THE CHUM SALMON SPAWNING GROUNDS OF THE FRASER RIVER

prepared for Advisory Group Spawning Ground Inspection

Dec. 6 - 7, 1983.

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COQUITLAM–PITT MEADOWS
AREA

ALOUETTE RIVER

LOCATION

Flows in a southerly direction for approximately 46 km entering the Chatham reach of Pitt River.

STREAM INFORMATION

The Alouette system is formed by two main branches, the North and South Alouette Rivers.

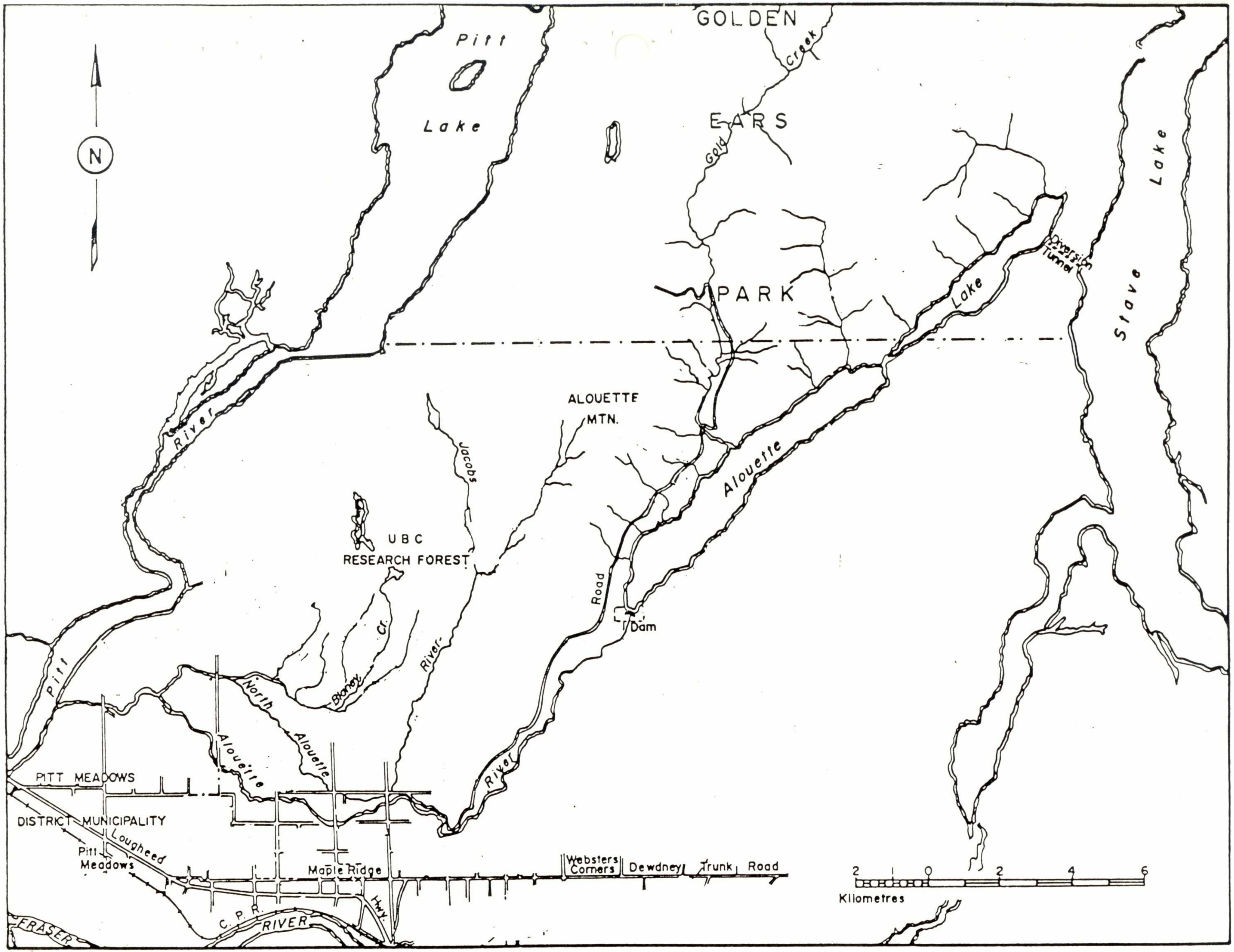
South Alouette River drains Alouette Lake and has a total length of 25 km. The upper 9.5 km has a rapids/pool character and flows through a shallow, wooded valley. Below this area the gradient decreases and much of this section has been channelized and dyked to prevent flooding of adjacent farmland. The lower 7.5 km is tidal and flows in a dyked channel through marsh and meadowland.

South Alouette chum salmon spawn in the middle section from approximately 7.6 km upstream to 15.0 km.

North Alouette River is joined in the upper 15 km by several tributaries as it flows through a densley wooded canyon. The stream emerges from the canyon 10 km upstream from the South Alouette confluence and forms a meandering channel across the lowlying plain, becoming slough-like in the lower 6 km. There are gravel deposits between 9.5 km and 6 km from the confluence, below which the channel has been dredged and dyked. Blaney creek joins the North Alouette in this section, and contains 1.6 km of spawning grounds.

On the North Alouette chum spawn from 6 km to 7 km upstream.

The Alouette River watershed has been the site of considerable enhancement effort to date. The Fish and Wildlife Branch is conducting an ongoing program of steelhead smolt releases; SEP Operations has maintained a pilot chum hatchery on Blaney Creek since 1972 and the SEP Community Development Unit is operating a chum hatchery at the Alouette River Correctional Center.



N
Pitt Lake
GOLDEN EARS PARK
Gold Creek
Diversion Tunnel
Stave Lake
Alouette Lake
ALOUETTE MTN.
Jacobs
UBC RESEARCH FOREST
Blaney Cr.
River
Road
Dam
Alouette River
North Alouette
Alouette
Pitt River
PITT MEADOWS
DISTRICT MUNICIPALITY
Lougheed
Pitt Meadows
Maple Ridge
Hwy
Websters Corners
Dewdney Trunk Road
C.P.R.
FRASER RIVER
2 1 0 2 4 6
Kilometres

COQUITLAM RIVER

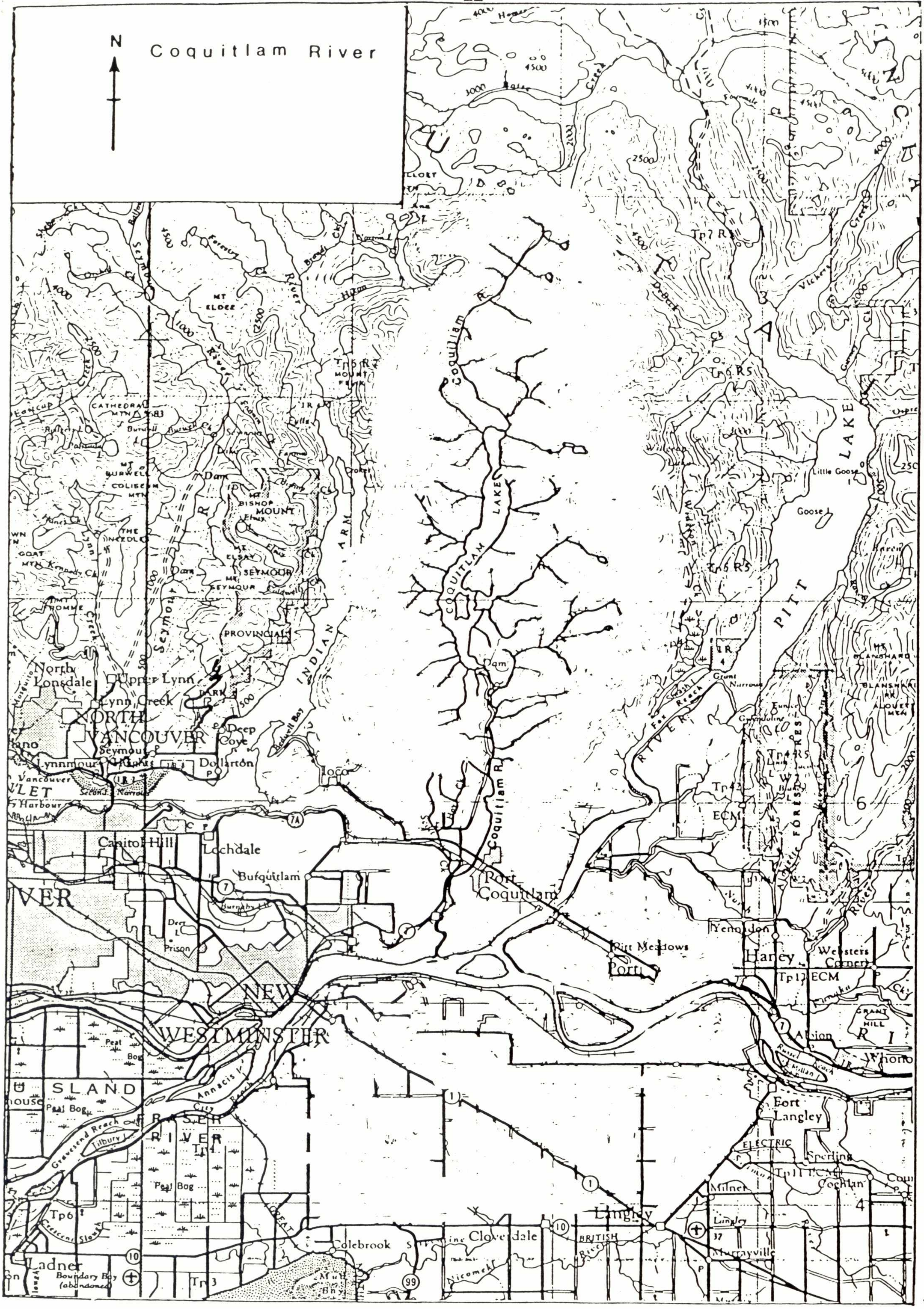
LOCATION

Flows south into the Fraser River west of Douglas Island.

STREAM INFORMATION

This stream drains Coquitlam Lake 11 km from the mouth. The lake is dammed.

Chum spawn in the central portion of the stream and within Hoy Creek.


N
Coquitlam River
Coquitlam R.
COQUITLAM LAKE
Dam
Coquitlam R.
INDIAN ARM
PITT LAKE
PITT RIVER
Port Coquitlam
Pitt Meadows
NORTH VANCOUVER
North Lonsdale
Upper Lynn
Lynn Creek
Deep Cove
Dollarton
Ioco
Capitol Hill
Lochdale
Burquitlam
NEW WESTMINSTER
Haney
Websters Corners
Albion
Fort Langley
Langley
Milner
Murrayville
Cloverdale
Colebrook
Ladner
FRASER RIVER
Tp 6 R 5
Tp 7 R 5
MT SEYMOUR
PROVINCIAL
Seymour River
Lynn Creek
Burnaby Lk
Deer L
Prison
Annacis I
Mud Bay
Boundary Bay (abandoned)
Nicomekl River
Grant Narrows
Little Goose
Goose I

CEDAR DITCH/SMILING CREEK

LOCATION

Flows east into Debouville Slough and then into the Pitt River.

MACINTYRE CREEK

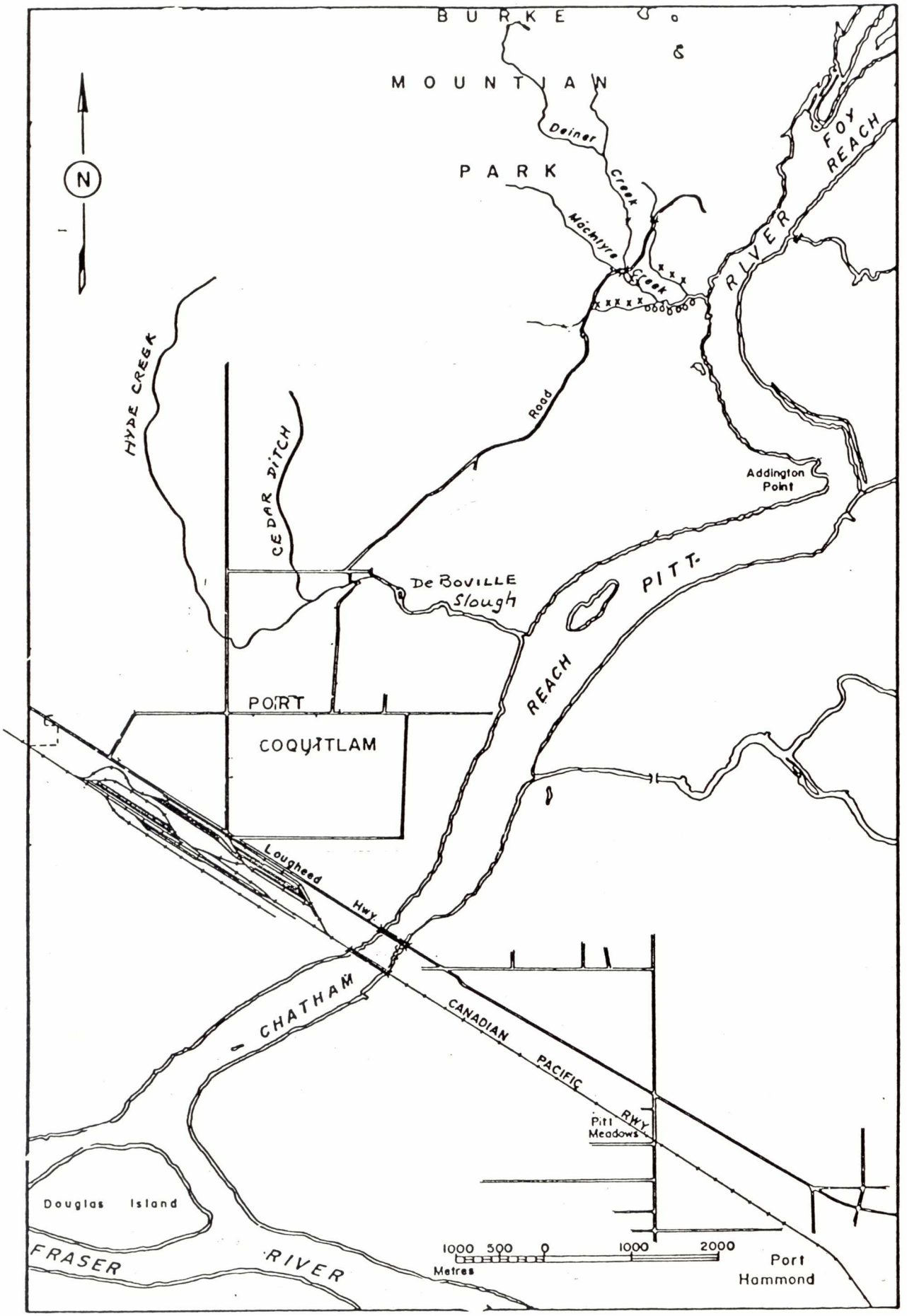
LOCATION

Flows in a easterly direction for approximately 3 km entering Pitt River north of Port Coquitlam.

STREAM INFORMATION

Two tributaries join MacIntyre Creek at kms 0.1 and 0.5. The former is a series of beaver ponds and the latter is relatively steep throughout. The lower 0.7 km of the creek is slough-like with scattered riffles and is well protected by streamside vegetation. Gravel deposits exist from 0.4 km to 1.6 km, above which the gradient increases and the substrate is cobble and boulder.

