Catalogue of Salmon Streams and Spawning Escapements of Lillooet–Pemberton Sub-District

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Vancouver, B. C. V6E 2P1

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Canadian Data Report of Fisheries and Aquatic Sciences

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Rapport statistique canadien des sciences halieutiques et aquatiques

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Les numéros 1 à 25 de cette série ont été publiés à titre de Records statistiques, Service des pêches et de la mer. Les numéros 26-160 ont été publiés à titre de Rapports statistiques du Service des pêches et de la mer, Ministère des Pêches et de l'Environnement. Le nom de la série a été modifié à partir du numéro 161.

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ABSTRACT

Brown, R. F., M. M. Musgrave and D. E. Marshall. 1979. Catalogue of Salmon Streams and Spawning Escapements of Pemberton - Lillooet Sub-District. Fisheries and Marine Service Data Report #161. 88 pp.

Catalogue containing each stream's location, spawning distribution, barriers and points of difficult ascent, escapement records and other general data pertaining to the stream. The catalogue also includes a topographical map of the stream's location and in some cases a sketch which further describes the surrounding area.

KEYWORDS: British Columbia, Lillooet River, salmon streams, spawning escapements

RÉSUMÉ

Brown, R. F., M. M. Musgrave and D. E. Marshall. 1979. Catalogue of Salmon Streams and Spawning Escapements of Pemberton - Lillooet Sub-District. Fisheries and Marine Service Data Report #161. 88 pp.

Catalogue présentant pour chaque cours d'eau l'emplacement, la distribution des frayères, les barrières et les points où la montée est difficile, les données sur la remonte et d'autres renseignements généraux sur le cours d'eau. Le catalogue contient aussi une carte topographique de l'emplacement du cours d'eau et, dans certains cas, un croquis qui représente de façon plus détaillée la région environnante.

MOTS-CLÉS: Colombie-Britannique, rivière Lillooet, cours d'eau à saumon, remonte des reproducteurs.

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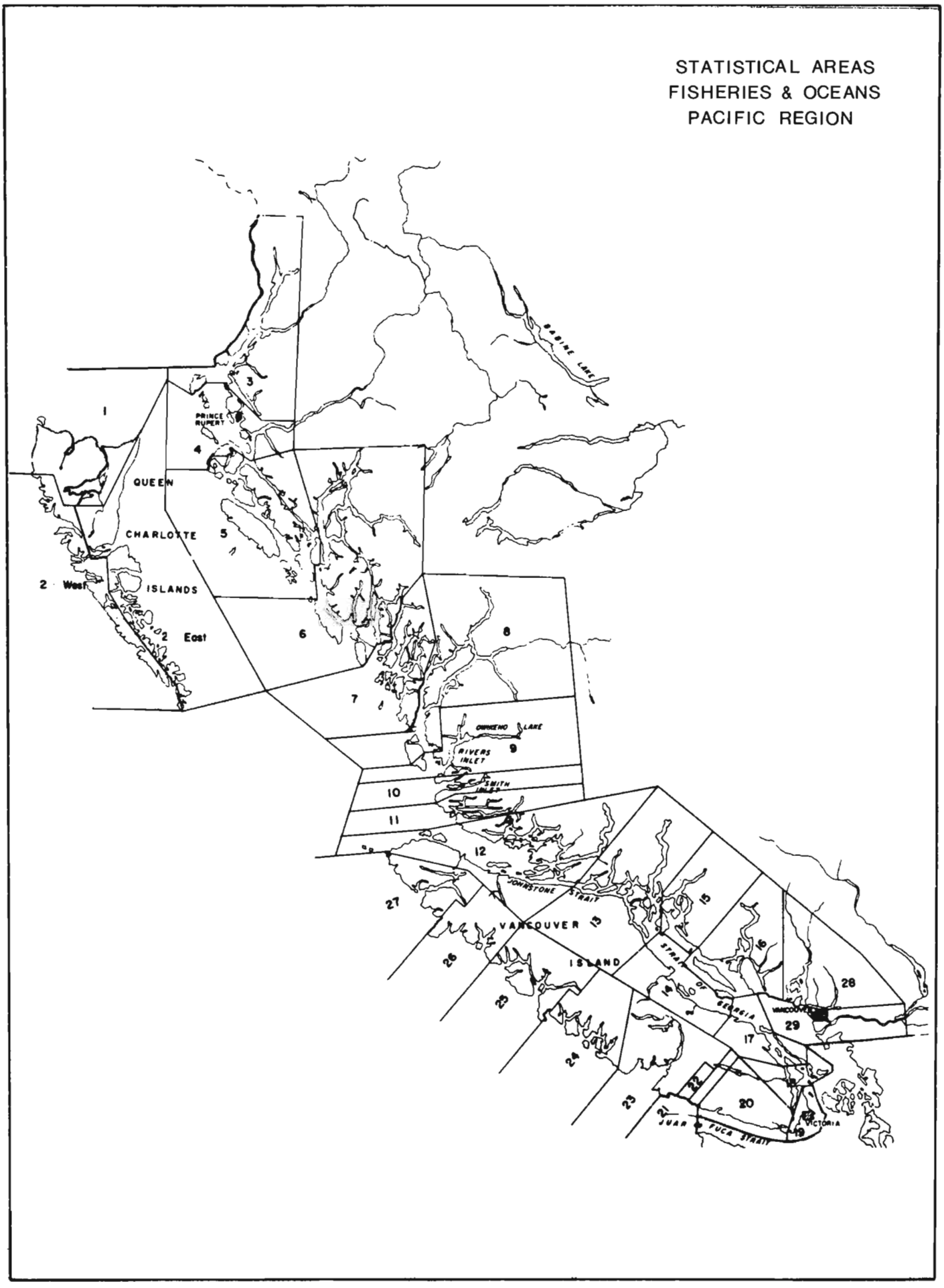
STATISTICAL AREAS
FISHERIES & OCEANS
PACIFIC REGION
BABINE LAKE
PRINCE RUPERT
QUEEN
CHARLOTTE
ISLANDS
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East
OWIKENO LAKE
RIVERS INLET
SMITH INLET
JOHNSTONE STRAIT
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ISLAND
STRAIT OF GEORGIA
VANCOUVER
VICTORIA
JUAN DE FUCA STRAIT
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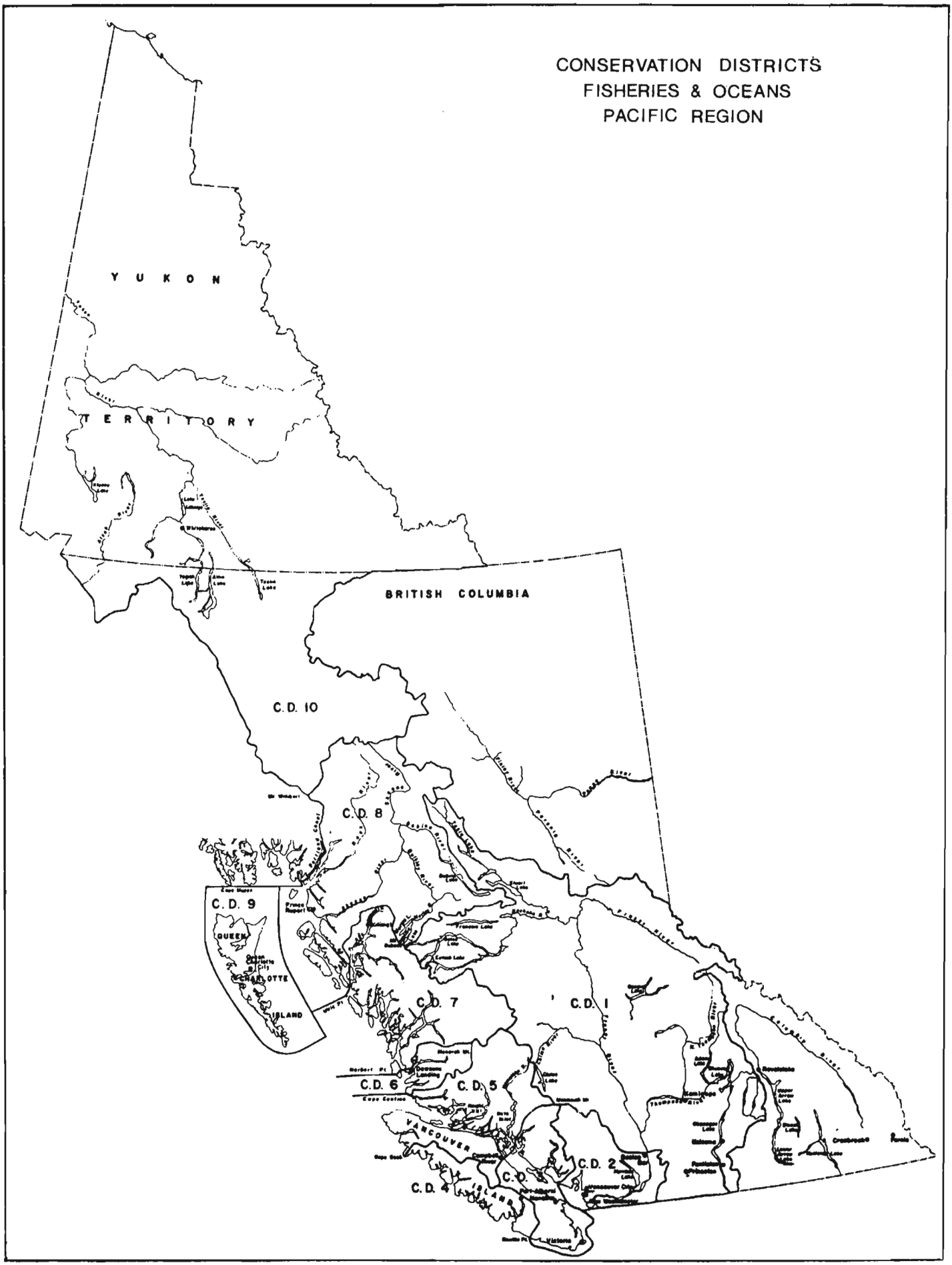
CONSERVATION DISTRICTS
FISHERIES & OCEANS
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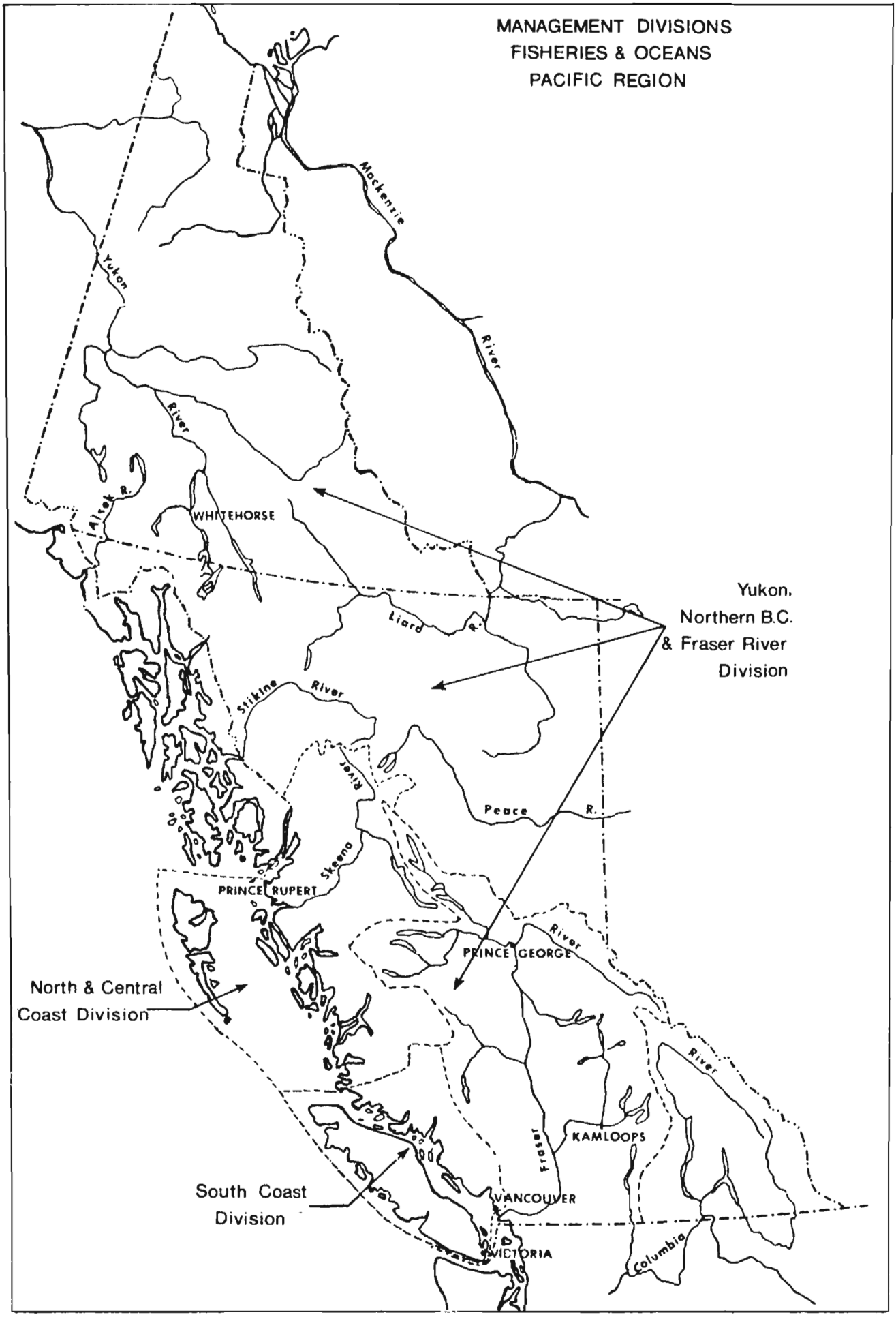
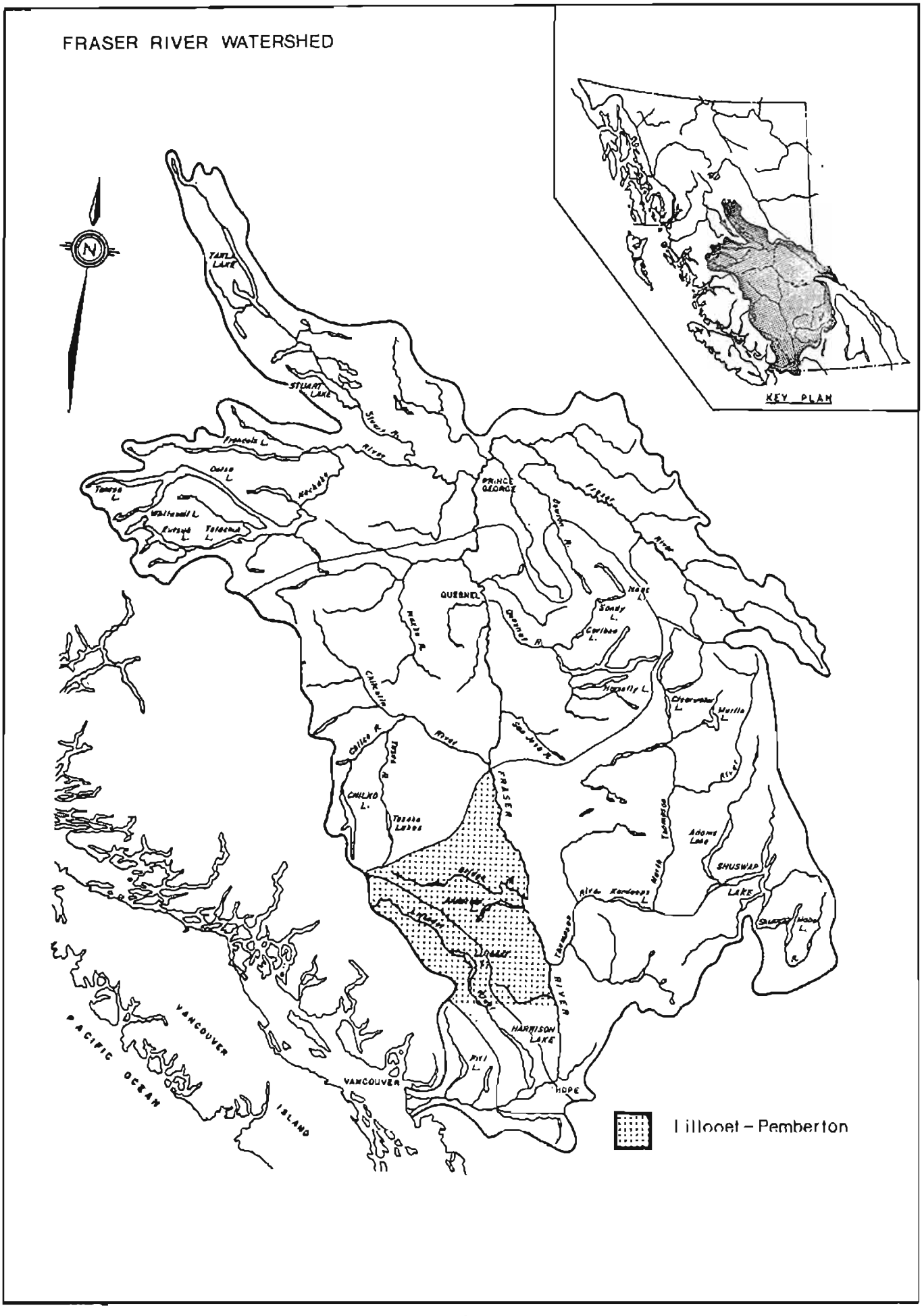
YUKON
TERRITORY
BRITISH COLUMBIA
C.D. 10
C.D. 8
C.D. 9
QUEEN
CHARLOTTE
ISLAND
C.D. 7
C.D. 1
C.D. 6
C.D. 5
VANCOUVER
ISLAND
C.D. 2
C.D. 3
C.D. 4


