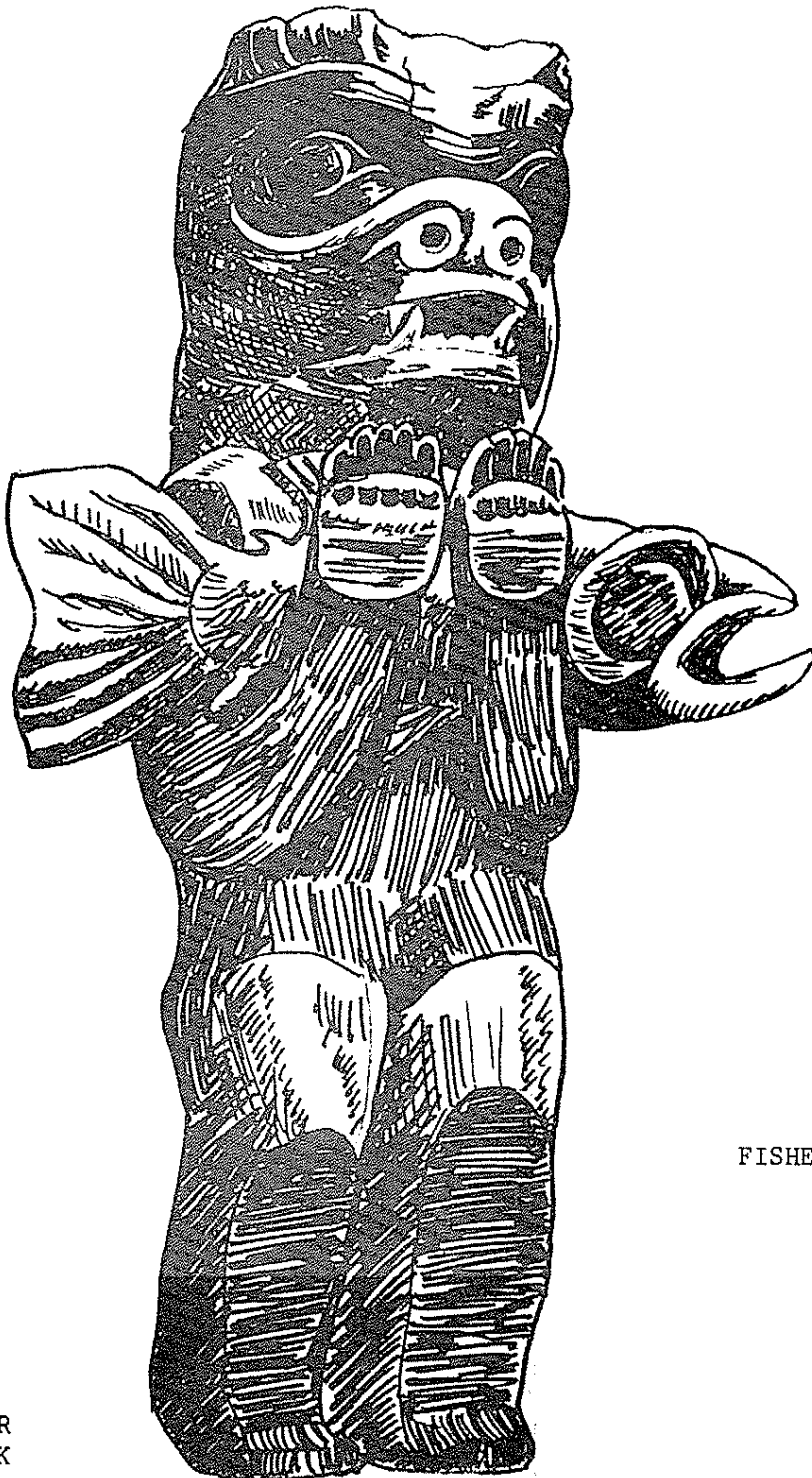


Skeena Region



British
Columbia
**Fish &
Wildlife**
Branch

DO NOT REMOVE
Mark Whately



A STREAM SURVEY OF
THE TAKYSIE LAKE
WATERSHED

BY
S. HATLEVIK

SK-19

FIELD WORK BY
S. HATLEVIK
D. HUMPHRIES
C. MORLEY

FISHERIES REPORT NO. 78-4 (SKEENA REGION)

JUNE 1978

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c. 1 mm

CQWE

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P/FR/SK/19
C.1

A STREAM SURVEY
OF THE
TAKYSIE LAKE WATERSHED

P/FR/SK/19
HATLEVIK, S.
STREAM SURVEY OF THE
TAKYSIE LAKE WATERSHED
CQWE c. 1 mm SMITHERS

BY

S. Hatlevik

Field Work by:

S. Hatlevik
D. Humphries
C. Morley

May 15 - 17, 1978

B.C. Fish and Wildlife Branch,
Smithers, B. C.

Fisheries Report No. 78-4 (Skeena)

June 1978

SUMMARY

The Takysie Lake watershed was surveyed in May, 1978 primarily to assess the spawning habitat for rainbow trout. Unnamed inlet "A" contained a section (reach 4) about 2.7 km. upstream from the lake which had excellent spawning gravel and was being utilized by an estimated several hundred (77 observed/angled) spawning rainbow trout. Beaver damming was quite extensive downstream from this area (several were dynamited by the Burns Lake Conservation Officers this spring) and a continued annual program of vigilance and removal is recommended. No longnose suckers were seen in this stream.

Unnamed inlet "B" had quite a few (about 60 observed) spawning longnose suckers in the lower portion (reach 1) with a mixture of predominately rainbows and some suckers scattered throughout the system further upstream (reach 2). A large beaver dam about 1.2 km. from the lake blocked further upstream access and contained an estimated 300 fish (mostly rainbows) in the flooded area immediately downstream. Some rainbows were spawning in a small (2 m. X 15 m.) gravel patch below the outflow but the remainder of the pool was unsuitable for spawning rainbow trout. The spawning habitat and extent of beaver activity should be investigated for several km. upstream from this dam. A complete removal of the dam is recommended prior to next May and it seems likely that a beaver dam removal program may be desirable for this stream. Because of the importance of this spawning creek, an angling closure similar to the one applicable to the lake vicinity of inlet "A" is recommended.

Takysie Creek (lake outlet), although a nice looking angling stream, was not considered to be as important a spawning stream as were inlets "A" and "B". There was a section containing a series of impassable falls about 0.7 km. downstream from the lake and the stream above the falls had only some patches of marginal spawning gravel. No fish were observed or angled above the falls.

Unnamed inlet "C" was such a small stream (25 cm. wide; 5 cm. deep) that it was considered unimportant for fish.

INTRODUCTION

A stream survey was conducted during May 15 - 17, 1978 on three inlet streams and the outlet stream to Takysie Lake. The objectives were:

1. to locate and evaluate the areas being used for spawning by rainbow trout (Salmo gairdneri) and longnose suckers (Cotostomus catostomus)
2. to identify any existent problems and make recommendations for the management of the Takysie Lake rainbow trout sport fishery.
3. if possible, to determine if there is any intraspecific competition for available spawning habitat between rainbow trout and longnose suckers
4. to gather detailed baseline data

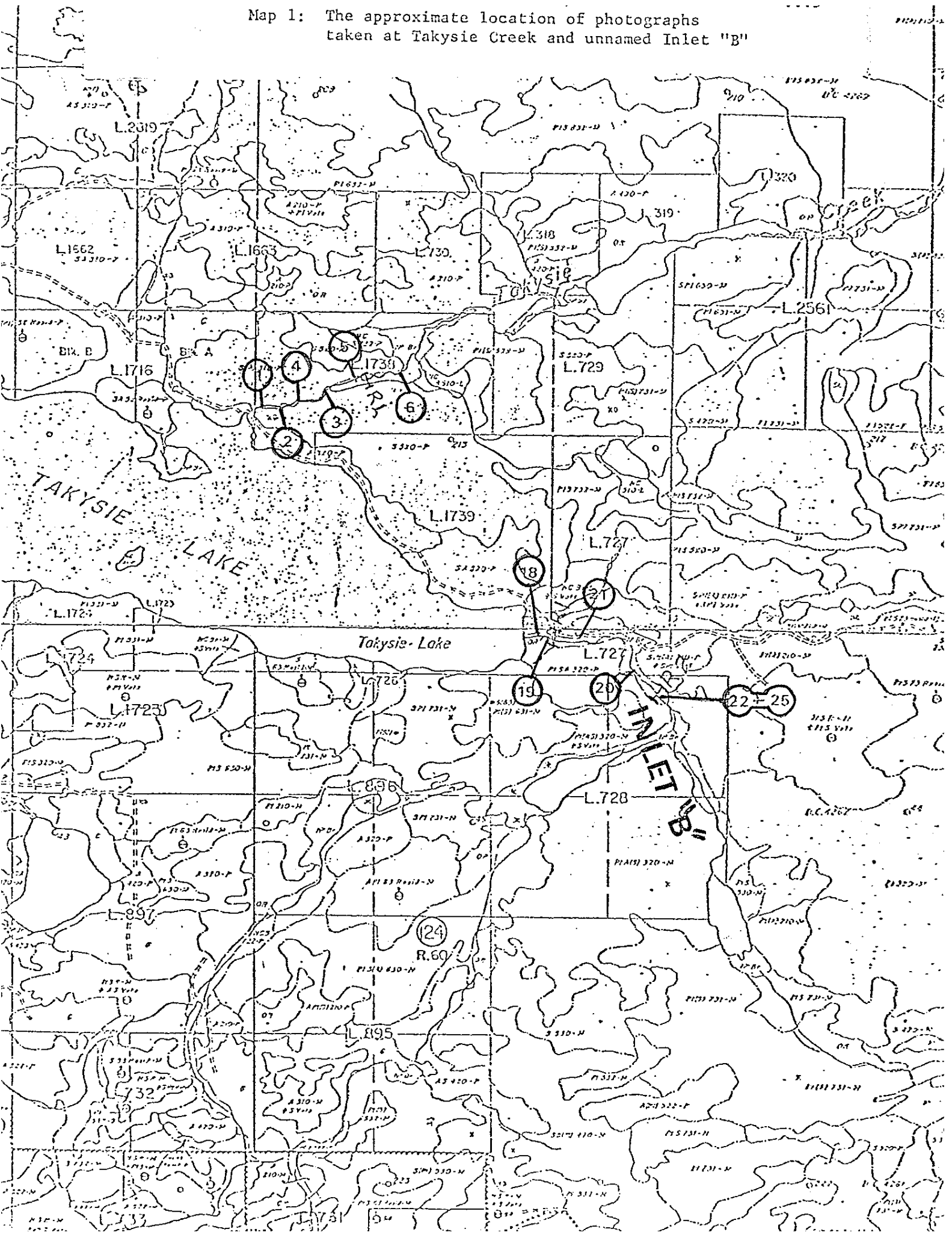
METHODS

The streams were walked from the lake as far as time and conditions would allow; or as was necessary to gather the information desired. They were divided into "reaches" (relatively homogeneous sections) and detailed descriptions of physical characteristics, habitat types, and fish distributions were noted for each reach. Sampling was done by angling and observation. Photographs were taken to illustrate specific points and to characterize typical portions of reaches. Maps 3 and 2 show the approximately location of photographs.