Chum spawn in the lower 1 km of the stream.


BURKE
MOUNTAIN
PARK
Deiner Creek
MacIntyre Creek
FOY REACH
RIVER
HYDE CREEK
CEDAR DITCH
Road
Addington Point
De Boville Slough
PITT
REACH
PORT COQUITLAM
Lougheed Hwy.
CHATHAM
CANADIAN PACIFIC RWY.
Pitt Meadows
Douglas Island
FRASER RIVER
1000 500 0 1000 2000
Metres
Port Hammond

UPPER PITT RIVER

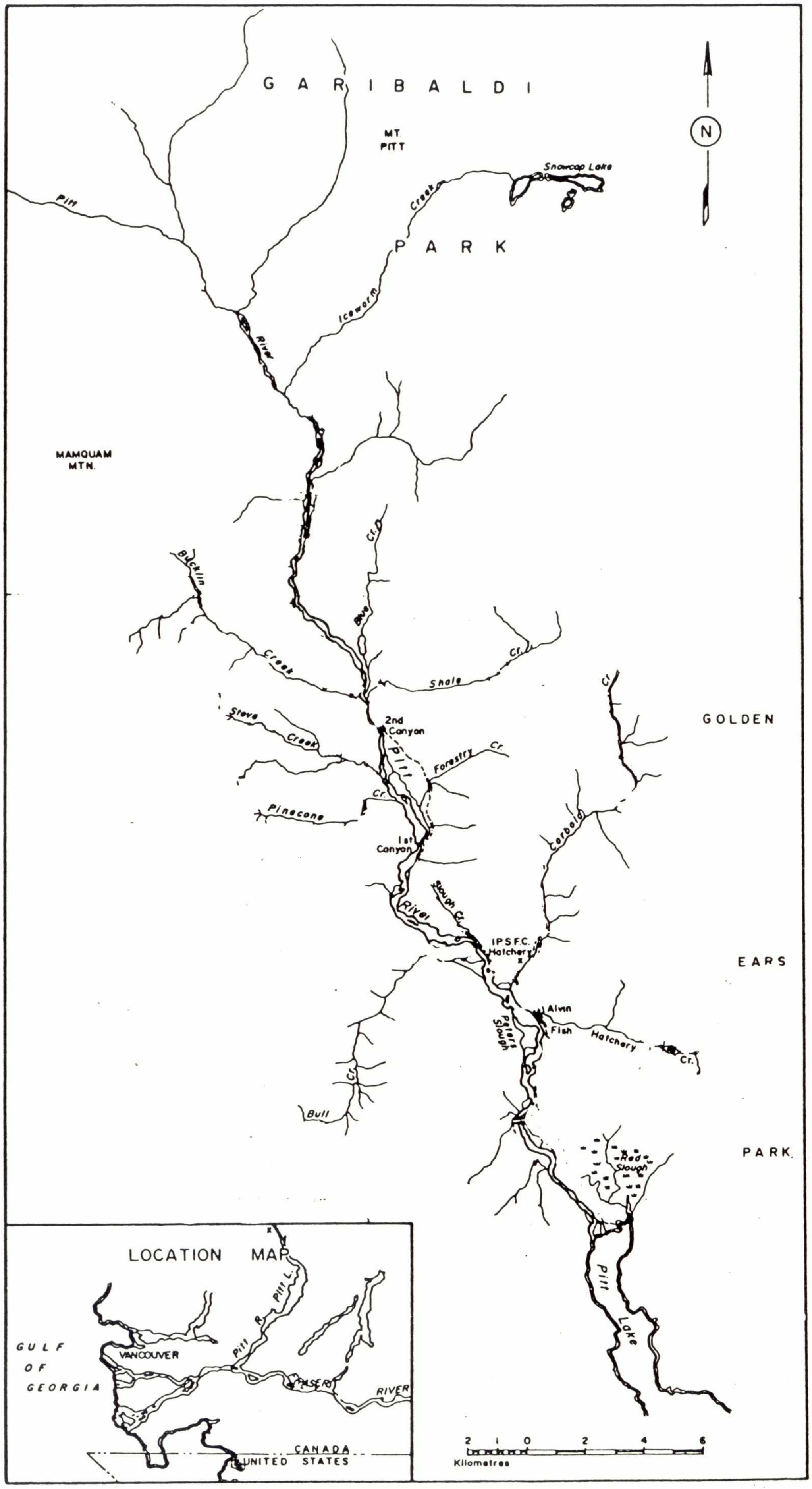
LOCATION

The Upper Pitt River flows south for 52 km entering Pitt Lake, north of Haney.

STREAM INFORMATION

The Upper Pitt River flows for much of its length in a braided, shifting channel across a wide, flat-bottomed valley bounded by steep mountains. The river is characterized by long rapids and riffles with frequent deep pools. There are no obstructions to salmonid migrants in the lower 40 km, however optimum spawning habitat is limited to the lower reaches of the tributaries and to the more stable side and back channels.

Chum salmon have been observed spawning in a side channel, known as Peter's Slough.


GARIBALDI
PARK
MT. PITT
Snowcap Lake
Creek
Iceworm
Pitt
River
MAMQUAM MTN.
Cr.
Blue
Bucklin
Creek
Shale
Cr.
Steve
Creek
2nd Canyon
Pitt
Forestry
Cr.
Cr.
Pinecone
1st Canyon
Corbold
Slough Cr.
River
IPSFC. Hatchery
Alvin
Fish
Hatchery
Cr.
Peters Slough
Cr.
Bull
GOLDEN
EARS
PARK.
Red Slough
Pitt
Lake
N
LOCATION MAP
GULF OF GEORGIA
VANCOUVER
Pitt R.
Pitt L.
FRASER
RIVER
CANADA
UNITED STATES
2 1 0 2 4 6
Kilometres

WIDGEON CREEK

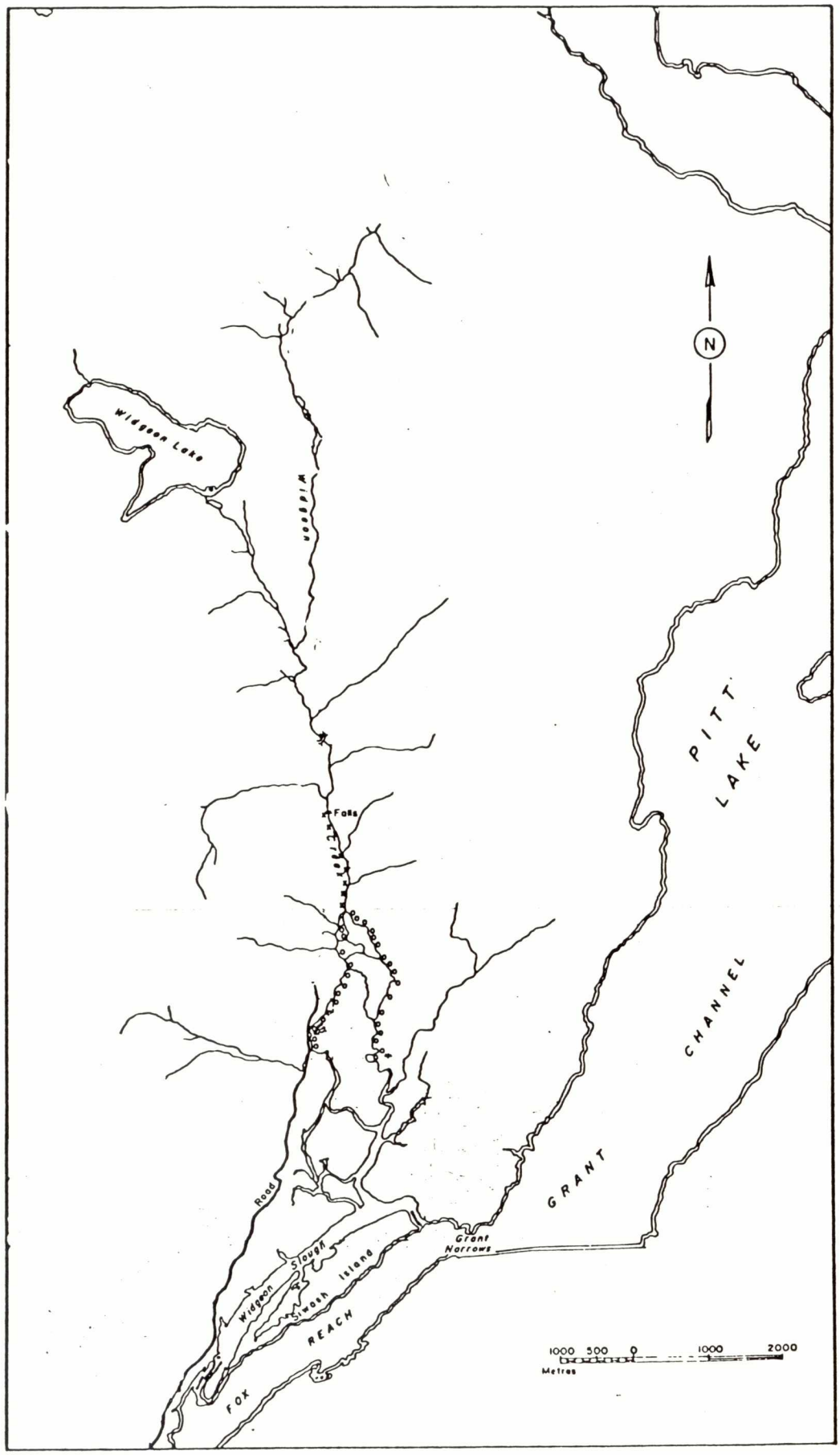
LOCATION

Flows south for approximately 16 km entering Widgeon Slough, a side channel of Pitt River, north of Port Coquitlam.

STREAM INFORMATION

The Widgeon system includes Widgeon Lake and several tributaries. The creek has a steep gradient and flows in a canyon for most of the upper 10.5 km. The valley broadens at 5.5 km and the creek flows across a wide alluvial fan. Widgeon Creek forks at km 4.0, with the west branch recieving most of the flow. The west branch is broad with a rapids/pool streamtype, while the east branch is narrow with a meandering riffle/pool form. Below km 2.0, both branches are marshy, with numerous side and cross channels.

Chum spawn from 2.5 km to 4.0 in west Widgeon, and 2.0 km to 3.0 km in east Widgeon Creek.


Widgeon Lake
WIDGEON
Falls
PITT
LAKE
CHANNEL
GRANT
Grant
Narrows
Road
Slough
Widgeon
Sloughs
Island
REACH
FOX
N
1000 500 0 1000 2000
Metres

DOUGLAS ISLAND-MISSION
AREA

CLAYBURN CREEK

LOCATION

Flows in a northerly direction for approximately 13 km entering Matsqui Slough north of Abbotsford.

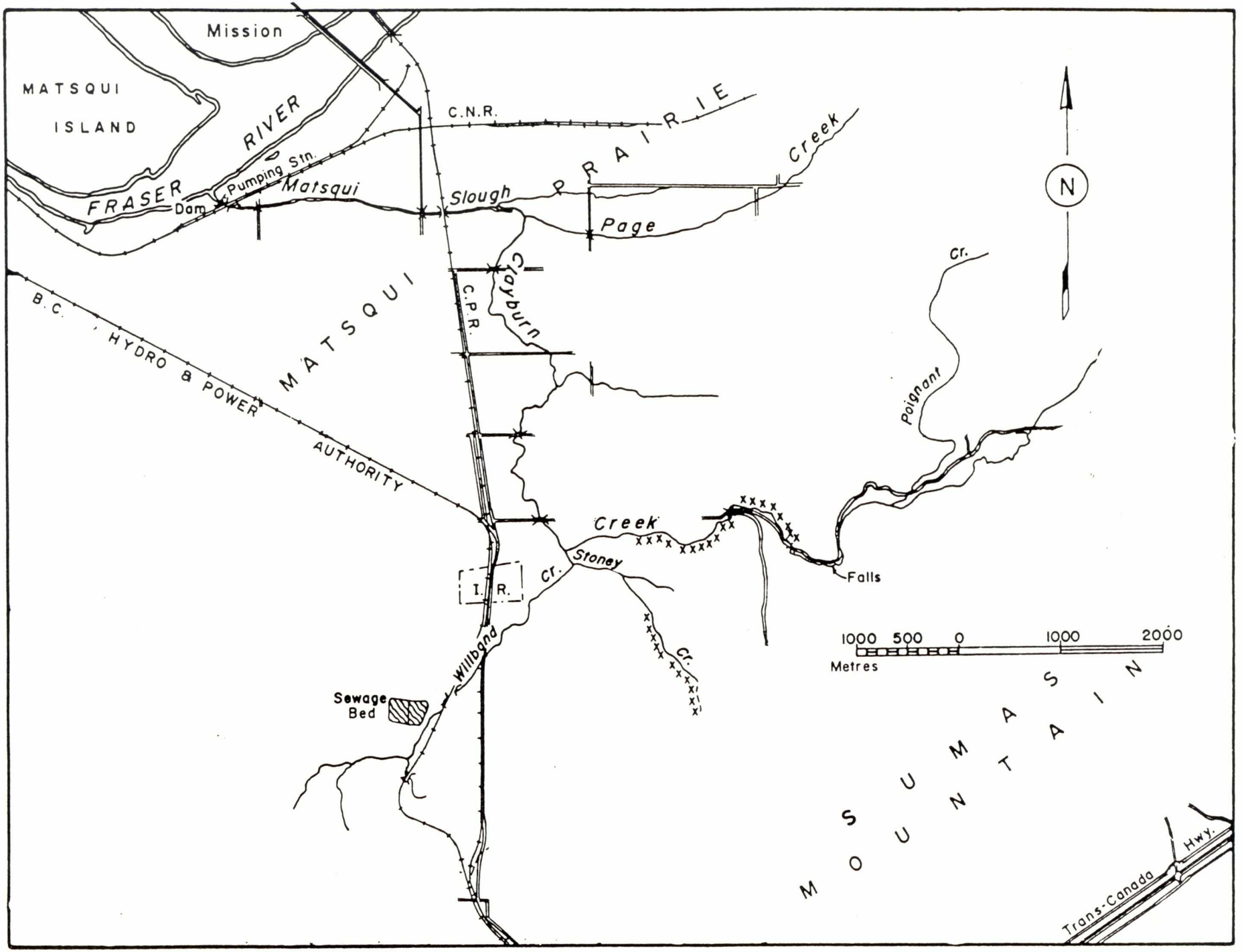
STREAM INFORMATION

In the lower 5.5 km Clayburn Creek is confined to drainage ditches flowing through exposed farmland. Above 5.5 km there is a progressive increase in slope. The creek is riffle/pool between 5.5 km and 7 km, then changes to rapids/pool and is impassable beyond 8.5 km upstream.

Stoney and Willband Creeks, join Claburn Creek approximately 5 km upstream. The latter is slough-like throughout and has little value as a salmonid producer. Stoney is a small creek with coarse gravel substrate.

In Clayburn Creek spawning occurs from kms 5.5 to 7.0. Above km 7.0 the substrate is rubble and spawning is scattered.

Coho and chum also spawn throughout Stoney Creek. Chum have not been observed since 1978.