MANAGEMENT DIVISIONS
FISHERIES & OCEANS
PACIFIC REGION
Mackenzie
River
Yukon
River
Alsek R.
WHITEHORSE
Liard
R.
Stikine
River
River
Peace
R.
Skeena
PRINCE RUPERT
PRINCE GEORGE
River
Fraser
KAMLOOPS
River
VANCOUVER
VICTORIA
Columbia
Yukon,
Northern B.C.
& Fraser River
Division
North & Central
Coast Division
South Coast
Division


FRASER RIVER WATERSHED
KEY PLAN
N
TATLA LAKE
STUART LAKE
Stuart R.
River
Francois L.
Ootsa L.
Tetachuk L.
PRINCE GEORGE
Fraser
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QUESNEL
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River
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River
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Kamloops L.
HARRISON LAKE
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HOPE
VANCOUVER
VANCOUVER ISLAND
PACIFIC OCEAN
Lillooet – Pemberton

STANDARDS USED ON STREAM DATA PAGE

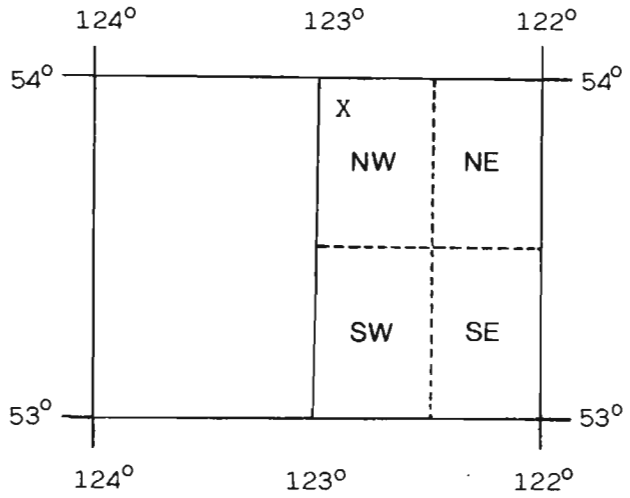
Name of Stream: Name as given in Gazetteer of Canada, British Columbia 1966 edition; local or non-gazetted names are added in lower case type.

Conservation District: As defined by the Conservation and Protection Service (April 1965).

Statistical Area: As defined by Department of the Environment, Fisheries Operations Statistical Map (January 1974).

Location and Position: Defined by quadrant indexing. Each geographical quadrilateral of the earth's surface of 1 degree in extent in latitude and longitude is divided into the SE, SW, NE and NW quarters. The south-east corner of each quadrilateral gives the initial point for the figure of reference (Gazetteer of Canada).

EXAMPLE "X"
53° 122° NW



Length: The portion of the stream accessible to spawning salmon.

Width: Average width, estimated to the nearest metre for the described length.

Drainage: Area in square kilometres of the entire drainage basin feeding the stream.

Composition:

Bedrock	bedrock
Boulder	>256 mm
Coarse	50.9 - 256 mm
Fine	3.37 - 50.8 mm
Sand & Silt	<3.37 mm
Unclassified	where bottom cannot be observed, e.g. log jams, pools, water colour, etc.

Gradient: Expressed as a percentage

Wetted Area: Number of square metres of stream bed under water at average flows within the described length.

Spawning Area: Estimated square metres of stream bed suitable for salmon spawning within the described length.

Discharge: Mean annual discharge. Maximum and minimum values are either daily means or instantaneous discharges. The latter are identified by (Inst.). Discharge data is taken from "Historical Stream Flow Summary", British Columbia, Water Survey of Canada.

Temperature: As described. (^{o}C)

Barriers and Points of Difficult Ascent: Complete and partial barriers to salmon and their distance from the stream mouth. Species likely to be affected may be listed. Both natural and man-made obstructions are defined.

Spawning Distribution: Portion of the stream utilized by each species. Distribution is indicated by brief comments opposite the species.

Potential of Inaccessible Portion of Stream: Indicates whether or not the inaccessible portion of the stream could be utilized by spawning salmon.

General Remarks: Emphasizes features of stream and spawning populations. Also includes industrial activity, routes of accessibility, etc. The comments with dates are taken from "Annual Reports of Salmon Streams & Spawning Grounds" (B.C. 16's). In some cases, references to additional information not included in the General Remarks may be given.

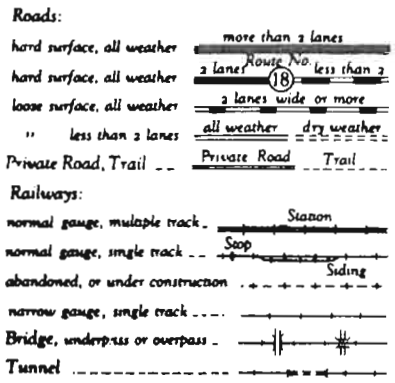
Escapement Records: The escapement represents the mid point of the coded range of escapement for each species. For example: the letter "H" representing 5000-10000 fish would be entered as 7500. Where absolute numbers are provided by Fisheries Personnel, these numbers are entered. N/O means the stream was inspected but no fish were observed; UNK means there was evidence of fish present but no estimates were made; NO RECORDS means no escapement records for the applicable years could be found in the escapement files.

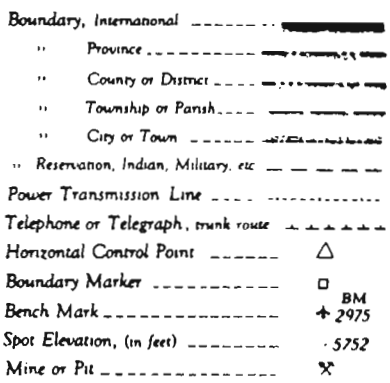
Timing: Dates which salmon arrive in the stream, begin to spawn, reach peak spawning period and finish spawning.

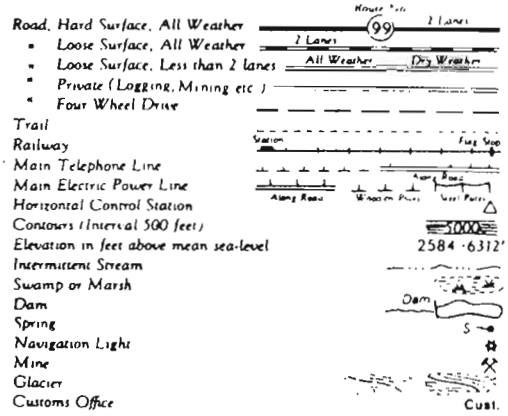
E = early (1st to 10th of the month)
M = mid (11th to 20th of the month)
L = late (21st to end of the month)

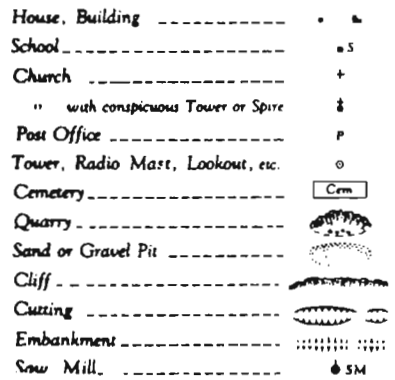
NB: Distance references are from the mouth of the stream unless otherwise stated.

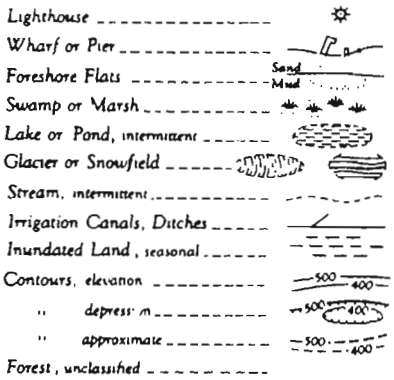
MAP REFERENCES

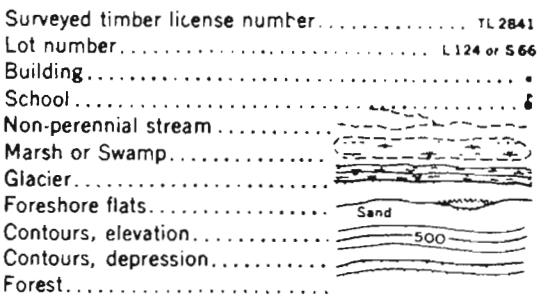


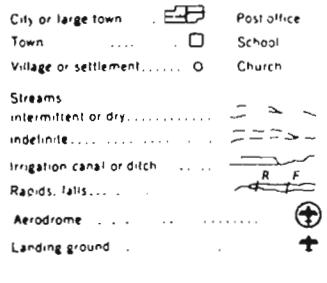


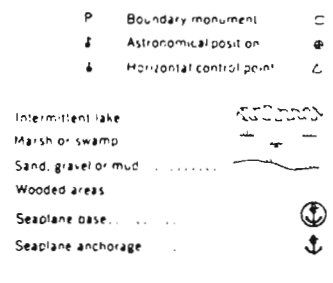


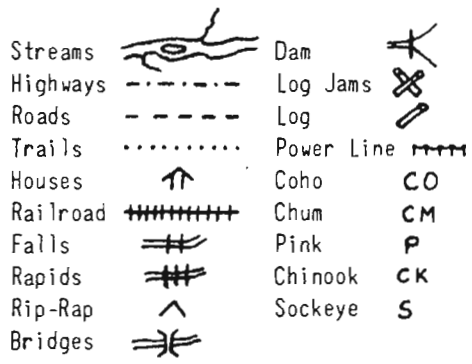


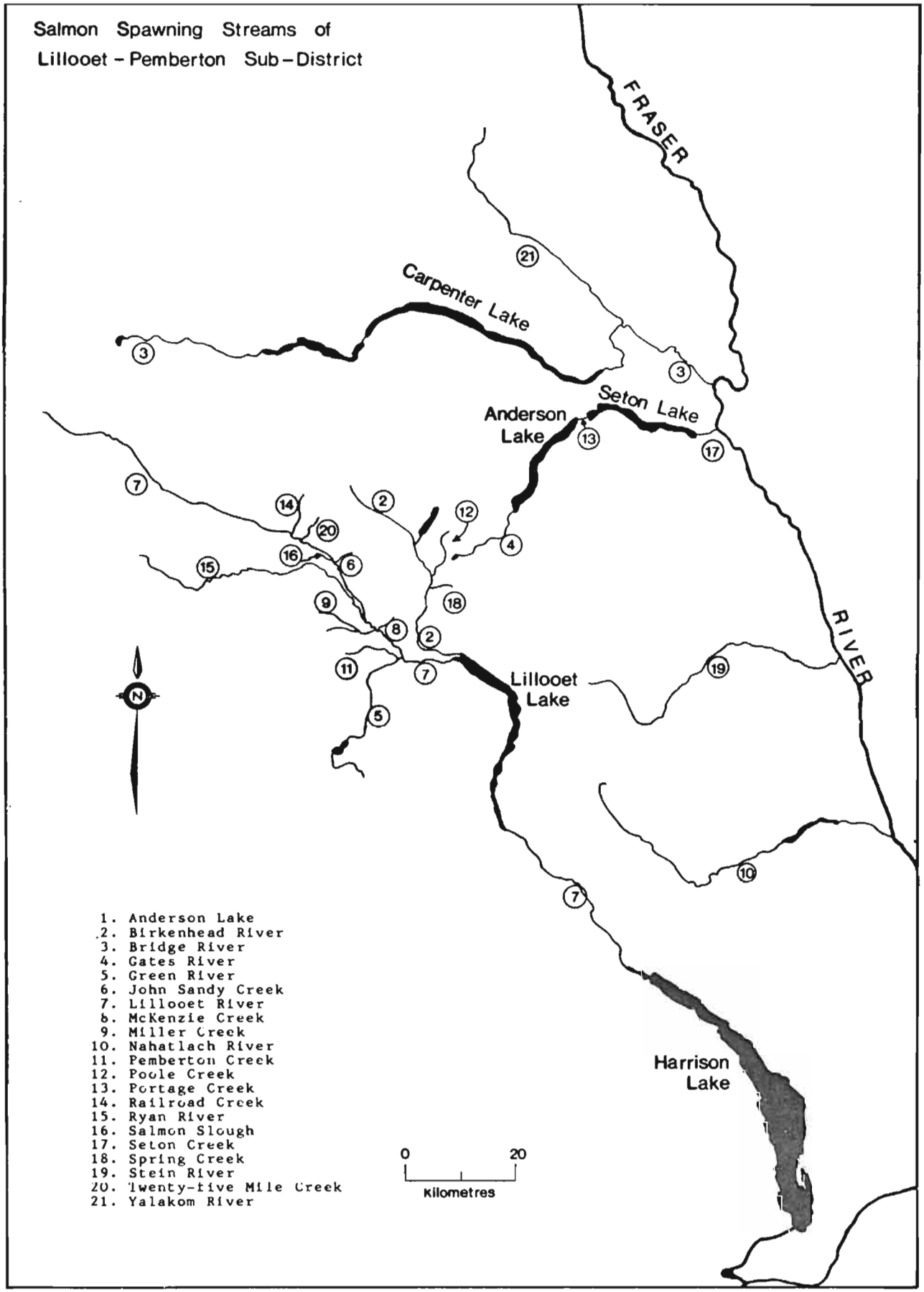











Salmon Spawning Streams of
Lillooet - Pemberton Sub-District
FRASER
RIVER
Carpenter Lake
Anderson Lake
Seton Lake
Lillooet Lake
Harrison Lake
N
1. Anderson Lake
2. Birkenhead River
3. Bridge River
4. Gates River
5. Green River
6. John Sandy Creek
7. Lillooet River
8. McKenzie Creek
9. Miller Creek
10. Nahatlach River
11. Pemberton Creek
12. Poole Creek
13. Portage Creek
14. Railroad Creek
15. Ryan River
16. Salmon Slough
17. Seton Creek
18. Spring Creek
19. Stein River
20. Twenty-five Mile Creek
21. Yalakom River
0
20
Kilometres

ESCAPEMENT RECORD FOR LILLOOET - PEMBERTON SUB-DISTRICT

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	102075	800	5300		1525	
48	100975	825	13800			
49	91300	1550	8525		825	
50	91375	825	6450			
51	105900	1075	16450		15500	
52	129625	1000	35900			
53	61875	1625	6275		57500	
54	51575	800	2025			
55	50225	1200	5800		50475	
56	72625	975	4275			
57	37250	3650	3627		76025	
58	28928	979	2200			
59	35975	825	1400		7975	
60	42553	1150	4402			
61	50102	1025	4325		36650	
62	61125	1025	19950			
63	72576	1025	5475		135150	
64	85194	1050	5546			
65	35358	1650	7975		135950	
66	121966	765	6800			
67	66311	225	5030		240175	
68	94321	870	5700			
69	65324	1225	7140		204025	
70	56361	1850	9975			
71	37070	600	14050		276425	
72	83400	535	6940			
73	104525	550	4450		250225	
74	85125	700	11825			
75	86125	1575	11825		55150	
76	94025	1100	5100			
77	47875	1865	8620		430500	
78	90500	1920	11480			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE						
START						
PEAK						
END						

REMARKS

STREAM DATA

LILLOOET - PEMBERTON SUB-DISTRICT


Anderson Lake
Seton River
0
10
kilometres

NAME OF STREAM ANDERSON LAKE

CONSERVATION DISTRICT 1 STATISTICAL AREA Lillooet

LOCATION OF MOUTH SE. of Carpenter L., Lillooet Dist.