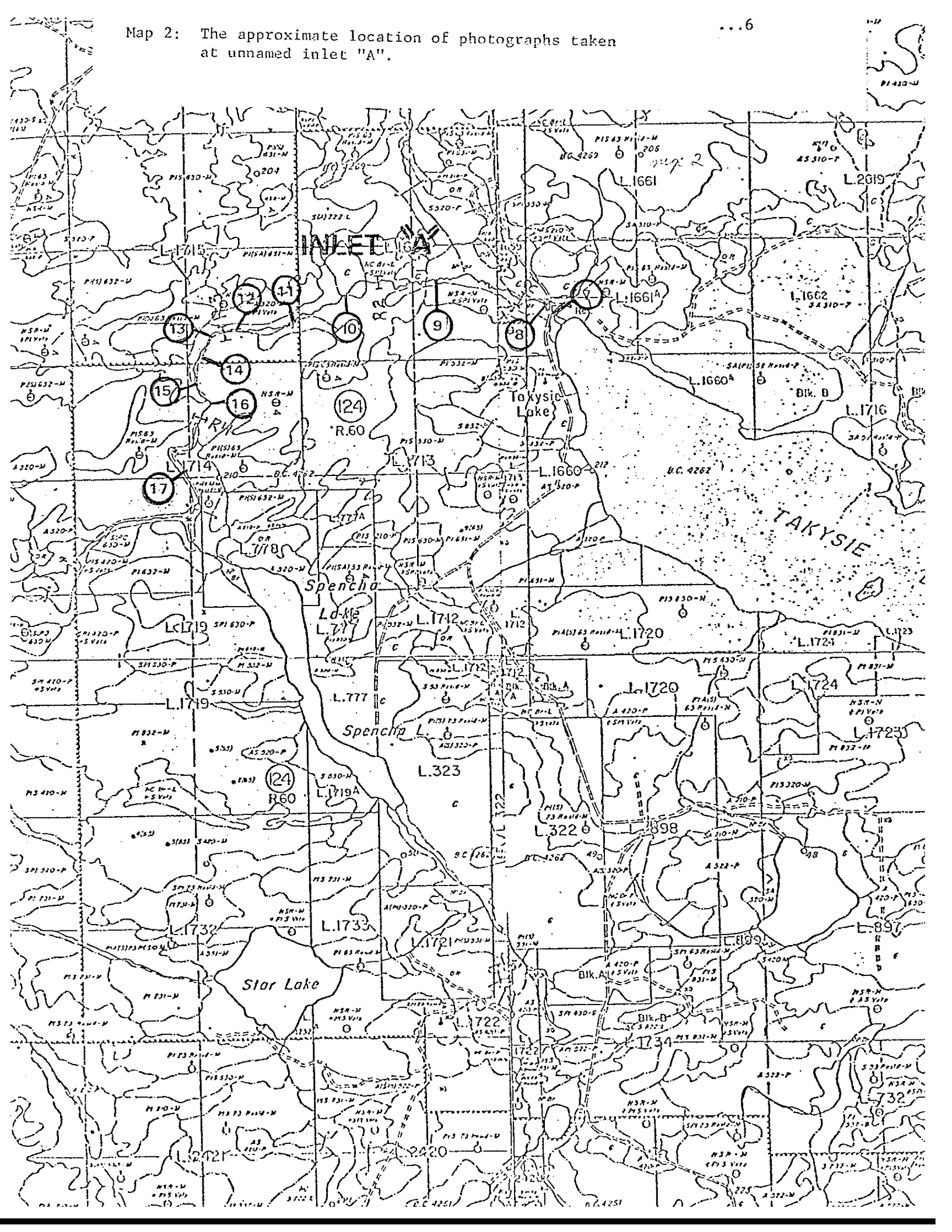
Brief physical descriptions of the streams and reaches along with maps and photos are presented in the following text while more detailed descriptions appear in the appendix. Inventory methodology and terminology has been mainly adapted from "Aquatic System Inventory and Analysis" by the Resource Analysis Branch, March, 1977.

Map 1: The approximate location of photographs taken at Takysie Creek and unnamed Inlet "B"

10000000



Map 2: The approximate location of photographs taken at unnamed inlet "A".



TAKYSIE CREEK (OUTLET TO TAKYSIE LAKE)

This creek was surveyed from the lake downstream, a distance of approximately 1.2 km. and was divided into two sections or reaches (see map 3). The uppermost 200 meters below the lake contained some patches of marginal spawning habitat but no fish were observed or sampled in this area. The upper portion of reach 2 had some spawning potential but an impassable series of falls just upstream would prevent rainbow trout from migrating into the lake. Although this is a nice looking creek for angling, it does not have enough suitable, accessible spawning habitat to be considered an important spawning stream for Takysie Lake rainbow trout.

Reach 1 0.9 km.

- confined channel, moderately entrenched by mostly vertical banks
- fairly steep gradient (ave. 3%) with quite a lot of turbulent water (see photo 1)
- several 0.5 m. to 1.0 m jumps in upper portion; a combination of 2 m. and 3 m. bedrock falls at lower end of canyon is an impassable barrier (see photos 2 and 3)
- many deep pools - looked good for angling - providing good rearing habitat, especially in canyon portion of reach
- there is a large shale slump in lower end of reach (see photo 4)
- very little spawning habitat - the first 200 meters below the lake has some patches of marginal spawning gravel, as does the short section below the canyon (see photo 5) but the remainder appears unsuitable for spawning
- no fish were sampled or observed

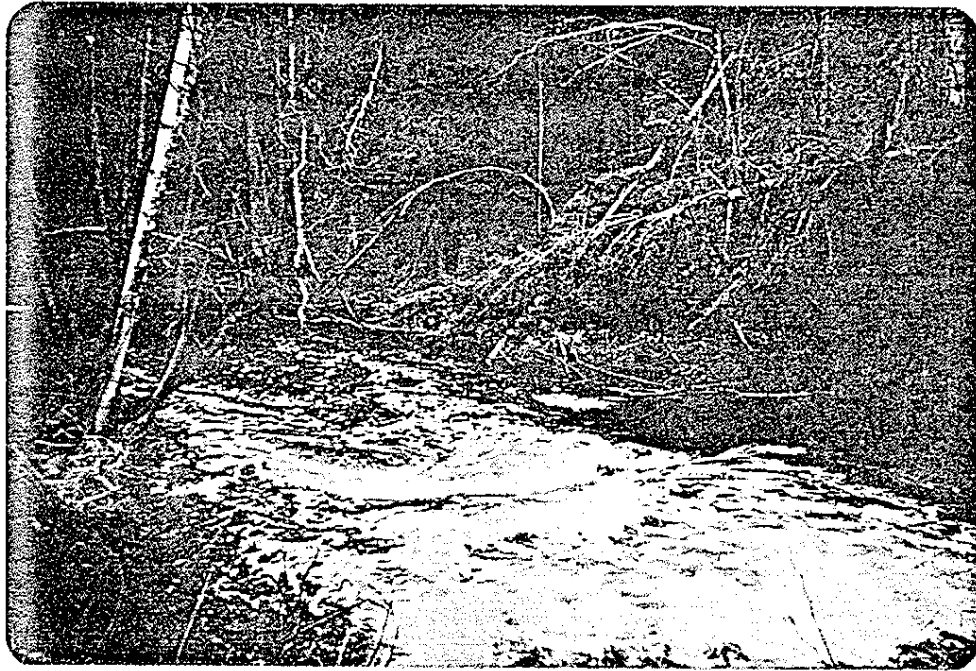


Photo 1. Typical section of upper reach 1 - Takysie Creek (looking downstream).



Photo 2. 1 m. falls on upper reach 1.

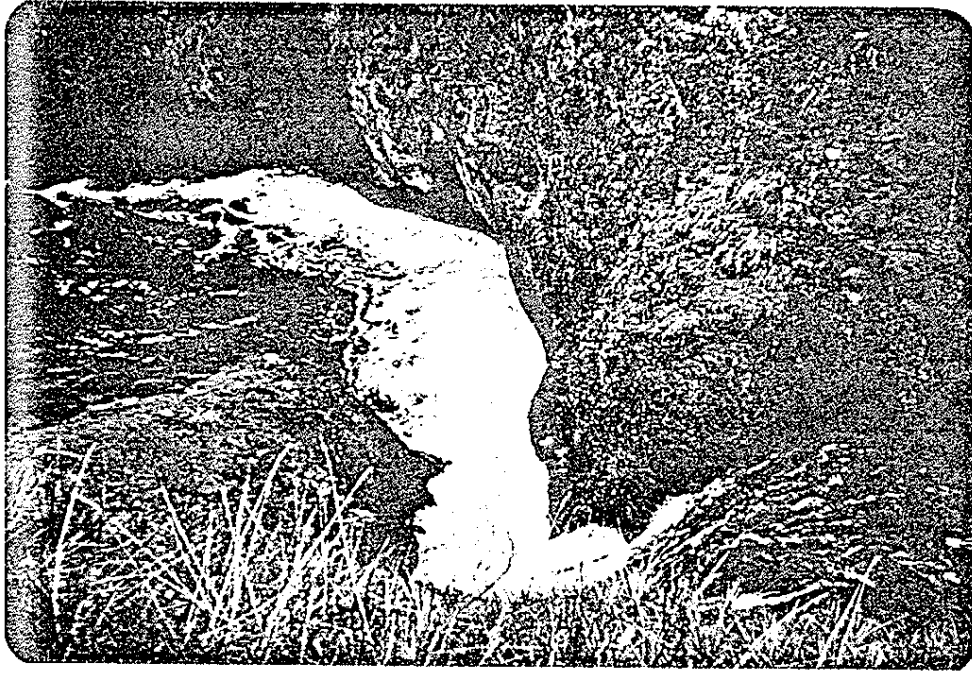


Photo 3. 3 m. impassable falls at lower end of canyon (looking downstream)

