Catalogue of Salmon Streams and Spawning Escapements of Statistical Area 15 Powell River



M.J. Hancock and D.E. Marshall

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September, 1985

Canadian Data Report of Fisheries and Aquatic Sciences No. 536



Canadian Data Report of Fisheries and Aquatic Sciences

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Data reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out-of-stock reports will be supplied for a fee by commercial agents.

Rapport statistique canadien des sciences halieutiques et aquatiques

Les rapports statistiques servent à classer et à archiver les compilations de données pour lesquelles il y a peu ou point d'analyse. Ces compilations auront d'ordinaire été préparées à l'appui d'autres publications ou rapports. Les sujets des rapports statistiques reflètent la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, c'est-à-dire les sciences halieutiques et aquatiques.

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Les numéros 1 à 25 de cette série ont été publiés à titre de relevés statistiques, Services des pêches et de la mer. Les numéros 26 à 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 actuel de la série a été établi lors de la parution du numéro 161.

Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés seront fournis contre rétribution par des agents commerciaux.

Canadian Data Report of Fisheries and Aquatic Sciences No. 536 October 1985



CATALOGUE OF SALMON STREAMS AND SPAWNING ESCAPEMENTS

STATISTICAL AREA 15 POWELL RIVER

by

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ABSTRACT

Hancock, M.J. and D.E.Marshall, 1985 Catalogue of Salmon Streams and Spawning Escapements of Statistical Area 15, Powell River. Can. Data Rep. Fish and Aquat. Sci. 536: xiii + 63p.

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 and in some cases a sketch map which further describes the surrounding area.

Keywords: British Columbia, Statistical Area 15, Powell River, salmon streams, spawning escapements.

RÉSUMÉ

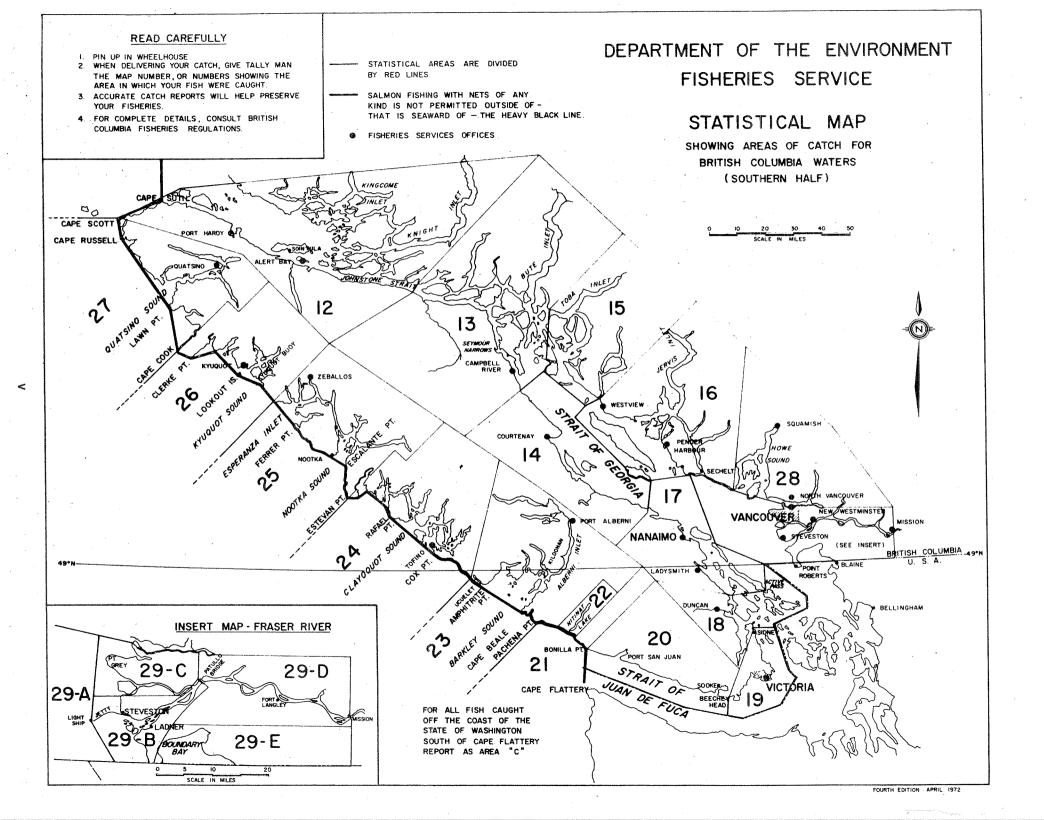
Hancock, M.J and D.E.Marshall, 1985 Catalogue of Salmon Streams and Spawning Escapements of Statistical Area 15, Powell River. Can. Data Rep. Fish and Aquat Sci. 536: xiii + 63p.

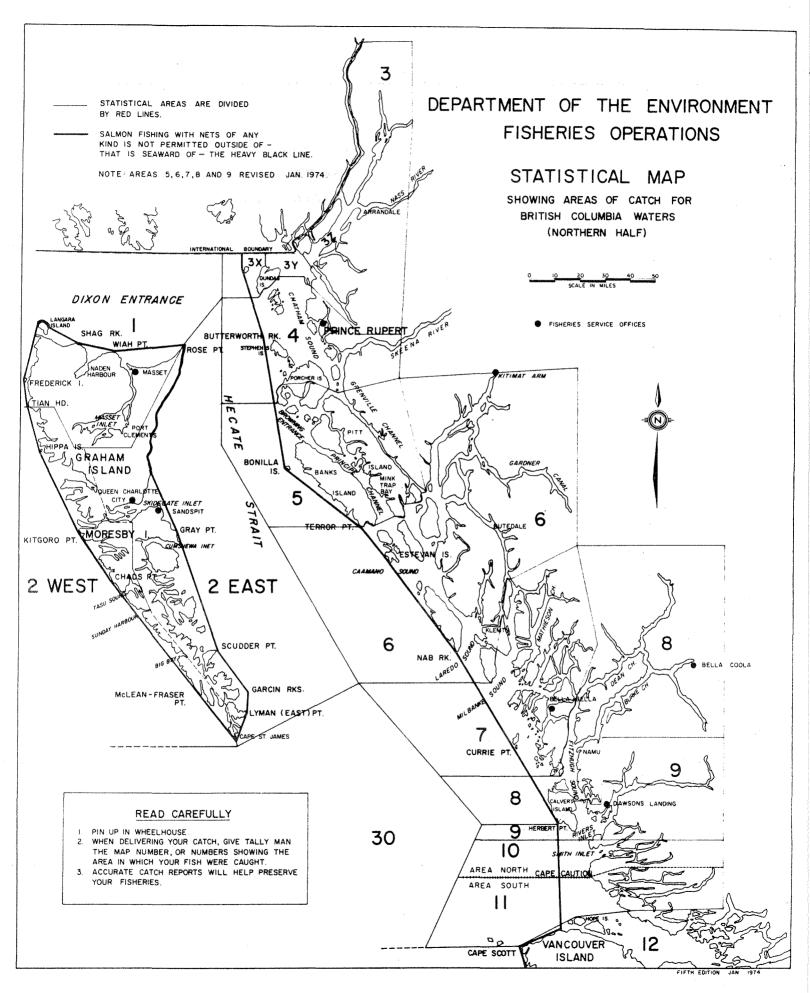
Le présent répertoire donne l'emplacement de chaque cours d'eau, la répartition de fraie, les points de remonte difficile, les données sur les saumons de remonte et d'autres information générales concernant le cours d'eau. On y trouve aussi une carte topographique de l'emplacement du cours d'eau et, dans quelque cas, un croquis décrivant la zone environte.

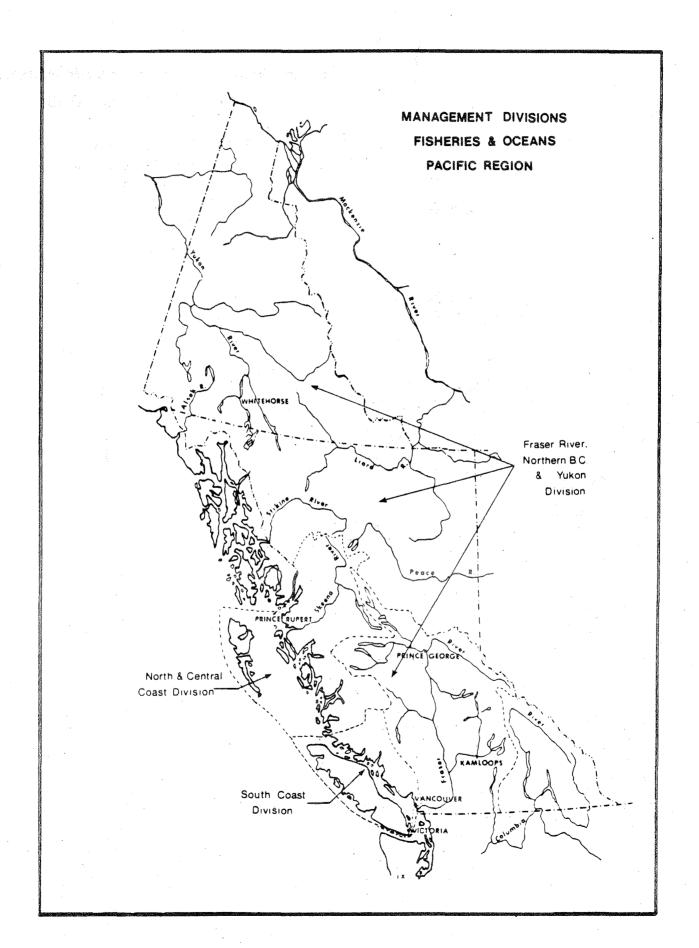
Mots-cles: Colombie-Britannique, zone statistique 15, Powell River, cours d'eau a saumons, remonte.

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V | |

STANDARDS USED ON STREAM DATA PAGE

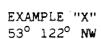
Name of Stream: Name given in Gazetteer of Canada, British Columbia 1966 edition;

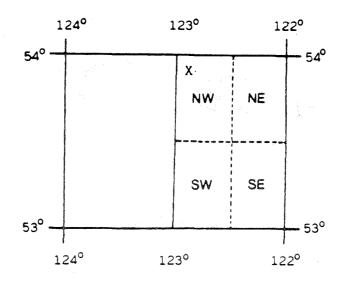
Statistical Area: As defined by D.F.O.showing areas of catch for B.C.waters (Map dated Jan. 1974)

Districts and Subdistricts: As defined by D.F.O.(Map 1985)

RAB Numbers: The Aquatics Unit of the Resource Analysis Branch, Ministry of the Environment have assigned a hierarchical coding system (RAB number) to drainage basins of British Columbia. RAB numbers classify catchment areas and river channels. Further information on RAB coding system can be found in "A Hierarchical Watershed Coding System for British Columbia", RAB Technical Paper #3, Ministry of the Environment, Victoria, B.C. June 1980.

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).





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

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

<u>Discharge</u>: Extremes of maximum and minimum daily discharge for the period of the last 30 years. Discharge date is taken from 'Historical Stream Flow Summary', British Columbia, Water Survey of Canada.

Temperature: As described (OC)

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.

General remarks: Emphasizes features of stream and spawning populations. Also includes industrial activity, routes of accessibility, etc. The comments and dates are taken from "Annual Reports of Salmon Streams and Spawning Grounds". 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.

<u>Timing</u>: 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)

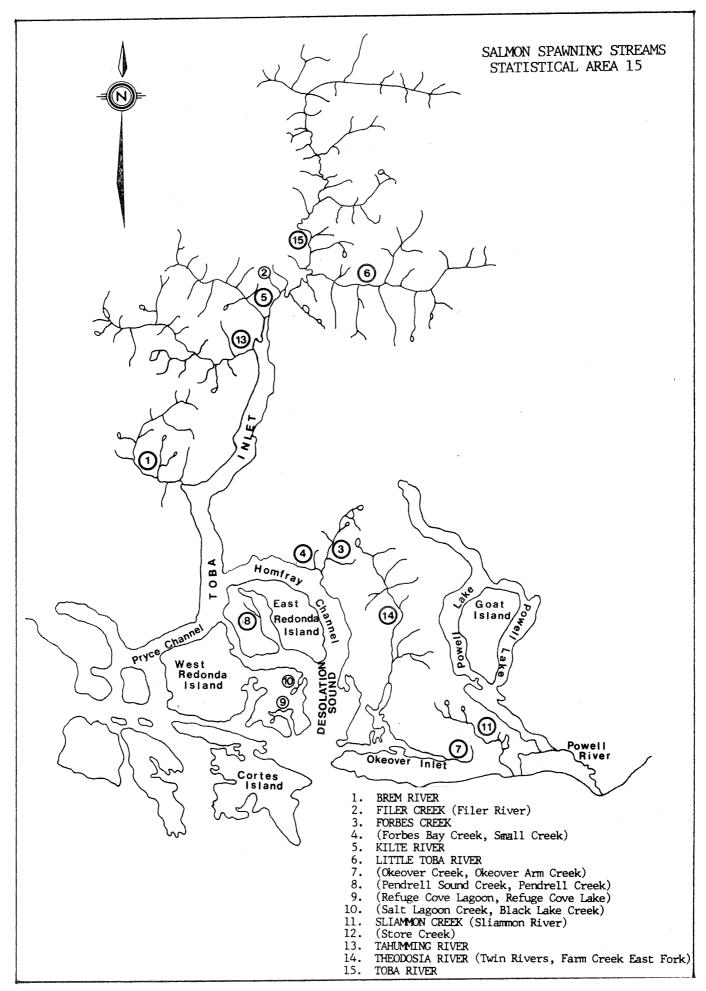
L = late (21st to end of the month)

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

FISHERIES & OCEANS - Pacific Region

DISTRICT/SUB-DISTRICT OFFICES

DISTRICT/SUB-DISTRICT	ADDRESS	TELEPHONE	SUB-DISTRICT NUMBER
DISTRICT #1 - Kamloops Salmon Arm Prince George Clearwater Lillooet Ouesnel	202 - 317 Seymour St., Kamloops, V2C 2E9 Box 1160, 461 Beatty Ave. NW, Salmon Arm V0E 2TC 2392 Ospika Blvd., Prince George, V2N 3N5 Box 610, Clearwater, V0E 1N0 Box 315, Lillooet, V0K 1V0 Box 4340, Quesnel, V2J 3J3	374-4322 9 832-8037 564-7030 674-2633 256-4525 992-2434	29K 29I 29J 29F 29H
Williams Lake	540 Borland St, Williams Lake, V2G 1R9	398-6544	2 9 G
DISTRICT #2 - New Westminster Vancouver Surrey Coquitlam Steveston Squamish Mission Chilliwack	309 - 549 Columbia St., New West., V3L 1B3 309 - 549 Columbia St., New West., V3L 1B3 309 - 549 Columbia St., New West., V3L 1B3 309 - 549 Columbia St., New West., V3L 1B3 1255 No. 1 Road, Richmond, V7E 1T7 Box 85, Squamish, V0N 3G0 Box 3308, Mission, V2V 4J5 Suite 5, 9375 Mary St., Chilliwack, V2P 4G9	524-7181 524-7306 524-7171 524-7169 274-7217 892-3230 826-3664 792-6011	28A 29B 29C 29A 28B 29D 29E
DISTRICT #3 - Nanaimo Nanaimo/Ladysmith Qualicum Beach Comox Duncan Powell River Pender Harbour	60 Front St., Nanaimo, V9R 5H7 60 Front St., Nanaimo, V9R 5H7 Box 1270, Qualicum Beach, V0R 2T0 Box 1328, Comox, V9N 3Z0 Box 241, 191 Ingram St., Duncan, V0L 3X3 4488 Marine Avenue, Powell River, V8A 2K2 Box 10, Madeira Park, V0N 2H0	754-3257 754-3257 752-9712 339-2031 746-6221 485-9621 883-2313	17 14S 14N 18 15
DISTRICT #4 - Port Alberni Port Alberni Quatsino Sound Kyuquot Tahsis Tofino	Box 280, Federal Building, Port Alberni, V9Y 7M7 Box 280, Federal Building, Port Alberni, V9Y 7M7 Box 10, Port Hardy, VON 2PO Box 549, Tahsis, VOP 1XO Box 549, Tahsis, VOP 1XO Box 48, Tofino, VOR 2ZO		23 27 26 25 24
DISTRICT #5 - Campbell River Campbell River Seymour Inlet Alert Bay	215 - 950 Alder St., Campbell River, VOW 2P8 215 - 950 Alder St., Campbell River, VOW 2P8 Box 10, Port Hardy, VON 2P0 Box 10, Alert Bay, VON 1A0	287-2102 287-2102 949-6422 974-5216	13 11 12
DISTRICT #6 - Victoria Victoria/Saanich Sooke	116 - 816 Government St., Victoria, V8W 1W9 116 - 816 Government St., Victoria, V8W 1W9 Box 460, Sooke, V0Z 1NO	566-3252 566-3252 642-5322	19 20
DISTRICT #7 - Kitimat Butedale Bella Bella Bella Coola Rivers Inlet Smith Inlet	315 - 450 Federal Building, Kitimat, V8C 1T6 315 - 450 Federal Building, Kitimat, V8C 1T6 Box 38, Bella Bella, V0T 1B0 Box 130, Bella Coola, V0T 1C0 Dawson Landing P.O., Rivers Inlet, V0N 1M0 Dawson Landing P.O., Rivers Inlet, V0N 1M0	632-4884 632-4884 957-2363 799-5345	6 7 8 9
DISTRICT #8 - Prince Rupert Waterfront Skeena Grenville - Principe Lower Nass Upper Nass Hazelton Smithers Terrace	109 - 417 2nd Ave. West, Prince Rupert, V&J 1G8 109 - 417 2nd Ave. West, Prince Rupert, V&J 1G8 109 - 417 2nd Ave. West, Prince Rupert, V&J 1G8 109 - 417 2nd Ave. West, Prince Rupert, V&J 1G8 109 - 417 2nd Ave. West, Prince Rupert, V&J 1G8 Box 29, Nass Camp, VOJ 3JO Box 327, Field Street, Hazelton, VOJ 1YO Box 578, Smithers, VOJ 2NO 4721-B Lazelle Ave., Terrace, V&G 1R6	624-9137 624-9137 624-9137 624-9137 624-9137 633-2408 842-6327 847-2312 635-2206	4A 5 3A 3B 4C 4D 4B
DISTRICT #9 - Queen Charlotte Is. West Coast Q.C.I. Masset Sandspit	Box 99, Queen Charlotte City, VOT 1S0 Box 99, Queen Charlotte City, VOT 1S0 Box 99, Masset, VOT 1MO Box 222, Sandspit, VOT 1TO	559-4413 559-4413 626-3316 637-5340	2W 1 2E
DISTRICT #10 - Whitehorse Yukon South/Northern B.C. Yukon-Arctic Alsek-Taku	122 Industrial Road, Whitehorse, Y.T., Y1A 2T9 122 Industrial Road, Whitehorse, Y.T., Y1A 2T9 122 Industrial Road, Whitehorse, Y.T., Y1A 2T9 Box 5341, Haines Junction, Y.T., Y0B 1L0 xi	667-2235 667-2235 667-2235 634-2235	120 110 130