POSITION 52 119 SW

LENGTH 21.7 km WIDTH 1.6 km DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT

0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (^oC) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- off the mouths of Gates River and Portage Creek
CHINOOK	
COHO	
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

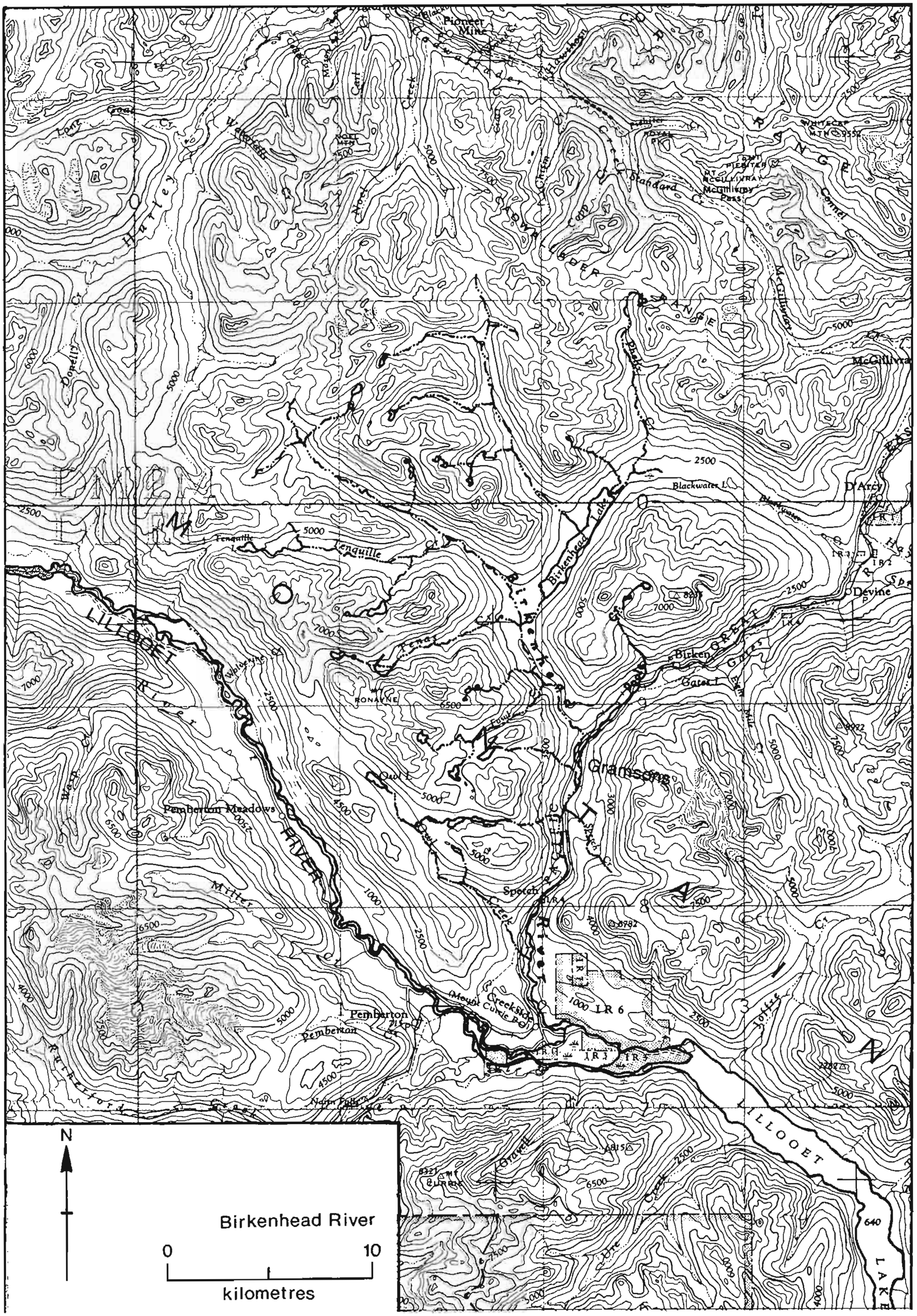
Anderson Lake: area = 2835 ha
mean depth = 140 m
max depth = 215 m
shoreline = 45.5 km

- Gates River and Portage Creek sockeye use Seton rather than Anderson Lake as a rearing area.

ESCAPEMENT RECORD FOR ANDERSON LAKE

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	25					
48	25					
49	25					
50	25					
51	N/O					
52	25					
53	25					
54	750					
55	25					
56	N/O					
57	UNK					
58						
59						
60	N/O	25				
61	N/O					
62	400					
63	200					
64	N/O	25				
65						
66	5000					
67	500					
68	N/O					
69	100					
70	100					
71	20					
72	25					
73	200					
74	150					
75	200				1000	
76	N/O					
77						
78						
79						
80						
81						
82						
83						
84						
85						
TIMING						
ARRIVE						
START						
PEAK						
END						

REMARKS


Pioneer Mine
Birkenhead Lake
Blackwater L.
D'Arcy
Devine
Birken
Gates L.
Tenquille L.
Tenquille
LILLOOET River
RIVER
Pemberton Meadows
Pemberton
Owl L.
Gramsons
Spetch
Birkenhead River
Creekside
IR 6
LILLOOET
LAKE
McGillivray
McGillivray Pass
Standard
WHITECAP MTN
RONAYNE
Birkenhead River
0
10
kilometres
N

NAME OF STREAM BIRKENHEAD RIVER

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows S. and E. into N. end of Lillooet L., Lillooet Dist.

POSITION 50 122 SW

LENGTH 25 km WIDTH _____ m DRAINAGE 596 km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) mean = 25.9 max = 362 (68/06/27) min = 2.5 (46/11/25)

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

2 m falls at 25 km. May be passable at certain water levels.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- to Gramsons
CHINOOK	- upstream from Mt. Currie
COHO	- to falls
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

There are approximately 3 km of suitable spawning area above the falls.

GENERAL REMARKS

- 1961. High temperatures in the river caused 35.5% of the sockeye to die unspawned.
- 1963. There was an abnormally large number of dead unspawned sockeye adults and juveniles in the river this year.
- 1977. 18,000 chinook eggs were planted in incubation boxes on the river.
- 1979. A pilot hatchery for chinook is under construction on this stream.

ESCAPEMENT RECORD FOR BIRKENHEAD RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	100000	750	1500			
48	100000	750	3500			
49	90000	1500	3500			
50	90000	750	3500			
51	105000	750	7500			
52	125000	750	15000			
53	60000	1500	3500			
54	45000	750	750			
55	50000	750	1500			
56	65000	750	3500			
57	35000	3500	1500			
58	25000	750	1500			
59	35000	750	750			
60	39000	750	3500			
61	49627	750	2500			
62	* 52000	750	2500			
63	67151	750	3500			
64	69939	750	3500			
65	30008	750	3500			
66	* 81134	750	3500			
67	58036	100	3000			
68	83907	750	3500			
69	63343	1000	1200			
70	52146	1500	3000			
71	34000	250	3500			
72	75000	400	3500			
73	100000	200	1500			
74	75000	400	7500			
75	75000	200	3500			
76	75000	200	1500			
77	35000	600	1500			
78	75000	400	3500			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE	M. AUG	M. APR	E. OCT			
START	L. AUG	M. MAY	L. OCT			
PEAK	L. SEP	E. JUN	M. NOV			
END	M. OCT	L. SEP	E. DEC			

REMARKS

* 1962. 50% of the sockeye run was composed of jacks.
* 1962. 75% of the sockeye run was composed of jacks.


N
Bridge River
0
20
kilometres
FRASER
RIVER
EDGE
HILLS
Carpenter Lake
Bridge
River

NAME OF STREAM BRIDGE RIVER

CONSERVATION DISTRICT 1 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SE., NE. and SE. into Fraser R., N. of Lillooet, Lillooet Dist. POSITION 50 121 NW

LENGTH 35 km WIDTH _____ m DRAINAGE 3497 km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) 103

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT
Impassable dam (Mission Dam) at 35 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- throughout to just above confluence with Yalakom River (24 km)
CHINOOK	- throughout to just above confluence with Yalakom River
COHO	- throughout to just above confluence with Yalakom River
CHUM	
PINK (ODD YEAR)	- mainly through 0 to 13 km
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

- The stream above the Yalakom River is very shallow and has minimal water flow.
- 1963. IPSFC removed a small rockfall at 1 km which had been impassable to pink salmon.
- 1964. Approximately 1000 sockeye spawned just below Mission Dam but the seeded areas dried up completely as water flow over the dam ceased.
- 1977. Horseshoe bend, an area just below Yalakom River, was cleared of debris and opened to the main flow. It contains good spawning gravel but has been dry for the past few years.
- 1978. Heavy silting of the streambed occurred because of road construction, breaking up of a 45 m^3 dirt filled dam on Camoo Creek and logging of the watershed above the Yalakom River.

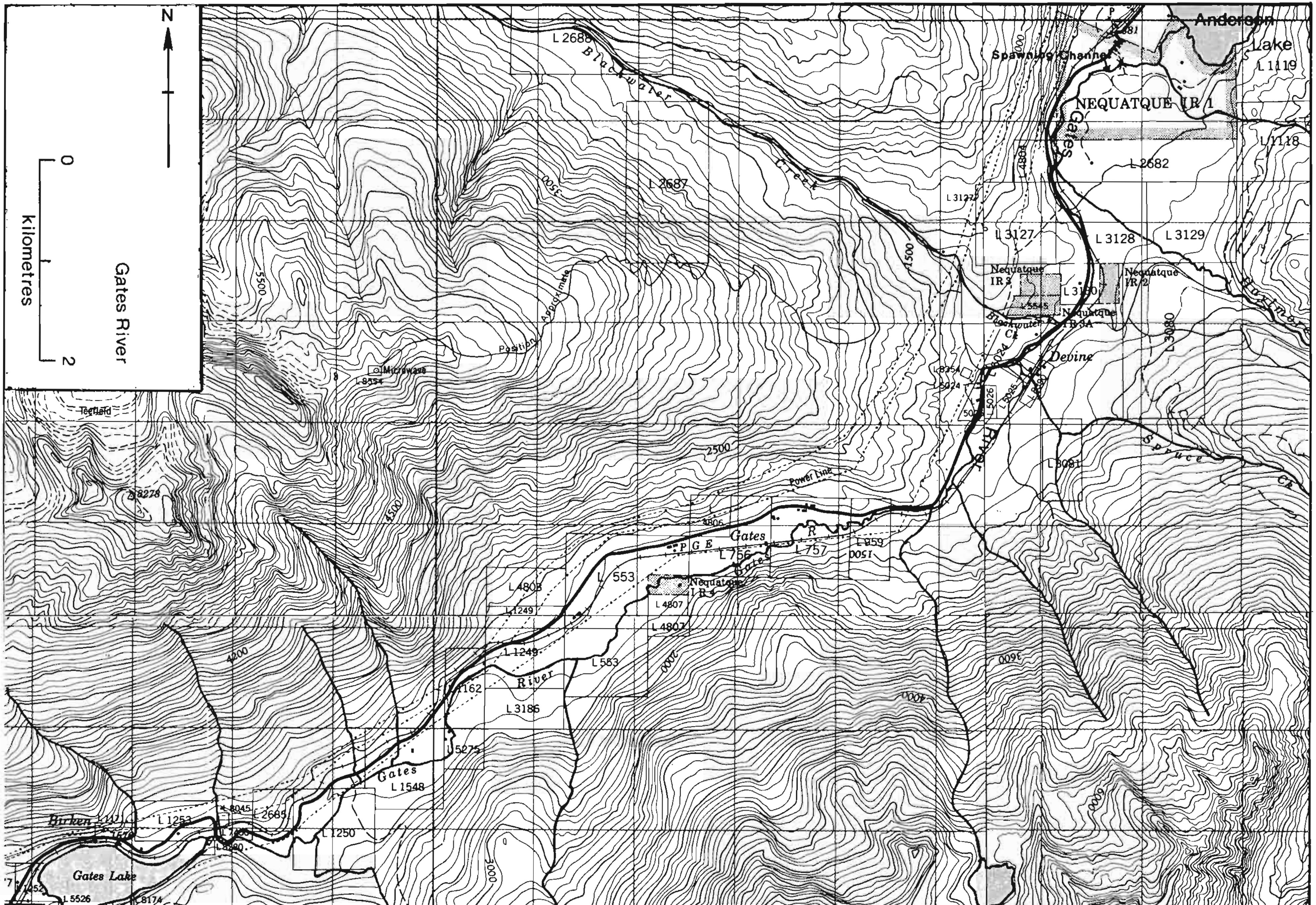
ESCAPEMENT RECORD FOR BRIDGE RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59		NO	RECORDS	PRIOR TO 1961		
60						
61					750	
62						
63					3500	
64						
65	25				7500	
66						
67					7500	
68						
69					13000	
70						
71					1000	
72						
73					2000	
74						
75		100	100		5000	
76	250	300	250			
77	500	200	50		40000	
78	300	500	1000			
79						
80						
81						
82						
83						
84						
85						

TIMING

ARRIVE	M. AUG	M. AUG	E. OCT		E. OCT	
START	M. AUG	L. AUG	L. OCT		M. OCT	
PEAK	E. SEP	L. AUG	L. OCT		L. OCT	
END	M. SEP	M. SEP	E. NOV		L. OCT	

REMARKS


Gates River
kilometres
0
2
N
Anderson Lake
Spawning Channel
NEQUATQUE IR 1
Gates
Blackwater Creek
Nequatque IR 3
Nequatque IR 2
Nequatque IR 3A
Blackwater Ck
Devine
Spruce Ck
Power Line
Position Approximate
Microwave
Gates R
P G E
Gates
Nequatque IR 4
River
Gates
Birken
Gates Lake
L 2688
L 2687
L 2682
L 1119
L 1118
L 3127
L 3128
L 3129
L 3130
L 3080
L 3081
L 553
L 756
L 757
L 4808
L 1249
L 4807
L 583
L 3186
L 5275
L 1548
L 1250
L 2685
L 1253
L 8174
L 5526
L 8554
5500
4500
4200
3500
2500
2000
1500
3000
3600
4000
6000

NAME OF STREAM GATES RIVER (Gates Creek)

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows NE. into S. end of Anderson L., Lillooet Dist.

POSITION 50 122 NE

LENGTH 14.5 km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT

0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA 83600 m^2 SPAWNING AREA 8360 m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Salmon migrating to Gates and Portage Creeks are subject to delay and injury at the Seton Creek powerhouse tailrace which enters the Fraser River 1220 m downstream from Seton Creek (see sketch p. 68). At certain times, up to 65% of the run has failed to reach the spawning grounds because of this problem.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- 0 to 5 km; in spawning channel
CHINOOK	
COHO	- to Gates Lake
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

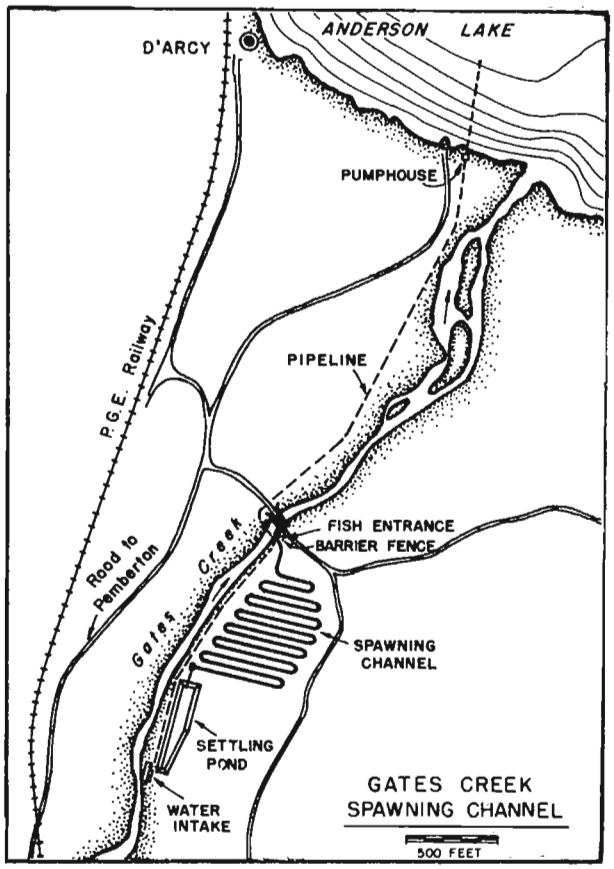
GENERAL REMARKS

- 1968. I.P.S.F.C. began operation of an artificial spawning channel to improve the production of sockeye salmon in Gates Creek, Seton Lake and Anderson Lake. The channel is located adjacent to Gates Creek, approximately 800 m upstream from Anderson Lake. For the brood years 1968 to 1972, the channel produced 92.5% of the returns.
- 1972-1974. The beaver population on this stream is increasing rapidly.
- The majority of Gates Creek sockeye rear in Seton Lake rather than Anderson Lake.
- Migrating salmon pass the dam at the mouth of Seton Lake by means of a fish ladder.

GENERAL REMARKS (cont.)

Gates Creek Spawning Channel

Length	1891.3	m	(6205 ft)
Width	6.1	m	(20 ft)
Spawning Area	11276.8	m^2	(13489 yd^2)
Discharge	1.1	m^3/s	(40 cfs)
Velocity	0.45	m/s	(1.46 fps)
Water Depth	38.1	cm	(1.25 ft)
Gravel Size	13 - 102	mm	(0.5 - 4 ins)
Gravel Depth	40.6	cm	(16 ins)
Capacity	12000	females	



References:

Cooper, A. C. 1977. Evaluation of the production of sockeye and pink salmon at spawning and incubation channels in the Fraser River system. I.P.S.F.C. Progress Report #36: 53 65.

I.P.S.F.C. 1966. Proposed artificial spawning channel for Gates Creek sockeye salmon. 37 pp.

I.P.S.F.C. 1976. Tailrace delay and loss of adult sockeye salmon at the Seton Creek hydroelectric plant. 74 pp.