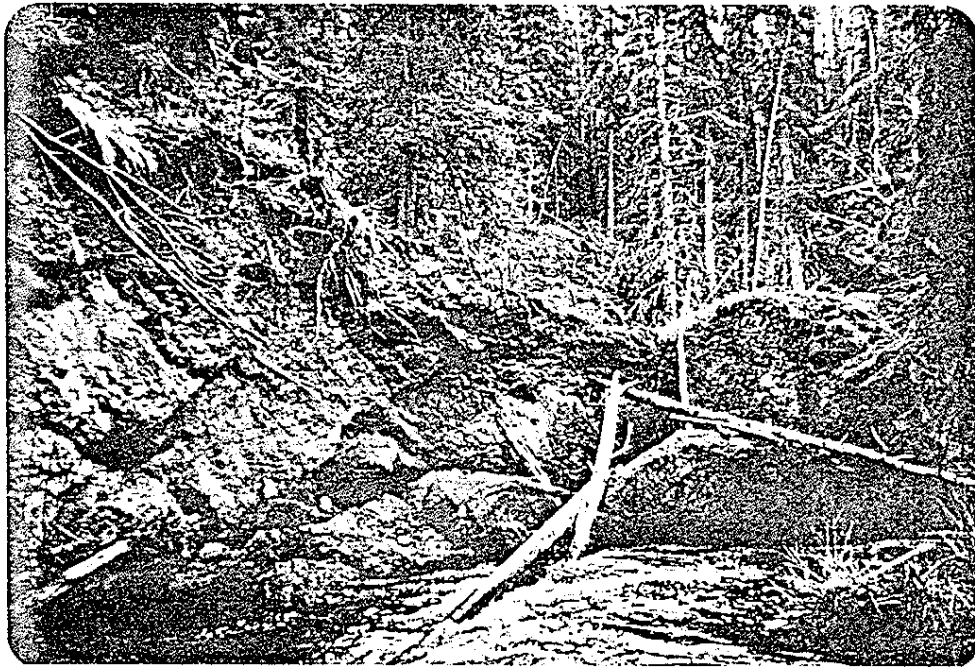


Photo 4. Slump zone in canyon area (looking upstream)

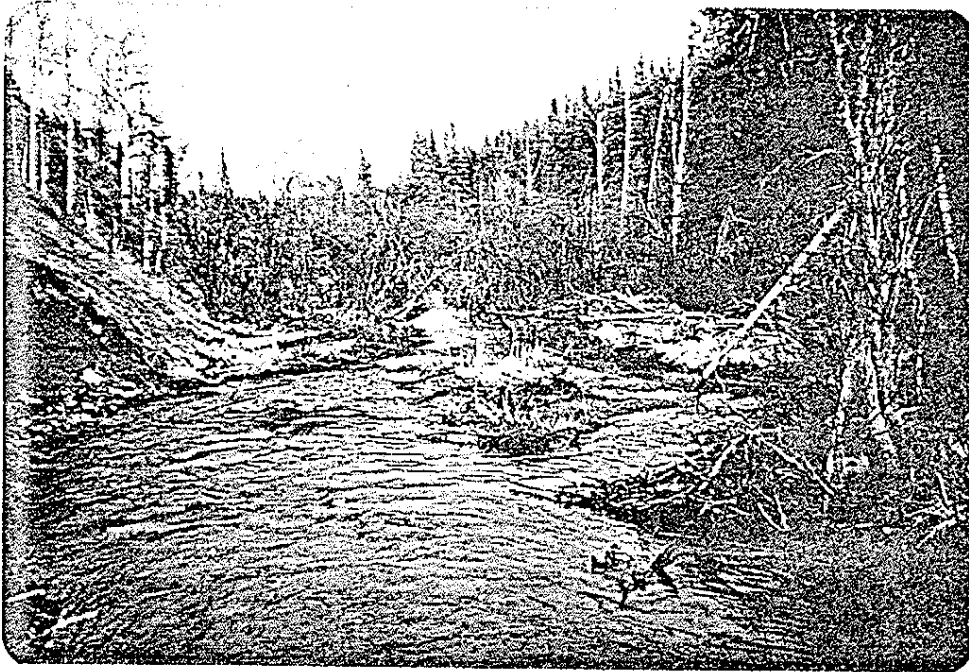


Photo 5. Lower reach 1, in transition stage (looking downstream)

Reach 2 0.3 km. to end of survey

(reach likely extends to "Mud Lake")

- channel generally braided, flowing through a willow swamp with much beaver activity (see photo 6)
- wetted width ranges from 5 m. to 30 m.
- some patches of good spawning gravel and good rearing habitat in upper portion of reach
- 1 rainbow trout sampled

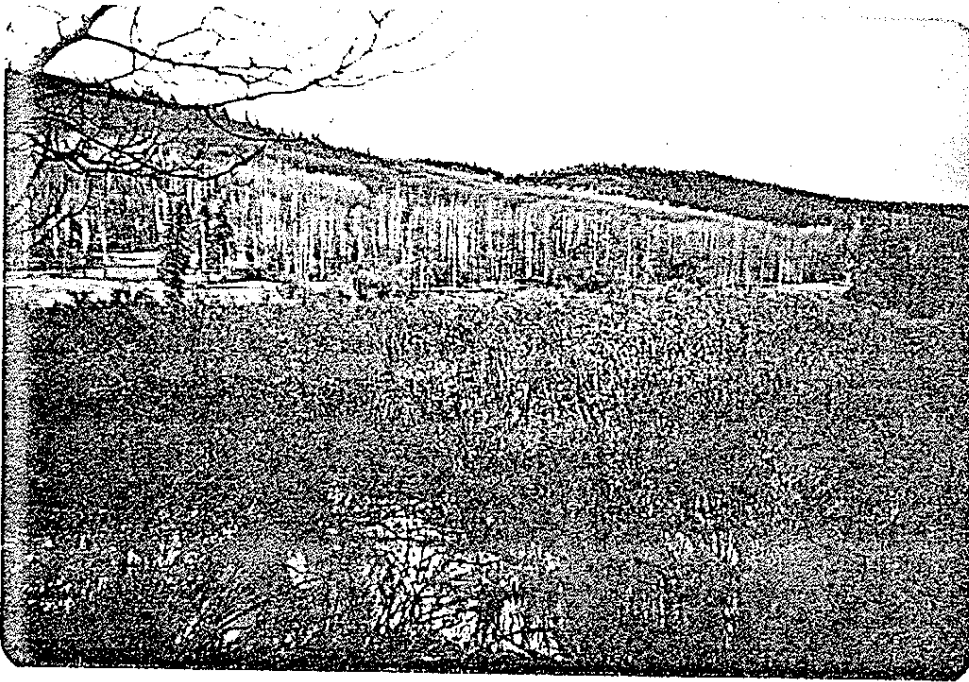
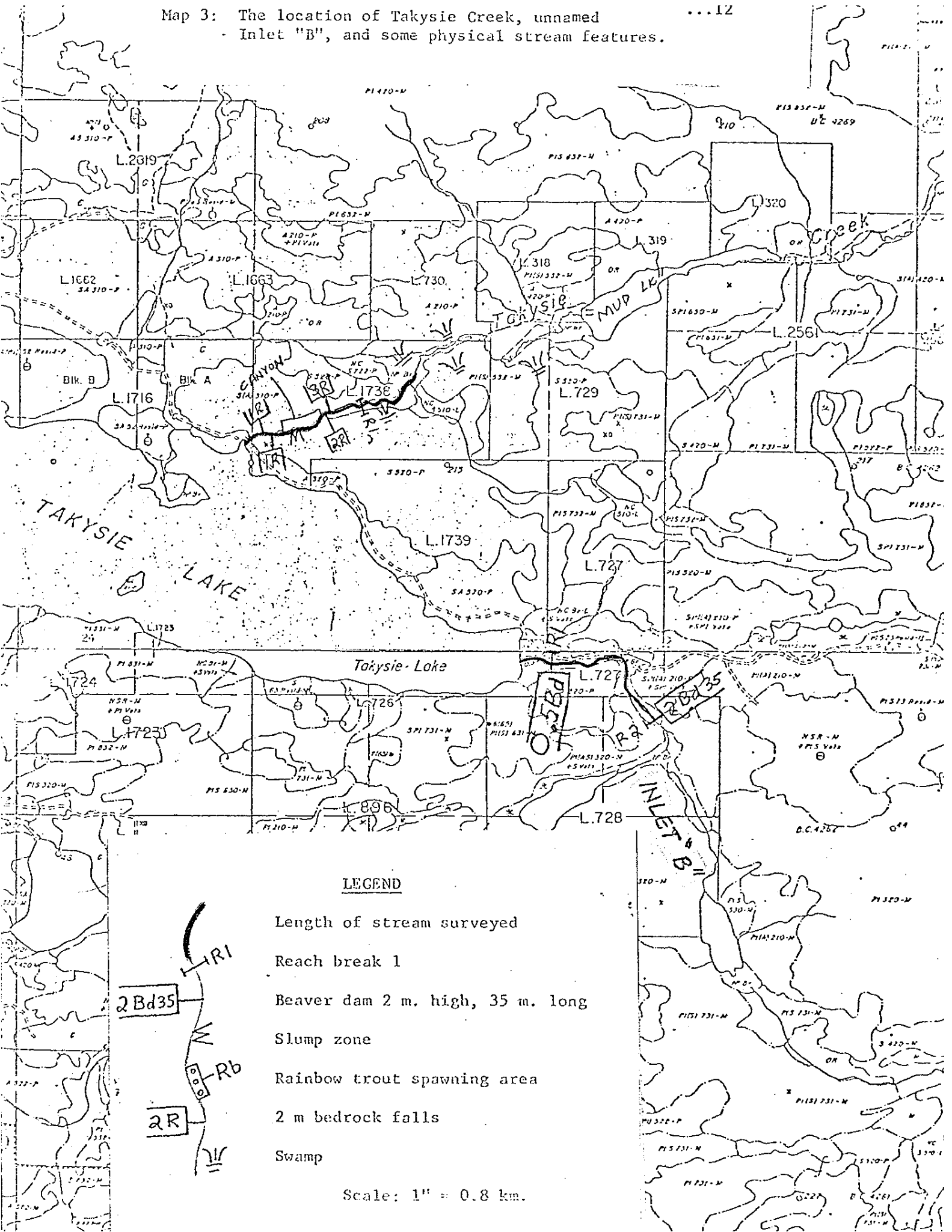


Photo 6. Upper reach 2, in swamp area (looking downstream)

UNNAMED TAKYSIE INLET "A"

This creek was surveyed from the lake upstream a distance of 4.1 km. and was divided into 5 reaches (see map 4). The most important section was reach 4 which contained excellent spawning habitat and was being utilized by an estimated 200 - 300 spawning rainbow trout (77 observed/angled). Downstream, reaches 2 and 3 contained swamps, abundant signs of beaver activity and some large beaver dams which were dynamited by the Burns Lake Conservation Officers this spring. There were also other dams, which although not barriers, may have been difficult points of passage for rainbow trout. No longnose suckers were observed anywhere within this creek at the time of survey.

Map 3: The location of Takysie Creek, unnamed
 Inlet "B", and some physical stream features.