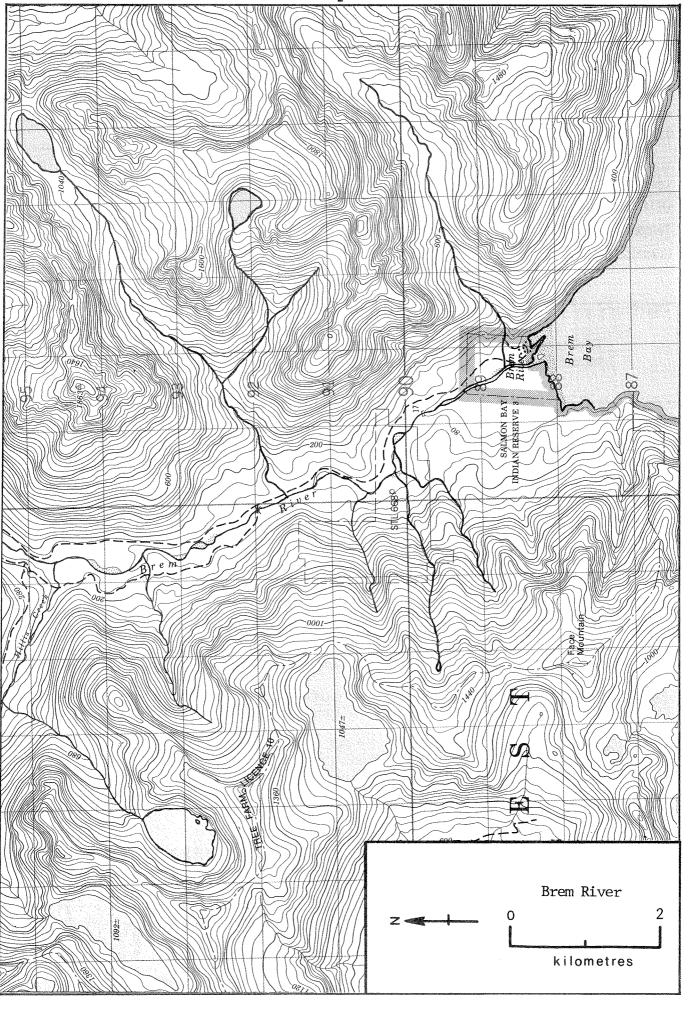


SUMMARY

ESCAPEMENT RECORD FOR STATISTICAL AREA 15 - POWELL RIVER

YEAR	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
47			17300	53400	78650	
48		25	7275	21000	2100	750
49		1550	20550	104300	94100	600
50						
51		3900	19825	144300	95900	
52		1575	22000	147300	400	400
53		1900	18950	105700	124650	1500
54		3500	25700	93200	75	
55		4250	28625	25875	39625	3900
56		1900	48550	46850	350	1700
57		2300	44750	71050	107650	1700
58	· 25	3975	26250	53900	25	825
59		2925	19775	36000	51150	950
60		2100	24400	23600		950
61		975	6150	83825	48575	75
62		3400	14150	14625		75
63		8500	28975	15125	78475	275
64		8500	35050	22775		
65		7400	17050	18075	16000	
66		14500	35500	25300		950
67		13600	18275	19100	24040	
68		13000	30210	84050	12	
69		8100	22900	26470	13100	
70		25000	41040	12700	50	
71		19000	31760	26150	37150	
72		11700	33020	49750	40	500
73		9500	19600	14900	25500	
74			1050	28700		
75			725	16625	21300	
76			700	17765		
77		110	7908	28348	6235	
78			300	16348		**************************************
79		25	815	16096	4650	
80		5	556	18100	25	
81	6	10	210	28505	6076	
82		1552	684	18450		
83		1500	920	34056	350	
84		600	1245	19685		
85						
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rive			gya manadini shingiya miyadiga a siqirin shindid di birgiyya a kamaran is Galafi baylar ya shindi sh			
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	Due to turbi were impossi	d water condi ble to enumer		1/75, chinook	and coho es	capements
	 					





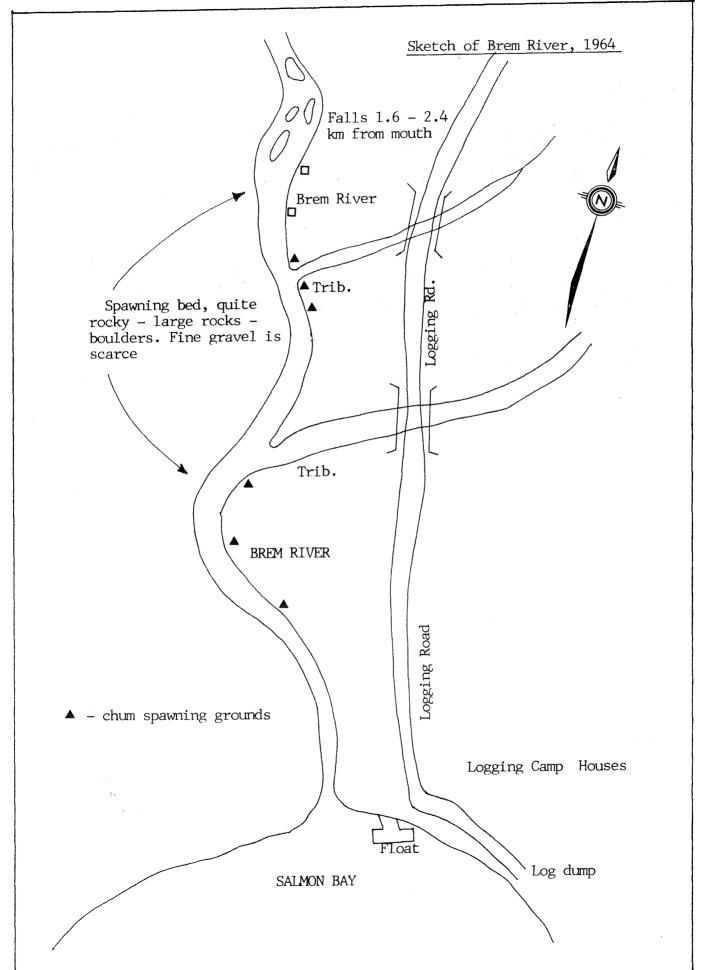
NAME OF STREAM	BREM RIVER	RAB NO. 90-3300
LOCAL NAME	:	
DISTRICT 3	STATISTICAL AREA15	POSITION 50 124 SW.
	IH Flows SW. and SE.into Brem Bay, To	
LENGTH	km WIDTHm DRAINAGE	km ²
DISCHARGE (m ³ /s)	km WIDTHm DRAINAGE MIN	
Temperature (OC)		
COMPOSITION: Be	edrock Boulder Coars	se Fine
Si	ilt & Sand Unclassified	
l Barriers or Poi	ints of Difficult Ascent:	
		-
	of rock falls 2.4 - 13km from mouth of e during favourable conditions.	stream
passabi	e during ravourable conditions.	
CDALBATIO DICCON	T DU TILL OU	
SPAWNING DISTRI		** 1
Species	Section of Stream	Used
coho	upper reaches and side streams	
chum	lower portion	
pink (odd)	lower portion	
GENERAL REMARKS		
1050 This str	eam is an excellent producer of coho, p	pink and stoolboad. It
	duces a small number of chum. The avail	
be very	stable, but is limited in area. Above t	
	miles of excellent gravel area above Brem falls is quite extensi	ive, but the streambed is
very ver	y rocky — small rocks to Îarge boulde	
limited. 1965 The above	e normal flood levels of Oct 7,8 and 20	Oth resulted in considerable
damage to	o the whole lower limited spawning grou	und. The forest cover is
	moved continually resulting in unstable ground below the falls is only about 1	
area of t	the stream. The better areas are above	
1	0% of redds. I removal of rock falls at first opport	tunity.
1967 50% of 1d	ower portion of stream is eroded — los	ss of forest cover and steep
	contributes to very rapid rum off. Low rse gravel and rocks.	wer portion scoured down to
1968 All loggi	ing activities on this stream have ceas	
	l with the return of forest cover. Pote ove rock obstructions and lower portion	
	to support numbers of spawners returni	

continued.....

BREM RIVER

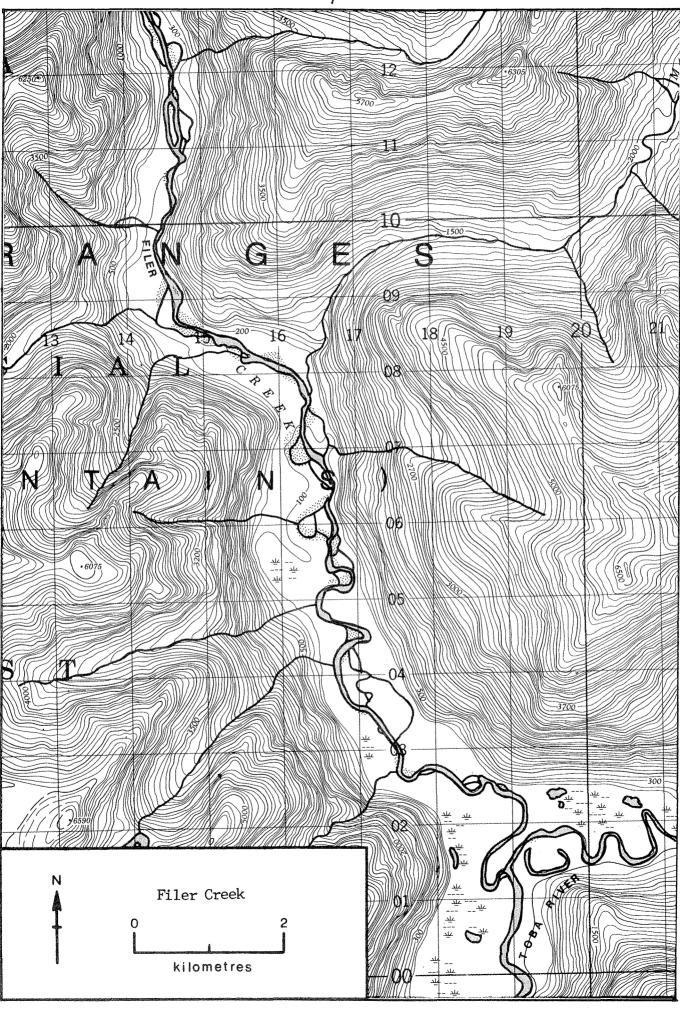
- 1969 Chinook salmon migration was later and lighter than usual, very few sports fish taken this year. Severe freshets occurred in early spring and caused considerable scouring in lower areas of river. All logging has ceased in this vicinity and stream should improve. The R.C.A.F. have established a survival camp on this stream.
- 1979 This is a glacial river and as such is subjected to severe spring runoffs. From signs of debris on river banks it looks as if the river rises to 20' above summer flow.
- 1981 This river may have had the same set of circumstances as the Toba River System. The fish may have arrived late and only at very high water levels.
- 1984 Most of the lower river has been scoured and eroded which has drastically affected the chum and pink spawning areas. 1983 reported low summer flow river subject to flash flooding.

Predation by bears and birds.



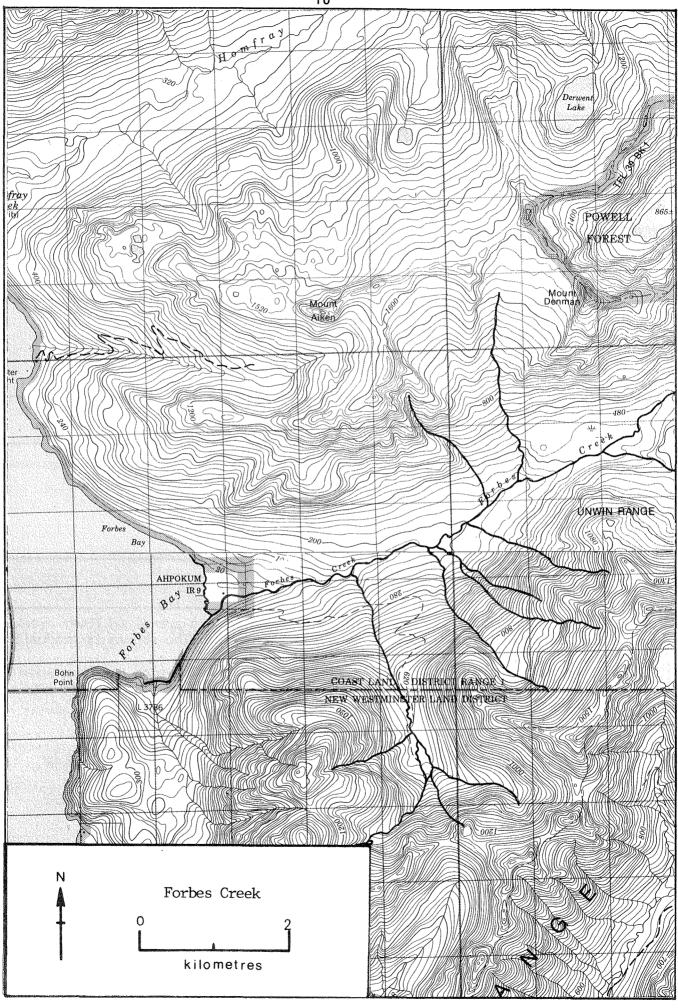
YEAR	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
1947			3500	7500	7500	
48			3500	3500	1500	750
49		25	400	3500	35000	400
50		and the state of t	NO	RECORDS		
51			3500	7500	35000	1
52			3500	7500	50	<u> </u>
53			3500	7500	35000	1500
54			3500	3500	75	1000
55			3500	1500	15000	3500
56			3500	1500	25	1500
57		 	1500	1500	15000	1500
58		 	1500	7500	1 2000	750
59		 	2000	1200	4000	800
60	 	 	1500	1500	1 1000	750
61	 	 	750	750	3500	730
62			750	750	3300	
63			1500	400	750	200
64	 		750	750	/ / / / /	200
65	 		400	750	3500	<u> </u>
	 	<u> </u>	750	400	3500	 750
66		500			2000	750
67		500	50	1500	2000	UNK
68	<u> </u>	1000	6000	5000	15000	
69		1000	2000	3000	5000	
70		2000	10000	500	50	
71		1000	6000	4000	6000	
72		2000	8000	5000	N/O	500
73		1000	5000	1000	6000	
74		N/0	N/0	200	N/0	
75		N/0	N/0	1000	1000	UNK
76				400		
77				200	200	
78		N/0	N/0	100	N/0	
79		25	200	150	600	·
80		N/0	N/0	N/O	N/0	
81				5	60	
82			N/0	N/0	N/0	
83				100	50	
84			25	25		
85						
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ive		LAug - ESep	MJul - ENov	Sept - EOct		Summer run
rt		LAug - ESep			MAug - LSep	
K		M-L Sep LSep - Nov	LAug - Nov LSep - Dec	rzeb - FNOA	ESep - LSep LSep - Oct	Winter run
	I	Hisan Mau	II San Bac	MUCT - LIDOC	II Son . Det	IMAU DAG 1

Start	LAUG - ESEP	Imour - Lsept			
Peak	M-L Sep	LAug - Nov	LSep - ENov		
nd	LSep - Nov	LSep - Dec	MOct - EDec	LSep - Oct	Nov, Dec, Jan
1	1	1	1	ŧ	1
REMARKS				·	
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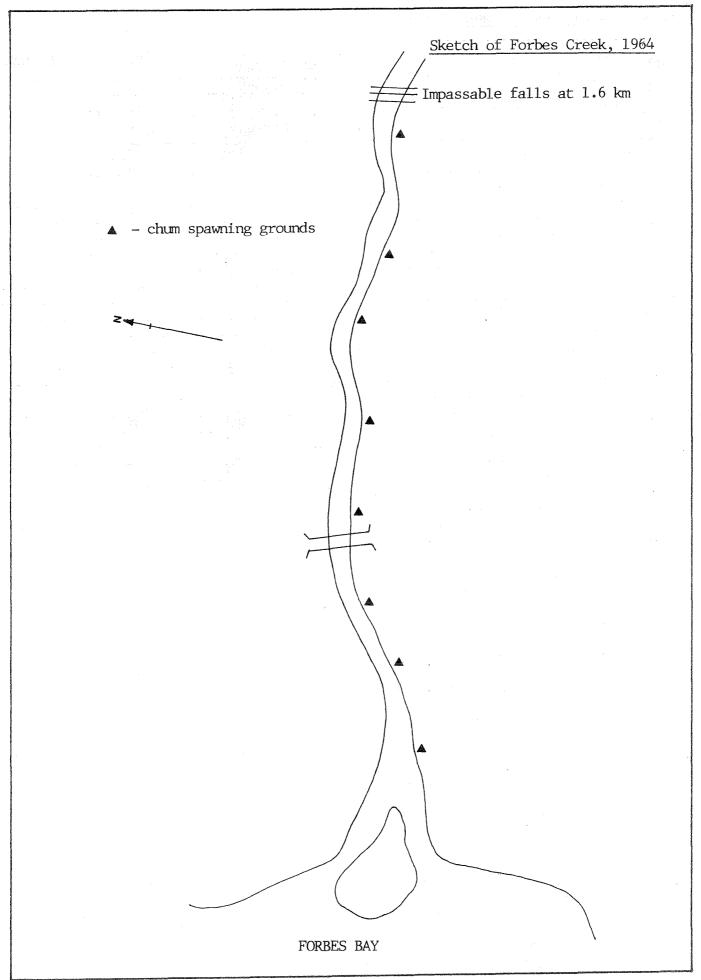


NAME OF STREAM FILER CREEK	RAB NO. 90-3200-050
LOCAL NAME (Filer River)	
DISTRICT 3 STATISTICAL AREA 15	POSITION 50 124 NE.
LOCATION OF MOUTH Flows S. into Toba River, Range 1,	
LENGTH km WIDTH m DRAINAGE DISCHARGE (m³/s) MAX MIN	km ²
DISCHARGE (m ³ /s) MAX MIN	•
Temperature (^O C)	
COMPOSITION: Bedrock Boulder Coars	se Fine
Silt & Sand Unclassified	
Barriers or Points of Difficult Ascent:	
No obstruction to head of the river	
SPAWNING DISTRIBUTION	
Species Section of Stream	Used
UNKNOWN	
GENERAL REMARKS	
1975 This is the first year a separate stream report Filer Creek. As it is the major water source for included with the Toba report in the past. With river boat this season we were able to inspect river by foot during the chum migration. This glacial river. No rearing coho could be found few chum are reflected in an almost nil return. The heavy flooding this year will have caused as with the rest of the Toba system.	for the Toba, it has been the the addition of a jet the lower reaches of this is a beautiful looking and only a few chum. The to the entire Toba system.
Physical conditions: 1975 Extreme flooding in scouring of spawning beds. Water levels extrem November flooding. Some predation by bears.	