ESCAPEMENT RECORD FOR GATES RIVER

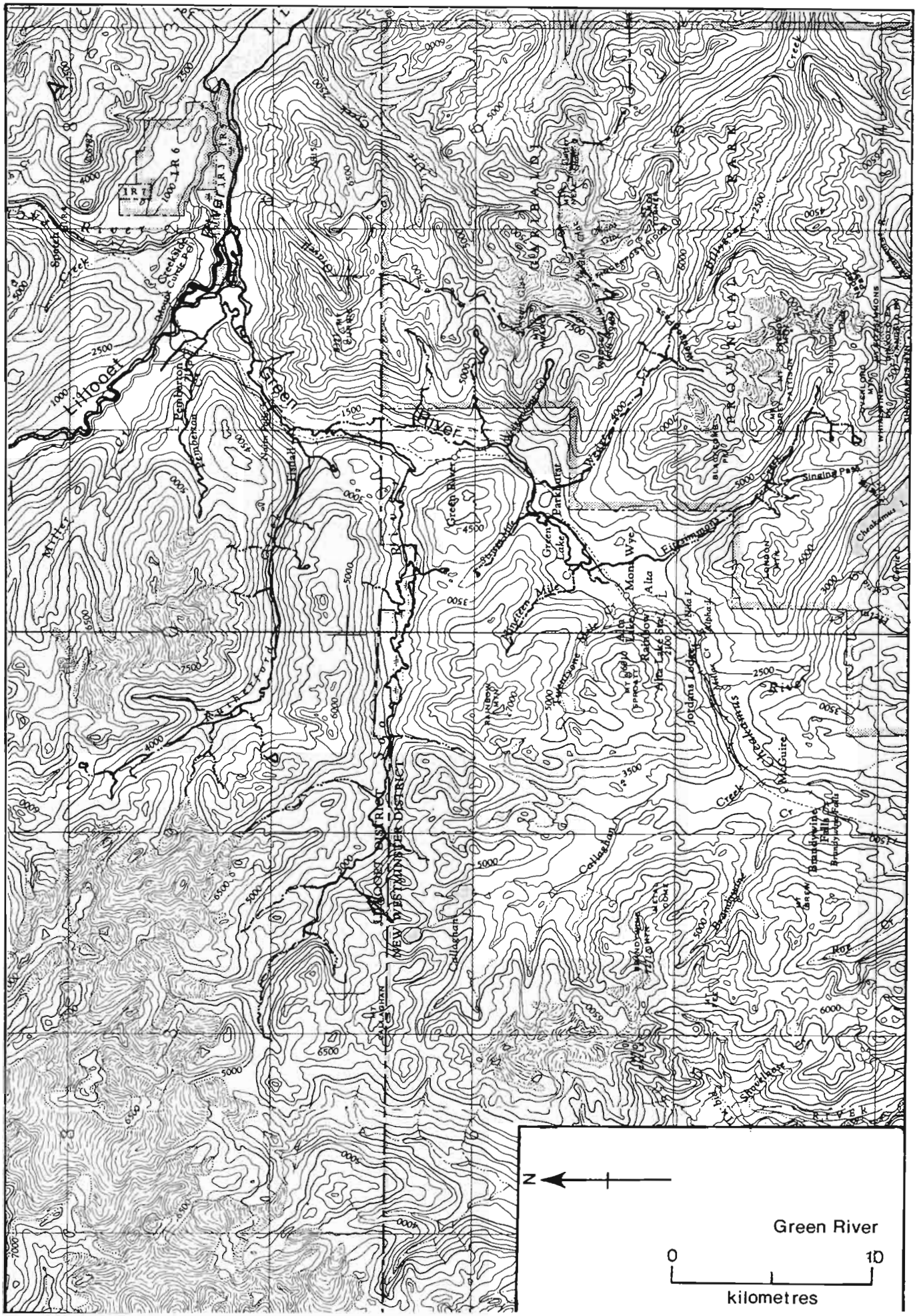
YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947			25			
48			400			
49	25		25			
50	25	25	25			
51	25	N/O	25			
52	3500		400			
53	750		400			
54	25		25			
55	75		25			
56	7500		400			
57	1500		2			
58	200	25	25			
59	750					
60	3500					
61	200		75			
62	750		400			
63	3500		75			
64	15000		400			
65	1500		750			
66	* 592		400			
67	1665		200			
68	10289		200			
69	881		300			
70	25		750			
71	2300		1500			
72	7500		750			
73	750		400			
74	1500		1500			
75	7500		1500			
76	17500		400			
77	3000		400			
78	3500		1500			
79						
80						
81						
82						
83						
84						
85						

TIMING						
ARRIVE	E. AUG		SEP			
START	M. AUG		E. OCT			
PEAK	L. AUG		E. NOV			
END	M. SEP		M. DEC			

REMARKS

The above figures include escapements to both the natural creek and the spawning channel.

* 1966. 89% of the sockeye were jacks.


Green River
0
10
kilometres

NAME OF STREAM GREEN RIVER

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows NE. into Lillooet R., W. of Lillooet L., Lillooet Dist.

POSITION 50 122 SW

LENGTH 5 km WIDTH _____ m DRAINAGE 855 km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) max = 402 (40/10/19) min = 2.7 (37/02/09)

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Impassable falls at 5 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	- throughout
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

The river is very turbid making observations and ennumeration of the salmon very difficult.

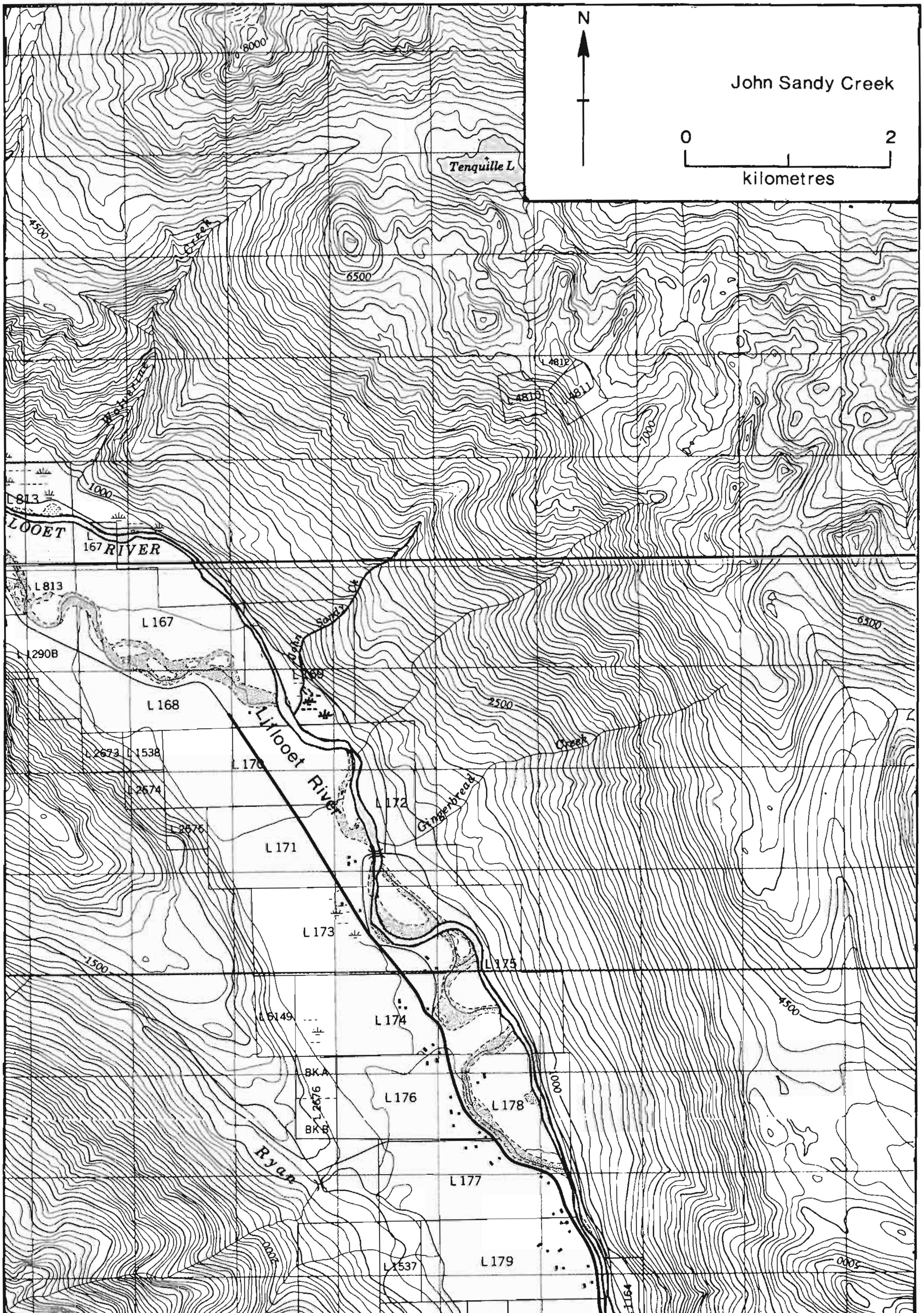
ESCAPEMENT RECORD FOR GREEN RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	400		75			
48	25		25			
49	25		25			
50	25		25			
51	25		25			
52	25		25			
53	25		25			
54	25		400			
55	25		200			
56	25		25			
57	25		25			
58	N/O		75			
59	25		75			
60	25		200			
61	N/O		750			
62	200		750			
63	200		400			
64	200		400			
65	200		400			
66	200		200			
67	100		500			
68	50		300			
69	N/O		600			
70	N/O		1500			
71	N/O		2500			
72	N/O		400			
73	N/O		400			
74	N/O		400			
75			400			
76			400			
77	UNK	UNK	UNK			
78	UNK	UNK	UNK			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE			E. OCT			
START			M. OCT			
PEAK			L. OCT			
END			L. NOV			

REMARKS


N
John Sandy Creek
0
2
kilometres
Tenquille L
8000
4500
6500
Creek
L 4812
L 4810
4811
7000
1000
L 813
LOOET
167
RIVER
L 813
L 167
6500
L 1290B
John Sandy Ck
L 169
L 168
Lillooet River
2500
Creek
L 2673
L 1538
L 170
L 172
Gingerbread
L 2674
L 2675
L 171
L 173
L 175
1500
4500
L 5149
L 174
BK A
L 2676
BK B
L 176
L 178
1000
Ryan
L 177
2000
L 179
L 1537
5000
L 1164

NAME OF STREAM JOHN SANDY CREEK (Sandy Creek)

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SW. into Lillooet R., Lillooet Dist.

POSITION 50 29' 122 57'

LENGTH 2 km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

Impassable falls at 2 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- to falls
CHINOOK	
COHO	- to falls
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS _____

This is a very small creek with limited spawning area available.

ESCAPEMENT RECORD FOR JOHN SANDY CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947						
48	25		25			
49	N/O		N/O			
50						
51						
52						
53						
54						
55						
56						
57						
58			25			
59						
60			25			
61						
62						
63						
64			75			
65			75			
66						
67			50			
68			100			
69						
70						
71	50		150			
72			75			
73			25			
74			25			
75	25		25			
76	N/O		N/O			
77	25		25			
78	25		25			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE	E. AUG		OCT			
START	M. AUG		NOV			
PEAK	L. AUG		DEC			
END	L. SEP		JAN			

REMARKS


N
Lillooet River (Upper)
0
20
kilometres

NAME OF STREAM LILLOOET RIVER (above Lillooet Lake)

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SE. into Harrison L., New Westminster Dist.

POSITION 49 122 NE

LENGTH 84 km WIDTH _____ m DRAINAGE 6475 km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) mean = 129.7 max = 900 (40/10/19) min = 6.4 (56/03/14)

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Impassable falls at 84 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	- side tributaries
CHUM	- side tributaries
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS

- The upper reaches of the river are not accessible for ennumeration during the spawning season.
- The water is very turbid until late fall.
- Sockeye may spawn in the mainstem Lillooet between Mount Currie and Meager Creek as this portion of the river has large areas of suitable gravel, water depths and velocities for spawning but the water is so turbid during the spawning period, this section cannot be checked.
- Spawning occurs mainly in tributaries: Green River, Miller Creek, Ryan River, Railroad Creek and Twenty-five Mile Creek (see individual stream reports).

ESCAPEMENT RECORD FOR LILLOOET RIVER (Upper)

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	750		1500			
48	750		7500			
49	750		3500			
50	750		1500			
51	750		7500			
52	750		15000			
53	750		1500			
54	750		200			
55			25			
56	25		200			
57	25		200			
58			75			
59			75			
60			200			
61			75			
62			400			
63			750			
64			75			
65			75			
66			750			
67			300			
68			200			
69			800			
70			1500			
71			2500			
72			750			
73			750			
74			750			
75		400	3500			
76		400	400			
77		400	3500			
78		400	3500			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE		MAY	OCT			
START		SEP	OCT			
PEAK		NOV	NOV			
END		NOV	DEC			

REMARKS

McKENZIE CREEK – for topographical map refer to Miller Creek, page 33.

NAME OF STREAM McKENZIE CREEK

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SW. and S. into Lillooet R., Lillooet Dist.

POSITION 50 122 SW

LENGTH _____ km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

No salmon have been reported since 1965. Shifting of the Lillooet River has caused the spawning beds to be washed away.

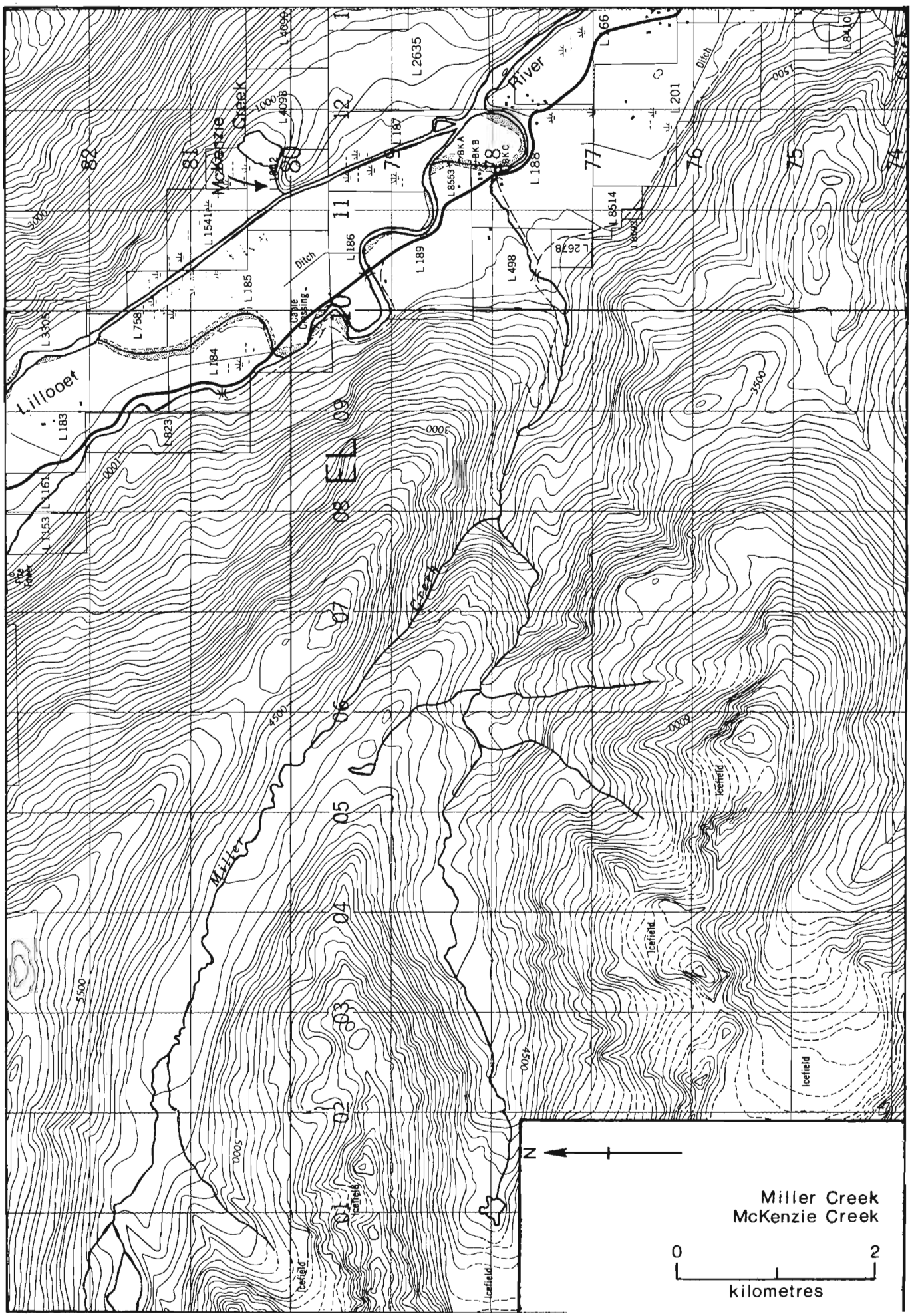
ESCAPEMENT RECORD FOR McKENZIE CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947						
48			25			
49			25			
50						
51						
52			400			
53						
54			75			
55			25			
56						
57			25			
58			25			
59						
60			25			
61			25			
62						
63						
64						
65			25			
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE						
START						
PEAK						
END						

REMARKS


Miller Creek
McKenzie Creek
N
0
2
kilometres
Lillooet
McKenzie Creek
Miller Creek
River
Ditch
Cable Crossing
Icefield
L 2635
L 2678
L 498
L 189
L 186
L 185
L 184
L 188
L 201
L 66
L 8514
L 8553
L 1541
L 4098
L 4099
L 3305
L 758
L 183
L 823
L 161
L 163
01
02
03
04
05
06
07
08
09
10
11
12
75
76
77
78
79
80
81
82
74

NAME OF STREAM MILLER CREEK

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows E. and SE. into Lillooet R., Lillooet Dist.

