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RESOURCE DEVELOPMENT BRANCH

MANUSCRIPT REPORT

No. 56-6

Nashwaak River Salmon Survey

by

Eachon
~~N. E. MacNEIL~~

K. E. H. SMITH



NASHWAAK RIVER SALMON SURVEY

ABSTRACT

An abundance of suitable salmon spawning and nursery area was found throughout most of the Nashwaak River system. No major obstructions are present, which would interfere appreciably with the Atlantic salmon migrations.

Suitable salmon holding pools are quite numerous throughout the main river and larger branches. Several good angling pools are also present, and are mainly located along the upper half of the main river.

No serious sources of pollution were found, and only a few predatory birds were observed.

NASHWAAK RIVER, YORK CO., N.B.

LOCATION

The Nashwaak River is located mainly in York Co., with part of its headwaters in Victoria Co., N.B. The river flows generally southward and enters the Saint John River on the true left bank at Fredericton.

TIME AND EXTENT OF SURVEY

This survey was carried out during the period August 2nd - 22nd, 1956. A salmon spawning survey was also conducted during the period October 23rd-24th and November 1st - 9th, 1956. During the survey, the main river was covered from the mouth almost to its source at Upper Nashwaak Lake. All of the larger and important tributaries were also examined. ~~during the survey.~~

GENERAL DESCRIPTION

The total length of the main river is nearly 70 miles. *9 important tributaries contribute an additional 140 miles to the system.* There is also a total of at least 140 miles of important tributary streams. *Drainage Area is calculated at 712 sq miles*

Several large angling and holding pools are found on the main river. These are located mostly along the upper

half of its length, and particularly in the vicinity of the section referred to as "The Narrows". Several pools are also found on the larger branch streams.

Most of the main river and tributaries have fairly gentle to medium gradients. Only a small percentage of the main river is composed of very swift rapids. These fast areas are also located mostly along the upper half of the river. A few swift rapids and small falls are also found on some of the tributaries.

The surrounding country is mostly wooded, with several cultivated areas and pasture lands, especially along the lower half of the main river.

The water throughout the system is mostly clear and the pH readings were 6.5 to 7. During the survey, water temperatures ranged from 12° - 18°C (53.6° - 64.4°F), and air temperatures, from 15° - 23°C (59.0° - 73.4°F). These temperatures were recorded during the August survey.

Main River: From the mouth of the main river up to Nashwaak Village, only a small percentage of the river is considered to provide suitable salmon spawning conditions. This part of the river consists predominantly of fairly deep quiet water areas and several large and very deep pools. Approximately 10% of this section consists of short gentle riffle areas alternating with the long quiet areas.

In the quiet areas, bottom composition is mainly sand, with varying proportions of mixed gravel and rocks interspersed. In the riffle areas, the bottom is composed mainly of mixed gravel, with small percentages of sand and large rocks.

In the 16 mile section of river from Nashwaak Village to the covered bridge below Stanley, more than 50 percent of the river consists of gentle to medium swift riffle areas. The river bottom in these riffles is composed mostly of mixed gravel, with varying proportions of sand, large rocks and ledges interspersed. A few large pools and several

quiet, shallow areas alternate with the riffles. The larger possible holding pools here are located in the first $1\frac{1}{2}$ mile section above the bridge at Taymouth.

The next section of river, extending up to "The Narrows", a distance of 20 - 21 miles, consists mostly of gentle to quite swift riffle areas. The bottom, in general, consists of coarse material, coarse gravel, boulders and bed-rock areas. Small percentages of finer gravel were also found in the gentler riffles and interspersed among the coarse material. A few rocky pools and shallow quiet areas alternate with the fast water.

The next two miles of river, "The Narrows", consist of medium to very swift rapids, with seven large pools alternating. These are considered to be good angling and holding pools. The river bottom in the rapids consists mostly of large rocks, boulders and ledges, with a very small amount of finer gravel interspersed. In the pools, many large rocks are also present, but are partially covered with sand and fine gravel.

From "The Narrows" to the headwaters, most of the river has a fairly gentle gradient. More than 50% of this section consists of quiet, slow-moving water, mostly 1' - 3' in depth. Alternating with these quiet areas are several gentle to medium swift riffles and a few fairly large pools. The river bottom varies greatly from very coarse material, to mixed gravel, to sand. Suitable spawning gravel is present in several riffles, and numerous salmon parr were observed along this upper section of the river.

TRIBUTARIES

Penniack Stream - This is a small stream, entering the Nashwaak River on the true left bank about eight miles above the mouth. This stream has a gentle gradient, with about 50% gentle riffles, and 50% quiet shallow areas and a few small pools. Along the lower 3 - 4 miles of stream, pasture lands and cultivated fields are abundant, but the remainder of

the shoreline is wooded. The stream bottom varies greatly from large rocks and ledges to fine gravel and sand. Much coarse material is present along the upper sections, and more fine material is found along the lower three miles. Stream width varies from 10 - 25 ft. along the lower 5 - 6 miles, and the depths average 6 in. in riffles and 1' - 3' in quiet areas.

Dunbar Brook - This brook flows generally eastward and enters the Nashwaak River on the true right bank, about 18 miles above the mouth. The brook consists mostly of gentle to quite swift riffle areas, with little quiet water and only a few small pools alternating. In general, the bottom is very coarse, with many large rocks and ledges present. Small percentages of finer material are found interspersed in the gentler riffles and quiet areas. The shoreline is practically all wooded. The lower 2 - 3 miles of this brook vary from 20' - 60' in width, and the depths from 6" - 1' in riffles, and 1' - 3' in quiet areas.