YEAR	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
1947						
48					ļ	
49						
50						
51						Projection and the second seco
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53					ļ	
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77 78 79 80 81 82 83 84		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING:		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INS	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INSP	PECTED SINCE	1975		
77 78 79 80 81 82 83 84 85 TIMING: Arrive Start Peak End		NOT INSP	PECTED SINCE	1975		

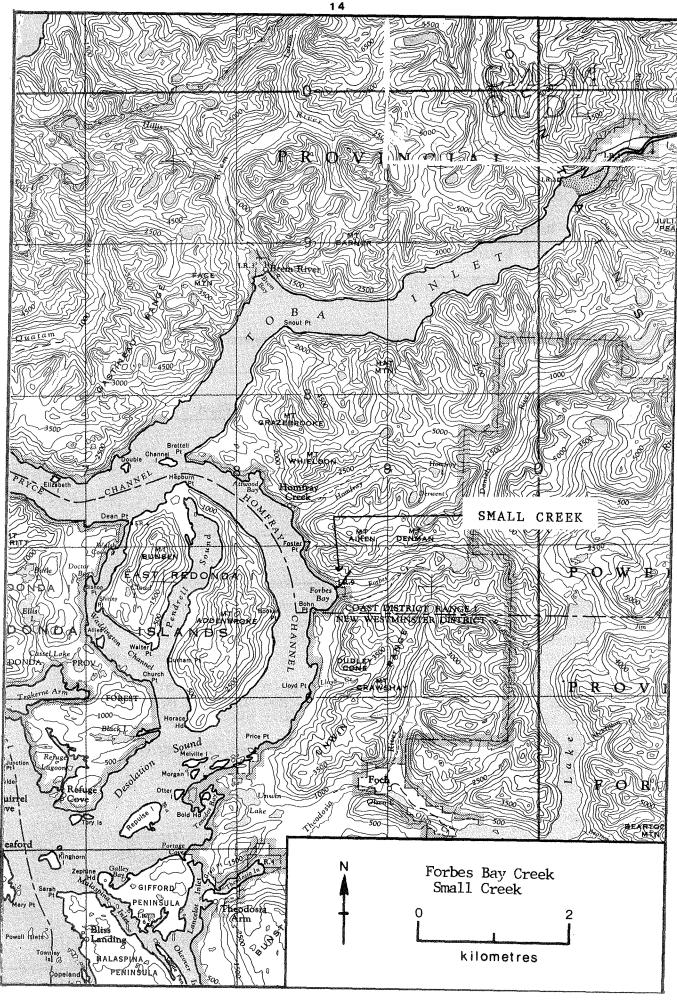


NAME OF STREAM _	FORBES CREEK	RAB NO	90-3080
LOCAL NAME			
DISTRICT 3	STATISTICAL AREA 15	POSITION	50 124 SW
	H Flows W. into Forbes Bay, Homfray Chan		
The state of the s			
LENGIH 1.6	km WIDTHm DRAINAGEMAXMIN		km ²
DISCHARGE (m ³ /s)	MAXMIN	COCCUS RENOVALISTANCE CONTRACTOR OF THE CONTRACT	Delia Delia delia delia delia delia delia que a guarra della producta del responsa del producta della della della delia della delia della
Temperature (°C)			
	drock Boulder Coarse		
Sil	Lt & Sand Unclassified	PANELLE HAMPONE AND	
Barriers or Poir	nts of Difficult Ascent:		
Iı	mpassable rock falls at 1.6 km		
SPAWNING DISTRI	BUTION		
Species	Section of Stream Used		
		•	
chum	heaviest in first 1/4 mile		
pink	evenly distributed throughout		
coho	evenly distributed.		
Construction on compression and rest of the Conflict of the Conflict of the Conflict of Conflict of Conflict on Conflict of Conflict on Co			
GENERAL REMARKS		and an extensive and the design week and in the design of the contract of the	
Many deep improving 1975 Flooding 1978 This stream count past	num stream — good producer, rough boulder, pools provide excellent shelter for coho. with the return of forest cover. in early Nov. may have caused a total loss am is fast and turbulent making it difficult first 1/4 mile. It could easily handle more fish.	The stream to pink ar	n is gradually nd chum spawn.
fish. Ūsu	rtion of stream is eroded — does not seem wal seasonal fluctuations in water levels. n: seals. birds and bears.	to affect	spawning



ESCAPEMENT RECORD FOR FORBES CREEK

YEAR	SOCKEYE	CHINOOK	COH0	CHUM	PINK	STEELHEAD
1947			NO	RECORDS		
48			NO	RECORDS		
49			25	1500	400	
50	A STATE OF THE PROPERTY OF THE		NO	RECORDS		
51				15000	3500	
52				7500	75	
53			was a second or the second of	3500	3500	
54				7500	OPENINGO NO PROCESSO A CONTRACTOR DE CONTRAC	
55				3500	400	
56	**************************************			1500	75	
57				3500	200	
58				3500		
59	gan dagan ang ana ng ana ning ang ang ang ang ang ang ang ang ang a			1000	50	
60				750		
61				400	25	
62				400	†	
63	 		447	750	75	
64	+		+	400	1 7 7	
65	 			200		
66	<u> </u>		+	750	 	
67			N/0	500	N/0	
68			11/0	600	N/0	
69	 			500	100	
	· · · · · · · · · · · · · · · · · · ·			500	100	
70	_		40	300	N/O	
71		***		400	N/0	
72			N/0	1000	1/0	
73			N/0	100	N/0	
74	 		N/0	4000	N/0	
75	<u> </u>		N/0	300	300	
76				1500		
77				120		
78	<u></u>			300		
79				366		
80				600		
81				700	,	
82				NOT INSPECT	ED	
83				500		
84				50		
85						
			1		1	
ING:						
ive				Oct		
rt				LSep - MOct	LAug - LSep	
K			M Nov	Oct - LNov	LSep	
				Oct - LDec	Sep - LOct	
	:				1	
ARKS		_				
				The state of the s		
		Oliver State (Control Control	erelikkir och mendagen sod i mensemen i med er soll mend vikselle halle med mende mende i	and the state of t		
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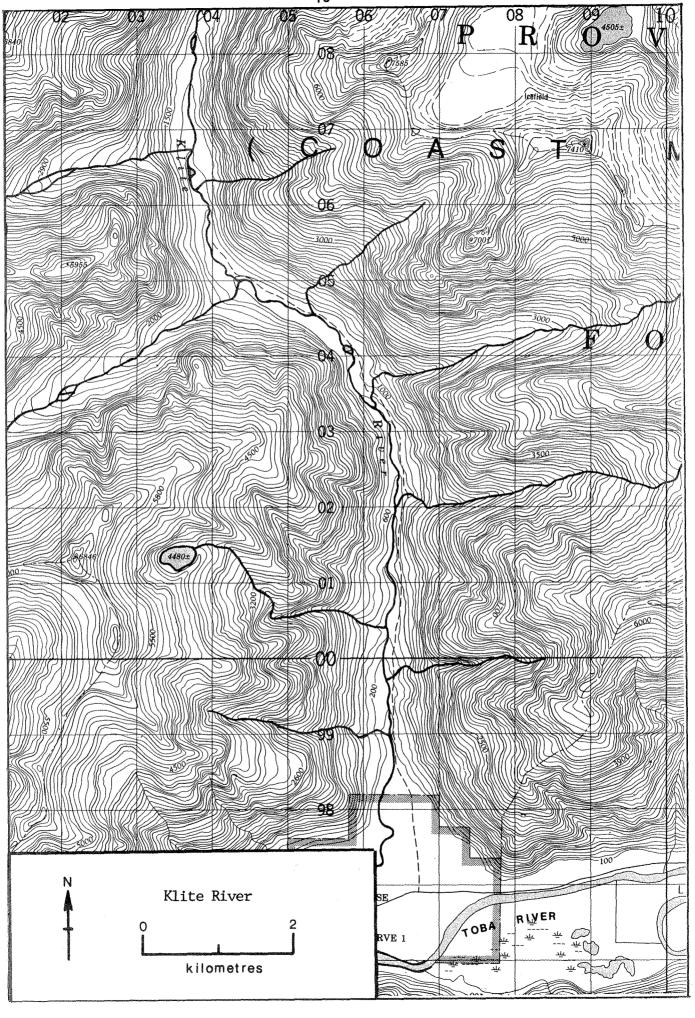


NAME OF STREAM _	(Forbes Bay Creek,Small Creek)	RAB NO	90–3087
	STATISTICAL AREA 15	POSITION	50 124 SW
LOCATION OF MOUT	H Flows into Forbes Bay - Homfray Channe	1 (North of	Forbes Creek)
		00000000000000000000000000000000000000	
LENGTH .80	km WIDTH m DRAINAGE		km ²
DISCHARGE (m ³ /s)	MAX MIN		
Temperature ( ^O C)	And the second s		•
COMPOSITION: Be	drock Boulder Coarse _	Fine	
Si	lt & Sand Unclassified		
Barriers or Poi	nts of Difficult Ascent:		
	Log jams and logging debris — removed b	y staff.	
SPAWNING DISTRI	BUTION		
Species	Section of Stream Use	ed	
chum	- evenly distributed throughout		
	8		
CENTED AT DENADIZO			
GENERAL REMARKS			
	creek which supports mainly chum and occa		
	vel areas in the lower reaches. Unfavoura croyed the upper portion of the stream.	ble logging	practices
1972 Chum mig	ration delayed by low water — condition	s improved d	luring late
	e improvement work needed. Adults were seen in this stream in the fa	11 inspectio	ons. but
a good n	mber of fry were seen in Jul. and Aug. T	hey must be	the result
	e run entering in December. Heavy black by bear predation.	bear predati	.on.
1981 Good esca	pement and fish were well distributed. T	his system c	ould easily
handle m 1983 No fish s	ore fish. seen when inspected. Only inspected twice		
1,00 1,0 11011	The second of th	. •	
Seasonal	fluctuations in water levels.		
	•		
	1		

ESCAPEMENT RECORD FOR (Forbes Bay Creek, Small Creek)

/EAR	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
947			400	3500	artico recibir origina <u>con quantita anni artico per anni di artico p</u>	
48			750	3500	200	
49				750		
50			NO	RECORDS	THE RESIDENCE OF THE PROPERTY	
51			NO	RECORDS	and an experience of the second secon	
52			NO	RECORDS		
53			NO	RECORDS		
54	traces and an extension of the second	talijansi ilalijansi iliijansa arii issa sameen mii ilioona miilinuu oo o		400	A COMPANY OF THE PARTY OF THE P	
55				400	and the second s	
56				400	одинация от принцинати в принцин	
57	A CONTRACTOR OF THE PROPERTY O		Richmet Strict (School Color C	750	and grantered to the description of the contribution of the contri	
58			egicano y 12 miliogici <del>no ello n</del> o app _{re} rengga constructura praemici montano non distantida n <del>o re</del>	750	a tillionn da sentimiente de accept mothe actus anni terra de la companya de la companya de la companya de la c	
59			50	600		
60				200	and the second s	
61	A STATE OF THE PARTY OF THE PAR			75	and the second s	
62				75		
63				200		<del> </del>
64			Share in the State of the specimen and provide the state of the state	200		
65				200	•	
66			Consider the state of the construction of the state of th	400		
67			**************************************	150	· ·	
68				250		
69			N/0	220		
70			N/0	200		
				400		
71			N/0			
72			N/O	300 100		
73			N/0			
74		<u> </u>	NO	RECORDS		
75		:	N/0	300		
76			\$4.440.44 TB-4773.04( <u>16.5.54)</u>	750		
77				100		
78			iliya ataripai atalifika iri di Siliri Ka <u>asa, saara gaya aya daja mpagi</u> ana ati ja kaapai mik Kaasa iliin	430		
79				852	ang Grand di Sistembri di Agram Sistembri di Maria di Ma	
80				800		
81				700 +		
82				N/0		
83				N/0		
84			inervice (n. 1944) in the control of	140	eratura eratur	
85						
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ve						
t			gamilla 16000 40000 o magaariga daaq kalada ahaa ahaa ahaa ahaa ahaa ahaa ahaa			
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entre communicament consistence and consistenc		**************************************	na ann an Airmean (Airmean agus agus agus an a	A STATE OF THE PROPERTY OF THE		
RKS						
74 - TOW	water, no fis	h entered the	stream.			
co-residence of ground consequence Act in the control to resident	Nagangalan di Ngana di Nganda (1986-ni) 1985 ini 1985 ini 1985 ini 1986 ini 1986 ini 1986 ini 1986 ini 1986 ini	igher mindigegypt, gyf handig feith helpine i the helpine i the begypp perspect and gypp in his feith of the helpine i the helpi		entronery,	and the control of th	
V-1000	Azarazan erzzen erren errigen errente erren deren errente errente errente errente errente errente errente erre		n Land Clark and Clark Affrica and Clark and Land Clark and American Company and Communication and Communication			anneste ni ni seperanti pri se matemati di didicate di didicate di didicate di distributo di disperanti propri
				and a second		





NAME OF	F STREAM _	KLITE RIVER	RAB NO.	90-3100-010	
			Nacostages		
DISTRICT 3 STATISTICAL AREA 15				50 124 NE	
		H Flows S and SW into head of Toba Inlet,			
LENGTH	22	km WIDTH m DRAINAGE	**************************************	km ²	
LENGTH 22 km WIDTH m DRAINAGE km DISCHARGE (m ³ /s) MAX MIN					
Temperature (°C)					
COMPOSITION: Bedrock Boulder Coarse Fine					
Silt & Sand Unclassified					
Barrie	ers or Poi	nts of Difficult Ascent:			
Falls and rapids at 10 km					
				W.	
SPAWNI	NG DISTRI	BUTION		-	
Specie	es	Section of Stream Used			
	ا ماء	- over first 1.6 km			
pink					
chum		-lower end to 3.2 km			
coho chinook		-upper end of river			
	ITHIOOK				
The same of the paper of the same of the s	akanoroggya, pennjunakan ngagapapa panah ndaragapap		The second secon	dasi Antonini Casaran da 2000 (Antoning 22 desadore) (Antoning 2000) esta (Antoning 2000) esta (Antoning 2000)	
GENERA	L REMARKS				
1968	The upper	portion of the river has bouldery section	ne Flach f	loods have	
scoured river and shifting gravel beds are common. Logging activities					
ceased in 1968. The return of forest cover should improve this excellent					
		oducer (1971) This creek flows into the ma , but the Klite River is usually clear. Th			
	to estima	te the number of spawners.			
1975 An early November flood caused severe erosion throughout the stream.  The flood also caused the course of the stream to change in the lower					
		f the river.	mange III (	The Tower	
1976 No chinook were seen in this system, but local residents have caught					
twelve (from 15 to 20 lbs) 1977 Almost all spawning information is from sport fishermen, loggers and					
	local residents.				
1979 River is a milky white and virtually impossible to see into observed in shallow water. Coho were caught in nearly every					
·		in shallow water. Cono were caught in hear to 9.6 km upstream. Chinook were also hoo			
as the coho.					
1980	The count is done by fishing as the river is very turbid and it is only possible to see in about a foot.				
1981	Water levels very high in early November and good showings of fish through-				
		oba system ( info. from logging company). T		n accurate	

continued.....

#### KLITE RIVER

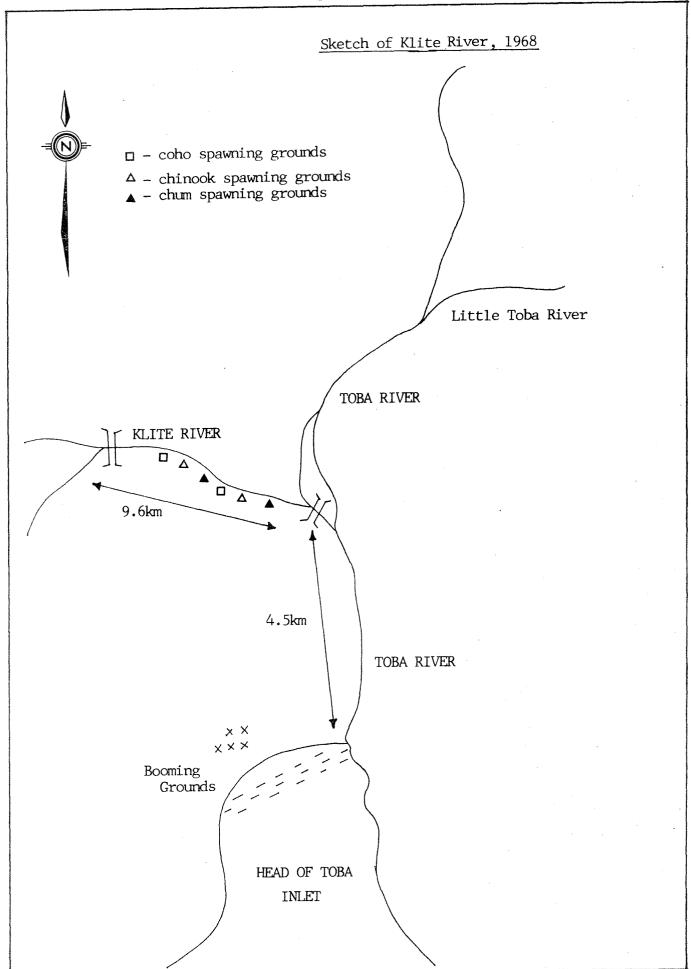
1983 The lower reaches of the river are very unstable and change after every high water. A large log jam is forming at the junction with the main Toba River. Heavy scouring and gravel movement on pink spawning grounds.

