21 0.87
8NE-44	Salmo River near Waneta	500	0.22 0.19 0.28 0.44 0.78 0.92 0.84 0.71 0.93 0.86 0.79
8NE-39	Big Sheep Creek near Rossland	140	0.41 0.28 0.22 0.48 0.31 0.13 0.32 0.12 0.35 0.20 0.25 0.58 0.70 0.72 0.18 0.74 0.66 0.47 0.58
8NN-2	Granby River at Grand Forks	900	0.50 0.64 0.83 0.90
8NH-84	Arrow Creek near Erickson	30	0.30 0.49 0.62 0.17 0.56 0.38 0.47 0.29 0.21 0.31 0.32 0.78 0.89 0.88 0.67 0.83 0.75 0.80
8NH-68	Corn Creek near Creston	52	0.61 0 23 0.73 0.74 0.79 0.55 0.83 0.69
8NH-34	Moyie River at Moyie	280	0.35 0.46 0.61 0.24 0.62 0.45 0.12 0.34 0.33 0 45 0.57 0.38 0.26 0.40 0.35 0.11 0.85 0.86 0.92 0.53 0.86
8NH-32	Boundary Creek Near Porthill	97	0.42 0.53 0.23 0.31 0.60 0.52 0.30 0.51 0.26 0.29 0.48 0.14 0.40 0.37 0.25 0.86 0.89 0.44 0.91 0.57
8NH-16	Duck Creek Near Wynndel	22	0.43 0.53 0.23 0.21 0.59 0 31 0.19 0.60 0.61 0.68
8NH-6	Moyie River at Eastport	570	0.42 0.53 0.40 0.31 0.58 0.54 0.31 0.51 0.41 0.35 0.51 0.13 0.35 0.30 0.88 0.91 0.63
8NH-5	Kaslo River at Kaslo	207	0.32 0.43 0.61 0.43 0.36 0.35 0.44 0.74 0.56 0.37 0.50
8NH-4	Goat River near Erickson	430	0.46 0.59 0.12 0.42 0.52 0.52 0.32 0.60 0.48 0.51 0.51 0.34 0.38 0.39 0.30 0.84
8NP-1	Flathead River at Flathead	450	0.51 0.66 0.72 0.64 0.44 0.57 0.33 0.42 0.70 0.60 0.49 0.59 0.44 0.35 0.34 0 46 0.43
8NC-2	Canoe River near Donald	1,350	0.48 0.55 0.43 0.48 0.51 0.76 0.06 0.39 0.22 0.58 0.70 0.64
8NC-1	Wood River near Donald	356	0.40 0.54 0.35 0.58 0.41 0.55
8NB-6	Columbia River at Suprise Rapids	5,420	0.54 0.78 0.73 0.70 0.87 0.43 0.86 0.73 0.43 0.63 0.59 0.80 0.70 0.91
8NB-5	Columbia River at Donald	3,700	0.52 0.82 0.42 0.72 0.61 0.89 0.55 0.87 0.71 0.62 0.06 0.73 0.72 0.84 0.80
8NA-52	Columbia River near Edgewater	1,340	0.43 0.61 0.15 0.82 0.68 0.26 0.76 0.50
8NA-51	Frances Creek near Wilmer	52	0.63 0.86 0.62 0.56 0.86 0.63 0.81 0.89 0.52 0.82 0.65
8NA-49	Templeton River near Brisco	59	0.50 0.78 0.45 0.61 0.33 0.62 0.51 0.71 0.70
8NA-45	Columbia River near Fairmont Hot Springs	370	0.45 0.78 0.54 0.67 0.42 0.78 0.34 0.61 0.65 0.81 0.38
8NA-24	Windermere Creek near Windermere	33	0.37 0.45 0.45 0.35 0.43
8NA-18	Sinclair Creek at Radium Hot Springs	35	0.36 0.79 0.58 0.83 0.60 0.62 0.72
8NA-12	Toby Creek near Athalmer	240	0.58 0.77 0.62 0.68 0.71 0.76 0.57 0.58 0.86
8NA-11	Spillimacheen River near Spillimacheen	580	0.59 0.82 0.77 0.71 0.78 0.61 0.71 0.68
8NA-8	Kicking Horse River at No. 2 Tunnel	50	0.55 0.42 0.64
8NA-7	Kicking Horse River near Field	130	
8NA-6	Kicking Horse River at Golden	723	0.70 0.54
8NA-5	Horsethief Creek near Wilmer	260	0.44 0.02 0.43 0.37 0.49
8NA-2	Columbia River at Nicholson	2,570	0.51 0.75 0.63 0.73 0.65
8NA-1	Bugaboo Creek near Spillimacheen	144	0.52 0.61 0.46
8NF-4	Vermilion River near Radium Hot Springs	360	0.67 0.91 0.59
8NF-3	White River near Canal Flats	360	0.50 0.87
8NF-2	Kootenay River at Canal Flats	2,080	0.70
8NF-1	Kootenay River at Kootenay Crossing	160	

GOVERNMENT OF CANADA

B.C. HYDROMETRIC NETWORK STUDY

TABLE IV-3

EAST KOOTENAY AREA AND VICINITY CORRELATION COEFFICIENTS

T. INGLEDOW & ASSOCIATES LIMITED
CONSULTING ENGINEERS VANCOUVER, CANADA

A. Ingledow	W.Q. Chin	APPROVED
DATE MAR. 31, '69	SCALE N.T.S.	TABLE IV-3

APPENDIX V

COMPUTER PROGRAMS

INTRODUCTION

A number of computer programs were developed for processing of meteorological and hydrological data and for the pilot regression studies. Listings of these programs are included in this Appendix. A potential user of these programs should be reasonably familiar with FORTRAN programming although it is not necessary for him to understand thoroughly the composition of the programs.

The computer programs listed herein are written mostly in standard FORTRAN language. It must be recognized that the requirements for monitor control and the input-output devices are not standardized for all computers. Therefore, program statements related to monitor and input-output activities should be modified as necessary in accordance with the specific requirements of any particular computer which the potential user may choose to utilize. Furthermore, these programs make extensive use of magnetic tapes or disc files for data storage in such a manner that data could be retrieved, processed, modified and re-stored as necessary during the progress of the studies. Specific tape or disc file reference statements will be required depending upon the type of computing facilities to be used.

PROGRAMS FOR ANALYSIS OF METEOROLOGIC AND HYDROLOGIC DATA

Two programs were developed for the purpose of processing meteorologic and hydrologic data. These programs were written originally for the use on the General Electric Computer Time-Sharing Service.

The G. E. Time-Sharing system provides magnetic disc storages, referred to as "file" hereinafter, having a maximum capacity of 6, 144 characters per disc If larger capacity is required, two or more discs may be linked together to form a single file. Each file is referred to by an acceptable FORTRAN name consisting of one to six alphanumeric characters.

One of the special features of the G. E. Time-Sharing Service is the line number, consisting of one to five digit sequence number, which appears in each line preceding the program statement or data. Such line number is required by this particular operating system to sequence the statements, nevertheless it does not substitute for, nor function as, the FORTRAN

statement number. These numbers should be omitted if the programs are to be run on other computers.

The input of program statements and data is by means of paper tapes. All input data should be arranged in accordance with the format statements provided in the programs unless the user prefers to alter such format statements for his own convenience.

Free format has been used on several occasions in these programs when data is read from or written onto a file. This is permitted in the G. E. Time-Sharing FORTRAN. The END statement at end of each program is also optional in this system. The omitted format and END statements should be added as required if the computer to be used does not have similar facilities.

The program statements requiring modifications when used on other computers are underlined for easy identification.

(a) Program PRECIX

This program reads in long term average monthly precipitation for any number of meteorological stations, computes the precipitation index in terms of percentage of mean annual total precipitation and prints the results in a tabulated form. The mean winter precipitation index for each station will also be included in the output list.

The long term mean monthly precipitation data are to be stored in data files. Data for each station should be stored in calendar order beginning from January. The data for December is to be followed immediately by the name of the station. The station name should not exceed 24 alphanumeric characters.

The following statements in the program are applicable only to the G. E. Time-Sharing computer and should be modified when used on other computers.

(1) Line No. 10 This is a data file reference statement. The data files are named LAMP 1 etc. and are strung together to form one large file.

(2) Line No. 90 This statement directs the computer to read in the total number of meteorological stations to be processed. The total

number of stations must be the first item of data and appears on the first data file.

(3) Line No. 140 This statement directs the computer to read in the whole set of data for one meteorological station, namely, the mean monthly precipitation plus the name of the station.