A natural fall, about 9' in height, is located about 1/2 mile above the mouth of this brook. A fairly large, rocky pool is found at its base.

Tay River - The Tay River is the largest tributary of the Nashwaak River, and joins it on the true right bank about 21 miles above the mouth. The Tay River and its branches consist mostly of gentle to medium swift riffle areas, with a few good pools and shall^y quiet areas alternating. The bottom is composed predominately of coarse gravel, large rocks and numerous ledges. Smaller amounts of finer material are found interspersed, especially along the lower 4 miles of the main Tay River.

A few cultivated fields are present along the river, but most of the shoreline is wooded. The main Tay River varies in width from 10 - 30 yards.

Depths in riffle areas average 2" - 1'; and in quiet areas, 1' - 3'. A few fairly large pools, 3' - 5' in depth are also found.

McCallum Brook - This brook enters the Nashwaak River on the true left bank at Nashwaak Bridge, about 7 miles below the town of Stanley. In general, this brook has a gentle to moderate gradient. Most of the brook and its branches consist of gentle to quite swift riffle areas. Several quiet areas, 1' - 3' deep, and a few quite large pools alternate with the riffles. Much coarse gravel and numerous rocks and ledges are found in most places, with a small percentage of fine gravel and sand interspersed. Practically all the shoreline of this brook and its branches consist of woods and bushes.

Widths in the main brook vary from 10 - 30 yards and depths, from 4" - 1' in riffles.

Cross Creek - Cross Creek is one of the largest of the Nashwaak River tributaries. It joins the main river on the true left bank about 5 miles below the village of Stanley. This stream has a gentle to medium swift gradient. Most of the bottom, along the lower 4 - 5 miles, consisted of coarse material. Many boulders, ledges and large rocks are present, with small percentages of finer material interspersed. Numerous fairly swift riffles and several large rocky pools were found along this section.

Above here, more fine to medium gravel is present, with fewer large pools and more gentle to medium riffle areas. Most of the shoreline consists of woods and bushes.

Along the lower 4 - 5 miles of this stream, widths vary from 10 - 20 yds. Depths vary from 4" - 1½' in riffles and 1' - 5' in quiet areas and most pools. Depths in a few pools exceeded 5 ft. A small sloping fall, 3 - 4 ft high, is located a short distance above the highway bridge, but is not considered to be a barrier.

Napadogan River - This river joins the Nashwaak River on the true left bank, about two miles below Lower Nashwaak Lake. Most of the river has a gentle to medium gradient. Approximately 50% of the river consists of gentle to medium riffle areas, with 50% quiet shallow areas and a few pools alternating.

The bottom is mostly composed of coarse gravel, large rocks and numerous boulders and ledges. Varying percentages of fine to medium gravel are found interspersed.

In the main Napadogan River, widths vary mostly between 10 and 15 yds. Depths in riffle areas are generally 6" - 1' and in quiet areas, 1' - 3'. A few pools, 3 - 5'^{deep} are also found. The shorelines of this river are all wooded or bush covered.

Other Tributaries - The lower sections of several other tributaries were also examined during the survey. These are not listed separately because of their relatively small importance. Most of these are two ^{too} small and/or rocky to be of use to spawning salmon; ^{and only} However, the lower sections of several may provide small, but good, nursery areas.

These brooks consist mostly of gentle to quite swift riffle areas, with numerous small pools and quiet shallow areas. Sluggish, deadwater areas are very few.

The bottoms of these small brooks vary greatly from mixed gravel to large rocks, boulders and ledges. ^{Look}

Very few sand or mud-bottomed areas were found. Occasional swift rapids and small falls were observed. A series of steep falls on Rocky Brook, just above its mouth, is considered to be a complete barrier.

SPAWNING AREAS

For descriptive purposes, the main Nashwaak River will be divided into five sections, designated on the accompanying map as S-1, S-2, S-3, S-4, S-5, and the tributaries as S-6, S-7---etc.

Main Nashwaak River

S-1. This section extends from the mouth upriver about 12 miles, to Nashwaak Village. Much deep, quiet water is found in this section, alternating with only a few riffle areas. Small scattered possible spawning areas are found in a few of these riffles. Most of these possible spawning areas are located along the upper 2 - 3 miles of this section and from the town of Mayysville downriver about $1\frac{1}{2}$ miles. These scattered areas are estimated at a total of 77,440 sq.yds.

S-2. This section extends from S-1 at Nashwaak Village, upriver about 16 miles to the covered bridge, located about $3\frac{1}{2}$ miles below Stanley. The most extensive spawning grounds of the system are found here. The many gentle to medium riffle areas all along this section provide much good salmon spawning grounds, an estimated area of 528,000 sq.yds.

S-3. The section of river included in S-3 extends from S-2 upriver 20 - 21 miles, to the bridge at the foot of "The Narrows". Possible salmon spawning areas in this section are mostly quite small and scattered. The estimated total of these possible spawning areas is 221,760 sq.yds. During the spawning survey carried out in November, 1956, slight concentrations of redds were observed in the vicinity of Lower Nashwaak Lake, near the entrance of Napadogan River, and from Stanley upriver 2 - 3 miles. Otherwise, redds were very scattered throughout the section.

S-4. This short section of the river is known as "The Narrows", and extends from S-3 upriver about 2 miles to "The Narrows Camp". Only a very few small possible spawning areas are found in this section. These are located in the tails of a few pools and in the gentler riffles, and are found mostly along the lower 1 mile. The estimated total of possible spawning area is 4,620 sq.yds.

