

**Char Habitat Improvement Projects Report**

**1998**

prepared by

Chesley Mesher  
Makivik Corporation  
Renewable Resources Development Department

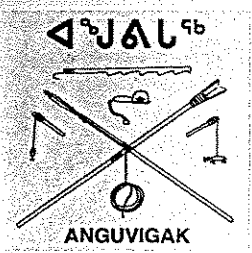
for the

Hunting Fishing and Trapping Association of Nunavik

and the

Kativik Regional Government

January 1999



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Association de chasse, de pêche, et de piégeage du Nunavik  
Nunavik Hunting, Fishing and Trapping Association

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Sandy Gordon,  
Department Head  
Renewable Resources  
Kativik Regional Government  
P.O. Box 9  
Kuujjuaq, Quebec  
J0M 1C0

January 18, 1999

**Re: 1998 Arctic Charr Stream Enhancement Project Report**

Dear Sandy,

Please find attached a copy of the 1998 Arctic Charr Stream Enhancement Projects (ACSEP) Report. As stated in the KRG/NUK Contribution Agreement signed in April 1998, KRG will issue a third and final payment of \$10,000 to upon submission of the final report.

On behalf of the Board of Directors of Nunavimmi Umajulirijit Katujiqatigininga (NUK) and the communities of Nunavik, we wish to thank you and the Board of Directors of the KRG for your annual financial support to enhance arctic charr habitat.

The Nunavik communities will each submit a list of rivers and streams in their vicinity that they feel should be enhanced in the future. Once we have received these lists we will determine the priorities with each community and we will require your continued financial support.

Yours Sincerely,

A handwritten signature in black ink that reads "Mark Papigatuk". The signature is written in a cursive style.

Mark Papigatuk, President





**LPA<sup>b</sup> ᐃᐃᐅᐱᐅ**  
Makivik Corporation Société Makivik

**Stream Enhancement 1998**

**Statement of Expenses**

Community of Salluit	15,000
Community of Kangiqsujuaq	2,600
Community of Tasiujaq	4,225
Community of Kuujjuaq	5,000
Community of Kangiqsualujjuaq	6,000
Community of Umiujaq	10,950
Community of Puvirnituk	15,000
Community of Inukjuak	10,000
Coordination of Project	5,000
Report Preparation	4,000
Maps Production	1,000
Inuttituk Translation of Report	1,300
<b>Total</b>	<b>80,075</b>

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## Introduction

Arctic Char *Salvelinus alpinus* is the most important subsistence fish species to Inuit of Nunavik. The demand for subsistence use, for regional commercial sale, for sport fishing and in some areas the meager population contribute a constant harvest pressure. In response to this situation many villages and local organizations are eager to do what they can to maintain sustainable char populations.

A program was started in 1984 to explore the possibility of creating new char habitat. During the study it was found that some existing char habitat was precarious, during autumn migration fish were unable to pass through streams due to low water levels and other obstacles. In 1986 the Makivik Corporation inaugurated the Arctic Char Stream Enhancement Program (ACSEP). The objectives were: to make evaluations of streams and identify areas needing improvement, to implement projects and to develop habitat enhancement techniques suited to Nunavik.

Since 1986 projects have been initiated to make good on those objectives. The Kativik Regional Government, the Department of Fisheries and Oceans, Fondation de la Faune du Québec, Québec's Ministry of Environment and Wildlife, and Municipal and Landholding Offices have contributed to fish habitat improvement. With the increased responsibilities transferred to the Kativik Regional Government in recent years, they have become the main financial sponsor; since 1997 the Nunavimmi Umayuliriyiit Katuyiqatiriningat (HFTA executive) has assumed the responsibility of reviewing and approving projects. They are active as well in getting the news out to each community in Nunavik about the ACSEP and receive proposals before work begins each season. The Makivik Corporations' Renewable Resources Department provides support to the the HFTA in its mandate of administering the habitat enhancement program.

In 1997, 5 projects were allocated funding under the KRG's Renewable Resource Department fish habitat enhancement budget of 50 K, included in those was a baseline contaminants survey at the Raglan mine area. The Raglan project can affect the Deception, Puvirnitug and Vachon Rivers all of which are important char habitat.

In 1998 80 K was divided between projects sponsored by 8 communities, Inukjuag, Puvirnitug, Kangirsujuag, and Umiujaq each did enhancements at several streams, while Salluit, Tasiujaq, Kuujjuag and Kangiqsualujjuag each had 1 project. Seven thousand two hundred and twenty-five dollars was withheld by the HFTA executive for non specific purposes. At the end of the season notes were received by the HFTA coordinator from each community and this report is a compilation of those notes.

## Materials and Methods

Tools used for enhancement projects are basically the same today as they were in the mid 80s when funding first became available. Heavy duty pry bars, shovels, picks, manually operated winches, ropes and cables are used. Canoes and outboard motors and all terrain vehicles, a helicopter and a float plane were used to transport crews and equipment to the sites which are generally remote and inaccessible by road. A motorized jack hammer was used in 1995 with limited success. At the Nepihjee River there will be drilling and blasting of the rock to create a fishway. This will be a great leap forward in enhancement methods as frequently sites have to be left partially completed due to large obstructions or bedrock none of which can be excavated with the assortment of tools most crews have available to them.

In several of the communitys crew chiefs have accrued knowledge of enhancement techniques mainly from several seasons of first hand experience. To ease the passage of fish rivers are cleared of obstructions, resting pools are excavated adjacent to falls and rapids, silt and sand is removed so as to form channels, dense brush is removed, dikes and deflection barriers increase depth and reduce current speed. Material found on site (mostly rock) is used to form those structures. The work is as permanent in nature as tools and time allow but occasionally strong flow will erode channels so restoration is required. Inspection of enhanced areas should be a regular part of stream maintenance.

## Results

### Umiujaq

The Local Hunting Fishing and Trapping Association under the direction of Noah Inukpuk applied for funding to improve fish habitat of 2 streams in their region, Iqaluppisiuqviq Kuunga, Richmond Gulf-56°20'04" N; 76°28'37" W, and Tumiujaq Kuunga, Nastapoka Islands-57°23'N; 76°46'W. These streams are some of the most southerly naturally occurring char habitat and they have problems not usually associated with char habitat- obstructions by beaver dams and dense growth of brush in streambeds. The amount approved for those 2 projects was \$10,950.

### Iqaluppisiuqvik Kuunga

A team of 4 persons spent 3 weeks at Iqaluppisiuqvik. The stream is in good condition except for a few boulders that partially obstruct the channel, those rocks were too large to move (photo 9). A winch or some other device is required to open that section. Channels were dug, brush was cleared and shallow sections were diked to form pools to maintain water

depth (photos 8,10 & 11). Beavers were inhabiting the stream in 1992 but none were found there in 1998. The stream had some silt accumulation however as a result of past beaver construction.

