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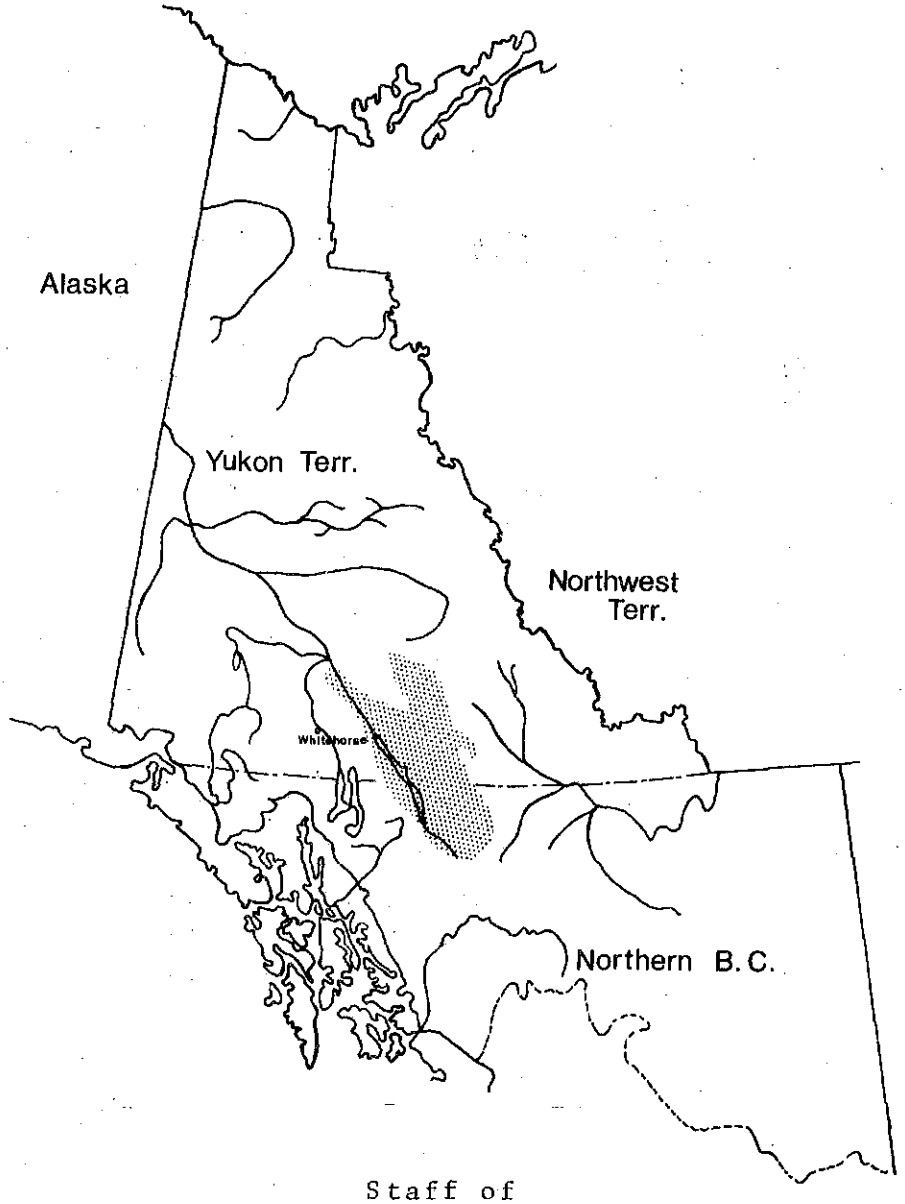
Catalogue of Fish and Stream Resources of the Teslin Watershed

Staff of Northern British Columbia and Yukon Division

PAC/T-73-13

Northern Operations Branch
Pacific Region

CATALOGUE OF FISH AND STREAM RESOURCES OF THE TESLIN WATERSHED



Staff of
Northern British Columbia and Yukon Division

DEPARTMENT OF ENVIRONMENT
FISHERIES AND MARINE SERVICE
PACIFIC REGION
VANCOUVER
1973

Teslin Lake

Highway bridge crossing Teslin R. at Johnsons Crossing, Mile 836.3 of the Alaska Highway.

F O R E W O R D

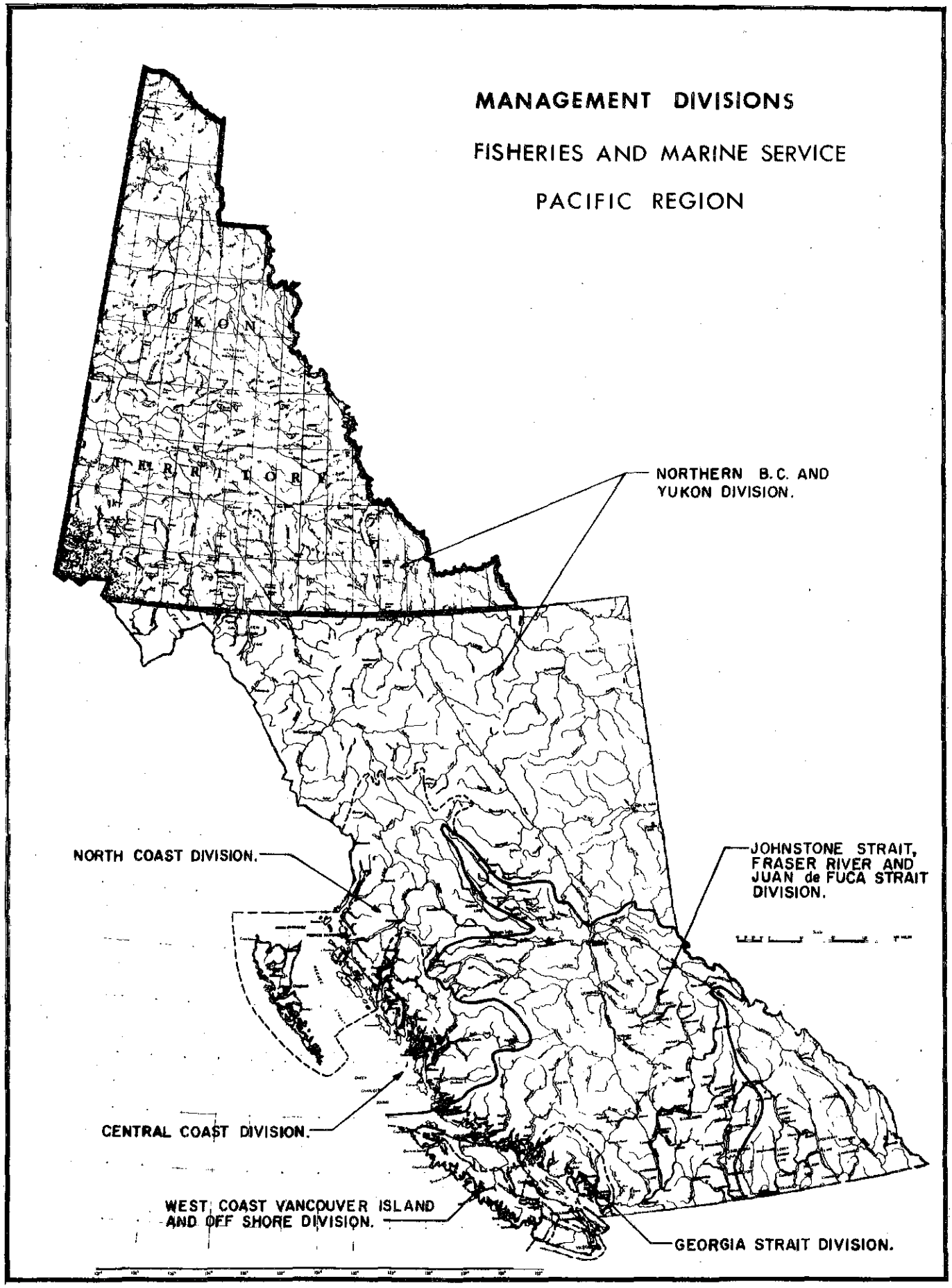
This catalogue is a historical record and information source concerning fish species and their habitats in the Teslin River drainage basin. It has been assembled for the use of those people involved in fisheries management and environmental protection and is the first of a series covering the major drainage basins in the Northern B.C. and Yukon Division.

The rapidity with which unnatural change now takes place in the north makes it essential that managers be able to control such developments or changes so that environmental damage is avoided or at least minimized. Harvest of the fishery resources must be controlled by sensible management based on biologically sound facts; this catalogue provides a tool towards these ends.

A. Gibson, Chief,
Northern B.C. and
Yukon Division.

ABSTRACT

Fourteen species are represented in the fish stocks of the Teslin watershed. The Teslin watershed is a 12,000-square-mile area in the south-central Yukon Territory and northern British Columbia. Physical, chemical and biological characteristics are presented for each of 8 major tributary systems. Detail on life history and abundance is known to a limited degree for chinook salmon only.


MANAGEMENT DIVISIONS
FISHERIES AND MARINE SERVICE
PACIFIC REGION
YUKON
TERRITORY
NORTHERN B.C. AND YUKON DIVISION.
NORTH COAST DIVISION.
JOHNSTONE STRAIT, FRASER RIVER AND JUAN de FUCA STRAIT DIVISION.
CENTRAL COAST DIVISION.
WEST COAST VANCOUVER ISLAND AND OFF SHORE DIVISION.
GEORGIA STRAIT DIVISION.

CONTENTS

INTRODUCTION

The Teslin system drains an area of approximately 12,000 square miles located in south central Yukon Territory and northern British Columbia. Teslin Lake, 78 miles long and averaging about 2 miles wide at an elevation of 2,239 feet and with an average depth of 194 feet, is the dominant water body in the study area and is one of the principal headwaters of the Yukon River. The Teslin drainage area may be sub-divided into nine smaller systems as shown on the introduction map.

The southern part of the area is extensively plateau and lies in the order of 2,200-3,000 feet above sea level. The plateaus have a gently rolling to hilly surface. Mountains prevail largely in the NE part of the study areas and these are rounded with elevations at approximately 7,000 feet. Tree cover is made up principally of sub-arctic species of willow, aspen, spruce and pine. The climate is rigorous with long cold winters as indicated below:

Mean Air Temperatures at Teslin (°F) for the period 1941 - 1970

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Max.	4.2	16.2	28.8	40.4	54.8	64.9	67.5	64.0	54.4	40.3	22.5	10.1
Min.	-12.9	-3.2	6.3	20.2	31.0	40.2	44.3	41.3	35.1	25.5	9.1	-4.8

Freeze-up and break-up for Teslin Lake range from November to June respectively. Mean rainfall is 6.6 inches and snowfall 64.7 inches (annual mean precipitation is therefore 13.07 inches). Permafrost does not exist in the study area; however, the ground is deeply frozen in winter.

Approximately 200 people live permanently in the Teslin drainage with the majority being located at Teslin. At present there is no industrial activity and the population is chiefly involved in road maintenance, fish and game guiding and the operation of tourist facilities. The Alaska Highway, which was constructed in 1942, lies east-west through the centre of the area and utilizes in part the north-east shore of Teslin Lake. A summer-only road extends northward from the outlet of Teslin Lake to Ross River (Pelly system) and provides access to parts of the Nisutlin River, a principal tributary to Teslin Lake. Otherwise access in the study area is limited to aircraft and boats.

Fourteen kinds of fish have been identified in the Teslin system. These are: humpback whitefish (Coregonus clupeaformis), broad whitefish (C nasus), lake herring (C sardinella), round whitefish (Prosopium cylindraceum), inconnu (Stenodus leucichthys), grayling (Thymallus arcticus), lake trout (Salvelinus namaycush), chinook salmon (Oncorhynchus tshawytscha), chum salmon (O keta), longnose sucker ((Catostomus catostomus), northern pike (Esox lucius), burbot (Lota lota), slimy sculpin (Cottus cognatus) and arctic lamprey

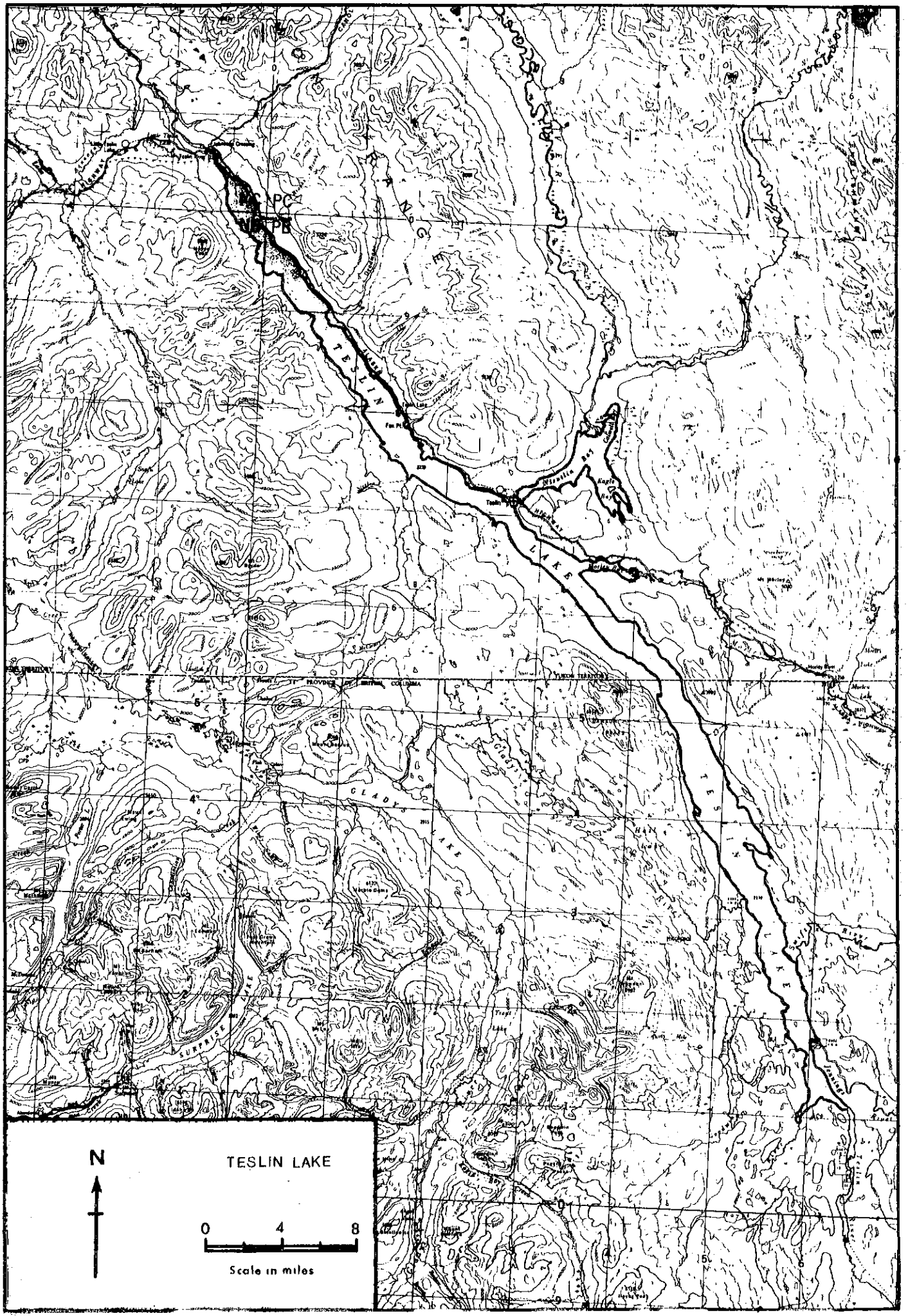
(Lampreta japonica). Population magnitudes have not been determined nor life histories studied, also spawning areas and spawning times and migrating patterns are unknown, except for the chinook salmon.

