



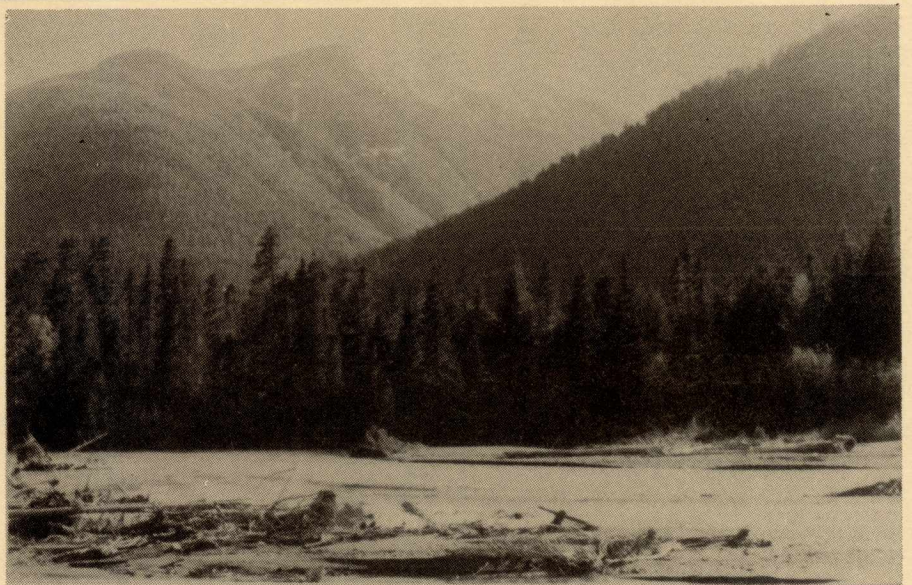
Preliminary Catalogue of Salmon Streams and Spawning Escapements of Statistical Area 28 (Howe Sound - Burrard Inlet)

D.E. Marshall
R.F. Brown
V.D. Chahley
L.L. Shannon

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Pacific Region





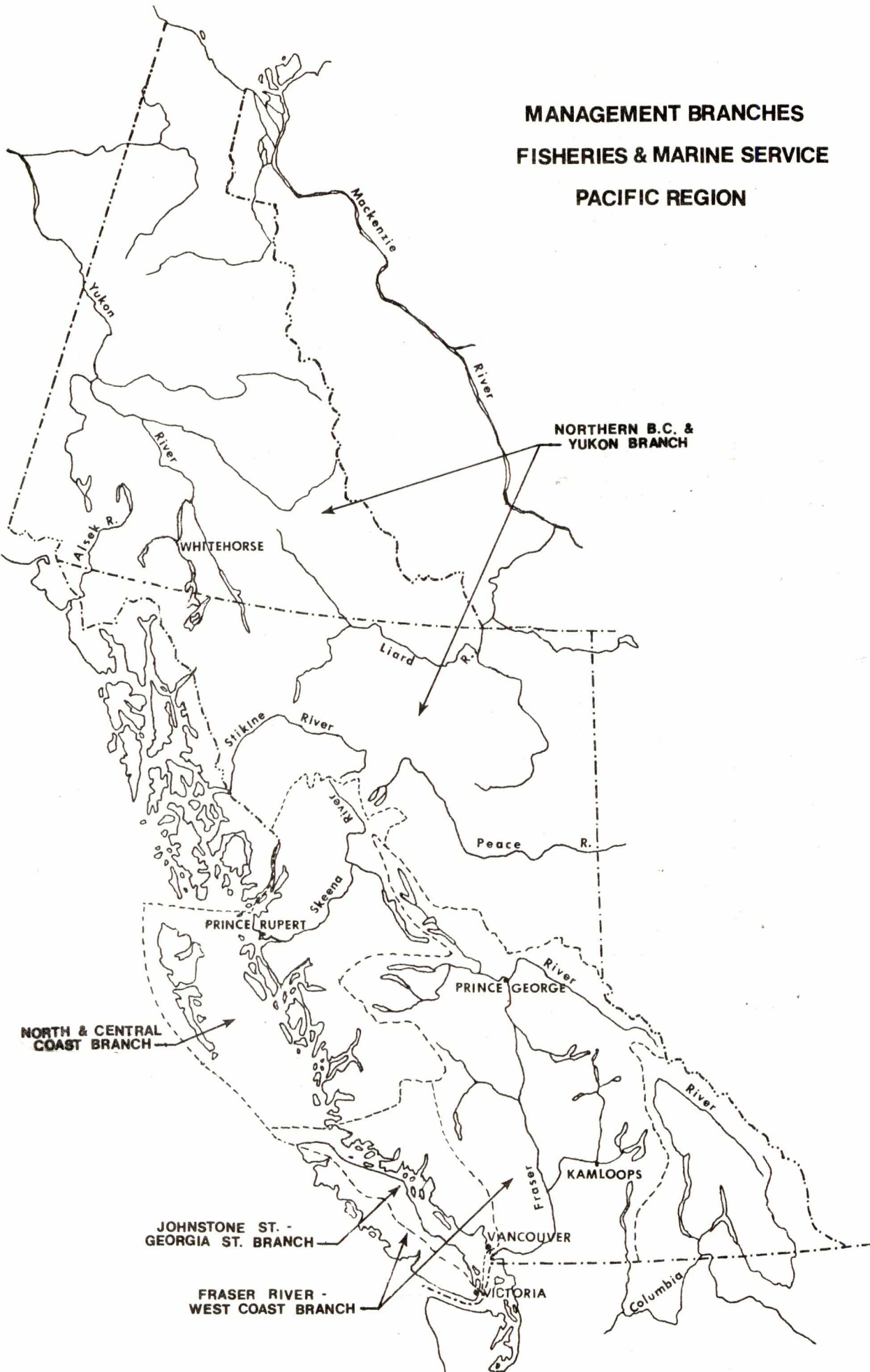
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Pacific Region