All projects approved for 1998 were for habitat enhancement versus monitoring or evaluation, however it was found at Iqaluppisiuqvik rod catch had increased when compared to recent years (N. Inukpuk, personal comments).

Iqaluppisiuqvik Kuunga has had enhancement work done on it in 1992. Sampling of arctic char and brook trout was also done that year and a counting fence was installed to learn more about the fish population. The results of the 1992 study indicate that fewer and younger char were found there but that the brook trout population was increasing; This was when compared to 1974 and 1984 data. No fish sampling was done in 1998, however should sampling be carried out in the future it is possible to compare new information with that of past years.

#### Tumiujag Kuunga

Enhancement was begun at Tumiujag Kuunga located 90 km north of Umiujag on the Nastapoka Islands. For 6 days a crew of four persons cut brush from the more overgrown sections and dug channels (photos 4,5,6 & 7). This was a quick and temporary fix. Additional restoration to the stream is needed and an application for continuing this project may be expected in 1999.

#### Kangirsujuag

Stream enhancement project proposals for 4 rivers and stream inspection proposals of 6 rivers were requested by the Kangirsujuag HFTA. Those systems requiring enhancement were Kangirsujuag Kuunga-61°35'53"N;71°57'37"W, (which flows through the village), Iqaluttuq Kuunga-61°31'56"N;71°50'09"W, Kitsuujuag-61°43'32"N;72°11'05"W, and Tutsukattak-61°51'44"N;72°42'41"W.

The areas to be inspected were Allaariaq-61°32'27"N;72°00'50"W, Iqaluttuq-61°31'56"N;71°50'09"W, Tasiqajuiruti-61°33'37"N;71°47'33"W, Natirnajuaq-61°35'14"N;71°37'26"W, Niaqunguutialuk-61°31'27"N;71°31'27"W and Pautsiaq-61°37'59"N;72°02'53"W. The cost estimate for those projects was \$ 6,860. A budget of \$2,600 was allocated, an amount which matched the 1997 amount spent by the community on similar projects. Mr. Yaaka Yaaka who has been doing stream enhancements for many years both independently and with the Makivik Research Department was in charge of overseeing the projects. They were carried out from July 4th to the 15th.



Kisuujag Kuunga

No enhancement was done here in, however an extensive amount of work is required and a project proposal may be anticipated for 1999.

Pitagannqimat Kuunga-61°49'28"N;72°47'29"W

No enhancement was done in 1998, a request for this project is expected to come in 1999. Again this system will require an extensive amount of enhancement.

Natirnajuag

This river was inspected and 3 hours of remedial work done to clear an eroded section. Enhancement work was done here in 1994 and 1995 with good results, however inspections and minor upgrades are required each year especially through a small ravine. With the tools presently available to Kangirsujuamuit a more permanent fix is not possible.

Niagunquutialuk

An inspection was made only, no enhancement was required.

Kangirsujuag Kuunga

An enhancement was done on this stream that included removal of dams and debris and shallow areas were excavated. Juvenile char were collected from other nearby streams and restocked at the lake which also serves as the town water supply.

Pautsiag

Two days work by 2 persons were done on this stream.

Allaariaq Kuunga

One day of clearing in the worst sections was done by 2 persons. Juvenile char were captured from here over several days for transplanting at Kangirsujuag Kuunga.

Tasigajuiruti

Two workers spent 1/2 a day clearing eroded areas and 1/2 a day gathering fry, again to bring to Kangirsujuag lake. This stream had restoration done in 1994 and appeared to be in good condition at that time.

Salluit

Narsarusiup Kuunga

An enhancement at Naqsajuaq-62°05'44"N;75°45'52"W, was carried out from July 6th to the 18th. Mr. Adamie Alaku acted as crew chief with 10 persons employed on the project. All throughout shoals, deflection barriers were built so as to direct and concentrate water flow. Where possible and required the channels were made deeper. The stream is in much better condition but still requires additional enhancement. A budget of \$15,000 was allocated and the financial statements indicated of that amount \$11,905 was spent. The project was

halted after 12 days as the crew chief, it seems was unaware of how much budgeted for the project. This indicates better communications is required between the HFTA coordinator, municipal officials, Makivik's Research Dept. and crew chiefs.

### Tasiujaq

#### Tasikallaaluk

A river 40 km west of Tasiujaq flowing from Tasikallaaluk-58°40'42"N;70°38'07"W to Kuugaaluk required clearing and removal of boulders at the outflow of the lake. Char were staying in the stream until late in the season, it seems they were unable to pass a particularly difficult section. A crew of 6 persons flew into the area and spent a week moving and removing rocks. The work progressed well and the stream is in much better condition. The project was completed at a cost of \$9,464.39, about half of which went to chartering an otter floatplane.

#### Igaluliapik, Amalutuk, Tasiujaaluk

These systems required a moderate amount of work at an estimated cost of \$6,100 each. However due to insufficient funds those projects were postponed.

### Kuujjuag

#### Nepihjee River (58°32'N;68°20'W)

Construction of a fishway around low falls near Ungava Bay at Nepihjee was proposed in a joint study by the University of Waterloo and the Makivik Corporation in the mid 1980s. The objective was to create new char habitat by removing this obstacle. Kuujjuamuit are interested to see this project come about as the potential benefits are substantial. In 1998 the Quebec Ministry of Environment and Wildlife and Pro Faune, a business specializing wildlife management, surveyed and photographed the area in preparation for the excavation (photo 13). Restocking the lakes with char eggs (incubators) and fry possibly will follow. A report titled "Rivière Nepihjee, Aménagement des Chutes pour L'omble Chevalier" has been presented to the Nayumivik Landholding Corporation, the main sponsors of the project. A five thousand dollar contribution was approved by HFTA executive.

### Kangirsuk

#### Isurtuug Kuunga

This stream is located 20 miles to the south of Kangirsuk (59°49'45"N;69°33'59"W). Enhancement on it was carried out in 1996 and 1997 and a request for some additional enhancement was received for 1998, it was not approved mainly because it was repeating work which should have been completed, and the

need for additional restoration was questionable. Any changes there can most easily be determined during winter subsistence harvesting by Kangirsumuit. The river, as with small and medium size systems in Nunavik, has substantially lower water levels in periods when precipitation is reduced.