S-5. This section, about 20 miles in length, extends from "The Narrows" to Upper Nashwaak Lake, the river's source. The better spawning grounds in this section are located between "The Narrows" and the entrance of ^{Mc Bain (Camp)} McBain Brook. The remainder of the spawning grounds are quite small and scattered above this point. The estimated total of possible spawning areas is ~~45,000~~ 45,000 sq.yds.

TRIBUTARIES

S-6. Penniac Stream. This is a small stream and possible salmon spawning areas are very limited. Several small scattered areas along the lower 4 mile section provide an estimated 3,520 sq.yds. of possible salmon spawning area. Above this, the stream is considered to be too small for salmon spawning.

S-7. Dunbar Brook. This brook is closed to angling, and acts as a natural hatchery and nursery for speckled trout. The brook, ~~is~~ mostly very rocky and provides little good salmon spawning area. These possible spawning areas are very small, and scattered throughout the lower parts of the branches and the main brook. The estimated total of possible spawning areas is 5,280 sq.yds.

S-8. Tay River. An estimated total of 84,480 sq.yds. of potentially good salmon spawning area were found on the Tay River and its branches. The better of these spawning areas are located along the lower 4 miles of the main Tay River, where suitable spawning gravel is more abundant. Less extensive, scattered areas are also found along the remainder of the main Tay River and the lower sections of the North Branch, South Branch, and Limekiln Brook.

S-9. McCallum Brook. In McCallum Brook and its main branch, McKenzie Brook, there are an estimated total of 19,712 sq.yds of suitable salmon spawning area. These brooks are mostly quite rocky, with only small scattered areas of finer gravel. The possible spawning areas are not concentrated

in any one particular location, but are scattered throughout the main brook and the lower 2 - 3 miles of the branches.

S-10. Cross Creek. In the lower 4 miles of this stream, possible spawning areas are very limited. These are made up of several small areas of finer gravel, scattered through a bottom composed mostly of coarse gravel, boulders and ledges. Above this section, the bottom contains a larger percentage of finer material, and possible salmon spawning areas are more abundant. This spawning area is found in scattered spots along the next 5 - 6 miles of the stream. The total possible spawning area is estimated at 29,920 sq.yds.

S-11. Napadogan River. In this river and its branches, an estimated total of 23,232 sq.yds of possible salmon spawning area was found. These areas are not concentrated in any particular section, but are scattered and mostly in the main river. The east and West Branches are mostly too small and/or too rocky to provide good spawning areas, However, a few scattered areas along the lower sections may provide small possible spawning areas.

NURSERY AREAS

For the purpose of describing nursery areas, the main river will be divided into five sections, designated on the accompanying map as N-1, N-2, --N-5, and the tributaries as N-6, N-7, ---etc.

MAIN NASHWAAK RIVER

N-1. In this 12 mile section, extending from the mouth to Nashwaak Village, only about four miles are considered to provide good salmon nursery conditions. These comprise an estimated total of 387,200 sq.yds. The better of these nurseries are thought to be in the scattered riffles. Shade, shelter and food appear to be ample in these areas, and probably there are fewer predators and competitors than in the numerous deep sluggish areas. Most of the riffle areas are located along the upper 2 - 3 miles of this section and in the section extending from Marysville downriver $1\frac{1}{2}$ miles.

N-2. An estimated total of 1,232,000 sq.yds. of good salmon nursery are found in this section, which extends from Nashwaak Village upriver to the covered bridge $3\frac{1}{2}$ miles below Stanley. Abundant shade and shelter are provided by the gravel and rocks on the river bottom, and by marginal vegetation. Here, as in practically all parts of the river, the natural food supply seemed ample.

N-3. This section of river, extending from N-2 to "The Narrows", has an abundance of good salmon nursery area. Most of this section consists of riffle areas, with a few pools and shallow, quiet areas alternating. Food, shade and shelter are abundant in most places, and an estimated total of 1,330,560 sq.yds. of good salmon nursery are found.

N-4. In this two-mile section, "The Narrows", an estimated 92,400 sq.yds. of suitable salmon nursery is found. These nursery areas are located in the numerous steep riffle areas, where shade and shelter are amply provided by the gravel and rocks on the bottom. In the larger pools, much sand is present, and shade and shelter are quite poor, lowering their value as nurseries.

N-5. In the section extending from "The Narrows" to Upper Nashwaak Lake, an estimated 448,800 sq.yds. of suitable salmon nursery was found. Many gentle to medium swift riffle areas are found here, with bottoms of mixed gravel and rocks. Natural food, shade and shelter in these areas appeared quite abundant, and numerous salmon parr were observed. The several alternating quiet water areas, with sand and mud covering much of the bottom, are considered less suitable as salmon nurseries.

TRIBUTARIES

N-6. Penniac Stream. An estimated 35,200 sq.yds. of suitable salmon nursery were found on this stream. The greater part of this nursery is scattered over the lower 4 - 5 miles, with the stream becoming quite small and branched above. Natural food seems abundant, and shade and shelter are amply provided by the gravel and rocks on the bottom, and

by marginal vegetation. Numerous parr were observed along the lower 3 - 4 miles.

N-7. Dunbar Brook. Food, shade and shelter appear to be abundant throughout most parts of this brook. In the brook and its larger branches, there are an estimated total of 105,600 sq.yds. of suitable salmon nursery. Speckled trout fingerlings and adults were abundant throughout the main brook and its branches, but salmon parr were observed only below the falls, located about $\frac{1}{2}$ mile above the mouth. As stated above, this brook is preserved as a natural trout hatchery. It is not recommended that salmon be stocked above the falls, since the competition may have a detrimental effect on the speckled trout production.

