

AN OVERVIEW SURVEY OF THE
TAHLTAN RIVER AND THE STATUS
OF TAHLTAN STEELHEAD TROUT

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THLATAN RIVER AND THE STAT
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By
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Skeena Fisheries Report No. 80-2
British Columbia Fish and Wildlife Branch
Smithers, B.C.

November, 1980

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INTRODUCTION

The Tahltan River flows into the Stikine River at a point about 80 km S.W. of Dease Lake, B.C. In the fall, it is one of the few unsilted tributaries of the Stikine above the Iskut River, and one of the major fish producers of the system. The largest lake in the Tahltan drainage is Tahltan Lake, which has a Federal Fisheries upstream fence at its outlet. The sockeye run is presently estimated at about 20-25,000 which accounts for about 80% of the entire Stikine sockeye escapement.

In 1979, Federal Fisheries began to encourage a commercial fishery on the Stikine just upstream of the international border. Approximately 20 commercial fishermen now operate set gillnets on the Canadian Stikine, with the target species being sockeye and coho, although an incidental harvest of steelhead also occurs.

As this "experimental" fishery develops, it seems likely that commercial interception of steelhead will also increase, thereby causing the same type of mixed stock fishery problems currently impacting on Skeena River steelhead.

Management of the Stikine fishery requires baseline biological information about steelhead which is now altogether absent. Probably the most needed information at this time is data on escapements, life history and run timing. Studies on run timing in the Stikine would be extremely difficult and expensive due to the nature of the Stikine system, but studies on escapements and life history are perhaps a little more

feasible with our current budget.

During late September/early October 1980, a Fish and Wildlife crew conducted a preliminary examination of the Tahltan River with the above objectives in mind.

THE STUDY AREA

The Tahltan drainage is situated on the north side of the Stikine valley, approximately 100 km west of Dease Lake (Fig. 1). The climate is relatively dry and mild, and the vegetation is a mixed forest of poplar, aspen and pine. The wet riverbottom sites can have very dense growth, but the forest rapidly becomes open pine stands on the slopes above the flood plain. The soils of the area are a mix of clay and sand, with only a thin layer of topsoil. This is apparently an unstable combination, because evidence of slumps and slope failures exist throughout the drainage. The largest slide is on the Tahltan mainstem, about 4 km from the mouth, where the east slope of the Tahltan valley slid down into the riverbottom. The slide is almost 2 km across, and appears to be getting larger with continuous slumping in the area.

Tahltan Lake is 812 m above sea level. From the lake outlet the river flows 55.5 km to the Stikine River, which is about 207 m above sea level at the confluence. The 616 m drop varies between steep canyon sections and gentle meandering sections with an average gradient of 1.1%.