#### Oamanialuup (Tasijuarusiup) Kuunga

A 2nd request from Kangirsuk was received to do enhancement at Tasijuarusiup (60°04'30"N;69°45'10"W). This system had work done on it twice before in 1989 and 1995. An evaluation is recommended to verify that indeed the river is impassable to char, this can easily be determined by surveying (walk and observe) the difficult passages during the August\September migration. Fish will amass in sections that are severely obstructed. It is worth noting that this area is easily accessible by land and water from Kangirsuk and likely over harvesting is contributing to the decline. A counting fence placed across the stream during autumn migration would provide valuable information towards managing this important stock.

#### Kangiqsualujjuaq

##### Ujarasujjulik

The river at Ujarasujjulik (58°48'50"N;65°50'06"W) has had some enhancement done on it several years ago but additional work was still required. A section of the river near Ungava Bay required installation of rock deflectors to redirect water flow. The volume of water flowing in the river is fluctuates substantially, and during the highest and lowest periods char have difficulty making the short climb to Ujarasujjuliup Tasinga. The tools used here are all that was available but blasting resting pools in the bedrock seems to be the best solution. The work was carried out by a crew of 6 persons over 5 days in July. All of the \$6,000 allocated was spent and a financial statement was received by the HFTA coordinator.

In addition to enhancement, the community of Kangiqsualujjuaq and the Quebec Ministry of Environment and Wildlife are working to boost the char population at Ujarasujjulik by installing incubators filled with char eggs gathered from other nearby systems. The preliminary results are good as a high percentage of the eggs from 1997 had hatched and for a 2nd year in 1998 incubators were installed. Gilles Oulette a biologist from the Ministry of Environment and Wildlife (MEF) has an unpublished report prepared on results to date. The project is still at an early stage, char mature slowly requiring about 5 years growth before migrating to the sea, survival rates of char til then will be the key to the success of the project.

### Kuurujjuag

A proposal was received for to search and remove old fish nets from Kuurujjuag (58°50'07"N;65°46'20"W) was received. This is a major char producing river which is frequently harvested by Kangirsualujjuamuit. The project was not approved for 1998 due to funding restraints.

### Inukjuag

The community of Inukjuag, with stewardship of Mr. Daniel Nulukie has been very active in stream enhancement projects over recent years. They have secured financial assistance from DFO and KRG and most recently through the KRG's stream enhancement program administered by the regional HFTA. In 1998 funding originally allocated for the Ivujivik was given to Inukjuak, an amount of \$10,000. With it 3 rivers, Miajiap Kuunga (58°10.92'N;77°29.24'W), Qarqaaluup Kuunga (58°44.41'N;78°29.80'W) and Kangirgusaalaap Tasialungata Kuunga (58°33'02"N;78°23'12"W) were restored. In 1997 Daniel Nulukie with a crew of 4 persons spent a month digging out 3 rivers, Kuugajaaraaluk (58°45'08"N;78°26'16"N), Igalukpiliapik (58°51'89"N;78°28'29"W), and Tasiujaagruk (58°53'40"N;78°20'55"W). Work was focussed north of the community in the area at the end of the long curve on eastern Hudson Bay. Inuit in the Inukjuak area agree that rivers that have had enhancement done on them in recent years are producing more and larger char, a welcome change.

### Miajiap Kuunga

Work was started in early September with a crew of 4 persons that spent 3 days clearing obstacles along the lower 3 to 4 km of the river. The river is in good condition although fish may still become trapped in pools near the main channel.

### Qarqaaluup

The same crew of 4 did a complete clearing of this system during the 2nd week of September. Enhancement was done on it before 1998 but it required some additional labor.

### Kangirgusaalaap Tasialungata Kuunga

A complete enhancement of this river was done. Relic fish weirs which were the major obstacle were dismantled. The lakes were completely inaccessible before work was started. In addition to these streams mentioned here, several others were inspected and eroded areas requiring minor restoration were fixed. Mr. Nulukie continues to have a strong interest in projects and expressed his appreciation to the for the financial support. Charlie Nowrakudlak, Anguwigak board member, checked on some of the work as it was in progress to verify that it was satisfactory.

## Purvirnitug

Enhancement projects were carried out under the direction of crew chief and Puvirnitug HFTA representative, Paulusie Novalinga. It was the first time that funding for fish habitat came through for the area. As with other places in Nunavik that were inspected for the first time, anadromous fish were often found trapped in mid stream, and were dead or in a weakened state. The following 6 streams, most of which are in the vicinity of Puvirnitug were enhanced:

Esuouaruaq	(60°07.00'N;77°16.05'W),
Owvahaq	(60°03.05'N;77°23.05'W),
Siluaduaq	(60°03.00'N;77°11.02'W),
Hanilakujuaq	(59°50.08'N;77°74.02'W),
Upirnavialuk	(60°03.08'N;77°26.01'W),
and Kuugapik	(59°41.06'N;77°66.01'W).

Work commenced on August 27/98 and continued intermittently until October 13/98. The crew members included Noah Amarualik, Jusi Sivuarapik, Johnny Qinuajuaq, Andrew Novalinga, and Henry Qumaluk. Early reports are favorable on the results of 1998's projects.

## Discussion

Crew chiefs should contact the HFTA coordinator (toll free # 1-877-625-4845) before fieldwork begins. This is to open communications and gives a chance to discuss any details that may need clarification. When field reports are sent to the coordinator in Kuujjuaq that a telephone call be made to notify him or her.

Maps on the 1:50,000 scale should be sent to communitys before field work begins. Crew chiefs can mark in the work sites and return the maps along with field reports to the HFTA coordinator or to Makivik's Research Department in Kuujjuaq.

Information that should be included in the field report are the names and coordinates of streams, the dates on which work was carried out at each stream, names of persons on the field crew, the nature of the problem such as: blocked channels by rocks, blocked channels by brush, lack of clear channels (diffuse flow), low water flow, too strong current, falls, dams, other (give explanation).

Was the job completed at each location, is an inspection recommended for the following year and if so be sure to give the name of river, what tools were used and was there any special tools not available but recommended. It may include heavy cable or chain come-a-long (winch), or in particularly difficult areas with large and or solid rock explosives and or heavy equipment. Was the river inspected to at least the first lake in the system large and deep enough to harbor char over the winter. Be open to make comments that will be useful for improving the program, remember that yours is not a formal report and spelling, structure and so on is less important than content. Other developments of interest are with Kangirsualujjuaq and their efforts to ease the heavy labour involved with enhancement projects. With the assistance of MEF biologist, G. Oulette they are pursuing the idea of purchasing a medium size backhoe which is designed for quick take down and assembly and is light enough to be transported by helicopter. The cost for it is estimated at 50 K.