Mission
MATSQUI
ISLAND
RIVER
FRASER
Dam
Pumping Stn.
Matsqui
Slough
C.N.R.
PRAIRIE
Creek
Page
N
Cr.
Grayburn
C.P.R.
MATSQUI
B.C. HYDRO & POWER AUTHORITY
Poignant
Creek
Stoney
Cr.
I. R.
Falls
Willband
Cr.
Sewage Bed
1000 500 0 1000 2000
Metres
SUMAS MOUNTAIN
Trans-Canada Hwy.

KANAKA CREEK

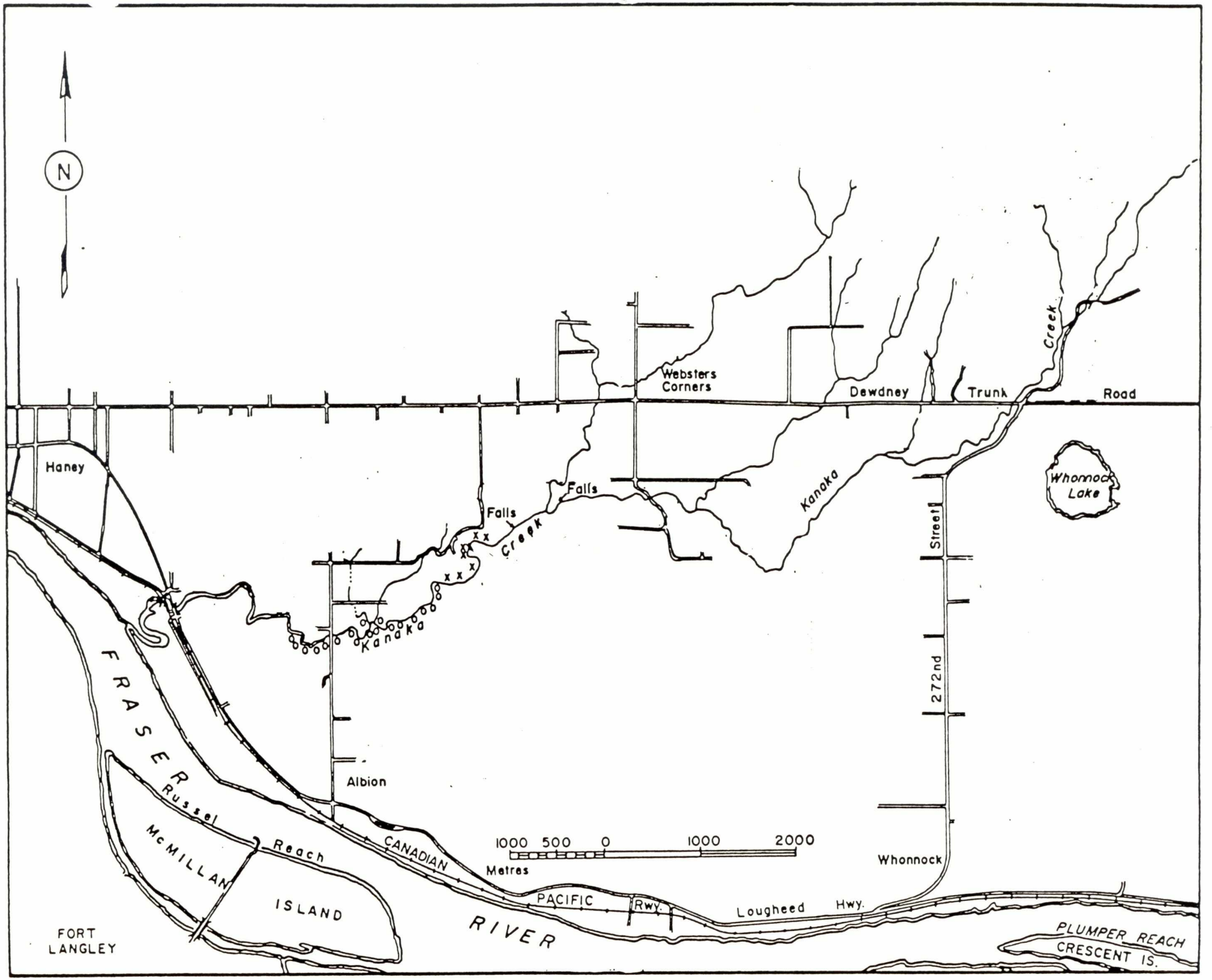
LOCATION

Flows in a southerly direction for approximately 19 km entering Fraser River northwest of McMillan Island.

STREAM INFORMATION

Kanaka Creek is an extensive system with numerous upper tributaries. Two main branches join at 7.6 km, immediately above the canyon. The creek emerges from the canyon at 5.7 km and flows in a meandering channel across a low-lying plain, becoming slough-like in the lower 3.3 km. Excellent gravel deposits exist above 3.3 km changing to a cobble/boulder substrate for most of the canyon.

Kanaka Creek chum spawn between kms 3.3 to 5.5.


N
Websters Corners
Dewdney
Trunk
Road
Creek
Haney
Falls
Falls
Creek
Kanaka
Kanaka
Whonnock Lake
Street
272nd
Albion
FRASER
Russel
Reach
McMILLAN
ISLAND
CANADIAN
PACIFIC
Rwy.
Lougheed
Hwy.
RIVER
Whonnock
1000 500 0 1000 2000
Metres
FORT LANGLEY
PLUMPER REACH
CRESCENT IS.

SILVERDALE CREEK

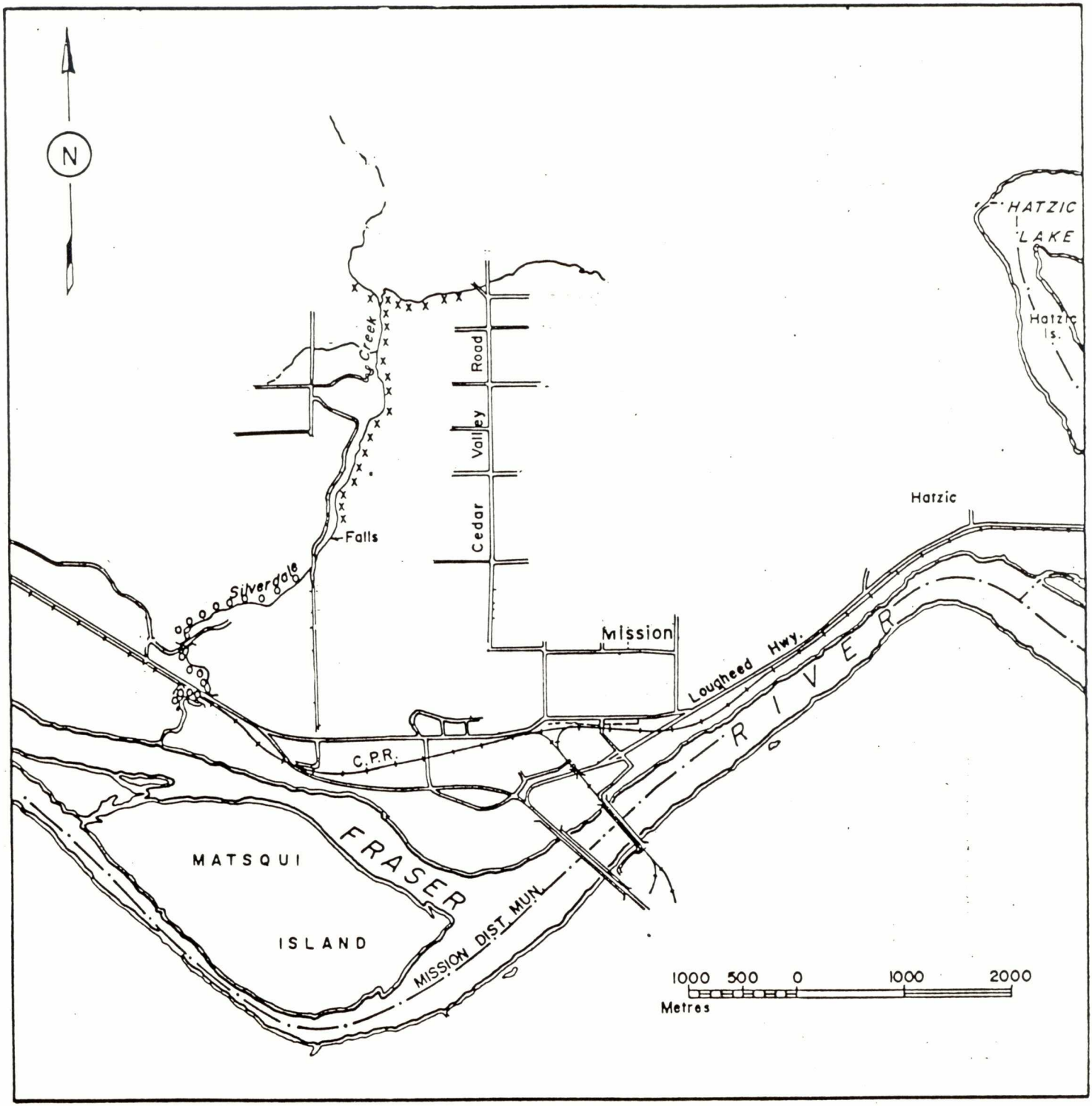
LOCATION

Flows south for approximately 8 km entering Fraser River at the west end of Matsqui Island.

STREAM INFORMATION

Except for the lower 1 km, where the land has been cleared, the creek flows in a small, densely wooded valley. In the lower 1 km, the creek is slough-like, above which the stream-type is riffle/pool with a gradually increasing gradient and excellent gravel deposits. Between 3.1 km and a small falls at km 4.3, the stream is turbulent with a boulder substrate.

Chum spawn heavily from 1.0 km upstream to 2.0 km and lightly up to 3.1 km, where cobble becomes more predominant.


N
HATZIC
LAKE
Hatzic
Is.
Creek
Road
Valley
Cedar
Falls
Silvergale
Hatzic
Mission
Lougheed Hwy.
C.P.R.
FRASER
RIVER
MATSQUI
ISLAND
MISSION DIST. MUN.
1000 500 0 1000 2000
Metres

STAVE RIVER

LOCATION

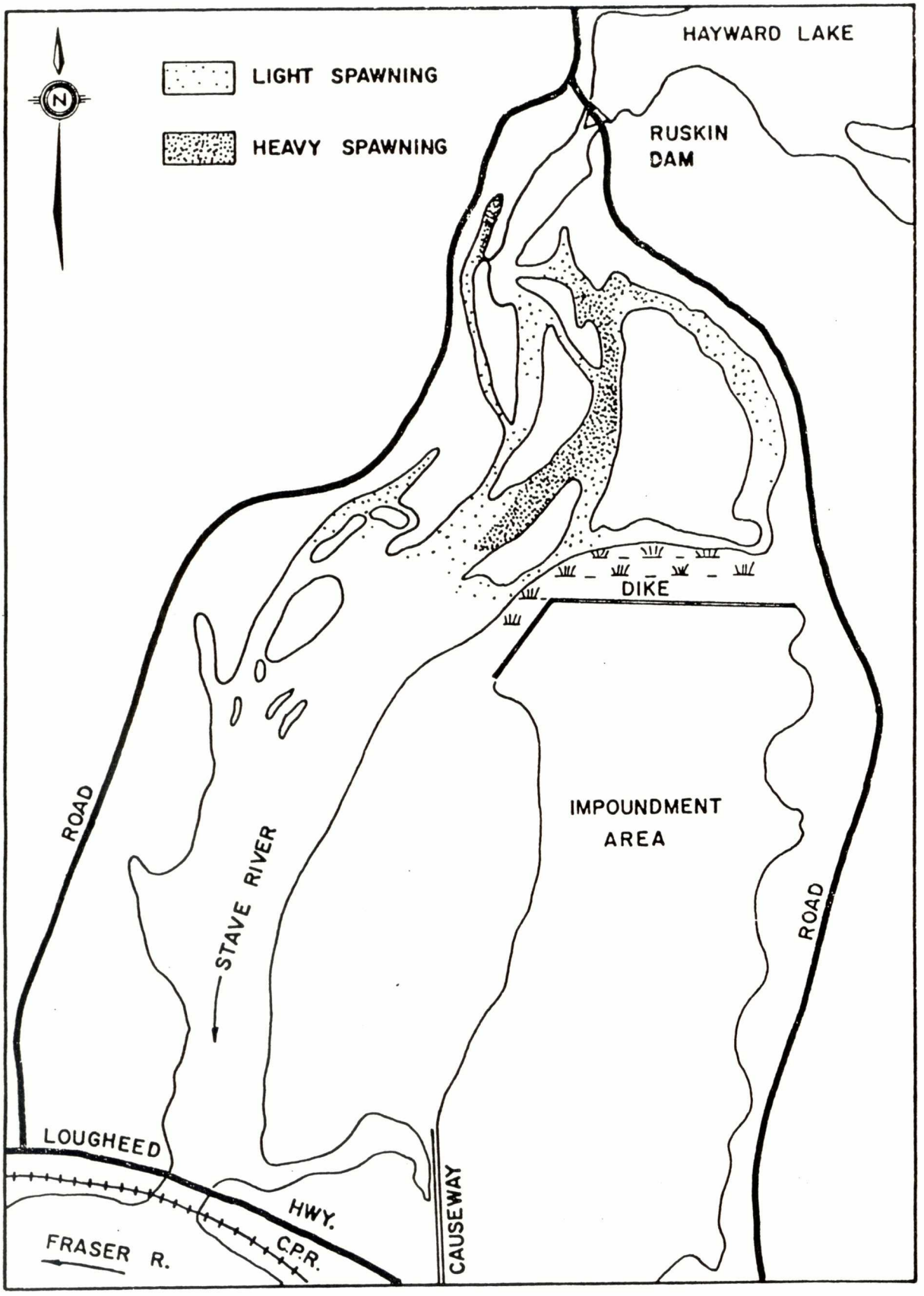
Flows south into the Fraser River at Ruskin.

STREAM INFORMATION

The Stave River, is one of the major chum salmon producing tributaries of the Fraser River system. The system was developed many developed many years ago for hydro-electric power. Ruskin Dam, the lower most on the system, is located only 2.5 km from the Fraser River, and acts as a complete barrier to salmon migration. The turbines are operated according to power demand and considerable fluctuations in daily discharges occur.

The river below the dam flows through a broad valley and is characterized by a wide channel with a number of side channels, a moderate gradient and substrate of good quality spawning gravel. The discharge from Ruskin Dam has low silt load and , as a result, the gravel is not subjected to siltation. Towards the outlet the river is characterized by a low gradient and is affected by back watering from the Fraser River. This lower section of the river is not suitable for salmon spawning.

Despite the severe limitation of spawning area imposed as a result of the Ruskin Dam and the daily water fluctuations, a relatively large population of chum salmon currently utilizes the Stave River. About one-quarter of the spawning area is considered poor since the area is subjected to periodic exposure when the power plant is operating at low output.



Map of the Stave River showing chum salmon spawning distribution.