1984 More changes in lower end — log jam at mouth washed out. Scouring and

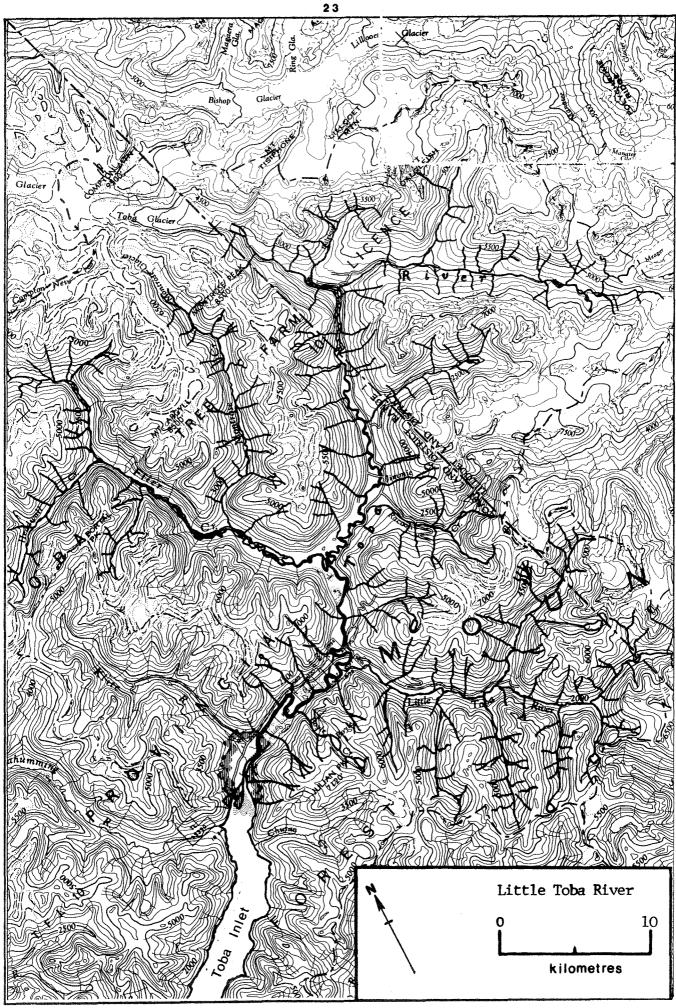
channelization at lower end.

Seasonal fluctuations in water levels.

Bear predation has been reported as being quite heavy over the years, also subject the eagle and merganzer predation.



14 F* B F*	00011	1 011221000	1 0000	1	1 10	1
YEAR	SOCKEYE	CHINOOK	COHO COHO	CHUM	PINK	STEELHEAD
1947		66	3500	7500	35000	
48 49		25 25	1500 400	3500 1500	400 15000	
50			1 400 NO	RECORDS	13000	
51		400	3500	15000	15000	
52		75	1500	15000	15000	
53		400	3500	3500	35000	
54		700	3500	3500	33000	
55		750	3500	750	7500	<u> </u>
56		400	3500	3500		
57		400	1500	3500	15000	
58	2 3 3	75	750	1500		
59		400	500	500	12000	
60	T.	200	1500	1500		
61		25	400	1500	15000	
62		1500	3500	750	***************************************	
63	and the state of t	3500	3500	400	7500-	Z SZ JE
64		3500	7500	1500		
65		3500	3500	3500	7500	
66		7500	7500	3500	1, 10, 10, 10, 10, 10, 10, 10, 10, 10, 1	
67	**	1000	2500	2000	5000	
£68		2000	3000	10000	化化 气灰花角谱器	Average Control
69		1000	4000	500	1000	Additional Control
. 70		3000	6000	] 1000	N/O	
71		2000	4000	3000	12000	
7.2		1200	3000	1800	N/0	
73	A	1000	4000	1500	8000	
74		N/0	N/0	UNK "↓	N/O. 33	
75	ell the second	N/0	N/0	2000	8000	UNK
76		400	1 196 7 - 1.32			
77		50 +		800		
78	The same of the sa	NZ.O	N/0	N/0	1200	
79			UNK		1000 +	
80			50	1000	25	
81		10 .	10	1000	5000	
82 83		500 400		350 100	200	
84		100	500	600	200	
85		100	300	000		
I NG:	The second second					
ive		Jun - LAug	Aug - ESep	L. Aug		Fall & spri
rt		LJun - Jul	EAug - ESep		MJul - MAug	runs
k i	and of the same		LAug - ESep	ESep - MNov		
······································	in the second	MAug - Sep	MSep - EDec	MNov - EDec	MSep - Oct	
ARKS	And the same of th	MJul - EAug MAug - Sep	MSep - EDec	ESep - MNov   MNov - EDec	Sep MSep - Oct	

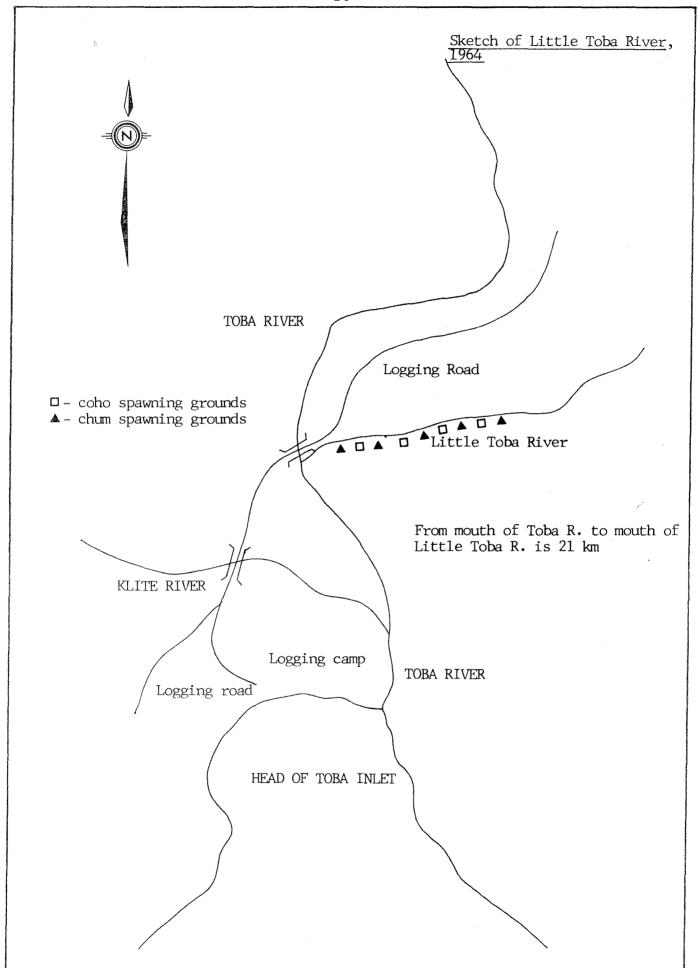


NAME OF ST	REAM _	LITTLE TOBA RIVER	RAB NO	90-3200-030
LOCAL NAME	E	and the second of the second o		
DISTRICT	3	STATISTICAL AREA 15	POSITION	50 124 NE.
LOCATION (	F MOUT	Flows NW into Toba River, Range 1, Coas	st Dist.	and the second s
			Managananan <del>certana an</del> kamanan takeman tahun kapan kalansa at keta angkaman	
LENGTH	13	km WIDTHm DRAINAGE MAXMIN	органда (1944-1944-1944) — Каланда Байна (1944-1944) — Сорган от Маска (1944-1944) — Сорган от Маска (1944-194	km ²
DISCHARGE	$(m^3/s)$	MAX MIN		The second secon
Temperatur	e ( ^O C)			
COMPOSITIO	N: Be	drock Boulder Coarse	Fin	e
		Lt & SandUnclassified		
Barriers		nts of Difficult Ascent:	***************************************	en e
	n.	cookle contact of male and that Contact	10.1	
	-ra	ssable series of rocky gradients from 6 -	12 km	
SPAWNING	DISTRI	RITTON		
Species	2201111	Section of Stream Used		
				<del>чево на применения на примен</del>
chum		- in first 1.6 km - 8 - 11 km		
coho chinool		- 8 - 11 km		
pink		- in first 1.6 km		
1				
Activided to the control of the cont	CORPORATION CONTRACTOR STATEMENT		Metrospositione et al foliage is presented the entertries consistent meteories in account of the entertries in a consistent of the entertries	
GENERAL R	EMARKS			
1		m is turbid making estimates of spawners ve	ery diffic	ult.
Eros 1966 This	sion mo s strea	derate — some silting. m is glacial fed — abnormal rainfall duri:	ng late fa	11 and
wint	er did	not affect this stream.	-	
		nt salmon producing stream good stretche 68 Excellent water levels during most of se		
1969 No 1	logging	activities have taken place on this river	for the 1	ast number
		Consistent producer, but should improve wit	th return	of forest
cove 1970 Lowe		ion of river flooded — partial log jams ba	acked wate	r up during
the	snow m	elt off. 1972 No logging activities conc	ditions im	proving.
		trolling and a little gillnetting indicate osion and silting from major flooding in ea		
scou	iring i	n lower river. Upper reaches of the system	will be 1	ogged in
		uture. A fair return of pinks was realized mercial salmon industry.	due to the	e strike
1977 Fish	n count	s are from a local resident who lives year		
KIVE	r. 19/	9 Sport fishing indicates fish are present	in rairly	good numbers.
			conti	nued
				Para Para Para Para Para Para Para Para

### continuation

#### LITTLE TOBA RIVER

- 1980 Little Toba River has several small feeder streams which seem to be good coho habitat. Coho can be caught from mouth to 13 km in good numbers during September. Water levels very high in late Dec.
- 1981 The large tributary at 8 mile bridge may be the best coho habitat in this system. As with the other rivers in the Toba system, the Little Toba returns were probably affected by the very low water in mid October and the very high water in late October. Fish may have returned only at very high water.
- 1984 Lower end of river changing and unstable scouring, channelization and debris build up at 1.6 km. High water levels in October.



1947 48	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
		_				<del> </del>
49			400	1500	7500	
50			n yang yan sagarah sasaran da Karensagara Pabarah sang unang palabah samah da Sebarah da Sebarah da Sebarah da			
51	oderna alektria kalente in elektria eta eta eta eta eta eta eta eta eta et	**************************************	750	3500	3500	
52		***************************************				
53	ge <del>r verse</del> n grangen er generalen gerren der er er er generalen generalen de er er der er e				15000	
54						
55			750	750	1500	
56			1500	1500		
57		400	1500	1500	1500	
58		400	750	1500		
59		500	1000	500	15000	
60	TVENTALINATED (SAME TO SAME TO	400	3500	750		UNK
61		200	750	750	15000	
62		400	1500	3500		
63		1500	7500	400	35000	
64		1500	7500	750		
65	Organizacija, mad gravnog kantolicino diskom kilomatika iz diskom senista diskom senista diskom senista di kan	400	1500	75	1500	
66	and a state of the	3500	7500	750		
67		2000	4000	3000	7000	ļ
68		2000	4000	15000		
69		2000	3000	1000	2000	
70		8000	10000	1500		
71		6000	8000	3000	13000	
72	The second secon	2500	6000	6000	N/0	ļ
73		1500	4000	1000	3000	
74	**************************************	N/0	N/0	N/0	N/O	
75		N/0	N/0	2000	4000	
76		N/0	N/0	1500	N/0	
77	······································	60 +	3000	11/2	6000	
78 T	in the contract of the contrac	N/O	N/0	N/O	N/0	
79	PP	UNK	UNK	UNK	3000	
80	VI-VII в упоращи передо получение у селену положения денего при положения получения получения получения получе	5	UNK	1500		
81				2000	1000	
82		500	300	500	PARTIE NOTATION AND AND AND AND AND AND AND AND AND AN	
83	000 00 dien ille ferstelling wie voorsiegen vergee angewonen voorseer voor verde ille van de fest	500	400		100	
84		200	100	N/0		
85	2004 M. Earlie (Challe Saide Saide Saide ann Aighre an Allgach à agus ann àire an Aire An Ailgean, an gean an Ail S		OF ALL AND STATE OF THE CONTROL OF T	MACHINERIO CONTO MENCAMPINI EL CUNTO CONTO ANTIGAM NO ELLA PER ARRADITATIONA ANTIGADO DE ESTAT.	er Dayshari (Spransaddyn o'n in Agaran ar Annas yn ar Dayshar (Ar 2000 a ar an an ach an an ach air air air ai	The second secon
			miljää limmidenssavaluiteit siimmidenssääänisiä tervisiäsi meläään kaitalaintavalli 20 tervitain 1990 (1990) n	Subgrammation with providing and relative medition are resident to the field of the	adden kan kan kan sama da kan sama da kan kan kan kan kan kan kan kan kan ka	et platen in the constitution of the constitut
MING:		1				
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rive art				>+CM**EX***C***C***C***C******************		<u> </u>
MING: rive art ak			and Cales - The control of the contr		ett kan til store til store til skammet til skammet til skamme til skammet til skamme til skammet til skammet I skammet til s	

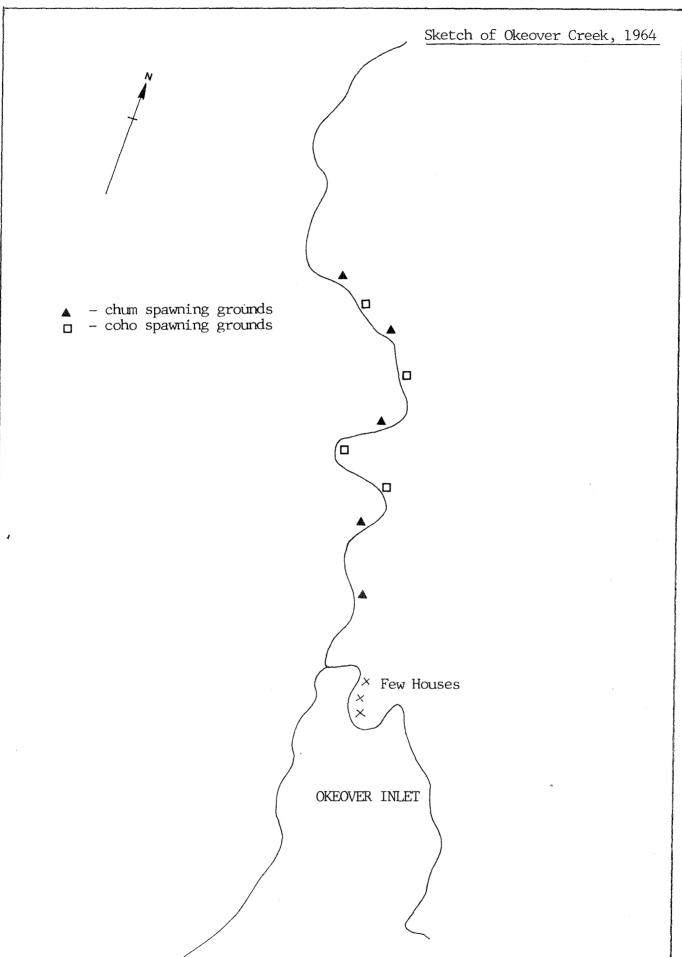
NAME OF STREA	(Okeover Creek, Okeover Arm Creek)	RAB NO. 90-2950
LOCAL NAME		,
	STATISTICAL AREA 15	POSITION 49 124 NW.
	MOUTH E end of Malaspina Peninsula, New Wes	
LENGTH	km WIDTH m DRAINAGE	km ²
DISCHARGE (m	km WIDTH m DRAINAGE 3/s) MAX MIN	
Temperature (		
•	Bedrock Boulder Coarse	Fine
	Silt & Sand Unclassified	
In Donas Orec	Points of Difficult Ascent:	
barriers or	FORRES OF DIFFICURE ASCERC.	
	Rock falls at 1.6 km impassable to ch	a m
	Tock fails at 1.0 km impassable to the	
SPAWNING DIS		
Species	Section of Stream Us	sed
chum	- evenly from mouth to 1.2 km upstream	1
coho	- upstream as far as falls	
GENERAL REMA	ARKS	
	chum producing stream — good gravel from m	outh all the way upstream.
India	an Food Fishery at mouth.	<b>.</b>
	pement was quite light this year, many parti stream — banks are very low and forest deb	
1969 This	stream is gradually improving. There have b	een no logging activities
for	the past ten years. Partial log jams held t stream. Coho spawn at mouth of creek in the	o contain and stabilize
	stream is heavily poached. Black bears were	
1974 This	stream supports an annual food fishery. It	
	and is subject to poaching for chum eggs. Stream was cleared by the Enhancement Crew as	nd is in excellent condit-
ion t	throughout the spawning area.	
	and log jams impassable to chum. Coho spawn	above. Very heavy bear
1978 This	stream is in excellent condition from mouth $% \left( \frac{1}{2}\right) =0$	to end of chum spawning
area. 1980 The 1	og jam was made passable to chum this year.	
1981 This	system is very encouraging. Adult coho were	
sprin	ng time usually seems like the best time to	•
		continued

(Okeover Creek, Okeover Arm Creek)

- 1982 Debris jam at 1.6 km sould be removed loose debris in creek should also be removed
- 1983 Removed some minor log jams from river Indian Food Rishery took approx. 2000 chum.
- 1984 Log jams removed. Chum spawning area increased.

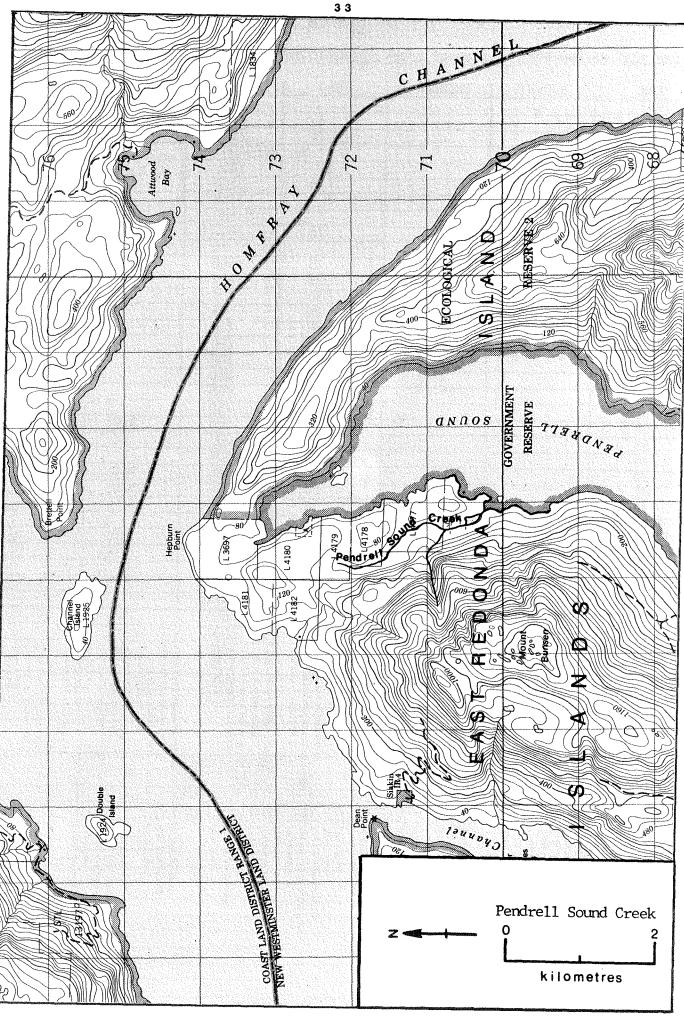
Seasonal fluctuations in water levels.