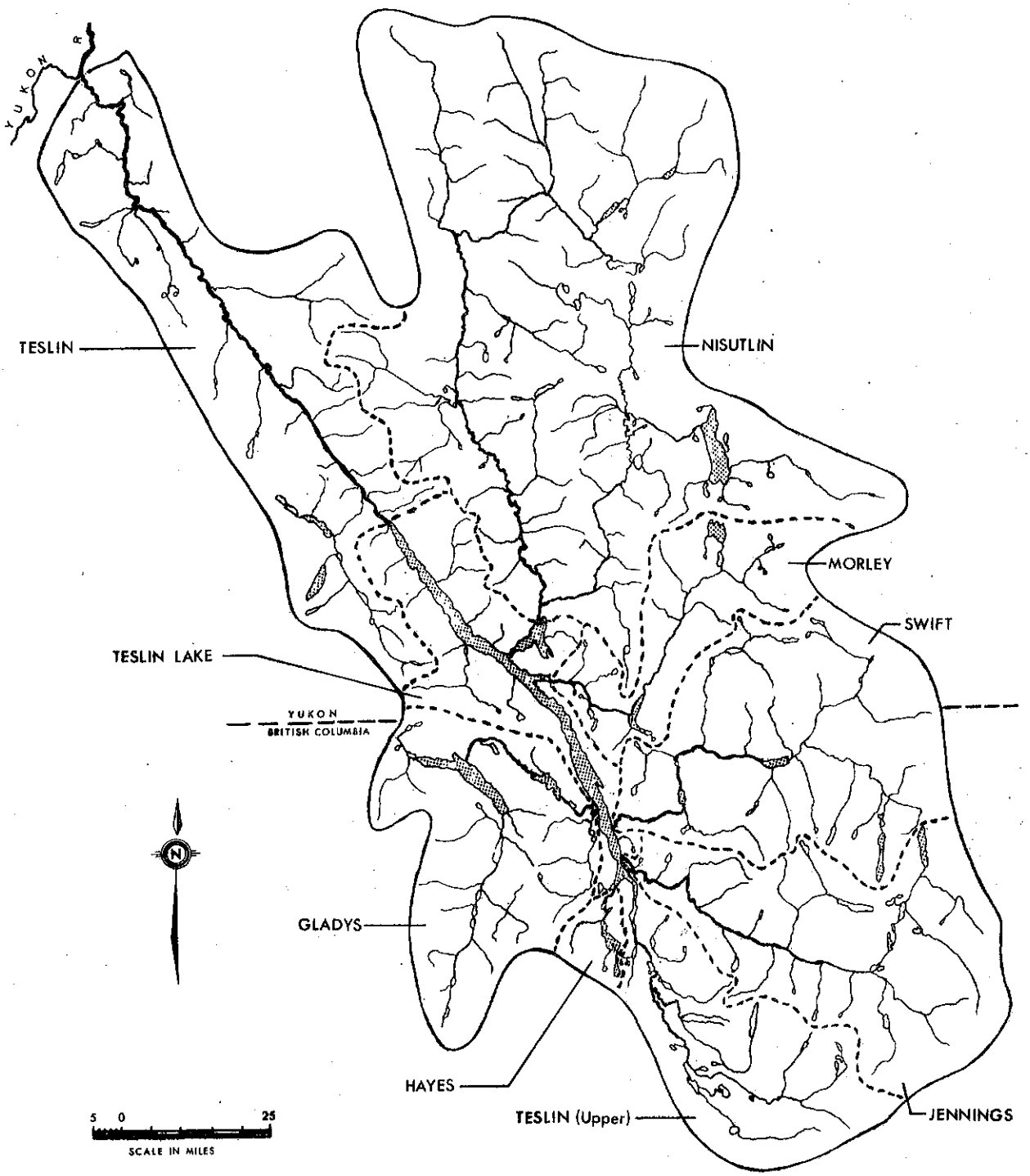
Maturing chinook salmon commence to enter the Teslin system during late July and spawn during the third and fourth weeks of August. A limited number of aerial surveys have been conducted since 1959 and these have been valuable in obtaining a distributional picture of chinook spawners and a rough indication of their magnitude. The total run in the Teslin system is estimated to be 3,700-8,600 fish annually. Relatively good numbers spawn in the Teslin River (2,000-5,000) and others pass through Teslin Lake to spawn in the drainages of Nisutlin River (1,000-2,000), Morley River (200-500), Swift River (100-300), Upper Teslin River (100-200), Gladys River (100-200), Hayes River (100-200) and Jennings River (100-200). Unconfirmed sightings of chinooks have been reported in a number of smaller tributary streams. Interestingly, the spawning grounds are located from 1,700 to 2,200 miles from the mouth of the Yukon River at the Bering Sea. Chum salmon enter the Teslin River in mid-September and allegedly spawn in a slough upstream of Roaring Bull Rapids during October and November, but their numbers are unknown.

The Teslin Lake fish populations have been exploited by commercial, recreational and subsistence fisheries but catch and effort records are lacking. The initial exploitation by non-natives possibly occurred at the turn of the century when the Teslin system served as one route to the Klondike. Construction and operation of the Alaska Highway during 1942-45 probably represents the next activity in which the stocks were utilized to any appreciable degree. Concern for the stocks at that time resulted in a study in 1944 carried out by the University of British Columbia. The results are published by Clemens, Boughton and Rattenbury (1968)*.

By order-in-council of 1961 a commercial catch quota was established at 13,000 lbs. for Teslin Lake north of the 60th parallel. This was based on the catch of ½ lb. per acre of humpback whitefish and lake trout. However, this figure was reduced in 1968 to 5,000 lbs. to resolve conflicts between commercial and recreational interests. Currently the fish are taken commercially by approximately six local residents in winter gillnet operations. Recreational fishing is carried out largely for lake trout and grayling during the summer. The salmon are exploited by a subsistence fishery in the Teslin River within five miles of the outlet of Teslin Lake.

* W. A. Clemens, R. V. Boughton and J. A. Rattenbury 1968: A limnological study of Teslin Lake Canada, Management Bulletin No.12, British Columbia Fish and Wildlife Branch.


N
TESLIN LAKE
0 4 8
Scale in miles

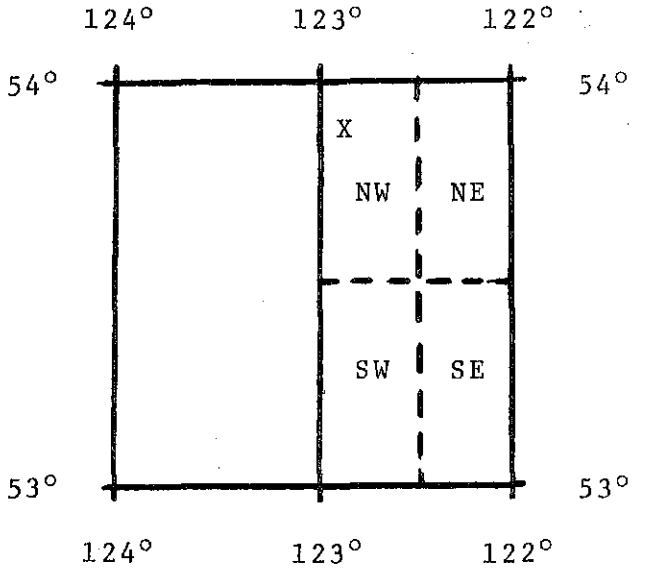


TESLIN WATERSHED

STANDARDS USED

NAME OF STREAM: Name given in Gazetteer of Canada - Yukon; other names are added in lower case type.

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 figures of reference (Gazetteer of Canada).



LENGTH: Mainstem only.

WIDTH: Average width, estimated to nearest foot.

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

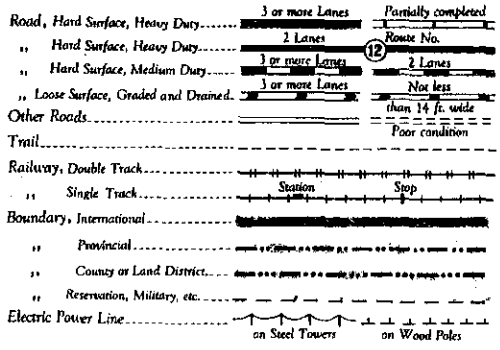
Stream bed category definitions

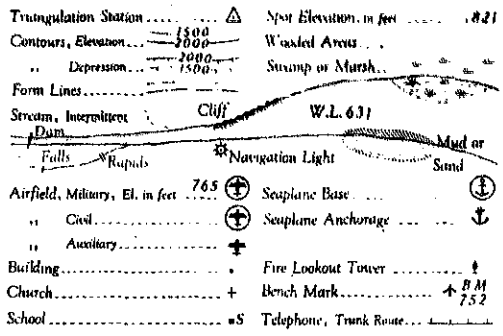
Bedrock	bedrock
Boulder	>256 mm (>10")
Coarse	50.9 - 256 mm (2 - 10")
Fine	3.37 - 50.8 mm (1/8 - 2")
Sand & Silt	<3.37 mm

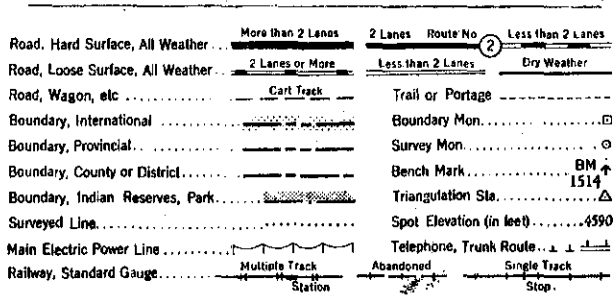
Distance references are from mouth of stream, unless stated otherwise.

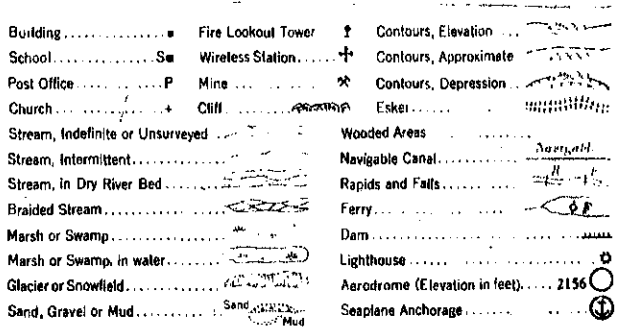
Abbreviations: MO = Methyl Orange Phenol = Phenolphthalein.
CF = Canada Fisheries personnel
ADFG = Alaska Dept. Fish and Game personnel.

Map Reference









①②③ ...etc..... photograph reference.


GLADYS RIVER
N
0 2 4 6
Scale in miles

Name of Stream	Tributary to	River System
GLADYS RIVER	TESLIN LAKE	YUKON

LOCATION Flows E. into Teslin L. through Gladys and Hall Lakes

Cassiar Dist. **POSITION** 59 132 NE.

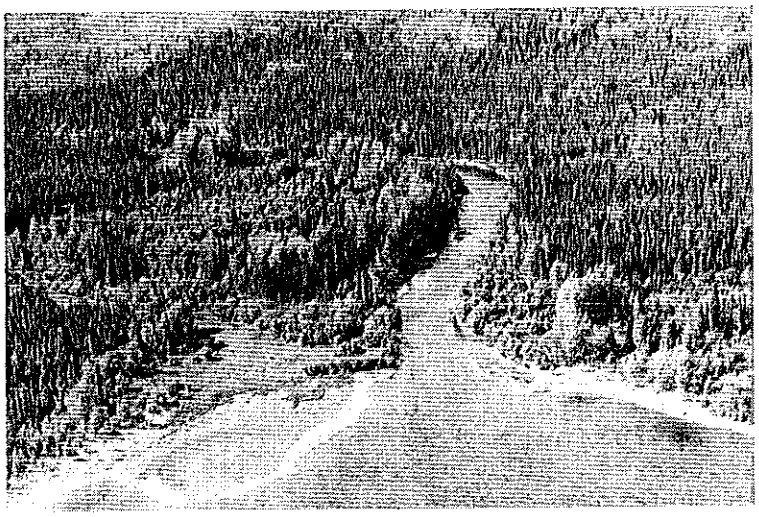
LENGTH 86 mi. **WIDTH** 95' @ mouth **DRAINAGE** 1,100 sq. mi.

0-6 mi. (Teslin L. - First L.)	0-2 mi. Good riffle areas and about 10% pool, bottom composition estimated 80% gravel, 10% boulder, 2-6 mi. Stream bed approximately 50% boulder and 50% gravel (tending to coarse), good stretches of gravel in this section with a moderate to moderately high gradient, an extremely rough stretch of rapids and falls exist at approximately 4 mi.
First Lake	1½ mi. x ½ mi.
7½-9½ mi. (First L. - Hall L.)	About 60% of the stream bed is good gravel and the remaining 40% is boulder. Gradient is moderate.
Hall Lake	6½ x 2 mi. (at widest point).
17-36 mi. (Hall L. - Gladys L.)	Above Hall L. there is a series of three small lakes with short inter-connecting streams of approximately ½ mi. each, these streams have little gravel and the bottoms are composed mostly of boulder, silt and sand. Gradients are low; 22-23 mi. good gravel; 23-25 mi. mostly boulder with some small stretches of gravel; 25-31 mi. gravel area; 31-36 mi. boulder and gravel mixture, gradient moderate to low.
Gladys Lake	18x2 mi. good grayling and lake trout fishing.
48-52 mi. (Gladys L. - Trout L.)	Pool-riffle stream with good gravel, some boulder, low gradient.
Trout Lake	4 x ¼ mi.
56-62 mi. (Trout L. - Eva L.)	56-58 mi. fine gravel and deep silty pools; 58-62 mi. riffle-pool type of stream, good gravel with some fines.
64-86 mi. (Eva L. - Bell L.)	Stream flows in low gradient and through 4 small lakes.

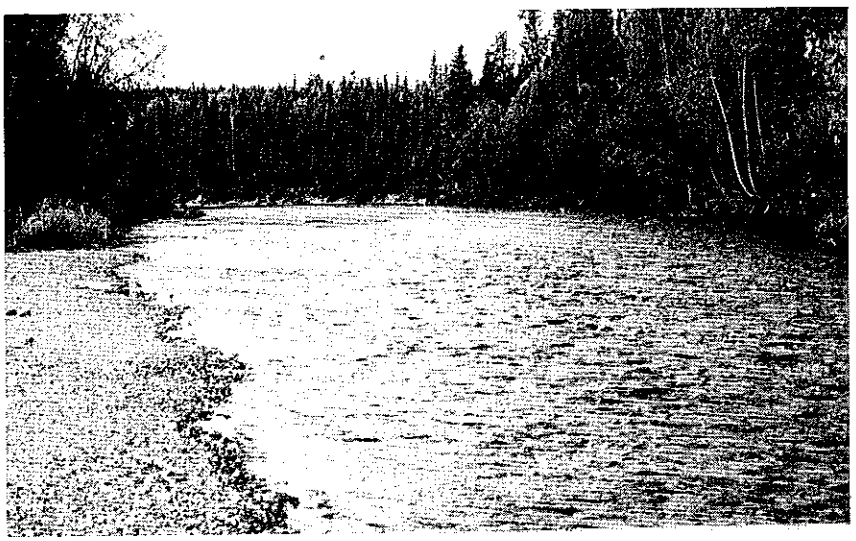
Average gradient from Teslin L. to Gladys L. is 3.5'/000; above Gladys L. <1'/000.