WEST CREEK

LOCATION

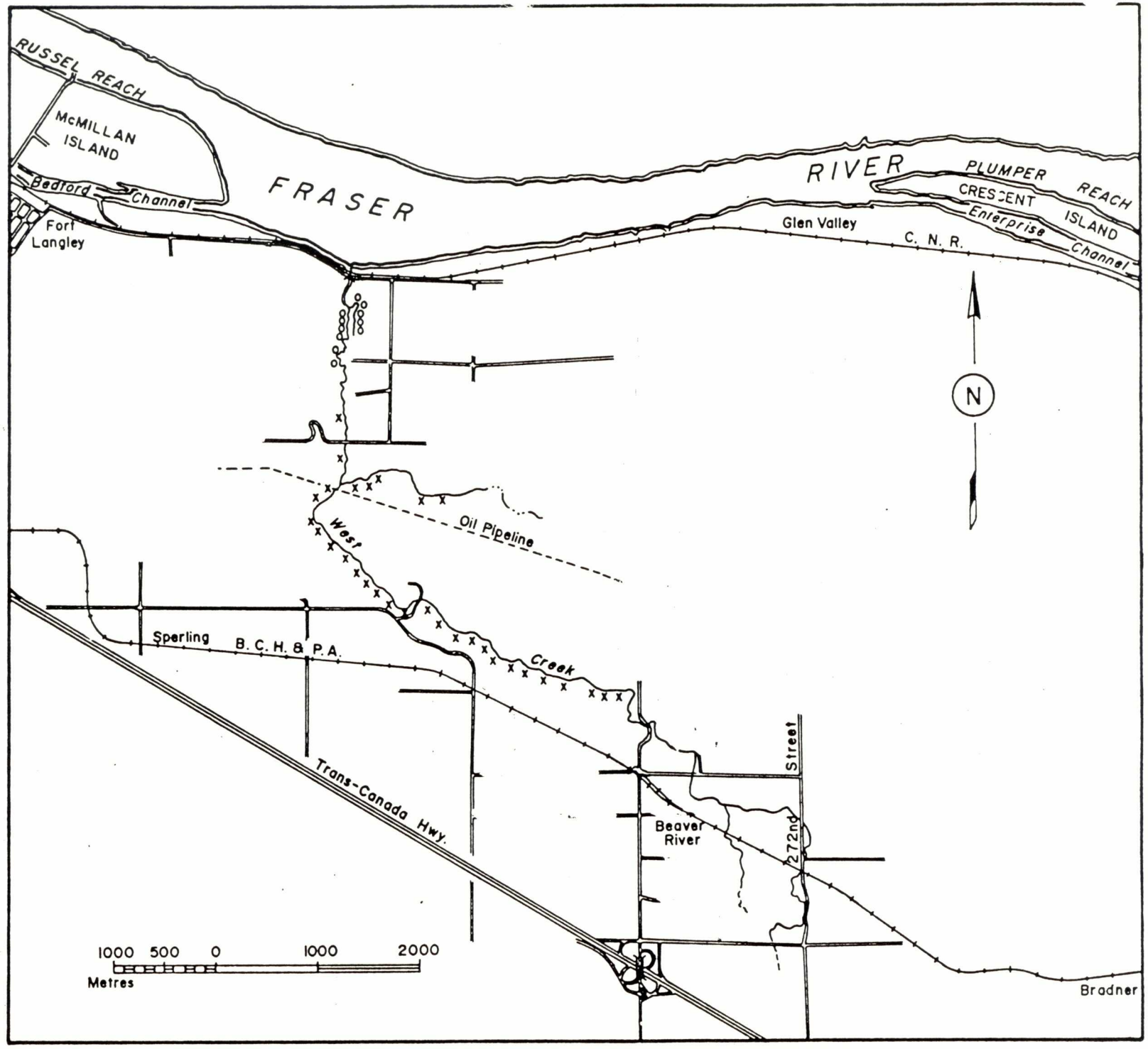
Flows in a westerly direction for approximately 6 km entering Fraser River east of McMillan Island.

STREAM INFORMATION

West Creek arises in a lowlying marshy area. Between kms 4.6 and 2.5 the creek flows through a densely wooded gulley and has a rapids/pool form with scattered gravel deposits. At 2.5 km, the creek flows onto the Fraser River flood plain where it meanders through exposed farmland, becoming slough-like in the lower 200 m.

A small, 100 m long tributary joins the creek at approximately 0.4 km. This stream has excellent gravel deposits and is fed primarily by groundwater sources.

Chum spawn in the tributary at 0.4 km, and in the lower 0.5 km of the mainstem.


RUSSEL REACH
McMILLAN ISLAND
Bedford Channel
FRASER RIVER
PLUMPER REACH
CRESCENT ISLAND
Enterprise Channel
Fort Langley
Glen Valley
C. N. R.
N
Oil Pipeline
West Creek
Sperling
B. C. H. & P. A.
Trans-Canada Hwy.
Beaver River
272nd Street
Bradner
1000 500 0 1000 2000
Metres

WHONOCK CREEK

LOCATION

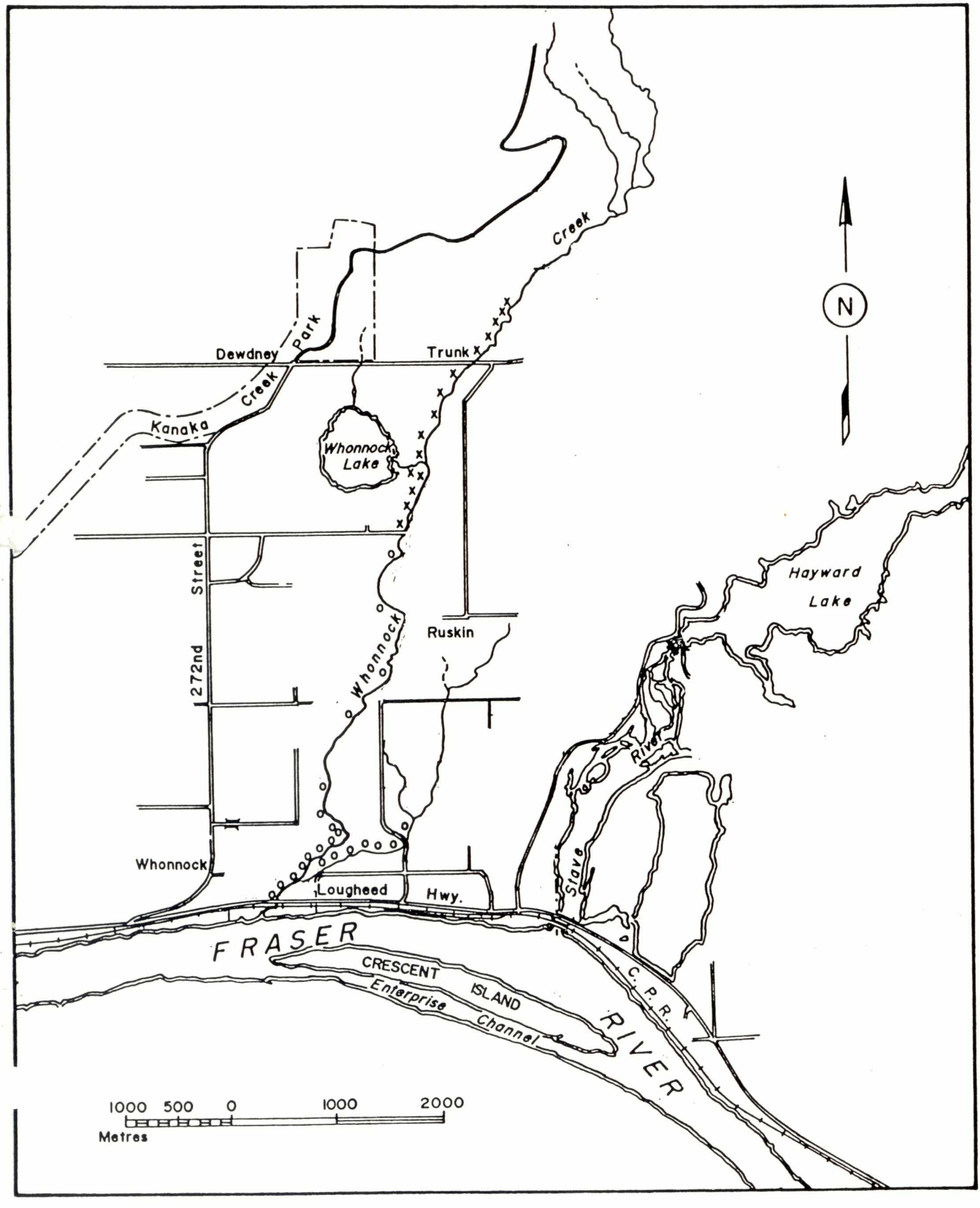
Flows south for approximately 12 km entering Fraser River at the west end of Crescent Island.

STREAM INFORMATION

Whonock Creek flows off the mountains onto a broad plateau before flowing down a narrow valley to the Fraser River. The lower 1.5 km section is riffle-pool with a gravel substrate, above which rapids predominate. Between kms 4.8 and 8.0 the stream meanders across the plateau, and a broad marsh is located at the mouth of the Whonock Lake tributary, approximately 5.0 km upstream. Above this section the slope increases sharply and the creek is impassable.

Whonock Creek is joined by two tributaries. A small tributary which enters at 1.2 km has gravel deposits in the lower 1 km. A tributary joining the main-stream at km 5.0 drains Whonock Lake.

Whonock Creek chum spawning is heavy in the lower 1.3 km and is then scattered up to km 5.0 in the lower tributary.


Creek
Dewdney
Park
Trunk
Creek
Kanaka
Whonnock
Lake
N
Hayward
Lake
Street
272nd
Whonnock
Ruskin
River
Slave
Whonnock
Lougheed
Hwy.
FRASER
CRESCENT
ISLAND
Enterprise
Channel
C. P. R.
RIVER
1000 500 0 1000 2000
Metres

YORKSON CREEK

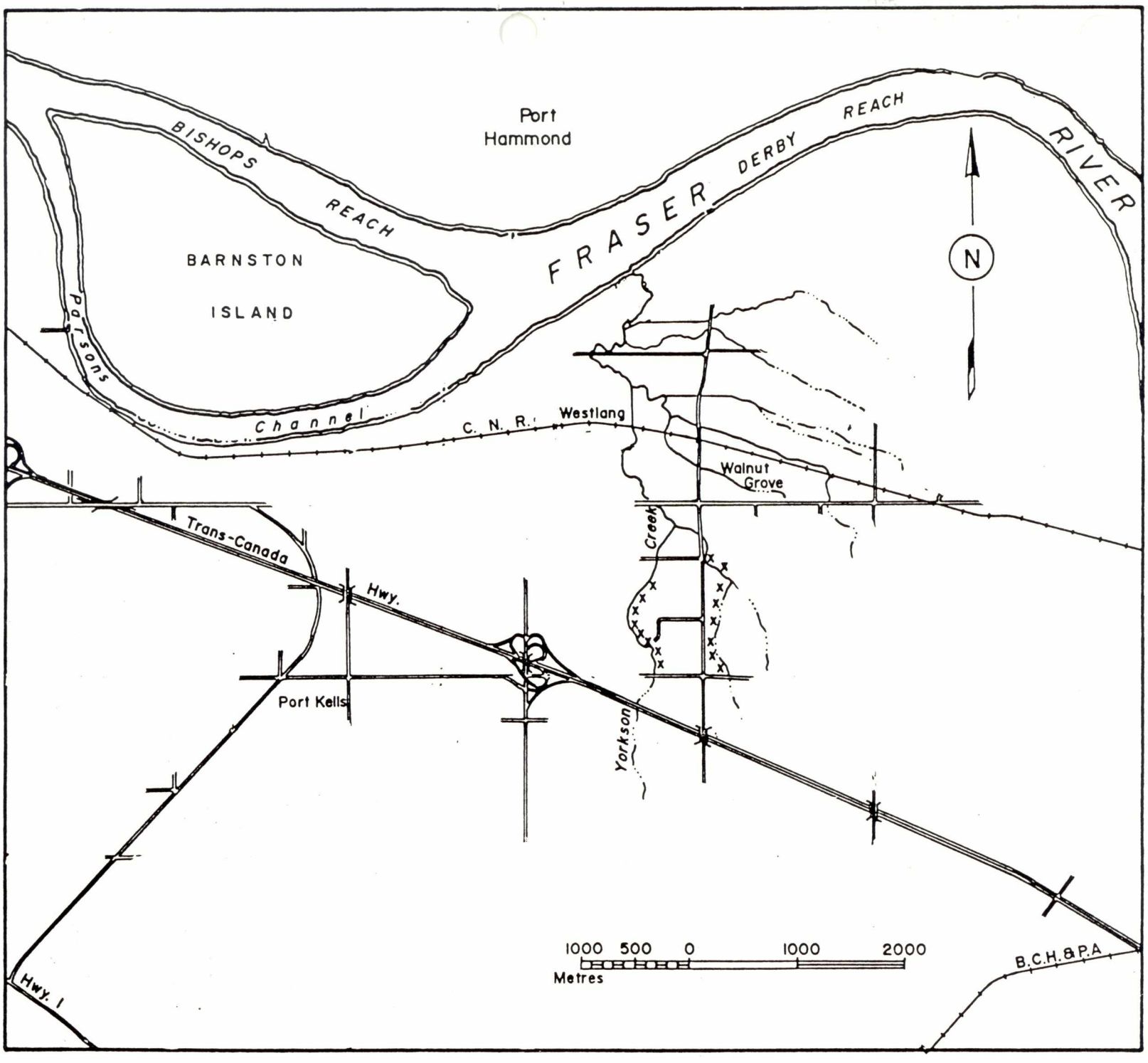
LOCATION

Flows north for approximately 7 km, entering the Derby Reach of Fraser River 1.5 km east of Barnston Island.

STREAM INFORMATION

Yorkson Creek is a small, low gradient stream. The stream flows in a small, densely vegetated gulley for the upper 4 km before flowing across an area of low lying farmland.

Coho spawning is scattered from 4.0 km upstream to 4.8 km on the mainstem. Chum have not been reported since 1953.


Port
Hammond
BISHOPS REACH
DERBY REACH
FRASER RIVER
BARNSTON
ISLAND
Parsons
Channel
C. N. R.
Westlang
Walnut
Grove
Creek
Trans-Canada
Hwy.
Port Kells
Yorkson
N
1000 500 0 1000 2000
Metres
B.C.H. & P.A.
Hwy. 1

MISSION-SUMAS MOUNTAIN AREA

LAGACE (BOUCHIER) CREEK

LOCATION

Flows south for approximately 11 km entering Hatzic Slough, north of Hatzic Lake.

STREAM INFORMATION

Lagace Creek flows through a broad valley. The upper creek drains Allan Lake and is joined by several steep mountain tributaries before dropping through a 0.6 km long gulley onto the Hatzic Prairie. In the lower 4 km, Lagace Creek flows in a dyked channel and is slough-like in the final kilometer.

Lagace Creek is joined by several tributaries, including Bouchier and Wilkinson creeks. The main creek and tributary areas approximately 2 km upstream are the main areas important to chum salmon. The lower 1.5 km of this stream has a riffle/pool character and contains extensive gravel deposits.

Chum spawning is heavy in the tributary areas, and light in the mainstem between kms 1.8 to 3.3.

SCOREY CREEK

LOCATION

Flows west into Hatzic Slough.

STREAM INFORMATION

A short stream with approximately 2 km of accessible water. Chum spawning occurs in about one third of the stream's area.

CHILQUA (THOMPSON) CREEK

LOCATION

Flows west for approximately 2.5 km entering Chilqua Slough 3 km east of Hatzic Lake.