Predators: bears and otters.



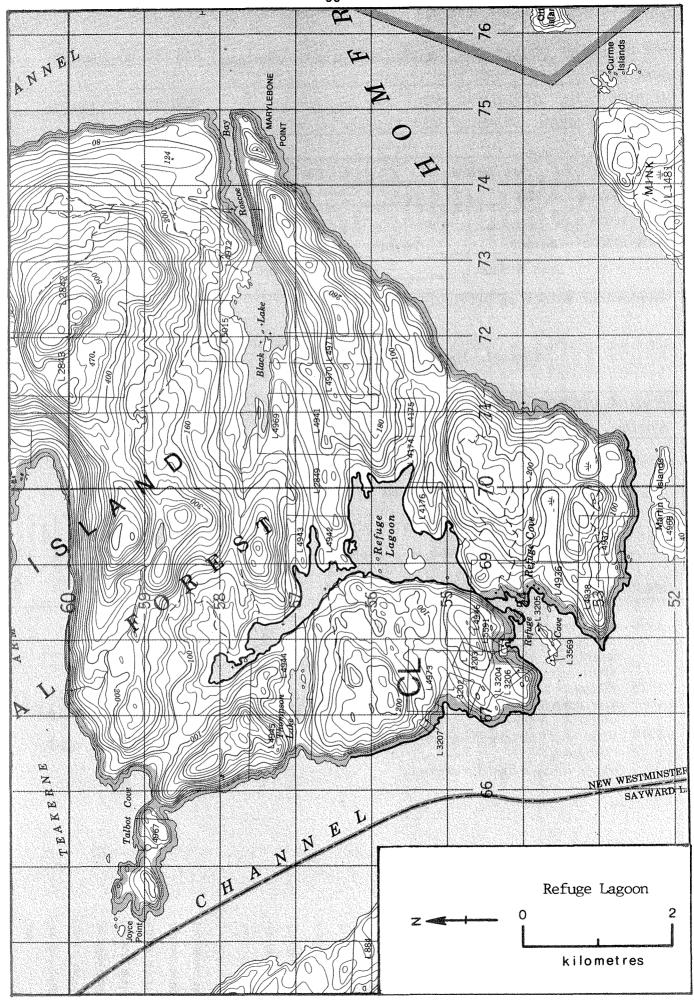
ESCAPEMENT RECORD FOR (Okeover Creek, Okeover Arm Creek)

YEAR	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
1947				7500	entere en	
48			25	3500		
49			25	7500	- Marie - Marie - Anno anti-Anno ant	
50	ORIGINATE CONTROL CONT		NO	RECORDS		1
51			200	7500	and the second s	
52			75	3500	CONTRACTOR OF THE PROPERTY OF	
53				1500	ETVÄÄNNHÄVELAREENEÄNEENHHÄÄRHÄVÄÄNHHÄVÄÄNHHÄVÄÄNÄÄNÄÄNÄÄNÄÄNÄÄN	
54				400	The second se	
55			75	200		
56				75		
57			75	1500		
58			25	1500	APROPER SERVICE AND APROPER SERVICE APPROPER SERVICE APPR	
59			50	700	and the state of t	
		<u> </u>	25	75	**************************************	
60			7 25 Z5		· .	
61			25	200		
62		<u> </u>	25	200		
63		<del> </del>	75	200		1
64			75	400		
65			25	400	The same of the sa	
66			75	750		
67	COMMITTEE OF COMMITTEE COMMITTE COMMITTEE COMMITTEE COMMITTEE COMMITTEE COMMITTEE COMMITTEE COMM		150	600	N/0	
68			100	3000	12	
69	AGE-10-10-10-10-10-10-10-10-10-10-10-10-10-		100	2200		
70			40	400	N/0	1 d
71			20	200	N/0	
72	a ja ta		40	3000	N/O	
73			<b>a</b>	700		
74	AND ADDRESS OF THE PERSON AND ADDRESS OF THE		UNK	500	N/0	
75		4	UNK	3500	N/0	
76	and remarkable deliverable and the mobile mobile of the property of the supplementations are not an electric than			1665		
77			2	8987		
78				1818	TOTAL PARAMETERS AND	
79			15	665		
80	THE COMMENT OF THE CONTROL OF THE STATE OF THE CONTROL OF THE CONT		1 6	3000	mentala in televisia del control del contr	
81				7200	10	<u> </u>
82		. 53.	24	5100	10	
83	SPECIAL CONTROL OF CON			4500		
84		*		7200		
85 85				1400	Tillian (n. 1904) (n. 1904	<del> </del>
00				-		<del> </del>
7 817		1				
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ive			Oct	EOct - MOct		
rt			Oct - ENov	LSep - ENov		
k			LOct - Nov	LOct - MNov	Norma and the construction of the construction	
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	t (Silver to Charle to Charles (St. 1994) to the Copy of the species of the copy of the complete construction of the continue					
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		territorio de la composição de la compos				



	Pendrell Sound Creek, Pendrell Creek)	RAB NO. 90	)-3100-310
	CTATICTICAL ADEA 15	DOCTOTON	50.10/ cm
	STATISTICAL AREA 15  H E. Redonda Island, New Westminster Di	c+	
LENGTH	km WIDTHm DRAINAGE		km ²
DISCHARGE (m'/s)	MAX MIN		
Temperature ( ^O C)			
	drock Boulder Coarse		
Si	lt & Sand Unclassified		
Barriers or Poi	nts of Difficult Ascent:		
	dam .80 km from mouth makes a good reserve structions .80 upstream BUTION	oir — serie	s of
Species	Section of Stream Use	d	
chum	- scattered throughout lower portion of	stream	
GENERAL REMARKS			
a tidal lag 1969 This stream 1972 Escapement migration. 1978 Stream is o dries up co 1979 Bears tend 1981 Recommend t	small stream originating in a small swamp goon in Upper Pendrell Sound — limited span is improving through the return of forests were lighter than usual — warm water to only accessible during periods of high wat completely at low tides. to wipe out the fish in this creek. 1980 that this creek be walked in the early sproor coho fry.	pawning area of cover. demperatures der lagoon Heavy bear p	delayed  n at mouth  predation.
Seasonal fl	uctuations in water levels.		

YEAR	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
1947			NO NO	RECORDS	and the second	
48			NO NO	RECORDS		
49		<b></b>	310	750		
50	Department of the control of the con		NO	RECORDS		
51			NO	RECORDS		
52			25	400		
53				400		
54				400		
55				25		
56				200		
57			75	750		
58	A CONTRACTOR OF THE PROPERTY O		25	25		
59	and any organization of the control		75	300		
60			75	200		
61	and the second s		25	75	<del></del>	
62	and programmed the state of the		25	200	and the second section of the second section and the second section section section section section section se	
63			25	200		
64	<del> </del>		25	200		
65				400	Ogenhary, gray, gray, and the tell gray of the second second second second second second second second second	
66	-	<u> </u>		200		
67	<del> </del>	<del> </del>	25	200	40	<del> </del>
68			150	600	70	
69			200	500	-	
70			100	100		
70	Particular de la			50	NZO	<u> </u>
			100		N/0	
72	_		80	50	·	
73			50	50	**************************************	
74			UNK	UNK		
75			25	50		
76			NO RECORD			
77			NO RECORD			
78			N/0	600		
79			N/0	156	ddd Pfyronog wyd gyd aegolarii Dyf y gym ar gyrhaddi eilibyggyggygg	
80				200	ally for this light of the College and the control of the College	
81	THE PROPERTY AND ADDRESS OF THE PROPERTY OF TH			400	ignami ett gannanggyan napaga ar mady mini delik <u>an yang gapyayan</u> deleksirik delikili yan <u>a dan ye</u>	
82	A PARTY TO THE PAR		NOT	INSPECTED	No the Control of the	1
83	-			356		
84	<b></b>		gyggggger allikarren kilar kennyen menjenar milyan ilah ilarang yang menancahan dirir dilik dikengan menjenark	550	tanto e que mante en la secuenta de entre de la constitución de la constitución de la constitución de la const	
85	<del> </del>			<del>                                     </del>	**************************************	20 Mary 10 Mar
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rive			Sep	Sep - Nov	To the content of the	
art			MSep - Nov	Sep - Nov		
eak			LSep - Dec	LSep - Nov		
nd			MOct - Dec	MOct - Dec		
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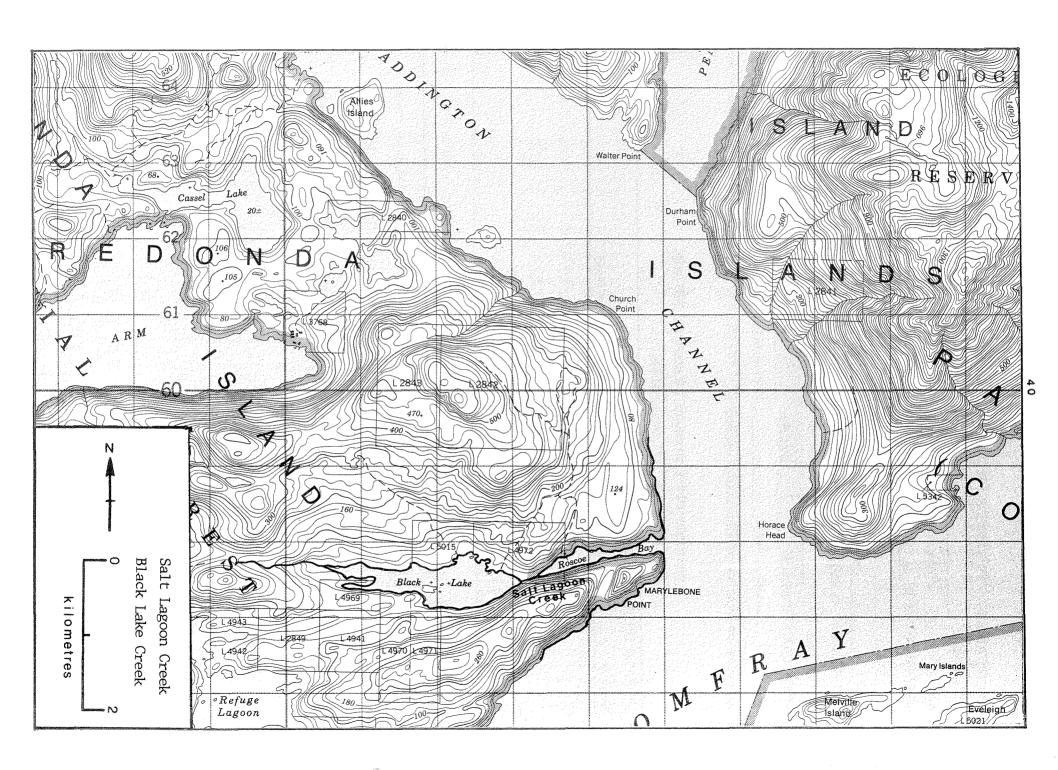


NAME OF STREAM	(Refuge Cove Lagoon, Refuge Cove Lake)	RAB NO. 90-3100-580
	He Committee of the Com	
DISTRICT 3	STATISTICAL AREA 15	POSITION 50 124 SW.
LOCATION OF MOUT	TH SW end of West Redonda Island, New Wes	stminster Dist.
LENGTH 5	km WIDTH m DRAINAGE MAX MIN	km ²
DISCHARGE (m /s)	MAXMIN	
Temperature (C)		•
	edrock Boulder Coarse _	
Si	lt & Sand Unclassified	TO A SECURITY OF
Barriers or Poi	nts of Difficult Ascent:	
	Passable log sluiceway at 300 yds.	
	<i>c, y</i>	
SPAWNING DISTRI	BUTION	, 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995 - 1995
Species	Section of Stream Use	ed
t		
acha	in feeder atmosphere to be defined	
coho	- in feeder streams at head of lake	
урийн катанда жана байдага <b>на стага на какан того на того на прочина и на прочина и заказа на Мателина и источна на маган</b>		<u>nangga aggapyter ann gan a a mangan an ann an </u>
GENERAL REMARKS		
gyddyd y llwyd a differiol y Globar daeth y gyr y differiol y gymraeth y gymr		
1974 This was	a salt lagoon at one time and is now fre	sh water due to a
maintain	m (log sluiceway) at the outfall from the s the area during salmon migration and ope	ens the sluiceway dam
when coh	o school below. d that a permanent concrete dam be constru	·
for coho	enhancement. Spawning area is limited in	the lagoon but rearing
area is 1978 Coho were	tremendous if the lake is maintained. e observed at mouth of lagoon, but none wa	ere seen entering under
the gate	vels low to normal.	or other ring tilder
water lev	/els low to nommal.	
	• • • • • • • • • • • • • • • • • • •	
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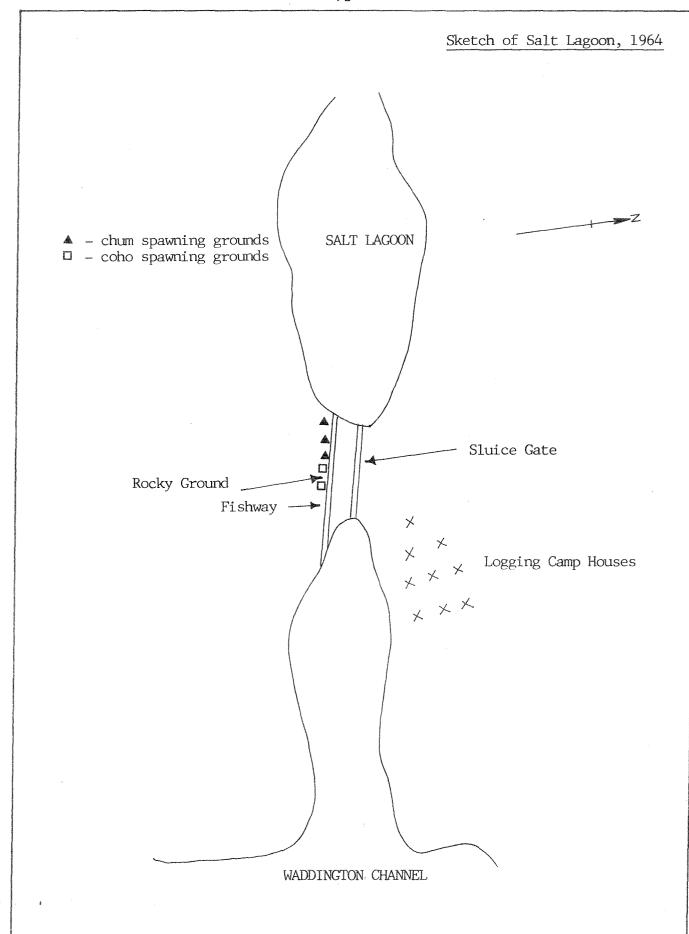
# 38 Sketch of Refuge Cove Lake, 1964 REFUGE COVE LAKE ▲ - chum spawning grounds□ - coho spawning grounds Fishway Sluice Gate Road to creek from Mr. Black's residence Black Bros. Logging camp Refuge Cove Store and Log Booms Float P.O.and Fish Camp REFUGE COVE LEWIS CHANNEL

ESCAPEMENT RECORD FOR (Refuge Cove Lagoon, Refuge Cove Lake)

YEAR	SOCKEYE	CHINOOK	COHO 750	CHUM	PINK	STEELHEAD
1947	***************************************		750	1500	Propinsiniko kiko pogramanako katologo (2008)	
48	**************************************		NO	RECORDS		
49			400	1500		
50			NO	RECORDS		
51			75	400	and the second	
52			750	750		
53				400		
54			NOT	INSPECTED		
55			400	25		
56			400	200		
57			400	75		
58	25		200	25		
59			100	50		The state of the s
60		performation and the second of	750	75		
61			200	25	<del>n - and the state of the Constant Constant Constant Constant Constant Constant Constant Constant Constant Cons</del>	
62			200	200	***************************************	
63	**************************************	<del>, , , , , , , , , , , , , , , , , , , </del>	200	25		
64			200	25		1
65			200	25	FELDOCARM WWw.pondycanoliffucgyco-consultibusges	
66			400	25	The same of the same same same same same same same sam	
67		······································	300	200	<del></del>	
68		(Cont. 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984 - 1984	600	100	**************************************	
69			300	200		
70			500	100		<del></del>
70	<u> </u>		300	N/0	**************************************	
			300	11/0		<del> </del>
72			200	N/0		
73	<u> </u>		200	N/0		
74			150	N/0		
75			80	N/0	Property and the second se	
76		750************************************	200			
77			300			
78			N/0			
79		and and the first of the second of the secon	N/0	N/0		
80	And the second s	Distriction on the state of the	Security and transfer commencer for the security of the securi		eter filozoficia (filozoficia i marcine) eternifica (eternifica (eternifica e eternifica e eternifica e eterni	
81		<del>and the state of </del>		The second secon	A CONTRACTOR OF THE PROPERTY O	
82	والمراجع والمراجع المراجع والمراجع والم	tion of the construction o		A STATE OF THE PARTY OF THE PAR	en Namentalan de della della propieta de una presidente republica propieta della propieta per pubblica della p	
83		interesting remains a contributing a consistency of the formula constructive fielding consecut	ئەرسىلىغان ئالىرىكىيىلىنىڭ يېرىكىيىلىنىڭ يېرىكىيىلىنىڭ ئالىرىكىيىلىنىڭ ئالىرىكىيىلىنىڭ يېرىكىيىلىنىڭ ئالىرىكىي ئالىرىكىيىلىنىڭ ئالىرىكىيىلىنىڭ ئالىرىكىيىلىنىڭ ئالىرىكىيىلىنىڭ ئالىرىكىيىلىنىڭ ئالىرىكىيىلىنىڭ ئالىرىكىيىلىنى		er er en	Company of the second s
84	-			De gransussifiere de constructive et de recherche de construction de construct	The second secon	
85	-	Maria accessiva de la compansa del compansa de la compansa del compansa de la com				-
		North Consequence (company and consequence of the August Consequence)			en de _{la martin} a completar en <u>de</u> completar en martina de persona de la completar de la completar de la completa del completa de la completa de la completa del completa de la completa del la completa del la completa de la completa del la completa de la completa de la completa del la completa de la completa del la comple	
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ive .			EOct - Nov	Sep	Military population and generalization of Magazine population memory	
rt			MSep - Nov	LSep - LNov		
			LOct - Dec	Oct - Nov		
K		**************************************	Nov - EDec	LOct - Dec		<del></del>
			INON - EDEC	LOCE DEC	***************************************	
ADVC		70				
ARKS	Last Report 19	/9		caspanenti esperanti de la compani de la	en e	
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andre and the second	о _{родин} ом в сом н <del>а во</del> постава поставо у шерово на тем до поставо не 440 го на во на г		ламист _{е фон} турн (154 ²⁾ (унунализмий остудности - 0.105 ² (1 ₉₉ г. лин - 7.43 г. лин		- Constant C	
e-they produced the second	The control of the co	<del></del>	<u>waterining sport open productive productive de productive de progression de la progression en 1860 de produ</u>	-ga-ppp-sounded-soggges sender	<del>Westerness Medical Constructions of the Construction of th</del>	
				CONTRACTOR OF THE PROPERTY OF	The state of the s	
CONTRACTOR OF THE PROPERTY OF						