The program statements are listed on the following page:

PRECIX

```
10 $FILE LAMP1/LAMP2/LAMP3/LAMP4/LAMP5
20 PRINT 10,
30 10 FORMAT(39HANALYSIS OF METEOROLOGICAL STATION DATA)
40 PRINT 1,
50 1 FORMAT (21HINDEX PRECIPITATION -/3X,62HLONG TERM AVERAGE MONTHLY PR
60 +ECIPITATION IN TERMS OF PERCENTAGE/3X,34HOF MEAN ANNUAL TOTAL PRECIP
70 +ITATION)
80 DIMENSION P(12,30),SN(4,30),PM(12,30),PWIN(30)
90 READ (1,2) NOSTA
100 2 FORMAT (5X,I4)
110 M=30
120 43 IF(NOSTA-30)40,42,42
130 40 M=NOSTA
140 42 READ(1,5) ((P(J,I),J=1,12),(SN(K,I),K=1,4),I=1,M)
150 5 FORMAT (5X,9F7.2/5X,3F7.2,4A6)
160 DO 4 I=1,M
170 PSUM=0
180 DO 6 L=1,12
190 6 PSUM=PSUM+P(L,I)
200 DO 9 L=1,12
210 PM(L,I)=P(L,I)*100./PSUM
220 9 PWIN(I)=(P(1,I)+P(2,I)+P(3,I)+P(10,I)+P(11,I)+P(12,I))*100./PSUM
230 4 CONTINUE
240 PRINT 3,
250 3 FORMAT (//28X,40HPERCENTAGE OF ANNUAL TOTAL PRECIPITATION/25X,44H-
260 +--------------------------------------------)
270 PRINT 15,
280 15 FORMAT (7HSTATION,19X,39HJAN   FEB   MAR   APR   MAY   JUN   JUL/
290 +18H------------------,8X,7(4H----,2X))
300 DO 20 I=1,M
310 20 PRINT 7, (SN(K,I),K=1,4), (PM(L,I),L=1,7)
320 7 FORMAT (4A6,1X,7(F5.1,1X)/)
330 PRINT 3,
340 PRINT 13,
350 13 FORMAT (7HSTATION,19X,37HAUG   SEP   OCT   NOV   DEC   OCT-MAR/18
360 +H------------------,8X,5(4H----,2X),7H-------)
370 DO 21 I=1,M
380 21 PRINT 14, (SN(K,I),K=1,4),(PM(L,I),L=8,12),PWIN(I)
390 14 FORMAT (4A6,1X,6(F5.1,1X)/)
400 NOSTA=NOSTA-30
410 IF(NOSTA-0)44,44,43
420 44 END
```

(b) Program RUNFIX

This program reads in the long term average monthly runoff for any number of stream gauging stations, computes the runoff index in terms of percentage of mean annual total runoff and prints the results in a tabulated form. In addition, accumulative runoff index for May - June, May - July, May - August and May - September will also be computed and printed.

The long term mean monthly flow data are to be stored in data files. Data for each gauging station should be stored in calendar order beginning from January. The data for December is to be followed immediately by the designated number of the station. The designated station number normally consists of 5 to 7 alphanumeric characters.

The following statements in the program are applicable only to G. E. Time-Sharing computer and should be modified when used on other computers.

(1) Line No. 10 This is a data file reference statement. The data files are named LAMR 1 etc. as shown.

(2) Line No. 90 This statement directs the computer to read in total number of stream gauging stations to be processed. The number must appear as the first item of data on the first data file.

(3) Line No. 140 This statement directs the computer to read in the whole set of data for one stream gauging station, namely mean monthly flow plus station designation.

The program statements are listed in the following page:

RUNFIX

```
10 $FILE LAMR1/LAMR2/LAMR3/LAMR4/LAMR5
20 PRINT 10,
30 10 FORMAT (39HANALYSIS OF STREAM GUAGING STATION DATA)
40 PRINT 1,
50 1 FORMAT (25HINDEX RUNOFF HYDROGRAPH -/3X,55HLONG TERM AVERAGE MONTHL
60 +Y RUNOFF IN TERMS OF PERCENTAGE/3X,27OF MEAN ANNUAL TOTAL RUNOFF)
70 DIMENSION P(12,30),NS(3,30),PM(12,30),RMJ(30),RMJL(30),RMA(30),
80 +RMS(30)
90 READ (1,2) NOSTA
100 2 FORMAT (5X,I4)
110 M=30
120 43 IF(NOSTA-30)40,42,42
130 40 M=NOSTA
140 42 READ(1,5) ((P(J,I),J=1,12),(NS(K,I),K=1,3),I=1,M)
150 5 FORMAT (5X,9I7/5X,3I7,3X,3A3)
160 DO 4 I=1,M
170 PSUM=0
180 DO 6 L=1,12
190 6 PSUM=PSUM+P(L,I)
200 DO 9 L=1,12
210 PM(L,I)=P(L,I)*100./PSUM
220 RMJ(I)=PM(5,I)+PM(6,I)
230 RMJL(I)=RMJ(I)+PM(7,I)
240 RMA(I)=RMJL(I)+PM(8,I)
250 RMS(I)=RMA(I)+PM(9,I)
260 9 CONTINUE
270 4 CONTINUE
280 PRINT 3,
290 3 FORMAT (//22X,33HPERCENTAGE OF ANNUAL TOTAL RUNOFF/15X,55H--------
300 +----------------------------------------------)
310 PRINT 15,
320 15 FORMAT (7HSTATION,10X,51HJAN    FEB    MAR    APR    MAY    JUN    JUL
330 +    AUG    SEP/9H---------,8X,9(4H----,2X))
340 DO 20 I=1,M
350 20 PRINT 7, (NS(K,I),K=1,3),(PM(L,I),L=1,9)
360 7 FORMAT (/3A3,7X,9(F5.1,1X))
370 PRINT 3,
380 PRINT 13,
390 13 FORMAT (7HSTATION,10X,55HOCT    NOV    DEC    MAY-JUN    MAY-JUL    MA
400 +Y-AUG    MAY-SEP/9H---------,8X,3(4H----,2X),4(7H-------,3X))
410 DO 21 I=1,M
420 21 PRINT 14, (NS(K,I),K=1,3),(PM(L,I),L=10,12),RMJ(I),RMJL(I)
430 +,RMA(I),RMS(I)
440 14 FORMAT (3A3,7X,3(F5.1,1X),4(F7.1,3X))
450 NOSTA=NOSTA-30
460 IF(NOSTA-0)44,44,43
470 44 END
```

PROGRAMS FOR GRID SQUARE ITERATIVE COMPUTATIONS

These programs were developed for the application of the grid square iterative computations in the pilot study of the North Thompson River Basin area as described in Section 6. These programs were also written originally for the use on the G. E. Time-Sharing Service.

(a) Program GSQPHY

This program computes the physiographic data for each grid square. The physiographic parameters to be computed are the average elevation, average land slope by the Plane Fitting method, distance to barrier and latitute index.

The input data are the elevations at corners, the centre and intermediate points of each square plus the coordinates of its centre. These data are to be stored in data file. The location of the main topographic barrier is approximated by a straight line as shown in Figure 1.

The output will be recorded in a blank file for later use.

The following statements in the program are applicable only to the G. E. Time-Sharing computer and should be modified when used on other computers:

(1) Line No. 10 — This is a file reference statement. The data files are named GSQDTA through GSQDTD. The blank files for output record are named PHYS 1 and PHYS 2.

(2) Line No. 40 — This is an input statement which directs the computer to read the first six items of data from the data file. These items are:

- NTSQ - total number of grid squares.
- SIZSQ - size of grid interval in kilometers.
- DFORX - reference distance in x-direction, in kilometers, see Fig. 1.
- DFORY - reference distance in y-direction, in kilometers, see Fig. 1.
- DTMLA - reference distance to datum for latitude index in kilometers, see Fig. 1.