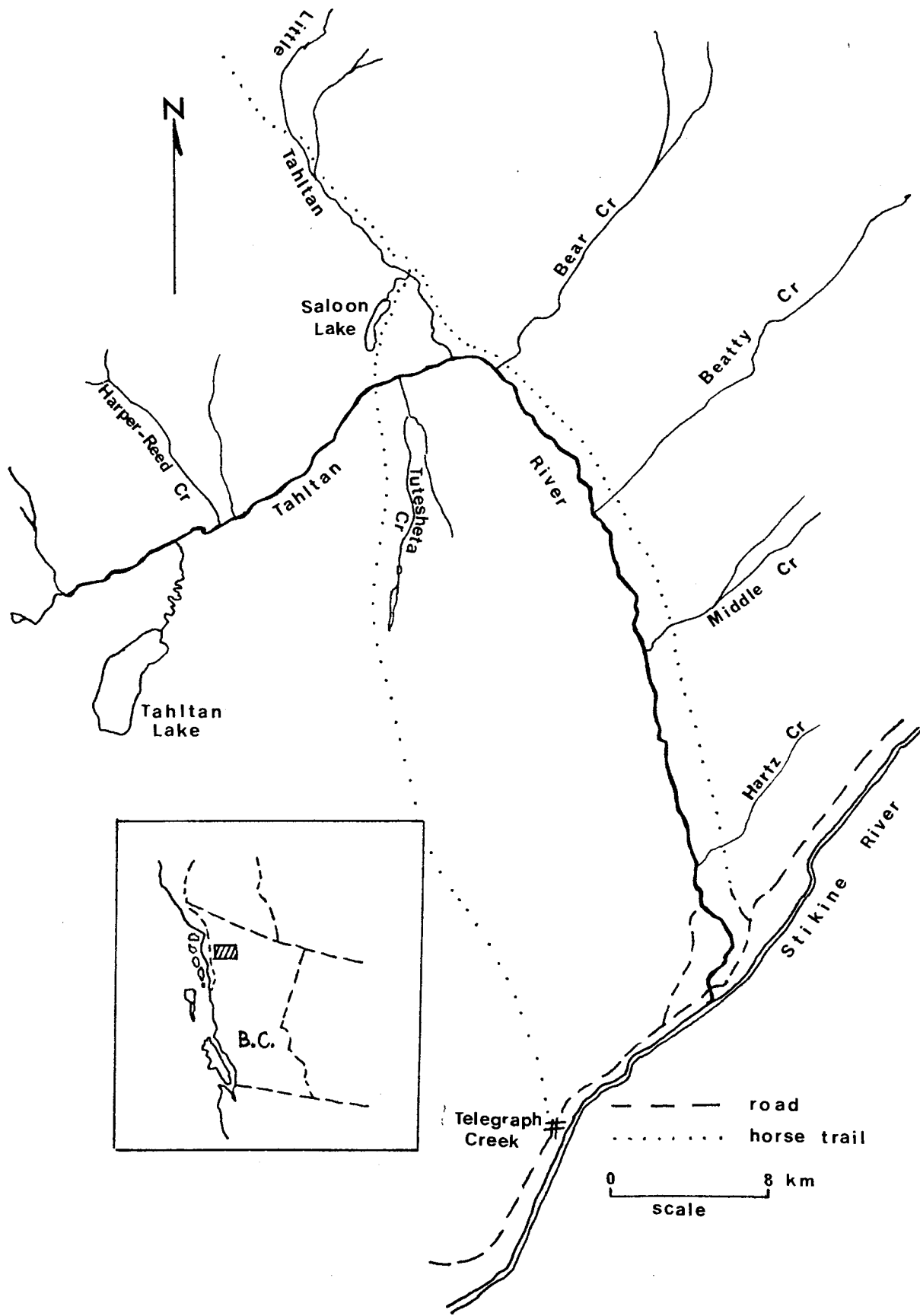


Fig. 1. Tahltan River

At lower flows (October) the river is generally characterized by fast, shallow runs with cobble and boulder substrate, except in canyon areas, where a wide variety of flows occur. The channel is a confined, single mainstem, with the exceptions being braided areas upstream of Tutesheta Creek and also upstream of Tahltan Lake confluence.

The major tributary to the Tahltan is Little Tahltan River, which contributes roughly 25% of the flows to the lower Tahltan at lower (October) flows.

The isolated nature of the Tahltan and lack of access make it a difficult system to survey. The nearest settlement is Telegraph Creek, which has no food supplies, gas, or restaurants. Accommodation is available at an unfurnished B.C. Forest Service cabin in Telegraph, or at a cabin owned by Fletcher Day at approximately \$20/day. Fixed wing charter (Beaver or Cessna 185) is available at Telegraph and helicopter at Dease Lake.

The river is accessible at the highway bridge near the mouth and from a side road which crosses Indian reserve land on the west side of the river. This road ends about 4 km upstream from the mouth, directly across from the big slide at an area known locally as the "cannery". Fixed wing aircraft can land on Tahltan Lake or Saloon Lake, although the latter is small requires a Beaver to get out. The river is not raftable, so means of access is the horse trail on the east side of the Tahltan (Fig. 1).

RESULTS AND DISCUSSION

An overview flight of the lower Tahltan and Little Tahltan was made, but much of the upper river near Tahltan Lake was obscured by cloud. About 11 km of river from the Little Tahltan to the mouth were walked and angled by the crew.

HABITAT AND UTILIZATION BY FISH

The Tahltan River is accessible to anadromous fish as far as the headwaters upstream of Tahltan Lake. In addition, many tributaries are accessible for part of their length. Time and cost constraints did not allow a detailed examination of all areas, but through a combination of flights and air photo interpretation, some useful information was obtained.

Tahltan River

The lower 10 km of the mainstem is fast, canyon type water with little slow and deep water for fish to hold in. As a result, steelhead appear to move through this section to the better water upstream, with only a small number of fish staying in the limited holding water below.

A total of about 11 km of the mainstem was angled by the crew, and all fish captured were released. A total of 13 steelhead were scale sampled, measured and spaghetti tagged. Two of the steelhead caught on the lower Tahltan had hooks from previous anglers in their lips, but appeared in good shape. Since this lower section is the only area accessible to anglers, it seems that upriver movement of these fish had stopped at least temporarily. The size of the steelhead ranged from 2.2 kg to 5.4 kg,

with a mean weight of 3.8 kg (Table 1).

The resident rainbow trout in the system were very difficult to distinguish from small steelhead, differing only slightly in size and in (sometimes) coloration and/or spotting on the sides and as a result, 5 resident rainbows were accidentally spaghetti tagged and recorded as steelhead (Table 2).

In addition, approximately 300 Dolly Varden were angled and released; they ranged in size from 0.3 kg to 2.0 kg and averaged about 1.0 kg. Although some of these fish appeared dark and gravid, most were bright and firm with little indication that they were fall spawners. It is likely that these fish move up from the Stikine to take advantage of the chinook spawning in September.

Chinook redds (carcasses nearby) were evident at the tails of most deep pools, although the highest concentration of spawning is the area immediately downstream of the Little Tahltan confluence (S. Johnston, pers. comm.). About 10-15 sockeye were observed spawning in the mainstem, approximately 5 km from the mouth.

Little Tahltan River

This tributary was viewed in October, and seemed too low to hold a sizeable wintering population. At higher flows after spring runoff, the lower 8-10 km look as though they would offer ideal spawning habitat. Saloon Creek, a tributary of the Little Tahltan, has a steep gradient and is impassable to fish. An apparent slide and blockage in the last several years seems to have caused a severe washout about 3 km downstream of Saloon Lake.

Table 1. Size and numbers of fish angled on Tahltan River, 1980.
 All sizes estimates are visual.

<u>Species</u>	<u>Numbers Angled</u>	<u>Size Range (kg)</u>	<u>Size Average (kg)</u>
Steelhead	13	2.2 - 5.4	3.8
Rainbow trout	22	0.2 - 1.3	0.9
Dolly varden	approx 300	0.3 - 2.0	1.0
Cutthroat trout	2	1.1 - 1.1	1.1
Pink salmon	1	2.2	2.2
Whitefish	2	0.5	0.5

Table 2. Tahltan River Spaghetti Tag Data.