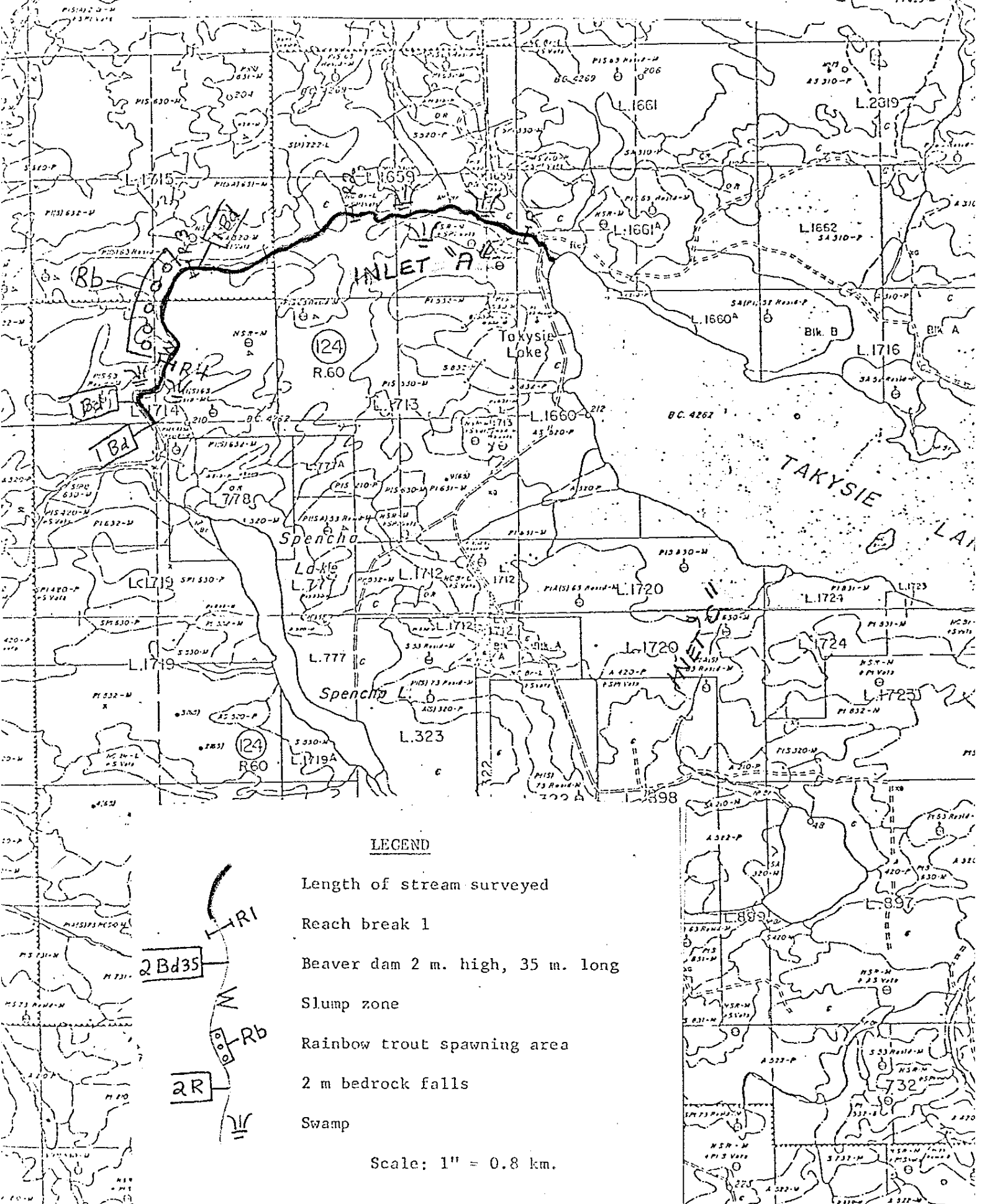


LEGEND

- Length of stream surveyed
- Reach break 1
- Beaver dam 2 m. high, 35 m. long
- Slump zone
- Rainbow trout spawning area
- 2 m bedrock falls
- Swamp

Scale: 1" = 0.8 km.

Map 4: The location of unnamed Inlet "A", unnamed Inlet "C", and some physical stream features.



Reach 1 0.3 Km.

- wetted width 5.4 meters.
- slope 1.5%
- 2 rainbow trout sampled near bridge
- very little spawning gravel - substrate mainly larges, heavily silted with fines
- single thread, bounded cross section, low entrenchment and irregular form
- flow $3.6 \text{ m}^3/\text{sec}$.
- water temp. 8°C at 10:30 a.m.
- see photos 7, 8, 9



Photo 7. Takysie inlet "A" - reach 1 - below bridge (looking downstream)



Photo 8. Above bridge (looking upstream)



Photo 9. Upper reach 1 (looking upstream)

Reach 2 1.2 km.

- braided, unconfined irregular channel flowing through willow swamp with high degree of beaver activity
- possibly fair rearing habitat in pools and beaver ponds
- 150 meters wetted width
- low entrenchment
- slope 1%
- poor spawning habitat
- no fish observed or sampled

Reach 3 1.2 km.

- wetted width 6 meters
- slope 1.5%
- channel irregular in form, single thread, bounded, low entrenchment with a moderate amount of flood/side channels
- good rearing habitat
- one rainbow trout sampled
- upper portion of reach contained some spawning gravel
- many eagles (8 - 10) observed
- see photos 10, 11, 12



Photo 10. Lower end of reach 3 (looking upstream)



Photo 11. Beaver-felled poplar trees in reach 3



Photo 12. Upper end of reach 3 - some rainbow spawning here (looking downstream)

Reach 4 0.8 km.

- wetted width 5 meters
- slope 1%
- channel irregular form, single thread, bounded, moderate entrenchment, moderate amount of flood/side channels
- substrate 60% gravels - excellent spawning habitat
- 77 rainbow trout observed and angled
- estimate 200 - 300 rainbow trout spawning at time of survey
- beaver dams at lower end of reach - were dynamited this spring by Burns Lake Conservation Officers
- table 1 in the appendix gives some measurements of 19 rainbow trout angled in this reach
- see photos 13 - 16

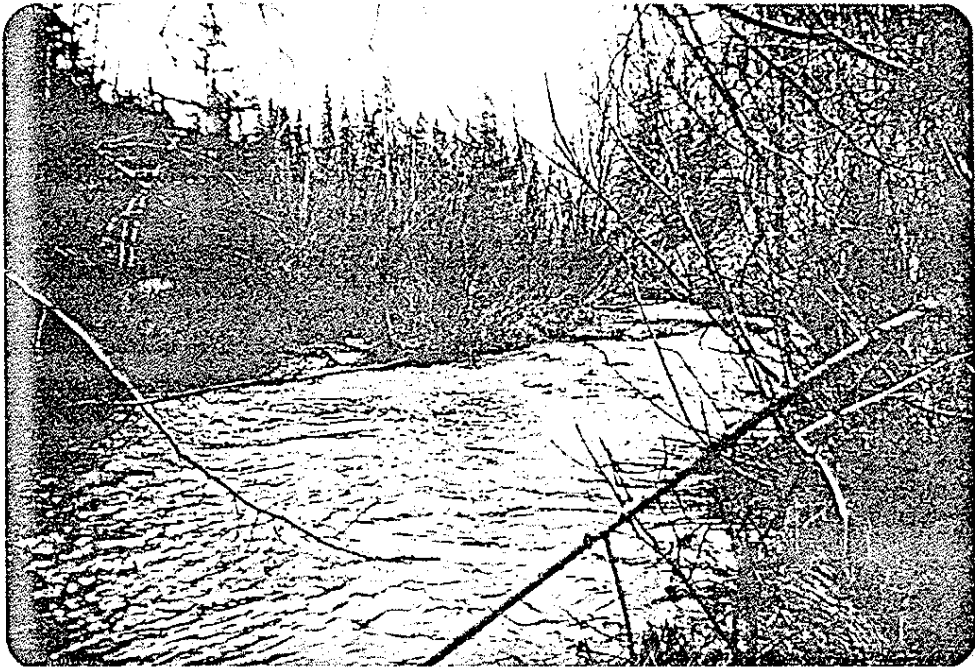


Photo 13. Reach 4 (looking downstream)

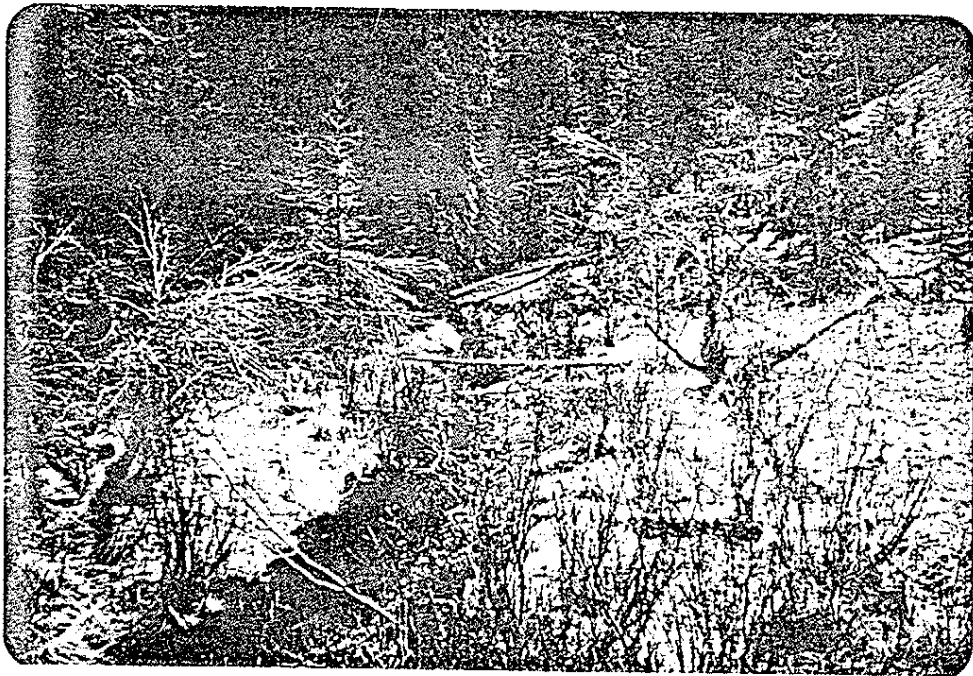


Photo 14. Middle reach 4 - excellent spawning gravel (looking upstream)



Photo 15. Middle reach 4 (looking downstream)



Photo 16. Upper reach 4 (looking upstream)

Reach 5 0.6 km.

- wetted width 30 m.
- average slope 1%
- water temperature 11°C at 2:30 p.m.
- debris high and stable
- channel multiple thread, unconfined, very low entrenchment with high amount of flood/side channels
- substrate 100% fines
- reach is similar to reach 2 - it is a swamp with some willow vegetation, lots of beaver activity - somewhat narrower valley than reach 2 though
- perhaps good rearing habitat but very poor spawning habitat
- one beaver dam about 200 meters below upper reach boundary (see photo 17)



Photo 17. Beaver pond in upper reach 5 - note old road crossing in lower right of photo (looking downstream).