STREAM INFORMATION

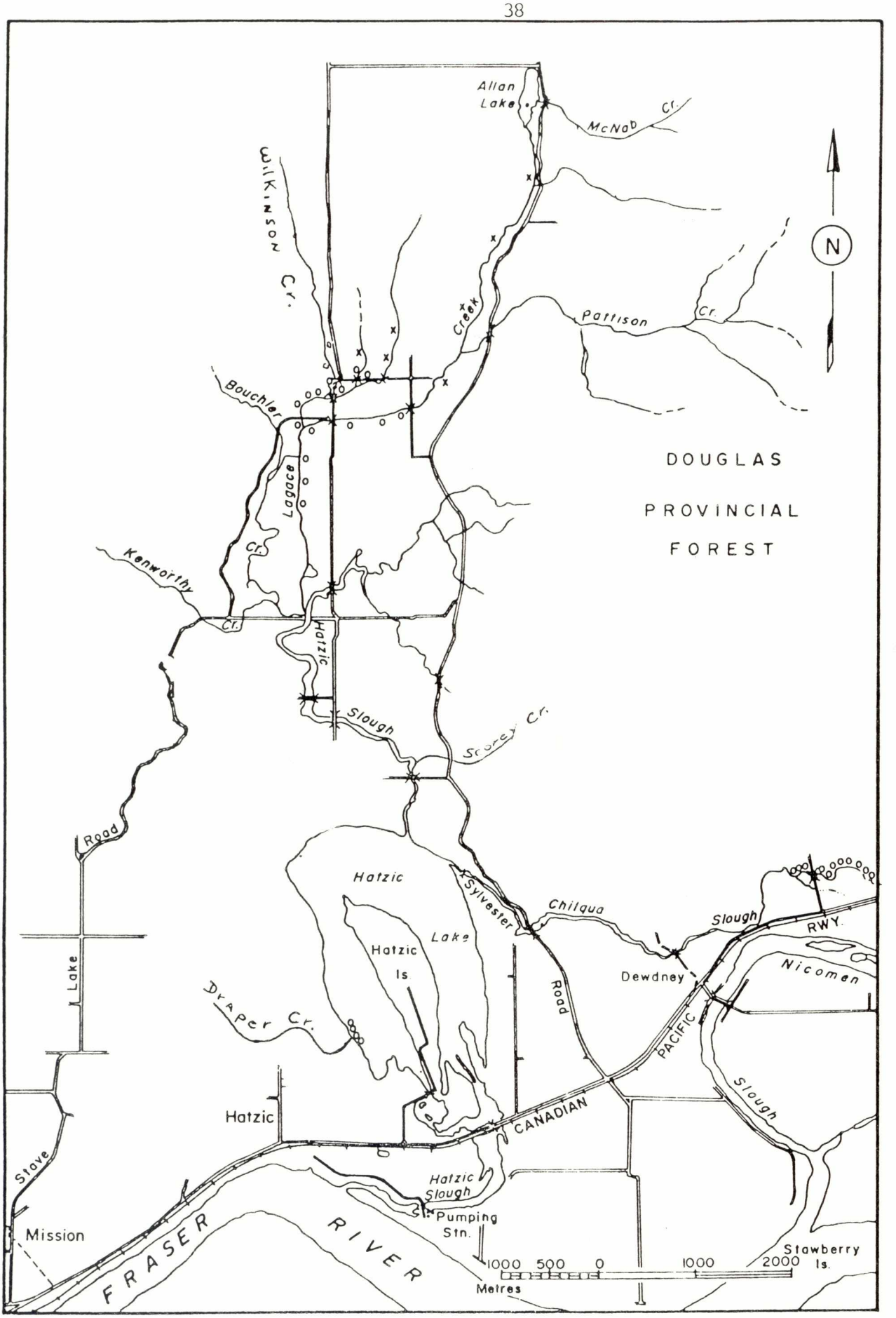
Chilqua Creek is a low gradient, groundwater system. The lower mainstem and the south branch, which joins 1 km upstream, are marshy throughout. The north branch originates in a series of upwelling pools. Stream type is typically riffle/run with a sand/pebble substrate.

Chilqua Creek chum salmon spawn throughout the north branch.

DRAPER CREEK

LOCATION

Flows east into Hatzic Lake.


Allan Lake
McNab Cr.
Wilkinson Cr.
Creek
Pattison Cr.
N
Bouchler
Lagace Cr.
DOUGLAS
PROVINCIAL
FOREST
Kenworthy Cr.
Hatzic Slough
Scurey Cr.
Road
Hatzic
Sylvester
Chilqua
Slough
RWY.
Hatzic Lake
Hatzic Is
Dewdney
Nicomen
Draper Cr.
Road
PACIFIC
Slough
Hatzic
CANADIAN
Stave
Hatzic Slough
Pumping Stn.
Mission
FRASER RIVER
Strawberry Is.
1000 500 0 1000 2000
Metres

NICOMEN SLOUGH AND TRIBUTARIES

LOCATION

Flows west for approximately 22 km entering Fraser River east of Mission.

STREAM INFORMATION

Nicomen Slough is a former side channel of the Fraser River which flows in a broad, diked channel through agricultural land. Excellent gravel deposits exist through much of the slough, however backflooding during peak Fraser River discharges coupled with reduced flows have resulted in the deposition of a thick layer of silt over most of the slough bottom. As a result, clear gravel exists only at channel constrictions and in areas with upwelling water.

Several streams tributary to Nicomen Slough are important salmon producers:

NORRISH CREEK (described elsewhere)

RAILROAD CREEK is a small groundwater-fed creek which meanders through exposed farmland, entering Nicomen Slough east of the East Norrish confluence. Chum spawn throughout the creek. The spawning area in this tributary was recently rehabilitated by SEP.

NORTH NICOMEN CREEK (local name) flows west for approximately 1.6 km entering the slough 4.5 km west of Deroche. Gravel deposits exist in a series of upwelling pools between 0.6 km and a marsh located 0.75 km upstream. Chum spawning is observed in these gravel areas.

DEROCHE (CRAZY) CREEK flows in a southerly direction entering the slough 200 m west of Deroche. Gravel deposits exist in the lower 300 m above which the gradient precludes further access.

PYE CREEK flows in a southerly direction entering the slough 1.3 km east of Deroche. Spawning occurs up to the impassable culvert and boulder trap 300 m upstream.

Chum salmon spawn in several primarily groundwater-fed areas throughout the upper slough: in a short section at the confluence of North Nicomen Creek; between kms 0.6 and 0.74 in North Nicomen Creek; at groundwater extrusions and channel constrictions from the Deroche highway bridge upstream for approximately 4 km.

Available data indicates that prior to the damming of Nicomen Slough inflows in 1937, this system was a significantly greater chum producer than at present.

SIDDLE (BELLS, TATHAM) CREEK

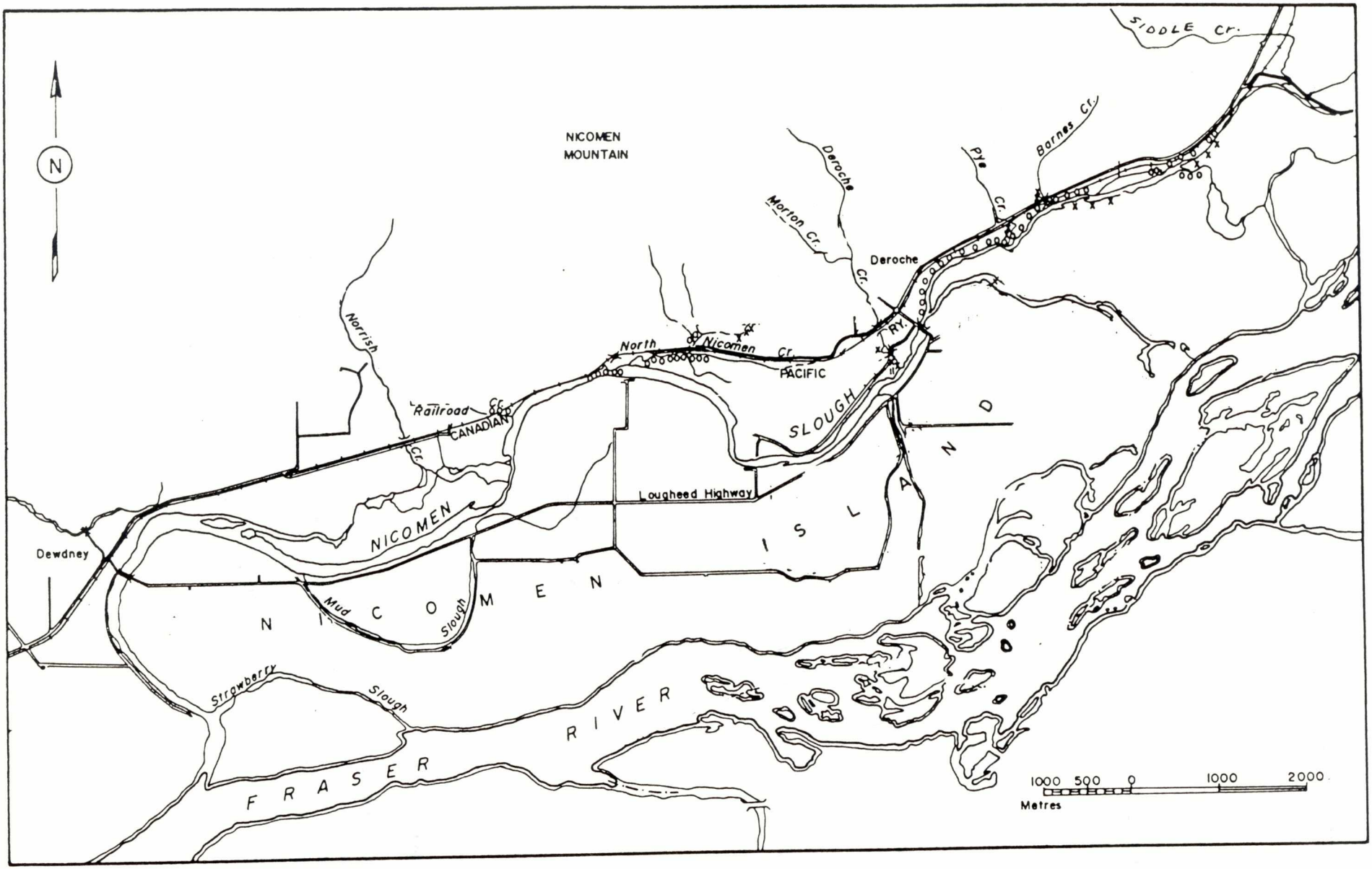
LOCATION

Flows in a southerly direction for approximately 6 km entering Nicomen Slough east of Deroche.

STREAM INFORMATION

Siddle Creek arises north of Nicomen Slough. The creek is steep in the upper 4 kms, changing in lower 1.3 km to a riffle/pool form with excellent gravel deposits. Beaver dams are frequent throughout much of the lower creek.

Siddle Creek chum spawn in the lower 0.5 km.


N
NICOMEN
MOUNTAIN
SIDDLE Cr.
Barnes Cr.
Pye Cr.
Deroche Cr.
Morton Cr.
Deroche
RY.
PACIFIC
North
Nicomen Cr.
Norrish
Railroad
CANADIAN
Cr.
SLOUGH
NICOMEN
ISLAND
Lougheed Highway
Dewdney
NICOMEN
Mud Slough
Strawberry Slough
FRASER RIVER
1000 500 0 1000 2000
Metres

NORRISH (SUICIDE) CREEK

LOCATION

Flows south for approximately 25 km entering the west end of Nicomen Slough.

STREAM INFORMATION

The Norrish Creek system includes Dickson Lake and several major tributaries. It flows through a steep canyon for much of the upper 20 km. Emerging from the canyon at approximately 4.5 km, the creek flows into a 2.4 km long diked channel before entering a wide alluvial fan where the creek forks. East Norrish Creek, and West Norrish Creek above 1.3 km, are extensively braided and contain excellent gravel deposits. The lower 1.2 km of the west branch has slough-like nature.

The west branch is joined by Inch Creek. The east branch is joined by Worth Creek, a 0.9 km long springfed stream which enters Norrish Creek 1 km upstream.

Norrish Creek chum spawn throughout the east branch, and in the west branch above 1 km. Chum also spawn heavily in the upper 100 m of Worth Creek.

The Small Projects group of SEP rehabilitated much of Worth Creek.

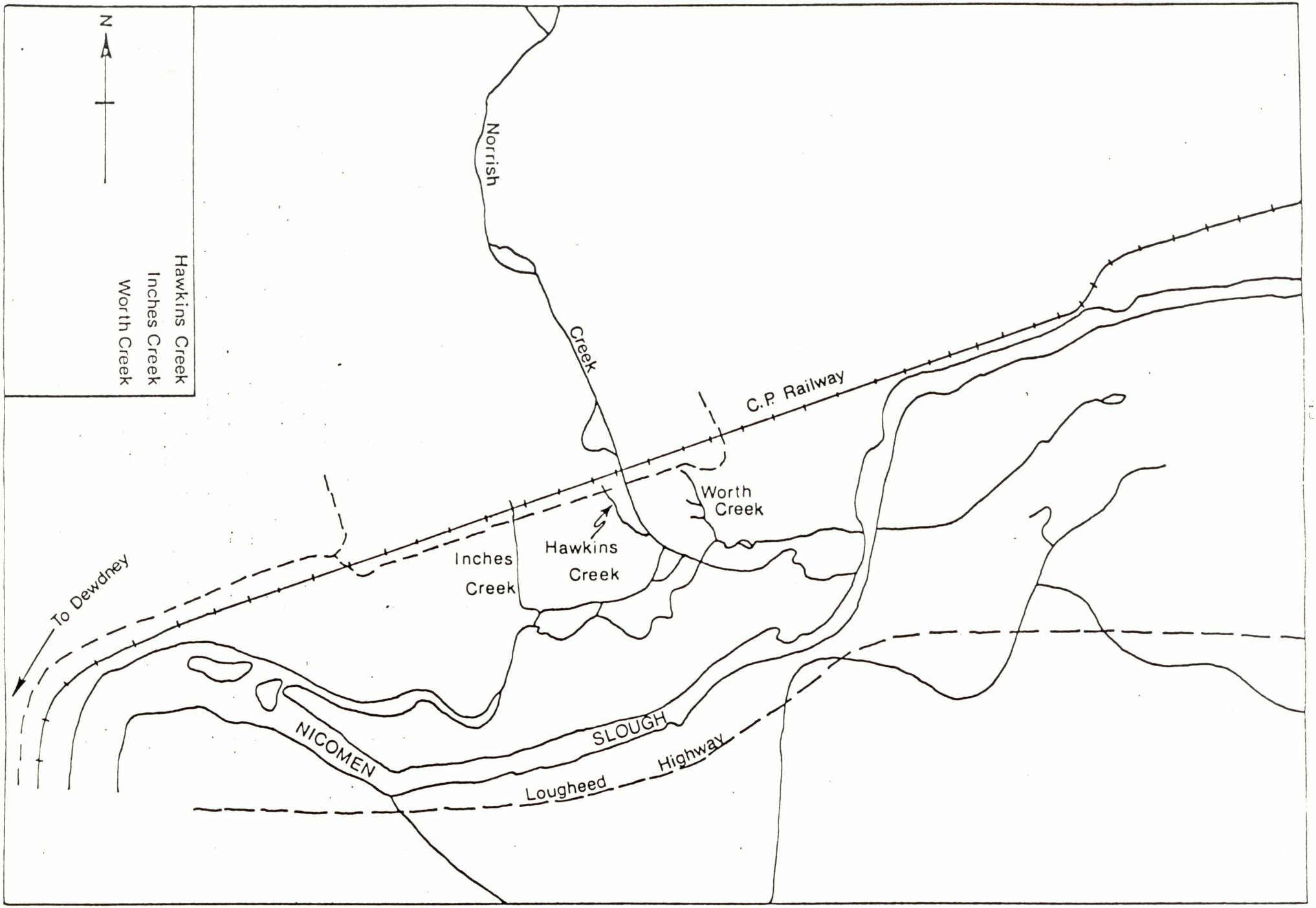
INCH (INCHES) CREEK

LOCATION

Flows south into Norrish Creek east of Dewdney.