	<u>Data tagged</u>	<u>Location</u>	<u>Size</u>	<u>Yellow spaghetti Tag No.</u>
Steelhead:	Sept. 24/80	3 km	3.6 kg	00113
	24	3 km	4.9 kg	00114
	25	6 km	2.2 kg	00080
	28	28 km	3.6 kg	00082
	28	28 km	4.5 kg	00083
	29	27 km	3.6 kg	00086
	29	27 km	3.6 kg	00085
	29	23 km	4.0 kg	00089
	29	22 km	4.6 kg	not recorded
	29	21 km	3.6 kg	00124
	29	21 km	2.7 kg	00123
	29	20 km	5.4 kg	00122
	30	21 km	4.0 kg	00121
Rainbow trout:	Sept. 25/80	6 km	1.3 kg	00101 + 102
	28	28 km	1.3 kg	00081
	29	28 km	1.3 kg	00084
	29	23 km	1.3 kg	00087
	29	23 km	0.9 kg	00115

Beatty Creek

No apparent barriers exist on the lower end, although only the lower 2 km were seen from the air. Air photos indicated that the lower 6 km appear to be suitable for spawning. Cutbanks and cliffs were evident only on the lower 2 km of Beatty Creek. Flows above this point are probably clear in the spring and suitable for spawning, since most siltation in this area is from unstable cliffs and cutbanks.

Bear Creek

The lower 5 or 6 km appear to be free of barriers during October flows (approx 30 c.f.s.). Again, there are not many slope failures or cutbanks, so it may be utilized for spawning in the spring.

Harper Reed Creek

Due to heavy fog, this section of the river was not flown, and only air photo interpretation was made. There appear to be no barriers on the lower 3-4 km, and the gradient of this section seems suitable for spawning.

Unnamed Tributary

Located on the north side of the Tahltan, immediately downstream of Harper Reed Creek. Only air photo interpretation was made of this stream. Although similar to Harper Reed Creek, cutbank and canyon sections are evident for 3 km, so the system may be heavily silted during spring runoff.

Tahltan Lake Creek

This is a low gradient stream which meanders through open meadow and sub-alpine forest. Although flows looked too low for a spawning stream during October, flows will increase during spring runoff, creating higher velocities and perhaps suitable spawning habitat. Steelhead may winter in Tahltan Lake although none have been observed moving through the Fisheries fence before its removal in October (S. Johnston, pers. comm.).

Middle, Hartz and Tutesheta Creeks

All these tributaries appears to be unsuitable for spawning, mostly as a result of barriers, siltation and steep gradients.

TIMING OF MIGRATIONS

Commercial Interception

Steelhead are intercepted in the Alaskan and Canadian gillnet fisheries as they enter the Stikine River. They first appear in the Alaskan gillnets during late July or early August, and continue to show in the fishery until the end of September (Figure 2). In 1952, the peak steelhead landings were on August 7, but in 1955, the peak landings were September 7; one full month later. Although a shift in the peak gillnet catch seems evident, recent data is unavailable to confirm it. The next-best available data is the Canadian commercial fishery which can be used as an indication of run timing through the lower Stikine, about 60 km upstream from the Alaska commercial fishery. The peak in run timing for 1980 was August 27, although a smaller second peak appeared just before the commercial fishery closed at the end of October (Figure 3). There