Water temperature 61° F 22/08/72; 60°F 27/08/71; 58° F 03/09/71; water clear on these dates.

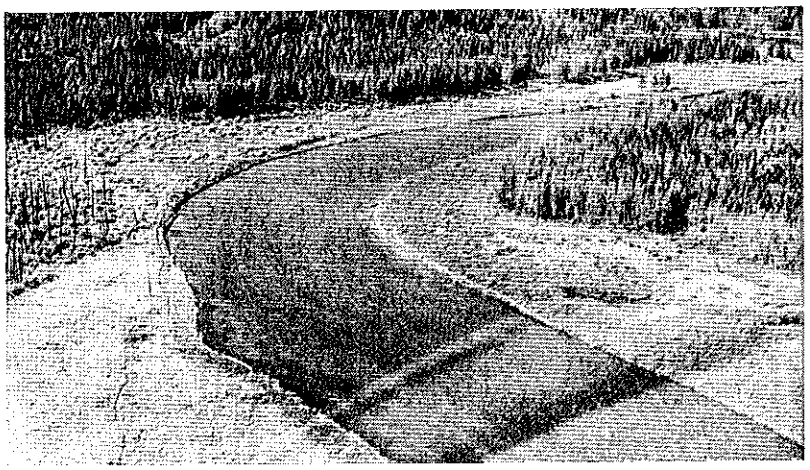
Estimated discharge (near mouth) 700 cfs, 22/08/72; 425 cfs, 27/08/71. A water level recorder is maintained at the outlet of Gladys Lake (drainage area 737 sq. mi.) by the Water Resources Board of Canada. Mean discharge 526 cfs. Maximum 4,250 cfs 13/06/64; minimum 83 cfs 26-28/04/57.



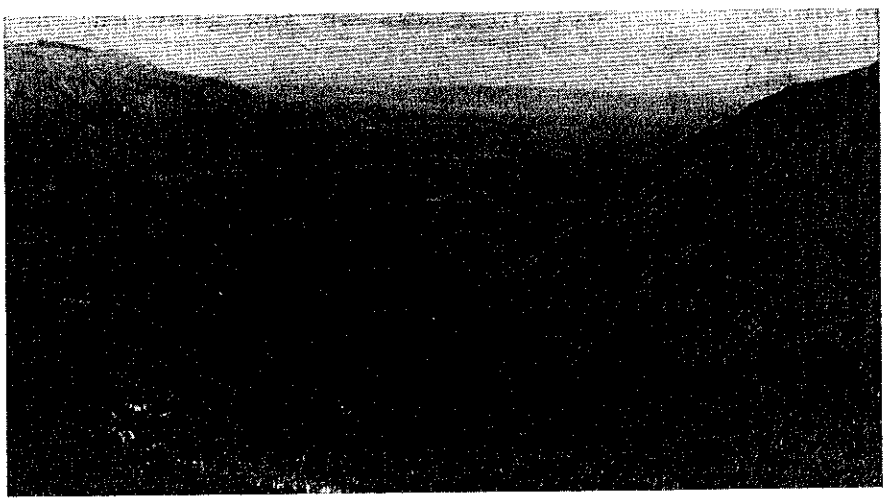
1. Mouth of Gladys River.



2. Immediately above mouth, looking upstream.



3. Central area between mouth and Gladys Lake.

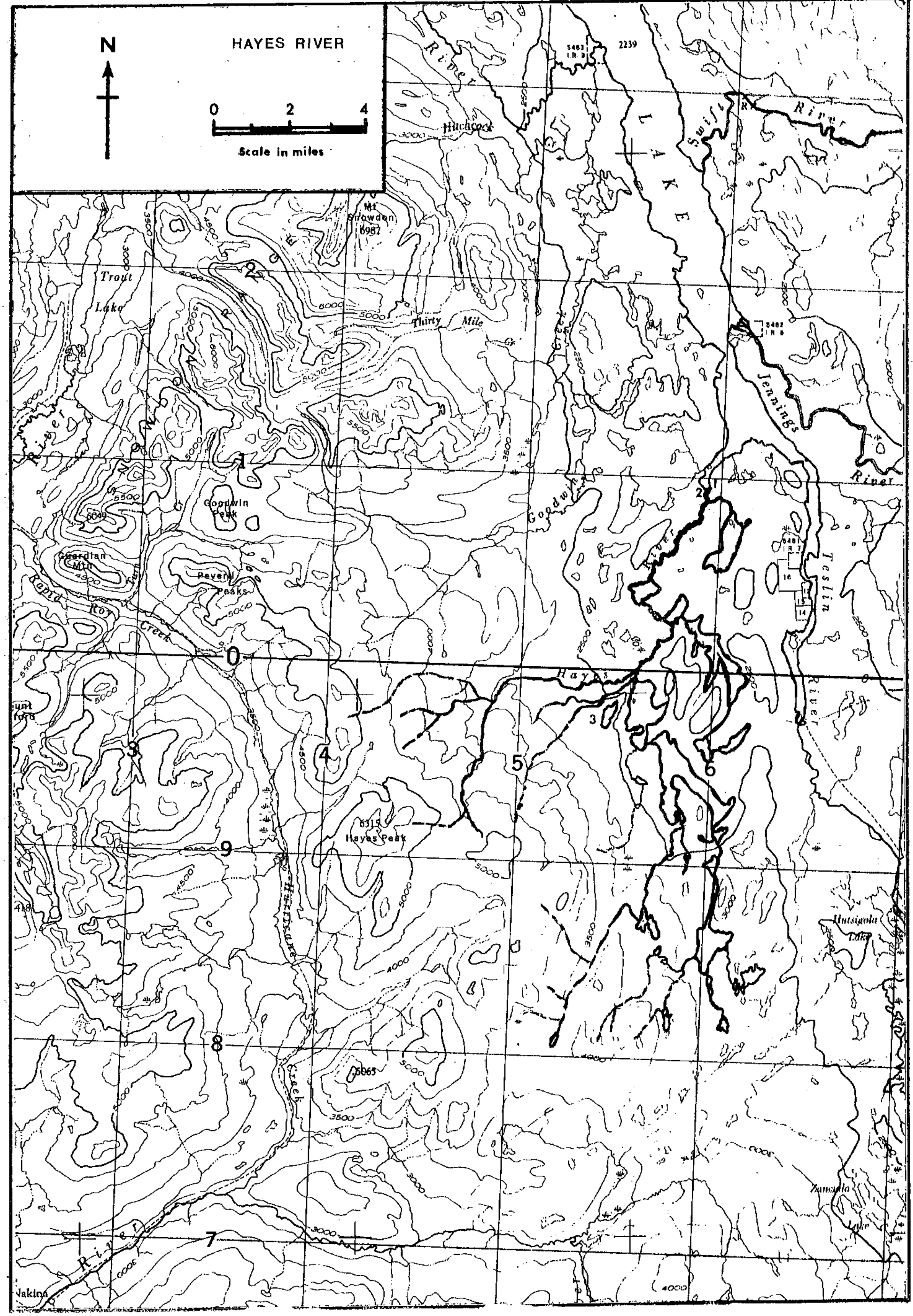


4. Upper watershed - vicinity Rapid Roy Creek (approx. 62 mi. from mouth), looking north.

Water chemistry 22/08/72 (Hach Kit)
Alkalinity: Phenol 0; MO 51.3 ppm
Hardness: $CaCO_3$ 85.5
Acidity: Free 0; Total $CaCO_3$ 5.6 ppm
PH: 8.5 DO: 9 ppm CO_2: 5 ppm

Fish observed
Seining near the mouth (within ¼ mi.) with a small-mesh 35-ft.net on 22/08/72 caught juvenile chinook (62-71 mm in fork length), northern pike, longnose suckers and grayling. A school (200-300) of relatively large grayling were observed at the outlet of Gladys Lake and grayling were also observed in the stream between Gladys and Trout Lakes on the same date. Numerous grayling were observed in Gladys Lake on 27/08/71. Spawning chinook salmon have been observed at 2 mi., just above the rapids and at 4 mi. and 5 mi. Spawning usually occurs during the last two weeks of August.

Date	Species	Count live	Count dead	Part of system counted	Agency
27/08/71	Chinook		50	Lower area (near Teslin L.)	CF
21/08/72	"	10		near Teslin L.	"


N
HAYES RIVER
0 2 4
Scale in miles
Mt Snowdon
6987
Trout
Lake
Thirty Mile
Goodwin Peak
Guardian Mtn
Peveril Peaks
Rapid
Roy Creek
Hayes
Hayes Peak
6315
Hurricane Creek
Goodwin Cr
LAKE
Swift River
Jennings River
Teslin River
Hutsigola Lake
Zancudo Lake
Nakina
River
Hitchcock
0
1
2
3
4
5
6
7
8
9

Name of Stream	Tributary to	River System
HAYES RIVER	TESLIN LAKE	YUKON

LOCATION Flows N. into Teslin L. near S. end, Cassiar Dist.

POSITION 59 132 NE.

LENGTH 16 mi. **WIDTH** 35' @ mouth **DRAINAGE** 160 sq. mi.

0-8 mi. Low gradient stream (generally <2.5'/000) with a base that is mostly silt, with some fines and small size gravel areas; stream forms numerous side channels because of beaver dams; rapids exist at 1 mi. and 3 mi., the latter is a two-step vertical drop with each step being approximately 5 ft. in height; falls appear to be passable to fish; heavy overburden prevents good aerial observation; one major tributary, consisting of a chain of lakes of which 3 are 3-4 miles long, joins the mainstem at 8 mi.

8-16 mi. High gradient stream; stream bed mostly bouldery.

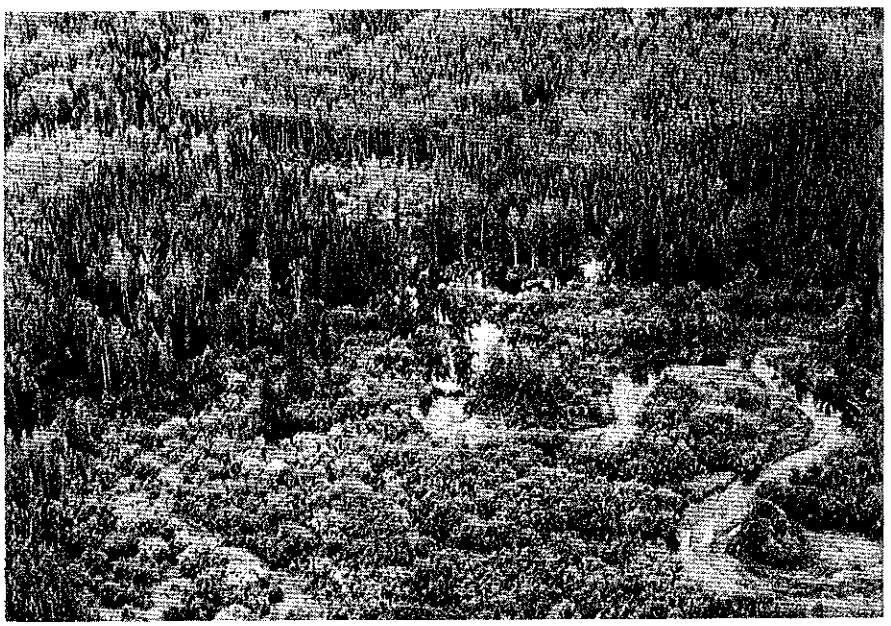
Water temperature 60.5° F 21/08/72

Estimated discharge 90 cfs 21/08/72

Water chemistry 21/08/72 (Hach Kit)
Alkalinity: Phenol 0; MO 85.5 ppm
Hardness: $CaCO_3$ 119.7 ppm
Acidity: Free 0; Total $CaCO_3$ 11.3 ppm
PH: 7.75 DO: 10 ppm CO_2: 5 ppm

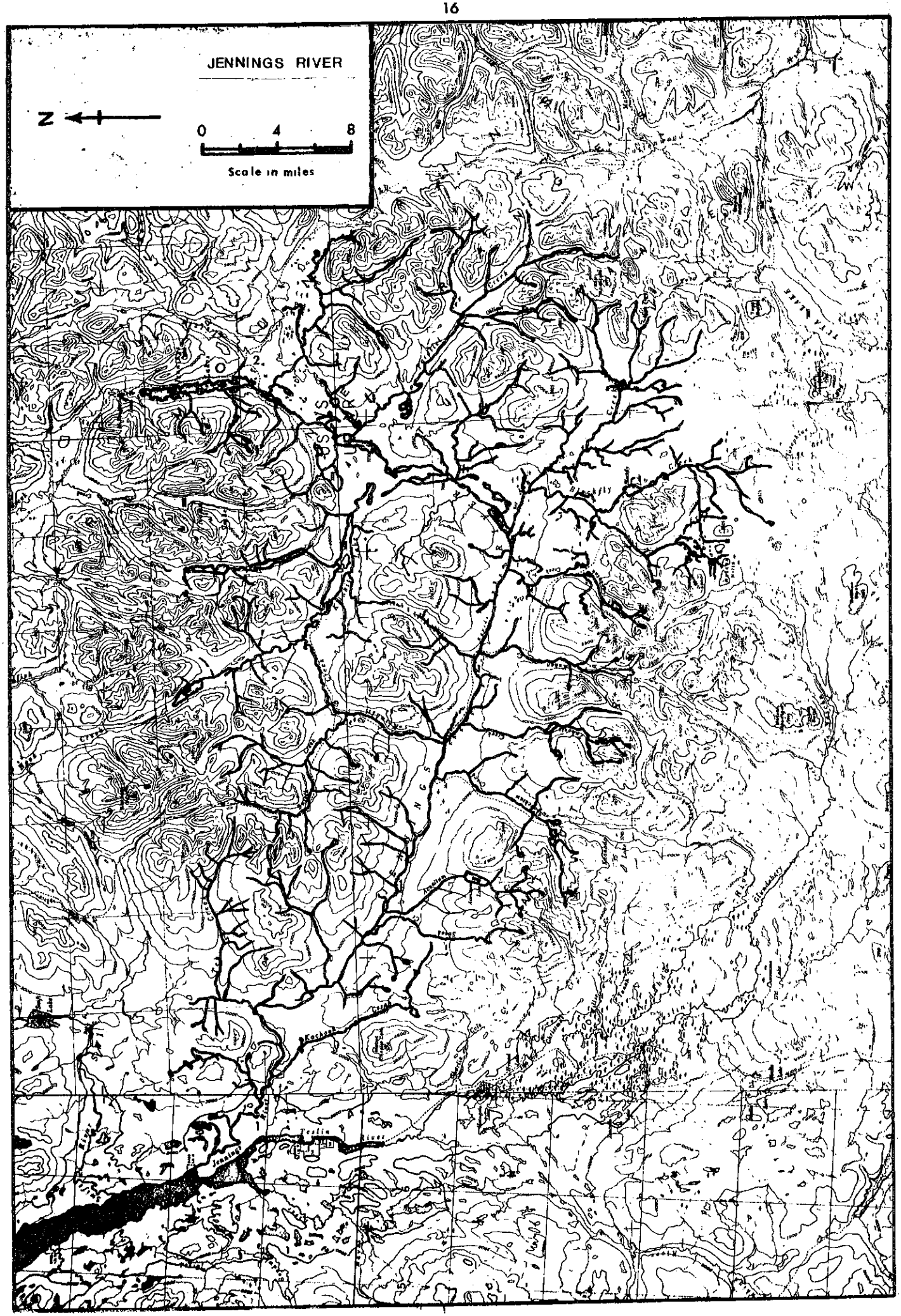
Fish observed
Juvenile chinook, grayling, burbot, longnose sucker, northern pike and slimy sculpin were caught near the mouth with a small-mesh seine net on 21/08/72.