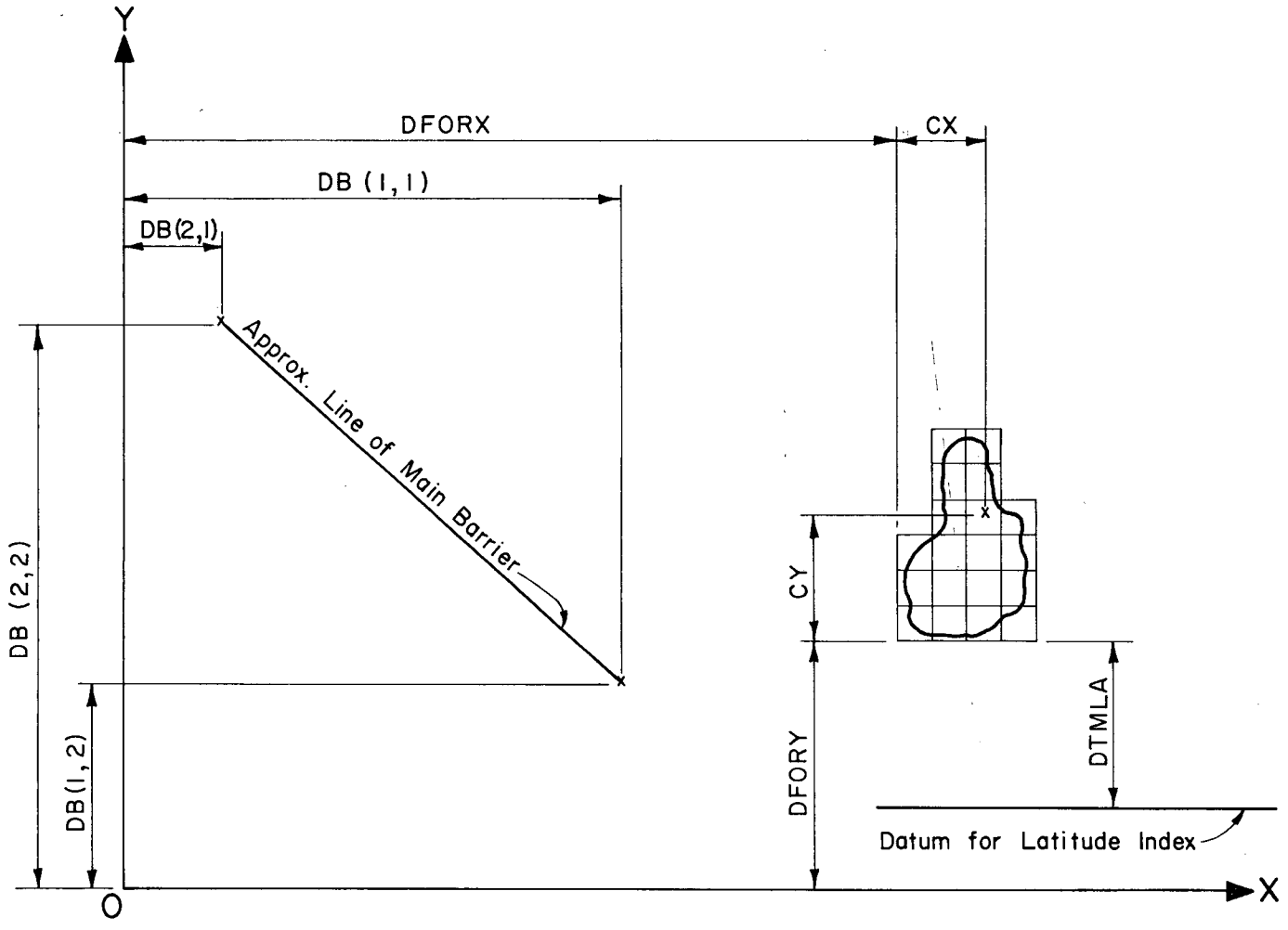

FIGURE 1

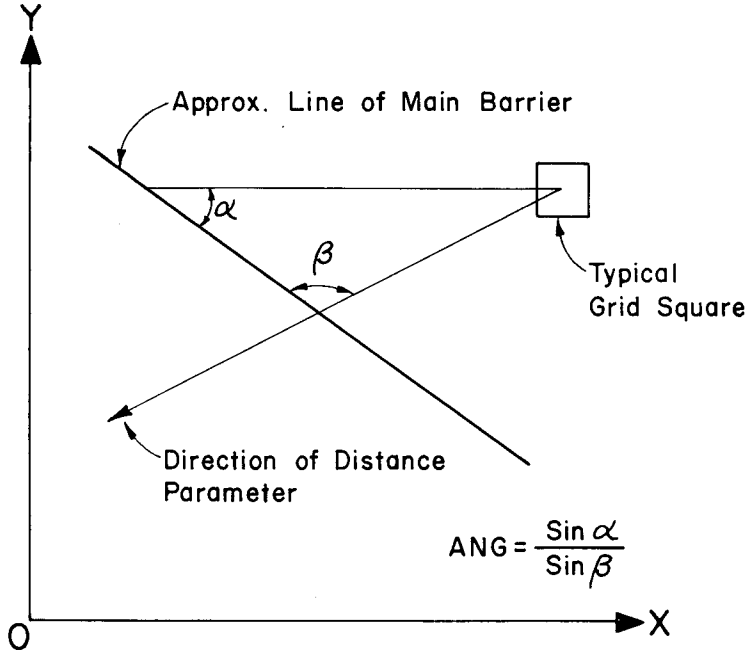

FIGURE 2

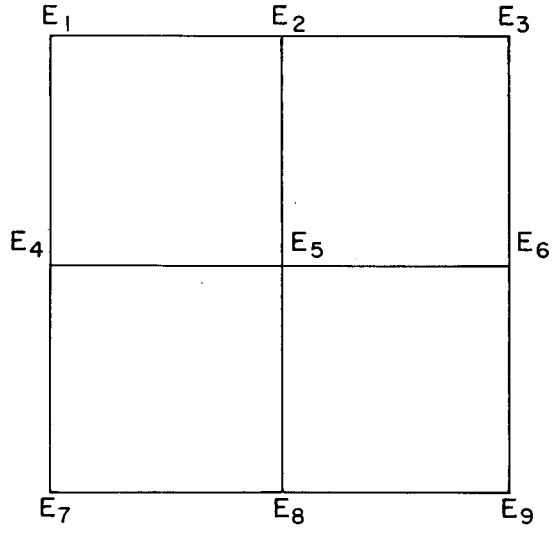

FIGURE 3

ANG - direction constant for distance to barrier, for definition, see Fig. 2.

(3) Line No. 90 This statement directs the computer to read in the whole set of data for one grid square . These data include:

NSQ - assigned number of the square.
CX, CY - the x- and y- coordinates of the centre of square, see Fig. 1.
EL, E2 etc. - nine-point elevation of a square, see Fig. 3.

(4) Line No. 240 This is a CALL statement for sub-routine named INTERP.

(5) Line No. 270 This is an output statement which directs the computer to write the computed data for one grid square on the blank files. The output will be in the following sequence.

(a) Assigned number of square.
(b) Average elevation in feet.
(c) Average land slope in feet per mile.
(d) Distance to barrier in kilometers.
(e) Latitude index in kilometers.

(6) Line No. 310 This is a control statement for the input of sub-routine.

(7) Line No. 450 This statement directs the computer to accept whatever follows as input data. In this program four items of data are to be input in this manner. These are the coordinates of end points defining the approximate line of main topographic barrier, as shown in Figure 1, which are to be arranged in the following sequence:

DB(1, 1), DB(2, 1), DB(1, 2), DB(2, 2), and preceded by a Line No. 460.

The program statements are listed in the following page:

GSQPHY

```
$FILE GSQDTA/GSQDTB/GSQDTC/GSQDTD,PHYS1/PHYS2
DIMENSION DB(2,2),X(20),Y(20)
COMMON X,Y,X1,Y1,I1
READ(1,2) NTSQ,SIZSQ,DFORX,DFORY,DTMLA,ANG
2 FORMAT (5X,I5,4F7.1,F7.4)
12 FORMAT (5X,4I6)
READ 12, ((DB(I,J),I=1,2),J=1,2)
14 DO 50 K=1,NTSQ
READ(1,6) NSQ,CX,CY,E1,E2,E3,E4,E5,E6,E7,E8,E9
6 FORMAT (5X,I5,2F5.1/5X,9F7.1)
EAV=(E1+E2+E3+E4+E5+E6+E7+E8+E9)/9.
S1=SQRT((E4-E5)**2+(E4-E1)**2)
S2=SQRT((E5-E6)**2+(E5-E2)**2)
S3=SQRT((E8-E9)**2+(E8-E5)**2)
S4=SQRT((E7-E8)**2+(E7-E4)**2)
SAV=5280.*(S1+S2+S3+S4)/2./SIZSQ/3280.8333
XSQ=CX+DFORX
YSQ=CY+DFORY
DO 22 I=1,2
X(I)=DB(I,2)
22 Y(I)=DB(I,1)
I1=2
X1=YSQ
CALL INTERP
DTB=(XSQ-Y1)*ANG
LAT=DTMLA+CY
WRITE(5,26) NSQ,EAV,SAV,DTB,LAT
26 FORMAT (I5,F7.1,F8.2,2F7.1)
50 CONTINUE
STOP
SUBROUTINE INTERP
DIMENSION X(20),Y(20)
COMMON X,Y,X1,Y1,I1
DO 230 I=1,I1
IF(X1-X(I))240,250
230 CONTINUE
260 PRINT 30,
30 FORMAT (37HOUT OF RANGE IN INTERPOLATION ROUTINE)
STOP
240 IF(I-1)260,260
Y1=(Y(I)-Y(I-1))*(X1-X(I-1))/(X(I)-X(I-1))+Y(I-1)
GO TO 270
250 Y1=Y(I)
270 RETURN
$DATA
```

(b) Program GSQITR

This program computes the runoff for each grid square from the previous estimate of precipitation and also the total runoff from the whole drainage basin to obtain runoff correction factor "K".

The input data include the estimated precipitation, the mean temperature and the area of square in the basin for each square lying wholly or partly in the basin. The output will be the adjusted runoff and precipitation for each square recorded on the blank files which could be used directly for the subsequent regression analysis.

The following statements are applicable only to the G. E. Time-Sharing computer and should be modified when used on other computers:

(1) Line No. 10 This statement refers to the following files:

GSTEMP	- mean annual temperature in ^{o}F for each square.
GSPREC	- previous estimate of mean annual precipitation in inches for each square.
GSAREA	- area of square in the basin in square kilometers for each square.
CORPRE and GSRUNF	- blank files for recording adjusted precipitation and runoff respectively for each square.

The input and output in each file are arranged in ascending order of the assigned number of the squares.

(2) Line No. 70 This statement directs the computer to read the precipitation data for one square from the data file GSPREC.

(3) Line No. 80 This statement directs the computer to read the temperature data for one square from the data file GSTEMP.

(4) Line No. 190 This statement directs the computer to read the area data for one square from the data file GSAREA.

(5) Line No. 370 This statement directs the computer to write the adjusted precipitation for all the squares on the blank file CORPRE.

(6) Line No. 380 This statement directs the computer to write the adjusted runoff for all the squares on the blank file GSRUNF.

(7) Line No. 400 Three items of data are to follow immediately after this statement. These data are the number of the iteration, recorded discharge in cubic feet per second at the lower end of the drainage basin and the total number of square lying wholly or partly in the basin. The format statement for these data is given in Line No. 40, and the data should be preceded by a Line No. 410.