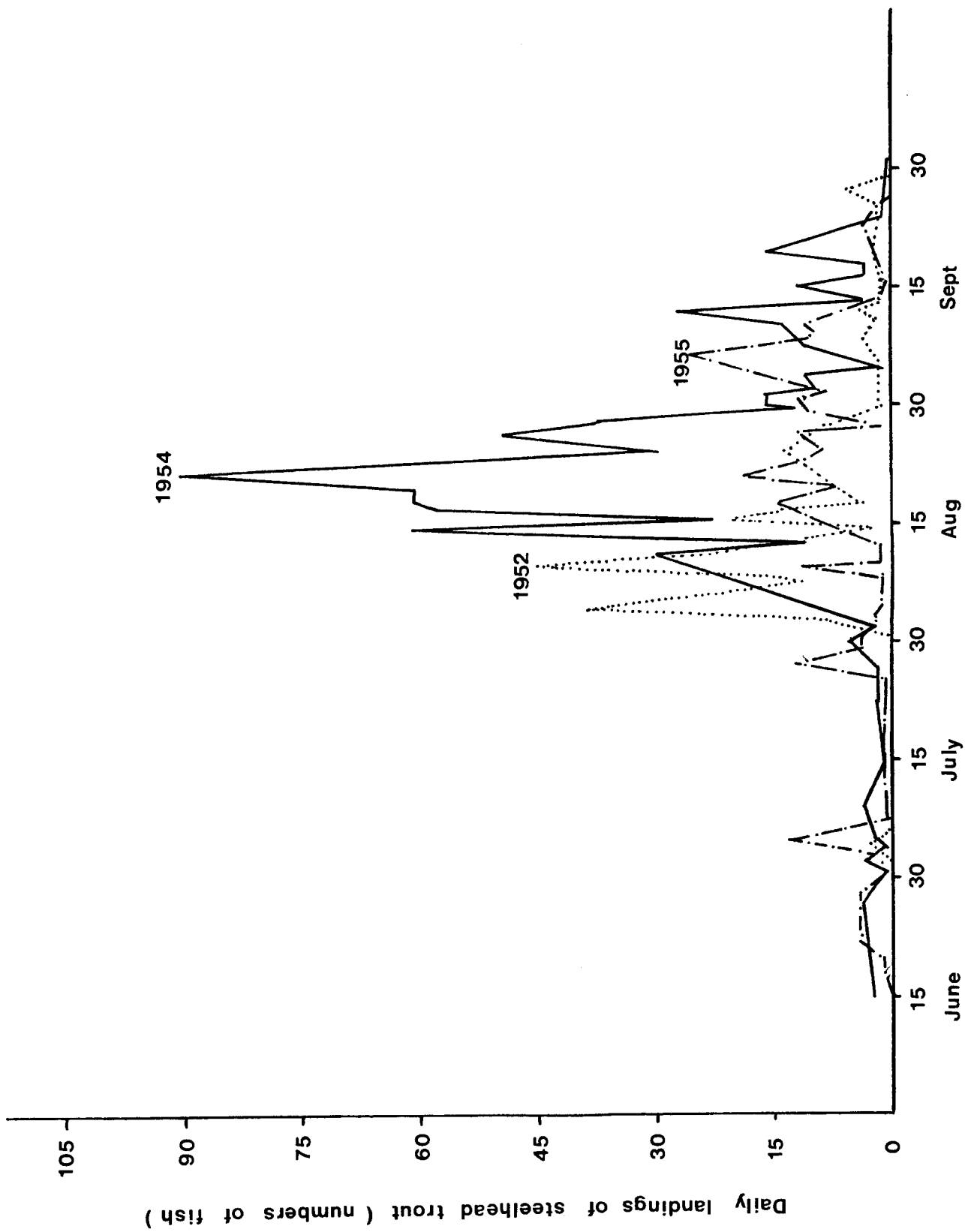


Fig. 2. Alaska commercial fishery (district 108 -Stikine) daily landings of steelhead trout by gillnets.

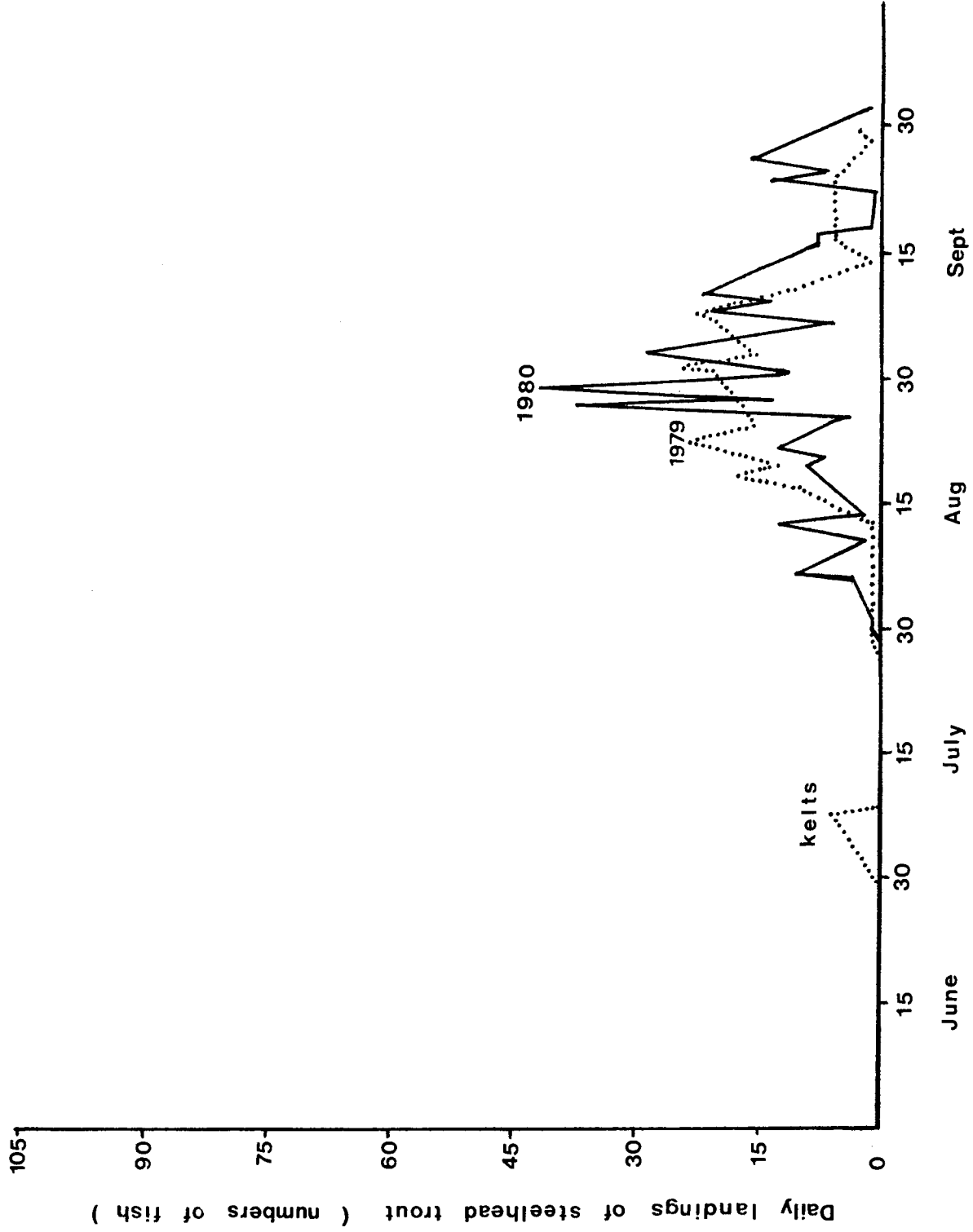


Fig. 3 . Canadian commercial fishery (Stikine River) daily landings of steelhead trout by gillnets.

