

A Feasibility Study of the Potential for Increasing the  
Abundance of Anadromous Arctic Char (Salvelinus alpinus) in  
Northern Quebec

Part 5 Report to Communities and Inuit Evaluation of Results

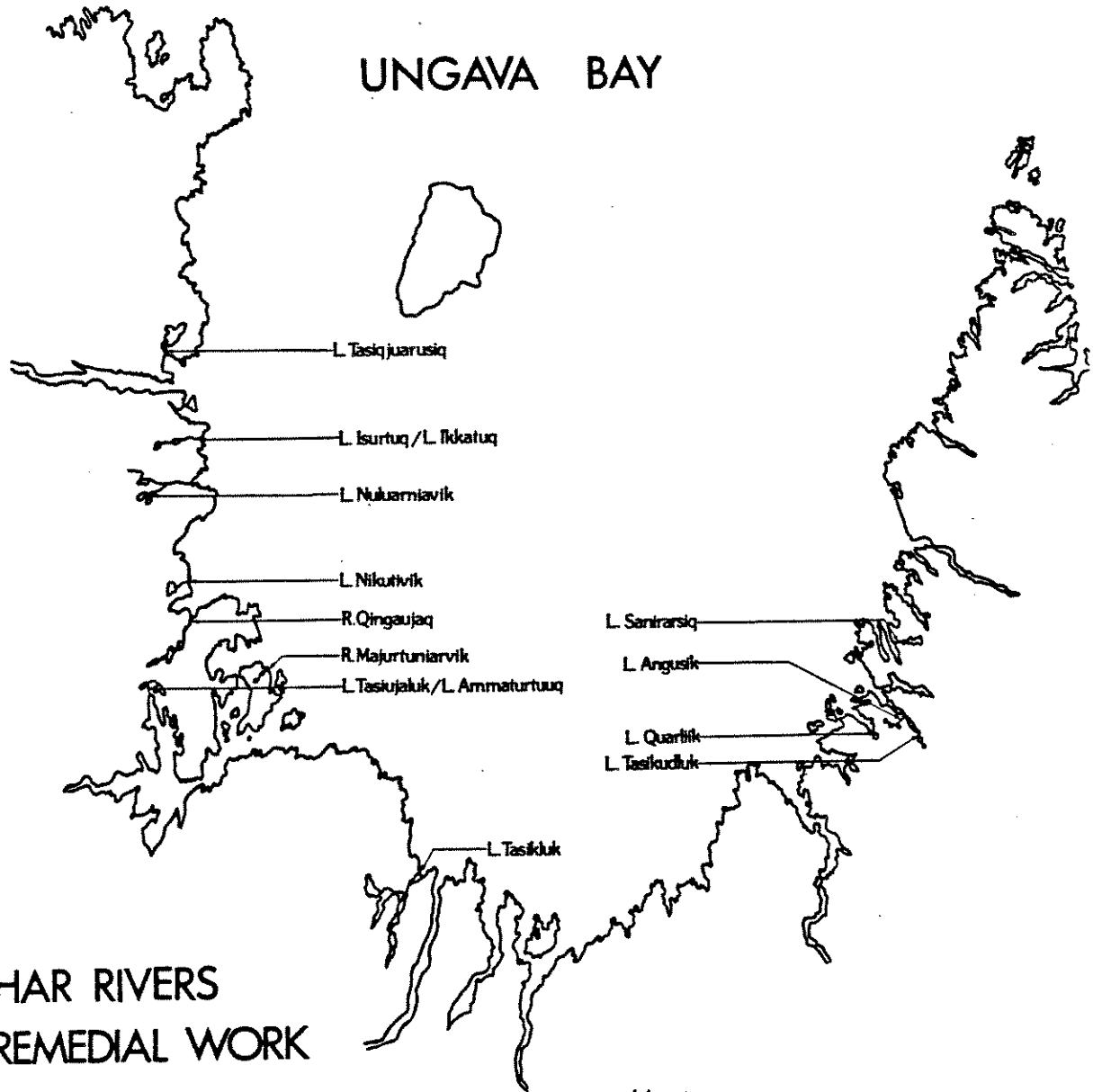
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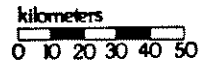
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# UNGAVA BAY