The program statements are listed in the following page:

GSQITR

```
10 $FILE GSTEMP,GSPREC,GSAREA,CORPRE,GSRUNF
20 DIMENSION EVA(212),RNF(212),P(212)
30 READ 1, NITER,FLOW,NTSQ
40 1 FORMAT (5X,I5,F8.1,I5)
50 SUMAR=0.
60 DO 6 K=1,NTSQ
70 READ(2) PREC
80 READ(1) TEMP
90 PREC=PREC*25.4
100 TEMP=(TEMP-32.)*(5./9.)
110 FTEMP=300.+25.*TEMP+.5*(TEMP**3)
120 SMALL=(PREC/FTEMP)**2
130 IF(SMALL-.1)100,200,200
140 100 EVAP=PREC
150 GO TO 300
160 200 EVAP=PREC/SQRT(.9+SMALL)
170 300 EVAP=EVAP/25.4
180 EVA(K)=EVAP
190 READ(3) ASQ
200 PREC=PREC/25.4
210 RNF1=PREC-EVAP
220 RNF(K)=RNF1
230 SUMAR=SUMAR+RNF1*ASQ
240 6 CONTINUE
250 DO 7 I=1,2
260 PRINT 11,
270 11 FORMAT (42HGRID SQUARE SYSTEM - ITERATIVE COMPUTATION)
280 PRINT 10, NITER
290 10 FORMAT (//18HNO. OF ITERATION =,I5)
300 COEFF=FLOW*35.1577/SUMAR
310 PRINT 9, COEFF
320 9 FORMAT (/30HRUNOFF CORRECTION FACTOR (K) =,F8.4)
330 DO 90 K=1,NTSQ
340 RNF(K)=RNF(K)*COEFF
350 P(K)=RNF(K)+EVA(K)
360 90 CONTINUE
370 WRITE(4) (P(K),K=1,NTSQ)
380 WRITE(5) (RNF(K),K=1,NTSQ)
390 STOP
400 $DATA
```

(c) Program STPREG

This program makes use of standard stepwise regression technique for linear multiple correlation analysis. It was adopted from a program developed originally by the Shawinigan Engineering Company Limited for the Newfoundland and Labrador study on behalf of the Atlantic Development Board. The Shawinigan program was written for the IBM 1130 computer. The input and output statements of the original program has been modified for adoption to the G. E. Time-Sharing system.

The program will handle up to twenty independent variables and a maximum of 250 samples. If more variables or samples are to be used the DIMENSION statement in Line No. 60 should be altered accordingly.

The values of independent variables are stored in data files. The observed value of dependent variables are stored in a separate file. A blank file is provided to record the predicted new values of the dependent variable using the regression equation developed.

The following statements in the program are applicable to the G. E. Time-Sharing computer only and should be modified when used on other computers.

(1) Line No. 10 This statement refers to the following files:

GSIDIA through GSIDIE	- values of independent variables, one set per sample, plus the weighting factors for the samples. The weighting factor must be the final item in each set of data.
CORPRE	- observed value of dependent variable.
GSPREC	- blank file for recording predicted values of dependent vaiable.

(2) Line No. 130 This statement directs the computer to read all the observed values of the dependent variables.

(3) Line No. 150 This statement directs the computer to read the whole set of values of independent variables for one sample plus its weighting factor.

(4) Line No. 1190 Same as Line No. 150.

(5) Line No. 1310 This statement directs the predicted values of the dependent variable on the blank file GSPREC.

(6) Line No. 1330 Five items of data are to follow immediately after this statement. These data are:

NRUN	- no. of run.
N	- no. of variables, including dependent variable.
NCDS	- total no. of samples.
KPRED	- option to print out the predicted values of dependent variable. If KPRED = 1, the predicted values and their corresponding percentage errors will be printed. If KPRED = 0, the printing will be omitted.
KCORP	- option to print out the inter-correlation coefficients between two variables for all combinations. If KCORR = 0, the printing will be omitted.
F	- The specified minimum F level for checking of statistical significance of the correlations.

The program statements are listed in the following pages:

STPREG

```
10 $FILE GSIDTA/GSIDTB/GSIDTC/GSIDTD/GSIDTE,CORPRE,GSPREC
20 PRINT 100,
30 100 FORMAT (28HSTEPWISE REGRESSION ANALYSIS)
40 READ 13, NRUN,N,NCDS,KPRED,KCORR,F
50 13 FORMAT (5X,5I5,F5.1)
60 DIMENSION A(21,21),S(20),X(20),W(20),SW(20),V(20),XX(250),PP(250)
70 NM1=N-1
80 DO 3 I=1,N
90 NP1=N+1
100 DO 3 J=1,NP1
110 3 A(I,J)=0.
120 WCDS=0.
130 READ(6) (XX(K),K=1,NCDS)
140 DO 44 K=1,NCDS
150 READ(1) (X(I),I=1,NM1),WT
160 X(N)=XX(K)
170 DO 4 I=1,N
180 XI=X(I)
190 A(I,NP1)=A(I,NP1)+XI*WT
200 DO 4 J=1,N
210 4 A(I,J)=A(I,J)+XI*X(J)*WT
220 44 WCDS=WCDS+WT
230 REWIND 1
240 PRINT 80, NRUN
250 80 FORMAT (//17HNO OF RUN =      ,I5)
260 PRINT 81,NCDS
270 81 FORMAT (17HNO OF DATA =      ,I5)
280 PRINT 82, N
290 82 FORMAT(17HNO OF VARIABLES =,I5,3X,24H(INCLUDING DEP VARIABLE)//)
300 DO 7 I=1,N
310 7 X(I)=A(I,NP1)
320 IF(KC0RR-0)200,200
330 PRINT 83,
340 83 FORMAT (44H     I     J      CORR      SDEV(I)       SDEV(J))
350 200 DO 5 I=1,N
360 5 S(I)=SQRT((A(I,I)-A(I,NP1)**2/WCDS)/WCDS)
370 DO 91 I=1,NM1
380 A(I,I)=1.
390 IP=I+1
400 DO 90 J=IP,N
410 A(I,J)=(A(I,J)-A(I,NP1)*A(J,NP1)/WCDS)/(S(I)*S(J)*WCDS)
420 A(J,I)=A(I,J)
430 IF(KCORR-0)90,90
440 PRINT 84, I,J,A(I,J),S(I),S(J)
450 84 FORMAT (2I5,F10.5,2E12.4)
460 90 CONTINUE
470 91 CONTINUE
480 A(N,N)=1.
490 PHI=WCDS-1.
500 SERRO=S(N)*SQRT(WCDS/PHI)
```

STPREG CONTINUED

```
510 PRINT 85, SERRO
520 85 FORMAT(/37HSTANDARD ERROR OF DEPENDENT VARIABLE=,E12.4)
530 STOER=SERRO
540 NSTEP=0
550 GO TO 94
560 22 SERRO=S(N)*SQRT(WCDS*A(N,N)/PHI)
570 94 NMIN=0
580 NMAX=0
590 VMIN=100.
600 VMAX=0.
610 DO 14 I=1,NM1
620 V(I)=A(I,N)*A(N,I)/A(I,I)
630 IF(V(I)-0.)11,14
640 IF(V(I)-VMAX)19,19
650 VMAX=V(I)
660 NMAX=I
670 19 W(I)=0.
680 GO TO 14
690 11 W(I)=A(I,N)*S(N)/S(I)
700 SW(I)=SERRO*SQRT(A(I,I)/WCDS)/S(I)
710 IF(ABS(V(I))-ABS(VMIN))73,14,14
720 73 VMIN=V(I)
730 NMIN=I
740 14 CONTINUE
750 BO=X(N)
760 DO 15 I=1,NM1
770 15 BO=BO-W(I)*X(I)
780 WO=BO/WCDS
790 IF(NSTEP-0)97,20,97
800 97 PRINT 86, NSTEP,FLEVL,SERRO,WO
810 86 FORMAT(////8HSTEP NO.,I5,/2X,7HF LEVEL,F10.2/2X,32HSTANDARD ERROR
820 + OF DEP VARIABLE =,F10.4/2X,8HCONSTANT,E16.6)
830 PRINT 87,
840 87 FORMAT(//13X,43HVARIABLE          COEFF        STANDARD ERROR)
850 DO 95 I=1,NM1
860 IF(W(I)-0.)56,95,56
870 56 PRINT 88, I,W(I),SW(I)
880 88 FORMAT (14X,3HX -,I3,6X,E12.6,2X,E12.4)
890 95 CONTINUE
900 R=(1.-((SERRO/STOER)**2))**.5
910 PRINT 79, R
920 79 FORMAT (/22HCOEFF OF CORRELATION =,F8.4)
930 20 IF(ABS(VMIN)*PHI/A(N,N)-F)24,24,28
940 24 K=NMIN
950 PHI=PHI+1.
960 GO TO 26
970 28 K=NMAX
980 PHI=PHI-1.
990 FLEVL=VMAX*PHI/(A(N,N)-VMAX)
1000 IF(FLEVL-F)23,23,26
```

STPREG CONTINUED

```
1010 26 TEMP=A(K,K)
1020 DO 33 I=1,N
1030 A(I,NP1)=A(I,K)
1040 A(NP1,I)=A(K,I)/TEMP
1050 A(K,I)=0.
1060 33 A(I,K)=0.
1070 A(NP1,K)=1./TEMP
1080 A(K,NP1)=-1.
1090 DO 32 I=1,N
1100 DO 32 J=1,N
1110 32 A(I,J)=A(I,J)-A(I,NP1)*A(NP1,J)
1120 NSTEP=NSTEP+1
1130 GO TO 22
1140 23 IF(KPRED-0)58,57,58
1150 58 PRINT 89,
1160 89 FORMAT(////13X,45HACTUAL        PREDICTED      DEVIATION      PCT.)
1170 57 CONTINUE
1180 DO 92 K=1,NCDS
1190 READ(1) (X(I),I=1,NM1),WT
1200 X(N)=XX(K)
1210 PRED=W0
1220 DO 70 J=1,NM1
1230 70 PRED=PRED+W(J)*X(J)
1240 PP(K)=PRED
1250 DEV=-X(N)+PRED
1260 PCT=100.*DEV/X(N)
1270 IF(KPRED-0)60,92,60
1280 60 PRINT 96,K,X(N),PRED,DEV,PCT
1290 96 FORMAT (I6,1X,F12.2,3X,F12.2,2X,F12.4,3X,F8.2)
1300 92 CONTINUE
1310 WRITE(7) (PP(K),K=1,NCDS)
1320 STOP
1330 $DATA
```

PROGRAMS FOR EXTENDING STREAMFLOW RECORDS BY CORRELATION

Two programs were developed for extending streamflow records by the method described by W. B. Langbein in "Hydrologic Networks and Methods", W. M. O. Flood Control Series No. 15, United Nations Publication, 1960. These programs were written by the staff of the Vancouver Network Planning Group, Water Survey of Canada, using the IBM/360 model 67 computer at the University of British Columbia. COMMENTS are given at the beginning of each listing to help in understanding the program.