**MANAGEMENT BRANCHES
FISHERIES & MARINE SERVICE
PACIFIC REGION**



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YUKON

BRITISH COLUMBIA

**CONSERVATION DISTRICTS
FISHERIES & MARINE SERVICE
PACIFIC REGION**

C.D. 10

C.D. 8

C.D. 9

C.D. 7

C.D. 1

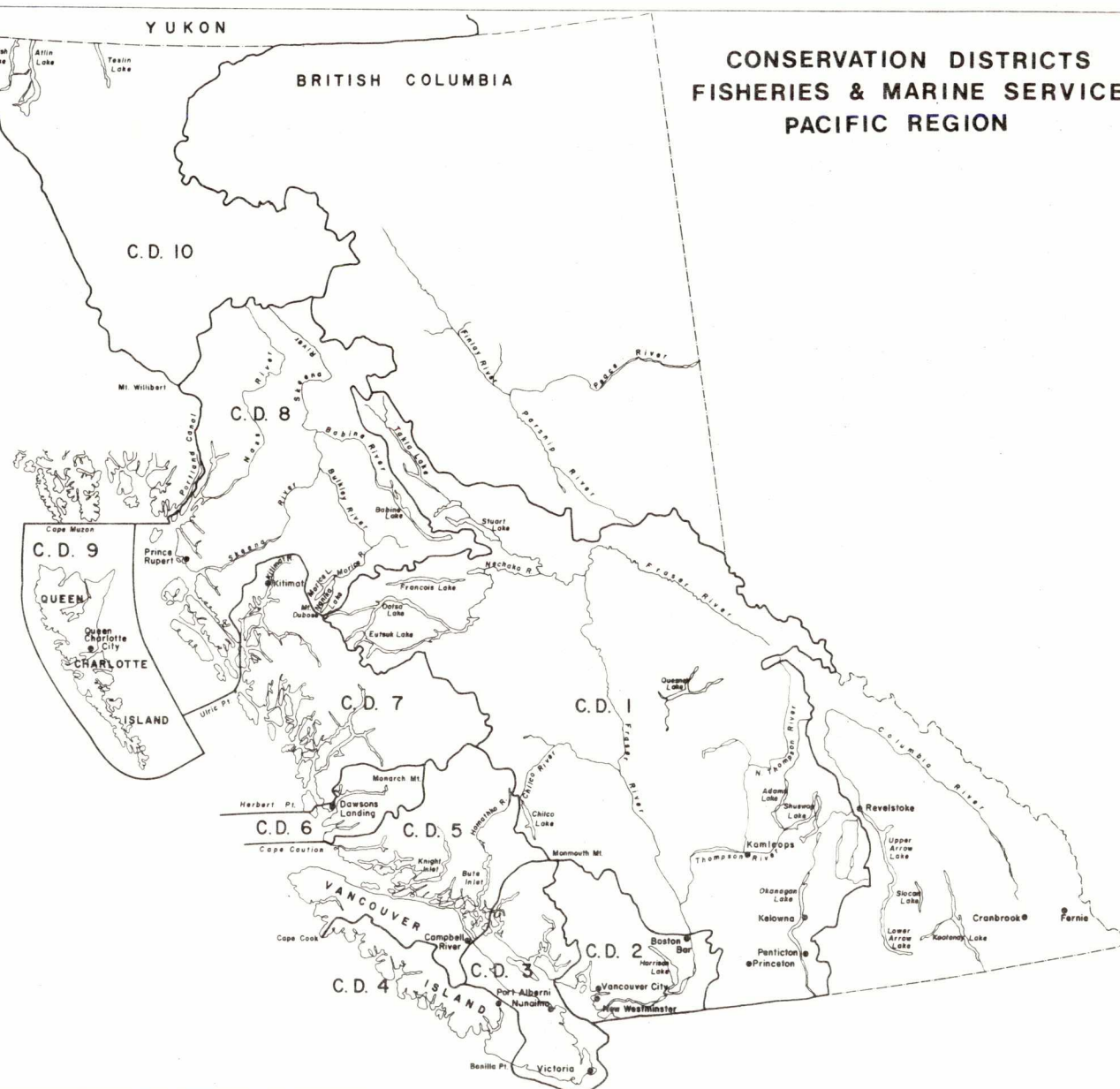
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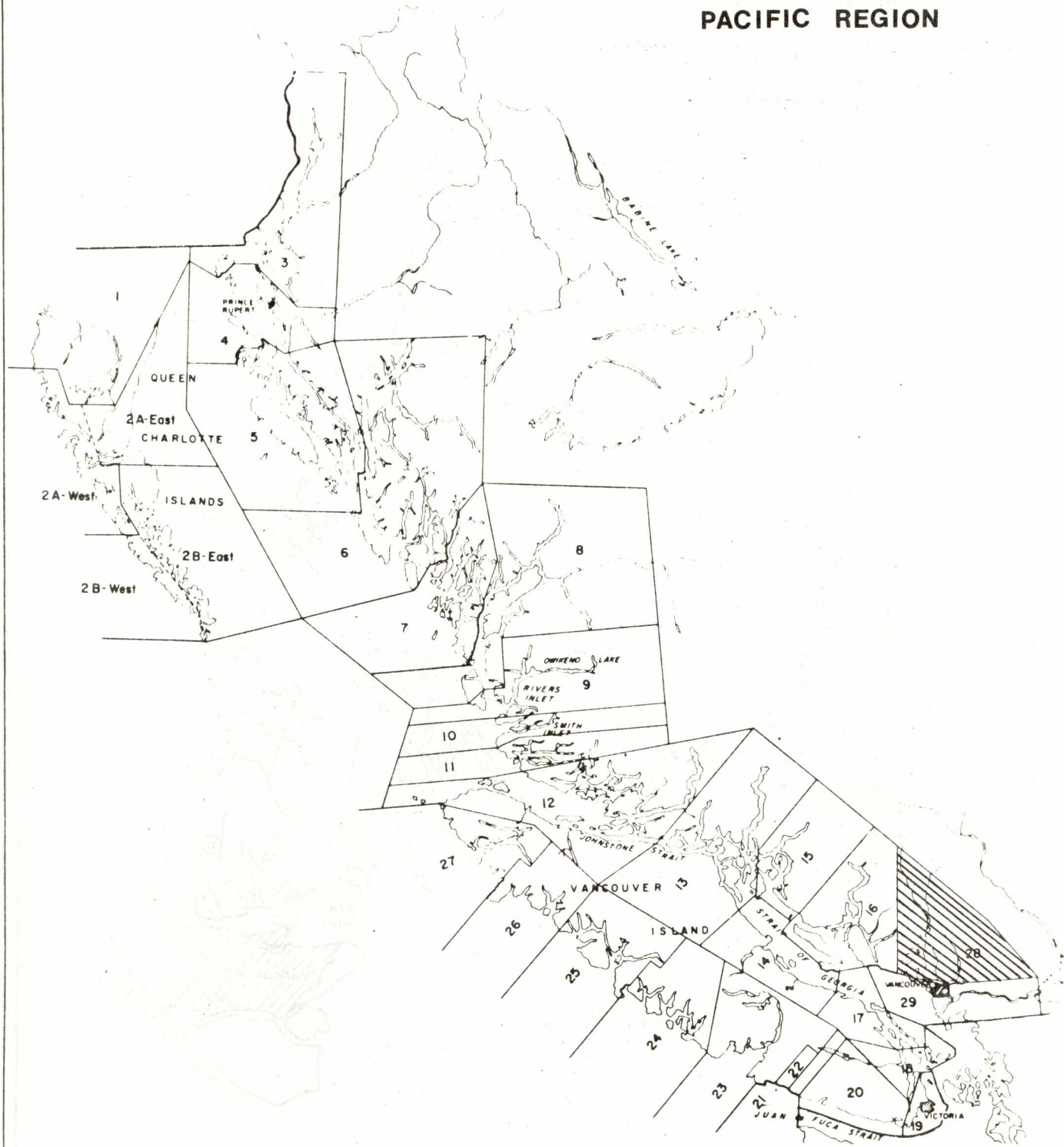
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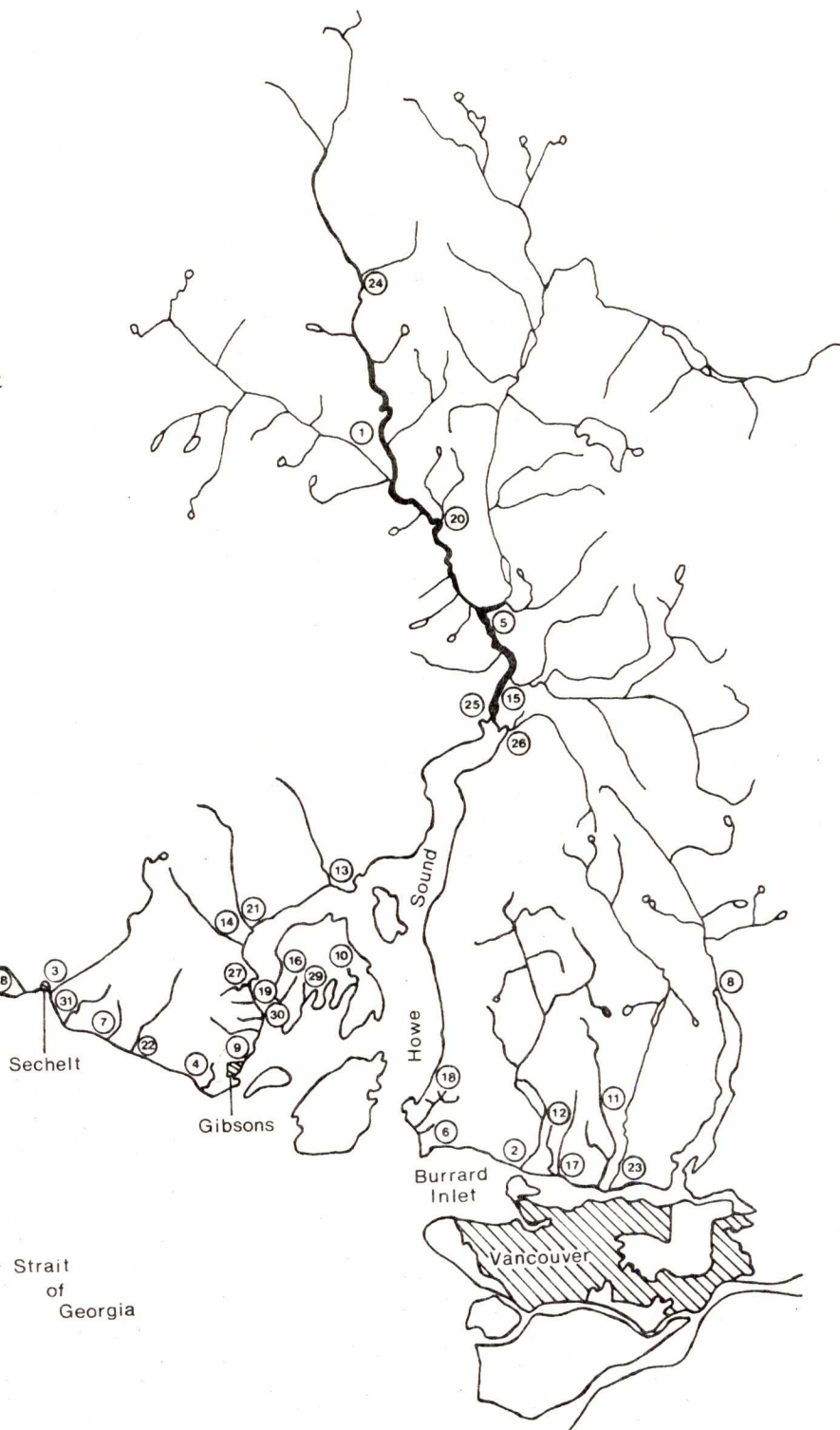
**STATISTICAL AREAS
FISHERIES & MARINE SERVICE
PACIFIC REGION**



SALMON SPAWNING STREAMS
STATISTICAL AREA 28



1. Ashlu Creek
2. Capilano River
3. Chapman Creek
4. Chaster Creek
5. Cheakamus River
6. Eagle Harbour Creek
7. Flume Creek
8. Indian River
9. Langdale Creek
10. Long Bay Creek
11. Lynn Creek
12. McKay Creek
13. McNab Creek
14. McNair Creek
15. Mamquam River
16. Mannion Creek
17. Mosquito Creek
18. Nelson Creek
19. Oulette Creek
20. Pillchuck Creek
21. Rainy River
22. Roberts Creek
23. Seymour River
24. Shovelnose Creek
25. Squamish River
26. Stawamus River
27. Twin Creek
28. Wakefield Creek
29. West Bay Creek
30. Williamson Creek
31. Wilson Creek



ESCAPEMENT RECORD FOR STATISTICAL AREA 28

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	25	15625	11025	62275	519575	
48		15500	93000	102550	25	
49	25	15500	17300	52500	399850	
50		15625	13125	52725	25	
51		15975	97575	98775	304625	
52		15500	103450	240875	150	
53		18900	13245	23250	301725	
54		16700	45700	67150	300	
55	4	15975	31998	30500	192550	
56		15550	8540	14500		
57		19100	51300	78875	237175	
58		18900	25820	87950		
59		17100	6175	158925	157125	
60		15550	17514	30450		
61		19100	50464	23700	452500	
62		18900	12936	54100		
63		9100	14721	44375	932625	
64		7575	57097	39225		
65		35750	18750	13400	110800	
66		18900	15750	26750	75	
67		6900	20425	46650	46975	
68		10600	18025	125650		
69	25	24800	14550	70000	32075	
70	25	31000	37825	132025		
71	25	11279	38325	45945	59325	
72		9488	11940	364570	757	
73	12	14015	30875	277072	173325	
74		9343	146425	155125		
75						
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						
Time						
Start						
Peak						
End						

REMARKS

STANDARDS USED ON STREAM DATA PAGE

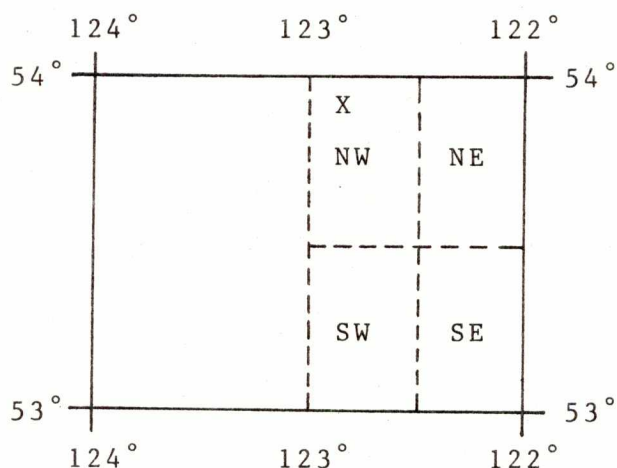
Name of Stream: Name as given in Gazetteer of Canada, British Columbia edition; local names are added in lower case type.