POSITION 50 122 SW

LENGTH _____ km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) 5°C (51/04/25)

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	- throughout
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

- 1950. A channel, approximately 1.5 km in length, was excavated from the mountains to the Lillooet River. This section of the stream has previously been too steep for salmon spawning.
- 1953. The Pemberton Valley Dyking District removed the gravel bars in the stream.
- 1956. The stream has been confined to one channel by the District drainage organization which has had the effect of increasing the velocity.
- 1964. Salmon runs to this stream have steadily declined since the stream was straightened and heavy rock placed on the banks by the Pemberton Dyking District.

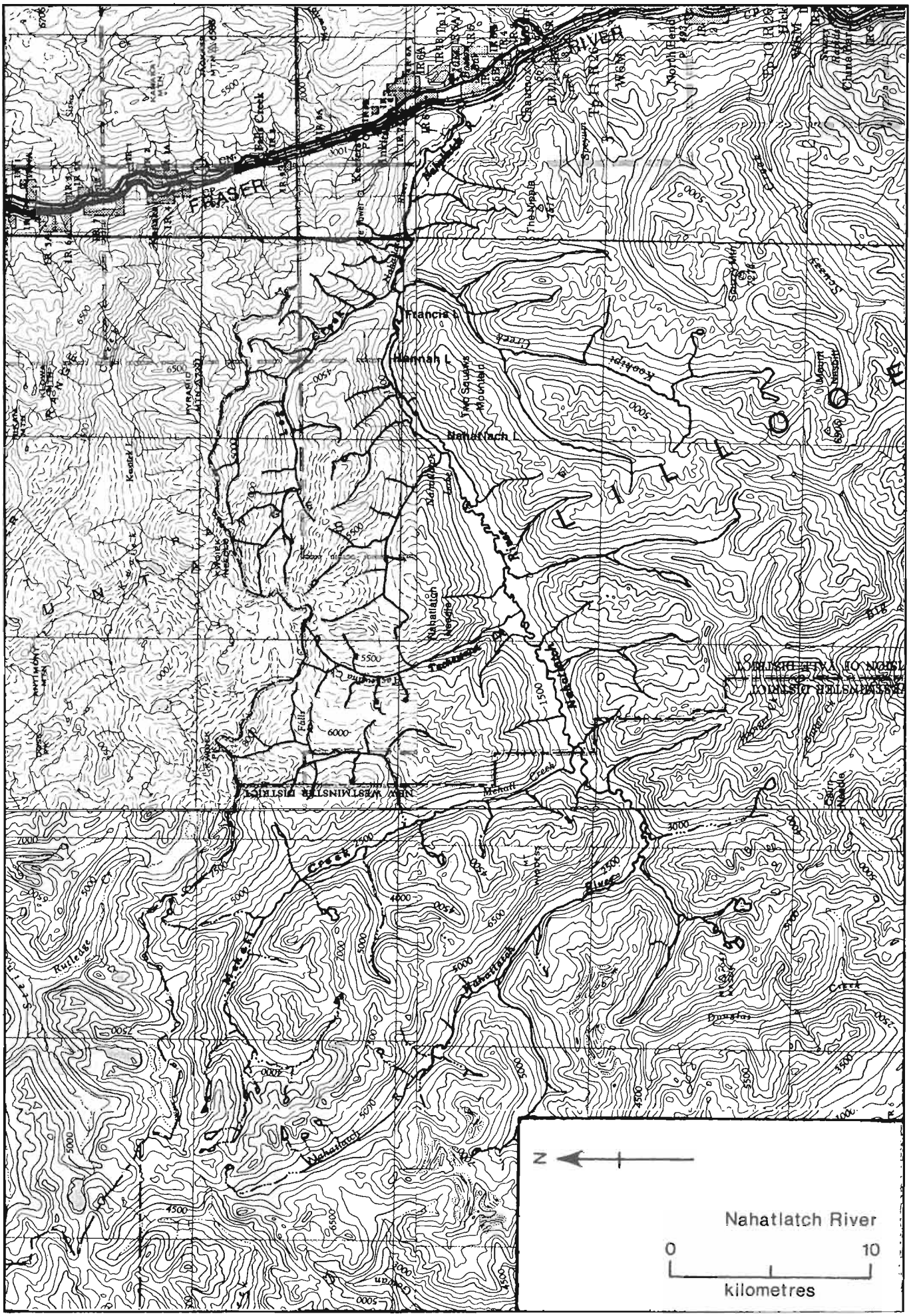
ESCAPEMENT RECORD FOR MILLER CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	75		75			
48	25		25			
49	25		25			
50	25		25			
51	25		25			
52	25		200			
53	25		25			
54	N/O		75			
55	25		25			
56	25		25			
57	N/O		25			
58			25			
59			25			
60			25			
61			UNK			
62			25			
63			N/O			
64			N/O			
65			25			
66			25			
67			50			
68			N/O			
69			50			
70	15		75			
71			150			
72			75			
73			75			
74			25			
75			75			
76			25			
77			25			
78			25			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE			E. OCT			
START			OCT			
PEAK			NOV			
END			DEC			

REMARKS


FRASER RIVER
Francis L.
Hannah L.
Nahatlatch L.
Nahatlatch River
0
10
kilometres

NAME OF STREAM NAHATLACH RIVER (Salmon River)

CONSERVATION DISTRICT 1 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows E. into Fraser R., Yale Dist.

POSITION 49 121 NW

LENGTH _____ km WIDTH _____ m DRAINAGE 1067 km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) mean = 40.8 max = 271 (75/11/04) min = 6.7 (75/02/13)

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- mainly in area of Tachewana Creek
CHINOOK	- mainly at outlet of Francis Lake
COHO	- from log jam at 43 km to Mehatl Creek
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

- 1957. This stream is rocky and precipitous in lower areas yielding little spawning area. There is a small spawning area below Hannah Lake. There are miles of excellent spawning areas above the lakes in the mainstream and tributaries.
- 1969. This area was opened up for summer homesites.
- 1974. A massive log jam (300 m x 45 m) at 43 km has been building up for years and is impassable to salmon. Several attempts to remove it have failed.
- 1976. 1000 cunits of Cottonwood was logged upstream of and adjacent to a large swamp at the western end of Nahatlach Lake.
- 1977. The Salmonid Enhancement Branch excavated a 245 m by-pass channel around the log jam.

GENERAL REMARKS (cont.) - Nahatlach River

- 1978. The by-pass channel is working very well and the water remaining under the log jam provides excellent rearing habitat.

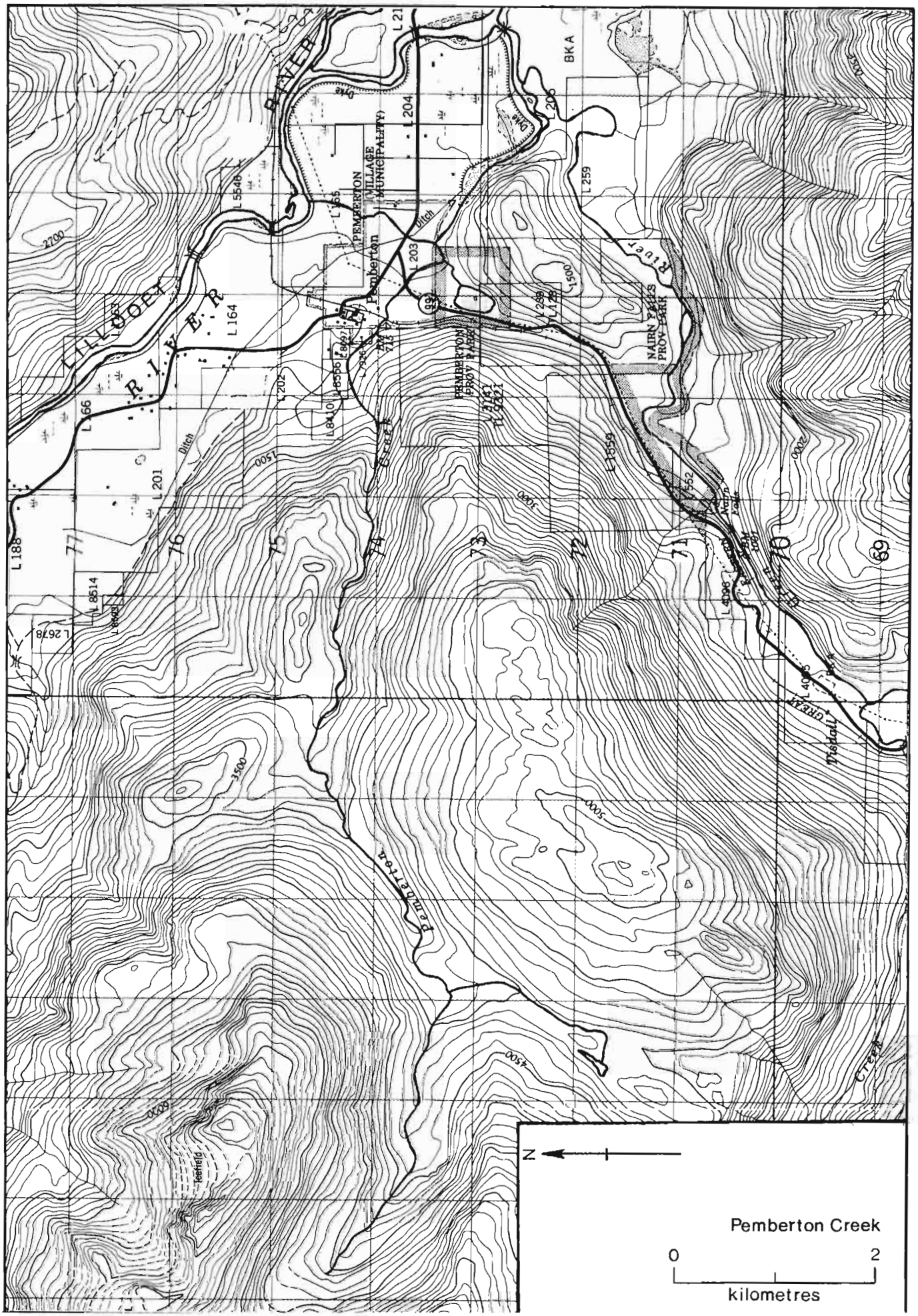
ESCAPEMENT RECORD FOR NAHATLACH RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947					25	
48			300			
49			400		75	
50			200			
51		300	500		500	
52		200	400			
53		75				
54		UNK	UNK			
55		400	3500		75	
56						
57		25	1500		200	
58		4				
59		25			200	
60		25				
61		25	200		75	
62		200	15000			
63		200	25		750	
64		120	25			
65	25	75	1500		750	
66	20	15	1000			
67		25	100		25	
68		25	500			
69		25	1500		25	
70	100	25	750			
71		25	750		25	
72	100	25	450			
73		50	500		25	
74		50	100			
75		200	50		50	
76	300	50	200			
77	250	25	800			
78	1200	50	300			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE	AUG	SEP	OCT		OCT	
START	E. SEP	M. SEP	E. OCT		M. OCT	
PEAK	M. SEP	M. SEP	L. OCT		L. OCT	
END	L. SEP	M. OCT	E. NOV		E. NOV	

REMARKS


LILLOOET RIVER
PEMBERTON (VILLAGE MUNICIPALITY)
Pemberton
Pemberton Creek
0
2
kilometres
N

NAME OF STREAM PEMBERTON CREEK (One Mile Creek)

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows E., SE. and E. into Green R., near its jct. with Lillooet R., Lillooet Dist. POSITION 50 122 SW

LENGTH 5 km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) 4°(51/04/25) 5°(51/05/30) 9°(51/09/06)

BARRIERS OR POINTS OF DIFFICULT ASCENT

Impassable falls at 5 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	- throughout
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS

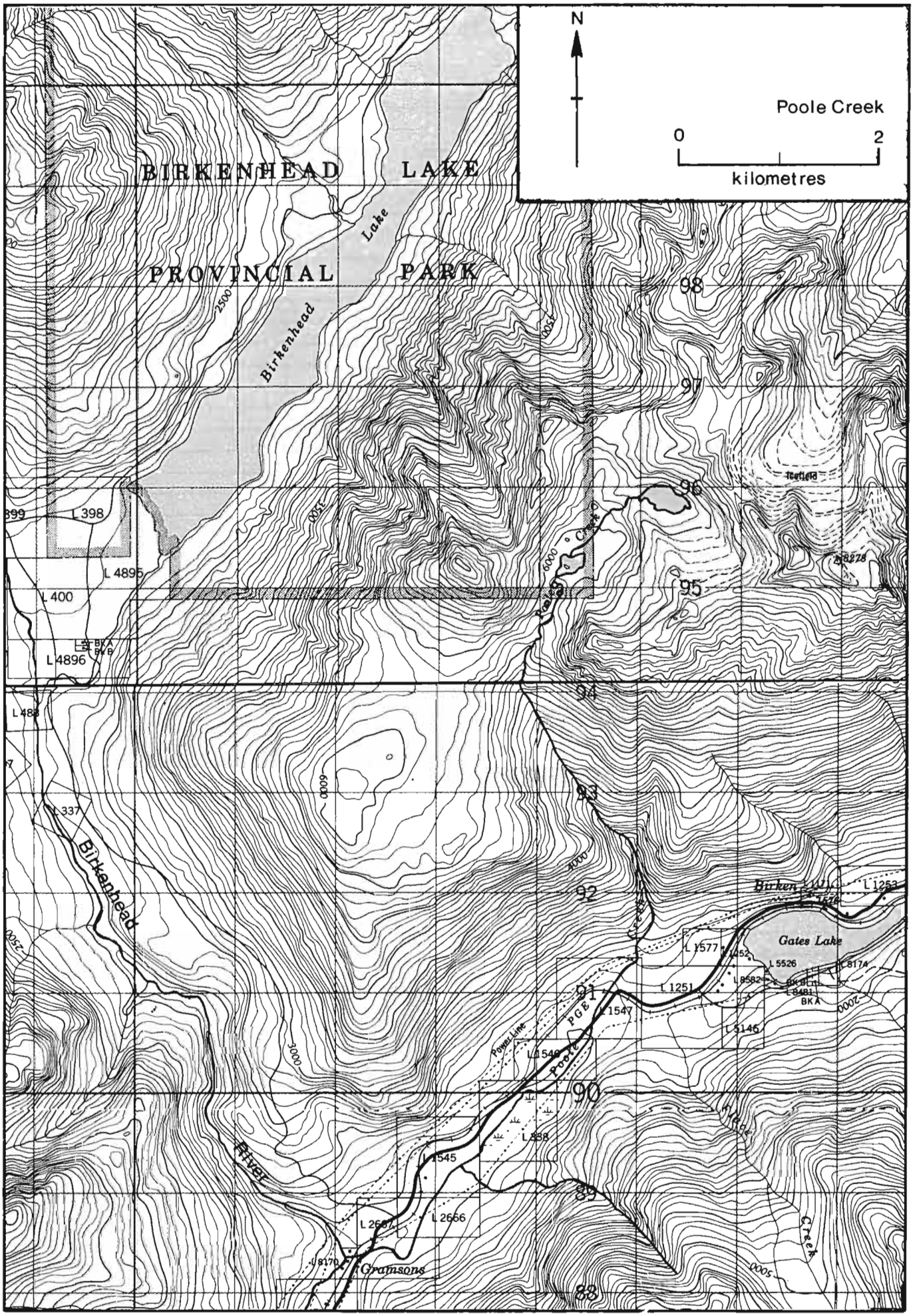
ESCAPEMENT RECORD FOR PEMBERTON CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947			25			
48			25			
49			UNK			
50			25			
51			25			
52			25			
53			25			
54			25			
55			25			
56			N/O			
57			N/O			
58			25			
59			25			
60			25			
61			25			
62			25			
63			25			
64			25			
65			25			
66			25			
67			50			
68			50			
69			50			
70			400			
71			200			
72			25			
73			25			
74			25			
75			25			
76			25			
77			25			
78			25			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE			L. OCT			
START			M. NOV			
PEAK			E. DEC			
END			L. DEC			

REMARKS


N
Poole Creek
0
2
kilometres
BIRKENHEAD LAKE
PROVINCIAL PARK
Lake
Birkenhead
Creek
Gates Lake
Power Line
PGE
Poole
Creek
River
Gransons
L 398
L 4895
L 400
L 4896
L 337
L 1577
L 1252
L 5526
L 8174
L 1251
L 8582
L 8481
L 1547
L 5145
L 1548
L 338
L 1545
L 2667
L 2666
L 8170
L 1253
98
97
96
95
94
93
92
91
90
89
88

NAME OF STREAM POOLE CREEK

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SW. into Birkenhead R., S. of Birkenhead L., Lillooet Dist. POSITION 50 122 SW

LENGTH 11 km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) 7°(51/05/08) 6°(51/11/07)

BARRIERS OR POINTS OF DIFFICULT ASCENT
Impassable log jam at 11 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	- scattered throughout
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS
- This stream has a very slight gradient in the lower reaches and tends to change course on the flats.
- This is a small stream with good spawning gravel in the first 1.5 km.
- 1970. The run suffered from considerable poaching.