1. Hayes River mouth.



2. Immediately above mouth.

3. Lakes in Hayes River watershed, looking east from Upper Hayes River.


JENNINGS RIVER
N
0
4
8
Scale in miles

Name of Stream	Tributary to	River System
JENNINGS RIVER	TESLIN LAKE	YUKON

LOCATION Flows NE. into Teslin L., Cassiar Dist.

POSITION 59 132 NE.

LENGTH 86 miles **WIDTH** 250' @ mouth **DRAINAGE** 1,270 sq. mi.

0-56 mi (Teslin Lake - Ash Cr.) Numerous rapids throughout particularly in the upper half. Stream bed consists mainly of boulder but some good stretches of gravel do exist but are quite scattered.

56-86 mi. (Ash Cr. - Jennings L.) Silty stream bed.

The system appears to have very limited quantities of stream gravel.

Gradient 0-16 mi., 3'/000; 16-36 mi., 4.7'/000; 36-50 mi., 6.8'/000; 50-56 mi., 4.7'/000; 56-78 mi., 1.4'/000. Average gradient from Teslin L. to Ash Cr. (56 mi.) 4.8'/000.

Water temperature 61° F 21/08/72; water colour clear.

Estimated discharge 2,200 cfs 21/08/72.

Water chemistry 21/08/72 (Hach Kit)
Alkalinity: Phenol 0; MO 51.3 ppm
Hardness: $CaCO_3$ 51.3 ppm
Acidity: Free 0; Total $CaCO_3$ 5.6 ppm
PH: 8.5 DO: 11 ppm CO_2: 5 ppm

Fish observed:
A small mesh seine caught juvenile chinook and slimy sculpin 21/08/72.
Chinook spawners were observed at 18, 26, and 34 miles.

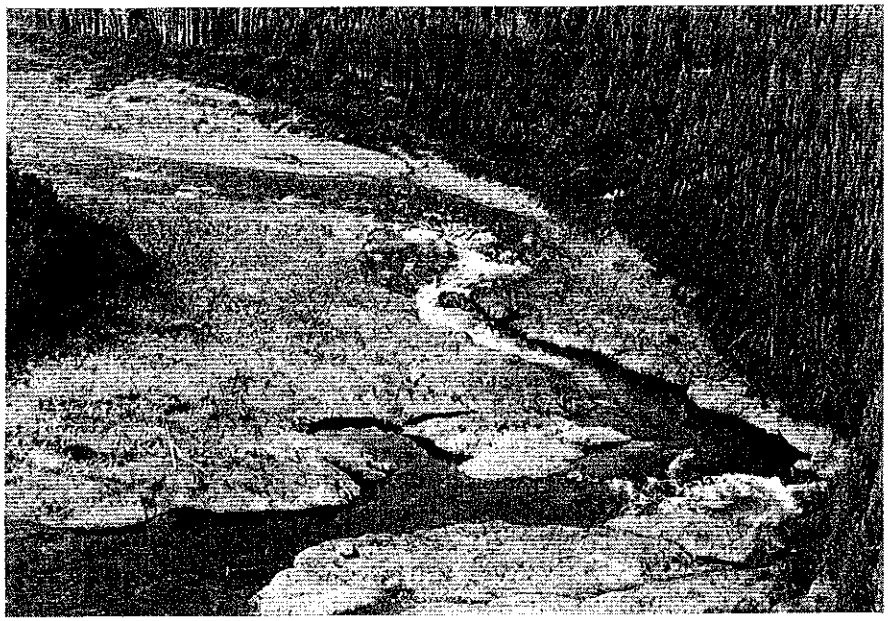
Date	Species	Count live	Count dead	Part of stream counted	Agency
22/08/72	Chinook	3		mid-area	CF

Tributaries:
Many creeks drain into Jennings River and with the exception of Parallel, Ash and Klinkit Creeks, all are small and most have a steep gradient. Probably all the creeks support fish at some times of the year.

Klinkit Cr. - Stream flows from Klinkit Lake (6 x 5 mi.) through alpine-type valley. Length 16 mi.; estimated width 25-30 feet throughout. Upper half bouldery with some gravel riffle areas and silty. Good gravel and riffle area in mid-section, bouldery in lower 3 mi.

Ash Cr. - Good gravel riffle area for lower 1 mile. Rapids and boulders to junction with Blackfly Cr.

Parallel Cr. - Heavily silted for lower 5 mi. Headwaters start from large plateau area, covered mostly by brush, trees scarce.



1. Constriction in Jennings River (approx. 8 mi. from mouth).

2. Plateau area between Jennings River headwaters and Parallel Creek.


MORLEY RIVER
N
0 2 4
Scale in miles
Morris Lake
Slim Lake
Creek
English
Canyon
Creek
Strawberry
Hays
Morley River
Morley Lake
Coconino Cr.
HIGHWAY

Name of Stream	Tributary to	River System
MORLEY RIVER	TESLIN LAKE	YUKON

LOCATION Flows SW. and NW. into Morley Bay E. side of Teslin L. SE. of Teslin. **POSITION** 60 132 SE.

LENGTH 50 mi. **WIDTH** 95' @ mouth **DRAINAGE** 720 sq. mi.

0-6 mi. Pool-riffle with good gravel bottom.

6-12 mi. Pools more predominate, fairly good gravel.

12-16 mi. Rapids at 12 mi., bouldery stream bed to 13 mi. Gravel content increases to Morley L. outlet (16 mi.) with some excellent gravel areas below highway bridge.

Morley Lake - 7 x 1½ mi.
20 - 32 mil largely gravel bottom
32-42 mi. Mainly silt and sand bottom to 37 mi., the uppermost 5 mi. flow through a swampy terrain, stream bottom is silt and mud.
42-46 mi. (Slim L.) Good gravel bottom with some boulder for first 3 mi., bouldery for next mile.

Gradient 0-14 mi., 3.5'/000; 14-38 mi., 3.9'/000; 38-50 mi. (Morris L.), 4.1'/000. Average gradient 0-50 mi., 3.9'/000.

Water temperature 58° F 22/08/72; 58° F 02/09/71. Water organically coloured.

Estimated discharge 475 cfs 22/08/72; 275 cfs 02/09/71.

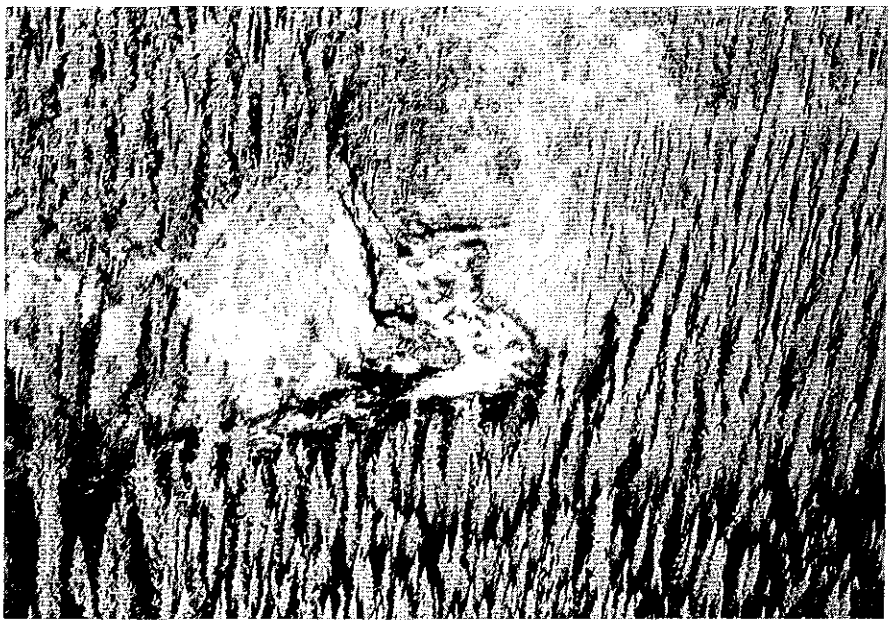
Water Chemistry 22/08/72 (Hach).
Alkalinity: Phenol 0; MO $CaCO_3$ 51.3 ppm
Hardness: $CaCO_3$ 68.4 ppm
Acidity: Free 0; Total $CaCO_3$ 5.64 ppm
PH: 8 DO: 10 ppm CO_2: 5 ppm

Fish observed
Seining with a 50' small-mesh net caught juvenile chinook and grayling 22/08/72. Adult chinook were observed at 2 mi., 10-12 mi., and at 50 mi. (Morris Lake outlet).

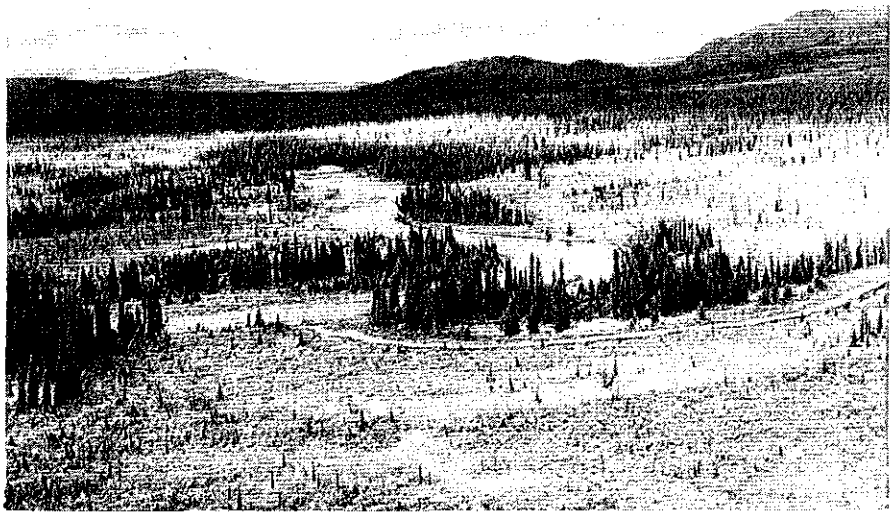
Date	Species	Count live	Count dead	Part of system counted	Agency
20/08/70	Chinook	51		Below canyon	ADFG
27/08/71	"	50		Throughout	CF
22/08/72	"	26	3	"	"

Tributaries:
Ram Cr. - Lower and upper one third bouldery; mid-section has good gravel.

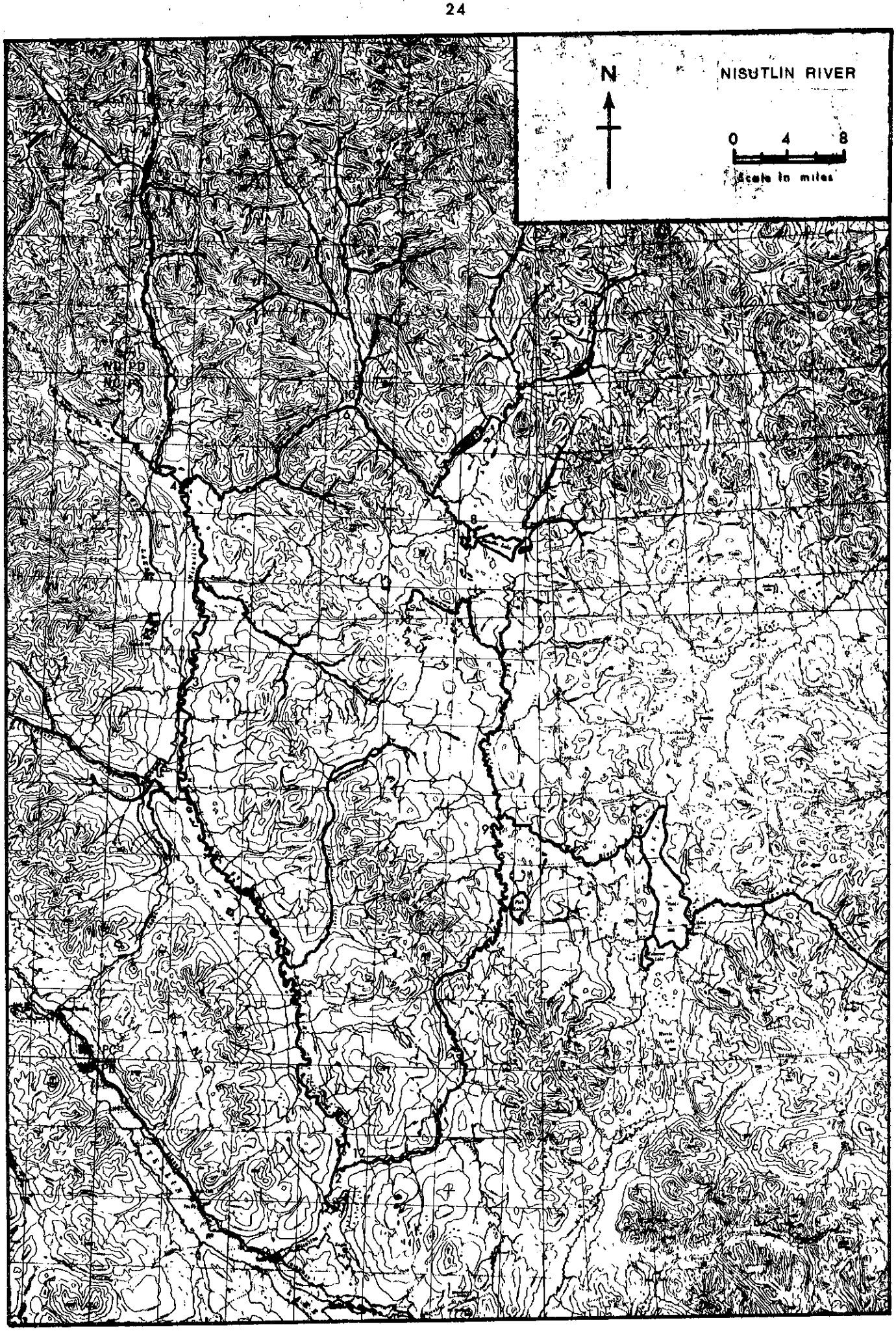
1. Morley River mouth.



2. Rapids approximately 12 miles above mouth.



3. Upper Morley River.


N
NISUTLIN RIVER
0 4 8
Scale in miles

Name of Stream	Tributary to	River System
NISUTLIN RIVER	TESLIN LAKE	YUKON

LOCATION Flows SE. into Nisutlin Bay E. side of Teslin Lake, NE. of Teslin. **POSITION** 60 132 SW

LENGTH 142 mi. **WIDTH** 200' @ mouth **DRAINAGE** 4,380 sq. mi.

0-60 mi. Stream bed composed of fines with limited gravel patches.

60-96 mi. 75% of the stream bed is small-size gravel and the remainder mostly sand; the upper part of this section tends toward boulders; a ten-mile stretch of good gravel exists from 73-83 miles and is a relatively major chinook salmon spawning area.

96-104 mi. A relatively wide flood plain with a mixture of gravel, sand and silt; much wood debris present.

104-122 mi. In the lower 4 mi. the stream bed is composed of good to excellent gravel; from 108-116 mi., the river is quite rocky with a relatively steep gradient and white water; bed is a mixture of rock, boulder, coarse gravel and some patches of gravel; 116-122 mi., good gravel, appears to be a good spawning area for chinook salmon.