ARCTIC CHAR RIVERS  
REQUIRING REMEDIAL WORK



## Part 1

INTRODUCTION

Results of the 1984-85 Feasibility Study of the Potential for Increasing the Abundance of Anadromous Arctic Char in Northern Quebec were presented to five Inuit communities in Ungava Bay during June 3-19, 1985. Slide presentations and discussions of the project in Kangirsuallujjuaq (George R.), Kuujjuaq (Fort Chimo), Tasiujaq (Leaf Bay), Aupaluk, and Kangirsuk (Payne Bay) were conducted with members of the community council, the landholding corporation, Anguviaq and other interested persons. In each community, the current status of local rivers investigated in the 1984 field season was discussed, especially those which were identified as 'key' problem areas for char migration. Members of the community then decided which of these rivers required remedial work. The list of char systems in which stream improvement was considered of high priority is given in this report.

There was great interest expressed in undertaking remedial work on a total of 12 out of 29 rivers studied in Ungava Bay in the summer of 1984. Two types of stream improvement on Ungava Bay rivers are suggested: the first involves modifying the channels to concentrate the flow in existing char rivers to improve access for char to the inland overwintering lakes. The second involves opening new rivers to char which currently are inaccessible due to large obstructions. Conservation and preservation of existing char streams was a priority in all communities, especially for those rivers which have been experiencing poor water flow in recent years. The idea of opening up a system which currently does not contain char was considered only in the Kuujjuaq and Aupaluk areas.

As was observed during the 1984 study, multi-channelled shallow areas, poor flow and rocks and boulders were the main types of obstructions limiting the extent of char migration. Discussions with Inuit in June, 1985 (as well as in 1984) concerning obstructed systems resulted in reports that char have had difficulty reaching the overwintering lakes in the past few years; the summer of 1984 was a year of poor rainfall in many areas and it is believed that in some systems (ie. R. Qingaujaq and L. Isurtuq-see map) very few or no char may have reached the inland lakes. The problem of natural obstructions in rivers of Ungava Bay appears to be most severe in the Aupaluk area, where numerous important char systems are often inaccessible to migrating char. It has been reported that char unable to move into these rivers have migrated to more accessible systems in the Kangirsuk and Tasiujaq areas.

All communities visited were extremely interested in the project and eager to undertake remedial work as soon as possible. For most char systems, stream improvement involves clearing channels by removing rocks and boulders, and blocking secondary channels to concentrate water flow in the main channel. Inuit estimates of the amount of work required for each system are given in this report. The work can be accomplished mainly by manual labour with the assistance of tools such as winches (pulling machines), hydraulic jacks, hammer drills and crowbars. The Inuit agreed that manual labour was the best method, since this would create more employment in the community and also would minimize 'pollution' in the streams. Residents of Aupaluk, however, requested the use of a bulldozer from the community to undertake the work on the nearby R.Qingaujaq. They were also the only community to request use of explosives for removing extensive boulder flats on the drier systems.

In those systems which currently do not contain char, a much more extensive project was proposed to increase the available habitat for this species. Residents of Kuujjuaq took a keen interest in the idea of constructing a temporary wooden fishladder to bypass the falls on the L.Tasikluk (R.Nephijee) system. The development of this structure will be much more expensive than the restoration work on current char systems, but the possible future returns are great. By opening new systems to char, the subsistence fishery will be expanded and should help to provide more char to future generations.