N-8. Tay River. An estimated total of 422,400 sq.yds. of suitable salmon nursery are found in the Tay River system. These nursery areas are scattered throughout most of the main river and along the lower sections of the larger branches. The natural food supply seems ample, and shade and shelter are abundant. In some of the quiet areas and ledge bottomed areas, shade and shelter are quite poor, and the nursery values are lessened.

N-9. McCallum Brook. Many gentle to medium swift riffle areas provide good salmon nursery conditions along most of this brook and its larger branches. An estimated total of 197,120 sq.yds. of possible nursery are present on these brooks. An abundance of gravel and rocks on the bottom and marginal vegetation provide plenty of shade and shelter, and natural fish food is ample.

N-10. Cross Creek. Possible salmon nursery area on this brook is estimated at a total of 299,200 sq.yds. This nursery area is found scattered throughout at least 12 miles of the main brook and along the lower sections of its branches. Gravel and rocks in the numerous riffles provide an abundance of shade and shelter for young salmon. Natural food appears quite plentiful and salmon parr were observed in most parts of the creek.

N-11. Napadogan River. Suitable salmon nursery area is quite abundant on this river, totalling an estimated 154,880 sq.yds. Abundant shade and shelter are provided by the rocks and gravel on the bottom, and in many places by marginal and aquatic vegetation. This nursery area is mainly scattered throughout the main river and along the lower 2 - 3 miles of the East and West Branches.

The remainder of the Nashwaak River tributaries are considered to be too small to be of importance to salmon spawning. However, a number of less extensive salmon nurseries are found along the lower sections of several of these tributaries, such as Ryan, Middle, McLean, Grand John, McBean, Lower Sisters and West Brooks.

These possible nurseries total at least 20 miles in length, and would vary in width from about 3 - 6 yards, making a total of about 158,000 sq.yds., Because of their small individual areas, they will not be numbered separately on the accompanying map.

These small brooks were not considered important enough to be examined in great detail. Observations were made on these brooks at their lower ends and at a few spots farther up their courses. From the observations made, most of these brooks appeared to consist mainly of gentle to medium swift riffle areas, with a few small pools and quiet shallows alternating. The bottoms vary from mixed gravel to boulders and ledges, with very little sand or mud bottomed area observed. Salmon parr were observed in the lower sections of several of these small brooks.

OBSTRUCTIONS

No important obstructions to Atlantic salmon were found on the Nashwaak River system. All except one, B-5 listed below, are considered to be only partial obstructions. Most of these would not affect the migration of adult salmon, but may sometimes be a hindrance to the movements of salmon parr and speckled trout.

B-1. Dunbar Brook. A natural fall, about 9 feet in

height, is located on this brook, approximately 1/2 mile above the mouth. Although it is considered to be a complete barrier to the upstream movements of speckled trout and young salmon, it is thought that adult salmon could ascend this fall if they so desired. This brook is in general quite rocky and suitable salmon spawning area is very limited, although nursery area is quite extensive above the fall. However, this brook now serves as a natural supply of speckled trout for the Nashwaak River system. It is the opinion of the writer that the introduction of salmon to this ~~river~~^{brook}, either by stocking or removal of the barrier, would be undesirable, because of the possibility of serious competition with the trout.

B-2. Tay River (North Branch). An old wooden mill dam is located on the North Branch, just above the highway bridge of Route #25. The total height of the dam is 8 - 9 feet. At present the dam is unused, with the gate open and a drop of less than 2 feet. It is doubtful if adult salmon would ever ascend the river to this point. Although the dam may at times be a partial obstruction to small salmon, several parr were observed a short distance above it.

B-3. McCallum Brook. An unused wooden dam, 6 - 7 feet high, is located on this brook about 1/4 mile above the mouth. At present the gate is open and the water drops less than 2 ft. Although this dam is not considered to be a serious barrier to adult salmon, it may sometimes be a partial barrier to the upstream movements of young salmon and speckled trout. If this dam is not to be used again, it is recommended that it be removed.

B-4. Cross Creek. An unused wooden mill dam, 5 - 6 ft. in height, is located on this stream just below the highway bridge on Route #25. At present the gate is open, with a water drop of less than 2 ft. This dam is not considered to be an obstruction to adult salmon, as it is doubtful if they

ever ascend the stream to this point. However, the dam ^{may} be at least a partial barrier to the upstream movements of young salmon and speckled trout. Salmon parr were reported above the dam, but not observed during the survey. If this dam is not to be used again, it is recommended that it be removed, in order to enable salmon parr to more easily reach the nursery areas above.

B-5. Rocky Brook. A series of small falls, 1 - 5 ft. in height, and steep rapids are located on this brook just above the mouth. These falls are considered to be a complete obstruction to the upstream migration of any fish. Some possible nursery is found above the falls. Because of its small size, ^{adult salmon would not ascend this brook, and} no recommendation is made for the removal of this barrier.

B-6. Barker Dam - Nashwaak River. This dam is located on the upper part of the main Nashwaak River, about 1½ miles below the entrance of West Brook. Originally, this was a large rock and timber dam, but at present only a few remnants are left. The water now drops 4 - 5 ft. in a broken fall over the dam remnants. The dam is not a barrier to adult salmon, and, at most, would be a partial barrier to young salmon and speckled trout.

PREDATION

A few merganser ducks were observed along the river, but are not considered to be plentiful enough to be a great hazard to salmon.

FISH FAUNA

Other than Atlantic salmon (*Salmo salar*) the only fish observed during the survey were speckled trout (*Salvelinus fontinalis*), suckers (*Catostomus commersonii*), fallfish (*Lep^u-cosomus corporalis*), lampreys (*P^{et}eromyzon marinus*), eels (*Anguilla bostoniensis*), and minnows.