(a) Program LCORR

This program was used to correlate concurrent mean monthly streamflow records of pairs of hydrometric stations. The correlations are made in terms of the deviations, in logarithmic units, from the geometric mean of each calendar month. The mean monthly discharge data must be supplied through a user written subprogram and the pairs of stations to be correlated specified on control cards. The coefficients of the resulting regression equations are printed and also punched on cards for use by the program SYNTH which is described on Page V - 27. The coefficient of correlation, the number of months of concurrent records and the standard error of the estimate are also printed on the output list.

The program statements together with a sample input subprogram are listed on the following pages:

```
C MARCH 1969 - R.S.MCAULLY - WATER SURVEY OF CANADA, VANCOUVER B.C.
C
C PROGRAM FOR CORRELATING STREAMFLOW RECORDS BY THE METHOD DISCUSSED BY
C  W.B.LANGBEIN IN 'HYDROLOGIC NETWORKS AND METHODS', WMO FLOOD CONTROL
C  SERIES NO 15, UNITED NATIONS PUBLICATION, 1960
C
C USAGE - CORRELATIONS TO BE ATTEMPTED ARE SPECIFIED ON CONTROL CARDS
C  COL 1-8  INDEPENDENT STATION NUMBER
C  COL 9-80 DEPENDENT STATION NUMBERS IN CONTIGUOUS 8 COLUMN FIELDS
C  FOLLOW CONTROL CARDS WITH END-OF-FILE CARD
C
C SUBROUTINES REQ'D - 'DATA1' (TO BE SUPPLIED BY USER)
C  -MONTHLY FLOW RECORDS ARE TRANSFERRED TO DISK BY REPEATED CALLS TO THE
C   SUBROUTINE BEFORE ANY CORRELATIONS ARE ATTEMPTED
C  -THE FIRST CALL TO THE SUBROUTINE IS TO 'DATA1', ALL SUBSEQUENT CALLS ARE
C   TO THE ENTRY POINT 'DATA'
C  -THE FOLLOWING VALUES ARE TO BE RETURNED THROUGH BLANK COMMON
C
C   VARIABLE 1 (REAL*8)   STATION NUMBER. SET TO '99ZZ999 ' TO END CALLS
C
C   VARIABLE 2 (INTEGER)  YEAR OF STATION RECORD, TO BE IN THE RANGE 1911-1966
C
C   VARIABLES 3-14 (REAL) MEAN MONTHLY FLOW RECORDS IN THE ORDER JAN-DEC
C                         A VALUE < 0.01 INDICATES NO RECORD
C
C REMARKS -A MAXIMUM OF 100 STATIONS IS ALLOWED IN THE INPUT FILE
C  -TO ALTER THE ALLOWABLE RANGE OF RECORD YEARS
C   LET A=YEAR OF EARLIEST RECORD, B=YEAR OF LATEST RECORD & C=12*(B-A+1)
C   THEN SUBSTITUTE A FOR 1911, B FOR 1966 & C FOR 672 IN STATEMENTS
C   (REAL),(701 +1),(704),(704 +1),(741 +14) & (802)
C  -INDEXED READ/WRITE OPERATIONS WILL REQUIRE MODIFICATION FOR COMPATABILITY
C   WITH STANDARD IBM FORTRAN
C
C LOGICAL UNITS REFERENCED   3-SCRATCH DISK
C                            5-CONTROL CARDS
C                            6-PRINTER OUTPUT
C                            7-CARD PUNCH
C
C ..........................................................................
C
C  ASPEC - SPECIFICATION 'A8' FOR PRINTER OUTPUT OBJECT TIME FORMAT
```

```
C   B      - SLOPE OF REGRESSION EQUATION
C
C   BLANK  - THE CHARACTERS
C
C   DASH   - THE CHARACTERS '..  '
C
C   DATA   - SECONDARY ENTRY POINT TO THE SUBROUTINE 'DATA1'
C
C   DATA1  - NAME OF SUBROUTINE TO SUPPLY DATA INPUT
C
C   FLAG   - THE CHARACTERS '9977999 '
C
C   FM     - FLOAT(M)
C   FMT    - OBJECT TIME FORMAT ARRAY FOR PRINTER OUTPUT
C
C   FN     - FLOAT(N)
C
C   FSPEC  - SPECIFICATION 'F8.3' FOR PRINTER OUTPUT OBJECT TIME FORMAT
C
C   L      - LOSS IN DEGREES OF FREEDOM
C
C   LINE   - COUNTER FOR NUMBER OF PRINTED LINES PER PAGE
C
C   LIST   - ARRAY CONTAINING STATION NUMBERS SPECIFIED ON CONTROL CARD
C
C   M      - NUMBER OF CONCURRENT MONTHLY RECORDS OF 2 STATIONS FOR ENTIRE
C            PERIOD OF RECORD
C
C   MAX    - NUMBER OF STATIONS IN INPUT FILE
C
C   N      - USED TO 1. TRANSFER YEAR OF RECORD FROM 'DATA1'
C                    2. COUNT THE NUMBER OF CONCURRENT MONTHLY RECORDS OF 2
C                       STATIONS FOR A PARTICULAR MONTH
C
C   R      - CORRELATION COEFFICIENT (ADJUSTED FOR LOSS IN DEGREES OF FREEDOM)
C
C   S      - STANDARD ERROR OF X ON Y
C
C   STORE  - ARRAY CONTAINING STATION NUMBERS IN ORDER OF INPUT
C
C   SX     - ACCUMULATOR FOR SUM OF X
C
```

```
C  SXX    - ACCUMULATOR FOR SUM OF X SQUARED
C
C  SXY    - ACCUMULATOR FOR SUM OF X TIMES Y
C
C  SY     - ACCUMULATOR FOR SUM OF Y
C
C  SYY    - ACCUMULATOR FOR SUM OF Y SQUARED
C
C  X      - ARRAY CONTAINING INDEPENDENT STATION RECORDS
C
C  XCOV   - VARIANCE OF X TIMES (M-1)
C
C  XMEAN  - ARRAY USED TO 1. TRANSFER MONTHLY RECORDS FROM 'DATA1'
C                         2. STORE THE MEAN OF X FOR EACH MONTH
C                         3. STORE EQUATION CONSTANTS FOR PUNCHED OUTPUT
C
C  XNO    - INDEPENDENT STATION NUMBER
C
C  XYCOV  - COVARIANCE BETWEEN X & Y TIMES (M-1)
C
C  Y      - ARRAY CONTAINING DEPENDENT STATION RECORDS
C
C  YMEAN  - ARRAY USED TO 1. STORE THE MEAN OF Y FOR EACH MONTH
C                         2. STORE EQUATION CONSTANTS FOR PRINTER OUTPUT
C
C  YCOV   - VARIANCE OF Y TIMES (M-1)
C
C  YNO    - DEPENDENT STATION NUMBER
C
C  ..............................................................................
C
      REAL X(672),Y(672),XMEAN(12),YMEAN(12),ASPEC/'A8'/,ESPEC/'E8.3'/,
     1     DASH/'..  '/,FMT(30)/'(A9,F7.3,I5,F7.3,E8.3,',23*',',')'/
      REAL*8 XNO,YNO,STORE(100),LIST(10),BLANK/'        '/,
     1       FLAG/'99ZZ999'/
      INTEGER MAX/0/
      COMMON XNO,N,XMEAN
C WRITE DATA ON DISK FOR LATER USE
      CALL DATA1
701   YNO=XNO
      DO 703 I=1,672
703   X(I)=DASH
704   IF (N .LT. 1911 .OR. N .GT. 1966) GO TO 801
      N=12*(N-1911)
```

```
      DO 709 I=1,12
      IF (XMEAN(I) .LT. 0.01) GO TO 709
      X(N+I)=ALOG(XMEAN(I))
709   CONTINUE
710   CALL DATA
      IF (XNO .EQ. YNO) GO TO 704
      MAX=MAX+1
      STORE(MAX)=YNO
      WRITE (3'12000*MAX) X
      IF (XNO .EQ. FLAG) GO TO 720
      IF (MAX .LE. 100) GO TO 701
      WRITE (6,718)
718   FORMAT ('0MAXIMUM OF 100 STATIONS IN INPUT FILE, IGNORE REMAINDER
     1AND CONTINUE')
C READ CONTROL CARDS
720   READ (5,721,END=811) LIST
721   FORMAT (10A8)
      IF (LIST(1) .EQ. XNO) GO TO 733
      LINE=51
      XNO=LIST(1)
C LOCATE AND READ INDEPENDENT STATION RECORDS (IF NECESSARY)
      DO 727 NREC=1,MAX
      IF (XNO .EQ. STORE(NREC)) GO TO 732
727   CONTINUE
      WRITE (6,729) XNO
729   FORMAT (' ',A8,'  NOT FOUND IN INPUT FILE, IGNORE AND CONTINUE')
      XNO=FLAG
      GO TO 720
732   READ (3'12000*NREC) X
733   DO 799 I=2,10
      YNO=LIST(I)
      IF (YNO .EQ. BLANK) GO TO 720
C LOCATE AND READ DEPENDENT STATION RECORDS
      DO 738 NREC=1,MAX
      IF (YNO .EQ. STORE(NREC)) GO TO 741
738   CONTINUE
      WRITE (6,729) YNO
      GO TO 799
741   READ (3'12000*NREC) Y
      M=0
      L=1
      XCOV=0.0
      YCOV=0.0
      XYCOV=0.0
```

```
C BEGIN LOOP TO CALCULATE MEANS,VARIANCES & COVARIANCE FOR EACH MONTH
      DO 773 J=1,12
      N=0
      XMEAN(J)=DASH
      SX=0.0
      SY=0.0
      SXX=0.0
      SYY=0.0
      SXY=0.0
      DO 763 K=J,672,12
      IF (X(K) .EQ. DASH .OR. Y(K) .EQ. DASH) GO TO 763
      N=N+1
      SX=SX+X(K)
      SY=SY+Y(K)
      SXX=SXX+X(K)**2
      SYY=SYY+Y(K)**2
      SXY=SXY+X(K)*Y(K)
763   CONTINUE
      IF (N .EQ. 0) GO TO 773
      M=M+N
      L=L+1
      EN=N
      XMEAN(J)=SX/EN
      YMEAN(J)=SY/EN
      XCOV=XCOV+SXX-SX*XMEAN(J)
      YCOV=YCOV+SYY-SY*YMEAN(J)
      XYCOV=XYCOV+SXY-SX*YMEAN(J)
773   CONTINUE
      IF (XYCOV .LE. 0.0 .OR. L .EQ. M .OR. XCOV .EQ. 0.0 .OR.
     1   YCOV .EQ. 0.0) GO TO 797
C CALCULATE STANDARD ERROR,ADJUSTED CORRELATION COEFFICIENT & SLOPE OF EQUATION
      EM=M-1
      B=XYCOV/XCOV
      R=(1.0-B*XYCOV/YCOV)*EM/FLOAT(M-L)
      IF (R .GE. 1.0) GO TO 797
      S=0.4342945*SQRT(YCOV*R/EM)
      R=SQRT(1.0-R)
      IF (LINE .GE. 51) GO TO 805
      LINE=LINE+1
784   DO 792 J=1,12
      IF (XMEAN(J) .EQ. DASH) GO TO 790
      XMEAN(J)=YMEAN(J)-B*XMEAN(J)
```

```
C CALCULATE EQUATION CONSTANTS FOR USE WITH COMMON LOGARITHMS
      YMEAN(J)=0.4342945*XMEAN(J)
      FMT(J+J+5)=FSPEC
      GO TO 792
790   YMEAN(J)=DASH
      FMT(J+J+5)=ASPEC
792   CONTINUE
C PRINTER OUTPUT
      WRITE (6,FMT) YNO,R,M,S,B,YMEAN
C PUNCH OUTPUT IF R > 0.0
      WRITE (7,795) XMEAN,R,XNO,YNO
795   FORMAT (13A4,12X,2A8)
      GO TO 799
797   WRITE (6,798) YNO,DASH,M,(DASH,J=1,14)
798   FORMAT (' ',A8,A7,I5,A7,13A8)
799   CONTINUE
      GO TO 720
801   WRITE (6,802) YNO,N
802   FORMAT ('0',A8,'  YEAR = ',I4,' OUTSIDE RANGE (1911-1966), IGNORE
     1AND CONTINUE')
      GO TO 710
805   WRITE (6,806) XNO
806   FORMAT ('1'/'0',46X,'CORRELATION WITH STATION NUMBER - ',A8/'0',12
     1X,'R      N      SE       B     A(JAN)  A(FEB)  A(MAR)  A(APR)  A(MAY)
     2  A(JUN)  A(JUL)  A(AUG)  A(SEP)  A(OCT)  A(NOV)  A(DEC)'/' ')
      LINE=1
      GO TO 784
811   WRITE (6,812)
812   FORMAT ('1')
      STOP
      END
```