Photo 1: Inukjuak 1997



Photo 2: Inukjuak 1997

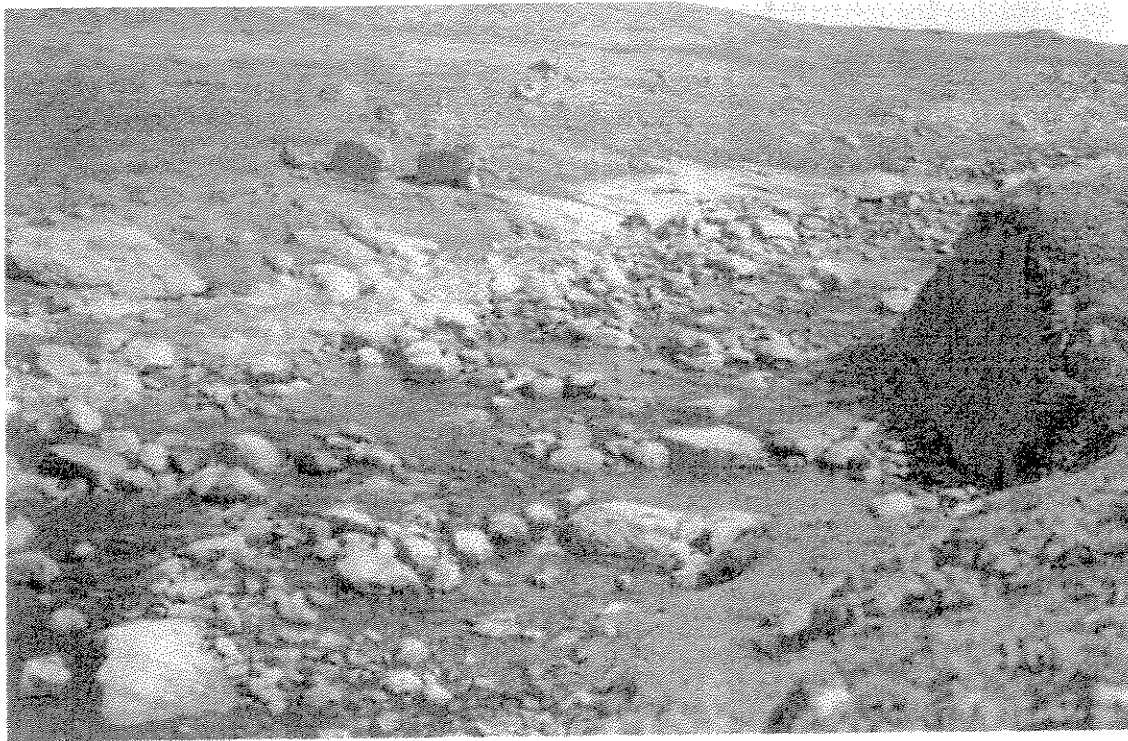


Photo 3: Inukjuak 1997



Photo 4: Tumiujaq, Nastapoka Islands, 1998



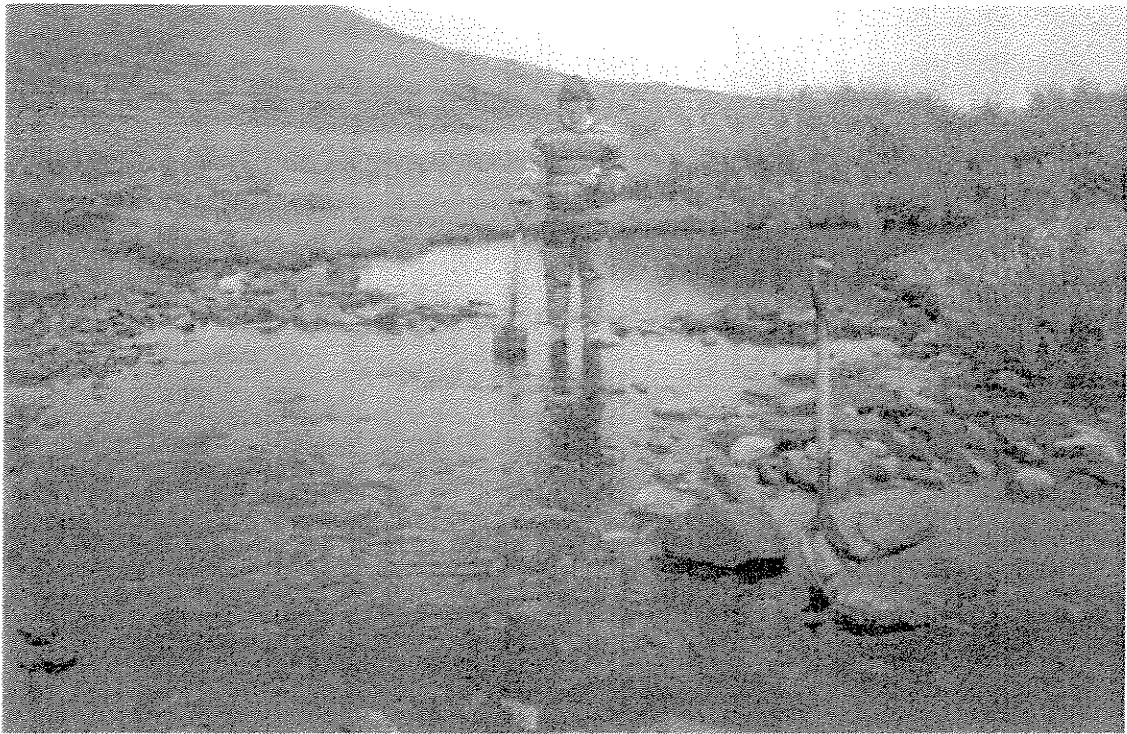


Photo 5: Tumiujaq, Nastapoka Island



Photo 6: Tumiujaq, Nastapoka Island



Photo 7: Tumiujaq, Nastapoka Island

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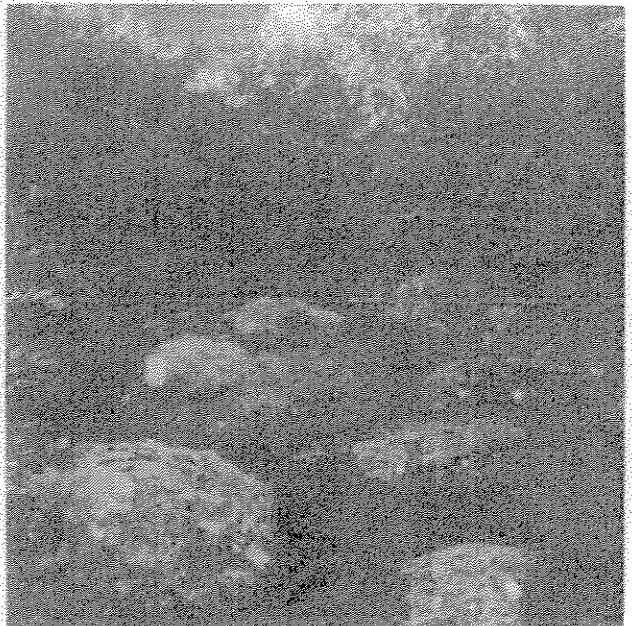
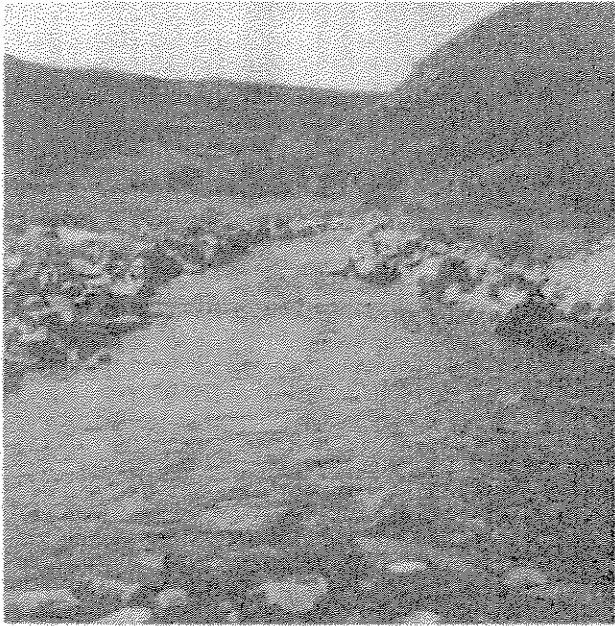