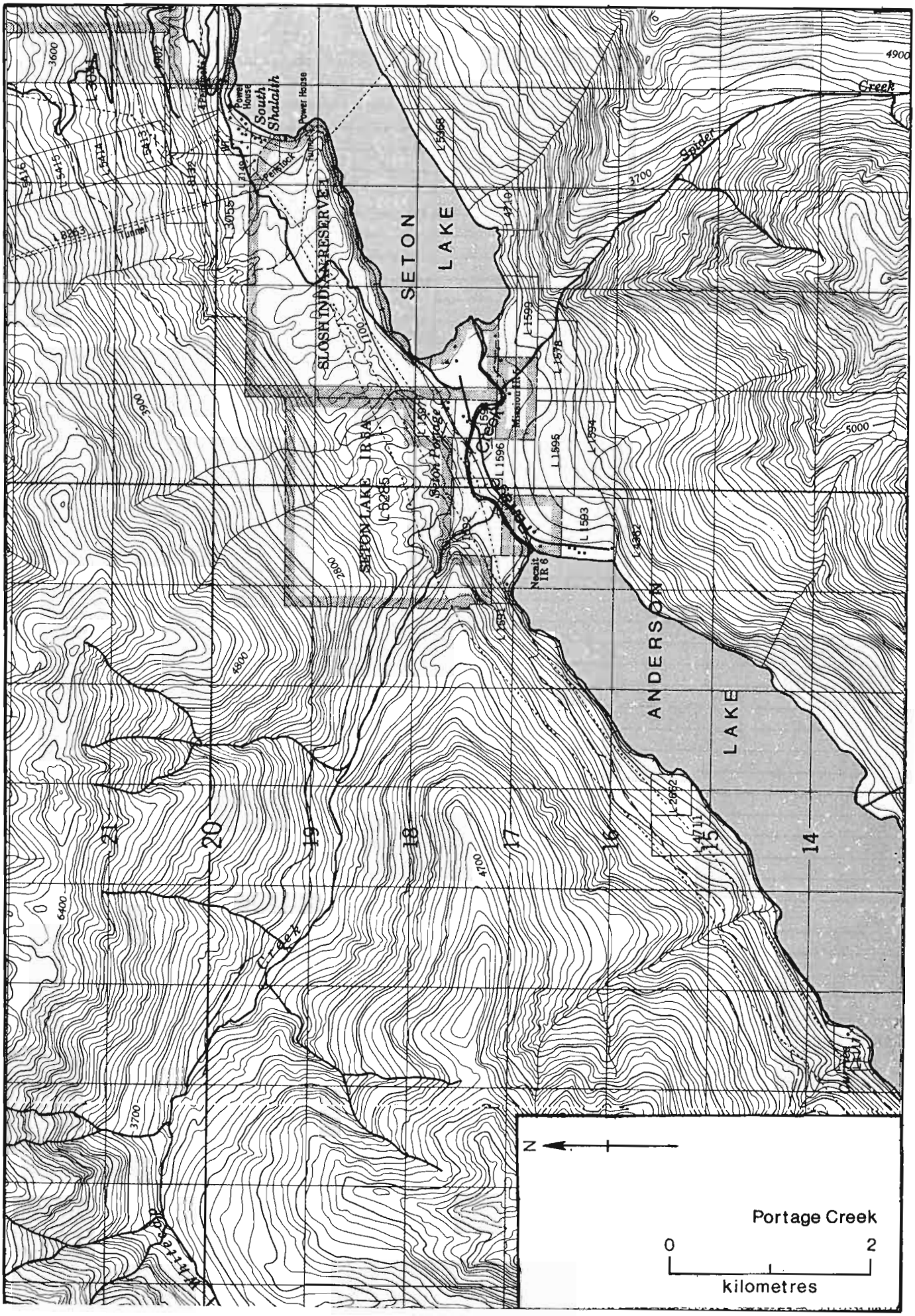
ESCAPEMENT RECORD FOR POOLE CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947			200			
48			1500			
49			750			
50			200			
51			750			
52			750			
53			200			
54			75			
55			200			
56			25			
57			50			
58			75			
59			25			
60			25			
61			75			
62			75			
63			75			
64			200			
65			200			
66			200			
67			200			
68			200			
69			470			
70			400			
71			700			
72			200			
73			200			
74			200			
75			400			
76			75			
77			75			
78			400			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE			E. OCT			
START			M. OCT			
PEAK			E. NOV			
END			DEC			

REMARKS


SETON LAKE
ANDERSON LAKE
SLOSHIN INDIAN RESERVE
SETON LAKE IR 5
Seton Portage
Mission Hill
Necait IR 6
South Shalalth
Power House
Penstock
Tunnel
Spider Creek
Portage Creek
N
0
2
kilometres

NAME OF STREAM (Portage Creek)

CONSERVATION DISTRICT 1 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows NE. into Seton L. from Anderson L., Lillooet Dist.

POSITION 50 122 NE

LENGTH 3 km WIDTH m DRAINAGE km^2

COMPOSITION: BEDROCK BOULDER COARSE FINE

SILT & SAND UNCLASSIFIED

PERCENT GRADIENT

0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA m^2 SPAWNING AREA m^2

DISCHARGE (m^3/s)

TEMPERATURE (°C)

BARRIERS OR POINTS OF DIFFICULT ASCENT

Salmon migrating to Gates and Portage Creeks are subject to delay and injury at the Seton Creek powerhouse tailrace which enters the Fraser River 1220 m downstream from Seton Creek (see sketch p.68). At certain times, up to 65% of the run has failed to reach the spawning grounds because of this problem.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- throughout; mainly above Whitecap Creek
CHINOOK	- throughout; mainly above Whitecap Creek
COHO	- throughout; mainly above Whitecap Creek
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS

- 1951. I.P.S.F.C. planted sockeye eggs in the stream this year.
- 1953. This was the first year since 1905 that pink salmon have spawned in this stream.
- 1969. Logging operations in the area have affected the run-off pattern of this creek in recent years resulting in some loss of gravel and some erosion.

References:

I.P.S.F.C. 1976. Tailrace delay and loss of adult sockeye salmon at the Seton Creek hydroelectric plant. 74 pp.

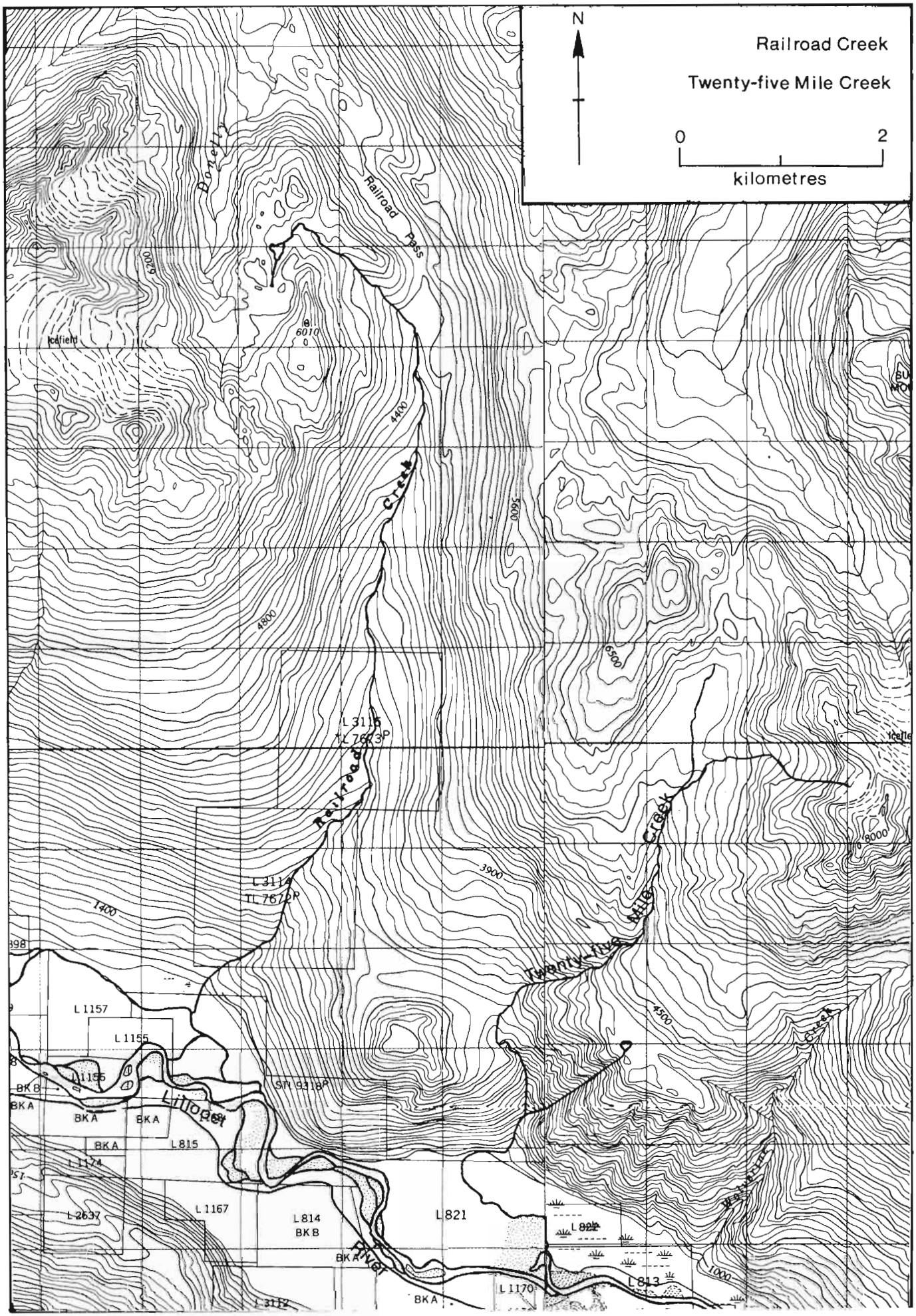
ESCAPEMENT RECORD FOR PORTAGE CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	25					
48	25					
49	25					
50	200	25				
51	25	UNK				
52	200	UNK				
53	200	UNK			7500	
54	5000	25				
55	25	25			400	
56	25	25				
57	200	25	25		750	
58	3500	200	25			25
59	75	25			200	
60	3	200	2			
61	200	200	25		750	
62	7500	25	25			
63	1500	25	25		7500	
64	30	80	30			
65	3500	750	400		7500	
66	35000	N/O	25			
67	6000	50	25		7500	
68	50	20	125			
69	1000	100	100		1000	
70	3900	150	150			
71	250	200	100		100	
72	700	50	100			
73	3500	50	100		100	
74	8000	25	50			
75	3000	200	25		1000	
76	500	70	80			
77	8000	500	500			
78	10000	250	500			
79						
80						
81						
82						
83						
84						
85						

TIMING

ARRIVE	OCT	SEP	OCT		OCT	
START	E. OCT	E. SEP	M. OCT		E. OCT	
PEAK	L. OCT	L. SEP	L. OCT		L. OCT	
END	E. NOV	E. OCT	M. NOV		E. NOV	

REMARKS


N
Railroad Creek
Twenty-five Mile Creek
0
2
kilometres
Donetty
Railroad Pass
Railroad Creek
Twenty-five Mile Creek
Little Creek
Icefield
6010
6200
4400
5600
4800
6500
8000
3900
1400
4500
1000
L 3116
TL 7673P
L 3114
TL 7672P
L 1157
L 1155
L 1156
STL 9318P
BKA
BKB
L 815
L 1174
L 2637
L 1167
L 814
BKB
L 821
L 813
L 1170
L 3112

NAME OF STREAM RAILROAD CREEK

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SW. into Lillooet R., Lillooet Dist.

POSITION 50 32' 123 03'

LENGTH 2.5 km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT

0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Impassable falls at 2.5 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- throughout
CHINOOK	
COHO	- throughout
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS

- This stream is subject to a great deal of channel changing.
- 1969. Logging operations began in the watershed.

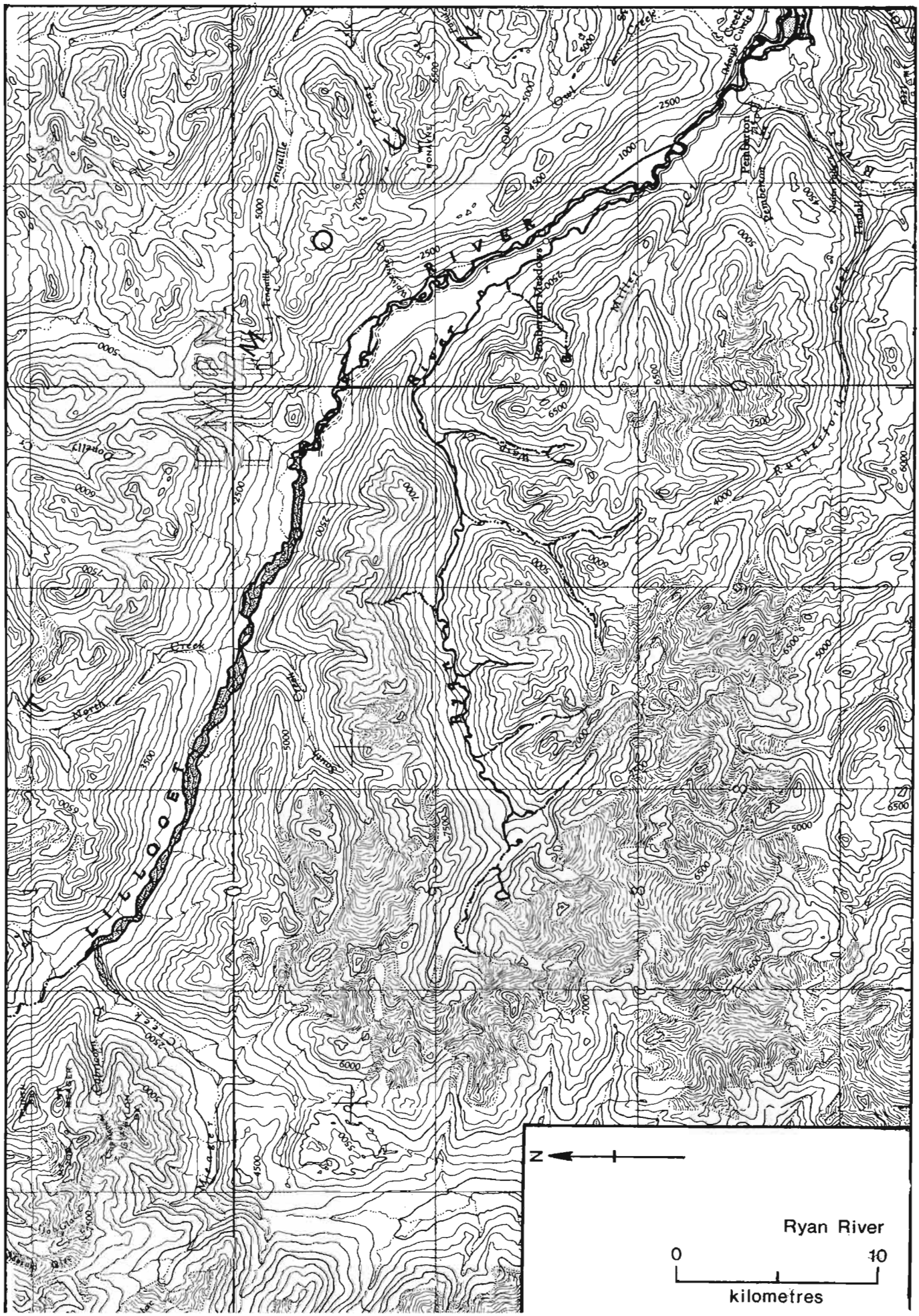
ESCAPEMENT RECORD FOR RAILROAD CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947						
48						
49						
50						
51						
52						
53						
54						
55		NO SALMON OBSERVED PRIOR TO 1956				
56			25			
57			25			
58			25			
59			25			
60			25			
61			25			
62	25		75			
63	N/O		25			
64			200			
65			200			
66			75			
67			100			
68			50			
69			270			
70	75		750			
71	450		1200			
72	75		200			
73	75		200			
74	75		750			
75	200		400			
76	75		75			
77	400		400			
78	75		200			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE	SEP		OCT			
START	OCT		NOV			
PEAK	OCT		NOV			
END	NOV		JAN			

REMARKS


N
Ryan River
0
10
kilometres

NAME OF STREAM RYAN RIVER

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows NE. and SE. into Lillooet R., Lillooet Dist.