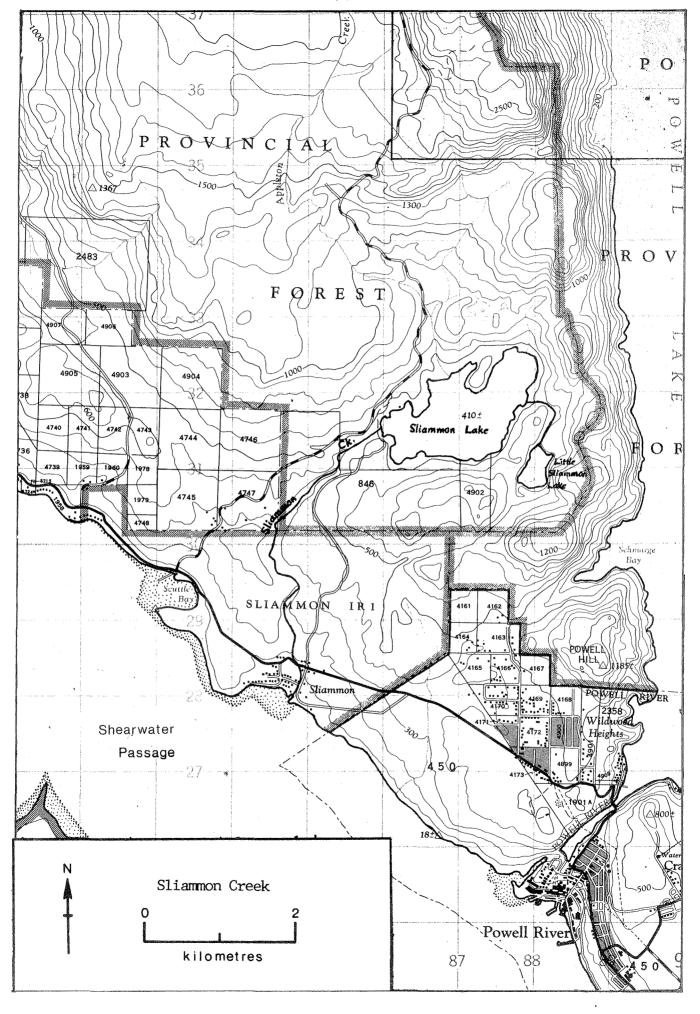
NAME OF STREAM	Salt Lagoon Creek, Black Lake Creek)	_ RAB NO90	0-3100-510
LOCAL NAME			
	STATISTICAL AREA16		
LOCATION OF MOUT	H <u>W. Redonda Island, near S. end, New Wes</u>	tminster Dis	st.
LENGTH	km WIDTH m DRAINAGE		km ²
DISCHARGE (m ³ /s)	km WIDTH m DRAINAGE MAX MIN		MI
Temperature ( ^O C)			N
COMPOSITION: Bed	drock Boulder Coarse	Fine	
Si	lt & SandUnclassified		
	nts of Difficult Ascent:	·	
	passable old sluiceway located at 500 yds	5.	
	log jams, but not impassable		
SPAWNING DISTRI	BUTION		
Species	Section of Stream Used		
coho	- in small feeder streams to Black Lake		
chum	- in outlet of lagoon		Tarantii (ili da mahaha
бести положения на применения			PRESIDENT ASSESSMENT CONTROL OF THE STATE OF
GENERAL REMARKS			
1967 A very sł	nort stream with limited spawning area. Co	ho sproceed	into lake
and two s	small tributary streams.		4
Lake full	vels are lake fed and were fairly constant of trout	during the	summer.
1976 Stream co 1978 Stream ha	ould support a bigger run. as a fairly constant flow. Beaver dam and	log iams wei	re removed
and stream	am stayed clear for migration.	zog jamb wei	ic ranoved
Predation	n by black bear 1976/77		The second secon
	s by brade bear 1970,77		With the second
			·
			e qu'en en en experience de la companya de la compa
			TO COLUMN TO THE PARTY OF THE P



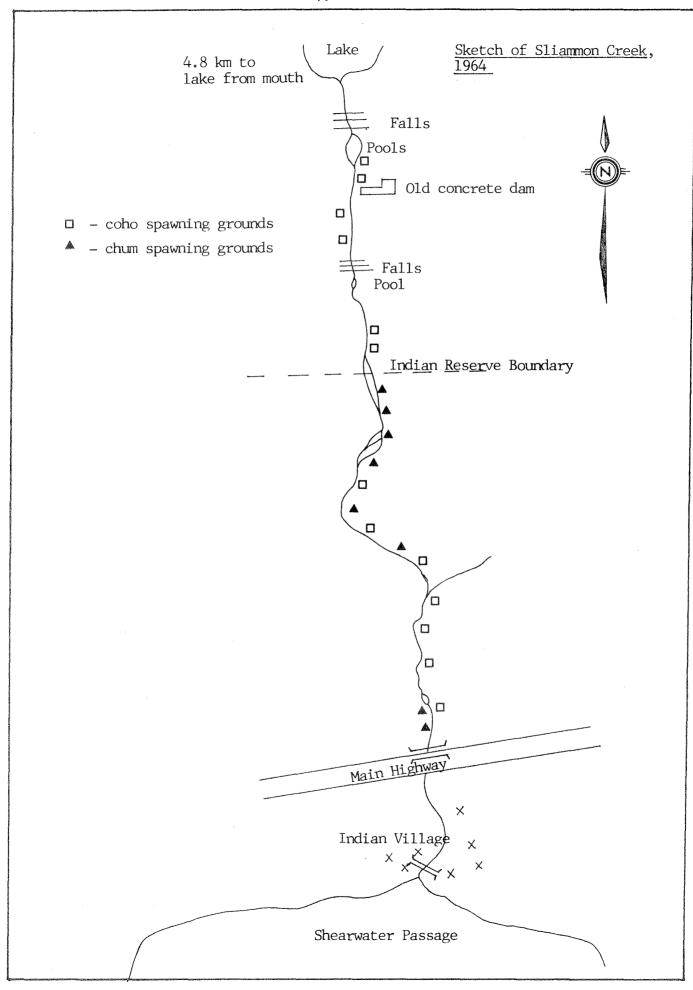
ESCAPEMENT RECORD FOR (Salt Lagoon Creek, Black Lake Creek)

YEAR	S	OCKEY	E	CHINO	0K	co	НО	CHUM		PINK	Makidimen	STEELHEAD
1947				de estilis - Alde est persona persona de la constitue de la constitue de la constitue de la constitue de la co			75	1500		The self-transfer read to the second decision of the second decision		
48				Zanoska over vilka siri iko verti iko veri eko verti eko verti eko verti eko verti eko verti eko verti eko ver	Contraction Contraction Contraction Contraction Contraction Contraction Contraction Contraction Contraction Co		750	3500		Mark Compile Combination (Compile Compile Compile Compile Compile Compile Compile Compile Compile Compile Comp		er vota en ega-ong en en ega-ong en
49				D 4000000000000000000000000000000000000			200	400				kernelikasi erikin ereku erikin erikin militerik ini kalendari ini kalendari erikin erikin erikin erikin eriki
50				kan Sidte e Filipa e Marine e e e e e e e e e e e e e e e e e e	Anne de la composition de la companya de la company	***************************************	NO	RECORDS				garantaliyasi oga antaloga ar engan omballa omballa antaloga omballa
51	1				***************************************	-	400	1500		<del>yana, gama arije ar tarang arag, yang</del>		laure-stannerhäussadelina rossen makunattäänne rokumetään en riika
52	1			in China Million Plant Pilotti			400	750			-1	N - The Spinor S
53				Laureita rendizar dai media redita ceda medi	Marie Control (1998)		200	3500				DALLANDER ET LEADER POR PROPER PO
54				the standard and an arrangements	THE PERSON NAMED AND ADDRESS OF		NOT	INSPECTED		(mandam district statement years), and statement of the s	$\neg \uparrow \neg$	Dermakkere <del>vi</del> lkingen (vilkremelijke, vilk Clare) (tilkremelijke vilkret tilkremelijke tradities)
55	1	anny (ylantistigy along)), mady (ylanony) g		Saver Dentificance (Spirite Dentificance Spirite Spiri	Contract Con	-	400	25				and the second s
56	1			need of the contraction of the c	The state of the s		200	75		de relacional (se consecuencia de circa es sub-	$\neg \uparrow \neg$	our component of the second of
57		and an excellent transfer over the	$\neg \uparrow$	kerning disember 1900 disember	O STATE OF THE PARTY OF THE PAR		400	75				**************************************
58							25	25	_	THE PERSON NAMED OF THE PE		er en er fan de sterne en fan de sterne en e
59	_	enter de la constitue de la co		Procince to water was transmit	COMPANIES OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN THE PERSON NAMED IN COLUMN TWO IS NA	1	50	50	_		-	gy intergration of the west point of the extra property of the second discount of the secon
60		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				-	400	25				
61					The state of the s	<u> </u>	75	25		everywestys our Nysystet with west		
62		er nis-tilan mis-emis-mais-	+			<u> </u>	25	25				
63						ļ						
		e o transcribio e e consegue a consegue de la conse				<u> </u>	200	25				
64	<b></b>					<del></del>	75	25		en de continue de continue de la co		
65	<u> </u>	valitianisticus medico da vandi-			-	<b>_</b>	25	25				
66	<del></del>	- The section of the				-	25	25				
67		arandronismo in the contract of the				ļ	50	200				
68	_	enirana de la contacta de la contact		v + Stile = Rith + Cale + Charles and Alberta		ļ	60	400				
69							300	200				
70							200	50				
71		distribution of the second		errorina pelitra di Milla de Landiano e militar e mendido e e mendido e e e militar e e e militar e e e militar	- militar or har a militar or manage		200	50				
72							100	N/0				
73							50	50				
74	and the same of th						N/0	N/0				
75	The second						20	75				
76								200				
77		400040000										
78				PATRICIA STREET SPENSORS AND	Section of Principles of Parising		CONTRACTOR OF THE PARTY OF THE					
79	400				control control (Section Control (Sectio		erantiges eratinence above eratinen til en en til se en en					eran eran eran det en er eller eran det eran de
80	-			earliste Nation of the Commission of the Commiss			Marie Ma				n normalis de la companya de la comp	
81	1	<del></del>	-	nodán Wiki odnie zakoko medamoko o misi		-				o-accessorements was a service word and		
82		- Administration de la company			THE RESERVE OF THE PARTY OF THE		teritigas hilika asi nita cen Apasalikin nebil			enekaming-applyantationisty metaminism		
83				MINES CONTRACTOR DE PRODUCTION MANAGEMENTO		Panagaran and and and and and and and and and a	necionalismosporestareospores				$\neg$	en mengina menggapangan menggameningan menggapan dipunan dipun
84	1	etrija metaljeni artije i met i granje	<b>-</b>			-	entinement une schrieben Gerichten der	N/0		editerativa en esta esta esta esta esta esta esta esta	-	enamentales consentinos (Seculiar de General III)
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rt		**************************************			***************************************	MSep -	Nov	MSep - MN	ov	naming the organization of the second se		
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Coho will	move	into	the	system	very	late.	This	may be the	reaso	on why r	none i	were found
in 1974.		ACAPES - IEX EXPENSE - IEX EXP		and the state of t	······································		Contraction Department of the Contraction of the Co		-76-110-11-110-110-110-110-110-110-110-110			***************************************

observed since 1976.	fish observed since	- No
	and the second control of the second control	er a majoritation religio relegio versido a resid
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	and the contract of the contra	www.changaminananananan
		- American American Anti-American American

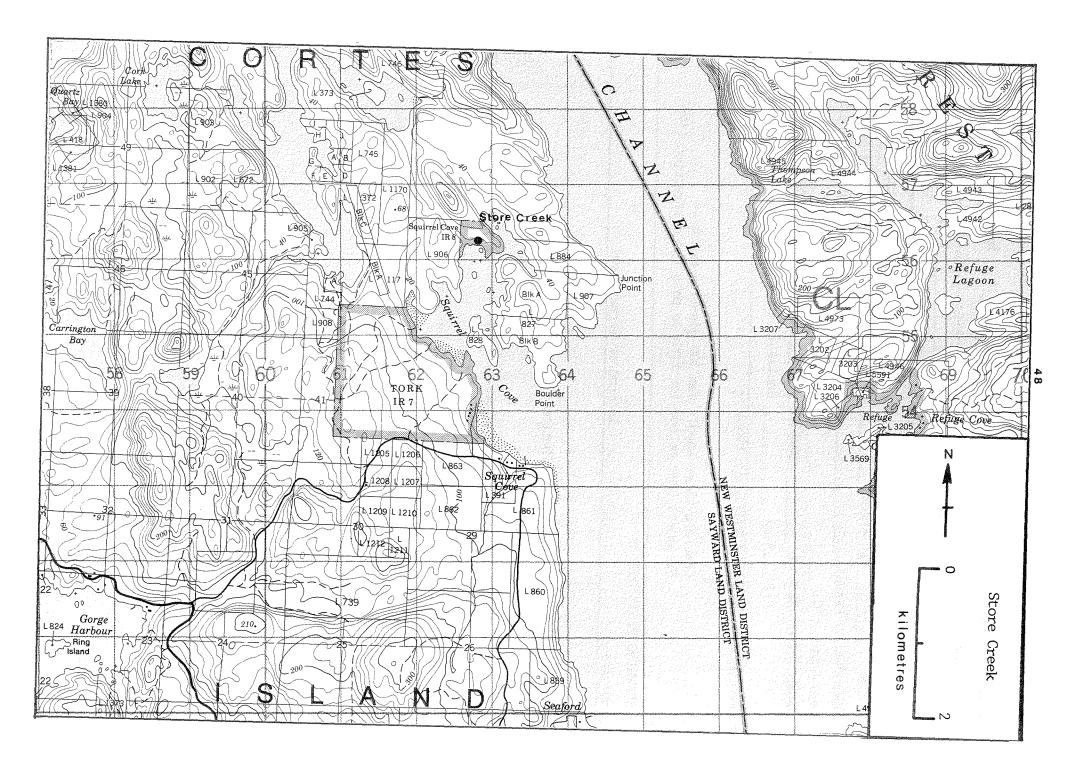


NAME OF STREAM	SLIAMMON CREEK	RAB NO. 90-2910
	Sliammon River)	
DISTRICT 3	STATISTICAL AREA15	POSITION 49 114 NW.
LOCATION OF MOU	TH Flows SW. into Strait of Georg	ria, NE. of mouth of Powell River,
	Westminster Dist.	
LENGTH	km WIDTH m DRAIN	AGEkm²
DISCHARGE (m ³ /s)	) MAX <u>11.4 Nov 27, 1950</u> M	IN 0.028 Sept. 21, 1950
Temperature (°C)		
COMPOSITION: Be	edrockBoulder	Coarse Fine
Si	lt & SandUnclassif	ied
	Ints of Difficult Ascent:	
	rock falls at 2.80 km	
	130K 14115 46 2700 Km	
CDALBITAIC DICTOR	DITTON	
SPAWNING DISTRI Species		are an IV- and
Species	Section of St	ream Used
chum	- throughout to falls	
	-\$	
GENERAL REMARKS		
1060 77		
1969 The Low boulder	ver portion of this stream is very y stretches. The upper portion has	fast flowing with extensive
poors a	nd good spawning areas. Several sm	vall tributaries produce excellent
	g grounds. appears to be improving, but is vu	Inerable to local possible
1974 Local I	ndian Food Fishery is supported ma	inly by this stream.
1976 Stream 1977 The pri	was cleared by Enhancement Crew to mary spawning area is in excellent	end of reserve land.
its ful	l potential.	
1979 Stream	is kept in good condition by the h	atchery personnel main
continu	plier for the hatchery. 1980 Loca ally molest and kill fish in the 1	ower end of the river.
1981 Stream	was monitored by hatchery personne	1 — fewer problems with
Ilsn mo. the rive	lestation.Very ȟigh water this yea er.	r made it difficult to walk
1982 Another	5000 chum taken in the food fishe shery accounted for 3000 chum	ry off the mouth of Sliammon