## Part 2

SUMMARY OF WORK IN EACH COMMUNITYKUJJUAQ (FORT CHIMO)

Since Kuujuaq is the largest community in the Ungava region, a complete overview of the char feasibility project was presented to members of this community. Examples of obstructed systems and suggested remedial work from all areas of Ungava Bay were presented in order to inform the people in the administrative centre of Northern Quebec of the objectives of the project.

L. Tasikluk (R. Nephjee EQ 4187)

Aspects of this system were discussed for a considerable amount of time, as this was the only river investigated in southern Ungava Bay during the 1984 field study. A substantial char population inhabits Baie Seche as a summer feeding area, but the origin of this stock is unknown. Some people believe that the char pass under the Nephjee falls via an underground tunnel and overwinter in an unknown location. Sen. Watt stated that a few char (1 or 2) had been found above the falls, and others have died trying to overwinter in the shallow pool west of the falls since it freezes to the bottom in winter. It was also reported (but not confirmed) that some char have (unsuccessfully) attempted to move up the west tributary which bypasses the falls. Dead char were found in this small, shallow tributary.

Sandy Gordon stated on behalf of the Fisherman's Group, the Wildlife Committee and the people of Kuujuaq that they were eager to try the idea of a temporary wooden fishladder on L. Tasikluk. The introduction of eggs, fry, or adult char above the falls was suggested to enhance fish production. Development of a hatchery in the Kuujuaq area was also discussed. Considering the proximity to Kuujuaq and the number of large overwintering lakes accessible to char once past the falls (ie. L. Tasirlaq, L. Quamutissait and possibly L. Berthet), this system should be considered a high priority.

Several other systems not examined during the 1984 fieldwork were also discussed. They are listed here for completeness:

Lac Diana: This large, productive char system west of Kuujuaq appears to be experiencing problems with its char population. One hunter reported that he caught only one char in the lake last winter using nets. The exact nature of the problem is unknown, but the river is possibly being blocked by a large obstruction according to local reports. It was suggested that this problem be investigated.

False River/Lac Garreau: Brook trout, salmon and lake trout are captured in this system, but currently it is inaccessible to char. Clearing a more precise channel in the smaller branch of the river and construction of a fish ladder to bypass one set of falls was suggested by the community as possible means of providing access for char as well as salmon.

R.Curot/Lac Ballantyne: During community interviews in 1984, this system west of Kuujjuaq was reported as being inaccessible to char due to a long set of rapids and a steep gradient. In 1985 it was suggested by the people of Kuujjuaq that an investigation of the river take place to identify the obstructions present. This river is similar to the L. Diana system in appearance, yet lacks char for an unknown reason.

#### KANGIRSUALLUJJUAQ (GEORGE R.)

Currently, the Kangirsuallujjuaq region has the most char systems in the Ungava Bay area. Several rivers, including two in close proximity to the community, have experienced problems with poor flow and rock obstructions in recent years. Also, hunters reported that when the area was visited by the field personnel last year, the river flow was quite high. Often, these same systems are very dry if rainfall is poor. Problem areas are listed in order of importance to the community:

#### L.Tasikudluk (LA 6234)

An important winter fishing area, the 'short river' is often very shallow in years of poor rainfall. The current char migration route is on the west side of the river and it was agreed that the remedial work for this system as suggested in Part 3 of this report would be the best possible means of improving access for char. (Approximate amount of work required: 14 days with 6 men)

#### L.Quarliik (LA 4635) 'Bear Creek'

Stanley Annanack, in the fall of 1983, constructed a small (7-10m) fishway by rearranging boulders to provide access to the lake for char which were 'stuck' in a small pool near the west entrance to L. Quarliik. Once this channel was created, fish were reported to have immediately moved into the lake. He was unable to move the very large boulders in the area, as he had a limited number of tools with which to work. The people suggested that if the larger boulders were removed and more extensive channels were built, the lake would be much more accessible to char. (Approximate amount of work required: 4-7 days with 6 men)

L.Sanirarsiq(LA 5665)