Photo 8&9: Iqaluppsiuvig, Richmond Gulf

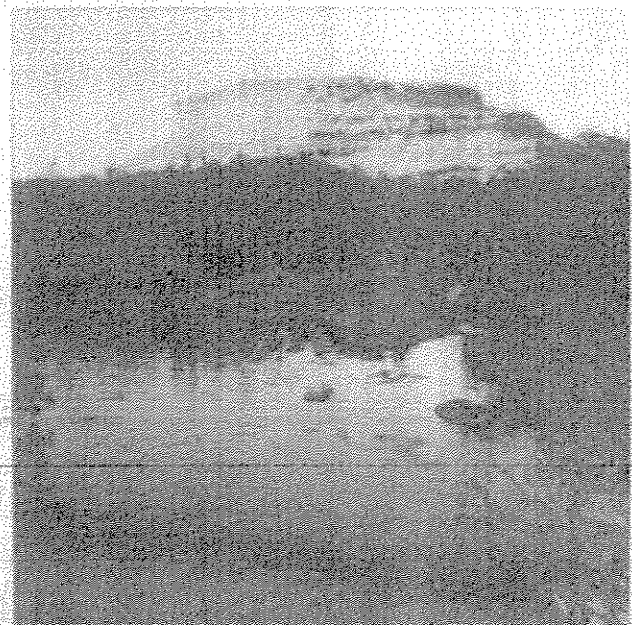