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

Statistical Area: As defined by Department of Fisheries Statistical Map (June 1957).

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 utilized by spawning salmon.

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

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

Composition:

Bedrock	bedrock
Boulder	>256 mm (>10")
Coarse	50.9 - 256 mm (2 - 10")
Fine	3.37 - 50.8 mm (1/8 - 2")
Sand & Silt	<3.37 mm
Unclassified	where bottom cannot be observed, e.g. log jam, pools, water colour, etc.

Gradient: Average vertical drop per thousand linear feet.

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

Spawning Area: Estimated square yardage 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.

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: Distribution is indicated by brief comments opposite the species.

Fisheries Potential of Inaccessible Portion of Stream

General Remarks: Emphasizes features of stream and spawning populations. Also includes industrial activity, routes of accessibility, etc. The comments with dates following them are taken from "Annual Reports of Salmon Stream & Spawning Grounds" (B.C. 16's).

Escapement Record: The escapement represents the mid point of the coded range of escapement for each species. For example: 5000-10000 would be entered as 7500. Where absolute numbers are provided by Fisheries Personnel, these numbers are entered. N/O means no fish were observed; UNK means some fish were seen but no estimates were made.

The timing is in reference to spawning:

- E - early (first 10 days of month)
- M - middle of month
- L - late (last 10 days of month)

MAP REFERENCES

Roads:		Boundary, International -----
hard surface, all weather	more than 2 lanes	" Province -----
hard surface, all weather	2 lanes 18 less than 2	" County or District -----
loose surface, all weather	2 lanes wide or more	" Township or Parish -----
" less than 2 lanes	all weather dry weather	" City or Town -----
Private Road, Trail	Private Road Trail	" Reservation, Indian, Military, etc -----
Railways:		Power Transmission Line -----
normal gauge, multiple track	Station	Telephone or Telegraph, trunk route -----
normal gauge, single track	Stop Siding	Horizontal Control Point -----
abandoned, or under construction		Boundary Marker -----
narrow gauge, single track		Bench Mark -----
Bridge, underpass or overpass		BM + 2475
Tunnel		Spot Elevation, (in feet) -----
		• 5752
		Mine or Pit -----

Road, Hard Surface, All Weather	
" Loose Surface, All Weather	
" Loose Surface, Less than 2 lanes	
" Private (Logging, Mining etc.)	
" Four Wheel Drive	
Trail	
Railway	
Main Telephone Line	
Main Electric Power Line	
Horizontal Control Station	
Contours (Interval 500 feet)	
Elevation in feet above mean sea-level	2584' 6312'
Intermittent Stream	
Swamp or Marsh	
Dam	
Spring	
Navigation Light	
Mine	
Glacier	
Customs Office	

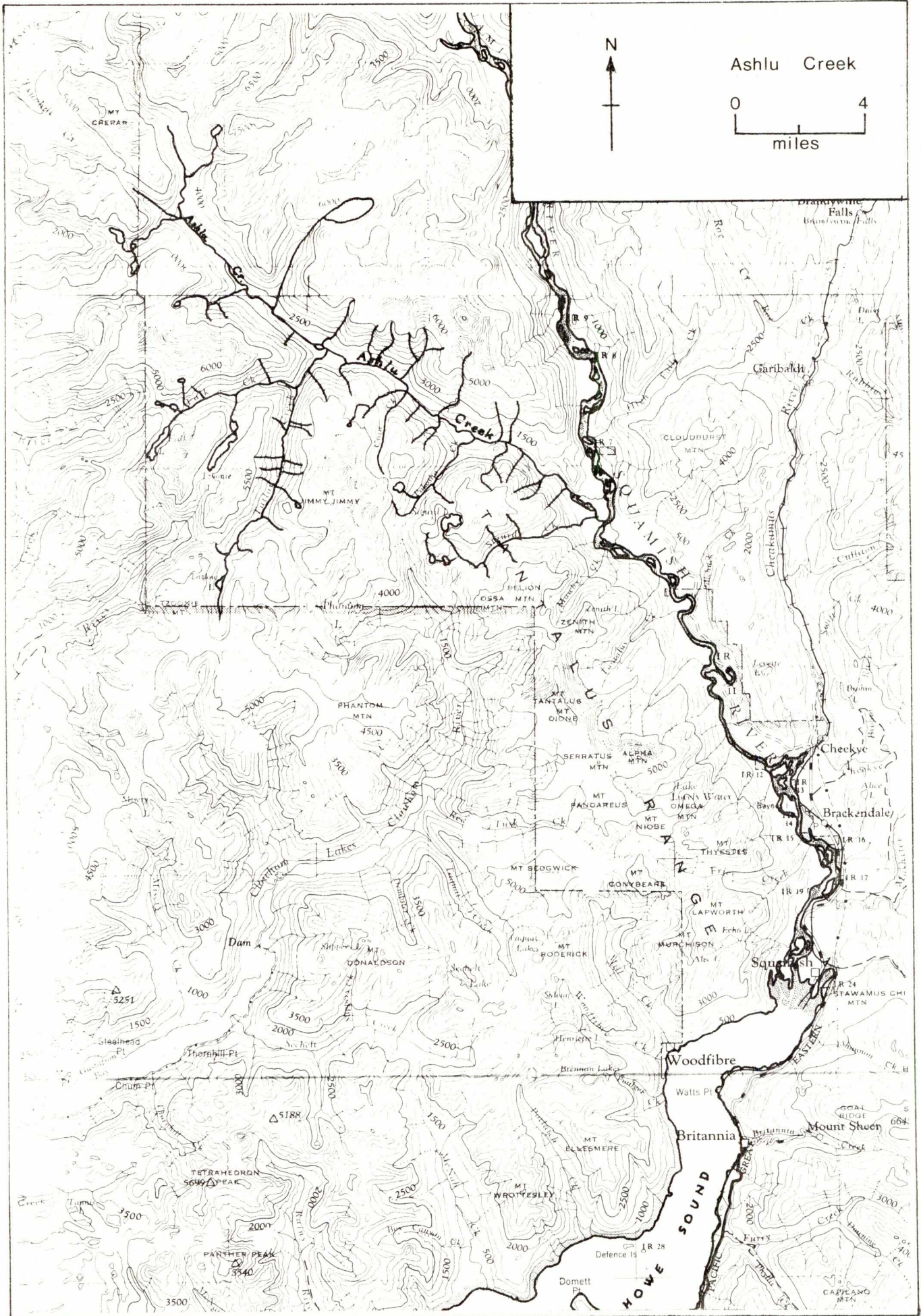
House, Building -----		Lighthouse -----	
School -----		Wharf or Pier -----	
Church -----		Foreshore Flats -----	
" with conspicuous Tower or Spire		Swamp or Marsh -----	
Post Office -----		Lake or Pond, intermittent -----	
Tower, Radio Mast, Lookout, etc.		Glacier or Snowfield -----	
Cemetery -----		Stream, intermittent -----	
Quarry -----		Irrigation Canals, Ditches -----	
Sand or Gravel Pit -----		Inundated Land, seasonal -----	
Cliff -----		Contours, elevation -----	
Cutting -----		" depression -----	
Embankment -----		" approximate -----	
Saw Mill -----		Forest, unclassified -----	

Surveyed timber license number	TL 2841
Lot number	L 124 or S 66
Building	
School	
Non-perennial stream	
Marsh or Swamp	
Glacier	
Foreshore flats	
Contours, elevation	
Contours, depression	
Forest	

City or large town		Post office	P	Boundary monument	
Town		School		Astronomical position	
Village or settlement		Church		Horizontal control point	
Streams:		Intermittent lake		Marsh or swamp	
intermittent or dry		Sand, gravel or mud		Wooded areas	
indefinite		Seaplane base		Seaplane anchorage	
Irrigation canal or ditch					
Rapids, falls					
Aerodrome					
Landing ground					

Streams		Dam	
Highways		Log Jams	
Roads		Log	
Trails		Power Line	
Houses		Coho	
Railroad		Chum	
Falls		Pink	
Rapids		Chinook	
Rip-Rap		Sockeye	
Bridges			

STREAM DATA
STATISTICAL AREA 28



NAME OF STREAM ASHLU CREEK
 CONSERVATION DISTRICT 2 STATISTICAL AREA 28
 LOCATION OF MOUTH Flows S.E. into Squamish R., N. of mouth of Cheakamus R. - New Westminster Dist. POSITION 49 123 N.E.
 LENGTH 3.0 MI. WIDTH FT. DRAINAGE SQ. MI.
 COMPOSITION: BEDROCK BOULDER COARSE FINE
 SILT & SAND UNCLASSIFIED

GRADIENT:

FALL IN FT/000	
0.0 - 2.5	
2.5 - 5.0	
5.0 - 7.5	
7.5 - 10.0	
> 10.0	

WETTED AREA SQ. YD. SPAWNING AREA SQ. YD.