POLLUTION

Small amounts of domestic sewage empty into the river from the scattered settlements along the shores. However, none of these sources are considered to be a hazard to fish life.

DISCUSSION

In the Nashwaak River system, numerous suitable salmon spawning areas were found, especially along the middle and upper sections of the main river; also in the lower sections of the larger tributaries. An abundance of suitable salmon nursery is also found, extending throughout the spawning areas; also in numerous smaller tributaries. Salmon parr appeared quite numerous throughout most of the main river and its tributaries.

Large holding pools are quite numerous throughout most of the main river. Several good holding pools were also observed in the lower sections of some of the larger tributaries. The majority of the good angling pools were found to be located along the upper half of the main river.

Barriers, predation and pollution are not considered to be serious hazards to the salmon population.

RECOMMENDATIONS

Under the heading "Obstructions", three small wooden dams were listed. These are located on McCallum Brook, Cross Creek and North Branch of the Tay River. Although these are not considered serious barriers, their removal may facilitate the upstream movements of young salmon and speckled trout. If these dams are no longer being used, it is recommended that they be removed.

NASHWAAK RIVER

Summary of Spawning and Nursery Areas

Location	Length of section in mi. (approx)	Average width in yards	Approx. length of Nursery in miles	Approx. Nursery Areas in sq. yards	Approx. Spawning area in sq. yards
Nashwaak River					
Mouth to Nashwaak Village	12	55	4	387,000	77,000
Nashwaak Village to bridge, 3½ mi. below Stanley	16	50	14	1,232,000	528,000
Bridge, 3½ mi. below Stanley to "The Narrows"	20	42	18	1,331,000	222,000
"The Narrows"	2	30	1.75	92,000	4,600
"The Narrows" to head of river (Upper Nashwaak Lake)	20	17	15	449,000	45,000
Tributaries	<i>40</i> Approx length in miles	Average width in yards	<i>52.75</i> Approx length of Nursery in miles	Approx. Nursery Area in sq. yards	<i>870,500</i> Approx. Spawning area in sq. yards
Penniac Stream	8	4	5	35,000	3,500
Dunbar Brook	18	5	12	106,000	5,300
Tay River	30	12	20	422,000	84,500
McCallum Brook	18	8	14	197,000	19,700
Cross Creek	24	10	17	299,000	30,000
Napadogan River	18	8	11	155,000	23,000
Other small tributaries	25	3-6	20	158,000	
TOTALS	211		151.75	4,863,000	1,042,600
<i>Sub Totals</i>	<i>141</i>		<i>99</i>	<i>1,372,000</i>	<i>1,166,000</i>

These lengths include only those portions of the brook and their branches, which are considered large enough to be of significant use to salmon.

NASHWAAK RIVER SYSTEM

Temperature and pH Record

Station	Date-Time	Air Temp.		Water Temp		pH
		°C.	°F.	°C.	°F.	
<u>Nashwaak River</u>						
Nashwaak Village	8/21/56 11:30 A.M.	19°C.	-66.2°F.	16°C.	-60.8°F.	7.
Just above entrance of Cross Creek	8/13/56 12:30 P.M.	23°C.	-73.4°F.	18°C.	-64.4°F.	7.
1 mile below Lower Nashwaak Lake	8/3/56 12:45 P.M.	17°C.	-62.6°F.	13°C.	-55.4°F.	7.
"The Narrows" lower end	8/4/56 10:00 A.M.	15°C.	-59°F.	12°C.	-53.6°F.	7.
1/3 mile above Barker Dam	8/8/56 10:30 A.M.	18°C.	-64.4°F.	14.5°C.	-58.1°F.	7.
<u>Tributaries</u>						
Penniack Stream, (at mough)	8/22/56 12:30 P.M.	17°C.	-62.6°F.	14°C.	-57.2°F.	7.
Dunbar Brook (just below forks)	8/18/56 11:00 A.M.	19°C.	-66.2°F.	13°C.	-55.4°F.	65-7.
Tay River (¼ mile above mouth)	8/15/56 3:45 P.M.	21°C.	-69.8°F.	16°C.	-60.8°F.	7.
McCallum Brook (½ mi. above mouth)	8/20/56 3:30 P.M.	18°C.	-64.4°F.	15°C.	-59°F.	7.
Cross Creek	8/13/56 12:30 P.M.	23°C.	-73.4°F.	15°C.	-59°F.	7.
Napadogan River, (near mough)	8/3/56 1:00 P.M.	17°C.	-62.6°F.	12°C.	-53.6°F.	7.

NASHWAAK RIVER SYSTEM

Volume of Flow

Main Nashwaak River:

Location	Date	Volume of Flow
1. Nashwaak Village	Aug. 22/56	691. c.f.s.
2. Nashwaak Village	Oct. 23/56	495. c.f.s.
3. $\frac{1}{4}$ mi. below McCallum Bk.	Aug. 13/56	733. c.f.s.

Tributary Streams:

Location	Date	Volume of Flow
1. Tay River, ($\frac{1}{4}$ mi. above mouth)	Aug. 15/56	101. c.f.s.
2. McCallum Brook, ($\frac{1}{2}$ mi. above mouth)	Aug. 20/56	69. c.f.s.
3. Cross Creek, (near mouth)	Aug. 13/56	83. c.f.s.
4. Napadogan River, (just below forks)	Aug. 9/56	48. c.f.s.
5. Napadogan River, (near mouth)	Nov. 7/56	75. c.f.s.