POSITION 50 122 SW

LENGTH 8 km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Impassable falls at 8 km.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	- throughout
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS

- 1951. Dyking has stabilized the stream.
- 1963. Logging operations were carried out in the watershed.
- The river is very turbid and observation of the salmon very difficult.

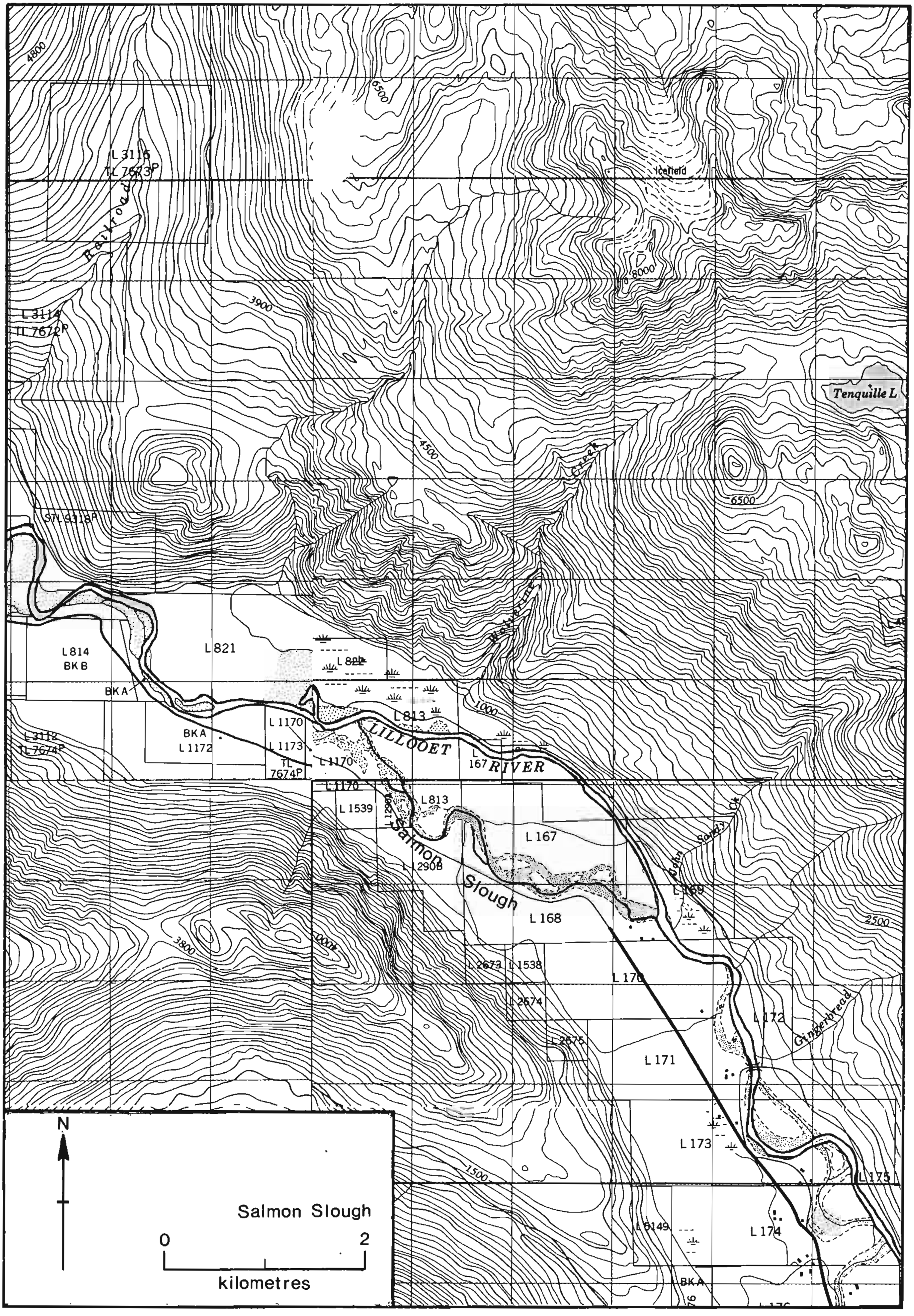
ESCAPEMENT RECORD FOR RYAN RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947			400			
48			75			
49	200		75			
50	75		200			
51			75			
52			3500			
53			200			
54			200			
55			200			
56			25			
57			25			
58			200			
59			200			
60			200			
61			400			
62			400			
63			400			
64			400			
65			400			
66			400			
67			250			
68			250			
69			900			
70			700			
71			400			
72			200			
73			200			
74			400			
75			200			
76			75			
77			400			
78			200			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE			M. OCT			
START			M. NOV			
PEAK			M. DEC			
END			E. JAN			

REMARKS


4800
6500
L 3115
TL 7673P
Railroad
Icefield
8000
3900
L 3114
TL 7672P
Tenquille L
4500
Creek
6500
STL 9318P
L 814
BK B
L 821
BK A
L 813
1000
L 3112
TL 7674P
BK A
L 1172
L 1170
L 1173
TL
7674P
L 1170
LILLOOET
RIVER
L 167
L 1170
L 1539
L 813
Salmon
Slough
L 167
L 1290B
L 169
L 168
2500
3800
4000
L 2673
L 1538
L 170
L 2674
L 172
Gingerbread
L 2675
L 171
L 173
1500
L 175
L 6149
L 174
BK A
N
Salmon Slough
0
2
kilometres

NAME OF STREAM SALMON SLOUGH

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Directly S. of Lillooet R., Lillooet Dist.

POSITION 50 30' 123 02'

LENGTH 5 km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Impassable falls at 5 km.

The large beaver population creates problems on this stream. Numerous dams have made the top end unsuitable for salmon.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	- scattered throughout
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS _____

ESCAPEMENT RECORD FOR SALMON SLOUGH

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947			750			
48			400			
49			200			
50	25		750			
51			25			
52			200			
53			400			
54			200			
55			75			
56			25			
57			200			
58			75			
59			200			
60			75			
61			75			
62			75			
63			75			
64			200			
65			200			
66			200			
67			200			
68			150			
69			900			
70			N/O			
71			400			
72			200			
73			75			
74			75			
75			1500			
76			1500			
77	UNK		700			
78			NO REC			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE			OCT			
START			NOV			
PEAK			DEC			
END			JAN			

REMARKS

SETON RIVER - for topographical map, refer to Anderson Lake page 1.

NAME OF STREAM SETON RIVER

CONSERVATION DISTRICT 1 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SE. into Fraser R., S. of Lillooet, Lillooet Dist.

POSITION 50 121 NW

LENGTH _____ km WIDTH _____ m DRAINAGE 1039 km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) mean = 29 max = 177 (76/06/03) min = 3 (74/07/02)

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Seton Dam, near the outlet of Seton Lake, is passable to migrating salmon by means of a fish ladder.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- scattered throughout (below dam)
CHINOOK	- scattered throughout (below dam)
COHO	- scattered throughout (below dam)
CHUM	
PINK (ODD YEAR)	- in spawning channels
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

- Seton River data includes Cayoosh Creek.
  Cayoosh Creek drainage = 880 km^2
- Seton River is often adversely affected by occasional high discharges over Seton dam.
- 1950. Water from the Bridge River diversion (B. C. Electric) into Seton Lake has brought about two major changes to the lake and creek: 1) increased turbidity, and 2) cooler temperatures. This has had an adverse effect on sockeye and chinook escapements.
- 1955. The Seton River hydroelectric project began operation.
- 1963. Considerable spawning occured in the powerhouse tailrace and below the tailrace in the Fraser River. (see sketch p. 68)

GENERAL REMARKS (cont.) - Seton River

- 1969. Logging operations are taking place around the headwaters of Cayoosh Creek.

Seton Lake - rearing grounds for Gates River and Portage Creek sockeye

area =	2430 ha
mean depth =	85 m
max depth =	150 m
shoreline =	48.8 km
length =	22.2 km
width =	1.6 km

Seton River Spawning Channels

The International Pacific Salmon Fisheries Commission built two artificial spawning channels on Seton River to increase pink salmon spawning area after 25080 m^2 of natural spawning grounds were lost to the B. C. Electric intake dam on the creek.

The upper Seton River spawning channel commenced operation in 1961. It is located above the confluence with Cayoosh Creek on 10.4 ha of land between the power canal and Seton River.

length	889 m	(2918 ft)
width	6 m	(20 ft)
drop over length	6.5 m	(21.5 ft)
spawning area	5032 m^2	(6019 yd^2)
water depth	46 cm	(1.5 ft)
velocity	0.38 m/s	(1.25 fps)
discharge	1.13 m^3/s	(40 cfs)
gravel depth	41 cm	(16 ins)
gravel size	12 - 102 mm	(0.5 - 4 ins)

I.P.S.F.C. has been trying to keep the number of spawners at .7 to .8 females per m^2.

The lower Seton River spawning channel commenced operation in 1967. It is situated about 1.5 km downstream from the upper channel on 7.2 ha of land adjacent to Seton River.

length	2891 m	(9486 ft)
width	6 m	(20 ft)
spawning area	17460 m^2	(20886 yd^2)
water depth	41 cm	(16 ins)
velocity	0.45 m/s	(1.46 fps)
discharge	1.13 m^3/s	(40 cfs)
gravel depth	41 cm	(16 ins)
gravel size	6.4 - 100 mm	(.25 - 4 ins)

Both channels receive their water supply from the B. C. Hydro power canal.

For both channels, the average egg to fry survival rate is 56% (2 - 4 times the rate of the natural stream). The total number of fry produced by the channels is about 24 million from each odd year run.

GENERAL REMARKS (cont.) - Seton River

References:

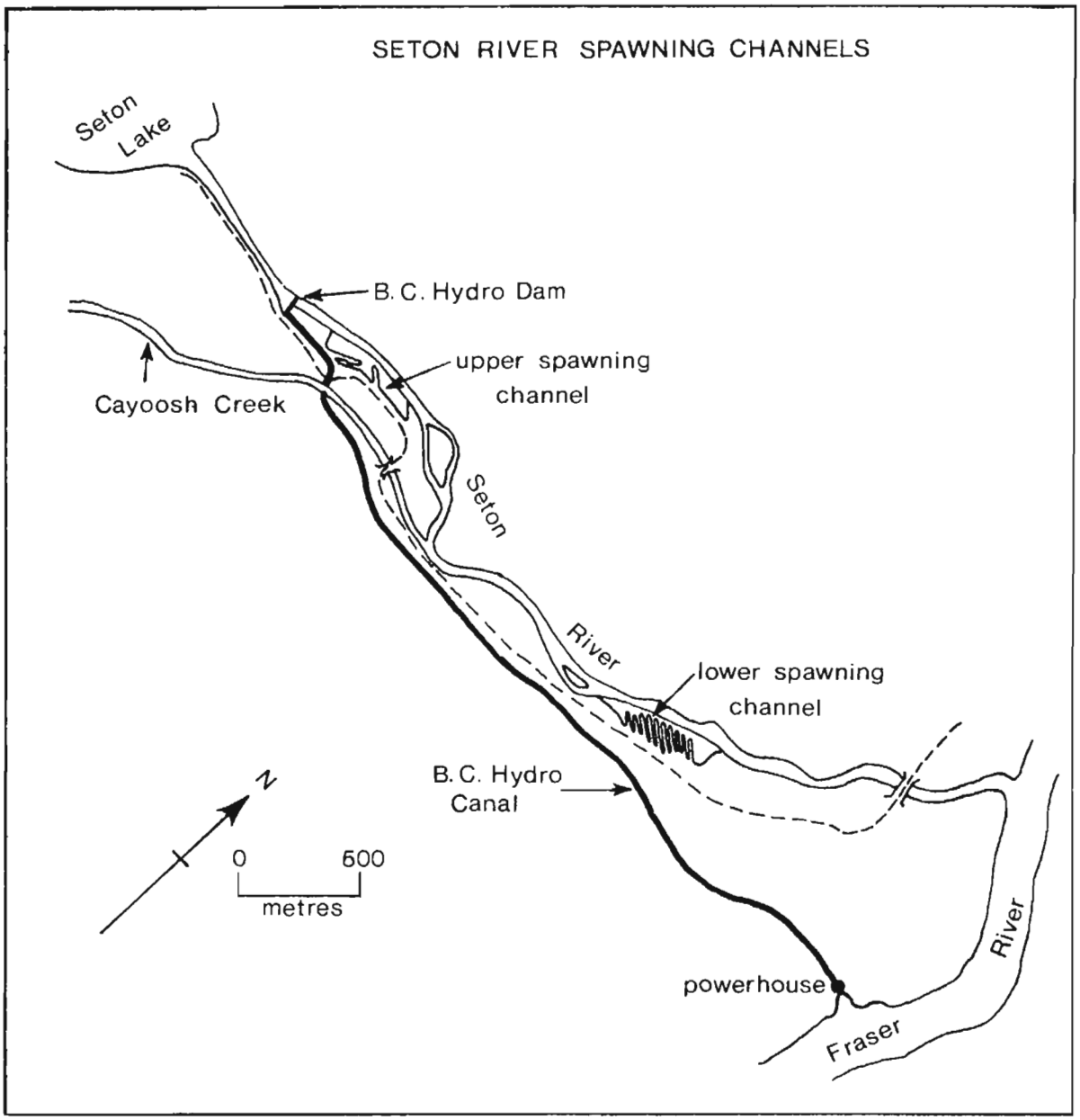
Andrew, F. J. and G. H. Geen. 1958. Sockeye and pink salmon investigations at Seton Creek hydroelectric installation. I.P.S.F.C. Progress Report 4.

Cooper, A. C. 1977. Evaluation of the production of sockeye and pink salmon at spawning and incubation channels in the Fraser River system. I.P.S.F.C. Progress Report 36: 3-13; 46-52.

Geen, G. H. and F. J. Andrew. 1961. Limnological changes in Seton Lake resulting from hydroelectric diversions. I.P.S.F.C. Progress Report 8.

I.P.S.F.C. 1966. Proposed artificial spawning channel for Gates Creek sockeye salmon. 37 pp.
(contains biology of Seton Lake in relation to rearing of sockeye)

I.P.S.F.C. 1976. Tailrace delay and loss of adult sockeye salmon at the Seton Creek hydroelectric plant. 74 pp.



ESCAPEMENT RECORD FOR SETON RIVER

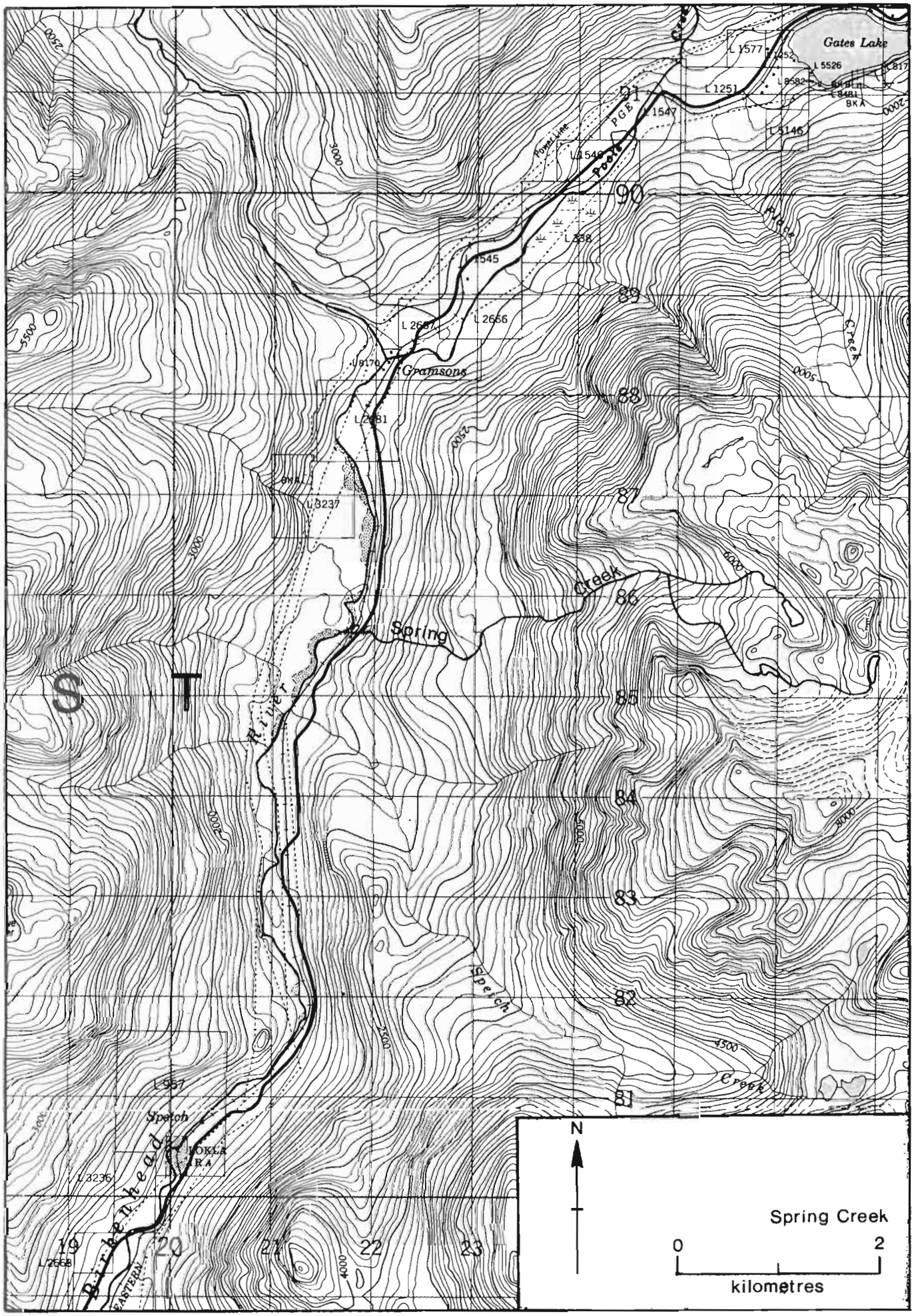
YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	25	25			1500	
48	25	75				
49	25	25			750	
50	25	25				
51	25	25			15000	
52	25	25				
53	25	25			50000	
54	25	25				
55	25	25			50000	
56	25	200				
57	25	25	25		75000	
58	200	N/O	N/O			
59	75	25			7500	
60		75				
61	25	25			35000	
62	200	25				
63	25	25	25		123000	
64	N/O	50	16			
65	75	75	N/O		120000	
66	20	N/O				
67	10	25	5		225000	
68		25				
69		25			190000	
70		25				
71		25			275000	
72		10	15			
73		50			248000	
74		25				
75		25			46000	
76		30	20			
77		70	30		390000	
78		150	30			
79						
80						
81						
82						
83						
84						
85						

TIMING

ARRIVE		SEP	OCT		OCT	
START		M. SEP	M. OCT		E. OCT	
PEAK		L. SEP	E. NOV		E. NOV	
END		E. OCT	M. NOV		E. NOV	

REMARKS

The above figures include escapements to Cayoosh Creek, Seton Creek and Seton Creek spawning channels.