STREAM INFORMATION

Inch Creek is a small spring-fed stream draining into Norrish Creek near the confluence with Nicomen Slough. Inch Creek is approximately 1.5 km long and is well supplied with ground water flow. The Department of Fisheries carried out stream improvement work on Inch Creek which included: installation of drains to enhance the ground water flow; installation of weirs in the upper portion of the stream to increase water depth over the spawning area; and improvement of gravel quality in the upper portion of the stream. A pilot hatchery was built in 1970 and expanded in 1982.


N
Hawkins Creek
Inches Creek
Worth Creek
Norrish
Creek
C.P. Railway
Worth
Creek
Hawkins
Creek
Inches
Creek
To Dewdney
NICOMEN
SLOUGH
Lougheed
Highway

VEDDER RIVER AND TRIBUTARIES

VEDDER-CHILLIWACK RIVER

LOCATION

Flows in a westerly direction 60 km into the Fraser River at Sumas Mountain.

STREAM INFORMATION

This river is the only large tributary on the south bank of the Fraser River below Hope. The 15 km of river downstream from Vedder Crossing has been designated as the Vedder River and upstream from that point has been designated as the Chilliwack River.

In the first 6.5 km below Vedder Crossing the Vedder River flows on an alluvial fan. The river in this area is largely confined between dykes and a number of side channels previously utilized for chum salmon spawning are blocked at the upstream ends. The lower 8 km of the Vedder River is also confined between dykes and flows across the former flood plain of the Fraser River. This section is charaterized by low gradient and large deposits of debris and silt.

The first 3 km of the stream above Vedder Crossing are similar to the upper section of the Vedder River. The remaining 42 km of the Chilliwack River are confined to a narrow valley. This area is characterized by canyon sections with a streambed consisting of boulders and bedrock interspersed with broad sections consisting of boulders and gravel. The Chilliwack River is relatively stable from the lake to Slesse Creek and the water carries a low silt load.

Of the several major tributaries which flow into the Chilliwack River only Sweltzer Creek, which drains Cultus Lake, supports the largest run of chum salmon.

The location of the major chum salmon spawning areas in the Vedder-Chilliwack River system are described below.

The Lower River

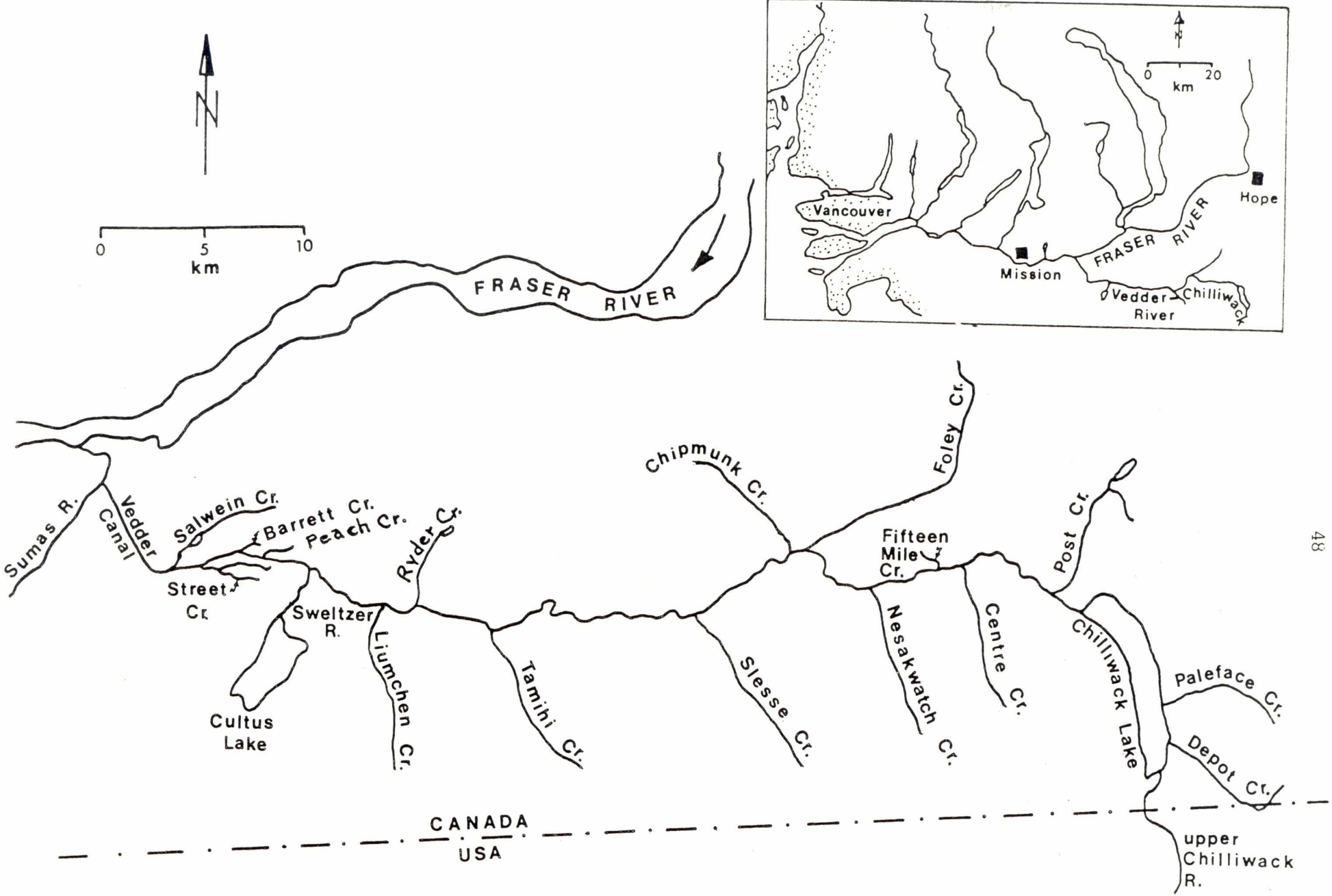
This area includes the 10 km of stream between Vedder Canal and Liumchen Creek. Chum salmon spawning within this area is mainly within the side channels of the main river many of which have been blocked by dykes at the upstream ends. This section of river is the major area utilized by chum salmon in the Vedder-Chilliwack River. The tributary spawning areas in this section are Barrett, Peach, Street, and Salwein Creeks and Hopedale Slough. SEP has improved the spawning gravels in some of these areas.

The Upper River

This area includes a 11 km section of the Chilliwack-Vedder River located below Chilliwack Lake. Within this section, chum salmon spawn primarily in the mainstem of the river and in a number of side channels. The upper river has remained stable and in recent years an increasing proportion of the Vedder-Chilliwack chum salmon population has spawned in this area.

Chum salmon spawn throughout the 3.5 km length of Sweltzer Creek, and within Cultus Lake. Spawning is concentrated in the area downstream of Cultus Lake and in the lower 0.8 km of the creek.

Slesse, Foley and Nesakwatch Creeks also contain chum spawning areas. Chum are occasionally reported from the upper Chilliwack River (above Chilliwack Lake).



Vedder-Chilliwack River system.

SUMAS RIVER

LOCATION

Flows northwest into Fraser River at the mouth of Vedder Canal.

STREAM INFORMATION

This 24 km long stream enters Canada near Huntington. Lonzo Creek is a major tributary entering near Kilgard. Chum spawn in the lower 1 km of Lonzo Creek and in the main Sumas near Kilgard.

HARRISON RIVER AND TRIBUTARIES

BIG SILVER CREEK

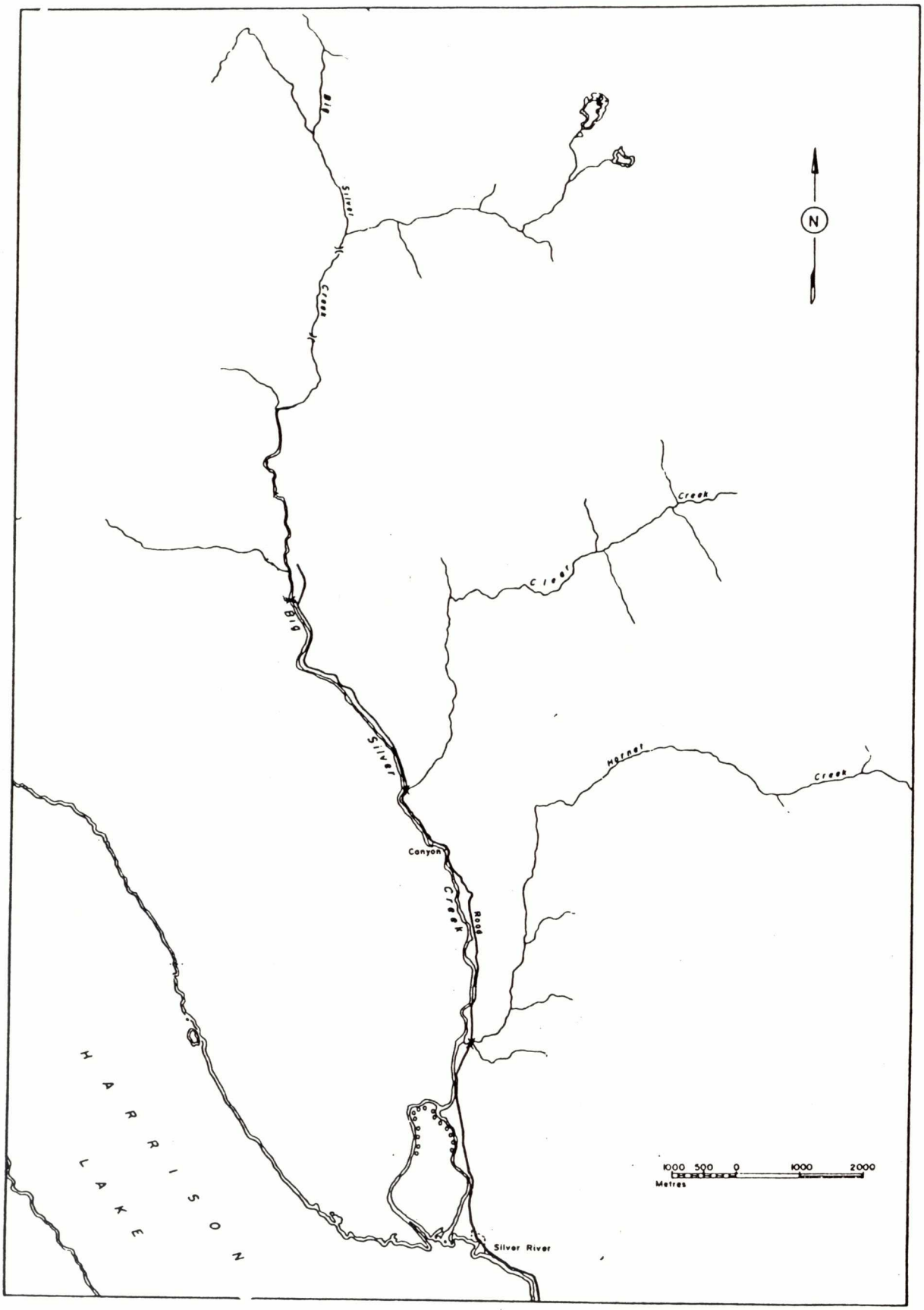
LOCATION

Flows south for approximately 41 km entering the east side of Harrison Lake.

STREAM INFORMATION

Big Silver Creek drains a mountainous watershed. For upper 26 km the creek forms a series of rapids and falls as it flows through a narrow, steep sided valley. The river width then increases and for 8 km assumes a rapids/pool form with a rubble substrate. It flows through an impassable canyon at 7 km and out into a large, deep pool at 6.5 km, below which it resumes a rapids/pool form. At 2.4 km the river splits into two main branches. The west branch is a series of broad, shallow riffles with a few isolated pools and contains excellent spawning gravel throughout. The east branch flows a series of rapids, changing to a deep, slow moving run in the final 1.2 km.

Chum salmon spawn throughout the west branch and at the outflows of pools and back eddies in the upper 1.2 km of the east branch.


Big Silver Creek
Creek
Creek
Big Silver Canyon Creek Road
Hornet Creek
HARRISON LAKE
Silver River
N
1000 500 0 1000 2000
Metres

HARRISON RIVER SYSTEM

LOCATION

Flows in a southerly direction into the main Fraser River at Harrison Mills.

STREAM INFORMATION

This river consitutes the largest chum salmon producing area of the Fraser River. From the outlet of the Harrison Lake, the Harrison River flows a distance of 18 km to the Fraser River and is characterized by a wide channel and a low gradient. The only area of high gradient is a short rapids section located upstream of the confluence with the Chehalis River.

The major tributary, the Chehalis River, enters the Harrison River below the Harrison Rapids. The area between the outlet of Morris Lake and the Chehalis River contains a number of spring fed channels. A number of the groundwater channels, which drain into the Harrison River, support spawning chum salmon. The SEP Community Development section has rehabilitated and enlarged some of these channels.

The chum salmon spawning grounds of the Harrison River system have been divided into a number of discrete areas which are discribed in detail below:

Area 1A

A small clear water tributary of the Chehalis River delta. This stream, occupies a former Chehalis River channel. The water supply consists primarily of drainage from a nearby hillside and ground water from the Chehalis River. This stream is relatively stable during the chum salmon spawning and incubation season.

Area 1B

This area includes the lower two miles of the Chehalis River. The area includes a broad delta and is broken into several channels. Relocation of the river course is frequent in the delta area and consequently the quantity and quality of the spawning gravel varies from year to year. Although chum salmon utilize the entire area, spawning is concentrated in the river channels on the delta.

Area 3A

This area consitutes a system of side channels near the confluence with the Chehalis River.

During periods of high discharge in the Harrison River, extensive gravel areas are water covered but the wetted area is much reduced during the low flow period of winter and early spring.

Area 3B

This area is the largest spring fed spawning area on the system. The channel is approximately 2 km long and was the main channel of the Chehalis River prior to the severe flood in 1949. Chum salmon utilize suitable spawning areas throughout the length of the channel.

Area 5

This area is along the Harrison River upstream from Area 3A and contains several spring fed channels.

Harrison Mainstem

This is a large area which contains some excellent spawning gravel deposits. The area is very stable and the flow is well controlled by the presence of Harrison Lake. Chums spawn throughout the area from Morris Slough to the area below the rapids.

SQUAKUM CREEK

LOCATION

Flows Northwest into Harrison Bay at Lake Errock.

STREAM INFORMATION

This stream is approximately 1 km long, and drains Lake Errock. Chum salmon utilize the entire length of stream. The stream is characterized by a steep gradient, good quality spawning gravel and clear stable flow. Chum salmon also utilize a number of scattered gravel areas in Harrison Bay near the mouth of Squakum Creek. The available area is dependent on water levels in the Harrison River and is highly variable. Spawning is generally restricted to areas where there is seepage and surface runoff from adjacent land.