UNNAMED TAKYSIE INLET "B"

The stream was surveyed a total distance of approximately 1.2 km. upstream from Takysie Lake, and was divided into two reaches (see map 3). The lower reach was utilized by spawning longnose suckers (about 60 observed) while reach 2 contained mostly rainbow trout. There is a huge beaver dam at the upper end of reach 2 which prevented further upstream access and contained an estimated 200 - 300 fish (mostly rainbow trout - some suckers) in the flooded area immediately downstream. It is interesting to note that although many longnose suckers were observed spawning in this creek, none were observed in the other important spawning inlet - unnamed creek "A".

Reach 1 0.4 km.

- inlet is a partially hidden lagoon-like entrance^N from the lake
- ave. wetted width 3 m.
- ave. slope 1%
- water temperature 8^o C at 10:00 a.m.
- channel multiple thread, bounded, low entrenchment, moderate amount of flood/side channels and flows through willow vegetation
- high amount of beaver activity
- substrate 80% fines for most of the reach
- 1/2 m. high passable beaver dam near upper end of reach
- about 60 longnose suckers in spawning colours observed in a few areas (see photos 18 and 19)

- no rainbow trout were seen or angled
- it seems this reach has suitable spawning habitat for longnose suckers but not for rainbow trout
- table 2 in the appendix presents data describing condition, lengths, and location of fish angled or observed in this creek



Photo 18. Unnamed Takysie Inlet "B" - reach 1 - pool about 400 m. above mouth where suckers first observed (flowing left to right)



Photo 19. Another area where suckers observed spawning, about 50 m. above photo 18 (looking downstream)

Reach 2 0.8 km.

- wetted width 2.5 m.
- discharge $0.75 \text{ m}^3/\text{sec.}$
- ave. slope 2%, flow more turbulent (see photo 20)
- more confined channel
- less beaver activity throughout the reach
- debris high, mostly stable
- substrate 60% gravels - seemed to be more suitable for trout spawning than substrate in reach 1
- higher frequency of pool-riffle sequences (see photo 21)
- 46 rainbow trout and 20 longnose suckers angled and/or observed
- impassable beaver dam 2 m. high and 35 m. long at upper end of reach (see photos 22, 23, 24)

- an estimated 300 fish (mostly trout and some suckers) in spawning colours holding in flooded "pool" downstream from the dam
- some rainbow trout spawning in patch of gravel 2 m. by 15 m. just downstream from dam outflor (see photo 25)
- no fish observed or angled above the dam

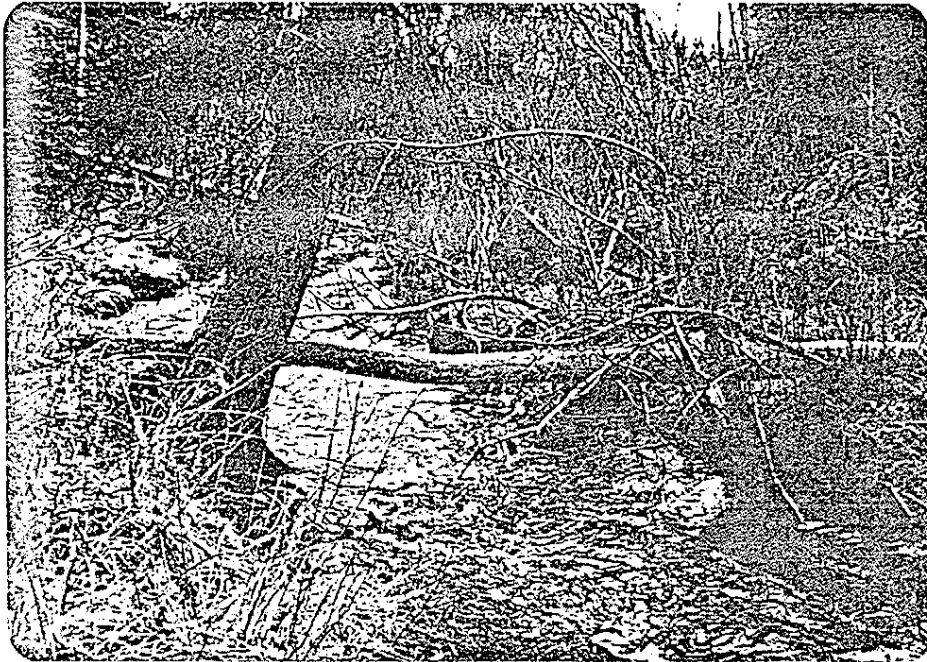


Photo 20. Reach 2, where velocity measurements were taken (looking upstream)



Photo 21. Lower reach 2 - rainbow spawning area (looking upstream)



Photo 22. Impassable beaver dam at upper end of reach 2

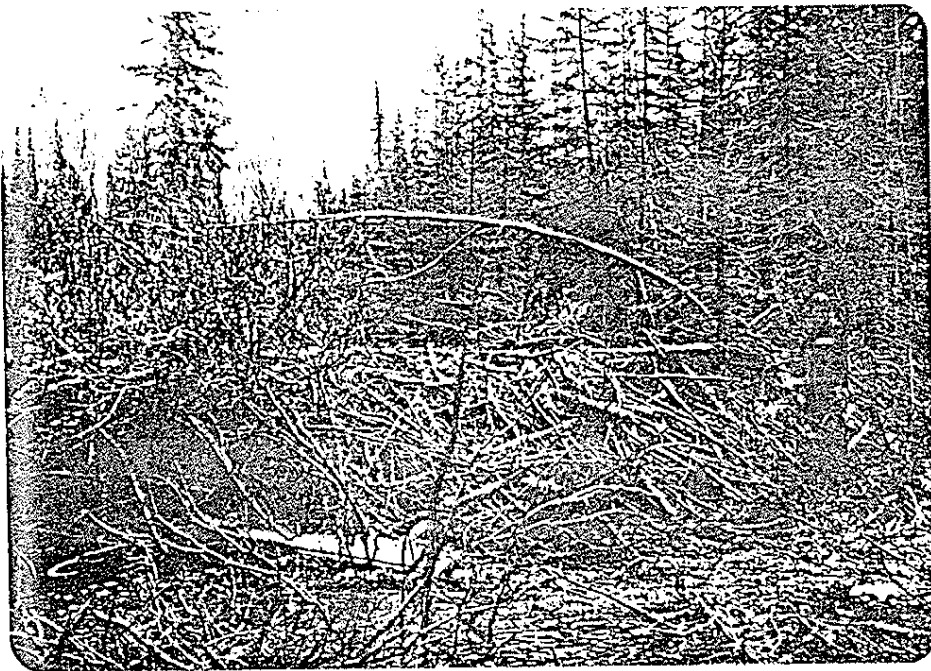


Photo 23. Impassable beaver dam

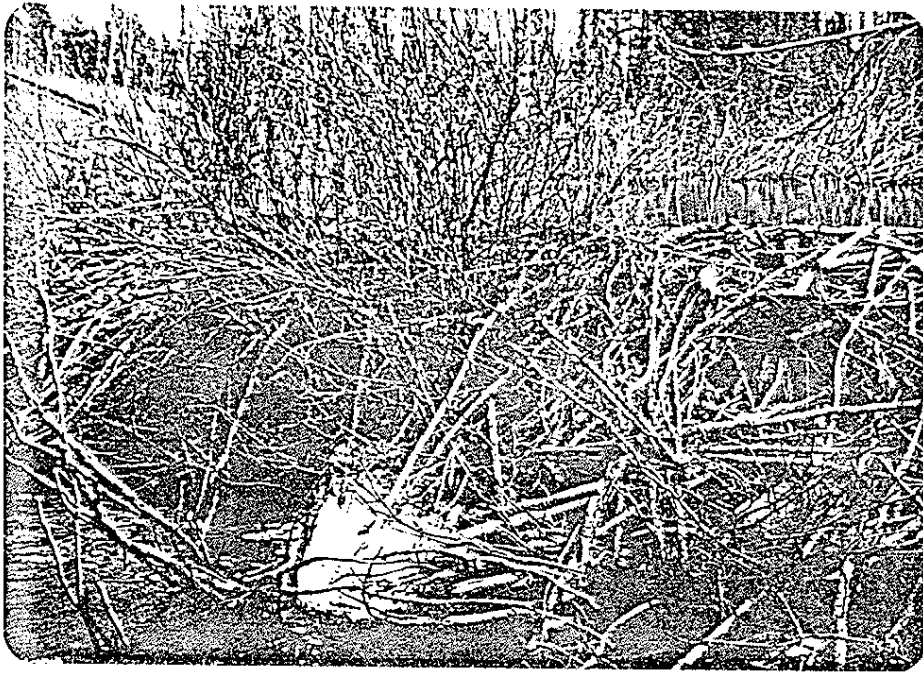


Photo 24. Outflow of impassable beaver dam



Photo 25. Small patch of gravel below dam utilized by spawning rainbow trout

UNNAMED TAKYSIE INLET "C"

This tiny stream had a wetted width of 25 cm. an average depth of 5 cm. and was considered to be of no importance for fish (see map 4).

CONCLUSIONS

TAKYSIE CREEK

1. Although a nice looking angling stream it is of minor importance as a spawning stream for Takysie Lake rainbow trout because of the scarcity of suitable accessible spawning habitat.

UNNAMED TAKYSIE INLET "A"

1. This creek is an important spawning stream for rainbow trout.
2. The most important part of the stream surveyed was reach 4 which had good to excellent spawning habitat and was being utilized by an estimated 300 rainbow trout (77 sampled).
3. Extensive beaver activity downstream from the spawning grounds (reach 4) could make access difficult, and at times impassable, for spawning rainbow trout from Takysie Lake.
4. Longnose suckers were not evident in this creek at the time of survey.

UNNAMED TAKYSIE INLET B

1. This creek is also an important spawning stream for rainbow trout as well as longnose suckers.

2. Longnose suckers spawned mainly in the lower portion of the stream (reach 1) which was characterized by slow stream flows, deep pools and silty substrate. Rainbow trout were not observed in this reach.
3. Spawning rainbow trout were plentiful farther upstream (reach 2) which was characterized by a steeper gradient, faster flows and more gravelly substrate. Some longnose suckers were also spawning in this reach.
4. There did not seem to be any intraspecific competition for spawning habitat between longnose suckers and rainbow trout, but this issue should be investigated further before any definite conclusions can be made.
5. The large beaver dam at the upper end of reach 2 was a definite barrier to all fish and contained an estimated 300 fish in the flooded area immediately downstream.