Sample Input Subprogram

```
      SUBROUTINE DATA1
      REAL*8 XNO,YNO,FLAG/'9977999'/
      COMMON XNO,IYEAR,XMEAN(12)
      ENTRY DATA
C DATA ON CARDS - 2 CARDS PER STATION YEAR OF RECORD
      READ (5,30,END=40) XNO,IYEAR,(XMEAN(I),I=1,6)
      READ (5,30,END=40) YNO,JYEAR,(XMEAN(I),I=7,12)
   30 FORMAT (A8,I5,6E11.3)
C DETERMINE IF BOTH CARDS REFER TO THE SAME STATION NUMBER & SAME YEAR
      IF (XNO .EQ. YNO .AND. IYEAR .EQ. JYEAR) RETURN
      WRITE (6,50) XNO,IYEAR,YNO,JYEAR
   50 FORMAT ('0CARD 1 READS  ',A8,I6/' CARD 2 READS  ',A8,I6)
      STOP
   40 XNO=FLAG
      RETURN
      END
```

(b) Program SYNTH

This program was used to extend mean monthly streamflow records using the regression equation established by the program LCORR.

All mean monthly discharge data must be supplied through the same user written subprogram as used by the program LCORR. The independent and dependent station numbers and the associated regression equation coefficients are specified on control cards, which are selected from the punched output of the program LCORR. The SYNTH program then computes and prints the estimated mean monthly discharges at the dependent station and, if observed streamflow records are available, also computes and prints the percentage error of the estimated value.

The program statements are listed on the following pages:

SYNTH

```
C MARCH 1969 - R.S.MCAULLY - WATER SURVEY OF CANADA, VANCOUVER B.C.
C
C PROGRAM FOR EXTENDING STREAMFLOW RECORDS USING THE REGRESSION EQUATION
C  COMPUTED BY THE LANGBEIN CORRELATION PROGRAM (LCORR)
C
C USAGE - RECORDS TO BE EXTENDED ARE SPECIFIED BY SELECTING THE APPROPRIATE
C  CARDS FROM THE PUNCHED OUTPUT OF 'LCORR'
C  COL 66-72 INDEPENDENT STATION NUMBER
C  COL 73-80 DEPENDENT STATION NUMBER
C  FOLLOW CONTROL CARDS WITH END-OF-FILE CARD
C
C SUBROUTINES REQ'D - 'DATA1' (TO BE SUPPLIED BY USER)
C  -MONTHLY FLOW RECORDS ARE TRANSFERRED TO DISK BY REPEATED CALLS TO THE
C   SUBROUTINE BEFORE ANY RECORDS ARE PROCESSED
C  -THE FIRST CALL TO THE SUBROUTINE IS TO 'DATA1', ALL SUBSEQUENT CALLS ARE
C   TO THE ENTRY POINT 'DATA'
C  -THE FOLLOWING VALUES ARE TO BE RETURNED THROUGH BLANK COMMON
C
C   VARIABLE 1 (REAL*8)   STATION NUMBER. SET TO '9977999 ' TO END CALLS
C
C   VARIABLE 2 (INTEGER)  YEAR OF STATION RECORD, TO BE IN THE RANGE 1911-1966
C
C   VARIABLES 3-14 (REAL) MEAN MONTHLY FLOW RECORDS IN THE ORDER JAN-DEC
C                         A VALUE < 0.01 INDICATES NO RECORD
C
C REMARKS -A MAXIMUM OF 100 STATIONS IS ALLOWED IN THE INPUT FILE
C  -TO ALTER THE ALLOWABLE RANGE OF RECORD YEARS WITHIN THE LIMITS 1901-1999
C         SUBSTITUTE              IN PLACE OF      IN STATEMENT(S)
C   A=YEAR OF EARLIEST RECORD      1911          (704),(704 +1),(783)
C   B=YEAR OF LATEST RECORD        1966          (704),(783)
C   12*(B-A+1)                      672          (REAL),(701 +1)
C   A-1900                           11          (739 +2)
C   B-1900                           66          (739 +2)
C  -INDEXED READ/WRITE OPERATIONS WILL REQUIRE MODIFICATION FOR COMPATIBILITY
C   WITH STANDARD IBM FORTRAN
C
C LOGICAL UNITS REFERENCED   3-SCRATCH DISK
C                            5-CONTROL CARDS
C                            6-PRINTER OUTPUT
C
C ..............................................................................
```

```
C  EST    - ARRAY CONTAINING ESTIMATED MONTHLY RECORDS
C
C  FMT    - OBJECT TIME FORMAT ARRAY FOR PRINTER OUTPUT CONTAINING THE FOLLOWING:
C
C          - FMTA - FORMAT ARRAY FOR INDEPENDENT STATION
C
C          - FMTB - FORMAT ARRAY FOR ESTIMATED VALUES
C
C          - FMTC - FORMAT ARRAY FOR DEPENDENT STATION
C
C          - FMTD - FORMAT ARRAY FOR % ERROR VALUES
C
C  FSPEC  - SPECIFICATION 'F9.1' FOR PRINTER OUTPUT OBJECT TIME FORMAT
C
C  LINE   - COUNTER FOR NUMBER OF PRINTED LINES PER PAGE
C
C  MAX    - NUMBER OF STATIONS IN INPUT FILE
C
C  N      - YEAR OF STATION RECORD
C
C  NONE   - LOGICAL VARIABLE SET TO .TRUE. IF NO RECORDS FOR A PARTICULAR YEAR
C
C  STORE  - ARRAY CONTAINING STATION NUMBERS IN ORDER OF INPUT
C
C  TEN    - CONTAINS 3RD DIGIT OF YEAR OF RECORDS
C
C  UNIT   - CONTAINS 4TH DIGIT OF YEAR OF RECORDS
C  A      - ARRAY USED TO 1. TRANSFER MONTHLY MEANS FROM 'DATA1'
C                         2. STORE REGRESSION EQUATION CONSTANTS
C
C  ASPEC  - SPECIFICATION 'A9' FOR PRINTER OUTPUT OBJECT TIME FORMAT
C
C  B      - SLOPE OF REGRESSION EQUATION
C
C  DASH   - THE CHARACTERS '..  '
C
C  DATA   - SECONDARY ENTRY POINT TO THE SUBROUTINE 'DATA1'
C
C  DATA1  - NAME OF SUBROUTINE TO SUPPLY DATA INPUT
C
C  ERROR  - ARRAY CONTAINING % ERROR OF ESTIMATED RECORDS FROM ACTUAL RECORDS
```

```
C  X      - ARRAY CONTAINING INDEPENDENT STATION RECORDS
C
C  XNO    - INDEPENDENT STATION NUMBER
C
C  XST    - USED TO SAVE XNO
C
C  Y      - ARRAY CONTAINING DEPENDENT STATION RECORDS
C
C  YNO    - DEPENDENT STATION NUMBER
C
C  YST    - USED TO SAVE YNO
C
C  ..............................................................................
C
      REAL X(672),Y(672),EST(24),ERROR(24),A(24),FMT(109),
     1     FMTA(24),FMTB(24),FMTC(24),FMTD(24)
      REAL*8 STORE(100),XNO,YNO,XST/'9999999'/,YST/'9999999'/
      INTEGER TEN,UNIT,MAX/0/
      LOGICAL NONE
      DATA ASPEC/4HA9  /,DASH/4H..  /,ESPEC/4HE9.1/,
     1 FMT(01)/4H('-1/,FMT(02)/4H'A12/,FMT(03)/4H,5X  /,FMT(27)/4H/' 9/,
     2 FMT(28)/4H'A12/,FMT(29)/4H,'OB/,FMT(30)/4HS   '/,FMT(54)/4H/I2,/,
     3 FMT(55)/4HA12,/,FMT(56)/4H'EST/,FMT(57)/4H   ' /,FMT(81)/4H/I2,/,
     4 FMT(82)/4H4X'%/,FMT(83)/4H ERR/,FMT(84)/4HOR'6/,FMT(85)/4HX    /,
     5 FMT(05),FMT(07),FMT(09),FMT(11),FMT(13),FMT(15),FMT(17),FMT(19),
     6 FMT(21),FMT(23),FMT(25),FMT(32),FMT(34),FMT(36),FMT(38),FMT(40),
     7 FMT(42),FMT(44),FMT(46),FMT(48),FMT(50),FMT(52),FMT(59),FMT(61),
     8 FMT(63),FMT(65),FMT(67),FMT(69),FMT(71),FMT(73),FMT(75),FMT(77),
     9 FMT(79),FMT(87),FMT(89),FMT(91),FMT(93),FMT(95),FMT(97),FMT(99),
     A FMT(101),FMT(103),FMT(105),FMT(107)/44*1H,/,FMT(109)/1H)/
      COMMON XNO,N,A
      EQUIVALENCE (FMT(3),FMTA(1)),(FMT(30),FMTB(1)),(FMT(57),FMTC(1)),
     1            (FMT(85),FMTD(1)),(EST(1),ERROR(2))
C WRITE DATA ON DISK FOR LATER USE
      CALL DATA1
701   YNO=XNO
      DO 703 I=1,672
703   X(I)=DASH
704   IF (N .LT. 1911 .OR. N .GT. 1966) GO TO 782
      N=12*(N-1911)
      DO 709 I=1,12
      IF (A(I) .LT. 0.01) GO TO 709
      X(N+I)=A(I)
709   CONTINUE
```

```
      IF (X(I) .EQ. DASH) GO TO 759
      EMTA(J)=ESPEC
      NONE=.FALSE.
      IF (A(J) .EQ. DASH) GO TO 760
      EST(J)=EXP(A(J)+B*ALOG(X(I)))
710   CALL DATA
      IF (XNO .EQ. YNO) GO TO 704
      MAX=MAX+1
      STORE(MAX)=YNO
      WRITE (3'12000*MAX) X
      IF (XNO .EQ. XST) GO TO 720
      IF (MAX .LT. 100) GO TO 701
      WRITE (6,718)
718   FORMAT ('0MAXIMUM OF 100 STATIONS IN INPUT FILE, IGNORE REMAINDER
     1AND CONTINUE')
C READ CONTROL CARDS
720   READ (5,721,END=786) (A(I),I=2,24,2),B,XNO,YNO
721   FORMAT (13A4,12X,2A8)
      IF (XNO .EQ. XST) GO TO 731
C LOCATE AND READ INDEPENDENT STATION RECORDS (IF NECESSARY)
      DO 725 NREC=1,MAX
      IF (XNO .EQ. STORE(NREC)) GO TO 729
725   CONTINUE
      WRITE (6,727) XNO
727   FORMAT (' ',A8,'  NOT FOUND IN INPUT FILE, IGNORE AND CONTINUE')
      GO TO 720
729   READ (3'12000*NREC) X
      XST=XNO
731   IF (YNO .EQ. YST) GO TO 739
C LOCATE AND READ DEPENDENT STATION RECORDS (IF NECESSARY)
      DO 734 NREC=1,MAX
      IF (YNO .EQ. STORE(NREC)) GO TO 737
734   CONTINUE
      WRITE (6,727) YNO
      GO TO 720
737   READ (3'12000*NREC) Y
      YST=YNO
739   LINE=9
      I=0
      DO 774 K=11,66
      NONE=.TRUE.
      L=I+1
      DO 766 J=2,24,2
      I=I+1
```

```
      FMTC(J)=FSPEC
752   IF (Y(I) .EQ. DASH) GO TO 763
      FMTB(J)=FSPEC
      NONE=.FALSE.
      IF (EST(J) .EQ. DASH) GO TO 764
      ERROR(J)=100.0*EST(J)/Y(I)-100.0
      FMTD(J)=FSPEC
      GO TO 766
759   FMTA(J)=ASPEC
760   EST(J)=DASH
      FMTC(J)=ASPEC
      GO TO 752
763   FMTB(J)=ASPEC
764   ERROR(J)=DASH
      FMTD(J)=ASPEC
766   CONTINUE
      IF (NONE) GO TO 774
      TEN=K/10
      UNIT=K-10*TEN
      IF (LINE .GE. 9) GO TO 776
      LINE=LINE+1
772   WRITE (6,FMT) XNO,(X(J),J=L,I),YNO,(Y(J),J=L,I),TEN,YNO,
     1              (EST(J),J=2,24,2),UNIT,(ERROR(J),J=2,24,2)
774   CONTINUE
      GO TO 720
776   WRITE (6,777) YNO,XNO
777   FORMAT ('1'/'0',38X,A8,'MONTHLY MEANS SYNTHESIZED FROM ',A8,'RECOR
     1DS'/'0',23X,'JAN       FEB       MAR       APR       MAY       JUN
     2 JUL       AUG       SEP       OCT       NOV       DEC')
      LINE=1
      GO TO 772
782   WRITE (6,783) XNO,N
783   FORMAT ('0',A8,'  YEAR = ',I4,' OUTSIDE RANGE (1911-1966), IGNORE
     1AND CONTINUE')
      GO TO 710
786   WRITE (6,787)
787   FORMAT ('1')
      STOP
      END
```

APPENDIX VI

LIST OF MAJOR AND MAIN STREAMS

A suggested list of major and main streams, as defined in Section 9, is presented below. This list is considered to be a fairly complete compilation of the two stream size designations. However, the selection has been made chiefly on the basis of a visual inspection of 4 to 16 mile to the inch topographic maps and some minor revision of the list may be required following precise measurement of the drainage areas of the indicated main streams.

FRASER RIVER BASIN

Major Streams

Fraser River
Thompson River
Nicola River
North Thompson River
South Thompson River
Clearwater River
Chilko River
Chilcotin River
Quesnel River
West Road River
Nechako River
McGregor River

Main Streams

Pitt River
Stave River
Chilliwack River
Harrison River
Coquihalla River
Nahatlatch River
Spius Creek
Bridge River
Bonaparte River
Barrier River
Mahood River
Murtle River
Azure River
Adams River
Seymour River
Eagle River
Shuswap River
Salmon River
Seton River
Taseko River
Chilako River
West Road (Blackwater) River
Nazko River
Beaver Creek
Cariboo River
Cottonwood River
Horsefly River
Stuart River
Stellako River
Euchiniko River
Endako River
Salmon River
Willow River
Bowron River
Torpy River
Morkill River
Holmes River
Raush River
Herrick Creek

COLUMBIA RIVER BASIN

Major Streams

Columbia River
Kootenay River
Kettle River
Similkameen River

Main Streams

Salmo River
Incomappleux River
Illecillewaet River
Goldstream River
Canoe River
Beaver River
Kicking Horse River
Spillimacheen River
White River
St. Mary River
Bull River
Elk River
Gold Creek
Moyie River
Flathead River
Goat River
Lardeau River
Duncan River
Slocal River
Granby River
West Kettle River
Okanagan River
Ashnola River
Tulameen River

PEACE RIVER BASIN

Major Streams

Peace River
Kiskatinaw River
Beatton River
Pine River
Halfway River
Parsnip River
Finlay River
Omineca River
Ingenika River