122-136 Stream bed mainly coarse gravel and boulder with limited gravel patches, some stretches of white water exist.

136-142 (Nisutlin L.) Stream bed composed of mud, silt, sand and gravel mixture. Outlet from Nisutlin Lake approximately 75' wide.

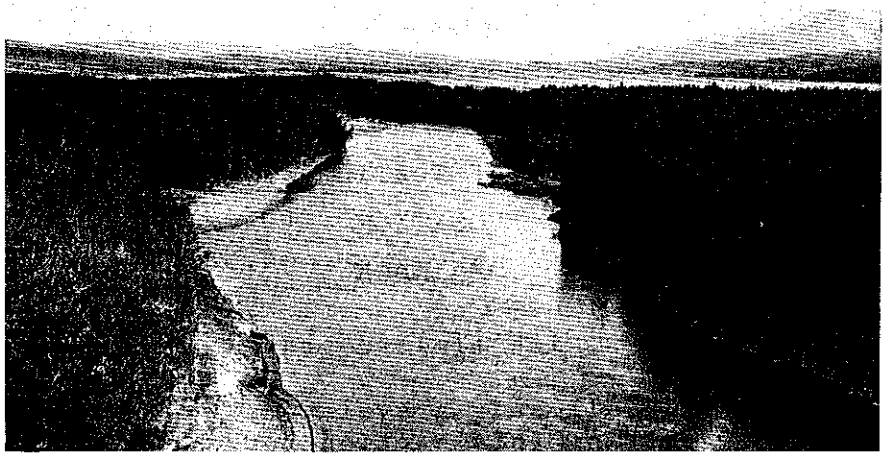
Gradient 0-90 mi. .5'/000; 90-128 mi., 2.5'/000.
Water colour is normally clear but becomes silty during runoff and slightly silty and organic coloured during heavy or prolonged rainfalls.

Water temperature at outlet of Nisutlin L. 62° F 19/08/72; 56° F 02/09/71; immediately above Sidney Cr. 57° F 03/09/72; at 73 mi. 57° F 19/08/72.

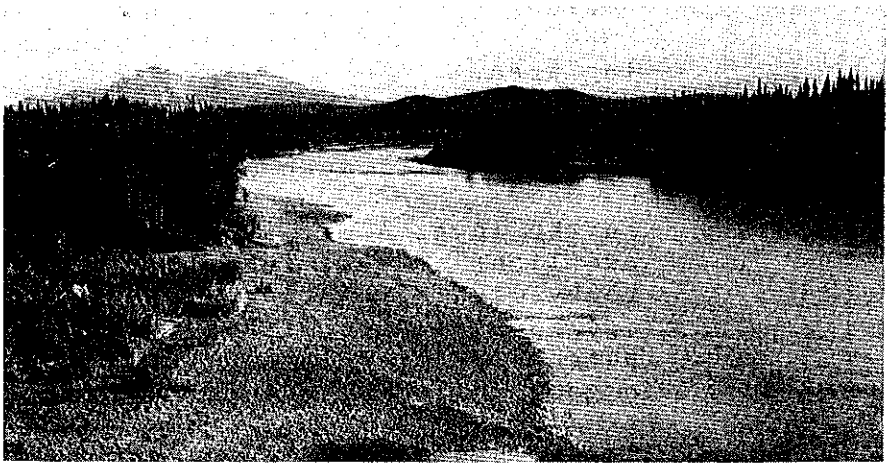
Estimated discharge at outlet of Nisutlin L. 325 cfs 02/09/71; immediately above Sidney Cr. 650 cfs 03/09/71; 73 mi., 3,150 cfs 19/07/72.

Width measurements: 75' at outlet of Nisutlin L., 390' at 73 mi.; 170' near Sidney Cr.

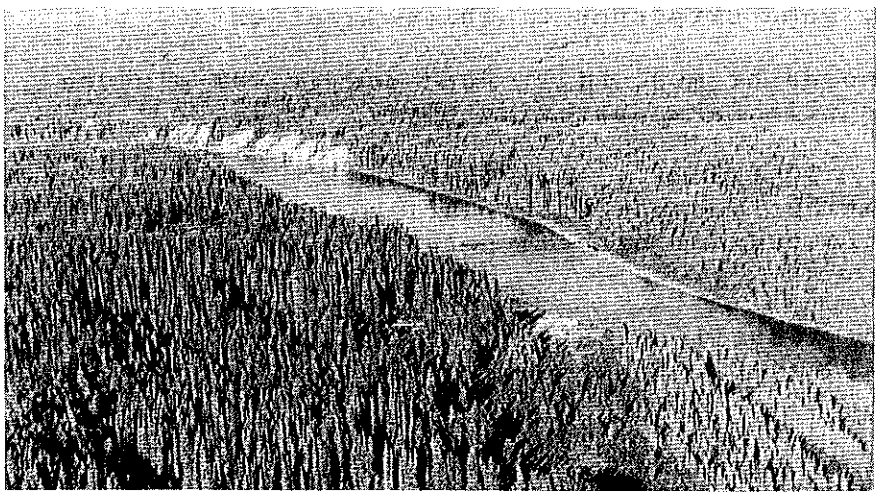
Fish observed
Chinook, broad whitefish, grayling, longnose sucker, northern pike and round whitefish were observed during late August 1972; known main chinook spawning areas are from 73-78 miles and at the outlet of Nisutlin L. Pockets of chinook spawners have been noted from 114-120 mi. Chinook are also known to spawn in Wolf R., Rose Cr. and McNiel R. tributaries of Nisutlin R. Chinook migration occurs through August. Peak spawning normally occurs during the third and fourth weeks of August.



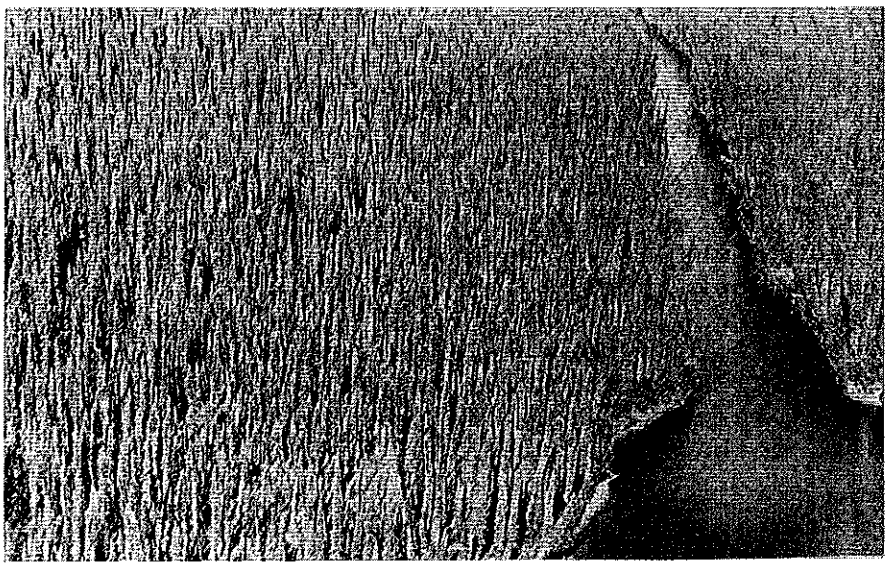
1. Lower Nisutlin River. Nisutlin Bay in background.



2. Nisutlin below junction of Wolf River.



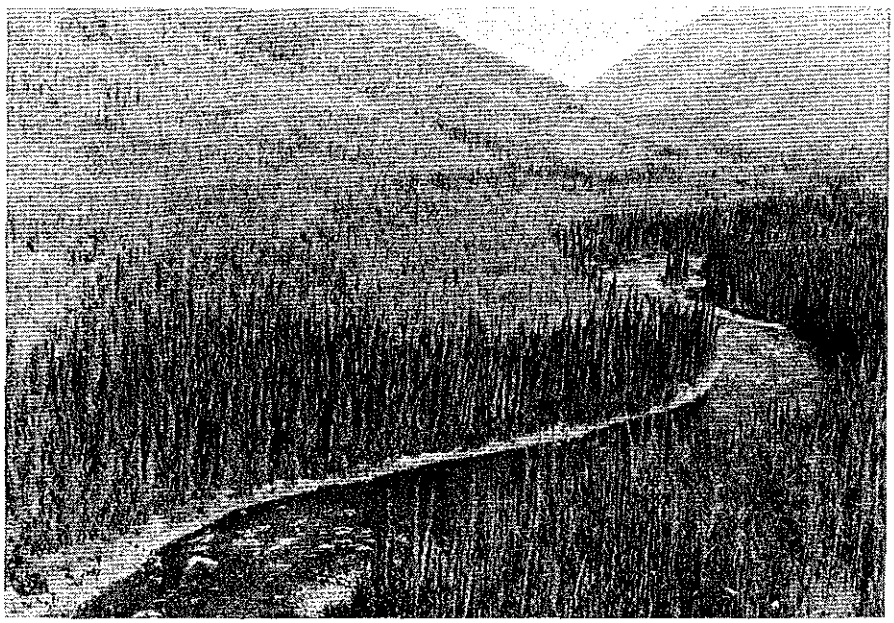
3. Fence site in 1972 - 73 miles upstream of mouth.



4. Rose River junction.

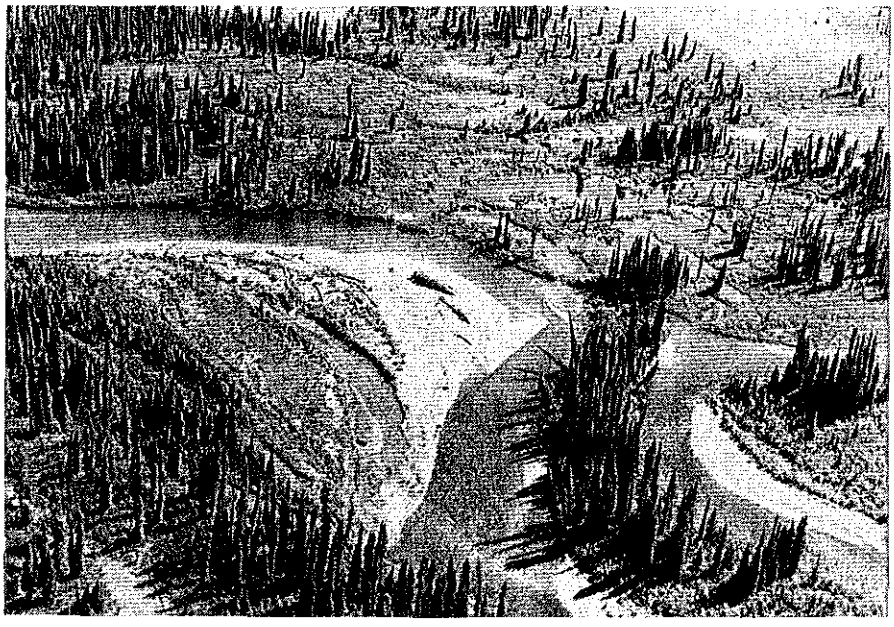
A tower and temporary fence was installed at 73 mi. in 1972 to enumerate the chinook salmon run; however, high flows prevented completion of the structure until Aug. 9, approximately 2 weeks late.

Date	Species	Count live	Count dead	Part of system counted	Agency
18/08/68	Chinook	377	30	Sidney - 100 mi. Cr.	ADFG
"	"	2		Sidney Cr. - five mi. upstream	"
"	"	7		Outlet of McNiel L. (top lake)	"
"	"	84		Mile of stream below Nisutlin L.	"
15/08/69	"	105		Sidney - 100 mi. Cr.	"
20/08/70	"		615	Sidney - 100 mi. Cr.	"
"	"		122	McNiel R. junction Nisutlin L. outlet	"
"	"	69	2	Wolf R. - 10 mi. down-stream from Wolf L.	"
25/08/71	"		650	Sidney - 100 mi. Cr.	CF
"	"		350	From Nisutlin L. outlet - 25 mi. down	"
27/08/71	"		750	Wolf L. - Red River	"
31/08/71	"	45	10	Nisutlin R.	ADFG
19/08/72	"	237		Sidney Cr. - 100 mi. Cr.	"
"	"	46	2	Nisutlin L. outlet	"
"	"	32		100 mi. Cr. - McNiel R.	"
20/08/72	"		98	Sidney Cr. - 100 mi. Cr.	CF
"	"		37	Rose Cr. - McConnel R.	"
"	"		39	McConnel R. - Nisutlin L.	"
"	"		2	McNiel R.	"
"	"		13	Red R. - Wolf L.	"
"	"		32	Nisutlin R. - Red R.	"



5. Nisutlin R.
Mile 125.

6. Mile 140 - vicinity
of McConnell River.



7. Confluence of
McNiel and
Nisutlin Rivers.

Tributaries:
Wolf R. Length 78 mi. to Wolf L. Flows into Nisutlin R. at 4 mi.

Composition:

0-10 mi.	Gravel, boulder and silt, 60, 40, and 20% respectively.
10-25 mi.	Equal amount of gravel and fines (silt and sand) with about 20% boulder.
25-40 mi.	Gravel tends to be fine with about 50% of this stretch composed of silt and sand.
40-50 mi.	Mostly silt and sand, 40% gravel.
50-78 mi.	50% gravel, 30% silt and sand, 20% boulder.

Gradient: 15-72 mi., 1.7'/000; 72-78 mi. (lake outlet), 7.9'/000.

Average gradient 2.5'/000.

Water temperature 55° F 27/08/71; 58.5° F 20/08/72.

Estimated discharge 280 cfs 27/08/71.

Main chinook spawning area exists at outlet of Wolf Lake.

Red, River, the major tributary of Wolf River, is a meandering rocky, muddy and silty stream, 50 mi. long. Water is clear during summer and fall but carries a heavy silt load during high runoff. Width near junction with Wolf R. is approx. 75' wide and water temperature 57° F 19/08/72.

Sidney Creek. Mostly silt and sand and fine gravel.

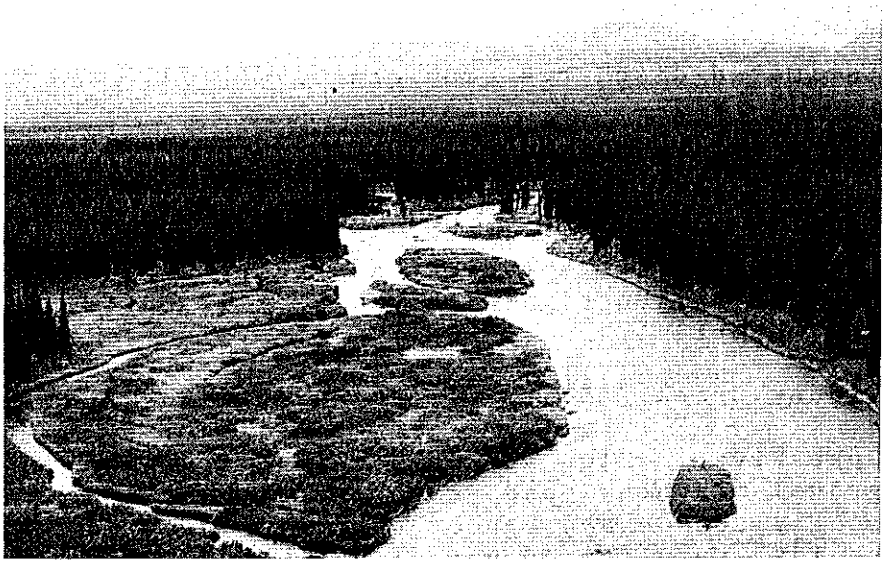
Rose River. Slow and meandering first 8 miles, base is mud, silt, and gravel mixture, good gravel stretches in upper 12 miles. Some gravel, mostly coarse and bouder next 6 miles. Remainder to Rose L. (35 mi.) rapids, very coarse gravel and boudery. Grayling present.