seems to be little indication that the earlier part of the run in mid-July still exists. On the Skeena River it has been demonstrated that the early portion of the steelhead run is largely removed by the intensive gillnet fishery for sockeye which occurs at that time (Chudyk and Narver, 1976). The apparent shift of the peak catch for steelhead on the Stikine may be evidence that the same situation has occurred in the sockeye and coho gillnet fishery which are in progress during the early portion of the steelhead run (Figure 4).

Entry into Tahltan River

Sport anglers report steelhead in the lower Tahltan River in early September, where fishing success apparently increases until early October (E. Mendell, pers. Comm.).

The Tahltan River is about 200 km from the Canadian commercial fishery on the lower Stikine. Previous radio tagging studies on the Skeena River indicate that steelhead move toward their spawning tributaries at an average rate of about 10 km/day, (Lough, In prep). The peak timing for entry into the Tahltan should therefore be about 20 days after the peak movements through the commercial fishery; or about late September and early October, which appears to be the case, because angler success increases at this time. It therefore seems that the major incidental harvest of Tahltan steelhead would occur during the first part of the coho fishery in early September.

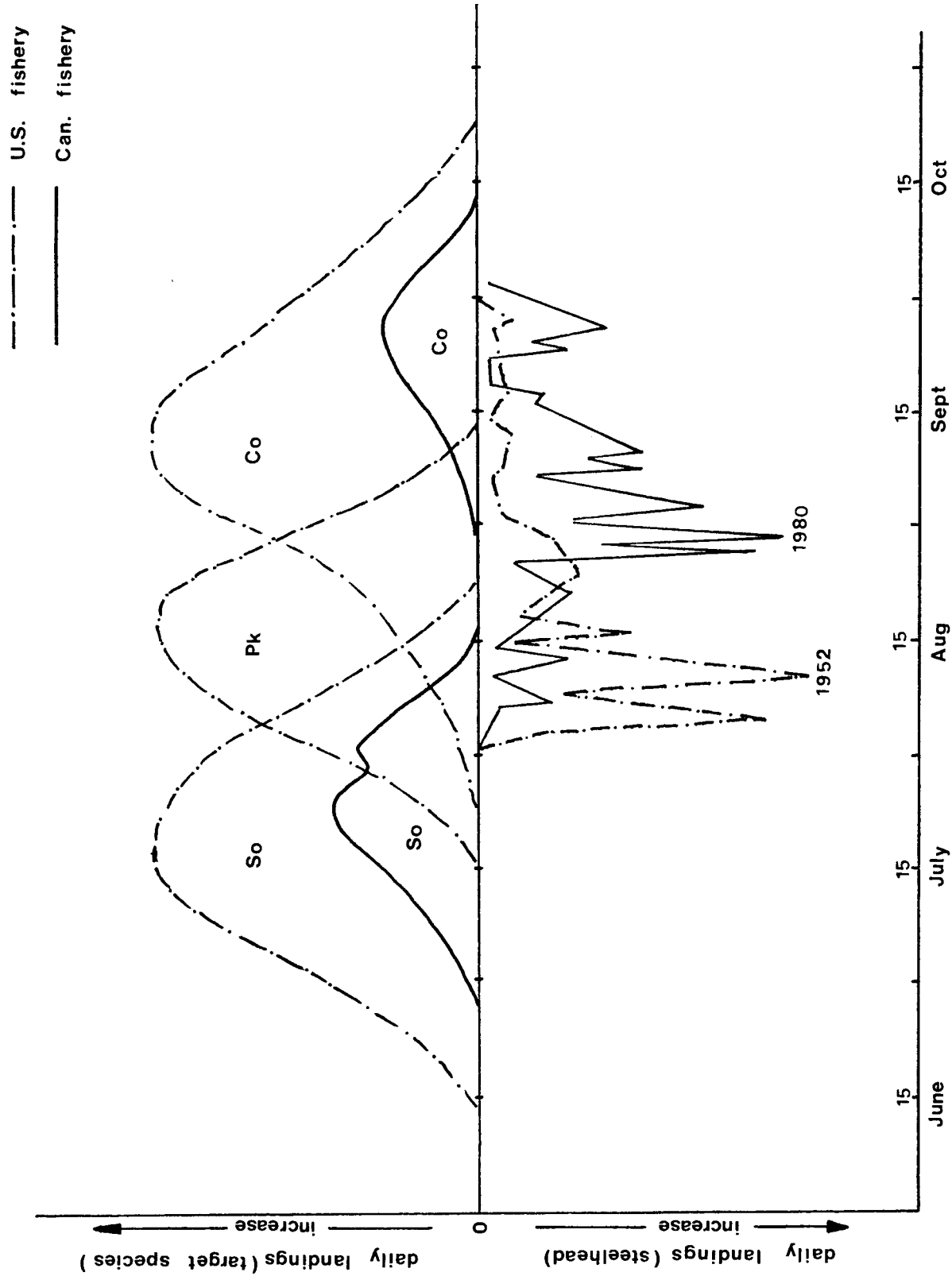


Fig. 4. Peak catches of target species and steelhead in U.S. and Canadian gillnets
 (Peaks in commercial catches are approximate; S. Johnston, pers. Comm.)