Suggested remedial work on this system is similar to that described in Part 3 of the report. The south(main) overflow is the best passageway for char, yet it contains a series of steep rapids which are difficult for char to ascend in years of poor rainfall. Rearrangement of boulders in the steepest section of these rapids is suggested in order to provide a step-like rustic fishway. (Approximate amount of work required:14 days with 6 men)

L.Angusik(LA 5938)

Flow in this system was high last August, but often the river is very dry in the fall. Apparently there are three channels near the mouth of the river; the two outside channels should be blocked to allow most of the water to flow in the central channel. Upstream, deepening of the main channel and blocking of side channels, as is suggested in our report, will also be required. (Approximate amount of work required:3 weeks with 6 men)

The undertaking of these projects was approved by the land-holding corporation and by the president of Anguviaq, Bobby Baron.

TASIUJAO(LEAF BAY)

Most hunters in this community fish the Finger Lakes system south of the community. There are also two fishing camps located on these lakes; fishing effort in this area for char is great in both summer and winter. Stream improvement in nearby areas must be considered as high priority so that future fishing effort may be more evenly dispersed.

L.Tasiujaluk/L.Ammaturtuuq (DR 5147)

This system was listed as a high priority area by residents of both Tasiujaq and Aupaluk. The river has experienced poor flows for the last few years, and numerous char were reported to have died in this shallow system. In recent years, few or no char have been able to reach the inland overwintering lakes, and have been forced to overwinter in L. Tasiujaluk, a large pool upstream of the river mouth. Generally, Aupaluk residents fish the large overwintering lakes while Tasiujaq residents fish L.Tasiujaluk, the 'temporary' overwintering area for char. Creation of a clear channel by removing the extensive boulder region upstream is necessary to improve access for char in dry years.



The proximity to both Tasiujaq and Aupaluk, as well as the fact that this region was once an excellent char fishing area, resulted in the decision by both communities that remedial work on this system should have priority in the area. (Approximate amount of work required:14 days with 10 men (5 from Tasiujak and 5 from Aupaluk))

Approval to undertake the project was granted by the town council and landholding corporation of Tasiujaq.

### AUPALUK

The smallest community in the study area, the Aupaluk area also contains the most char streams requiring remedial work(5). The problem of char rivers 'drying up' due to poor rainfall, insufficient snowmelt and poor flow is most apparent here. All 5 systems are close to the village, and all were good char fishing areas in the past. It appears that the char resource is rapidly declining in the area and remedial work to improve access for char is desired by all members of the community. Systems are listed in order of importance to the community:

#### L.Tasiujaluk/L.Ammaturtuuq(DR 5147)

(See description given for Tasiujaq) This system was given the highest priority, and there was full agreement to cooperate with Tasiujaq residents to complete the work. (Approximate amount of work required:same as was suggested by Tasiujaq residents-14 days with 10 men (5 from each community)).

#### R.Qingaujaq(R.Voltz DR 6472)

This system is located within short walking distance of the community, so remedial work should be quite easy to organize. Once an excellent fishing area, the system has experienced problems due to poor flow in recent years; for the last two years it is believed that char have been unable to migrate to the overwintering lakes upstream. The river mouth is shallow and multi-channelled. Suggested work involves blocking minor channels to concentrate flow in one or two main channels. When observed during spring runoff in June, 1985, it appeared that the maze of smaller channels was quite extensive. Aupaluk residents suggested using a local bulldozer to assist in moving the larger boulders and also to assist in blocking outer channels. The community is proposing to build a bridge across the river mouth to meet with a road on the other side. This factor must also be considered before stream improvement takes place. (Approximate amount of work required:3-7 days with 6 men and a bulldozer)

L.Nikutivik(L.Deltombe DR 6183)

Although char are capable of ascending the first difficult section near the river mouth at high tide, the multi-channelled area near the lake requires some improvement. In years of poor rainfall, this section may pose a great problem to migrating char. This system is close to the community and was an important char fishing area in the past. (Approximate amount of work required: 7 days with 6 men)

L.Nuluarniavik(R.Lefroy DS 6417)

A well-known char fishing area for residents of both Aupaluk and Kangirsuk, this lake is located between both communities. L.Nuluarniavik is the only known overwintering area for char in the Lefroy system; opening of the other lakes to char was not considered as a high priority by the community (see Discussion).