NASHWAAK RIVER SYSTEM

Atlantic Salmon - Stocking Record (1947-1956)

Year	Fry	Fingerlings	Yearlings
1947		70,000	
1948		65,000	
1949		45,000	
1950		40,000	1 yr. 1,500
1951	100,000	45,000	1 yr. 5,000
1952	100,000	75,000	1 yr. 5,000
1953		60,000	1 yr. 1,500
1954	50,000	100,000	1 yr. 5,000
1955		50,000	1 yr. 10,000
1956		50,000	1 yr. 3,000
<hr/>			
TOTALS	250,000	600,000	31,000

During this same period, 1947 - 1956, the Nashwaak River and several of its tributaries were periodically stocked with speckled trout. These trout stockings totalled 360,000 fry, 348,200 fingerlings, 12,200 yearlings and 300 three year olds.

NASHNAAK RIVER

Atlantic Salmon - Angling Record (1950 - 1956)

Year	1950		1951		1952		1953	
Month	No. fish - Weight		No. fish - weight		No. fish - weight		No. fish - Wei	
April			No figures available		190.	1,200.	11.	6
May			available		193.	1,122.	9.	9
June					32.	238.		
July					16.	124.	12.	6
August					102.	404.	45.	26
September					132.	550.	36.	24
October					59.	464.		
TOTALS					724.	4,102.	113.	72

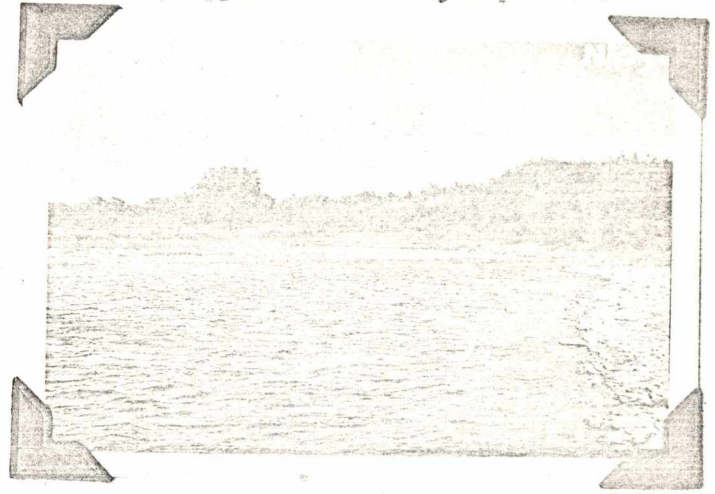
Year	1954		1955		1956	
Month	No. fish - Weight		No. fish - Weight		No. fish - Weight	
April	28.	104.	6.	12.	10.	39.
May	6.	48.	3.	11.	10.	60.
June	11.	90.	22.	176.	12.	144.
July	56.	380.	15.	165.	17.	186.
August	19.	118.	8.	55.	25.	132.
September	11	63.	21.	135.	126.	972.
October			27.	221.	16.	114.
TOTALS	131.	803.	102.	775.	216.	1,647.

NASHWAAK RIVER

NASHWAAK RIVER - at Marysville just below old cement dam; app. width 150 to 300'.



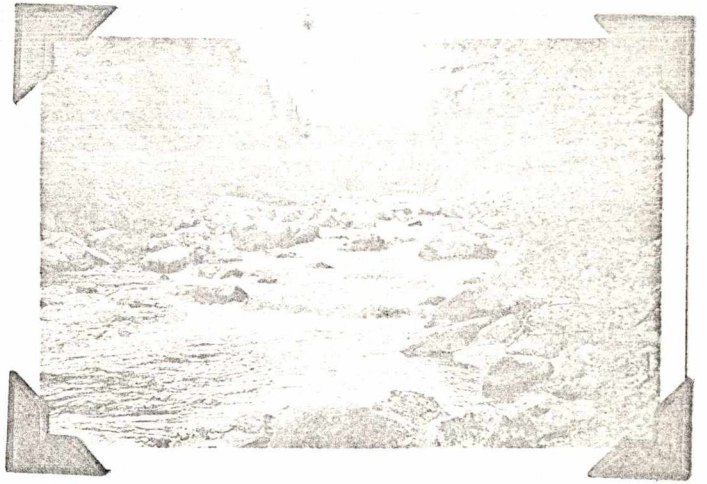
NASHWAAK RIVER - just below McCallum Brook; app. width 110', depth 2'.



NASHWAAK RIVER - app. 1/2 mi. above Lower Nashwaak Lake; app. width 100', depth 1'.



NASHWAAK RIVER - at the Narrows; app. width 45', depth 1 1/2'.



NASHWAAK RIVER - app. 2 mi. above the Narrows; app. width 75', depth 1 1/2'.



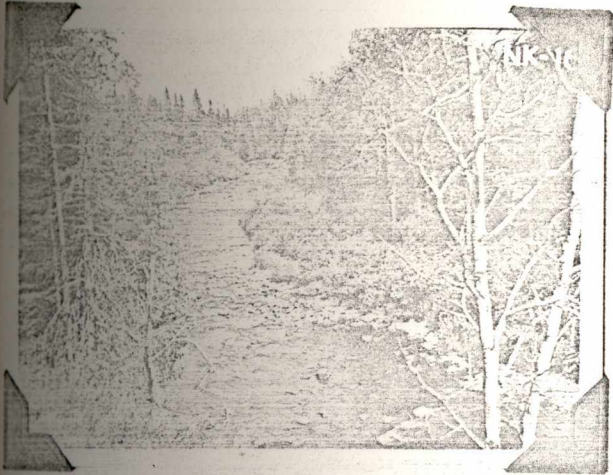
NASHWAAK RIVER - app. 1/4 mi. above Barker Dam (B-6); app. width 35', depth 1 1/2'.