Gates Lake
Powerline
PGE
Route
Creek
Gramsons
Spring
River
Speech
Birkenhead
EASTERN
S
T
N
Spring Creek
0
2
kilometres

NAME OF STREAM (Spring Creek)

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SW. into Birkenhead R., S. of Birkenhead L., Lillooet Dist. POSITION 50 122 SW

LENGTH _____ km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (^oC) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

This stream is included with Birkenhead River reports after 1964.

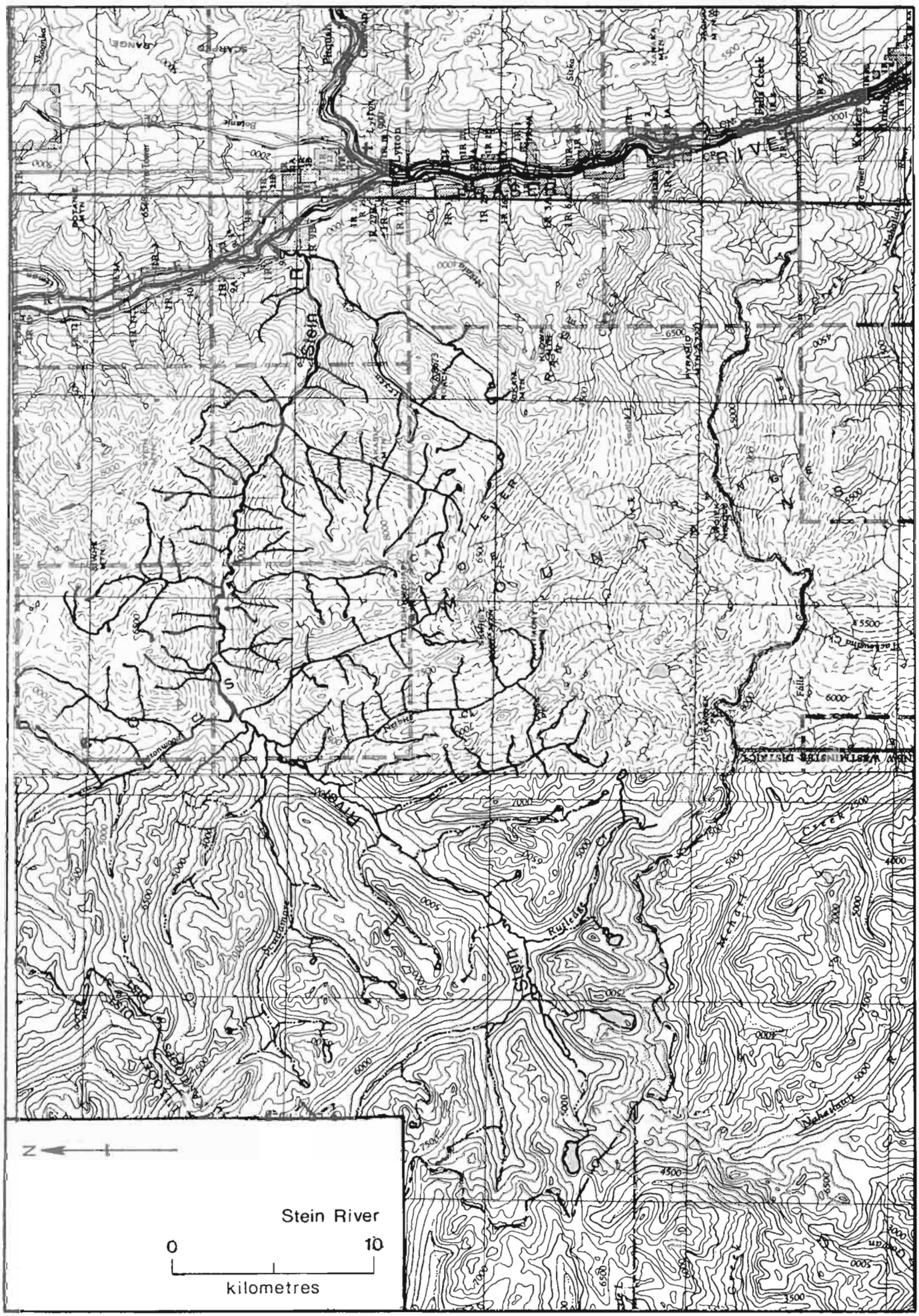
ESCAPEMENT RECORD FOR SPRING CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	25					
48	75					
49	200					
50	200					
51	25					
52	75					
53	75					
54						
55	25					
56						
57	75					
58	25					
59	25					
60	25					
61	25					
62	25					
63	N/O					
64	25					
65						
66		RECORDS DISCONTINUED AFTER 1964				
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE						
START						
PEAK						
END						

REMARKS


N
Stein River
0
10
kilometres

NAME OF STREAM STEIN RIVER

CONSERVATION DISTRICT 1 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SE. and NE. into Fraser R., NW. of Lytton, Kamloops Dist. POSITION 50 121 SW

LENGTH _____ km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	- 16 km upstream of Fraser River
COHO	
CHUM	
PINK (ODD YEAR)	- scattered in lower reaches
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS

This is a glacial, snow fed stream. The lower 16 km are quite rocky and fast flowing. Above this, there are 19 km of good spawning gravel but salmon do not reach it.

Access to upper reaches for salmon ennumeration is very difficult.

ESCAPEMENT RECORD FOR STEIN RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947						
48						
49						
50						
51						
52						
53						
54						
55		NO	RECORDS PRIOR TO 1957			
56						
57					75	
58						
59					75	
60						
61					75	
62						
63					400	
64						
65					200	
66						
67					150	
68						
69					N/O	
70						
71					300	
72						
73					100	
74						
75					100	
76						
77		20			500	
78		N/O				
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE					OCT	
START					E. OCT	
PEAK					M. OCT	
END					L. OCT	

REMARKS

TWENTY-FIVE MILE CREEK - for topographical map refer to Railroad Creek, page 53.

NAME OF STREAM (Twenty-five Mile Creek or Sampson Creek)

CONSERVATION DISTRICT 2 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SW. into Lilooet R., SE. of North Ck., Lillooet Dist.

POSITION 50 123 NE

LENGTH _____ km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

Beaver dams frequently create problems.

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	- scattered
CHINOOK	
COHO	- scattered
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS

Shifting of the Lillooet River often eliminates the spawning grounds of Twenty-five Mile Creek.

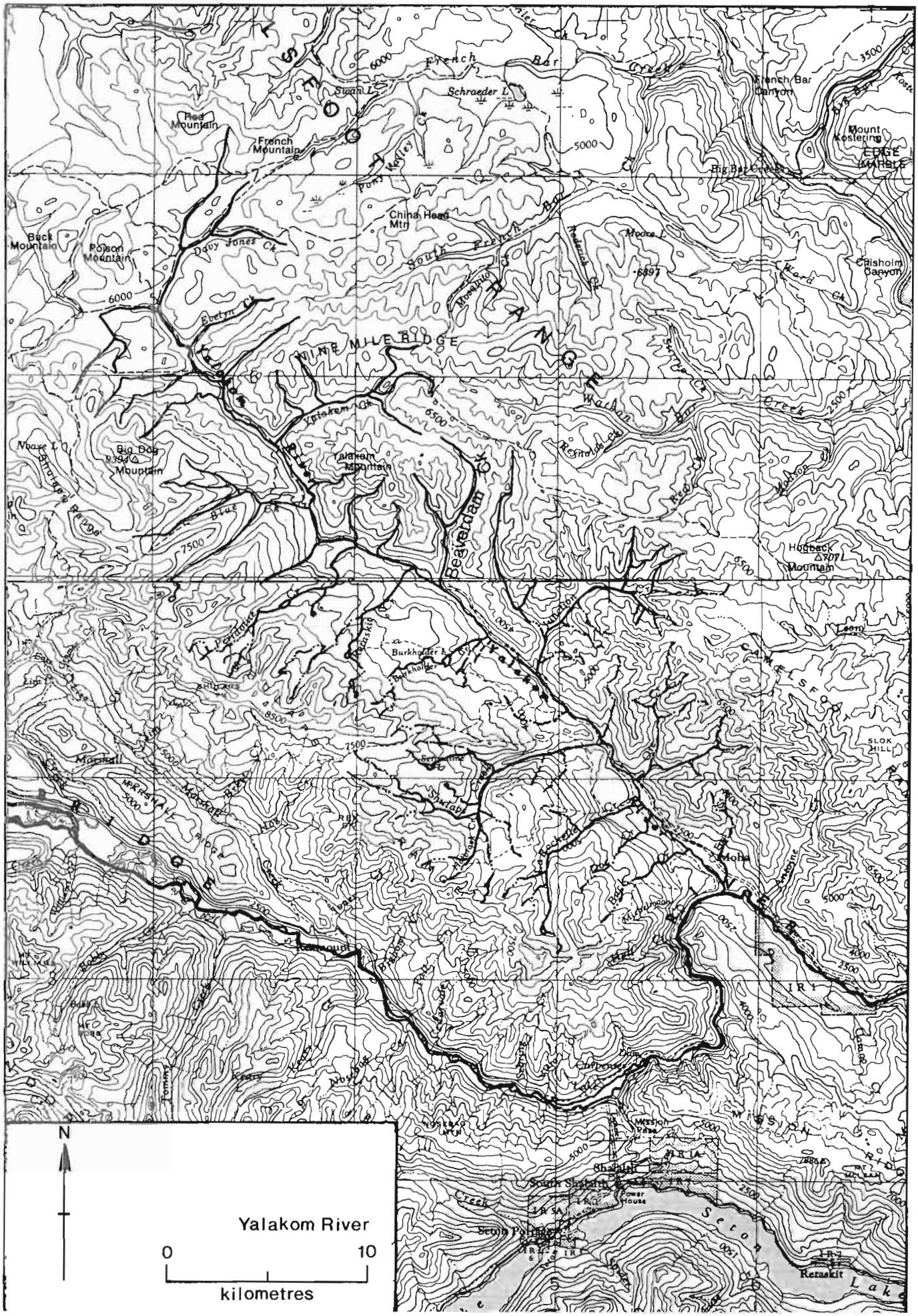
ESCAPEMENT RECORD FOR TWENTY-FIVE MILE CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	750		750			
48	N/O		N/O			
49						
50						
51						
52						
53						
54						
55						
56			25			
57						
58			25			
59						
60			75			
61			75			
62			200			
63			75			
64						
65			200			
66						
67						
68			75			
69						
70						
71						
72						
73						
74	400		25			
75	200		25			
76	400		25			
77	700		150			
78	400		25			
79						
80						
81						
82						
83						
84						
85						

TIMING:

ARRIVE	SEP		OCT			
START	SEP		NOV			
PEAK	OCT		DEC			
END	NOV		JAN			

REMARKS


N
Yalakom River
0
10
kilometres

NAME OF STREAM YALAKOM RIVER

CONSERVATION DISTRICT 1 STATISTICAL AREA Lillooet

LOCATION OF MOUTH Flows SE. into Bridge R., N. of Seton L., Lillooet Dist.

POSITION 50 122 NE

LENGTH _____ km WIDTH _____ m DRAINAGE _____ km^2

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

PERCENT GRADIENT	
0.00 - 0.25	
0.25 - 0.50	
0.50 - 0.75	
0.75 - 1.00	
>1.00	

WETTED AREA _____ m^2 SPAWNING AREA _____ m^2

DISCHARGE (m^3/s) _____

TEMPERATURE (°C) _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

SPAWNING DISTRIBUTION

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	- scattered; mainly at Beaver Dam Flats
COHO	- scattered; mainly at Beaver Dam Flats
CHUM	
PINK (ODD YEAR)	
PINK (EVEN YEAR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS _____

- 1960. Logging and mining operations moved into this watershed.

ESCAPEMENT RECORD FOR YALAKOM RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947		25				
48		N/O				
49		25				
50		N/O				
51		N/O				
52		25				
53		25				
54		N/O				
55						
56						
57	400	75				UNK
58	3					
59	25	N/O				25
60	UNK	75				UNK
61	25	25				UNK
62	25	25				UNK
63	UNK	25				UNK
64		25				UNK
65	25	N/O				UNK
66						
67		25				
68	25	50				
69		75				
70		150				
71		100				
72		50				
73		200				
74		200				
75		450	100		2000	
76		50	50			
77		50	40			
78		170	250			
79						
80						
81						
82						
83						
84						
85						

TIMING

ARRIVE		JUL	SEP			
START		L. JUL	L. SEP			
PEAK		L. AUG	M. OCT			
END		E. SEP	L. OCT			

REMARKS

METRIC EQUIVALENTS

Length

centimetre (cm)	=	0.394 in
metre (m)	=	3.280 ft
metre (m)	=	1.094 yd
kilometre (km)	=	0.621 mi
inch (in)	=	2.540 cm
foot (ft)	=	0.305 m
yard (yd)	=	0.914 m
mile (mi)	=	1.609 km

Area

square centimetre (cm^2)	=	0.155 in^2
square metre (m^2)	=	10.760 ft^2
square metre (m^2)	=	1.196 yd^2
square kilometre (km^2)	=	0.386 mi^2
hectare (ha)	=	2.470 a
square inch (in^2)	=	6.451 cm^2
square foot (ft^2)	=	0.093 m^2
square yard (yd^2)	=	0.836 m^2
square mile (mi^2)	=	2.590 km^2
acre (a)	=	0.405 ha

Volume

cubic centimetre (cm^3)	=	0.061 in^3
litre (l)	=	61.023 in^3
litre (l)	=	0.035 ft^3
litre (l)	=	0.264 gal (U.S.)
cubic metre (m^3)	=	35.315 ft^3
cubic metre (m^3)	=	1.308 yd^3
cubic inch (in^3)	=	16.387 cm^3
cubic inch (in^3)	=	0.016 l
cubic foot (ft^3)	=	0.028 m^3
cubic foot (ft^3)	=	28.320 l
cubic yard (yd^3)	=	0.765 m^3
U.S. gallon (gal)	=	3.785 l

Weight

gram (gm)	=	0.035 oz
kilogram (kg)	=	2.205 lb
kilogram (kg)	=	0.001 ton (short)
tonne (t)	=	1.103 ton (short)
ounce (oz)	=	31.103 gm
pound (lb)	=	0.373 kg
ton (short)	=	907.180 kg
ton (short)	=	0.907 t

Velocity

metre per second (m/s)	=	3.280 fs
feet per second (fs)	=	0.305 m/s

Discharge

cubic metre per second (m^3/s)	=	35.315 cfs
cubic foot per second (cfs)	=	0.028 m^3/

Temperature

Degrees Centigrade (^oC) = 5/9(Degrees Fahrenheit - 32)

Degrees Fahrenheit (^oF) = 9/5(Degrees Centigrade) + 32