Photo 10&11: Iqaluppsiuvig, Richmond Gulf

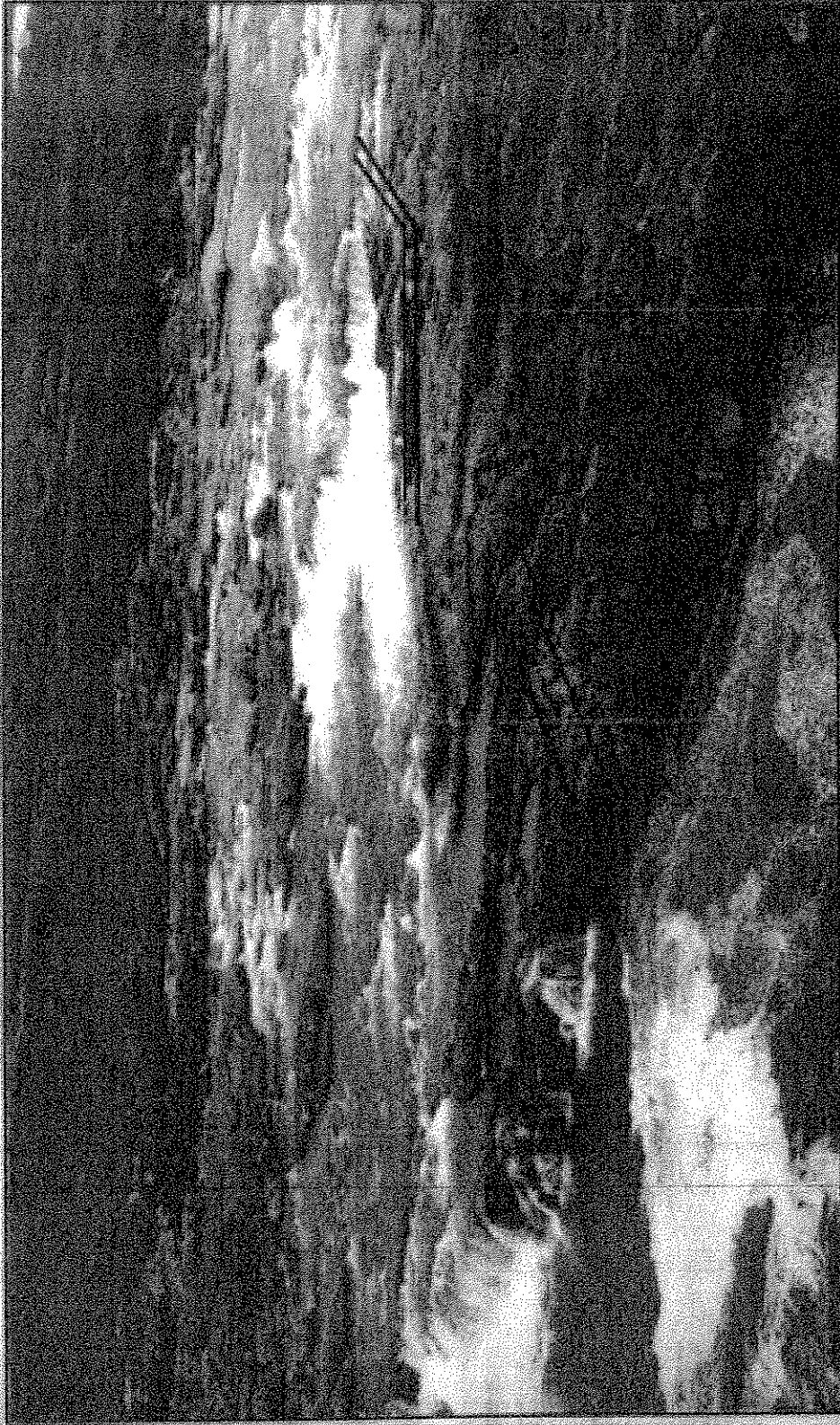
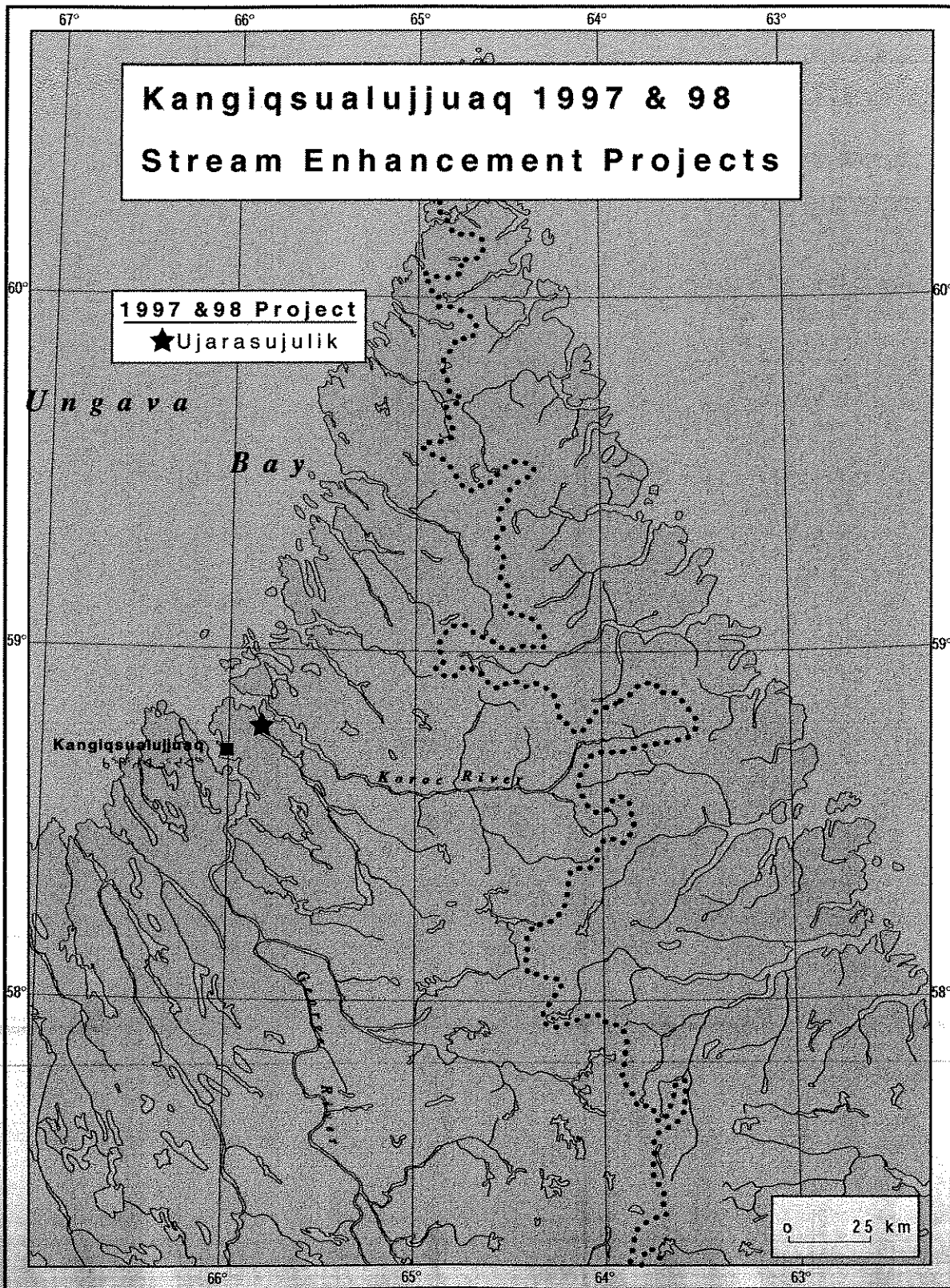