In addition to the main run which enters the Tahltan there will also be a continuous trickle of steelhead throughout the winter, which have been holding in the Stikine mainstem. Radio tagging studies under similar situations in the Skeena drainage indicate that some fish may overwinter in the mainstem and move into the tributary to spawn after break-up in the spring (Lough, 1980).

Once in the Tahltan River, the steelhead probably disperse throughout the river, with many of them holding in the favorable water downstream of the Little Tahltan. Those that continue to trickle in during October may tend to stack in the limited holding water near the mouth because sport anglers report visual sightings in late October of over 100 steelhead in a single hole (E. Mendell, pers. comm.). For this reason, the local sportfishery often continues until freeze-up which (depending on the winter) generally occurs in November.

Timing of spawning

Skeena drainage studies have shown that the steelhead spawn in late May and early June, with kelts entering the saltwater around mid-June. In the Stikine however, kelts apparently enter the ocean during late June and early July, as shown by commercial gillnet landings at that time (Figure 2 & 3). This may be evidence that spawning in the Stikine is somewhat later than the Skeena; probably peaking around mid-June.

LIFE HISTORY

Scale samples were taken from 13 steelhead and 18 resident rainbow trout. Of the 13 readable scales taken from steelhead, 5 age groups were identified, the most common being 3.2+ (61%) and 4.1+ (15%), with 3.1+ (8%), 3.1S+ (8%), 4.2+ (8%) accounting for the remainder (Table 3). Adult steelhead from this sample had spent 3 (77%) or 4 (23%) winters in fresh water before migrating to sea.

Among the 18 resident rainbows, fish of ages 4+ (61%) and 5+ (22%) were the most common, although 3+ (6%) and 6+ (11%) fish were also present (Table 4). Average lengths were 20 cm, 37 cm, 43 cm, and 48 cm for 3+, 4+, 5+ and 6+ fish, respectively (Table 4).

POPULATION ESTIMATE

In an overview study such as this, an estimate of the steelhead population in the Tahltan is not likely to be very reliable, but I feel that one should be made, partly because of the complete lack of knowledge of numbers in the river, and partly because our field crew is in a better position than most people to hazard such a guess.

Basically, the estimate was derived by thoroughly angling sections of river to establish what kind of water is being utilized by steelhead, and then extrapolating this figure to similar types of water as derived from air photos. During the survey, the fish appeared to be scattered, with no more than 5 steelhead coming from any single run. Assuming random

Table 3. Steelhead trout age groups from Tahltan River, 1980. (n=13)

Age group	Number steelhead	Number Male	Number Female	% of Total
3.1+	1	1	0	8
3.2+	8	5	3	61
3.1S1+	1	0	1	8
4.1+	2	1	1	15
<u>4.2+</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>8</u>
5	13	8	5	100

Table 4. Resident rainbow trout age groups from Tahltan River, 1980. (n=18)

Age group	Number of Fish	Average Length (cm)	% of Total
3+	1	20	6
4+	11	37	61
5+	4	43	22
6+	2	48	11
Total	18	-	100

scattering and that all runs contained an average of 5 fish, it could be estimated that there were about 200-400 steelhead from the mouth to the Little Tahltan confluence. Upstream of this, the Tahltan does not have as much holding water, so probably has fewer fish holding: perhaps 150-300. Since there is no evidence yet that steelhead enter Tahltan Lake before the end of October, I would therefore estimate that by mid-October about 350-700 steelhead are in the Tahltan system. It is likely that some steelhead hold for a time in the Stikine, but because of extreme siltation in that river, most probably enter the Tahltan before freeze up. These fish may hold in the Stikine and enter the Tahltan in groups during suitable conditions such as high water. The groups may tend to stack in the limited holding water of the lower Tahltan, accounting for the visual sightings of over 100 steelhead in a single hole during early November (E. Mendell, pers. comm.). It seems unlikely that these visual sightings include all such fish, so I feel that these late entries account for an additional 100-300 steelhead after October. In the Skeena drainage, a portion of the summer run often winters in the mainstem before entering the tributary in the spring (Lough, 1980). This portion is highly variable depending on many factors, but since wintering conditions are less favorable in the Stikine, I would expect this figure to be low.

A rough estimate of the total summer run in the Tahltan is therefore about 450-1000 steelhead with a "gut feeling" that numbers are probably closer to the lower limit than the upper.

CONCLUSIONS

As steelhead enter the Stikine River, they are incidentally

harvested in the U.S. and Canadian commercial fisheries near the mouth. There are indications that steelhead harvests may have been large enough to cause an apparent delay in run timing; much like that which has occurred with Skeena River steelhead runs. Assuming that steelhead migrate toward their spawning tributary at about 10 km/day, the peak time of entry into the Tahltan should be late September or early October, although smaller numbers hold in the Stikine and trickle in throughout the fall. This estimate coincides with angler experience which shows an increase in fishing success about this time.