McConnell R. 122 mi. Bouldery, fast flowing, approx. 95' wide near mouth. Estimated composition 80% boulder, 20% coarse; 30 miles in length. Water temperature 50.5° F 19/08/72; 50° F 03/09/71.

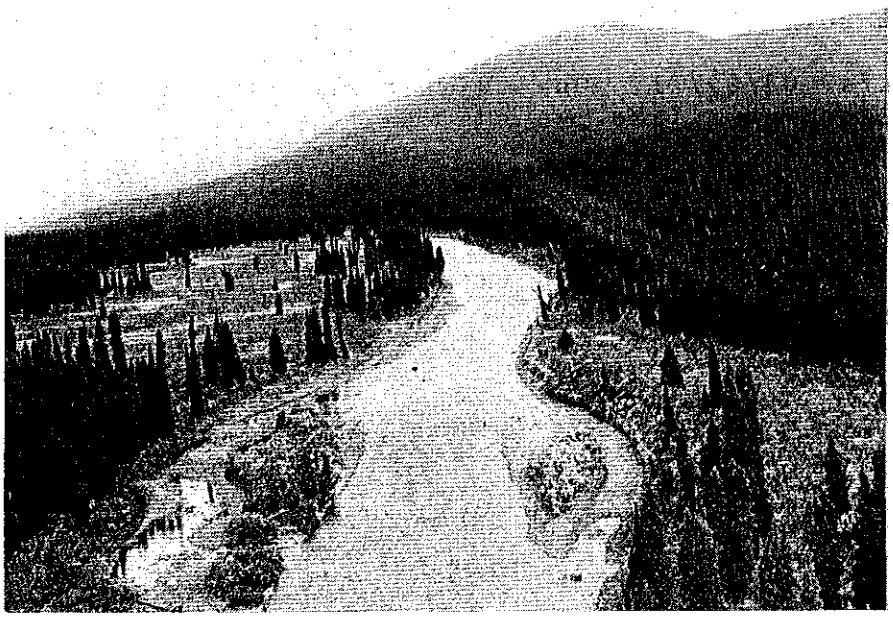
Estimated discharge 300 cfs 03/09/71. One major tributary, Seagull Creek, flows from a small headwater lake.

McNiel R. 36 mi. Bottom composition coarse gravel and boulder to McNiel L. (4 mi. by 3/4 mi.). Stream bottom above McNiel L. is composed of mud, silt and sand. A small canyon exists between the mouth and lake. Chinook salmon have been observed in this area.

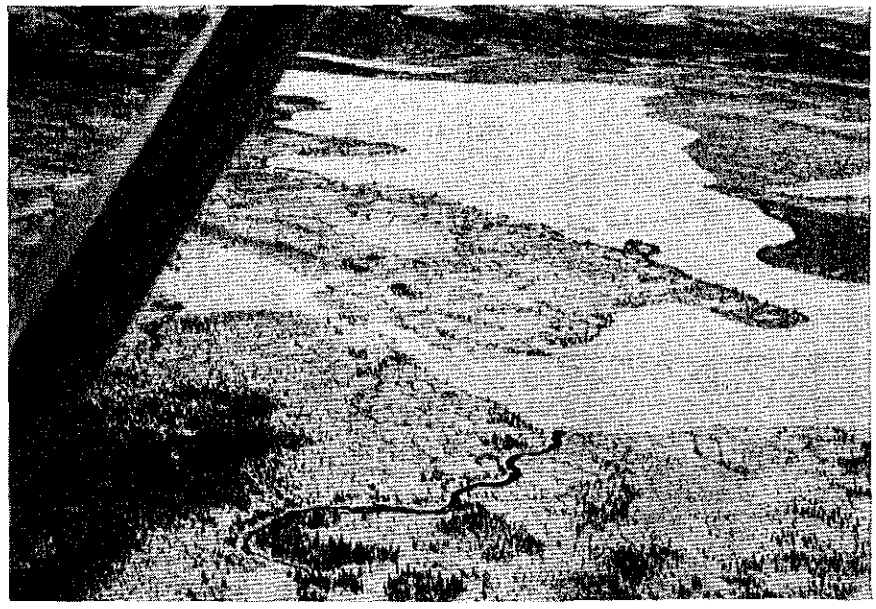
3. Outlet of Nisutlin Lake.



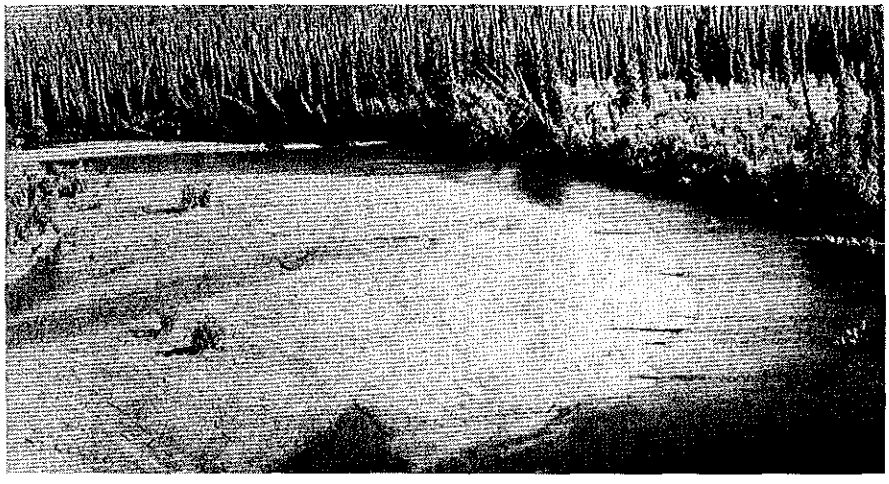
9. Wolf River near junction of Red River.



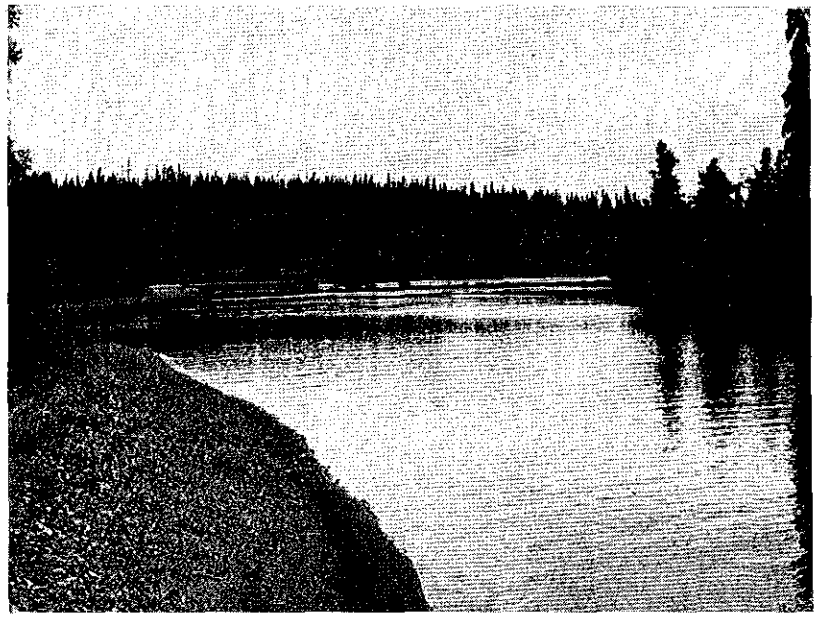
10. McConnell River lower area.



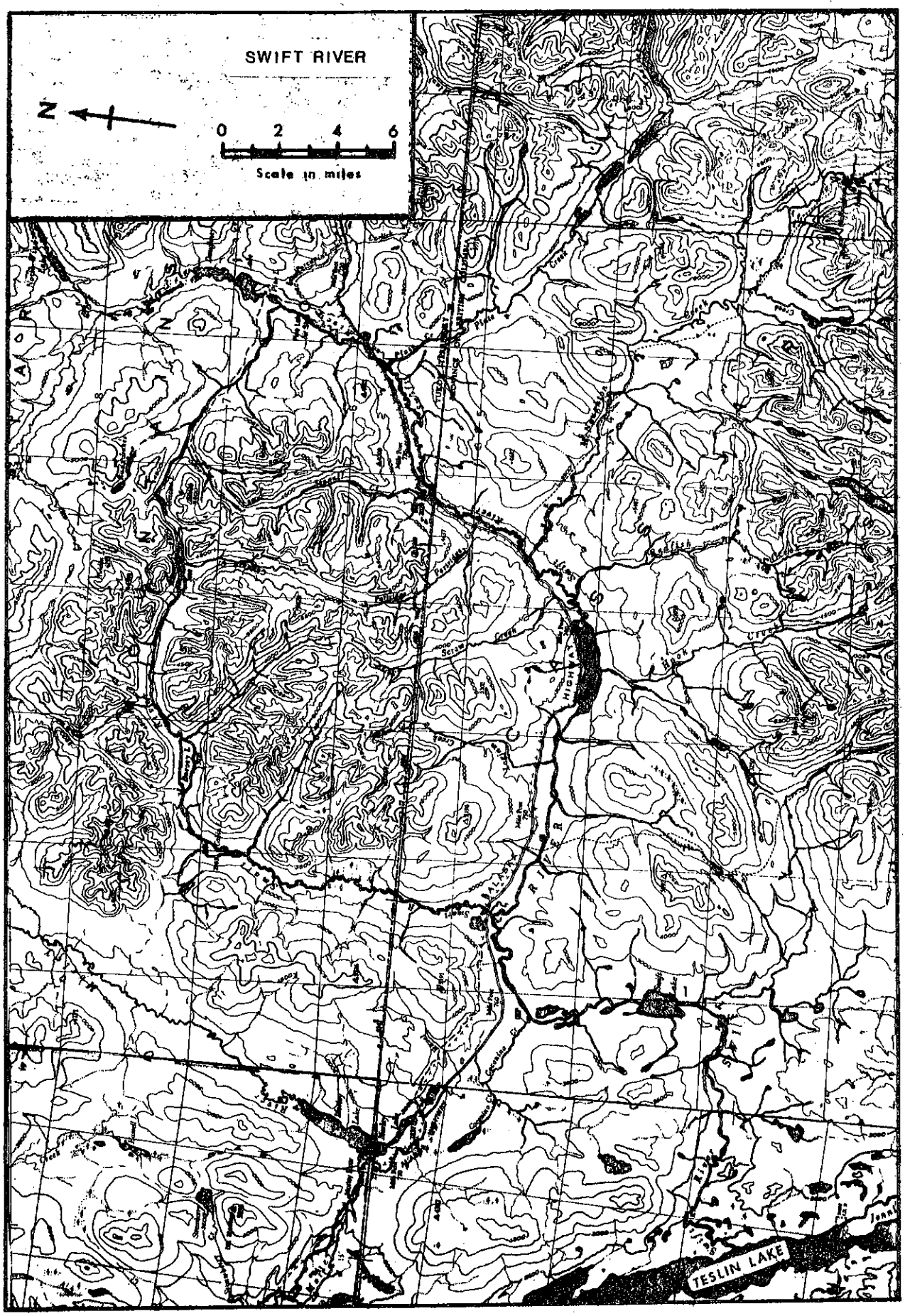
11. Ice-free outlet area of Nisutlin Lake, mid-winter.



12. Wolf River near mouth - looking upstream.



13. Outlet of Wolf Lake.


SWIFT RIVER
N
0 2 4 6
Scale in miles
TESLIN LAKE

Name of Stream	Tributary to	River System
SWIFT RIVER	TESLIN LAKE	YUKON

LOCATION Flows SW. into E. side of Teslin L., Cassiar Dist.

POSITION 59 132 NE

LENGTH 88 mi. **WIDTH** 150' near mouth **DRAINAGE** 1,440 sq. mi.

0-18 mi. (Teslin L. - Swift L.)	Good gravel, rapids exist at 5 mi. and 16 mi. and are not navigable, average gradient 3.1'/000.
Swift Lake	2mi. x 2 mi.
18-45 mi. (Swift L. - Swan L.)	Swift Lake to Smart R. (@ 32 mi.) stream is slow moving, poolish and silty. Good gravel from Smart R. to Swan L.; overall gradient from 18-45 miles 1.6'/000.
Swan Lake	4 mi. x 1 mi.
49-76 mi. (Swan L. - Pine L.)	Extreme meandering; slow deep stream.
Above 76 mi.	Small stream, some gravel but mostly coarse gravel and boulder, small lakes and ponds numerous.

Water temperature 55° F on 27/08/71 and 57° F 22/08/72.

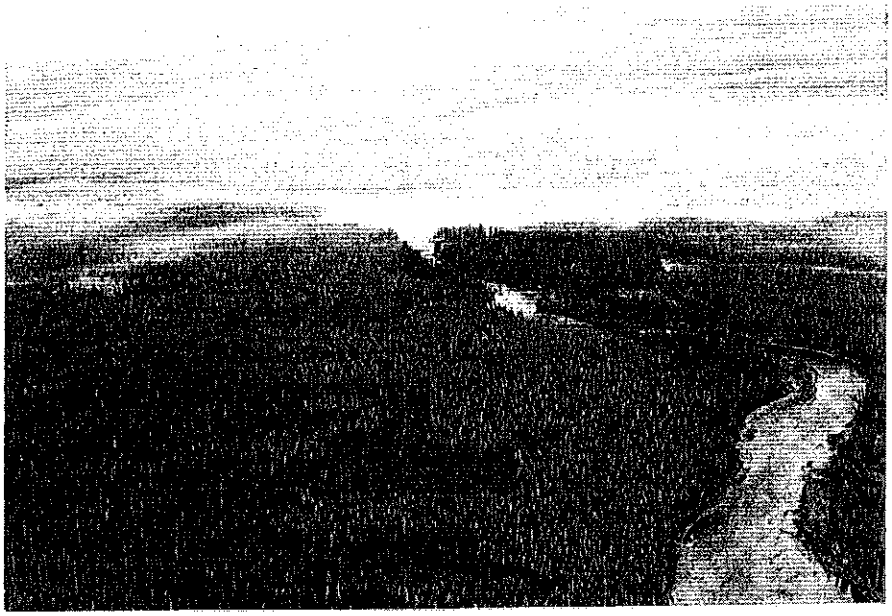
Estimated discharge 600 cfs 27/08/72; 1,375 cfs 22/08/72.

Water chemistry 22/08/72 (Hach)
Alkalinity: Phenol 0; MO 34.2 ppm
Hardness: $CaCO_3$ 51.3 ppm
Acidity: Free 0; Total $CaCO_3$ 5.7 ppm
PH: 8 DO: 10 ppm CO_2 5 ppm

Species present
Juvenile chinook, grayling and slimy sculpin were captured using a smallmesh seine net 22/08/72. Adult chinook were observed at 22 and 42 miles. Chinook spawning observed at outlets of Swift and Swan Lakes. Grayling were observed at outlet of Dorsey L. (Smart R.). Excessive stream meandering above Swan L. (49 mi.) prevents accurate length measurements and length measurement in this area is more a measurement of the valley.