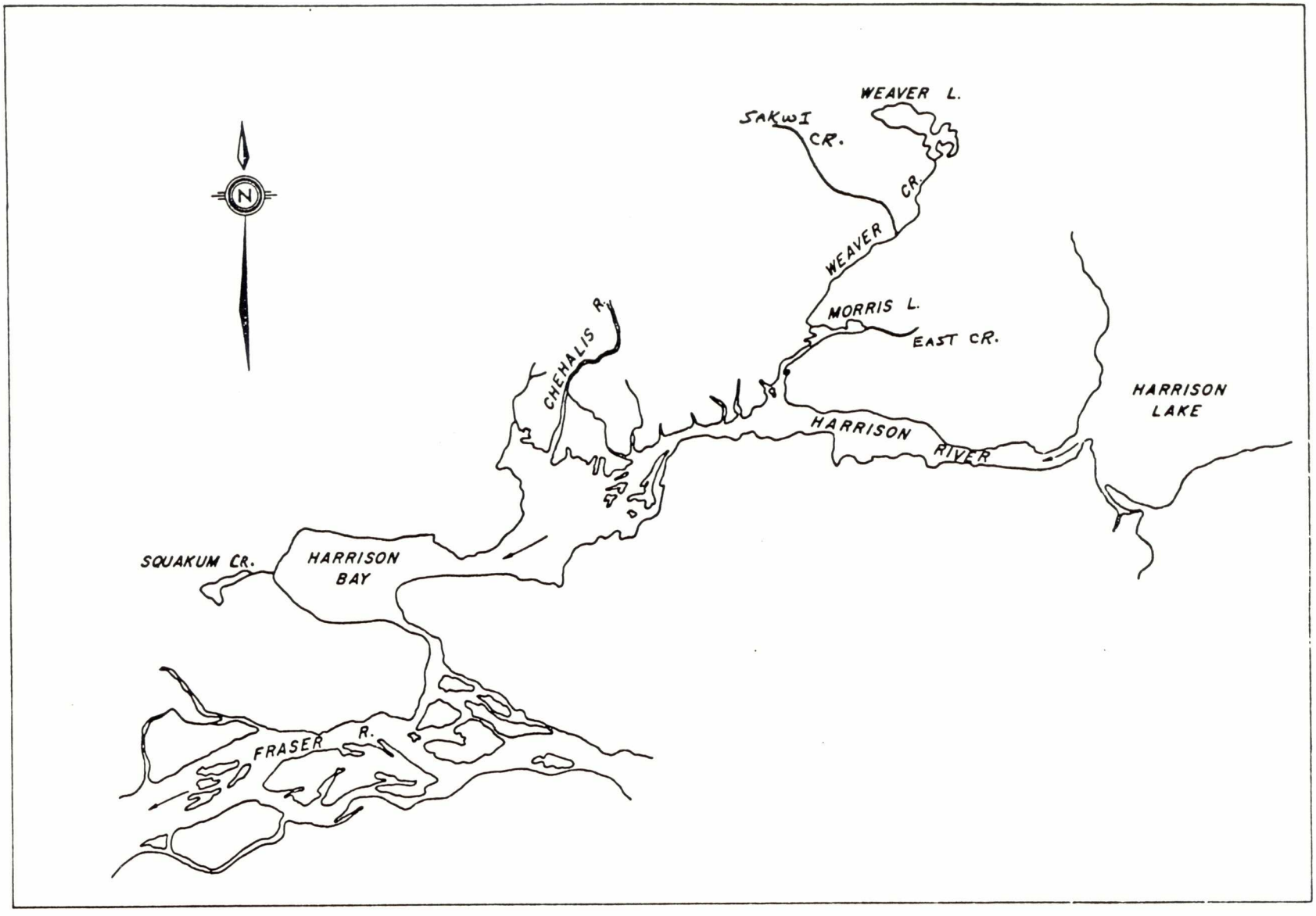
WEAVER CREEK

LOCATION

Flows south into Morris Creek a tributary of the Harrison River.

STREAM INFORMATION

This creek flows a distance of 6.5 km from Weaver Lake to Morris Lake. The main stream and some tributaries including East and Sakwi Creeks, as well as the sockeye salmon spawning channel are utilized by chum salmon. There is often considerable competition for spawning space with sockeye salmon.


N
WEAVER L.
SAKWI CR.
CR.
WEAVER
MORRIS L.
EAST CR.
CHEHALIS R.
HARRISON LAKE
HARRISON RIVER
SQUAKUM CR.
HARRISON BAY
FRASER R.

CHILLIWACK - HOPE AREA

HICKS CREEK

LOCATION

Flows southwest from Hicks Lake for approximately 4.7 km entering Maria Slough northeast of Agassiz.

STREAM INFORMATION

Hicks Creek originates from Hicks Lake. In the lower 1.5 km the creek flows in a meandering, exposed channel and is generally slow moving with scattered riffles and deep pools. There are excellent gravel deposits over the next kilometer, however between kms 2.5 and 3.0 the gradient increases and the substrate is largely rubble. In the last 1.7 km the slope decreases and the creek is swampy with numerous beaver dams.

Hicks Creek chum spawn in the lower 1.5 km.

MARIA SLOUGH

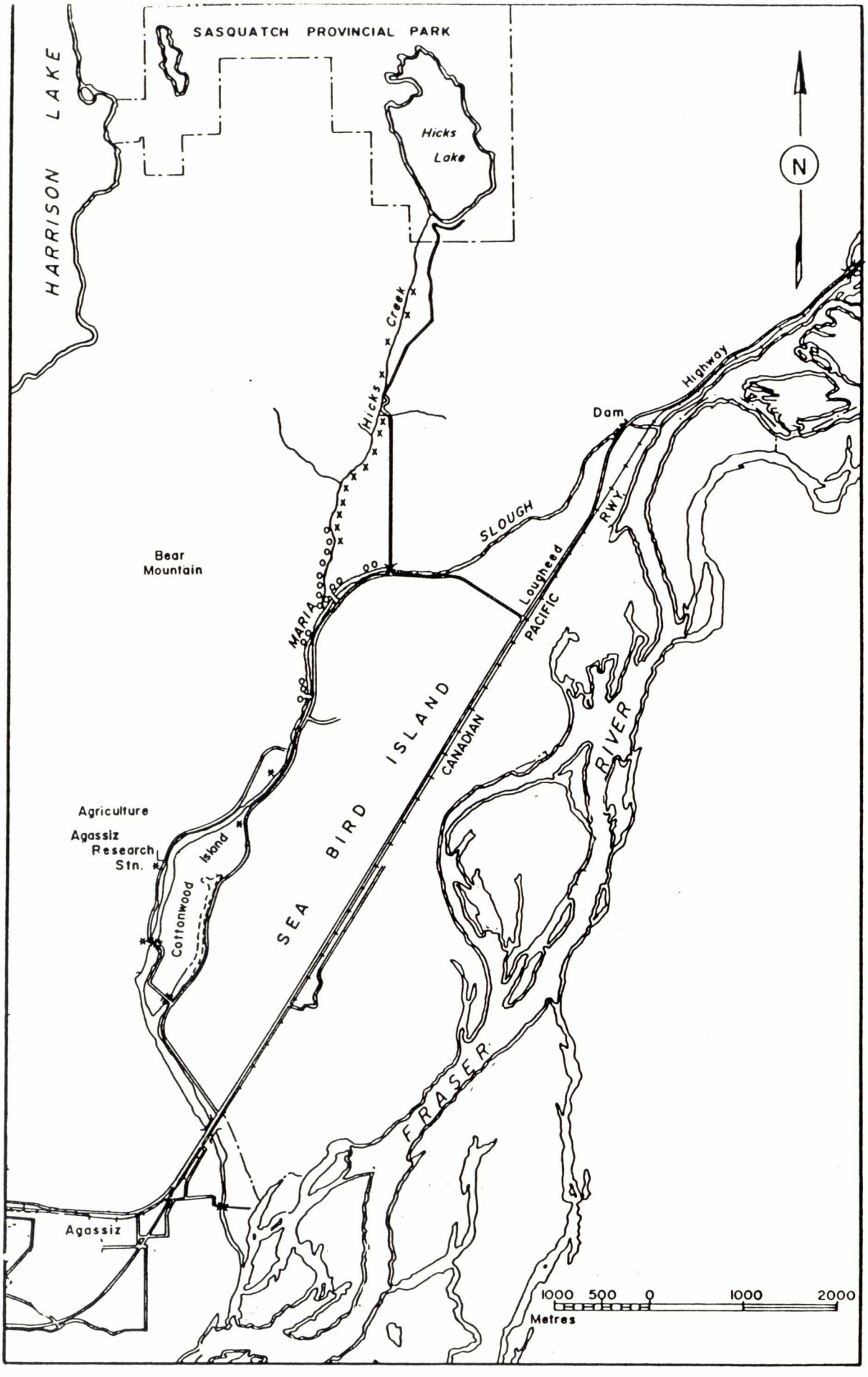
LOCATION

Maria Slough flows south for approximately 13 km entering Fraser River east of Agassiz.

STREAM INFORMATION

Maria Slough is a former Fraser River side channel. It flows through low-lying farmland bordered by mountains to the northwest. Maria Slough is subject to heavy aquatic plant growth. Gravel deposits exist at constricted, fast flowing areas, particularily on either side of culvert crossings.

Chum spawn in the available gravel deposits throughout the slough: below the Cottonwood Is. bridge crossings 2.2 km and 2.8 km upstream; in a section 300 m above the Hicks Creek confluence.


SASQUATCH PROVINCIAL PARK
HARRISON LAKE
Hicks Lake
Hicks Creek
N
Dam
Highway
SLOUGH
RWY.
Bear Mountain
MARIA
Lougheed
PACIFIC
CANADIAN
SEA BIRD ISLAND
RIVER
Agriculture
Agassiz Research Stn.
Cottonwood Island
FRASER
Agassiz
1000 500 0 1000 2000
Metres

KAWKAWA CREEK

LOCATION

Flows west from Kawkawa Lake for approximately 1.3 km entering Coquihalla River near Hope.

STREAM INFORMATION

The Kawkawa Creek system, includes Kawkawa Lake and five small tributaries. The upper part of Kawkawa Creek is marshy and braided. The remainder of the creek has a rapids/run character with a coarse gravel substrate. Excellent gravel deposits are confined to the lower 100 m of the creek.

Chum spawn in the lower 100 m of Kawkawa Creek.

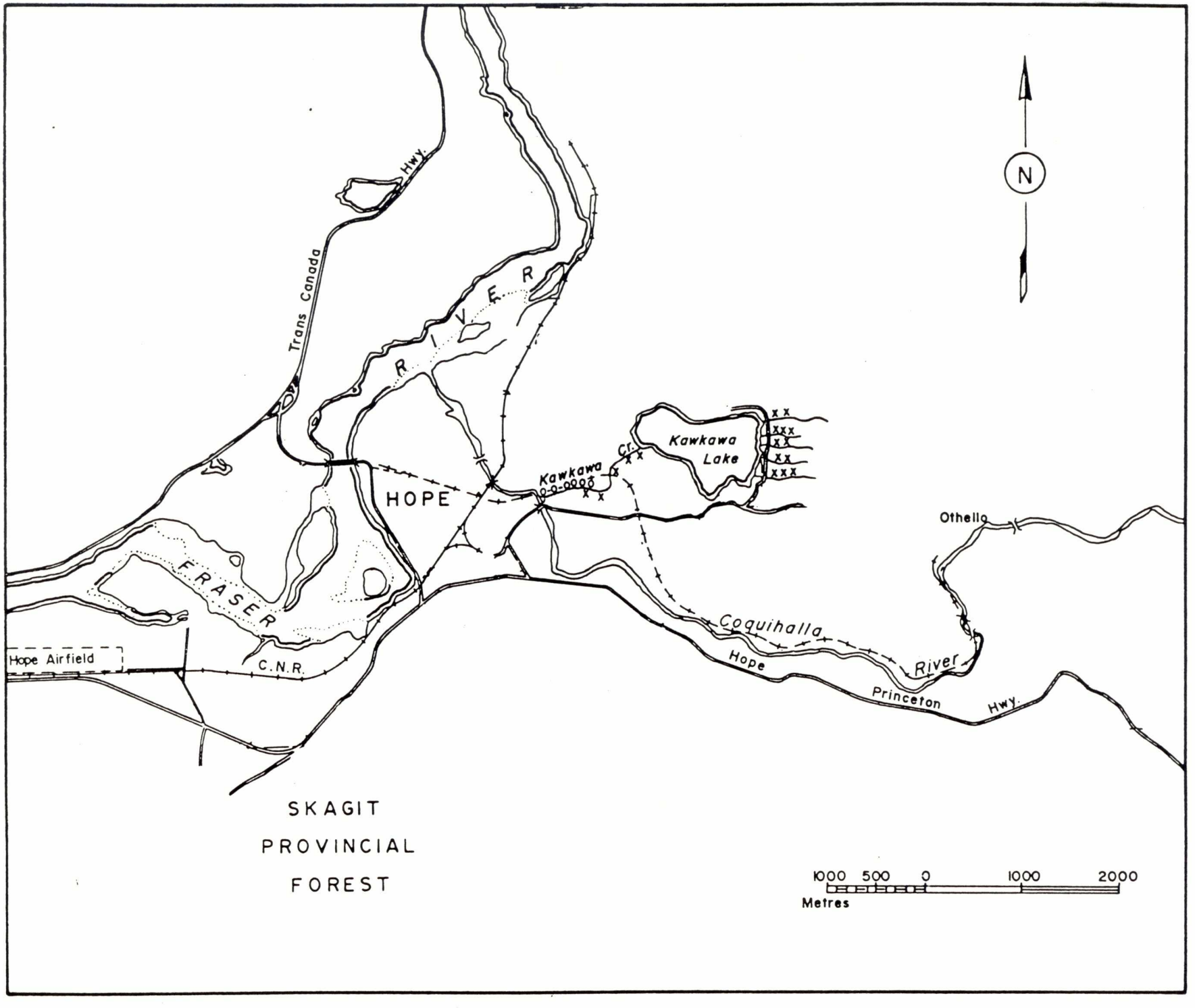
COQUIHALLA RIVER

LOCATION

Flows west into the Fraser River at Hope.

STREAM INFORMATION

This 32 km long stream flows out of the Coast Mountains. Chum salmon spawn in the main river below an impassable falls at 5 km, near Othello.


Trans Canada Hwy.
FRASER RIVER
HOPE
Kawkawa Cr.
Kawkawa Lake
Othello
Coquihalla River
Hope Princeton Hwy.
Hope Airfield
C.N.R.
SKAGIT
PROVINCIAL
FOREST
N
1000 500 0 1000 2000
Metres

JONES CREEK

LOCATION

Flows northwest into the Fraser River 16 km west of Hope.

STREAM INFORMATION

The creek originates from Jones Lake and is 10 km long. Cascades, 0.8 km upstream from the Jones Creek outlet, totally obstructs salmon passage.

Chum spawning grounds are confined to this lower portion of the creek. The spawning channel was built in 1954 to accomodate pink salmon; however, chums are free to use the channel every second year.