The area of shallow stream obstructed by a wide boulder region in the southern tributary is quite extensive; some hunters said that it was difficult to believe that char were capable of reaching the overwintering lake. It was agreed that clearing a deeper channel in this area would do much to improve access for char. A cooperative approach to remedial work for residents of both Aupaluk and Kangirsuk is encouraged. (Approximate amount of work required; 14 days with 6 men) (NOTE: Distance from both communities as well as distance inland may require the use of a chartered airplane to undertake this work)

R.Majurtuniarvik(DR 8955)

The people agreed that the fishing weir ('sapouti') at the river mouth may be obstructing char passage at present. It was suggested that the weir be opened up to allow passage of char in the fall. No other obstructions limit access to the first lake.

There was great interest in conducting remedial work on the shallow obstructed stream connecting the two overwintering lakes. The community was eager to create a clear channel to the second lake by removing rocks and boulders to provide more overwintering habitat for char in this system. (Approximate amount of work required(for the small stream connecting the two lakes) 3-7 days with 6 men) Permission and approval to undertake the project were granted by the municipal corporation(council) of Aupaluk. (NOTE:Aupaluk residents requested the use of explosives to assist in removing both large and underground boulders for L.Tasiujaluk/L.Ammaturtuuq(DR 5147), R.Qingaujaq(R. Voltz DR 6472) and L.Nuluarniavik(R.Lefroy DS 6417). The mayor of Aupaluk, Peter Akpahatok, made the suggestion, as he has had experience with using explosives in mining operations in the Kangirsuk area.

Aupaluk was the only community to request using explosives as well as heavy machinery in their remedial work.

### KANGIRSUK(PAYNE BAY)

Most residents of the community fish for char upstream in the Payne River in both summer and winter. Numerous summer camps are located near the mouth of the R. Vachon, a well-known tributary and spawning area for the Payne R. char population. Three other systems on the Ungava coast were also described as important char fishing areas, and each has experienced problems with poor flow in recent years. They are listed in order of importance to the community:

#### L.Tasiqjuarusiq(Virgin Lake DS 5459)

Two areas in this system require channel modification in order to improve access for char. The first is the east channel near the river mouth; a series of braided channels are found in this area, and in years of poor rainfall, there is no clear route for char to enter the first portion of L. Tasiqjuarusiq. Sam Willie Annahatak stated that 2 years ago he saw approximately 20 char which, when unable to find entrance to the lake, returned downstream towards the sea. The second area which limits char migration is the north-east portion of the smaller lake below L.Tasiqjuarusiq. In order to provide better access to the lower lake, a single deeper channel must be constructed by rearranging boulders and rocks. (Approximate amount of work required:28 days with 20 men)

#### L.Isurtuq/L.Ikkatuq(DS 6741)

Due to poor flow and rock obstructions last fall, very few char are believed to have reached the overwintering lakes. One hunter reported that he did not catch a single char there this spring using nets. Remedial work involves rearranging boulders and creating a clearer channel for char migration in the shallow region upstream of the river mouth. (Approximate amount of work required:42 days with 6 men)

#### L.Nuluarniavik(R.Lefroy DS 6417)

(See description given by residents of Aupaluk) Residents of Kangirsuk suggested that stream rehabilitation be undertaken as a cooperative effort with the people of Aupaluk, since people from both communities utilize this char resource. (Approximate amount of work required:28 days with 10 people (5 from Kangirsuk and 5

from Aupaluk--the difference in time required stated by both communities may be partly due to the fact that Aupaluk people requested explosives to assist in the work)).