DISCHARGE CFS MAX MIN

TEMPERATURE

BARRIERS OR POINTS OF DIFFICULT ASCENT

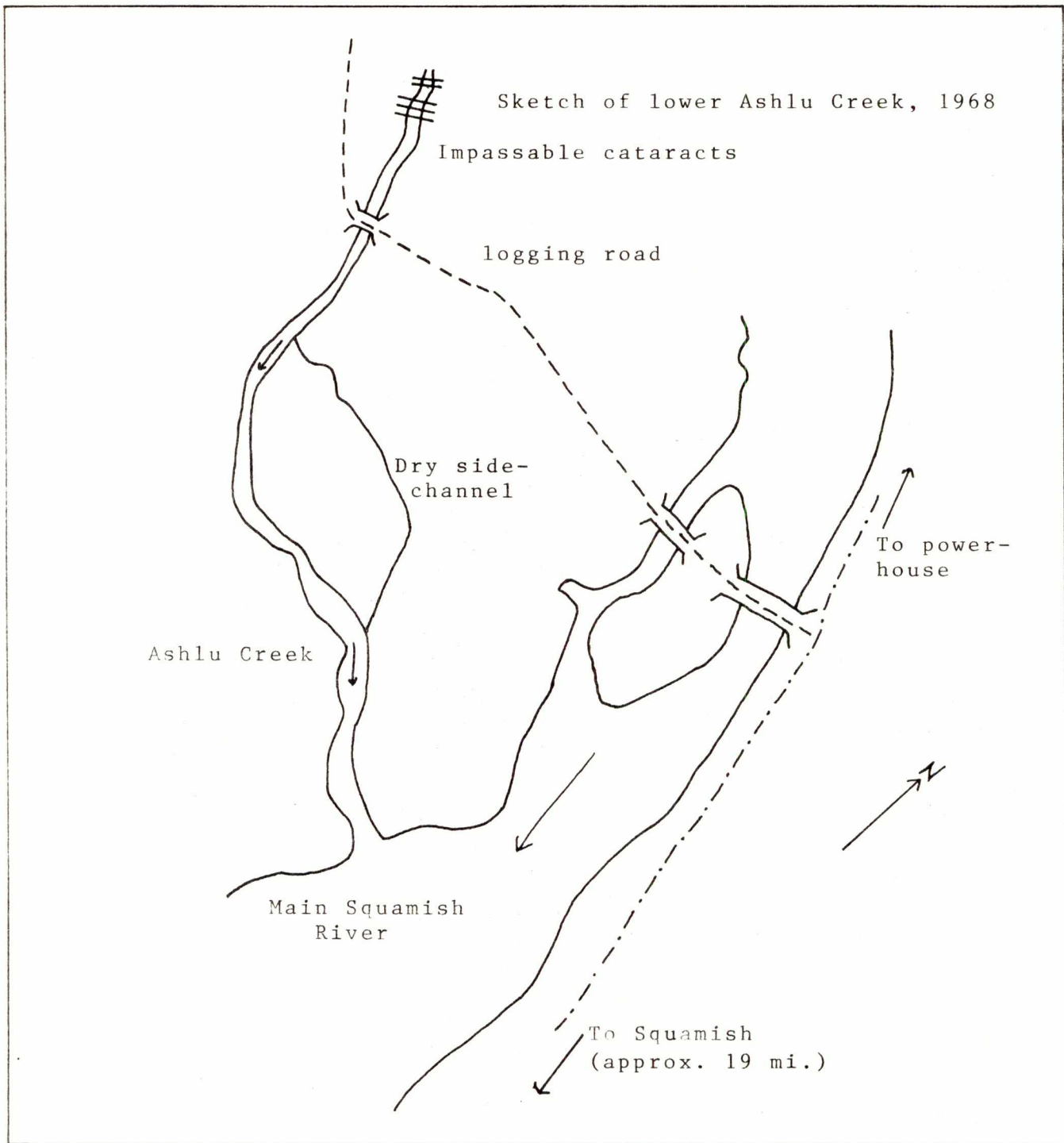
SPAWNING DISTRIBUTION:

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

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS:

- The watershed of this stream has been almost completely denuded by logging over the last 30 years. Consequently, the stream is subject to rapid rise and fall in water levels. (1973)
- In 1973, flooding caused severe bank erosion on the south shore and extensive silting in the lower spawning area of the river. Approx. 25% of the streambed was affected by silting. The stream also shifted 100 yds. to the south. Extensive scouring also affected approx. 25 - 35% of the pink and chinook spawning area.
- Steelhead, coho and chinook are subject to heavy sport fishing. (1973)
- This stream is subject to heavy debris buildups, especially along the bars. (1972)



ESCAPEMENT RECORD FOR ASHLU CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947		25	200	75	1500	200
48		25	400	750	N/O	200
49		25	25	400	1500	75
50		25	200	400		75
51		25	200	75	1500	200
52		25	1500	3500		400
53		200	400	400	1500	75
54		200	75	400		200
55		25	750	75	750	75
56		75	200	200		75
57		200	75	750	750	200
58		200	750	400		75
59		400	75	400	3500	75
60		75	200	75		200
61		200	UNK	750	2500	UNK
62		200	750	75		75
63		400	200	400	7000	50
64		100	700	400		100
65		1500	700	400	7000	75
66		200	200	100		50
67		200	200	400	3500	100
68		200	2000	700		100
69		2000	300	700	2000	50
70		1500	1500	400	N/O	150
71		300	700	400	5000	400
72		700	400	1500	N/O	400
73		600	600	7500	5500	150
74		750	3500	8000		1200
75						
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						
Time						
Start						
Peak						
End						

REMARKS



NAME OF STREAM CAPILANO RIVER
 CONSERVATION DISTRICT 2 STATISTICAL AREA 28
 LOCATION OF MOUTH Flows S. into First Narrows, Burrard Inlet - New
Westminster Dist. POSITION 49 123 S.E.
 LENGTH _____ MI. WIDTH _____ FT. DRAINAGE 68.0 SQ. MI.
 COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____
 SILT & SAND _____ UNCLASSIFIED _____

GRADIENT:
 FALL IN FT/000

0.0 - 2.5	
2.5 - 5.0	
5.0 - 7.5	
7.5 - 10.0	
> 10.0	

WETTED AREA _____ SQ. YD. SPAWNING AREA _____ SQ. YD.
 DISCHARGE 1768 CFS MAX 16900 cfs 28/10/21 MIN 25.0 cfs 27-29/08/28
 TEMPERATURE _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____
 - Impassable dam at 3.5 mi. Some fish are trucked around it.

SPAWNING DISTRIBUTION:

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	to hatchery
COHO	to hatchery, some trucked above the dam
CHUM	lower reaches & Brothers Creek confluence
PINK (ODD YR)	lower reaches
PINK (EVEN YR)	
STEELHEAD	to hatchery, some trucked above the dam

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS:
 - This stream is connected with the water supply system of greater Vancouver. In 1954, the construction of Cleveland Dam and the adjoining reservoir was completed. This impassable dam was overcome by constructing a fishway and facilities for trucking salmon above the dam. This equipment is still in operation. (1974)
 - The Capilano Hatchery was completed in 1972. This hatchery was constructed as part of a program to increase stocks of coho and chinook salmon and steelhead trout. Its yearly designed operating capacity is 1,000,000 coho smolts, 325,000 chinook smolts and 65,000 steelhead smolts.

GENERAL REMARKS: (Cont'd)

- Molestation of fish by the public is a problem. (1973)

References:

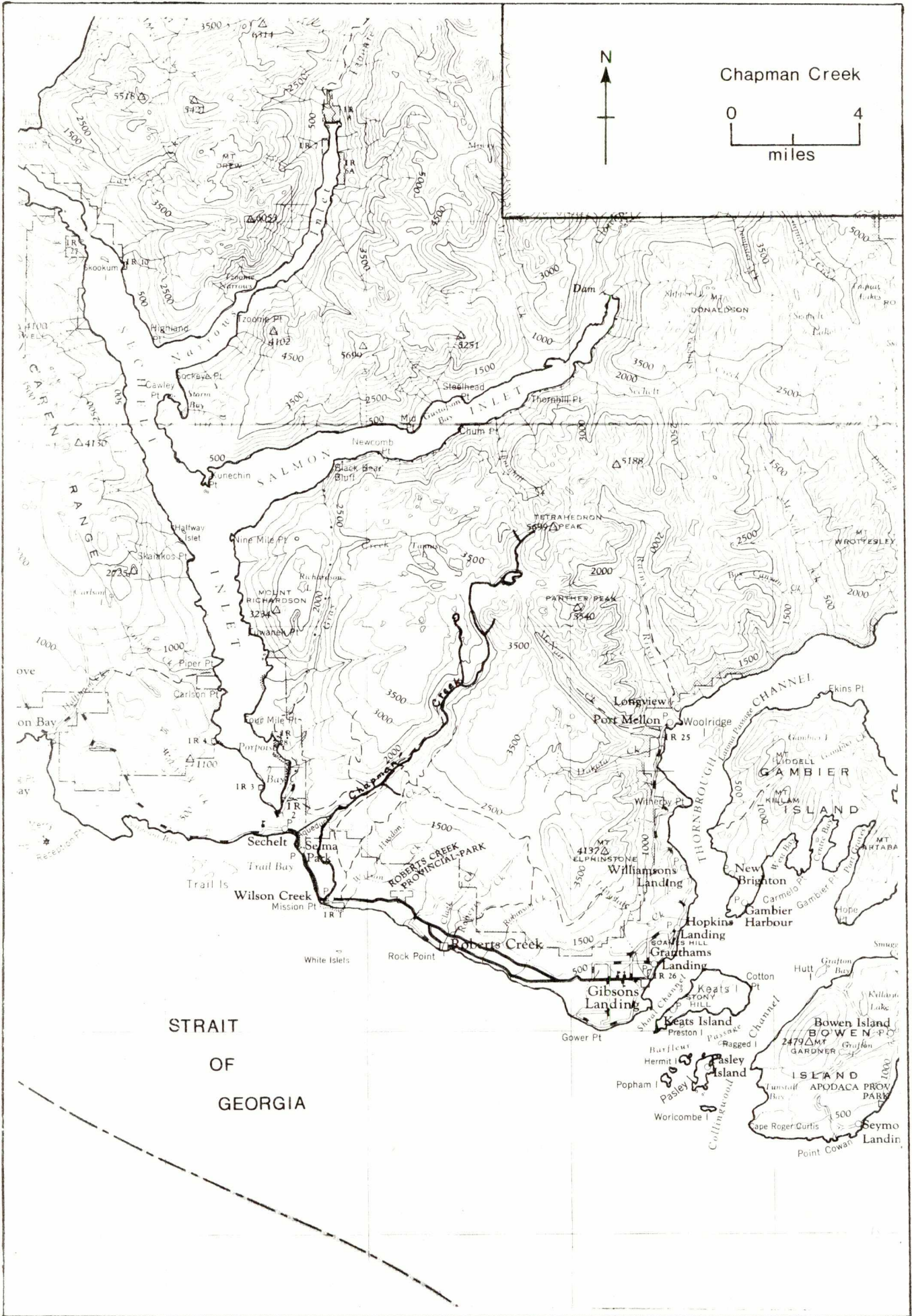
- Anon. 1971-1974. Capilano Salmon Hatchery (statistics; egg & incubation records; fry & fingerling rearing; adult trapping & trucking; other activities involving hatchery staff). D.O.E., F.M.S., Pac. Reg. Memo. 31-1-C1.
- Howard Paish & Assoc. 1973. Recreation Development & Management of the Capilano River. Prepared for: D.O.E., F.M.S. Pac. Reg. 52p & Appendix.
- Anon. 1973. Report on "Short Term" Bank Protection Works for the Threatened Areas on the Capilano River. D.O.E., Inland Water Dir., Water Plan & Man. Br.. Pac. Reg. Memo. 31-1-C1. 3p & Appendix.
- Fraser, F.J. 1973. Operational Costs & Salmon Production Data for Quinsam & Capilano Hatcheries. D.O.E., F.M.S., Pac. Reg. Memo. 31-1-C1. 3p.