UNNAMED TAKYSIE INLET C

1. This creek was too small to be of any importance to fish.

RECOMMENDATIONS

UNNAMED TAKYSIE INLET "A"

1. There should be an annual program of beaver dam breaching or removal wherever necessary to allow passage of migrating rainbow trout to their spawning grounds in reach 4. This should be undertaken in late April, prior to the beginning of the spawning run.
2. The creek should be assessed from Spencha Lake downstream to the termination point of this survey to determine the existence of any additional spawning habitat and the extent of beaver activity.
3. It would be desirable to reduce the numbers of beavers in this stream and clean out their attendant debris. However, the nature and difficulty of this task is well recognized.

UNNAMED TAKYSIE INLET "B"

1. The large, impassable beaver dam at the upper end of reach 2 should be completely removed, preferably in early April. This would allow time for the creek to flush itself out and return to normal flows before the start of rainbow spawning in early May.

If the dam was blown later (say - early to middle of May) during the spawning migration, damage may result in the form of:

- a) sudden, greatly increased water velocities making it very difficult for those fish present to hold their positions
 - b) greatly increased siltation with possible smothering of already deposited eggs
 - c) scouring of the substrate with possible removal of eggs
2. The creek should be surveyed from the large beaver dam upstream another 2 or 3 km. to assess potential spawning habitat and the degree of beaver activity. This should be done in late March if possible as it may be necessary to remove more beaver dams and it would be convenient to do this in conjunction with 1. above.
 3. As this creek is probably as equally an important spawning stream as unnamed inlet "A", the east end of the lake should also be closed to angling between March 1 and May 31 to prevent overharvesting of concentrations of pre-spawning rainbow trout.

APPENDIX 1

DETAILED PHYSICAL STREAM DESCRIPTIONS

ADAPTED FROM

AQUATIC SYSTEM INVENTORY AND ANALYSIS

BY

RESOURCE ANALYSIS BRANCH

MINISTRY OF ENVIRONMENT

MARCH, 1977

REACH SHEET A

NAME TAKYSIE CREEK DATE May 15, 1978

REACH NO. 1 SURVEY METHOD Walking

TEAM Hatlevik, Humphries & Morley MAP NO. 93F/13

LENGTH 0.9 km. PHOTO NO. 1-5

STREAM	WIDTHS	AVERAGE	RANGE
WETTED	<u>5</u>	<u>M</u>	<u>3.5 - 7</u> M
ROOTED	<u>5</u>	<u>M</u>	<u>3.5 - 7</u> M
FLOOD PLAIN	<u>7</u>	<u>M</u>	<u>6 - 8</u> M

AVERAGE DEPTH 0.7 m AVERAGE VELOCITY 1.1 M/SEC.

CALCULATED DISCHARGE 3.85 M³/SEC.

TURBIDITY 50 CM AVERAGE SLOPE 3 %

TEMPERATURE AIR 10 °C WATER 8 °C AT 4:00 p.m. TIME

AQUATIC VEGETATION _____

INVERTEBRATES Water striders very abundant

ALGAE DENSITY (L M H) High

DEBRIS (L M H) High, 30 % STABLE, 70 % UNSTABLE

CHANNEL TYPE

FORM (SIM) Straight in upper area to irregular in lower portion.

THREAD (SM) Single

CROSS SECTION (CBU) Confined

ENTRENCHMENT (LMH) Moderate to high

FLOW CHARACTER (%) 10 PLACID, 40 SWIRLING,
20 ROLLING, 20 BROKEN, 10 TUMBLING

FLOOD/SIDE (NIL L M H) NIL

STAGE (DRY L M H FLD) Moderate

SUBSTRATE

% COMPOSITION 20 FINES, 20 GRAVELS 30 LARGES 30 BEDROCK

COMPACTION (L M H) Moderate

ANGULARITY CLASS (R Rs As A) Sub-angular

BANKS

TEXTURE Fines with some gravels; high % of bedrock

SLOPE (%) 10 SLOPING, 70 VERTICAL, 20 UNDERCUT

STABILITY (%) 80 STABLE, 20 UNSTABLE

BANK VEGETATION/STREAM COVER

% COMPOSITION 60 CON, 40 DEC, 10 SHRUBS, 30 GRASSES 10 BARREN

CROWN CLOSURE 10 % OVERHANG CLOSURE 25 %

BEAVER ACTIVITY (NIL L M H) Low

OBSTRUCTIONS Upper portion contains a few 0.5 to 1 meter falls (velocity obstructions); lower canyon area has an impassable section containing a combination 2 m and 3 m bedrock falls.

REACH SHEET B

FISH SAMPLING

METHOD Angling and observation

% REACH SAMPLED 60

DIFFICULTY L M H

SPECIES NIL

NO. -

SIZE RANGE -

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING	X				
REARING				X	
HOLDING					

GENERAL COMMENTS Nice looking stream for angling - especially in lower canyon area which has many deep pools and fairly good rearing habitat. Some patches of marginal spawning gravel in upper portion, but overall this reach does not seem to be very important for spawning rainbow trout.

There is a campsite near the mouth of this creek and a well beaten path down the left bank.

REACH SHEET A

NAME TAKYSIE CREEK DATE May 15, 1978
 REACH NO. 2 SURVEY METHOD Walking
 TEAM Hatlevik, Humphries & Morley MAP NO. 93F/13
 LENGTH 0.3 km. to end of survey PHOTO NO. 6

STREAM	WIDTHS	AVERAGE	RANGE
WETTED		M	5 - 30 M
ROOTED		M	6 - 32 M
FLOOD PLAIN		M	30 - 50 M

AVERAGE DEPTH 0.7m AVERAGE VELOCITY 0.6 M/SEC.
 CALCULATED DISCHARGE 2.7 M³/SEC.
 TURBIDITY 90 CM AVERAGE SLOPE 1 %
 TEMPERATURE AIR 10 °C WATER 8 °C AT 4:45 p.m. TIME
 AQUATIC VEGETATION _____
 INVERTEBRATES Water striders abundant
 ALGAE DENSITY (L M H) Low
 DEBRIS (L M H) High, 20 % STABLE, 80 % UNSTABLE
 CHANNEL TYPE
 FORM (SIM) irregular
 THREAD (SM) multiple
 CROSS SECTION (CBU) unconfined
 ENTRENCHMENT (LMH) low
 FLOW CHARACTER (%) 10 PLACID, 20 SWIRLING,
70 ROLLING, BROKEN, TUMBLING
 FLOOD/SIDE (NIL L M H) High
 STAGE (DRY L M H FLD) Moderate
 SUBSTRATE
 % COMPOSITION 20 FINES, 60 GRAVELS 20 LARGES - BEDROCK
 COMPACTION (L M H) Low
 ANGULARITY CLASS (R Rs As A) Angular
 BANKS
 TEXTURE Fines (Clayey sand)
 SLOPE (%) 40 SLOPING, 40 VERTICAL 20 UNDERCUT
 STABILITY (%) 70 STABLE, 30 UNSTABLE
 BANK VEGETATION/STREAM COVER
 % COMPOSITION 30 CON, 50 DEC, 70 SHRUBS, 60 GRASSES 10 BARREN
 CROWN CLOSURE 10 % OVERHANG CLOSURE 30 %
 BEAVER ACTIVITY (NIL L M H) Moderate
 OBSTRUCTIONS None

REACH SHEET B

FISH SAMPLING

METHOD Angling & Observation

% REACH SAMPLED 30

DIFFICULTY L M H moderate to high

SPECIES rainbow trout

NO. 1

SIZE RANGE we cm male

Fish were angled in upper portion of reach

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING			X		
REARING				X	
HOLDING					

Upper portion of reach had fair to good spawning gravel and good rearing habitat while the lower, swampy area had poor spawning gravel (80% fines) and fair rearing habitat.

GENERAL COMMENTS

Upper portion of reach is a transition from the narrow confined, bedrock controlled channel of reach 1 to the swampy, braided channel flowing through willow vegetation and comprising the remainder of reach 2 probably all the way to "Mud Lake".

This reach may be of some importance for downstream lake residents or stream residents but it is of little value as a spawning stream for Takysie Lake rainbows because of the impassable falls upstream.

REACH SHEET A

NAME Unnamed Takysie Inlet "A" DATE May 16/78

REACH NO. 1 SURVEY METHOD Walking

TEAM Hatlevik, Humphries & Morley MAP NO. 93 F/13

LENGTH 0.3 km. PHOTO NO. 7 - 9

STREAM WIDTHS AVERAGE RANGE

WETTED	<u>5.4</u>	<u>M</u>	<u>4 - 7</u>	<u>M</u>
ROOTED	<u>5.4</u>	<u>M</u>	<u>4 - 7</u>	<u>M</u>
FLOOD PLAIN	<u>20</u>	<u>M</u>	<u>15 - 30</u>	<u>M</u>

AVERAGE DEPTH 0.73 m. AVERAGE VELOCITY 0.9 M/SEC.

CALCULATED DISCHARGE 3.6 M³/SEC.

TURBIDITY Tannic stained 100+ CM AVERAGE SLOPE 1.5 %

TEMPERATURE AIR 16 °C WATER 8 °C AT 10:30 a.m. TIME

AQUATIC VEGETATION _____

INVERTEBRATES Water striders, some segmented worms

ALGAE DENSITY (L M H) Low

DEBRIS (L M H) Low, 90 % STABLE, 10 % UNSTABLE

CHANNEL TYPE

FORM (SIM) Irregular

THREAD (SM) Single

CROSS SECTION (CBU) Bounded

ENTRENCHMENT (LMH) Low

FLOW CHARACTER (%) 40 ROLLING, 60 PLACID, SWIRLING,
BROKEN, TUMBLING

FLOOD/SIDE (NIL L M H) Low

STAGE (DRY L M H FLD) Moderate

SUBSTRATE

% COMPOSITION 40 FINES, 20 GRAVELS 40 LARGES BEDROCK

COMPACTION (L M H) Moderate

ANGULARITY CLASS (R Rs As A) Sub-angular

BANKS

TEXTURE Sandy fines with some gravels

SLOPE (%) 80 SLOPING, VERTICAL 20 UNDERCUT

STABILITY (%) 80 STABLE, 20 UNSTABLE

BANK VEGETATION/STREAM COVER

% COMPOSITION CON, 20 DEC, 60 SHRUBS, 90 GRASSES BARREN

CROWN CLOSURE 0 % OVERHANG CLOSURE 40 %

BEAVER ACTIVITY (NIL L M H) Low, becoming moderate in upper portion

OBSTRUCTIONS Some small passable beaver dams below ponds in upper portion of reach.

REACH SHEET B

FISH SAMPLING

METHOD Angling, Observation

% REACH SAMPLED 80

DIFFICULTY L M H Moderate

SPECIES Rainbow Trout

NO. 2 (1 angled; 1 observed)

SIZE RANGE 34 cm. male in spawning colours angled below bridge.
One trout observed just above bridge.