Once in the Tahltan, steelhead disperse through the mainstem with no evidence of large concentrations in any one area, although there are reports of large numbers of fish seen in the limited holding areas near the mouth. During high water in the spring, the steelhead probably begin to collect near the mouths of suitable tributaries before entering to spawn around mid June. Such tributaries include Little Tahltan River, Bear, Beatty and Tahltan Lake Creek, although some spawning will occur in the mainstem as well.

Scale samples were taken from 13 steelhead, and from these 5 age groups were identified. The most common age groups were 3.2+ (61%) and 4.1+ (15%) with 3.1+ (8%), 3.1S1+ (8%) and 4.2+ (8%) accounting for the rest. In addition, scale samples were taken from 18 rainbow trout with 4+ (61%) and 5+ (22%) being the most common age groups. Three-plus (6%) and 6+ (11%) fish were also present.

Although stories of innumerable steelhead abound in the Tahltan, a crude estimate of the steelhead population in the Tahltan is 450 to 1,000 fish.

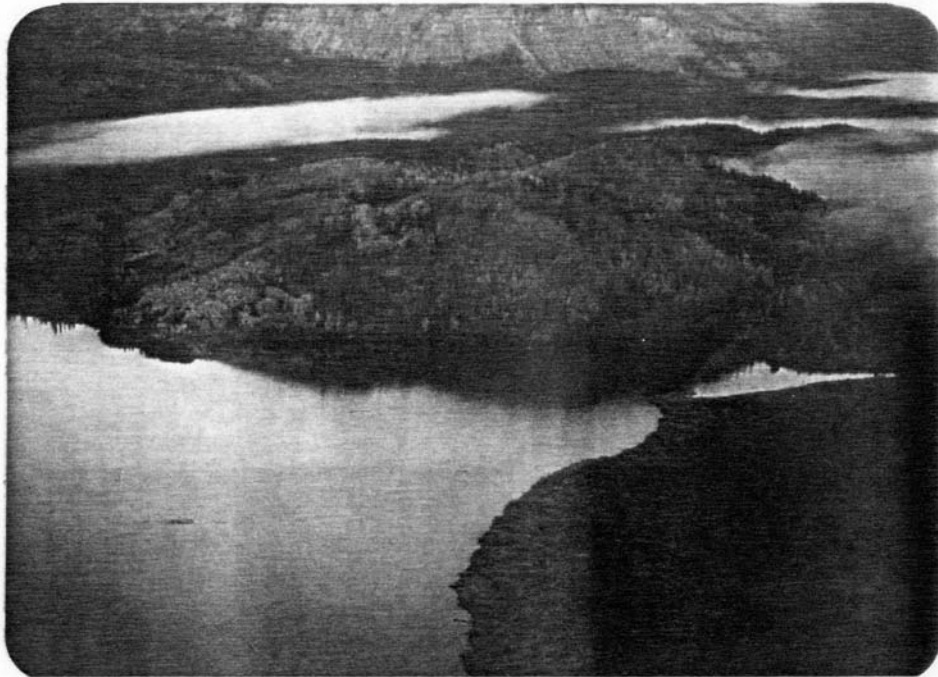
From this overview survey of the Tahltan, there is nothing to indicate that regulations changes are required to protect the steelhead. The inaccessibility of the system and relatively light angling pressure combine to limit the number of fish killed. An Indian food fishery exists at the mouth (gillnets) and the cannery area (gaffs), but these apparently concentrate on chinook and sockeye salmon.

There is evidence to indicate that the commercial gillnet fisheries on the lower Stikine may be dramatically affecting steelhead run timing, but data is weak. Steps have been taken to obtain more recent and refined data on this situation which should be added to this preliminary interpretation of existing data.

REFERENCES

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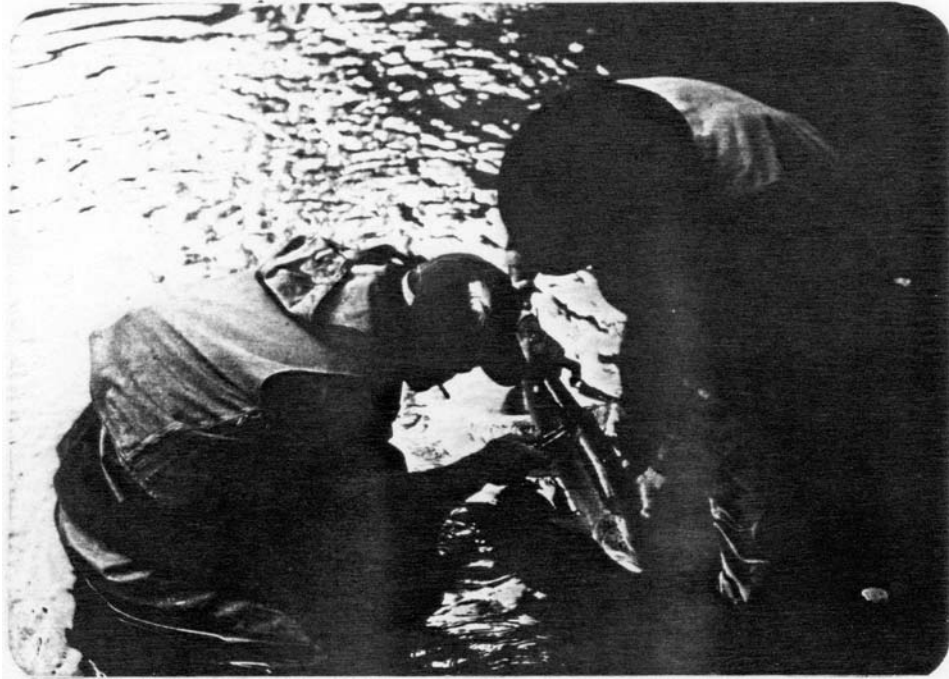
APPENDIX



Appendix 1. Tahltan Lake. Fisheries Cabin and weir located at outlet on the right.