ESCAPEMENT RECORD FOR CAPILANO RIVER

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947			3500	3500	7500	750
48			7500	1500	N/O	750
49			3500	1500	3500	750
50			3500	1500	N/O	1500
51			3500	3500	750	750
52			7500	1500	25	1500
53			3500	750	1500	750
54			3500	3500	75	1500
55	4		4998	400	400	95
56			1840	25		65
57			5100	200	75	95
58			3745	400	N/O	75
59			NO	RECORD		
60			3614	25		251
61			2114	25	25	86
62			2636	25		97
63			2071	75	100	97
64			2622	25		161
65			750	25	25	25
66			3500	25		75
67			1500	25		200
68			1500	200	N/O	25
69			1500	200	25	75
70			3500	75	N/O	75
71		44	4000	75	25	200
72		38	1200	700	7	34
73		165	1100	1100	150	39
74		93	40200	1500		21
75		767	6391			
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						
Time						
Start						
Peak						
End						

REMARKS

- Chinook salmon are not native to this system. Chinook produced at Capilano Hatchery originate from Big Qualicum River (Vancouver Island) brood stock. Development to full production level will take several years.



STRAIT
OF
GEORGIA

Chapman Creek
0 4
miles

NAME OF STREAM CHAPMAN CREEK

CONSERVATION DISTRICT 2 STATISTICAL AREA 28

LOCATION OF MOUTH Flows S.W. into Str. of Georgia at Wilson Cr. P.O. -

New Westminster Dist. POSITION 49 123 S.W.

LENGTH 3 MI. WIDTH _____ FT. DRAINAGE _____ SQ. MI.

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____

SILT & SAND _____ UNCLASSIFIED _____

GRADIENT:

FALL IN FT/000

0.0 - 2.5	
2.5 - 5.0	
5.0 - 7.5	
7.5 - 10.0	
> 10.0	

WETTED AREA _____ SQ. YD. SPAWNING AREA _____ SQ. YD.

DISCHARGE _____ CFS MAX _____ MIN _____

TEMPERATURE _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

- Impassable falls at 3 mi.

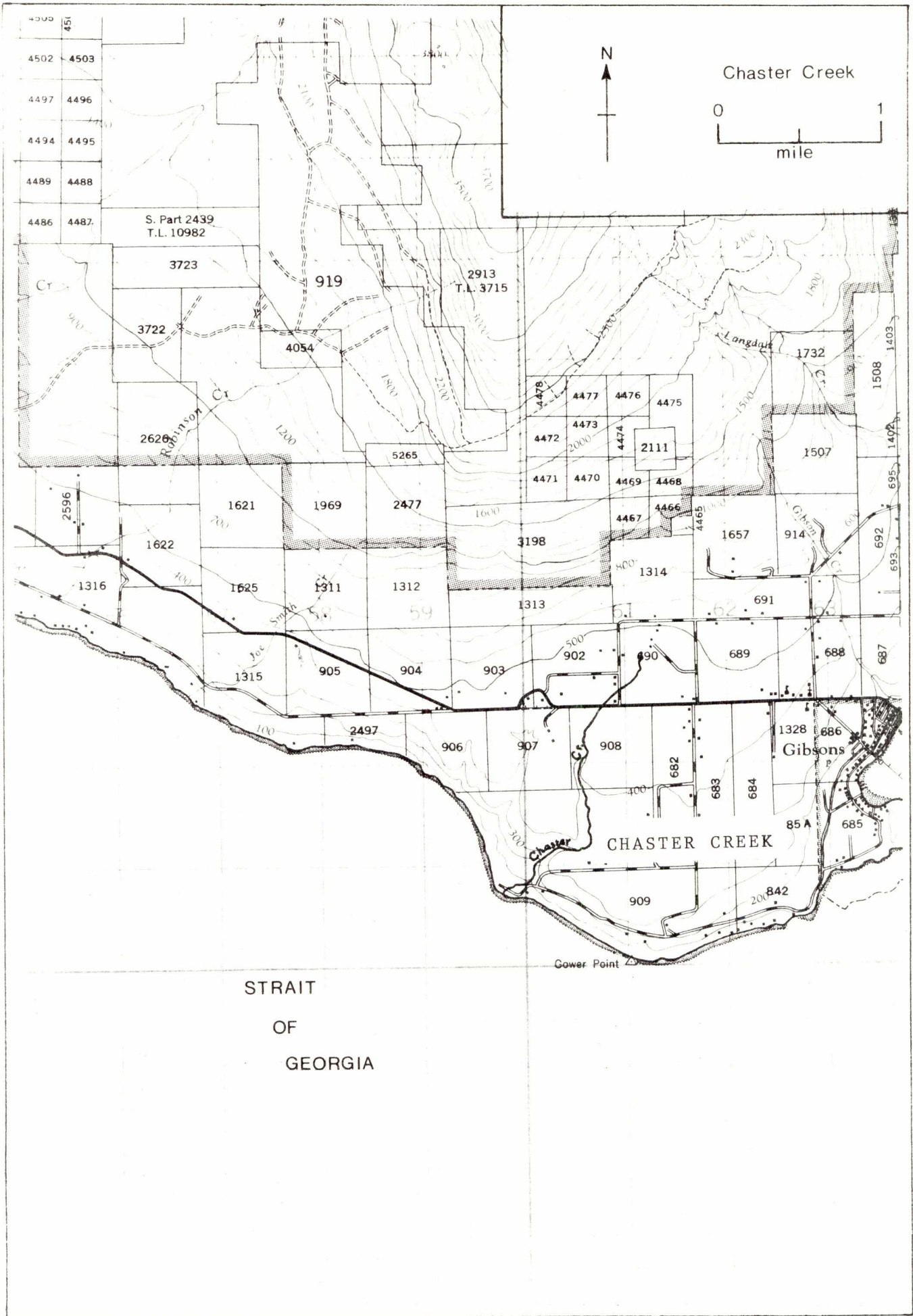
SPAWNING DISTRIBUTION:

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

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS:

- This stream is the main water source for the Sunshine Coast Regional Water Board. Consumption of this water began in 1970 and will probably increase rapidly in the near future. (1969-70)
- The local water district constructed a small dam near the falls. (1970)
- Molestation of fish is a problem. (1952)
- Heavy rains in July/72 washed out most of the steelhead spawning site. Up to 50% of the chum spawn was lost during Dec./72 because of a severe freshet.



STRAIT
OF
GEORGIA

CHASTER CREEK

Chaster Creek



NAME OF STREAM CHASTER CREEK

CONSERVATION DISTRICT 2 STATISTICAL AREA 28

LOCATION OF MOUTH Flows S.W. into Str. of Georgia, N.W. of Gower Pt. -
New Westminster Dist. POSITION 49 123 S.W.

LENGTH 1.5 MI. WIDTH _____ FT. DRAINAGE _____ SQ. MI.

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____
SILT & SAND _____ UNCLASSIFIED _____

GRADIENT:

FALL IN FT/000

0.0 - 2.5
2.5 - 5.0
5.0 - 7.5
7.5 - 10.0
> 10.0

WETTED AREA _____ SQ. YD. SPAWNING AREA _____ SQ. YD.

DISCHARGE _____ CFS MAX _____ MIN _____

TEMPERATURE _____

BARRIERS OR POINTS OF DIFFICULT ASCENT

- Passable falls from 1.5 - 2 mi. where stream bed narrows and becomes
quite steep.

SPAWNING DISTRIBUTION:

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	
CHUM	evenly throughout first mi.
PINK (ODD YR)	
PINK (EVEN YR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

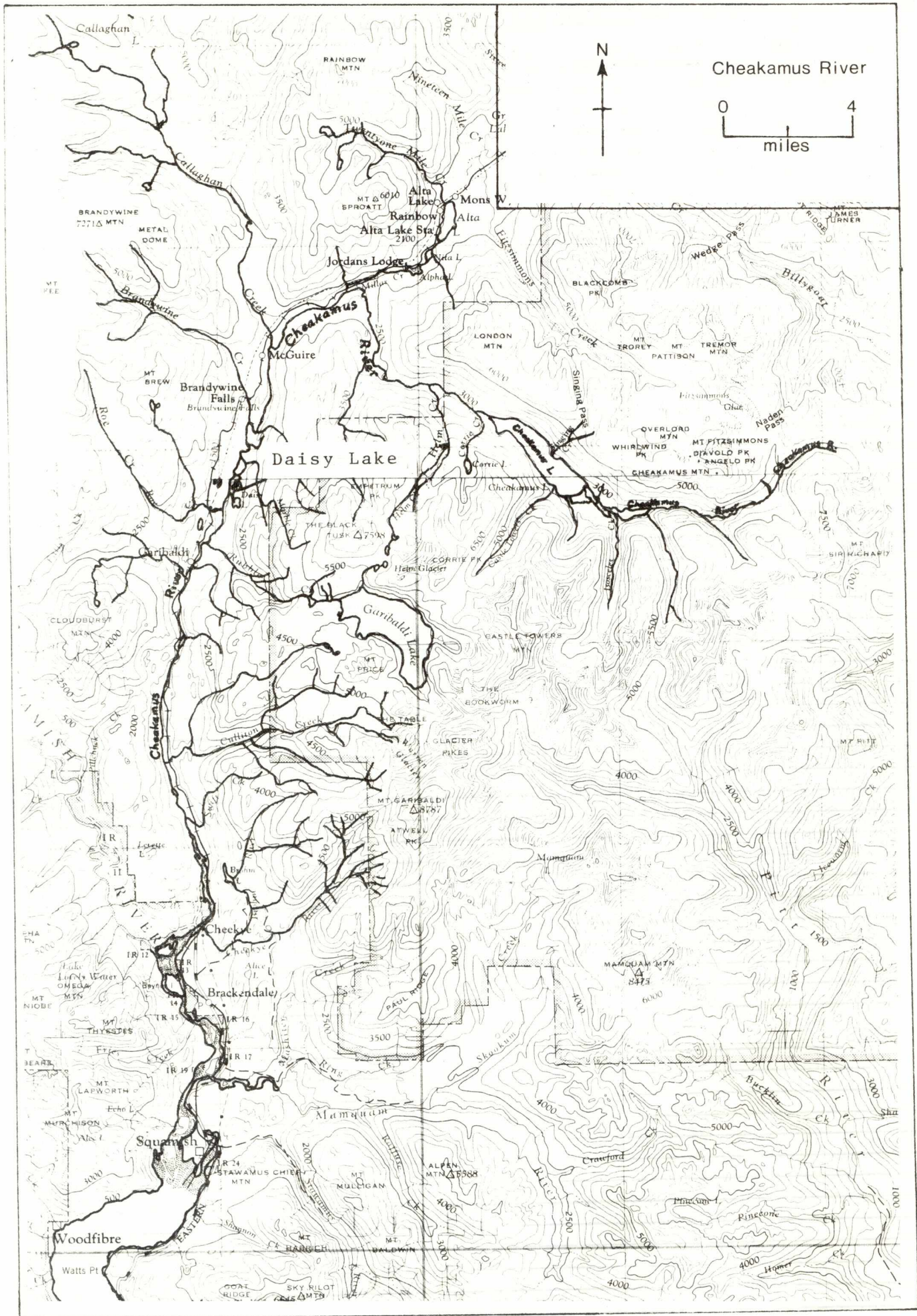
GENERAL REMARKS:

- This stream has good spawning areas scattered throughout the lower 1.5 mi. and probably has spawning capacity for 1500 chums. (1972)
- Heavy rains in Dec. 1972 affected 70% of the stream bed. These rains caused extensive bank erosion, scouring and heavy siltation in the lower spawning areas. An estimated 60-80% of the spawn was lost.

ESCAPEMENT RECORD FOR CHASTER CREEK

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947				400		
48				400		
49				750		
50				NO RECORDS		
51				NO RECORDS		
52				200		
53						
54				NO RECORDS FOR 1953 - 1969		
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70				200		
71				25		
72				75		
73				NO RECORDS		
74				75		
75						
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85						
Time						
Start						
Peak						
End						

REMARKS



NAME OF STREAM CHEAKAMUS RIVER

CONSERVATION DISTRICT 2 STATISTICAL AREA 28

LOCATION OF MOUTH Flows S. and S.W. into Squamish R. - New Westminster
Dist. _____ POSITION 49 123 N.E.

LENGTH 8-9 MI. WIDTH _____ FT. DRAINAGE 413 SQ. MI.

COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____
SILT & SAND _____ UNCLASSIFIED _____

GRADIENT:

FALL IN FT/000	
0.0 - 2.5	
2.5 - 5.0	
5.0 - 7.5	
7.5 - 10.0	
> 10.0	

WETTED AREA _____ SQ. YD. SPAWNING AREA _____ SQ. YD.

DISCHARGE * 1219 CFS MAX 30400 cfs 21/10/63 MIN 170 cfs 07/09/58

TEMPERATURE _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

- Impassable falls at 8 or 9 mi.

SPAWNING DISTRIBUTION:

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	main spawning at 2-7 mi.
CHUM	
PINK (ODD YR)	
PINK (EVEN YR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS:

- Cheakamus Lake elevation is 2724 ft. Peak run-off occurs between May and Aug. Since 1957, flows have been affected by storage and diversion from Daisy Lake via a penstock discharging through a powerhouse into the Squamish R.

- This stream is continually being encroached upon by stream-side land development, i.e. dyking, channelizing, diversions, etc.

- This stream is subject to an extremely heavy sports fishery for steelhead, dolly varden char, chinook and coho. Migrating fish are also subjected to an Indian net fishery on the Squamish R. before they enter the Cheakamus R.

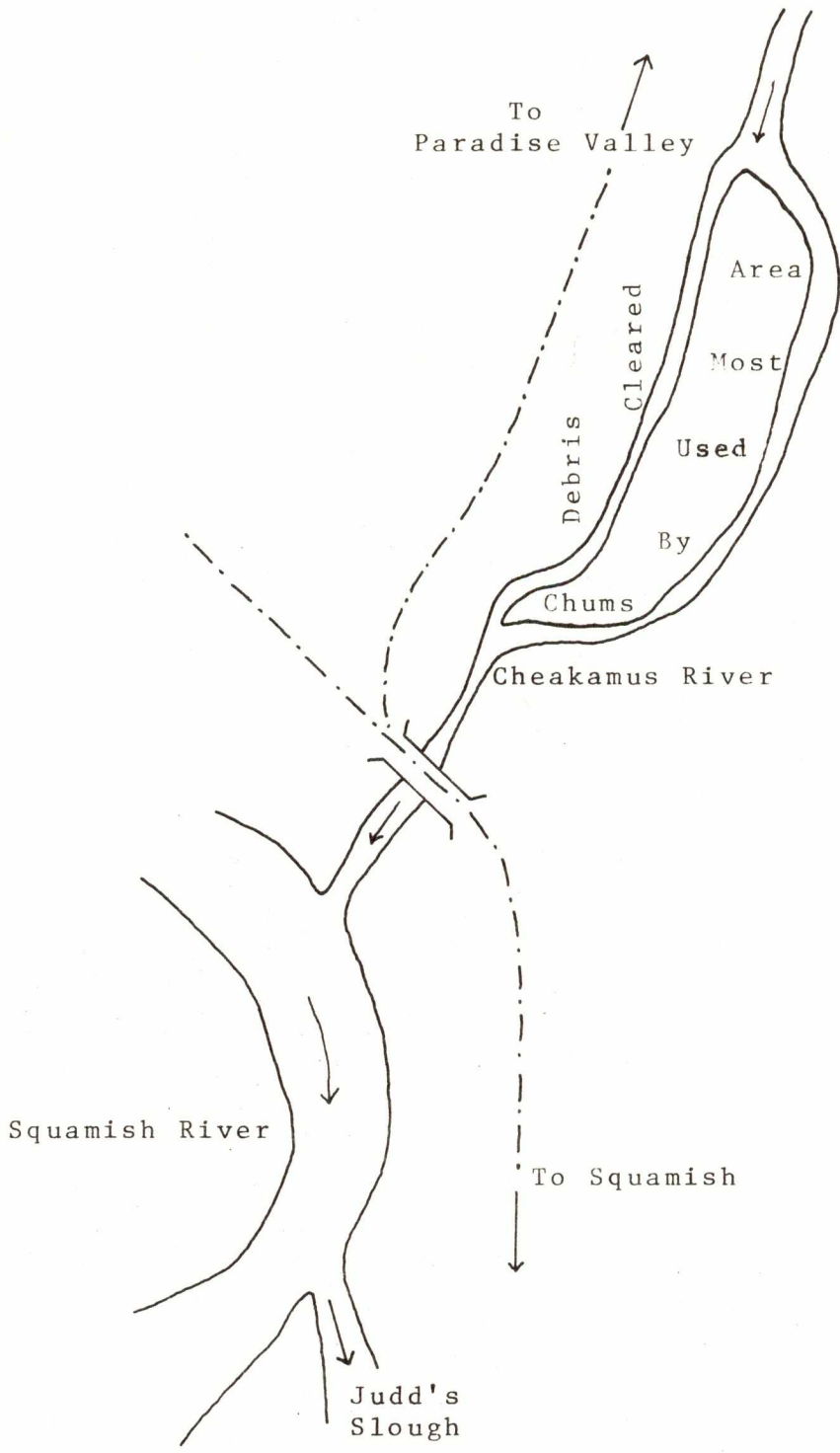
GENERAL REMARKS: (Cont'd)

- The major tributaries are: Callaghan Cr., Brandywine Cr., Rubble Cr., Culliton Cr. and Cheekeye R.
- Tenderfoot Cr., a .75 mi. long spring fed stream supports coho and steelhead. Cheekeye R. supports runs of steelhead.
- * Flow affected by storage and diversion to Squamish R. since Sept. 1957.

References:

- Robinson, Roberts & Brown Ltd. (Brown, W.L.). 1972. Groundwater Development. Proposed Cheakamus River Hatchery Site. Prepared for: D.O.E. Fisheries Service, Pac. Reg.
- Underwood McLellan & Assoc. Ltd. Site Evaluation and Selection for a Fish Hatchery and Rearing Station on the Cheakamus River. Prepared for: D.O.E., F.M.S., Pac. Reg.
- Dietz, K. 1966. Cheakamus River Downstream Program. 1966. Dept. of Fisheries, Pac. Reg. Memo. 31-1-C37. 4p.
- Hollett, E.L. 1965. Cheakamus River Pink Salmon Escapement. Dept. of Fisheries, Pac. Reg. Memo. 31-1-C37. 2p.
- Dept. of Fisheries. 1954. Cheakamus River Report. Dept. of Fisheries, Pac. Reg. Memo. (preliminary biological program). 31-1-C37. 5p.
- Marshall, D.E. 1963. Cheakamus River Adult Chum Salmon Enumeration Program. Dept. of Fisheries, Pac. Reg. Memo. 31-1-C37. 3p.
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- Hollett, E.L. 1962. Cheakamus - Squamish Chum Escapements. 1962. Dept. of Fisheries, Pac. Reg. Memo. 31-1-C37. 2p.
- Hollett, E.L. 1962. Cheakamus River Downstream Survey. Dept. of Fisheries, Pac. Reg. Memo. 31-1-C37. 1p.
- Hollett, E.L. 1961. Cheakamus River Chum Salmon Escapement. 1961. Dept. of Fisheries, Pac. Reg. Memo. 31-1-C37. 2p.