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING		X			
REARING				X	
HOLDING					

GENERAL COMMENTS

Reach has fairly good rearing habitat but little spawning gravel. Substrate is quite heavily silted. Abundant waterfowl (Mergansers and Barrow's Goldeneyes) in beaver created ponds above the bridge. Reportedly, the land owner in vicinity of beaver ponds does not want the beaver dams removed. There is an old road following the right bank of the creek for about 1 km.

REACH SHEET A

NAME Unnamed Takysie Inlet "A" DATE May 16, 1978

REACH NO. 2 SURVEY METHOD Walking

TEAM Hatlevik, Humphries & Morley MAP NO. 93F/13

LENGTH 1.2 PHOTO NO. -

STREAM	WIDTHS	AVERAGE	RANGE
	WETTED <u>150</u>	<u>M</u>	<u>50 - 200</u>
	ROOTED <u>150</u>	<u>M</u>	<u>50 - 200</u>
	FLOOD PLAIN <u>250</u>	<u>M</u>	<u>225 - 275</u>

AVERAGE DEPTH _____ AVERAGE VELOCITY _____ M/SEC.

CALCULATED DISCHARGE _____ M³/SEC.

TURBIDITY _____ CM AVERAGE SLOPE 0.5 %

TEMPERATURE AIR _____ °C WATER _____ °C AT _____ TIME

AQUATIC VEGETATION _____

INVERTEBRATES _____

ALGAE DENSITY (L M H) Low

DEBRIS (L M H) High, 90 % STABLE, 10 % UNSTABLE

CHANNEL TYPE

FORM (SIM) Irregular

THREAD (SM) Multiple

CROSS SECTION (CBU) Very unconfined

ENTRENCHMENT (LMH) Low

FLOW CHARACTER (%) 60 PLACID, 20 SWIRLING,
10 ROLLING, 10 BROKEN, TUMBLING

FLOOD/SIDE (NIL L M H) High

STAGE (DRY L M H FLD) Moderate

SUBSTRATE

% COMPOSITION 90 FINES, 10 GRAVELS - LARGES - BEDROCK

COMPACTION (L M H) Low

ANGULARITY CLASS (R Rs As A) -

BANKS

TEXTURE Fines

SLOPE (%) 50 SLOPING, 30 VERTICAL, 20 UNDERCUT

STABILITY (%) 80 STABLE, 20 UNSTABLE

BANK VEGETATION/STREAM COVER

% COMPOSITION _____ CON, 10 DEC, 100 SHRUBS, _____ GRASSES _____ BARREN

CROWN CLOSURE 10 % OVERHANG CLOSURE 50 %

BEAVER ACTIVITY (NIL L M H) High

OBSTRUCTIONS Many small beaver and debris jams - nothing impassable seen at time of survey - possibly could become impassable in the future.

REACH SHEET B

FISH SAMPLING Angling, Observation

METHOD

% REACH SAMPLED 20

DIFFICULTY L M H High

SPECIES NIL

NO. -

SIZE RANGE -

Walking and angling in this reach was very difficult as it is mainly swampy, overgrown with willows and contains a high amount of beaver activity.

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING	X				
REARING			X		
HOLDING					

GENERAL COMMENTS

Reach is an unconfined, irregular, braided channel flowing through scrub willows with much old and recent beaver activity (a swamp). It could not be walked in entirety as were the other reaches. No spawning gravel evident. Possibly fair rearing habitat in beaver created pools and ponds. Very abundant waterfowl. There is a potential for future existence of impassable beaver dams.

REACH SHEET A

NAME Unnamed Takysie Inlet "A" DATE May 16, 1978

REACH NO. 3 SURVEY METHOD Walking

TEAM Hatlevik, Humphries & Morley MAP NO. 93 F/13

LENGTH 1.2 PHOTO NO. 10 - 12

STREAM	WIDTHS	AVERAGE	RANGE
	WETTED <u>6.6</u>	<u>M</u>	<u>5 - 8</u> M
	ROOTED <u>7</u>	<u>M</u>	<u>7 - 9</u> M
	FLOOD PLAIN <u>80</u>	<u>M</u>	<u>60 - 100</u> M

AVERAGE DEPTH 0.5 m. AVERAGE VELOCITY 1.1 M/SEC.

CALCULATED DISCHARGE 3.6 M³/SEC.

TURBIDITY _____ CM AVERAGE SLOPE 1.5 %

TEMPERATURE AIR _____ °C WATER 10 °C AT 12:00 p.m. TIME

AQUATIC VEGETATION _____

INVERTEBRATES _____

ALGAE DENSITY (L M H) Moderate

DEBRIS (L M H) Moderate, 30 % STABLE, 70 % UNSTABLE

CHANNEL TYPE

FORM (SIM) Irregular

THREAD (SM) Single

CROSS SECTION (CBU) Bounded

ENTRENCHMENT (LMH) Low

FLOW CHARACTER (%) 20 PLACID, 40 SWIRLING,

30 ROLLING, 10 BROKEN, TUMBLING

FLOOD/SIDE (NIL L M H) Moderate

STAGE (DRY L M H FLD) Moderate

SUBSTRATE

% COMPOSITION 20 FINES, 70 GRAVELS 10 LARGES - BEDROCK

COMPACTION (L M H) Moderate

ANGULARITY CLASS (R Rs As A) Sub-angular

BANKS

TEXTURE Fines with gravels

SLOPE (%) 10 SLOPING, 60 VERTICAL 20 UNDERCUT

STABILITY (%) 90 STABLE, 10 UNSTABLE

BANK VEGETATION/STREAM COVER

% COMPOSITION 20 CON, 30 DEC, 50 SHRUBS, 40 GRASSES 10 BARREN

CROWN CLOSURE 10 % OVERHANG CLOSURE 20 %

BEAVER ACTIVITY (NIL L M H) Moderate

OBSTRUCTIONS 1 m. beaver dam (not a barrier) in upper portion of reach.

REACH SHEET B

FISH SAMPLING

METHOD Angling and observation

% REACH SAMPLED 80

DIFFICULTY L M H Low

SPECIES Rainbow trout

NO. 1

SIZE RANGE 21 cm. male

Fish was angled near upper portion of reach.

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING			X		
REARING				X	
HOLDING					

Good varying habitat in pools and undercut banks; some fair spawning gravel, especially in upper portion of reach.

GENERAL COMMENTS

Channel more defined, steeper gradient than reach 2. Many dead cottonwoods suggest evidence of valley flooding. About 10 - 12 bald eagles seen.

REACH SHEET A

NAME Unnamed Takysie Inlet "A" DATE May 16, 1978
 REACH NO. 4 SURVEY METHOD Walking
 TEAM Hatlevik, Humphries, & Morley MAP NO. 93F/13
 LENGTH 0.8 km. PHOTO NO. 13 - 16
 STREAM WIDTHS AVERAGE RANGE
 WETTED 5 M 3.5 - 6 M
 ROOTED 5 M 4 - 7 M
 FLOOD PLAIN 16 M 12 - 20 M
 AVERAGE DEPTH 0.45 m. AVERAGE VELOCITY 1.14 M/SEC.
 CALCULATED DISCHARGE 2.6 M³/SEC.
 TURBIDITY 100+ CM AVERAGE SLOPE 1 %
 TEMPERATURE AIR 8 °C WATER 10 °C AT 1:30 p.m. TIME
 AQUATIC VEGETATION _____
 INVERTEBRATES _____
 ALGAE DENSITY (L M H) Moderate
 DEBRIS (L M H) Moderate, 80 % STABLE, 20 % UNSTABLE
 CHANNEL TYPE
 FORM (SIM) Irregular
 THREAD (SM) Single
 CROSS SECTION (CBU) Bounded
 ENTRENCHMENT (LMH) Multiple
 FLOW CHARACTER (%) 10 PLACID, 50 SWIRLING,
40 ROLLING, BROKEN, TUMBLING
 FLOOD/SIDE (NIL L M H) Moderate
 STAGE (DRY L M H FLD) Moderate
 SUBSTRATE
 % COMPOSITION 20 FINES, 60 GRAVELS 20 LARGES - BEDROCK
 COMPACTION (L M H) Low
 ANGULARITY CLASS (R Rs As A) Sandy gravels
 BANKS
 TEXTURE Sandy gravels
 SLOPE (%) 20 SLOPING, 40 VERTICAL 40 UNDERCUT
 STABILITY (%) 80 STABLE, 20 UNSTABLE
 BANK VEGETATION/STREAM COVER
 % COMPOSITION 30 CON, 10 DEC, 40 SHRUBS, 100 GRASSES BARREN
 CROWN CLOSURE 10 % OVERHANG CLOSURE 20 %
 BEAVER ACTIVITY (NIL L M H) Moderate
 OBSTRUCTIONS Beaver dam at lower end of reach - may require annual
breaching.

REACH SHEET B

FISH SAMPLING

METHOD Angling and observation

% REACH SAMPLED 90

DIFFICULTY L M H Low

SPECIES Rainbow trout

NO. 31 angled, 46 observed = 77 total sample

SIZE RANGE 22 - 36 cm.

Estimate 200 - 300 rainbow trout spawning in this reach at time of survey. No longnose suckers observed. See Table 1 for some measurements of rainbow trout angled from this reach.

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING				X	
REARING				X	
HOLDING					

GENERAL COMMENTS This is obviously the most important reach for spawning. Gravel sizes utilized ranged from 1 to 5 cm., with some areas containing quite a lot of sand. Redd size was 15 - 20 cm. deep, 35 cm. long and 15 cm. wide (one redd was measured).

The reach is a narrow V-shaped valley with extensive beaver activity along valley side walls. There is a major slump in the upper portion of the reach - locals report heavy siltation at times in this creek.

TABLE 1. Measurements of some Rainbow Trout angled from Reach 4 of Unnamed Takysie Inlet "A" on May 16, 1978.

No.	Fork Length (cm)	Sex	Condition
1	34	F	Spawning - eggs loose
2	28	F	
3	30	F	
4	23	M	Not yet spawned
5	34	M	
6	31	M	Spawning
7	33	F	
8	20	M	Spawning
9	28	M	
10	33	M	Dark
11	36	M	Bright
12	16	M	Not spawned
13	32	F	
14	23	F	Bright
15	28	F	Bright
16	26	M	Dark
17	22	M	Dark
18	30	F	Dark
19	24	F	

REACH SHEET A

NAME Unnamed Takysie Inlet "A" DATE May 16, 1978
 REACH NO. 5 SURVEY METHOD Walking
 TEAM Hatlevik, Humphries & Morley MAP NO. 93F/13
 LENGTH 0.6 km. to end of survey PHOTO NO. 17

STREAM WIDTHS AVERAGE RANGE
 WETTED 30 M 20 - 40 M
 ROOTED 33 M 20 - 40 M
 FLOOD PLAIN 60 M 50 - 75 M

AVERAGE DEPTH _____ AVERAGE VELOCITY 1 M/SEC.

CALCULATED DISCHARGE _____ M³/SEC.