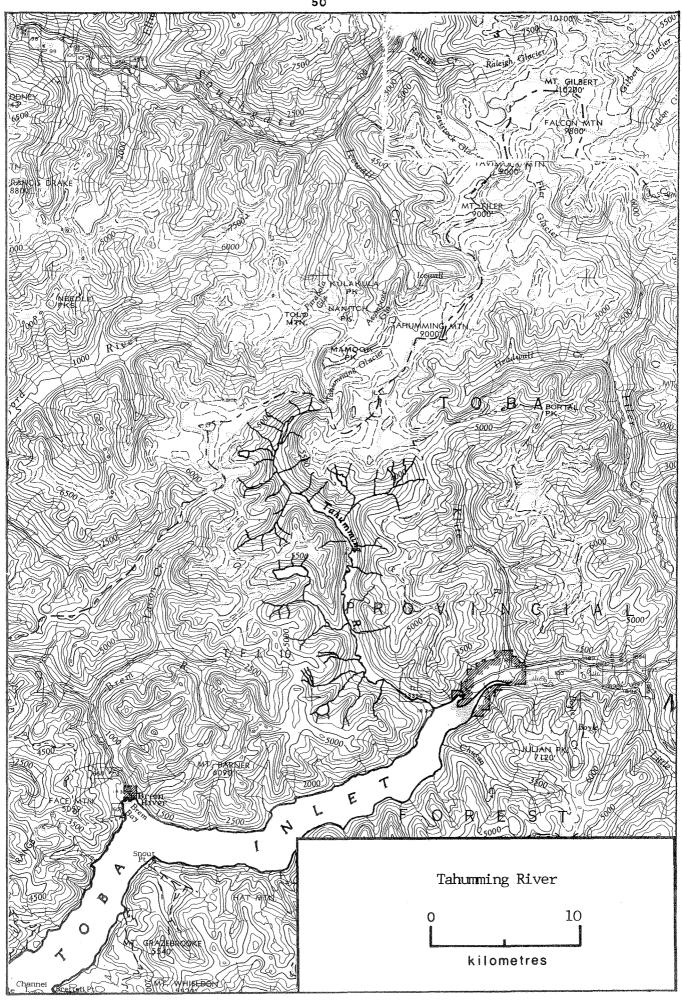


1947	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
			75	15000		
48			NO REC	NO REC		
49			200	35000	400	200
50			NO	RECORDS		
51			400	15000	400	
52			750	15000		400
53			750	15000	400	
54			200	7500		
55			750	3500	25	400
56			750	15000	25	200
57			400	15000	200	200
58	and the second s		400	7500		75
59		25	150	4000	50	150
60			75	3500		200
61			200	3500	25	75
62			200	3500		75
63			200	7500	75	75
64	(Confidential continuous and continu		400	7500		
65	Million (Million Million Million and Longon Chromatolic Chromatoli		400	1500		
66			750	3500		200
67			200	600	N/0	<u> </u>
68			1200	9000		
69		N/0	800	8000		
70	Albert (Albert Albert Albert Albert 2 Mars & Mars Albert A		1000	4000	N/0	
71			1000	3000	N/0	
72			600	3500		
73			100	7000		
74			100	5000	N/0	
75			100	4500		
76			100	6000		
77	Committee of the Commit	<b></b>	56	14304		
78				12020		
79				13000		
80 ]				11000		
81		and the same of th	50	12000		and the same of th
82		2	60	8000		
			120	16000		
83			120 +	120 +	The state of the s	
84			3	į.		l
84 85			anamada anaman na 1921-1925 nga mbaya 1925-1926 na 1925-1926 na naga anaga anaha ana 1925, anamada na 1925,		and an effective filter with figure all and analysis all constraints are constraints of the service	The state of the s
84 85 NG:			MOct	Sep		
84 85 NG: ve		Jul	MOct Aug - Nov	  Sep	EAug - Sep	*
84		Jul Jul	MOct Aug - Nov LOct - Dec	Sep   ENov   LOct - Nov		*

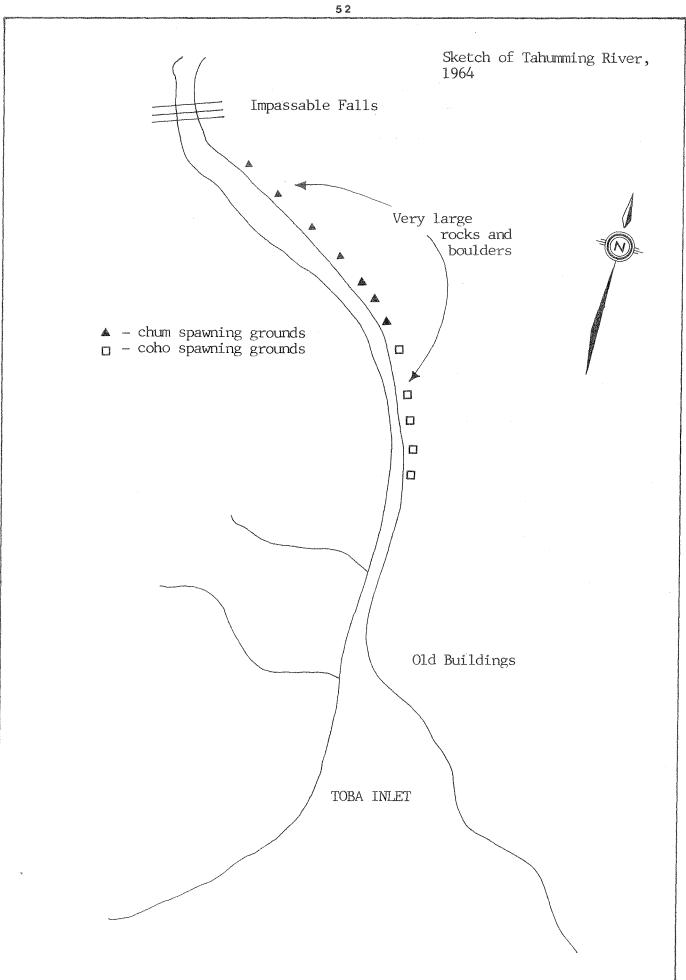
NAME OF STREAM _	(Store Creek)		RAB NO.	
LOCAL NAME				
DISTRICT 3	STATISTICAL AREA 15		POSITION 50	o° 12′ 124° 42′
LOCATION OF MOUT	H Waters off Squirrel	Cove, Desolation S	ound.	
LENGTH3	km WIDTH	m DRAINAGE		km ²
DISCHARGE (m ³ /s)	MAX	MIN		
Temperature (C)				
COMPOSITION: Be	drockBoulder	Coarse	Fine _	
Si	lt & Sand	Unclassified	var fanali var de var gegende g	
Barriers or Poi	nts of Difficult Ascent:			
				Тари <i>адана</i>
	Concrete water supply	dam 300 yds from mo	outh —	Distribution
	Recommend some method:	for fish to pass th	ne obstruction	(178)
SPAWNING DISTRI	BUTION			
Species	Sect	ion of Stream Used	l	
	жадан мүчүн тап башында күн тап таранда күн канастан <u>ашын</u> күн канаба күй да ууулган тап бай байдан ууулган та			
				50
chum	- even distribution t	to dam		Acceptance
				HERMODONANIA
GENERAL REMARKS	.  Security of the security of			
1977 Approx	100 yards above the mai	n road there is a	new concrete (	dam
to supp	ly water to Squirrel Cov	ve Store. This has	completely blo	ocked
Iurther	access to chum.			
				(S.
				Language of the Control of the Contr
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		t .		1
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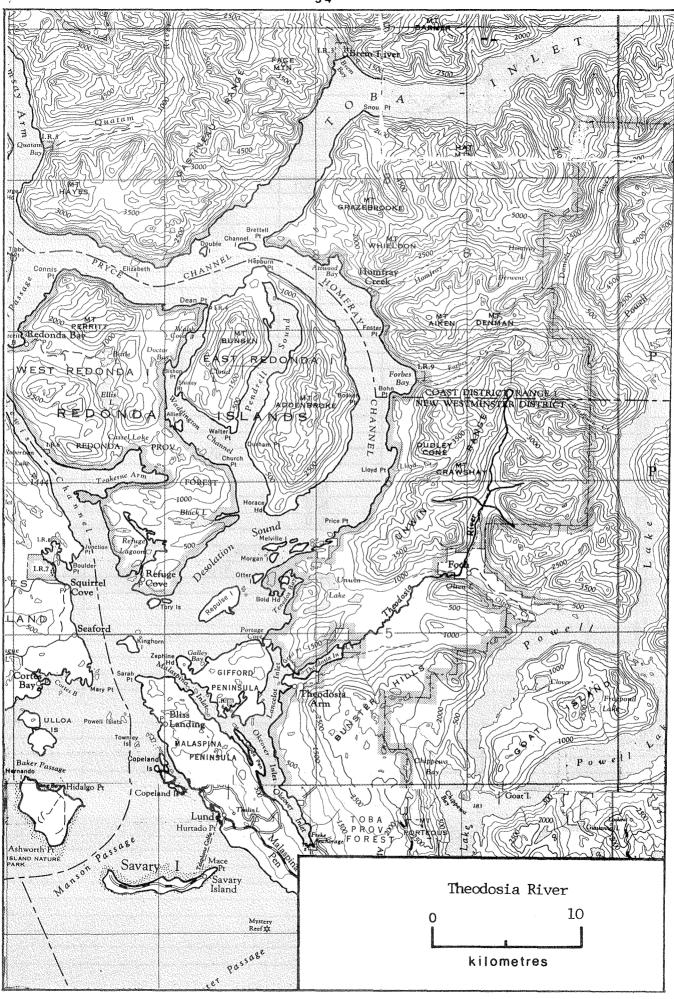
YEAR 1947	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
1947						
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54 55						
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77				37		
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78		-	and the second s	80		
79			nijanain-kooleeni istiini kaagaanta assaanaa kaasaansaassa toksaan miss	157		
80						
81 82			(1978) Market Marie (1984 - Ma			
82	GD-location and the state of th	ann-selection.				
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NAME OF STREAM TAHUMMING RIVER	RAB NO. 90 - 3210
LOCAL NAME (Graveyard Creek)	
DISTRICT 3 STATISTICAL AREA 15	
LOCATION OF MOUTH Flows SE into head of Toba Inlet, Ran	
LENGTH km WIDTH m DRAINAGE  DISCHARGE (m ³ /s) MAX MIN	km ²
DISCHARGE (m ³ /s) MAX MIN	
Temperature (°C)	
COMPOSITION: Bedrock Boulder Coarse _	
Silt & Sand Unclassified	
Barriers or Points of Difficult Ascent:	
impassable rock falls at 274m -12m high	·
	•
SPAWNING DISTRIBUTION	
Species Section of Stream Use	d
Section of Stream ose	
chum — in deep pools below the falls	
pink – below falls	
GENERAL REMARKS	
1965 Very small rocky groots	
1965 Very small rocky creek — available spawning groun Rough, bouldery stretches and rock obstructions.	
1967 Water levels low throughout most of season rising Fall months.	to normal during
1971 6.7 km of excellent gravel above falls. Vallow to	be logged this seesen
The strike district for this year on record Registiful	Charmina area -1
falls. Size of run does not warrant a major expensions, but this should be further evaluated in the fu	itimo
1775 neavy 1100d damage to river during early November	flooding
1978 No fish ever reported above the canyon. A local re	eident reported that
coho and chinook were seen for miles above the car child.Will have to be verified.	yon when he was a
1974 Last year any fish observed.	
Last year any rish observed.	
	The state of the s



/EAR	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
1947				400	400	The second secon
48			NO	RECORDS	i de la completa del la completa de la completa del la completa de la completa del la completa de la completa de la completa del la completa de la completa del la	
49				400	400	
50			T NO	RECORDS		
51	***************************************			400		
52				400	ereste en estat de la companya de la	
53	The state of the s			400		
54	***************************************		NOT	INSPECTED	guandprorrigueschquideise uniquerrorgunasconisetti — dilnygge _{re de} c	
55			750	200	UNK	
56			200	400	er til kalt for som med men greder komsten er del förerlik sock med med og grede for til statt statt. Om til kalt for som med men greder komsten er del förerlik sock med med og grede for til statt statt.	
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58			75	75		
59	The second second reconsideration or manufacture or consideration of the second		100	100		
60	Conference on the control of the con		75	25	ekeelan eelangunaa oo an dhilaasiin kiirka riisalii rekirka —400 km —450 km joo qoo qoo aa aa	
61	<u> </u>		25	25	······································	
62			25	25		
63			25	25		
64		·	25	25		
65			N/O	N/0		
66	1		N/0	N/O		
67			N/0	150	N/O	<del>                                     </del>
68			100	100		
69			N/0	150		
70	<del></del>		N/0	150		
71			100	50		
72			N/0	100		
73			N/0	100	500	
74			N/0	UNK	N/0	
75			N/0	N/0	N/0	
76						
77	<b></b>		NO	RECORDS		
78			N/0	N/0		
79						<del>                                     </del>
80	TO SERVICE TO SERVICE AND ASSESSMENT OF THE SERVICE AND ASSESSMENT	TO THE RESIDENCE OF THE PARTY O	The state of the s	*	gayngeam mantener million da sa	
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			Nov	LOct - Nov		
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RKS						
	·			age for inspe		ble. (1974)



DISTRICT 3 STATISTICAL AREA 15 POSITION 50 124 SW  LOCATION OF MOUTH Flows SW into Theodosia Inlet, New Westminster Dist.  LENGTH km WIDTH m DRAINAGE km²  DISCHARGE (m³/s) MAX 52.7 Oct. 21, 1965 MIN 0.038 Aug 13, 1979  Temperature (°C)  COMPOSITION: Bedrock Boulder Coarse Fine  Silt & Sand Unclassified  Barriers or Points of Difficult Ascent:  Series of impassable falls at 7 km — some passable log jams. 1968 reported several jams maintained as they help to control flow.  SPAWNING DISTRIBUTION  Species Section of Stream Used  Coho in upper reaches, on well gravelled stretches of river in lower reaches, on well gravelled portions of river  CEMERAL REMARKS  1960/69 Water diversion affects this stream, but McMillan Bloedel are required to increase volume when necessary to protect salmon spawners (62).  A very early run of chum appeared in this stream this year. Water levels were unusually good and no crowded conditions were observed. Several large partial log jams serve to control the flow of this stream. The Provincial Government maintains a metering gauge on this river.  1977 The large diversion of the Theodosia into Olsen Lake and Powell Lake is being studied by Water Rights and a new licence may be issued. The low summer flows are of great concern and should be eliminated.  1978 Coho migrate to beginning of fall reaching the upper river via Twin Creeks, two smaller creeks combining into one about 1.6 km from beach, and joining main river approx 3 km from beach, and joining main river approx 3 km from beach, and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joining main river approx 3 km from beach and joi	NAME OF STREAM _	THEODOSIA RIVER	RAB NO. 90-3000
LENGTH   Im   WIDTH   m   DRAINAGE   Im   Im   Im   DRAINAGE   Im   Im   Im   Im   DRAINAGE   Im   Im   Im   Im   Im   Im   Im   I	LOCAL NAME (Tw	nin Rivers, Farm Creek East Fork)	1
LENGTH   Im   WIDTH   m   DRAINAGE   Im   Im   Im   DRAINAGE   Im   Im   Im   Im   DRAINAGE   Im   Im   Im   Im   Im   Im   Im   I	DISTRICT 3	STATISTICAL AREA 15	POSITION 50 124 SW
DISCHARGE (m'/s) MAX 52.7 Oct. 21, 1965 MIN 0.038 Aug 13, 1979  Temperature (°C)  COMPOSITION: Bedrock Boulder Coarse Fine Silt & Sand Unclassified  Barriers or Points of Difficult Ascent:  Series of impassable falls at 7 km — some passable log jams. 1968 reported several jams maintained as they help to control flow.  SPAWNING DISTRIBUTION  Species Section of Stream Used  Coho - in upper reaches and side channels - in lower reaches, on well gravelled stretches of river - in lower reaches, on well gravelled portions of river  Barriers or Points of Difficult Ascent:  SPAWNING DISTRIBUTION  Species Section of Stream Used  Coho - in upper reaches and side channels - in lower reaches, on well gravelled stretches of river - in lower reaches, on well gravelled portions of river  CENERAL REMARKS  GENERAL REMARKS  GENERAL REMARKS  1960/69 Water diversion affects this stream, but McMillan Bloedel are required to increase volume when necessary to protect salmon spawners (62).  A very early run of chum appeared in this stream this year. Water levels were unusually good and no crowded conditions were observed. Several large partial log jams serve to control the flow of this stream. The Provincial Government maintains a metering gauge on this river.  The large diversion of the Theodosia into Oisen Lake and Powell Lake is being studied by Water Rights and a new licence may be issued. The low summer flows are of great concern and should be eliminated.  Coho migrate to beginning of fall reaching the upper river via Twin Creeks, two smaller creeks combining into one about 1.6 km from beach, and joining main river approx 3 km from beach.  This river is very unstable. The main flow has now diverted into what was a flood chamnel leaving the bottom mile or so of main channel practically dry.  Work is scheduled for next summer to correct the McMillan Bloedel diversion.  Diversion into Olson Lake was re-designed and should provide the Theodosia has been diverted at 7 km into Farm Creek. River changes			
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COMPOSITION: Bedrock Boulder Coarse Fine  Silt & Sand Unclassified  Barriers or Points of Difficult Ascent:  Series of impassable falls at 7 km — some passable log jams. 1968 reported several jams maintained as they help to control flow.  SPAWNING DISTRIBUTION  Species Section of Stream Used  coho - in upper reaches and side channels - in lower reaches, on well gravelled stretches of river pink - in lower reaches, on well gravelled portions of river  CENTERAL REMARKS  1960/69 Water diversion affects this stream, but McMillan Bloedel are required to increase volume when necessary to protect salmon spawners (62).  A very early run of chum appeared in this stream this year. Water levels were unusually good and no crowded conditions were observed. Several large partial log jams serve to control the flow of this stream. The Provincial Government maintains a metering gauge on this river.  1977 The large diversion of the Theodosia into Olsen Lake and Powell Lake is being studied by Water Rights and a new licence may be issued. The low summer flows are of great concern and should be eliminated. Coho migrate to beginning of fall reaching the upper river via Twin Creeks, two smaller creeks combining into one about 1.6 km from beach. and joining main river approx 3 km from beach. This river is very unstable. The main flow has now diverted into what was a flood channel leaving the bottom mile or so of main channel practically dry.  Work is scheduled for next summer to correct the McMillan Bloedel diversion.  Diversion into Olson Lake was re-designed and should provide the Theodosia has been diverted at 7 km into Farm Creek. River changes	DISCHARGE (m ³ /s)	MAX 52.7 Oct. 21, 1965 MIN 0.03	38 Aug 13, 1979
Barriers or Points of Difficult Ascent:  Series of impassable falls at 7 km — some passable log jams. 1968 reported several jams maintained as they help to control flow.  SPAWNING DISTRIBUTION  Species Section of Stream Used  coho — in upper reaches and side channels — in lower reaches, on well gravelled stretches of river — in lower reaches, on well gravelled portions of river  CENERAL REMARKS  1960/69 Water diversion affects this stream, but McMillan Bloedel are required to increase volume when necessary to protect salmon spawners (62).  A very early run of chum appeared in this stream this year. Water levels were unusually good and no crowded conditions were observed. Several large partial log jams serve to control the flow of this stream. The Provincial Government maintains a metering gauge on this river.  The large diversion of the Theodosia into Olsen Lake and Powell Lake is being studied by Water Rights and a new licence may be issued. The low summer flows are of great concern and should be eliminated. Coho migrate to beginning of fall reaching the upper river via Twin Creeks, two smaller creeks combining into one about 1.6 km from beach, and joining main river approx 3 km from beach.  This river is very unstable. The main flow has now diverted into what was a flood channel leaving the bottom mile or so of main channel practically dry.  Work is scheduled for next summer to correct the McMillan Bloedel diversion.  Diversion into Olson Lake was re-designed and should provide the Theodosia River with a much more stable summer flow.  Main Theodosia has been diverted at 7 km into Farm Creek. River changes	Temperature (°C)	1	
Series of impassable falls at 7 km — some passable log jams. 1968 reported several jams maintained as they help to control flow.  SPAWNING DISTRIBUTION  Species Section of Stream Used  - in upper reaches and side channels chum — in lower reaches, on well gravelled stretches of river pink — in lower reaches, on well gravelled portions of river - in lower reaches, on well gravelled portions of river  GENERAL REMARKS  1960/69 Water diversion affects this stream, but McMillan Bloedel are required to increase volume when necessary to protect salmon spawners (62). A very early rum of chum appeared in this stream this year. Water levels were unusually good and no crowded conditions were observed. Several large partial log jams serve to control the flow of this stream. The Provincial Government maintains a metering gauge on this river.  1977 The large diversion of the Theodosia into Olsen Lake and Powell Lake is being studied by Water Rights and a new licence may be issued. The low summer flows are of great concern and should be eliminated.  1978 Coho migrate to beginning of fall reaching the upper river via Twin Creeks, two smaller creeks combining into one about 1.6 km from beach, and joining main river approx 3 km from beach.  1980 This river is very unstable. The main flow has now diverted into what was a flood channel leaving the bottom mile or so of main channel practically dry.  1981 Work is scheduled for next summer to correct the McMillan Bloedel diversion.  1982 Diversion into Olson Lake was re-designed and should provide the Theodosia River with a much more stable summer flow.  Main Theodosia has been diverted at 7 km into Farm Creek. River changes			
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SPAWNING DISTRIBUTION  Species Section of Stream Used  coho	Barriers or Poi	nts of Difficult Ascent:	<u></u>
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coho chum — in lower reaches, on well gravelled stretches of river — in lower reaches, on well gravelled portions of river — in lower reaches, on well gravelled portions of river  1960/69 Water diversion affects this stream, but McMillan Bloedel are required to increase volume when necessary to protect salmon spawners (62).  1968 A very early run of chum appeared in this stream this year. Water levels were unusually good and no crowded conditions were observed. Several large partial log jams serve to control the flow of this stream. The Provincial Government maintains a metering gauge on this river.  1977 The large diversion of the Theodosia into Olsen Lake and Powell Lake is being studied by Water Rights and a new licence may be issued. The low summer flows are of great concern and should be eliminated.  1978 Coho migrate to beginning of fall reaching the upper river via Twin Creeks, two smaller creeks combining into one about 1.6 km from beach, and joining main river approx 3 km from beach.  1980 This river is very unstable. The main flow has now diverted into what was a flood channel leaving the bottom mile or so of main channel practically dry.  1981 Work is scheduled for next summer to correct the McMillan Bloedel diversion.  1982 Diversion into Olson Lake was re-designed and should provide the Theodosia River with a much more stable summer flow.  Main Theodosia has been diverted at 7 km into Farm Creek. River changes	SPAWNING DISTRI		
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1984 Main Theodosia has been diverted at 7 km into Farm Creek. River changes	1982 Divers	ion into Olson Lake was re—designed and sh	
after each heavy rainfall.River in constant change — gravel movement — high water every rainfall.  continued	1984 Main T after	heodosia has been diverted at 7 km into Fa each heavy rainfall.River in constant cha	arm Creek. River changes ange — gravel movement –