Date	Species	Count live	Count dead	Part of system counted	Agency
27/08/71	Chinook	250		Outlet of Swan L.	CF
22/08/72	"	15		Throughout	"

Tributaries:
Smart River, approximately 24 miles long, joins the Swift River at approximately 33 mi. Slow and meandering with a silt-covered bottom in lower 3 mi.; 3-5 mi. of stream has good gravel bottom. The next 3 mi. contain a mixture of rapid and slow stretches with boulder and gravel in the faster areas and silt and algae covering the bottom of the lower stretches. Mostly boulder bottom between Cabin and Dorsey Lakes (10-13 mi.). Good gravel stream bed from 16-19 mi. with the

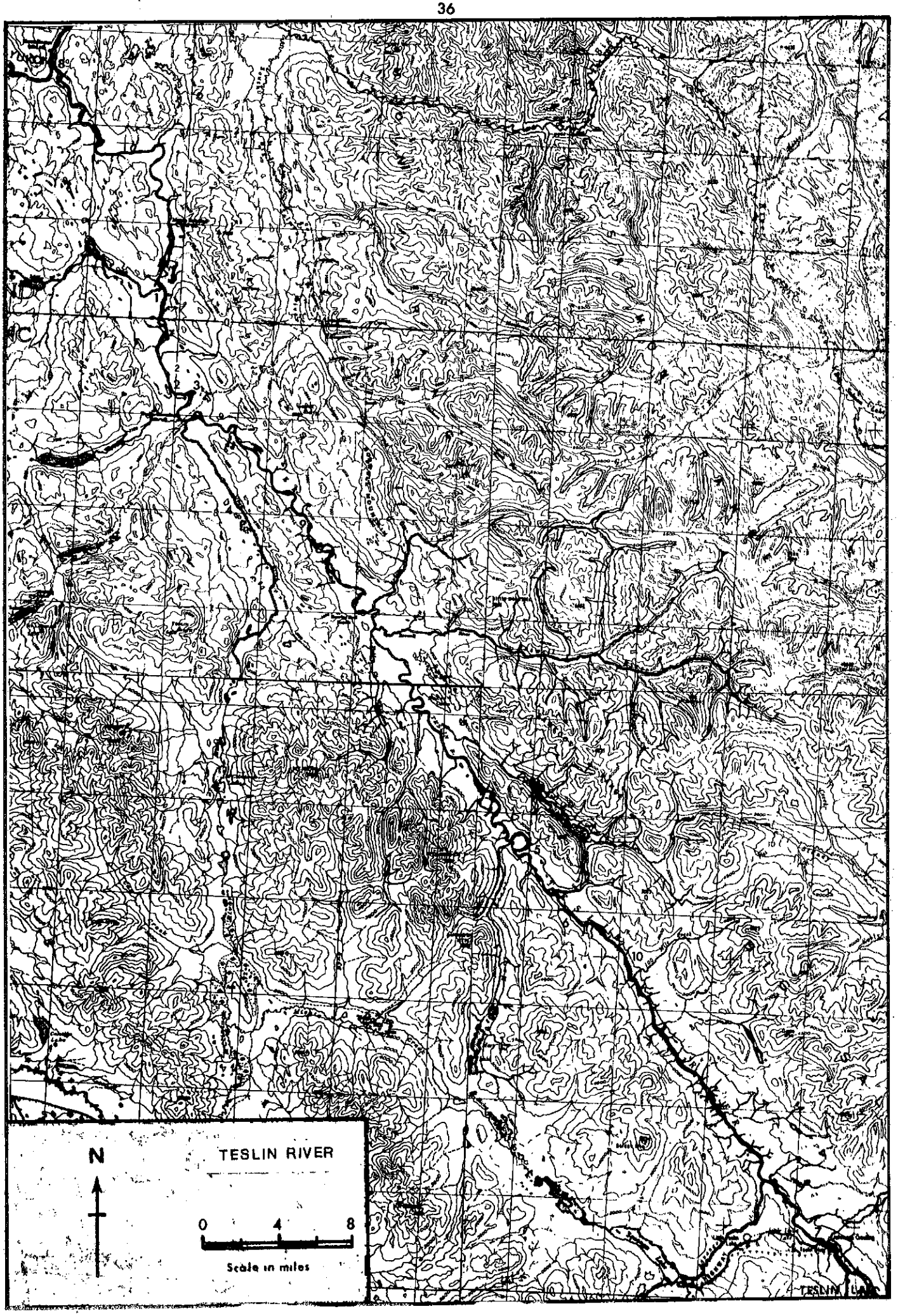


1. Outlet of Swift Lake.

remaining 5 mi. of mostly boulder bottom. Source is a small headwater lake (Munson). Two other small lakes (Cabin and Dorsey each approx. 3 mi. long) are known to support grayling.

McNaughton Cr. junction at 56 mi. is 28 mi. long. Boulder bottom with many rapids in lower 4 mi. Next 8 mi. stream has some good gravel stretches but is bouldery. The stream bed is quite heavily silted for next 8 miles and the stream is quite slow moving. From here the stream bed to McNaughton Lake is mostly boulder and silt.

Nome Cr. a small tributary has a good gravel stream bed for the first mile with mainly a boulder bottom above this section.


N
TESLIN RIVER
0 4 8
Scale in miles
TESLIN

Name of Stream	Tributary to	River System
TESLIN RIVER	YUKON RIVER	YUKON

LOCATION Flows NW into Yukon R., NW of L. Laberge

POSITION 61 134 NW

LENGTH 117 mi. **WIDTH** 400-600 ft. **DRAINAGE** 13,740 sq. mi.

0-32 mi. (Yukon R. to "dust bowl")	Stream is relatively fast with extensive gravel but has a relatively high silt content, the silt originates with wind and water action on exposed stream banks the most famous area of which is the "dust bowl".
32-90 mi. ("dust bowl" to Mary R.)	Mostly gravel, good riffle areas, large meanders, low velocity.
90-117 (Mary R. to outlet of Teslin L.)	Relatively slow, deep and wide, (one long pool), water clear.

River flows in wide wooded valley on an average slope of .45'/000, the greatest drop occurs at Roaring Bull Rapids (54 miles), water becomes progressively more clear and silt content lower in upstream direction.

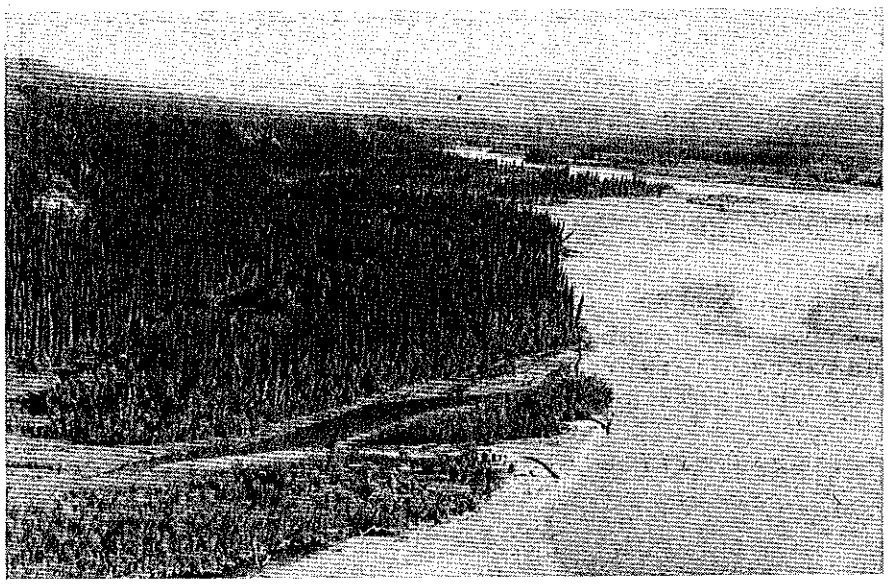
Discharge (Water Surface Records) Annual mean 11,700 cfs. Maximum 65,700 cfs 28/06/62; minimum 1,800 cfs 24/02/56.

Average gradient approx. .45'/000.

Temperature: 58° 19/08/72.

Species present
All species listed in the introduction are found in the Teslin River. Fork length measurements of juvenile fish during Sept. 2-4, 1972, are as follows: Chinook salmon 49-67, modal 56 mm; round whitefish 46-60 mm; lake whitefish 68-82 mm. Major chinook spawning areas appear to exist 1 mile below Johnsons Crossing and within 5 miles of Boswell R. Data on spawning for other species is lacking. Subsistence and recreational fisheries for chinook are conducted. Drift gill nets account for most of the food fishery catch, while trolling accounts for the remainder, trolling is also used in the recreational fishery. Estimated annual catch is 200-500 fish. Grayling and inconnu are also fished in this area but estimates of catch have not been made.

		Count			
Date	Species	live	dead	Part of system counted	Agency
4/09/58	Chinook	2	300	top 32 mi.	CF
31/08/59	"	2	24	from Roaring Bull Rapids to 14 mi. downstream	"
25/08/71	"			fish observed near Johnsons Crossing	"
04/09/72	"	12	196	Miller Cr. - Teslin L. outlet	"



1. Miller Creek junction (22 miles from mouth).

2. Downstream view from 30 miles.

3. "Dust Bowl" 32 miles.

Notes on chinook salmon:
Sept. 3-4, 1972: dead recovered as far downstream as Roarding Bull Rapids but the largest number (10) in a small area (50 yd. radius) was found 5 miles upstream from Boswell Creek.

Tributaries:

Miller Cr. @ 22 mi. Small creek, gravel and boulder streambed. Beaver dams exist near mouth and below lower lake (approx. 5 mi.) appear to be impassable to fish at average flows.

Open Cr. @ 34 mi. Entirely silt and sand bottom with exception of small area of boulder and little gravel at one mile.

Indian R. @ 56 mi. Boulder bottom throughout. Rapids near mouth. Estimated discharge 130 cfs 03/09/72. Width approx. 35'. Water temperature 46° F 03/09/72. Water clear with slight greenish tinge. Seining captured juvenile grayling 03/09/72.

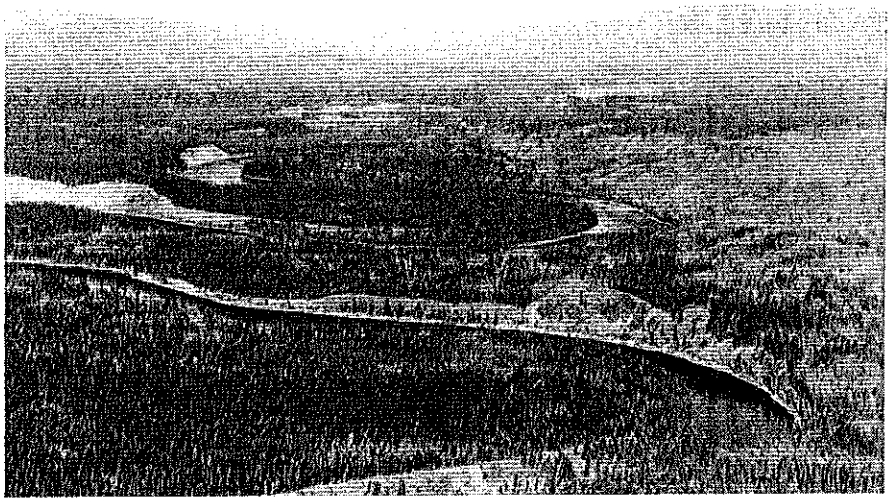
Boswell R. @ 58 mi. Mostly boulder, some fines at mouth. Estimated discharge 357 cfs 03/09/72. Width approx. 70 ft. Water temperature 48° 03/09/72. Water greenish tinge. Grayling observed 03/09/72.

Sheldon Cr. @ 59 mi. Gravel and boulder mixture forms streambed in lower portion.

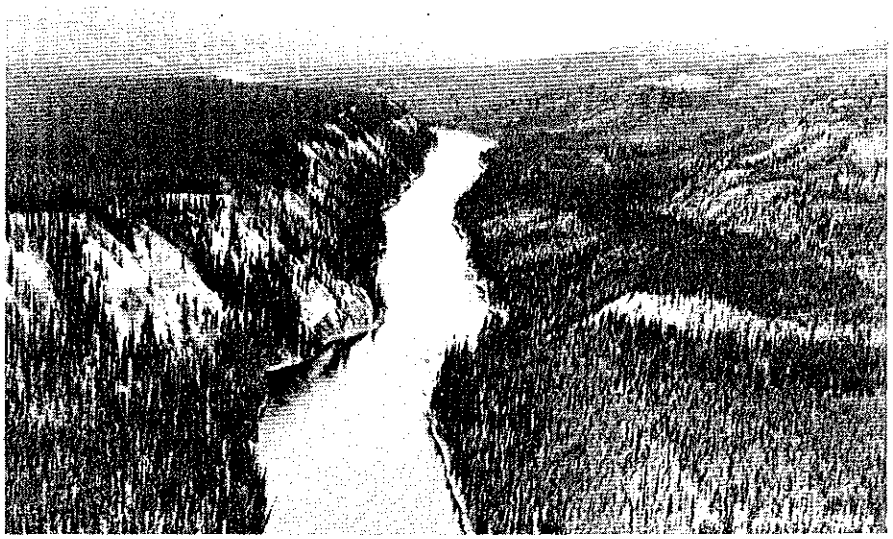
Mary R. @ 82 mi. Lower 2 mi. stream bottom is mostly silt and next 4 mi. boulder and gravel. Estimated discharge 60 cfs 04/09/72. Width 37 ft. near mouth. Water temperature 57° F 04/09/72. Water has organic colouration.

Squanga Cr. @ 108 mi. High falls exist ¼ mi. from Teslin R.

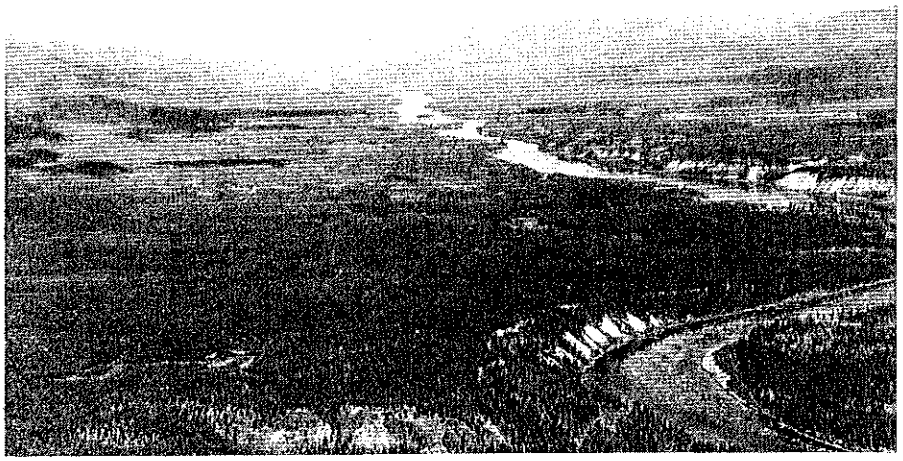
4. Looking down Open Creek valley toward Teslin R.