TURBIDITY _____ CM AVERAGE SLOPE _____ %

TEMPERATURE AIR _____ °C WATER 11 °C AT 2:30 TIME

AQUATIC VEGETATION _____

INVERTEBRATES Numerous water striders. 1 leech 5 cm. Abundant fresh water shrimp in beaver ponds.

ALGAE DENSITY (L M H) Low

DEBRIS (L M H) High, 80 % STABLE, 20 % UNSTABLE

CHANNEL TYPE
 FORM (SIM) Irregular
 THREAD (SM) Multiple
 CROSS SECTION (CBU) Unconfined
 ENTRENCHMENT (LMH) Low
 FLOW CHARACTER (%) 30 PLACID, 40 SWIRLING,
30 ROLLING, _____ BROKEN, _____ TUMBLING
 FLOOD/SIDE (NIL L M H) High
 STAGE (DRY L M H FLD) Moderate

SUBSTRATE
 % COMPOSITION 90 FINES, 10 GRAVELS - LARGES - BEDROCK
 COMPACTION (L M H) Low
 ANGULARITY CLASS (R Rs As A) -

BANKS
 TEXTURE Fines
 SLOPE (%) 20 SLOPING, 60 VERTICAL, 20 UNDERCUT
 STABILITY (%) 80 STABLE, 20 UNSTABLE

BANK VEGETATION/STREAM COVER
 % COMPOSITION 10 CON, 30 DEC, 50 SHRUBS, 70 GRASSES, _____ BARREN
 CROWN CLOSURE 10 % OVERHANG CLOSURE 40 %
 BEAVER ACTIVITY (NIL L M H) High
 OBSTRUCTIONS two beaver dams

REACH SHEET B

FISH SAMPLING

METHOD Angling, Observation

% REACH SAMPLED 20

DIFFICULTY L M H High

SPECIES NIL

NO. -

SIZE RANGE -

Because this reach is a swamp it was difficult to sample.

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING	X				
REARING			X		
HOLDING					

Poor spawning potential, substrate 90% fines perhaps some rearing in beaver ponds.

GENERAL COMMENTS

This reach is similar to reach 2 - both are willow swamps with lots of beaver activity. It is more confined though, and flows through a narrower valley. It is interesting to note the great abundance of fresh water shrimp.

REACH SHEET A

NAME Unnamed Takysie Inlet "B" DATE May 17, 1978

REACH NO. 1 SURVEY METHOD Walking

TEAM Hatlevik, Humphries & Morley MAP NO. 93 F/13

LENGTH 0.4 km. PHOTO NO. 18, 19

STREAM	WIDTHS	AVERAGE	RANGE
	WETTED <u>3</u>	<u>M</u>	<u>2 - 8</u>
	ROOTED <u>3.5</u>	<u>M</u>	<u>2 - 9</u>
	FLOOD PLAIN <u>30</u>	<u>M</u>	<u>20 - 50</u>

AVERAGE DEPTH 0.25 m. AVERAGE VELOCITY _____ M/SEC.

CALCULATED DISCHARGE _____ M³/SEC.

TURBIDITY Water Tannic stained 60 CM AVERAGE SLOPE 1 %

TEMPERATURE AIR _____ °C WATER 8 °C AT 10:00 a.m. TIME

AQUATIC VEGETATION _____

INVERTEBRATES _____

ALGAE DENSITY (L M H) Low

DEBRIS (L M H) High, 80 % STABLE, 20 % UNSTABLE

CHANNEL TYPE

FORM (SIM) Irregular

THREAD (SM) Multiple

CROSS SECTION (CBU) Bounded

ENTRENCHMENT (LMH) Low

FLOW CHARACTER (%) 50 PLACID, _____ SWIRLING,
50 ROLLING, _____ BROKEN, _____ TUMBLING

FLOOD/SIDE (NIL L M H) Moderate

STAGE (DRY L M H FLD) Low to moderate

SUBSTRATE

% COMPOSITION 80 FINES, 10 GRAVELS 10 LARGES _____ BEDROCK

COMPACTION (L M H) Low

ANGULARITY CLASS (R Rs As A) Sub angular

BANKS

TEXTURE Clayey fines with some cobbles

SLOPE (%) 20 SLOPING, 60 VERTICAL 20 UNDERCUT

STABILITY (%) 80 STABLE, 20 UNSTABLE

BANK VEGETATION/STREAM COVER

% COMPOSITION _____ CON, 60 DEC, 50 SHRUBS, 50 GRASSES _____ BARREN

CROWN CLOSURE 10 % OVERHANG CLOSURE 40 %

BEAVER ACTIVITY (NIL L M H) Moderate

OBSTRUCTIONS A 0.5 meter high beaver dam, passable to fish, near the upper end of the reach.

REACH SHEET B

FISH SAMPLING

METHOD Angling and observation

% REACH SAMPLED 70

DIFFICULTY L M H Moderate

SPECIES Longnose sucker

NO. About 60 in spawning colours observed in a few areas containing some patches of gravel.

SIZE RANGE

Estimated 15 to 35 cm.

Suckers were very skittish and would not take a lure. They were observed spawning in some very silty looking gravel. See Table 2 for fish sampling information pertaining to this creek.

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING		X			
REARING			X		
HOLDING					

Deep beaver-created pools provide good rearing. Spawning habitat for suckers seemed fair (i.e - in the sense that it was being used) but for rainbows the substrate seemed rather silty and the flow was quite slow.

GENERAL COMMENTS

Mouth of inlet is partially hidden in a lagoon - like entrance. Willow vegetation very thick and debris quite high in lower portion of reach. There is an old road along the right bank of the creek, with a field just over from the mouth of the inlet.

It is interesting to note that no rainbow trout were sampled in this reach.

Table 2. Numbers of Fish Angled or Observed in Unnamed Takysie Inlet "B" on May 17, 1978.

Rainbow Trout	Long Nose Sucker	Location	Angle	Observ.	Sex	Fork Length-cm.	Condition
	6	Middle Reach 1		X			
	50	Upper Reach 1		X		Est. 20 - 35	Spawning colours
1		Lower Reach 2	X			32	Spawning colours
1		Lower Reach 2	X		M	35	Ripe
1		Lower Reach 2	X			19	Ripe
1		Lower Reach 2	X			19	
1		Lower Reach 2	X		F	36	Not spawned
1		Middle Reach 2	X			16	Ripe
	2	Middle Reach 2		X			
6		Middle Reach 2		X			Spawning colours
5		Middle Reach 2	X		2M		
4		Middle Reach 2	X		3F	18 - 36	Ripe
4		Middle Reach 2	X		1M		
2		Middle Reach 2	X		3F	19	Ripe
1		Middle Reach 2	X		M	35	Ripe
1		Middle Reach 2	X		F	36	Dark
1		Upper Reach 2	X		M	35	Dark
1		Upper Reach 2	X		F	20	Parr Marks
	15	Upper Reach 2		X			
8		Upper Reach 2	X			Est 20 - 35	Spawning Colours
4		Pool Below					
3		Beaver Dam	X		F	21 - 34	Spawning Colours
5		" "	X		M	28 - 35	Spawning Colours
		" "	X			20 - 35	Spawning Colours
46	73						

In addition to the above, an estimated 300 fish (rainbow trout and longnose suckers) were observed in the flooded area immediately downstream from the impassable beaver dam.

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REACH SHEET A

NAME Unnamed Takysie Inlet "B" DATE May 17, 1978
REACH NO. 2 SURVEY METHOD Walking
TEAM Hatlevik, Humphries & Morley MAP NO. 93F/13
LENGTH 0.8 km. PHOTO NO. 20 - 25

STREAM	WIDTHS	AVERAGE	RANGE
	WETTED <u>2.5</u>	<u>M</u>	<u>2 - 4</u>
	ROOTED <u>3</u>	<u>M</u>	<u>2.5 - 4.5</u>
	FLOOD PLAIN <u>25</u>	<u>M</u>	<u>18 - 33</u>

AVERAGE DEPTH 0.5 m. AVERAGE VELOCITY 0.6 M/SEC.
CALCULATED DISCHARGE 0.75 M³/SEC.
TURBIDITY 77 CM AVERAGE SLOPE 2 %
TEMPERATURE AIR °C WATER 10 °C AT 12:00 p.m. TIME
AQUATIC VEGETATION
INVERTEBRATES Mayflies
ALGAE DENSITY (L M H) Moderate
DEBRIS (L M H) High, 60 % STABLE, 40 % UNSTABLE
CHANNEL TYPE
FORM (SIM) Irregular
THREAD (SM) Single
CROSS SECTION (CBU) Confined
ENTRENCHMENT (LMH) Moderate
FLOW CHARACTER (%) 60 ROLLING, 30 PLACID, 10 SWIRLING,
 BROKEN, TUMBLING
FLOOD/SIDE (NIL L M H) Moderate
STAGE (DRY L M H FLD) Low to Moderate
SUBSTRATE
% COMPOSITION 30 FINES, 60 GRAVELS 10 LARGES - BEDROCK
COMPACTION (L M H) Moderate
ANGULARITY CLASS (R Rs As A) Sub-angular
BANKS
TEXTURE Fines with gravels
SLOPE (%) 20 SLOPING, 40 VERTICAL, 40 UNDERCUT
STABILITY (%) 80 STABLE, 20 UNSTABLE
BANK VEGETATION/STREAM COVER
% COMPOSITION 60 CON, 30 DEC, 60 SHRUBS, 40 GRASSES - BARREN
CROWN CLOSURE 20 % OVERHANG CLOSURE 40 %
BEAVER ACTIVITY (NIL L M H) Moderate
OBSTRUCTIONS Very large impassable beaver dam 2 m. high, 35 m. across
at upper end of reach.

REACH SHEET B

FISH SAMPLING

METHOD Angling, Observation

% REACH SAMPLED 60

DIFFICULTY L M H Moderate

SPECIES Rainbow trout - 46 angled - many observed
- size range 18 - 36 cm.

NO. - most in spawning colours

SIZE RANGE Longnose suckers
- about 20 observed

In addition, an estimated 300 fish, (mostly rainbows, some suckers) in spawning colours, were evident in the flooded area immediately downstream from the large beaver dam. Some trout were spawning in a gravel patch 2 m. X 15 m. just below the dam outflow. Remainder of flooded area was 100% fines and unsuitable for spawning.

HABITAT APPRAISAL

	POOR	LOW	FAIR	GOOD	EXCELLENT
SPAWNING				X	
REARING				X	
HOLDING					

GENERAL COMMENTS This reach is of obvious importance to spawning rainbows and is also used to some extent by spawning longnose suckers. The rainbows were generally found in fairly fast water over a gravelly substrate while the suckers were observed holding in undercut banks adjacent to slower moving water with a more silty substrate. There did not appear to be any intraspecific competition for available spawning habitat but this should be investigated further before any definite conclusions can be drawn. It seems imperative that the large beaver dam be removed and this creek surveyed further upstream.