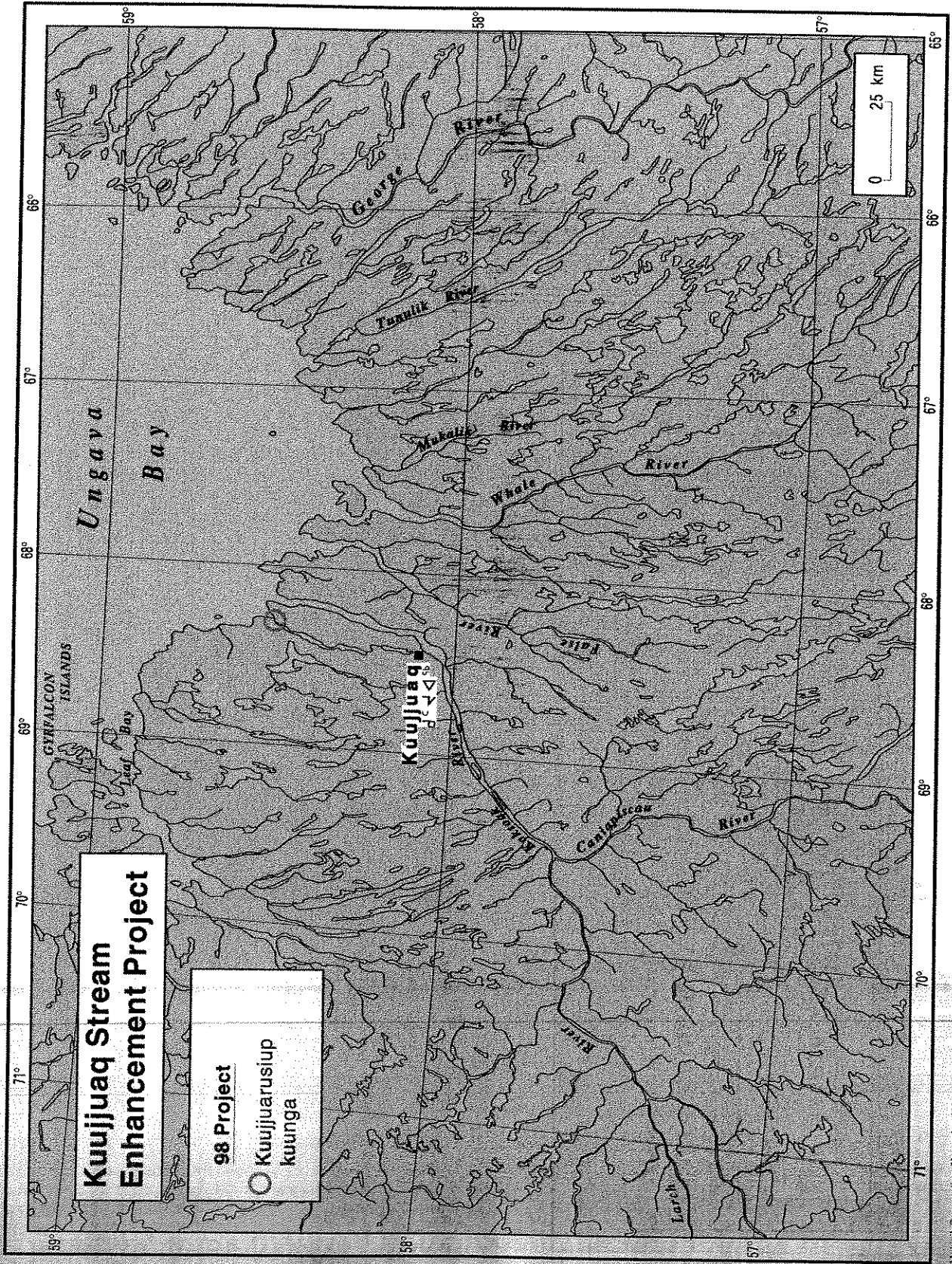
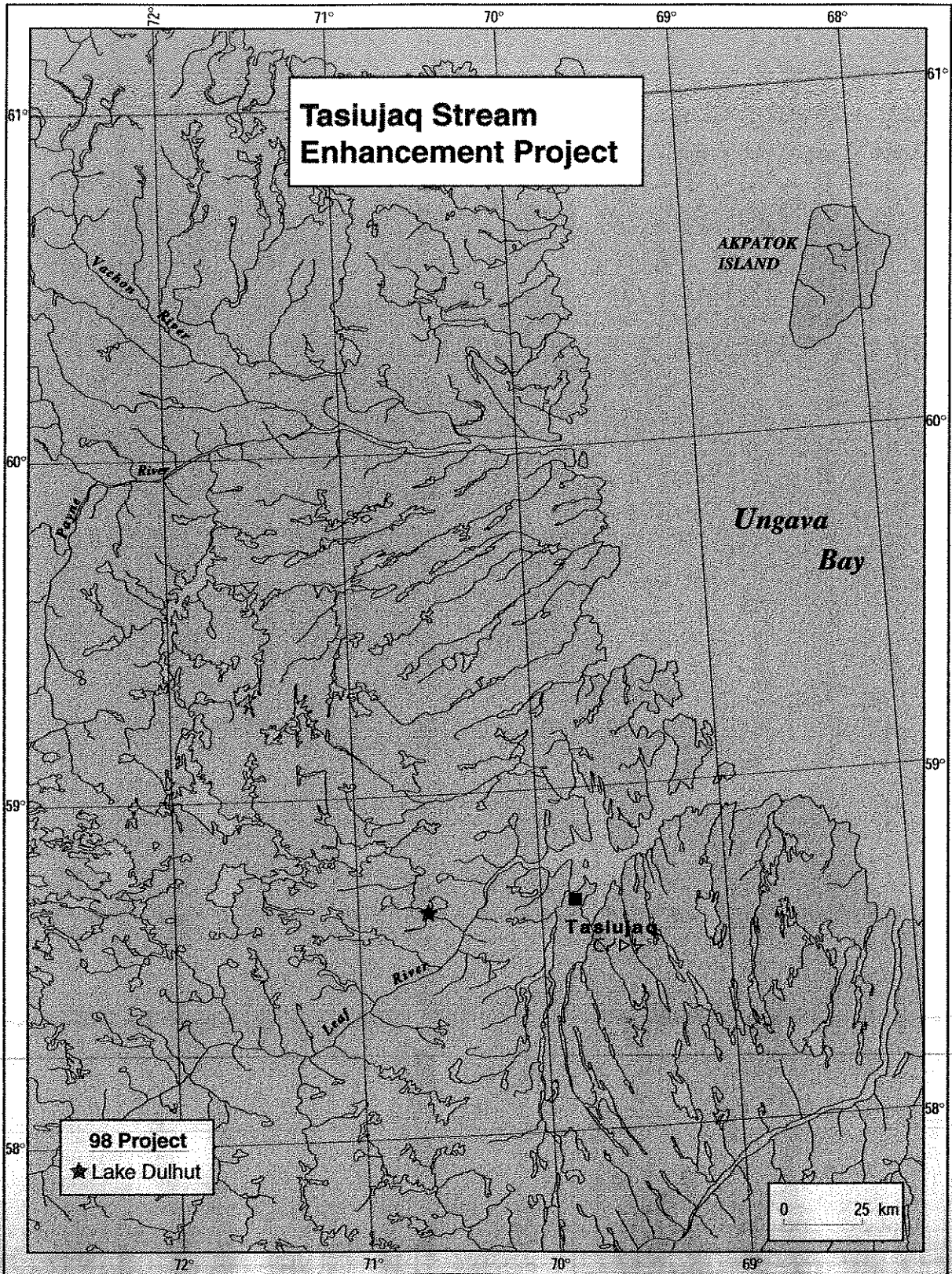