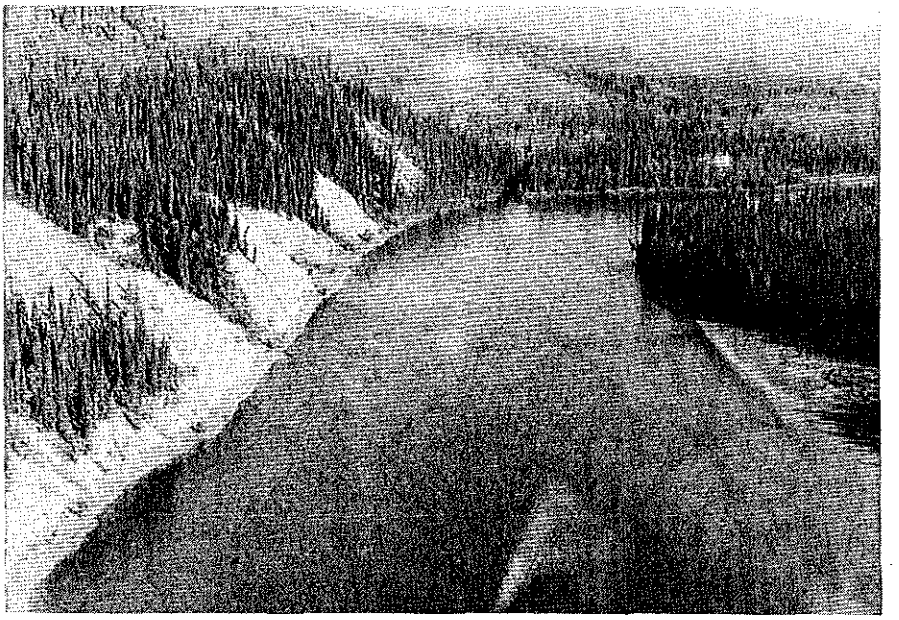
5. Meanders at 82 miles.



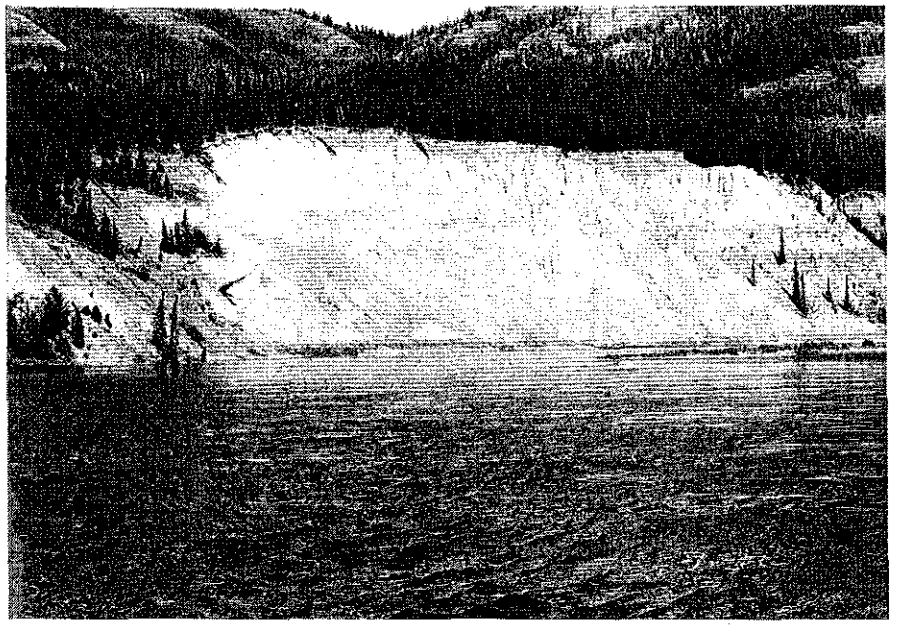
6. Teslin near Swift River.



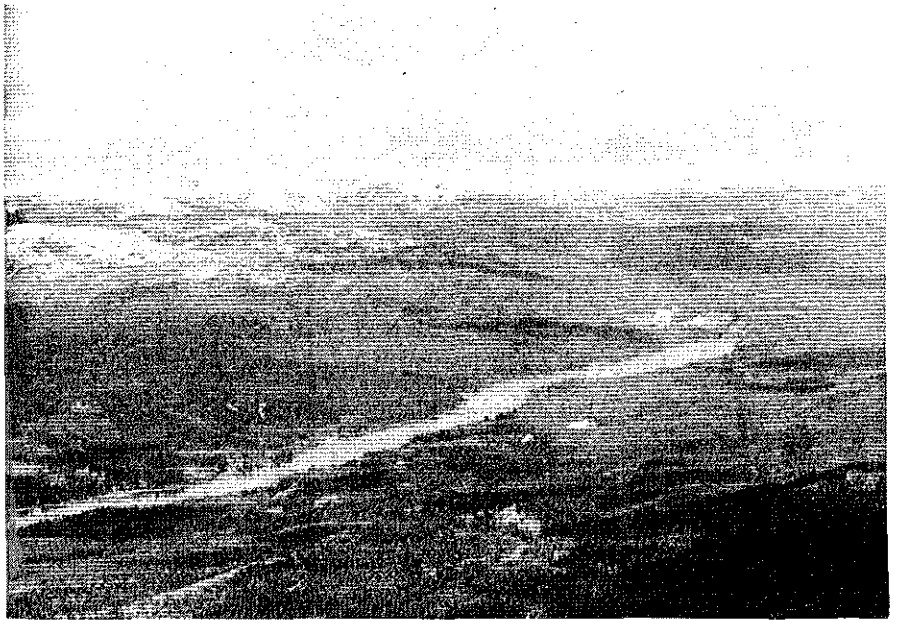
7. Looking downstream from source area.



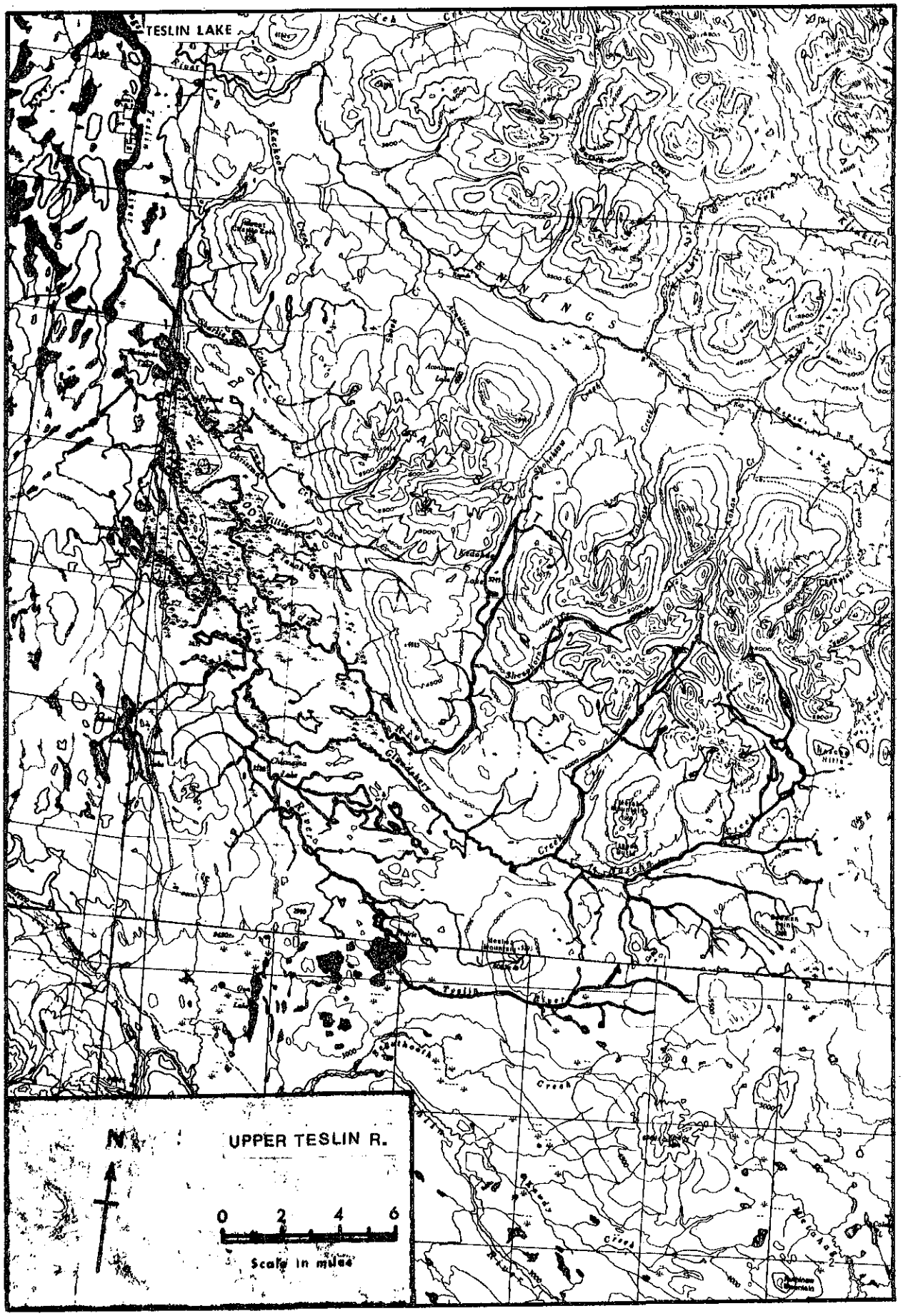
8. Teslin River at 1 mile.



9. Teslin River at 45 miles.



10. Looking down Teslin River from 100 mile Creek.


TESLIN LAKE
UPPER TESLIN R.
N
0 2 4 6
Scale in miles

Name of Stream	Tributary to	River System
TESLIN R. (Upper)	TESLIN LAKE	YUKON

LOCATION Flows NW. into Teslin L., Cassiar Dist.

POSITION 59 132 SE.

LENGTH 64 mi. * **WIDTH** 100' near mouth **DRAINAGE** 1,010 sq. mi.

0-4 mi.	Moderately swift stream with a gravel and boulder stream bed. Rapids at 3.5 mi.
4-6.5 mi.	Silt and sand bottom, low gradient.
6.5-7.75 mi. (Hutsigola L.)	Good gravel stream bed with exception of short rough rapid section at outlet of lake which is boulder and bedrock.
8-20 mi.	Surrounding terrain is flat and stream is slow moving with a silt and sand bottom.
20-36 mi. (Chismaina L.)	Good gravel stream bed. Some slow and silty bottom sections in lower area of this section.

Gradients: 0-25 mi., 2'/000; 25-36 mi., 3.8'/000; 36-52 mi., 5.9'/000.

Water temperature 62.5° F 21/08/72.

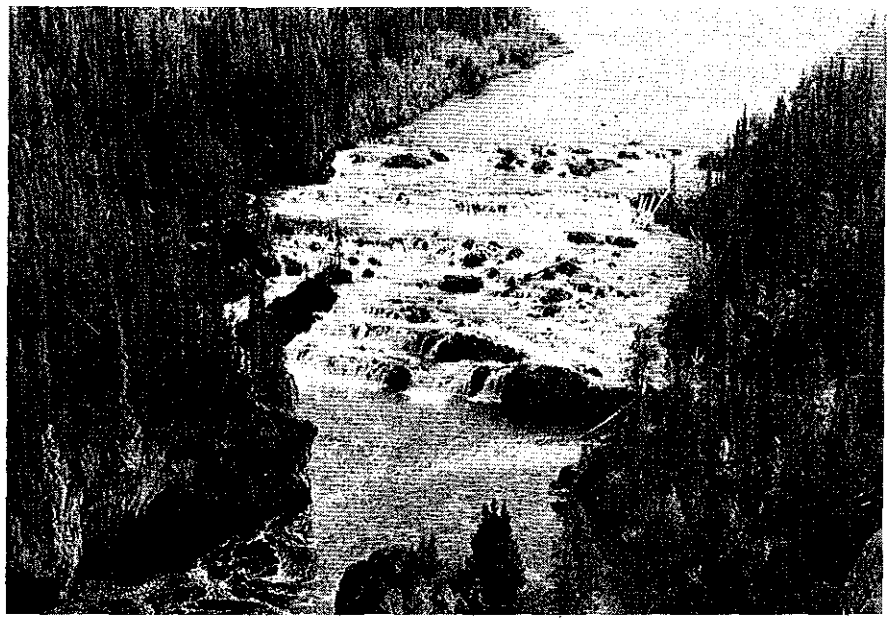
Estimated discharge 500 cfs 21/08/72. Water clear.

Water chemistry 21/08/72 (Hach).
Alkalinity: Phenol 0; MO 68.4 ppm.
Hardness: $CaCO_3$ 5.7 ppm
PH: 8.5 DO: 11 ppm CO_2: 5 ppm

Species present
A small-mesh seine-caught juveniles of the following: Chinook, arctic grayling, longnose suckers, northern pike and slimy sculpins. Adult chinook were observed at 25 mi. and 4 mi. up Glundebury Cr.

Date	Species	Count live	Count dead	Part of system counted	Agency
22/08/72	Chinook	10		mid-area	CF

* Does not include 8 mi. arm of Teslin Lake.



1. Rapids at outlet of Hutsigola Lake.

METRIC EQUIVALENTS

Length

Cm.	=	0.3937	In.		
Meter	=	3.28	Ft.		
Meter	=	1.094	Yd.		
Kilom.	=	0.621	Mile		
In.	=	2.54	Cm.		
Ft.	=	0.3048	Meter		
Yd.	=	0.9144	Meter		
Mile	=	1.61	Kilom.		

Area

Sq. Cm.	=	0.1550	Sq. In.		
Sq. M.	=	10.76	Sq. Ft.		
Sq. M.	=	1.196	Sq. Yd.		
Sq. Kilom.	=	.386	Sq. Mi.		
Sq. In.	=	6.45	Sq. Cm.		
Sq. Ft.	=	.0929	Sq. M.		
Sq. Yd.	=	.836	Sq. M.		
Sq. Mi.	=	2.59	Sq. Kilom.		
Acre	=	0.405	Hectare		
Hectare	=	2.47	Acres		
Acre	=	43560	Sq. Ft.		

Volume

Cu. Cm.	=	.061	Cu. In.		
Cu. M.	=	35.315	Cu. Ft.		
Cu. M.	=	1.308	Cu. Yd.		
Cu. In.	=	16.38	Cu. Cm.		
Cu. Ft.	=	.028	Cu. M.		
Cu. Yd.	=	.7645	Cu. M.		

Capacity

Liter	=	.0353	Cu. Ft.		
Liter	=	.21998	Gal. (Br.)		
Liter	=	61.023	Cu. In.		
Cu. In.	=	.0164	Liter		
Cu. Ft.	=	28.32	Liter		
Gal.	=	4.5459	Liter (Br.)		

Degrees Centigrade = 5/9 (Degrees Fahr. - 32)
Degrees Fahrenheit = 9/5 (Degrees Cent.)+ 32.

WATER QUANTITIES AND FLOW MEASUREMENTS

1 cubic foot per second (cfs) or second foot	= 373.2 gallons per min. (gpm)
1 cubic foot per second (cfs) or second foot	= .537408 million gallons
1 second foot	= approximately 2 acre-feet per day
1 second foot	= 86,400 cubic feet per day
1 million gallons per day	= 1.86 cfs.
1 acre-foot	= 43,560 cubic feet or 271,379 ga.
1 cubic foot of water	= 6.23 ga. and weighs 62.4 pounds.

ACKNOWLEDGEMENT

The collection of information on fish stocks in the study area was commenced by W. K. Elliott, Senior Fishery Officer from 1959 to 1963, and carried on by J. A. Summers, District Conservation Officer from 1963 to 1971, and G. E. Jones, District Supervisor since 1971, and staff: R. Rogerson. O. D. Sweitzer, P. J. Savoie, and R. E. Kendel.

R. F. Brown, M. Elson, D. Lush, B. Smith, E. Smyth and C. E. Walker participated in data collection on the Nisutlin River. R. F. Brown collated all information and prepared the text of the report. Typing was done by Miss E. Nolting.