NASHWAAK RIVER

Tributaries - Cross Creek & Dunbar Brook

CROSS CREEK - app. 2 mi. above mouth;
app. width 70', depth 1'.



CROSS CREEK - app. 6 mi. above
mouth; app. width 35', depth $\frac{1}{2}$ '.



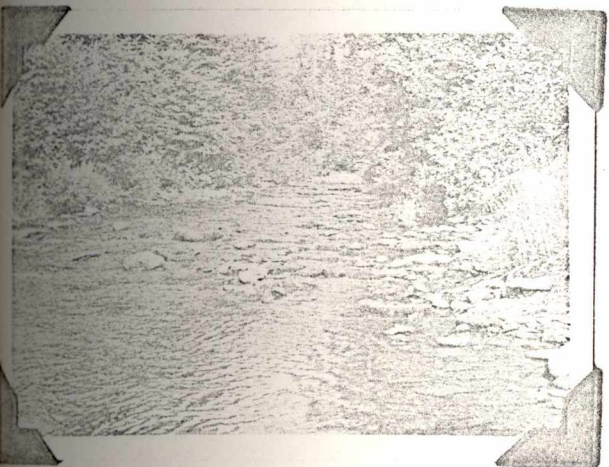
CROSS CREEK - just below B-4; app.
width 15', depth $\frac{1}{4}$ ' to $\frac{1}{2}$ '.



DUNBAR BROOK - app. $\frac{1}{2}$ mi. below entrance
of South Br.; app. width 50', depth 1'.



DUNBAR BROOK - just above entrance of
South Br.; app. width 20', depth $\frac{1}{2}$ '.

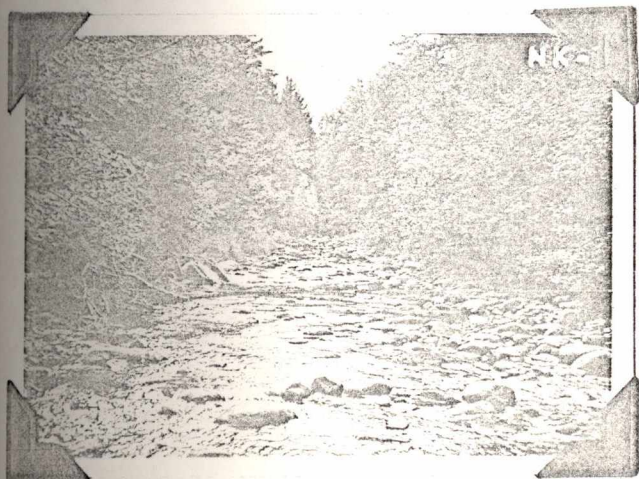


SOUTH BRANCH - just above entrance to
Dunbar Bk.; app. width 20', depth $\frac{1}{2}$ '.



NASHWAAK RIVER

Tributaries - Napadogan R., Rocky Bk. & Grand John Bk.

NAPADOGAN RIVER - just above entrance to
Nashwaak R.; app. width 45', depth 1'.NAPADOGAN RIVER - app. 2½ mi. below
forks of east and west branches.NAPADOGAN RIVER - at forks of east and
west branches; app. width 50', depth ½'.ROCKY BROOK - just above entrance to
Nashwaak R.; app. width 10', depth ½'.GRAND JOHN BROOK - just above entrance
to Nashwaak R.; app. width 20', depth ½'.GRAND JOHN BROOK - just above entrance,
to Nashwaak R.; app. width 15', depth ½'.

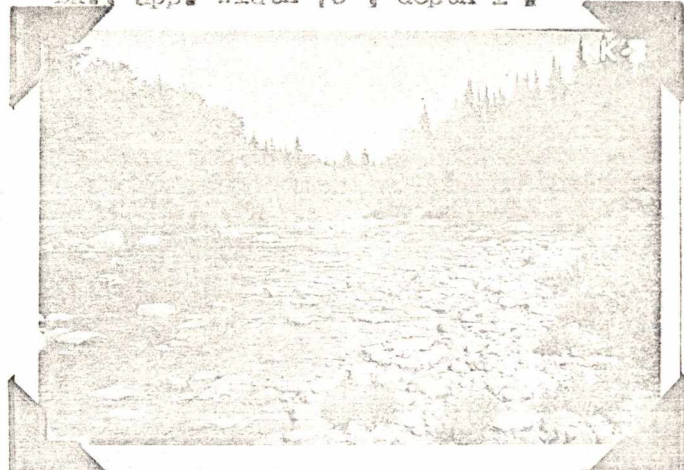
NASHJAAK RIVER

Tributaries - Tay R. & McCallum.

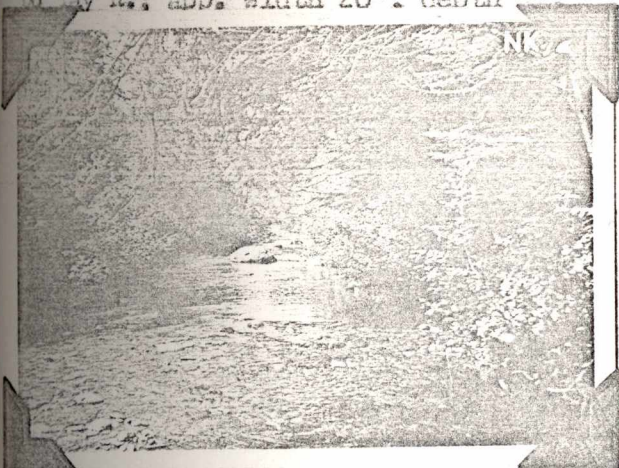
TAY RIVER - app. 1 mi. above mouth;
app. width 50', depth 1 1/2'.