Sketch of Chum Spawning Area on Cheakamus River, 1968





Eagle Harbour Creek



VANCOUVER

HARBOUR

NAME OF STREAM _____ (Eagle Harbour Creek)
 CONSERVATION DISTRICT 2 STATISTICAL AREA 28
 LOCATION OF MOUTH Flows S.E. into Queen Charlotte Chan., Burrard Inlet,
N. of Pt. Atkinson - New Westminster Dist. POSITION 49 123 SE
 LENGTH 0.5 MI. WIDTH _____ FT. DRAINAGE _____ SQ. MI.
 COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____
 SILT & SAND _____ UNCLASSIFIED _____

GRADIENT:

FALL IN FT/000

0.0 - 2.5	
2.5 - 5.0	
5.0 - 7.5	
7.5 - 10.0	
> 10.0	

WETTED AREA _____ SQ. YD. SPAWNING AREA _____ SQ. YD.

DISCHARGE _____ CFS MAX _____ MIN _____

TEMPERATURE _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____

- Culvert at mouth of stream is impassable during low water levels.
- Impassable falls at 0.5 mi.

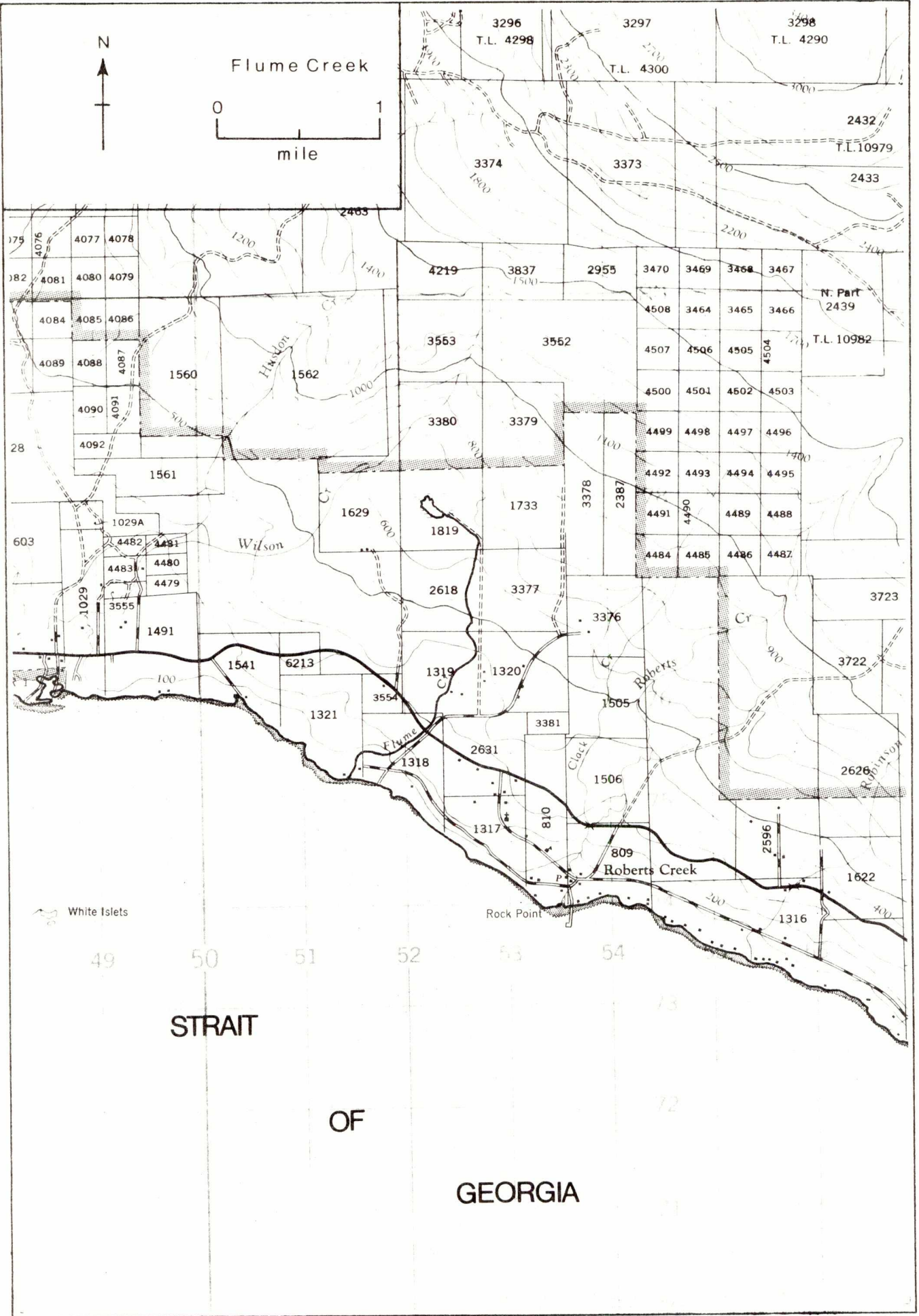
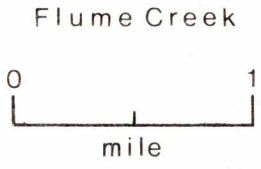
SPAWNING DISTRIBUTION:

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

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS:

- This small stream is located in the middle of a residential area in North Vancouver. Fish molestation is a problem as the stream flows through many back yards. (1971)
- Chum spawn in the tidal flat at the mouth during years when the culvert is impassable.



49

50

51

52

53

54

STRAIT

OF

GEORGIA

NAME OF STREAM FLUME CREEK

CONSERVATION DISTRICT 2 STATISTICAL AREA 28

LOCATION OF MOUTH Flows S.W. into Str. of Georgia, W. of Roberts Cr.

P.O. - New Westminster Dist. POSITION 49 123 S.W.

LENGTH 1 MI. WIDTH FT. DRAINAGE SQ. MI.

COMPOSITION: BEDROCK BOULDER COARSE FINE

SILT & SAND UNCLASSIFIED

GRADIENT:

FALL IN FT/000

0.0 - 2.5	
2.5 - 5.0	
5.0 - 7.5	
7.5 - 10.0	
> 10.0	

WETTED AREA SQ. YD. SPAWNING AREA SQ. YD.

DISCHARGE CFS MAX MIN

TEMPERATURE

BARRIERS OR POINTS OF DIFFICULT ASCENT

- Impassable falls at 1 mi.

SPAWNING DISTRIBUTION:

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	
CHUM	evenly in lower reaches
PINK (ODD YR)	
PINK (EVEN YR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS:

- This creek was cleared for the first 200 yds. with bulldozer and power saw to remove a log and gravel accumulation located at the mouth in 1966.

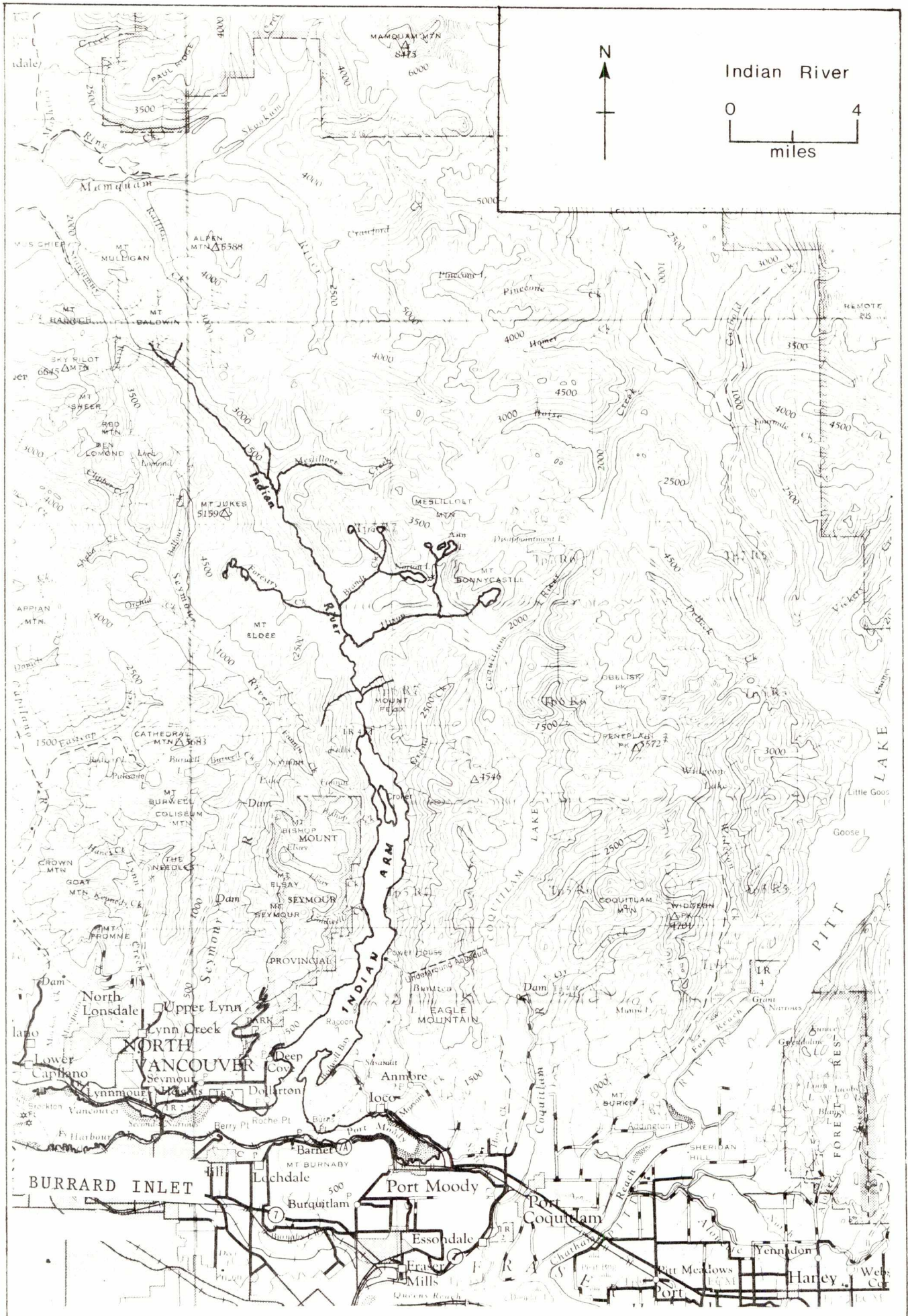
- This stream has been hard hit by sub-division development and road construction. However, cover is coming back and the fish habitat is improving. (1972)

ESCAPEMENT RECORD FOR FLUME CREEK

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

NO RECORDS PRIOR TO 1972

REMARKS



NAME OF STREAM INDIAN RIVER (Burrard River)
 CONSERVATION DISTRICT 2 STATISTICAL AREA 28
 LOCATION OF MOUTH Flows S. into Indian Arm - New Westminster Dist.
 POSITION 49 122 S.W.
 LENGTH 6 MI. WIDTH _____ FT. DRAINAGE 65.0 SQ. MI.
 COMPOSITION: BEDROCK _____ BOULDER _____ COARSE _____ FINE _____
 SILT & SAND _____ UNCLASSIFIED _____

GRADIENT:

FALL IN FT/000

0.0 - 2.5	
2.5 - 5.0	
5.0 - 7.5	
7.5 - 10.0	
> 10.0	

WETTED AREA _____ SQ. YD. SPAWNING AREA _____ SQ. YD.
 DISCHARGE _____ CFS MAX _____ MIN _____
 TEMPERATURE _____

BARRIERS OR POINTS OF DIFFICULT ASCENT _____
 - Impassable falls at 6 mi.