Main Streams

Moberly River
Nabesche River
Manson River
Nation River
Pack River
Ospika River
Pelly Creek
Akie River
Kwadacha River
Fox River
Fire Steel River
Mesilinka River
Osilinka River
Cameron River
Graham River
Murray River
Sukunka River
Doing River
Blueberry River
Wapiti River

LIARD RIVER BASIN

Major Streams

Liard River
Fort Nelson River
Toad River
Rabbit River
Dease River
Turnagain River
Muskwa River
Kechika River

Main Streams

Cottonwood River
Eagle River
Four Mile River
Rapid River
Blue River
Little Rancheria River
Hyland River
Red River
Frog River
Gataga River
Dall River
Kutcho Creek
Gundahoo River
Coal River
Smith River
Prophet River
Fishing Creek River
Trout River
Grayling River
Racing River
Crow River
Beaver River
Dunedin River
Fontas River
Kahntah River
Tuchodi River
Sikanni Chief River
Snake River
Petitot River
Hay River
Kotcho River

YUKON RIVER BASIN

Major Streams

Yukon River
Teslin River

Main Streams

Tutshi River
Atlin River
Swift River
Jennings River
Gladys River

SKEENA RIVER BASIN

Major Streams

Skeena River
Bulkley River
Babine River

Main Streams

Kitsumkalum River
Zymoetz River
Kitwanga River
Kispiox River
Sicintine River
Sustut River
Nilkitwa River
Fulton River
Telkwa River
Morice River
Suskwa River

STIKINE RIVER BASIN

Major Stream

Stikine River

Main Streams

Scud River
Chutine River
Mess River
Tahltan River
Iklastline River
Tuya River
Tanzilla River
Klappan River
Pitman River
Spatszizi River
Chukachida River

TAKU RIVER BASIN

Major Streams

Taku River
Inklin River
Sheslay River

Main Streams

Tulsequah River
Sloko River
Nakina River
Sutlahine River
Nahlin River
Samotua River

NASS RIVER BASIN

Major Streams

Nass River
Bell-Irving River

Main Streams

Kiteen River
Cranberry River
White River
Bowser River

OTHER COASTAL (INTERIOR DRAINAGE)BASINS

Major Streams

Homathko River
Bella Coola River
Dean River
Iskut River

Main Streams

Unuk River
Klinaklini River
Mosley River
Talchako River
Atnarko River
Iltasyuko River
Jekill River
More Creek

COASTAL BASINS

Major Stream

Squamish River

Main Streams

Cheakamus River
Toba River
Southgate River
Kingcome River
Kimsquit River
Kitlope River
Kitimat River
Machmell River
Wannock River

VANCOUVER ISLAND

Main Streams

Cowichan River
Somass River
Gold River
Nimpkish River
Salmon River
Campbell River
Nanaimo River

APPENDIX VII

METHODS OF DETERMINING LAND SLOPE PARAMETER

HORTON'S METHOD

Horton's method was evolved to determine average land slope for a given area. In this method the average land slope is determined by counting the number of contours crossing or tangent to selected grid lines within the boundaries of the area. The basic formula suggested by Horton is:

$$S = \frac{NZ}{L} \text{ Sec } A$$

where S is average land slope in feet per mile, N is the total number of contours crossing or tangent to all lines in both directions, Z is the contour interval in feet, L is the total length of all grid lines within the boundary of given area in miles, and A is the angle between the controus and the grid lines. Since the contours cross at varying angles from zero to 90 degrees, an average secant of 1.571 is generally used.

In the pilot regression study of the South Thompson River Basin, two grid lines passing through the center of the square and parallel to the sides were used to determine the average land slope of a grid square as described in Sub-section 6.07.01 (b).

PLANE FITTING METHOD

In this method, the grid square is first sub-divided into four elementary squares as shown in Figure 4. The slope of each elementary square is taken as the slope of a plane passing through three corners of the square (see Figure 5). Hence

$$S_i = \sqrt{\left(\frac{H_1 - H_2}{\Delta L}\right)^2 + \left(\frac{H_1 - H_3}{\Delta L}\right)^2}$$

where S_i is the slope of elementary square, H_1 is elevation at lower left corner on elementary square, H_2 is elevation at lower right corner on

elementary square, H_3 is elevation at upper left corner on elementary square, and ΔL is the projected length of the sides of elementary square on a horizontal plane.

The average land slope of the grid square is obtained by averaging the slopes of the elementary squares.

SAMPLE CALCULATIONS

The following example is included to illustrate the aforementioned methods of determining average land slope. A sample square as shown in Figure 6 has been arbitrarily selected for this purpose.

The number of controus intercepted by grid line 4-5-6 is 9 and that by 2-5-8 is 7. The size of grid square is 10 kilometers by 10 kilometers and the contour interval is 500 feet. Hence, by Horton's method:

N = 16
Z = 500 feet
L = 20 kilometers or 12.43 miles

$$S = \frac{16 \times 500}{12.43} \times 1.571 = 1011 \text{ feet/mile}$$

The 9-point elevations of the square are estimated as follows:

Point	Approximate Elevation (ft.)
1	4,100
2	2,000
3	1,400
4	4,800
5	4,000
6	1,500
7	4,800
8	3,800
9	4,000

and ΔL = 5 kilometers or 3.107 miles. Hence by the Plane Fitting method the slope of the elementary square 1-2-5-4 is:

$$S_1 = \sqrt{\left(\frac{4800 - 4000}{3.107}\right)^2 + \left(\frac{4800 - 4100}{3.107}\right)^2} = 342 \text{ feet/mile}$$

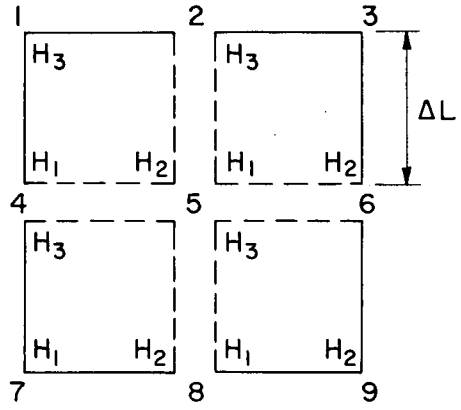

FIGURE 4

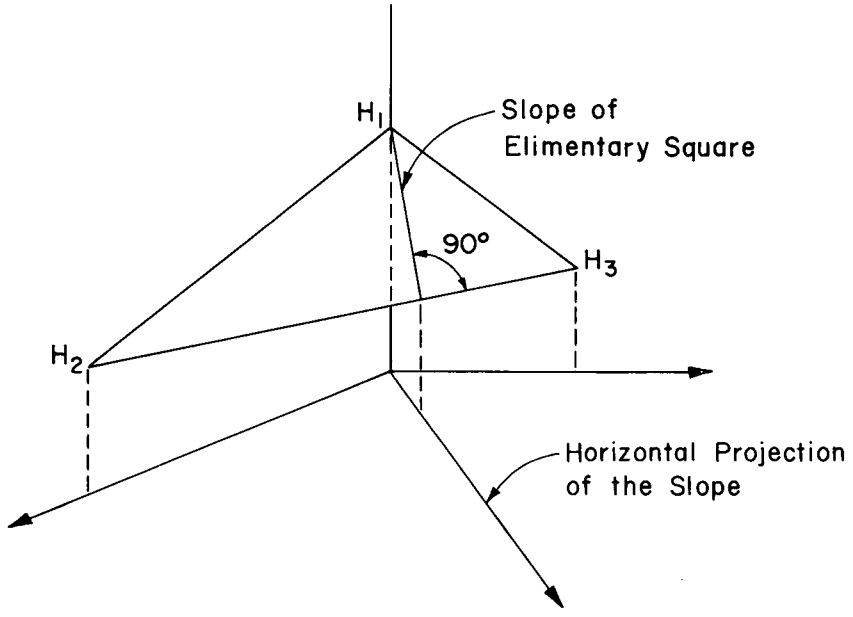

FIGURE 5

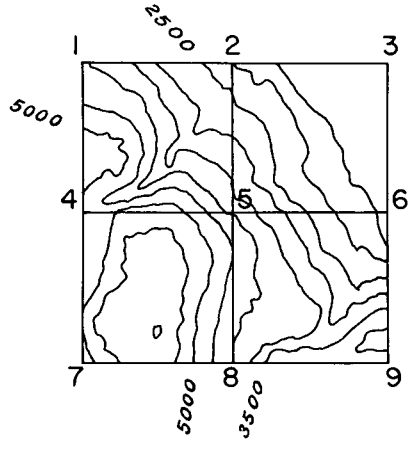

FIGURE 6

Similarly, for elementary square 2-3-6-5

$$S_2 = \sqrt{\left(\frac{4000 - 1500}{3.107}\right)^2 + \left(\frac{4000 - 2000}{3.107}\right)^2} = 1030 \text{ feet/mile}$$

For elementary square 4-5-8-7

$$S_3 = \sqrt{\left(\frac{4800 - 3800}{3.107}\right)^2 + \left(\frac{4800 - 4800}{3.107}\right)^2} = 322 \text{ feet/mile}$$

And for elementary square 5-6-9-8

$$S_4 = \sqrt{\left(\frac{3800 - 4000}{3.107}\right)^2 + \left(\frac{3800 - 4000}{3.107}\right)^2} = 91 \text{ feet/mile}$$

Finally, the average land slope of the grid square,

$$S = \frac{342 + 1030 + 322 + 91}{4} = 446 \text{ feet/mile}$$

The above results indicate that substantial differences can be obtained using the two different methods. Furthermore, the Plane Fitting method will also yield different results for the same square if the grid system is re-orientated by 90 degrees. Consequently, these values can be considered as indices only and not as actual values of land slope.