# THEODOSIA RIVER (Twin Rivers, Farm Creek East Fork)

# Physical conditions:

1960/69 Erosion and silting ranging from 10% - 40% — scouring in lower reaches and course changes.

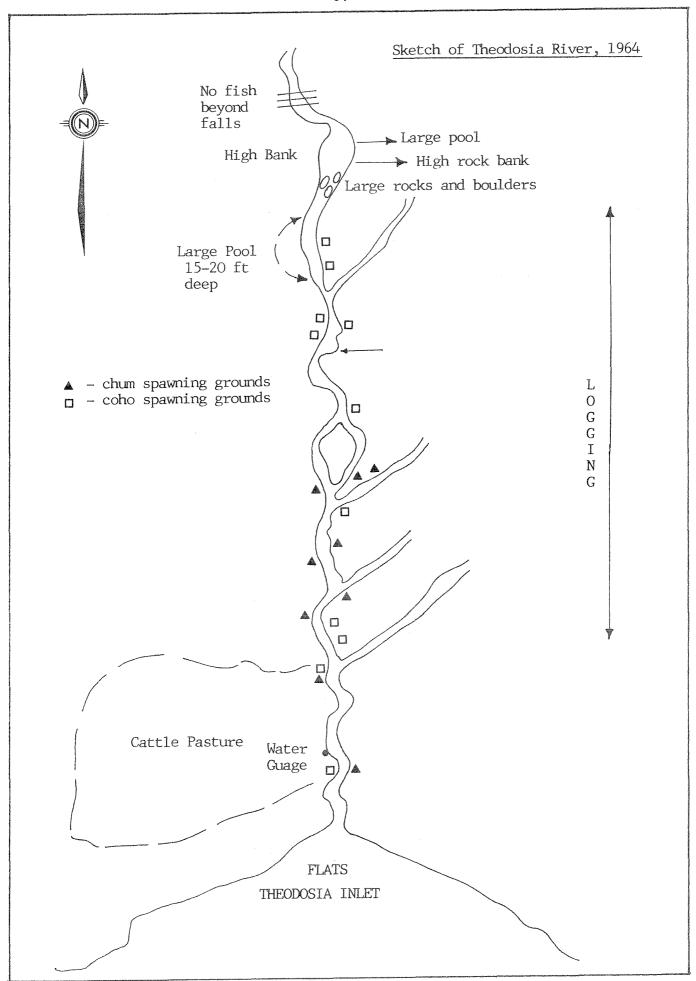
1970/79 High flood waters often change river bed — tree debris results in blockages.

1980 Erosion and silting 60%.

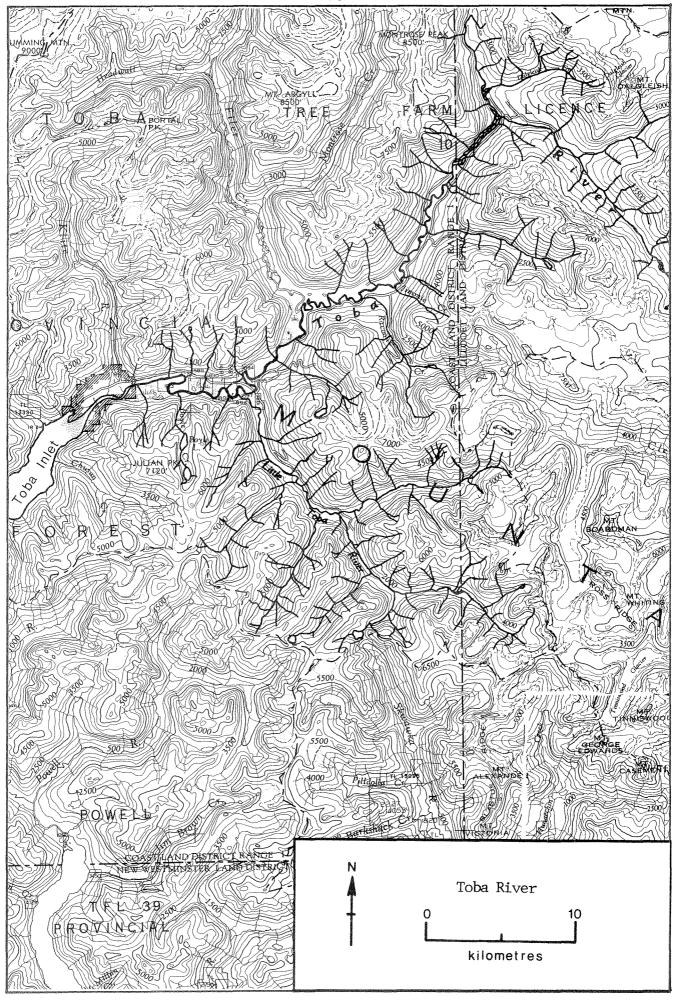
1981 Drastic fluctuations in water levels.

Main river changes constantly in bottom 5 km. Water levels very low during summer.

Predation by bear and gulls.



1947	SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
			1500	1500	750	
10			750	3500		
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52			7500	35000	200	
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84 85 NG: ve			LSep - EOct	ESep - EOct		
84				Sep ESep - EOct MOct - MNov LOct - Dec		*



NAME OF	STREAM _	TOBA RIVER	RAB NO. 90-3200
LOCAL NAM			
		STATISTICAL AREA 15	POSITION 50 124 NE
		H Flows SW into head of Toba In	
LENGTH	32	km WIDTH m DRAI	NAGE km ²
DISCHARGE	$E (m^3/s)$	MAX 1	MIN
Temperatu	$re(^{\circ}C)$		
•		drock Boulder	Coarse Fine
COLLOGIT		lt & Sand Unclassi:	
			rred
Barriers	s or Poi	nts of Difficult Ascent:	
		log jams and beaver problems in	sloughs will be monitored
Dec 4000 de controles descripts established de servición de			
	G DISTRI		*
Species		Section of S	tream Used
chin	nook	- evenly distributed up to 32	km
coho	)	- evenly distributed up to 32	km
chum	1	- up to 26 km	
pink	S	- up to confluence of Little Tol	ba approx 20 km
GENERAL	REMARKS		
		argest salmon producing stream i	
		from mouth — supports mainly pi loured making accurate counts im	
	ry droce	Today marang decarace codites in	possible.
1951		ake a heavy toll on fish.	
1953	As this	river is always silty, figures small streams and catches.	are based on fish observed on
1968			of salmon . Chum were particularly
	heavy.	High water during the month of N	lovember caused some flooding,
1000	but no	damage to egg deposits was repor	ted.
		operations are now far removed	
17/1	on Nove	umbers of chum and coho were obs mber 14th. These fish appeared t	o be quite fresh. Pinks and
	Chinook	arrived early and were above av	erage in numbers.
1974	Logging	g camp sport fishery indicates av	verage return of coho and a
1075		nook. 12,000 chum based on estim	
1975			did arrive was severely damaged winter months on high gravel bars.
- Company of the Comp		and coho spawn probably affecte	
1980		oggers catch coho up to 41 km fr	

continued.....

#### continuation

#### TOBA RIVER

1981 It is felt that this river is used by the fish as a means of getting to its tributaries. Low waters this year showed some very nice gravel beds in this river. An evaluation program should be set up to assess the entire Toba system.

1982 A full time patrolman is needed on this system.

1984 Very high water in October.

## Physical characteristics:

1950/59 Silting reported in lower 5 km, water levels normal.

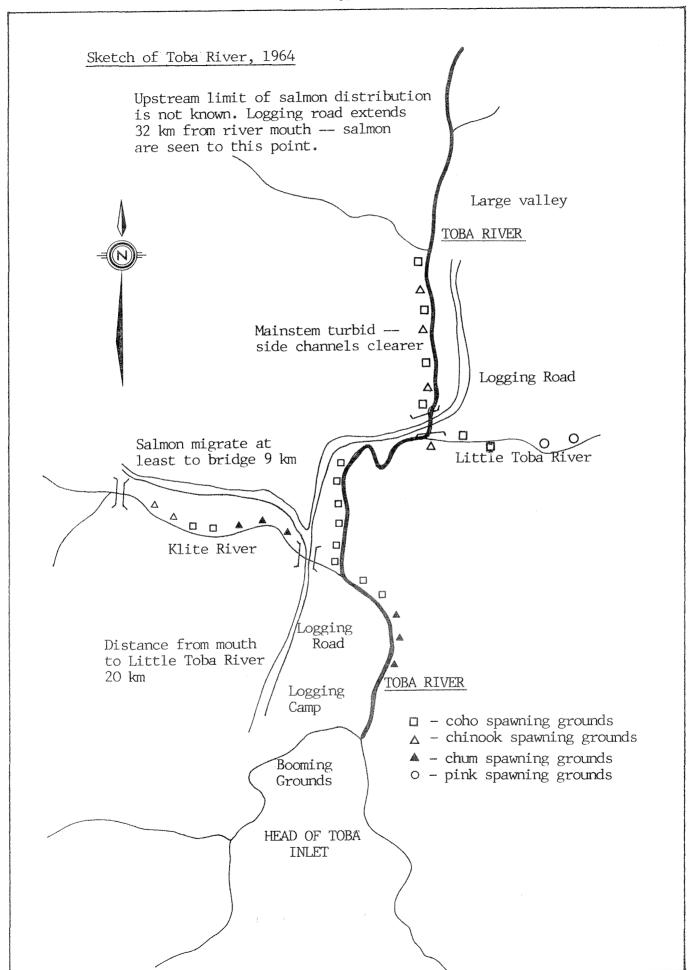
1960/69 Water rises rapidly when snows melt. Some erosion — river banks, for the most part consist of gravel. Water levels fairly constant. Extreme high water levels November (68)

1970/79 Lower 6 km of river is badly silted. 1975 reported severe flooding

1977/78 Water levels above normal during summer months.

1982 Water levels very low during summer and fall.

Predation: Seal have taken a very heavy toll on spawners over the years. Black bear and merganzer were quite destructive.



ESCAPEMENT RECORD FOR TOBA RIVER

SOCKEYE	CHINOOK	СОНО	CHUM	PINK	STEELHEAD
	UNK	7500	7500	35000	
		NO NO	RECORDS		
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### Metric Conversions

#### CONVERSION FACTORS

The following list of convenient equivalents of measure gives the relationship between imperial units and the International System of Units (SI).

- 1 inch equals 2.54 cm (centimetres)
- 1 foot equals 0.3048 m (metre)
- 1 statute mile equals 1.6093 km (kilometres)
- 1 cm (centimetre) equals 0.393 70 inch
- 1 m (metre) equals 3.2808 feet
- 1 km (kilometre) equals 0.621 37 mile
- 1 acre equals 43 560 square feet
- 1 acre equals 0.404 69 ha (hectare)
- 1 square mile equals 640 acres
- 1 square mile equals 2.5900 km² (square kilometres)
- 1 square mile equals 259.0 ha (hectares)
- 1 ha (hectare) equals 10 000 m² (square metres)
- 1 ha (hectare) equals 2.4710 acres
- 1 km² (square kilometre) equals 0.386 10 square mile
- 1 cubic foot equals 6.2288 imperial gallons
- 1 imperial gallon equals 4.546 09 L (litres)
- 1 imperial gallon equals 1.2010 U.S. gallons
- 1 U.S. gallon equals 0.133 68 cubic foot
- 1 cubic foot equals 0.068 317 m³ (cubic metre)
- 1 m3 (cubic metre) equals 35.315 cubic feet
- 1 cubic foot per second for one day equals 1.9835 acre-feet
- 1 cubic foot per second for one day covers one square mile to a depth of 0.037 19 inch
- 1 acre-foot equals 1.2335 dam3 (cubic decametres)
- 1 m³/s (cubic metre per second) for one day equals 86.4 dam³ (cubic decametre)
- 1 m³/s (cubic metre per second) for one day covers one square kilometre to a depth of 0.0864 m (metre)
- 1 foot per second equals 0.6818 mile per hour
- 1 mile per hour equals 1.467 feet per second
- 1 m/s (metre per second) equals 3.6 km/h (kilometre per hour)
- 1 km/h (kilometre per hour) equals 0.2778 m/s (metre per second)
- 1 cubic foot per second equals 0.028 317 m³/s (cubic metre per second)
- 1 m³/s (cubic metre per second) equals 35.315 cubic feet per second
- 1 pound equals 0.453 59 kg (kilogram)
- 1 kg (kilogram) equals 2.2046 pounds
- 1 short ton (2000 pounds) equals 0.907 18 t (tonne)
- 1 t (tonne) equals 2204.6 pounds

degrees Celsius = 5/9 (degrees Fahrenheit - 32) degrees Fahrenheit = 9/5 (degrees Celsius) + 32

#### **FACTEURS DE CONVERSION**

Voici une liste des unités de mesure impériales et leurs équivalences dans le Système international d'unités (SI).

- 1 pouce vaut 2.54 cm (centimètres)
- 1 pied vaut 0.3048 m (mètre)
- 1 mille terrestre équivaut à 1.6093 km (kilomètre)
- 1 cm (centimètre) équivaut à 0,393 70 pouce
- 1 m (mètre) équivaut à 3.2808 pieds
- 1 km (kilomètre) équivaut à 0.621 37 mille
- 1 acre vaut 43 560 pieds carrés
- 1 acre équivaut à 0.404 69 ha (hectare)
- 1 mille carré vaut 640 acres
- 1 mille carré équivaut à 2.5900 km² (kilomètres carrés)
- 1 mille carré équivaut à 259.0 ha (hectare)
- 1 ha (hectare) vaut 10 000 m² (mètres carrés)
- 1 ha (hectare) équivaut à 2.4710 acres
- 1 km² (kilomètre carré) équivaut à 0.386 10 mille carré
- 1 pied cube équivaut à 6.2288 gallons impérials
- 1 gallon impérial vaut 4.546 09 L (litres)
- 1 gallon impérial équivaut à 1.2010 gallon américain
- 1 gallon américain équivaut à 0.133 68 pied cube
- 1 pied cube vaut 0.068 317 m³ (mètre cube)
- 1 m³ (mètre cube) vaut 35.315 pieds cubes
- 1 pied cube par seconde pendant un jour équivaut à 1.9835 acrenied
- 1 pied cube par seconde pendant un jour équivaut à un volume d'un mille carré par 0.037 19 pouce
- 1 acre-pied équivaut à 1.2335 dam³ (décamètres cubes)
- 1 m³/s (mètre cube par seconde) pour un jour vaut 86.4 dam³ (décamètre cube)
- 1 m³/s (mètre cube par seconde) pour un jour couvre un kilomètre carré à une profondeur de 0.0864 m (mètre)
- 1 pied par seconde équivaut à 0.6818 mille par heure
- 1 mille par heure équivaut à 1.467 pied par seconde
- 1 m/s (mètre par seconde) vaut 3.6 km/h (kilomètre par heure)
- 1 km/h (kilomètre par heure) vaut 0.2778 m/s (mètre par seconde)
- 1 pied cube par seconde équivaut à 0.028 317 m³/s (mêtre cube par seconde)
- 1 m³/s (mètre cube par seconde) équivaut à 35.315 pieds cubes par seconde
- 1 livre équivaut à 0,453 59 kg (kilogramme)
- 1 kg (kilogramme) équivaut à 2.2046 livres
- 1 tonne courte (2000 livres) équivaut à 0.907 18 t (tonne)
- 1 t (tonne) équivaut à 2204.6 livres

degrés Celsius = 5/9 (degrés Fahrenheit - 32)

degrés Fahrenheit = 9/5 (degrés Celsius) + 32