The project was accepted and approved by the community council, the landholding corporation and Anguviaq in Kangirsuk.

## Part 3

DISCUSSION

In each community visited, there was great interest in conducting stream improvement projects on those char systems which have experienced problems with poor flow, rocks and boulders and multi-channelled shallow areas. In all but a few cases (ie L.Tasikluk and R. Majurtuniarvik), the interest of the communities is mainly to conserve and preserve existing char resources which are threatened by these obstructions. Generally, the idea of opening new systems to char did not generate as much interest. If, in the future, problems arise with the availability of char from existing sources, they will consider other measures to increase char stocks, including creation of new habitat. Opening new systems to char will thus be considered only after problems with the 'key' char systems (identified in this report and in Part 1 of the feasibility study) have been resolved. The L.Tasikluk system and other rivers near Kuujjuaq may be an exception.

Remedial work for R.Majurtuniarvik (DR 8955) involves both conservation of the present resource and expanding the char habitat to include a second lake in the area. In Kuujjuaq, the residents were extremely eager to open up new systems to char (L.Tasikluk EQ 4187 and also False R./L.Garreau); the small number of char in southern Ungava Bay has resulted in a great interest being directed towards this project. Temporary wooden fishladders to bypass waterfalls in the Kuujjuaq area were suggested for opening up these systems to char. Introduction (stocking) of char in these rivers was also requested by the community.

Each community was eager and willing to undertake the work this summer, since there is fear that if rains are poor again this year, the char population will suffer. Unfortunately, it is unlikely that funding will be available for 1985. It was suggested that the best approach for acquiring funds in 1986 would be for the communities to pass a resolution and submit a proposal to Makivik requesting funding for the work to take place. We stated that we would be willing to provide cost estimates for equipment, materials, etc. and any additional assistance required for the preparation of the proposals. It is important that all resolutions and proposals be completed and submitted early in the new year so that requests for funding will have enough time to pass through the proper channels.

After consultation with each community it was decided that the best time to undertake the remedial work is between July 1-August 15 of each year. The time of ice break-up limits the use of local canoes until late June, and by late August the char begin

their return migration to the lakes. The time period given will ensure that the adult char will be at sea feeding and will not be disturbed by work taking place in the stream.

The remedial work suggested in Part 3 of our report was considered appropriate for most systems. The hunters suggested that they will use our ideas and will also assess for themselves what work they think is required on each system once they arrive to undertake the work. The presence of a member of the 1984-85 feasibility study was also requested to help in deciding which areas in each river require the most attention. Since the Inuit know the river's problem areas over a much longer time period, and the University of Waterloo/Makivik char research team conducted an in-depth survey last year, it was decided that this type of cooperative work would be best.

It was also stated that remedial work must be occasionally repeated (although on a much smaller scale) so as to maintain the newly-created channels. Ice movements and spring run-off will undoubtedly damage work undertaken the previous summer. The budget should include funds for sending at least two persons to each site every year to ensure that all channels remain free of obstructions. Maintenance of each system is extremely important--there is no point in starting the project if the work falls into disrepair in a few years.

If possible, a survey of southern Ungava Bay rivers should also take place. The Kuujjuaq area has few char systems, and with the large population in the area, there is a great interest in increasing char production for the region. The southern area was omitted from the survey last year (except L. Tasikluk), and this is the area which perhaps will require the most attention in the future.

The positive response from all communities towards this project was shown by the large turn-out at local meetings and the valuable discussions which took place. Undertaking remedial work on each system and possibly opening new systems to char were regarded as important projects which should be undertaken as soon as possible. Increased production of arctic char in Ungava Bay rivers and the employment of local people are two of the major benefits which will result from this project. A formal proposal to Makivik should be formulated by each community in the near future so that funding may be acquired for the summer of 1986.