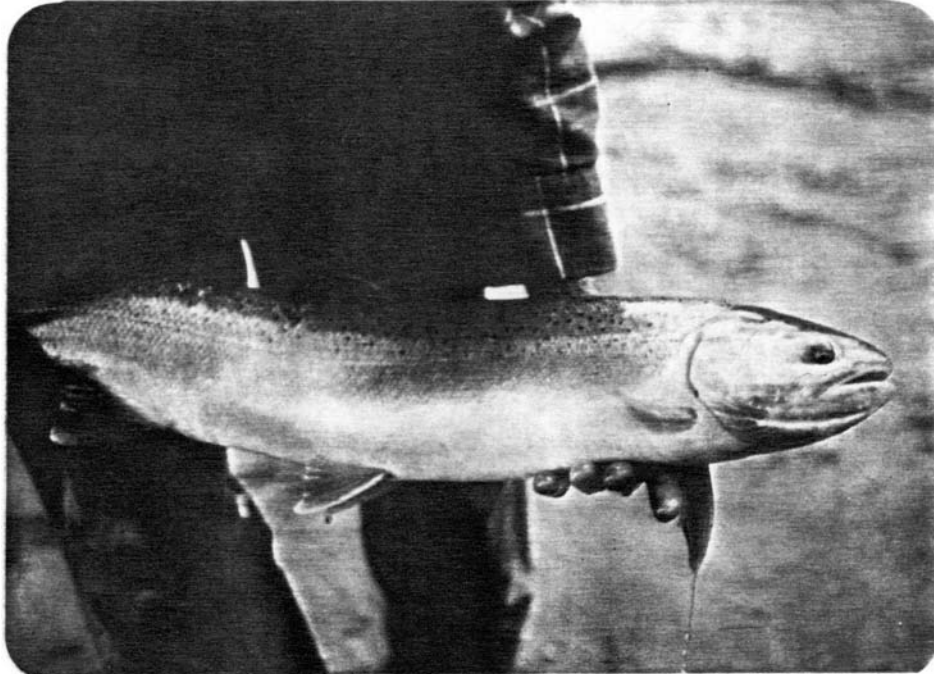
Appendix 2. Tahltan River about 10 km downstream of Little Tahltan confluence.



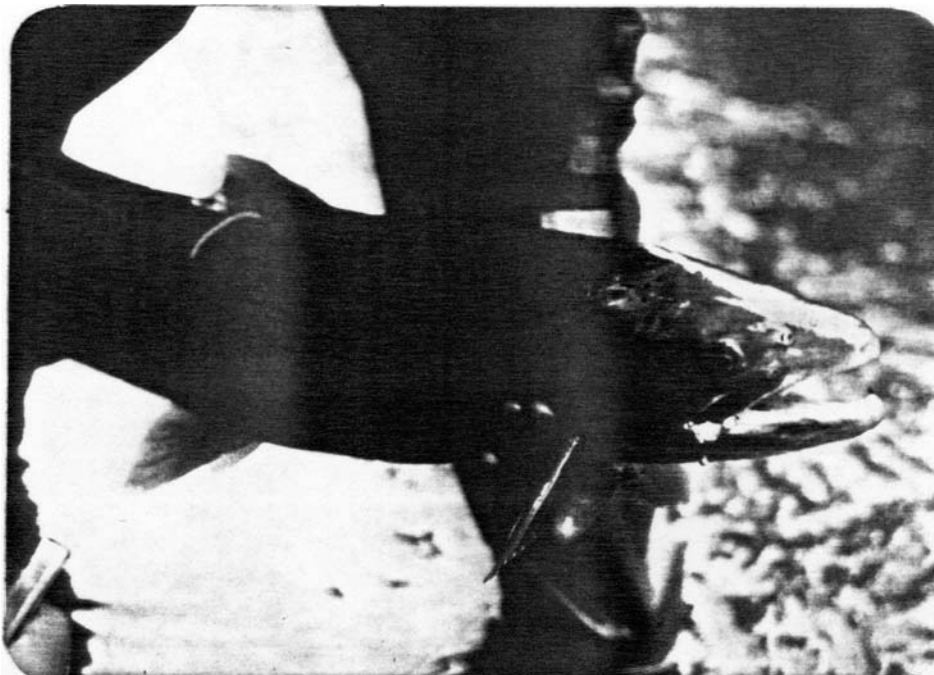
Appendix 3. Steelhead were captured by angling, spaghetti tagged and scale sampled before release.



Appendix 4. Dolly Varden angled throughout the Tahltan River. Average size for Dolly Varden was about 1.0 kg.



Appendix 5. Spaghetti tagged Tahltan River doe.



Appendix 6. Spaghetti tagged Tahltan River buck; the largest fish tagged. (about 12 lb)