LORENZETTA CREEK

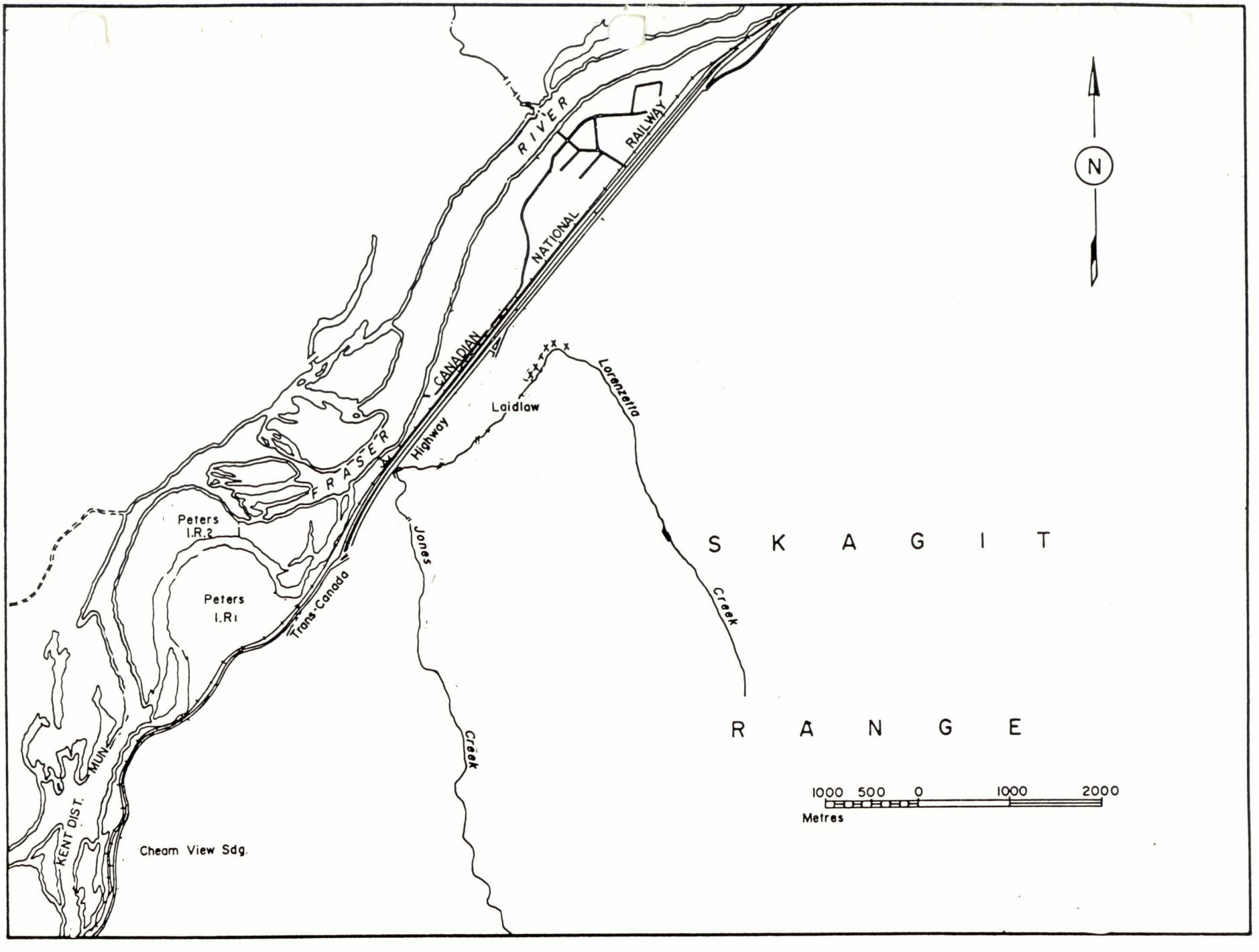
LOCATION

Flows in a westerly direction for approximately 8.7 km entering Jones Creek, near the Fraser River confluence, at Laidlaw.

STREAM INFORMATION

Lorenzetta Creek is a steep gradient mountain stream. The lower 2.3 km of the creek flows across the Fraser River flood plain and is predominantly slough-like with isolated gravel deposits. Above this area is a channelized chute which extends to the base of the mountain.

Chum spawning is scattered along the 2.3 km of the stream.


RIVER
RAILWAY
NATIONAL
CANADIAN
FRASER
Highway
Laidlaw
Lorenzetta
Creek
Jones
Creek
Trans-Canada
Peters
I.R.2
Peters
I.R1
KENT DIST.
MUN
Cheam View Sdg.
S K A G I T
R A N G E
N
1000 500 0 1000 2000
Metres

SILVERHOPE CREEK

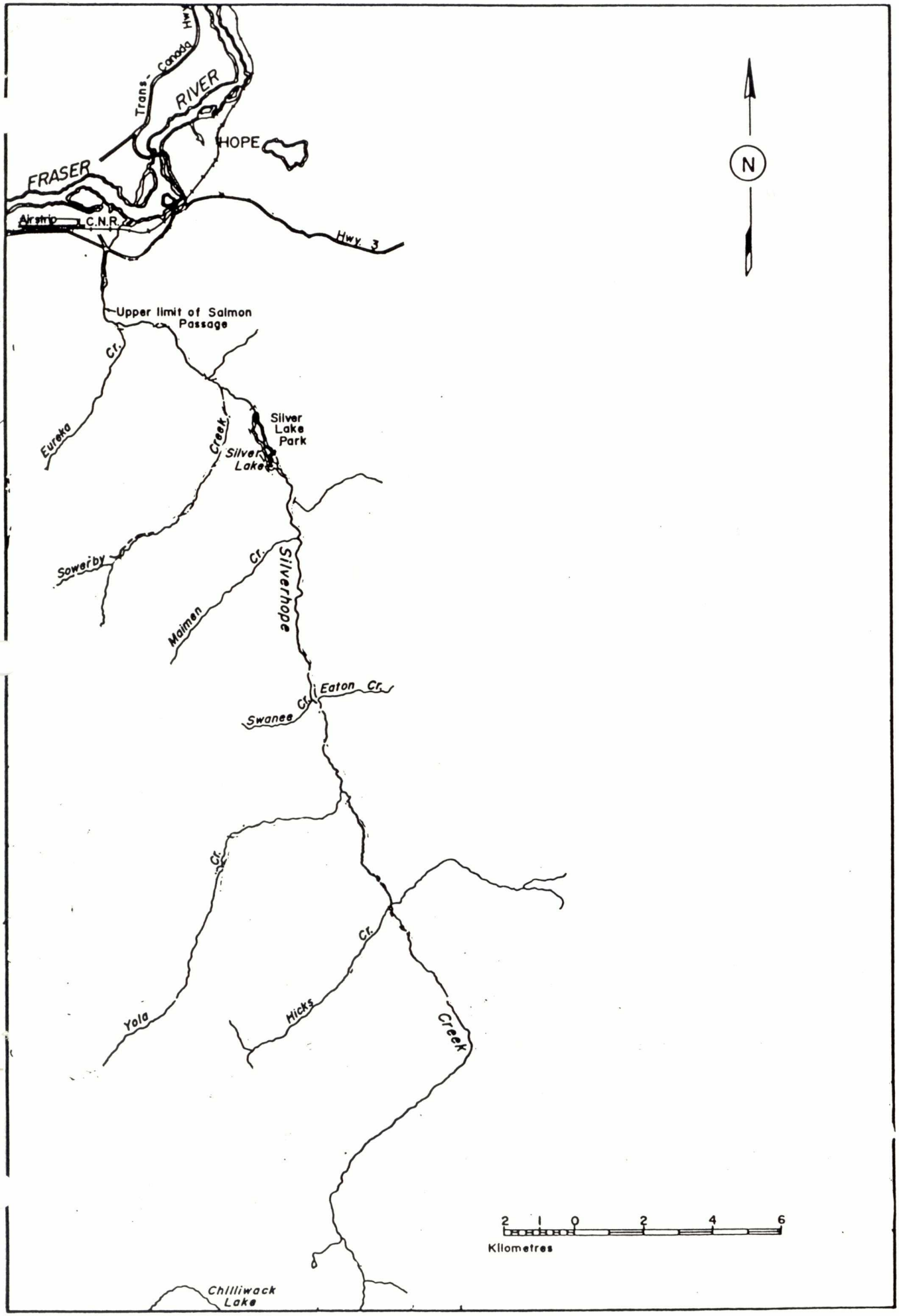
LOCATION

Flows northwest for approximately 42 km entering Fraser River west of Hope.

STREAM INFORMATION

Silverhope Creek drains a mountainous watershed. Below Silver Lake, the creek is a series of rapids and falls as it cascades through a narrow valley. At km 3.0 the slope decreases, and the lower creek is characterized by a boulder rubble substrate with scattered gravel deposits.

Silverhope Creek chums spawn in a 2 km section below the falls.


Trans-Canada Hwy
RIVER
FRASER
HOPE
Airstrip
C.N.R.
Hwy. 3
N
Upper limit of Salmon Passage
Cr.
Eureka
Creek
Silver Lake Park
Silver Lake
Sowerby
Cr.
Silverhope
Maimen
Eaton Cr.
Swanee Cr.
Cr.
Cr.
Yola
Hicks
Creek
2 1 0 2 4 6
Kilometres
Chilliwack Lake

FRASER RIVER MAINSTEM

LOCATION

Flows west from Hope to Chilliwack.

STREAM INFORMATION

Since 1960, chum salmon have been observed at a number of locations on the mainstem of the Fraser River between Chilliwack and Hope. Some of the areas where dead or spawning chum salmon can be observed are described below.

Area 1 (Waleach Channel) - A large side channel constituting one of the major chum salmon spawning areas of the mainstem Fraser River. Chum salmon spawn throughout the length of Waleach Channel and also in the clear water of the Waleach Powerhouse trailrace channel.

Area 2 (Jones Creek to Hunter Creek) - A main channel of the Fraser River on the left bank between Jones CReek and Hunter Creek. This is one of the larger mainstem spawning areas.

Area 3 (Hunter Creek) - A small area surrounding the mouth of Hunter Creek.

Area 4 (Katz) - A small area east of Hunter Creek on the right bank of the Fraser River.

Area 5 (Peters Channel) - A small area adjacent to Peters Island on the left bank of the Fraser River.

Area 6 (Rosedale-Agassiz) - An area along the left bank of the Fraser River immediately upstream of the Rosedale-Agassiz bridge.

Area 7 (Cheam Slough) - A small area in Cheam Slough adjacent to the right bank of the Fraser River.

Area 8 (Rosedale-Agassiz) - A small area of the right bank of the Fraser River immediately upstream of the Rosedale-Agassiz bridge.

Area 9 (Ferry Channel) - A side channel on the left bank of the Fraser River, near an old ferry slip, downstream of the Rosedale-Agassiz bridge.

Area 10 (Minto Channel) - A side channel on the left bank of the Fraser River near Minto Channel.

Area 11 (Pipeline Crossing) - A small slough on the right bank of the Fraser River near the pipeline crossing below Hope.

Area 12 (Chilliwack) - A small area on the left bank of the Fraser River downstream from Minto Landing.

Area 13 (Greyell Slough) - A small area in Greyell Slough a short distance upstream from Area 10.

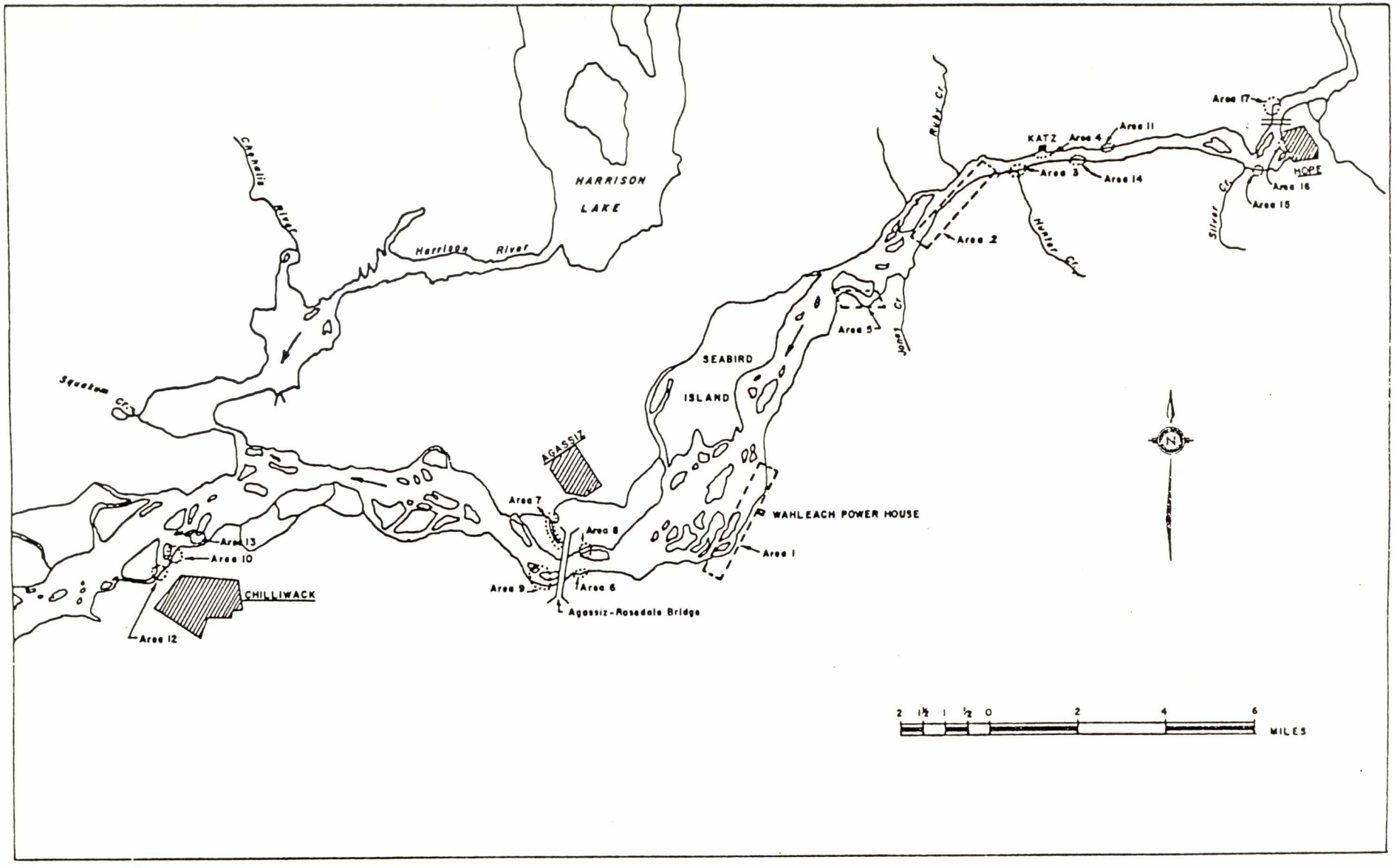
Area 14 (Flood) - A gravel bar on the left bank near Flood.

Area 15 (Log Dump) - A small gravel bar on the left bank near a log dump a short distance below Hope.

Area 16 (Hope Bar) - A gravel beach on the left bank at Hope.

Area 17 (Hope Bridge) - A gravel bar on the right bank immediately upstream from the highway bridge at Hope.

A wide distribution of spawners and the apparent low abundance of observable chum salmon has precluded any direct enumeration of the mainstem population.



Map of mainstem Fraser River chum salmon spawning areas.