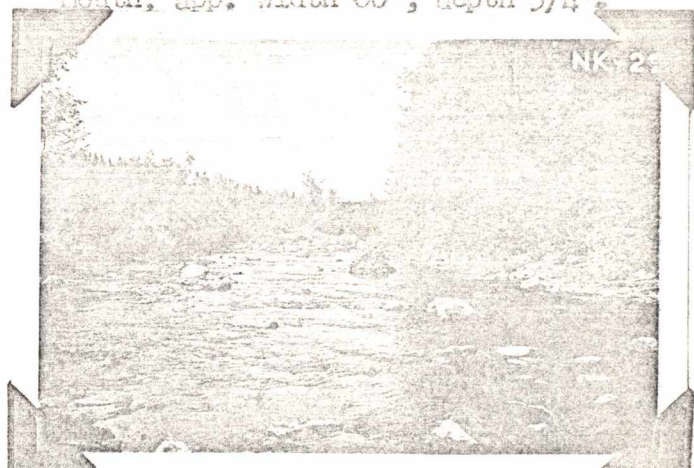
TAY RIVER - app. 1/2 mi. above Limekiln
Bk.; app. width 70', depth 1'.



LIMEKILN BROOK - just above entrance
to Tay R.; app. width 20', depth 1'.



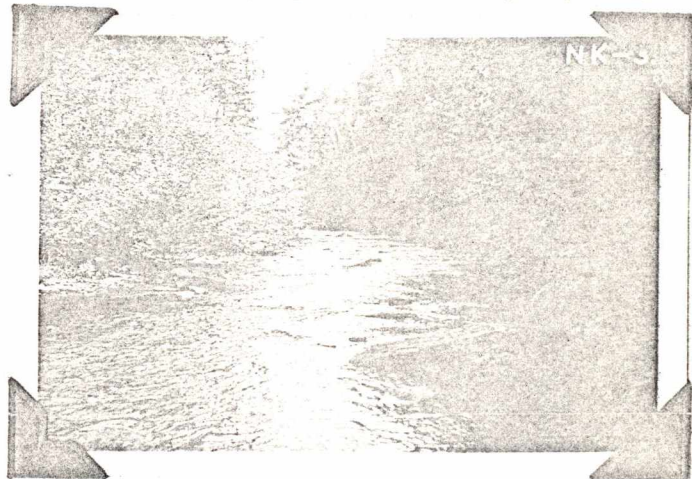
MCCALLUM BROOK - app. 1 mi. above
mouth; app. width 60', depth 3/4'.



MCCALLUM BROOK - just above entrance
of McKenzie Bk.; app. width 40', depth 1/2'.



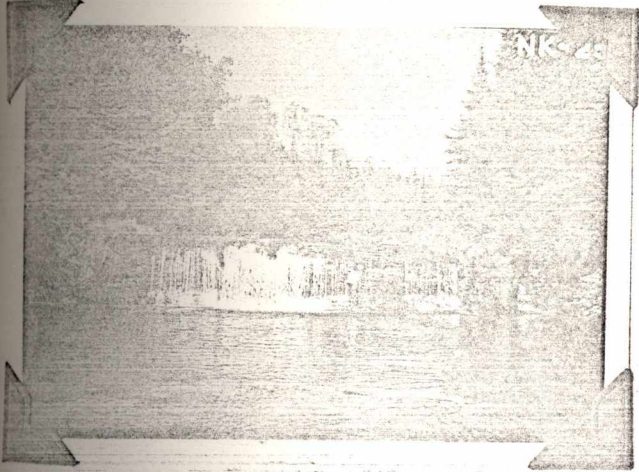
MCKENZIE BROOK - just above entrance to
McCallum Bk.; app. width 40', depth 1/2'.



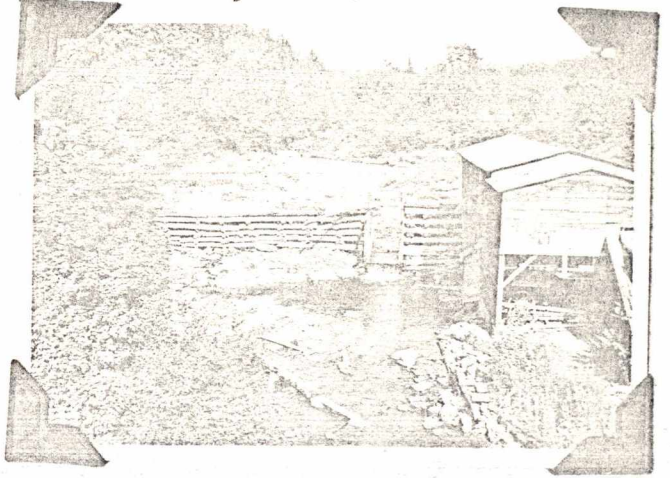
NASHWAAK RIVER

Barriers

B - 1, Falls app. $\frac{1}{2}$ mi. above mouth on Dunbar Brook.



B - 2, Mill Dam on North Branch of Tay River.



B - 3, Wood Dam app. $\frac{1}{4}$ mi. above mouth on McCullum Brook.



B - 4, Old Mill Dam just below highway 25 on Cross Creek.



B - 5, Lower section of Falls just above mouth of Rocky Brook.



B - 6, (Barker Dam) remnants of Wood & Rock Dam, $1\frac{1}{2}$ mi. below entrance of West Bk.