SPAWNING DISTRIBUTION:

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	
CHUM	up to 4 mi. with heavy concentrations in some sloughs
PINK (ODD YR)	up to 3.5 mi.
PINK (EVEN YR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM _____

GENERAL REMARKS:

- Water temperatures: 6°C 11/04/51; 6°C 25/04/51; 8°C 09/05/51; 6°C 23/05/51; 10°C 16/08/51; 11°C 12/09/51; 10°C 04/10/51.
- Extreme fluctuations in water levels.
- The Canadian Collieries Resources Ltd. started logging and shake manufacturing at the river mouth in 1960. In 1959, they constructed a logging road up the right bank of the river to the falls.
- In 1961, the Dept. erected a counting weir and holding facilities at 1 mile. Pink salmon eggs were collected for transplant purposes.
- Most of the egg taking facilities installed by the R.D. Branch were

GENERAL REMARKS: (Cont'd)

- removed from the lower portion of the river by Weldwood of Canada (formerly Canadian Collieries Resources Ltd.) at the Departments request. (1973)
- When B.C. Hydro cleared their transmission line right of way in 1968, they left areas in the bottom of the valley subject to breakthrough and change in stream course. In 1972, flood water cut through the B.C. Hydro right of way and the existing channel was cut off. The stream course changed to a channel which was cut in 1968. The length of the changed portion of the stream is approx. 2.5 mi.
 - In 1972, valley groundwater sources were checked as to their suitability for hatchery use (Memo, 31-1-12). It was concluded that the quality and quantity was suitable for this purpose.
 - In 1966, a transplant of chinook fry from the Qualicum River was undertaken in an effort to establish a run of this species. Results were negative.

References:

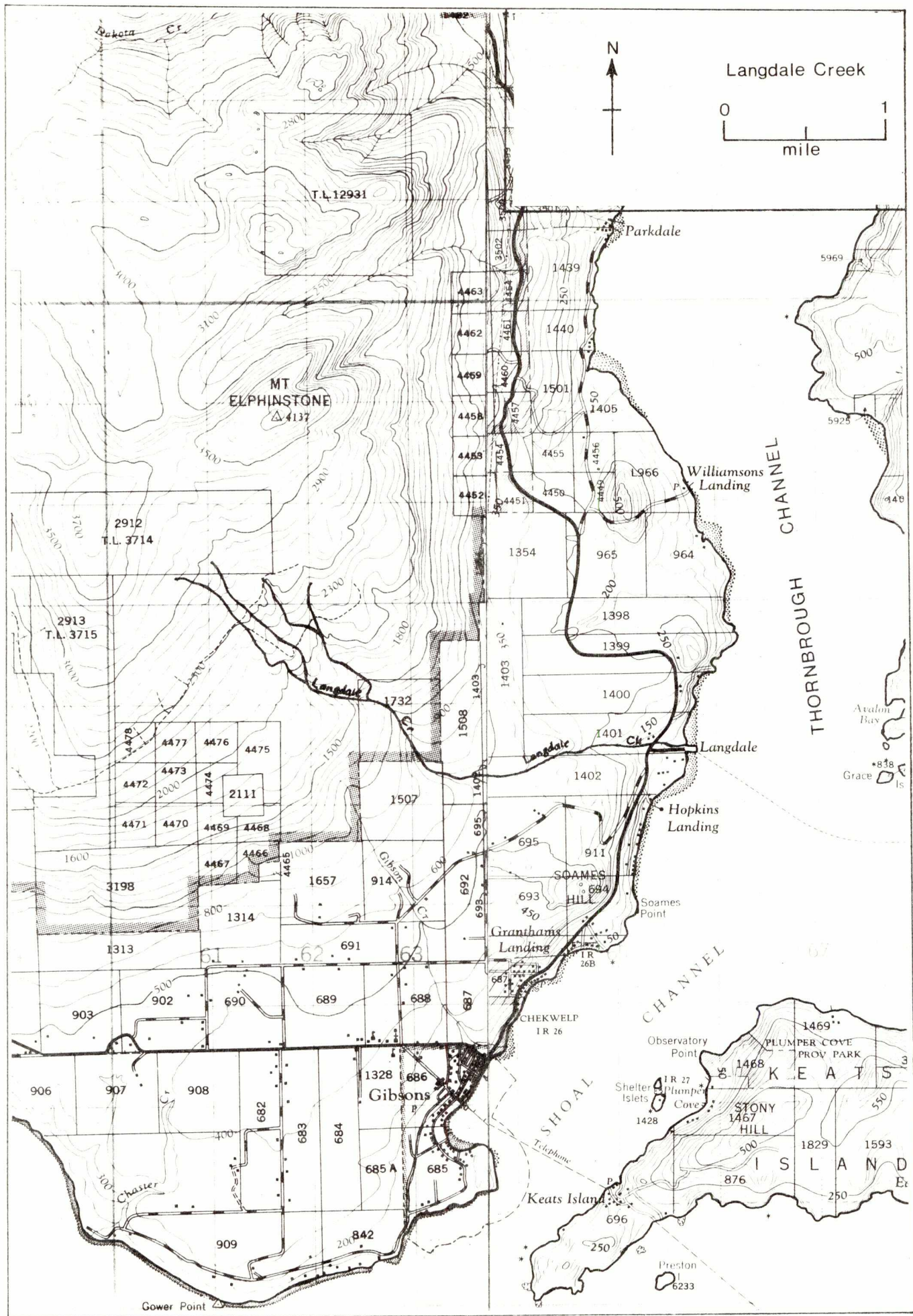
- Brown, W.L. 1972. Groundwater Development Indian River Proposed Hatchery Site. D.O.E., Fisheries Service, Pac. Reg. Memo. 31-1-12. 15p.
- Lister, D.B. 1968. An Experimental Transplant of Chinook Salmon to Indian River, Burrard Inlet, British Columbia. 1968. Memo. 31-1-12.
- Underwood McLellan & Assoc. Ltd. 1972. Site Evaluation and Selection for a Fish Hatchery and Rearing Station on the Indian River. Prepared for: D.O.E., Fisheries Service, Pac. Reg. 120p & Appendix.

ESCAPEMENT RECORD FOR INDIAN RIVER (Burrard River)

YEAR	SOCKEYE	CHINOOK	COHO	CHUM	PINK	STEELHEAD
1947	25		750	15000	75000	75
48			1500	15000	N/O	75
49	25		1500	3500	100000+	75
50			1500	3500	N/O	400
51			3500	35000	75000	750
52			3500	35000	75	400
53			1500	1500	100000+	400
54			1500	35000	200	400
55			3500	3500	75000	400
56			1500	1500		400
57			1500	3500	125000	400
58			750	15000	N/O	200
59			NO RECORDS			
60			1500	4000		400
61			3500	2500	67800	200
62			400	3500		400
63			1500	3000	200000	400
64			3500	5000		200
65			400	3500	35000	400
66			1500	3500	75	200
67			1500	3500	7500	200
68			750	15000	N/O	400
69	25		400	15000	7500	200
70	25		750	15000	N/O	200
71	25		750	7500	35000	200
72	N/O		400	35000	N/O	200
73	N/O		750	35000	35000	200
74	N/O		750	7500	N/O	200
75						
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						
Time						
Start						
Peak						
End						

REMARKS

Pink migration timing, 1951: 10% by Aug. 25, 25% by Aug. 28, 75% by Sept. 2, 90% by Sept. 3. Peak spawning period: Sept. 20 - Oct. 1.



NAME OF STREAM LANGDALE CREEK
 CONSERVATION DISTRICT 2 STATISTICAL AREA 28
 LOCATION OF MOUTH Flows E. into Thornbrough Channel, N. of Hopkins
 Landing - New Westminster Dist. POSITION 49 123 S.E.
 LENGTH 1.0 MI. WIDTH FT. DRAINAGE SQ. MI.
 COMPOSITION: BEDROCK BOULDER COARSE FINE
 SILT & SAND UNCLASSIFIED

GRADIENT:

FALL IN FT/000

0.0 - 2.5

2.5 - 5.0

5.0 - 7.5

7.5 - 10.0

> 10.0

WETTED AREA SQ. YD. SPAWNING AREA SQ. YD.DISCHARGE CFS MAX MIN TEMPERATURE BARRIERS OR POINTS OF DIFFICULT ASCENT - Impassable falls at 1 mi.- Culvert at .75 mi. is passable at suitable water levels.

SPAWNING DISTRIBUTION:

SPECIES	SECTION OF STREAM USED
SOCKEYE	
CHINOOK	
COHO	coho fry observed above culvert during inspection, Oct./74
CHUM	evenly distributed below culvert
PINK (ODD YR)	
PINK (EVEN YR)	
STEELHEAD	

POTENTIAL OF INACCESSIBLE PORTION OF STREAM

GENERAL REMARKS:

- Heavy rains in Dec. 1972 caused silting and erosion which affected 20% of the stream and scouring which affected the entire spawning area. Consequently, 60-70% of the spawn was lost.
- A second growth is becoming well established on the watershed. This should help to stabilize the stream. (1971)
- Fish molestation by juveniles is a problem. (1971)

References:

Eddy, W.S. & D.E. Marshall. 1974. Inspection of Langdale Creek. D.O.E., F.M.S., Pac. Reg. Memo. 31-1-L11. 8p.