PHOTO 13: Kuujjuarusiup Kuunga

PHOTO 13: Kuujjuarusiup Kuunga



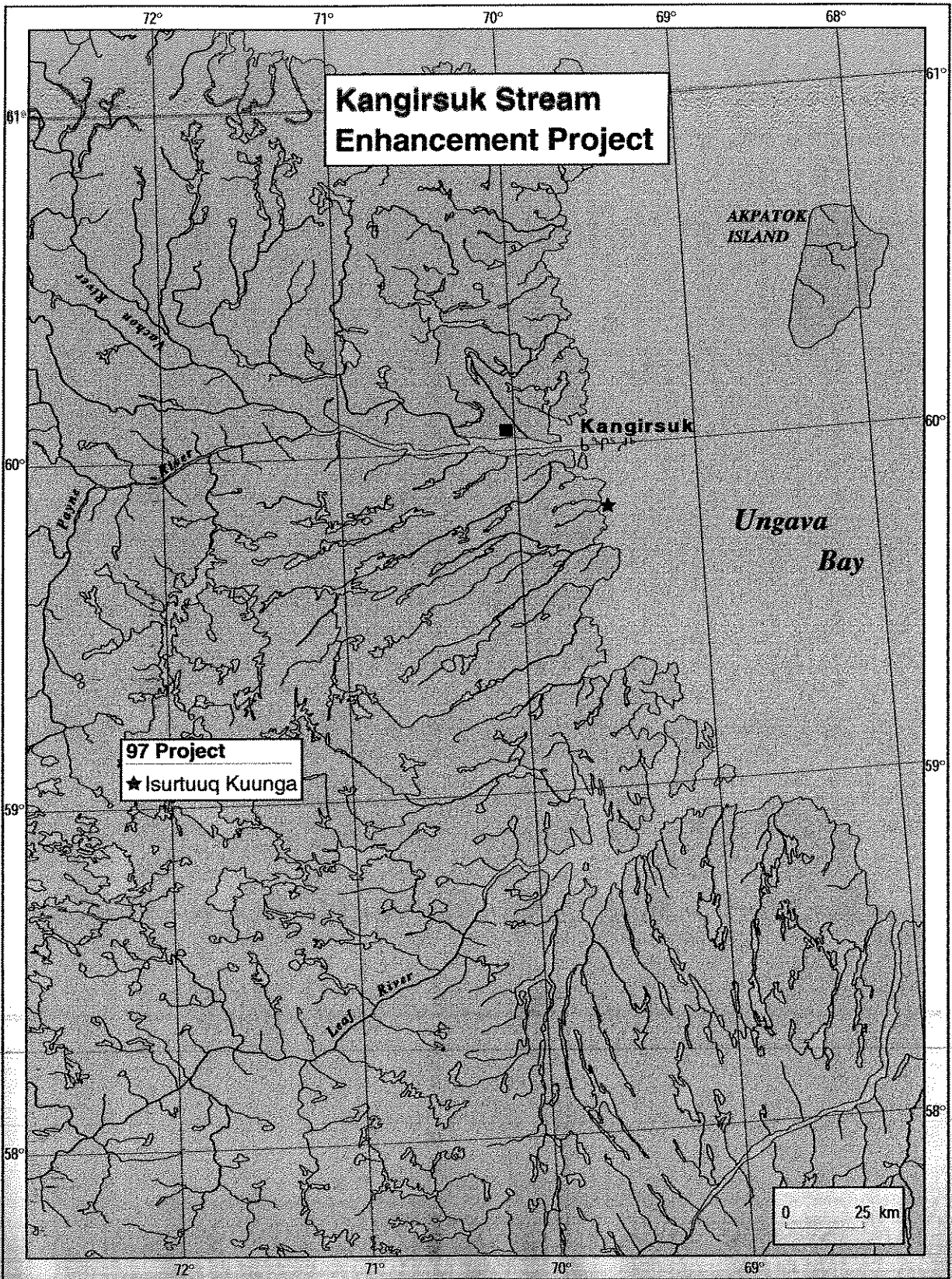




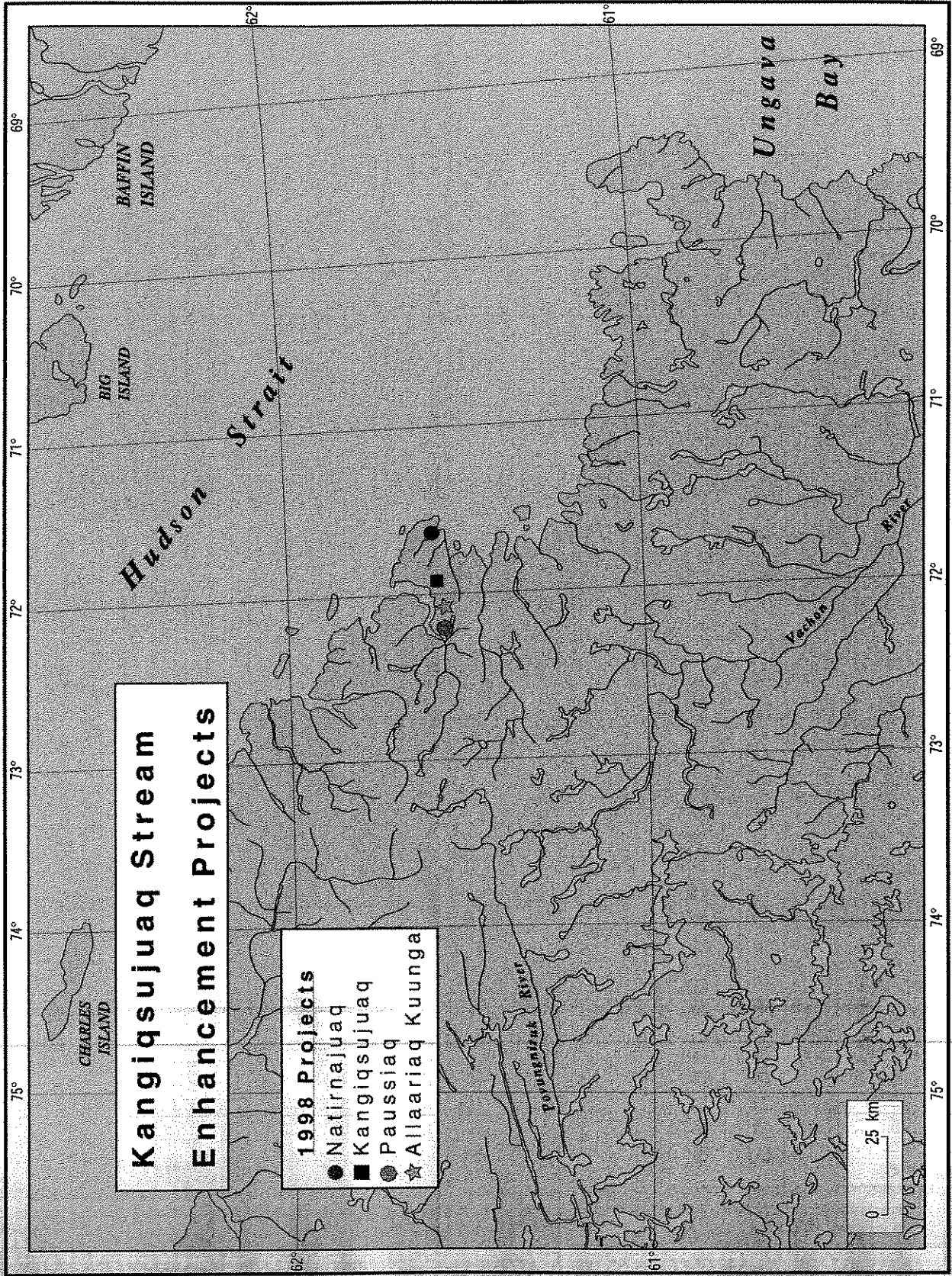
**Tasiujaq Stream  
Enhancement Project**

**98 Project**  
★ Lake Dulhut

0 25 km



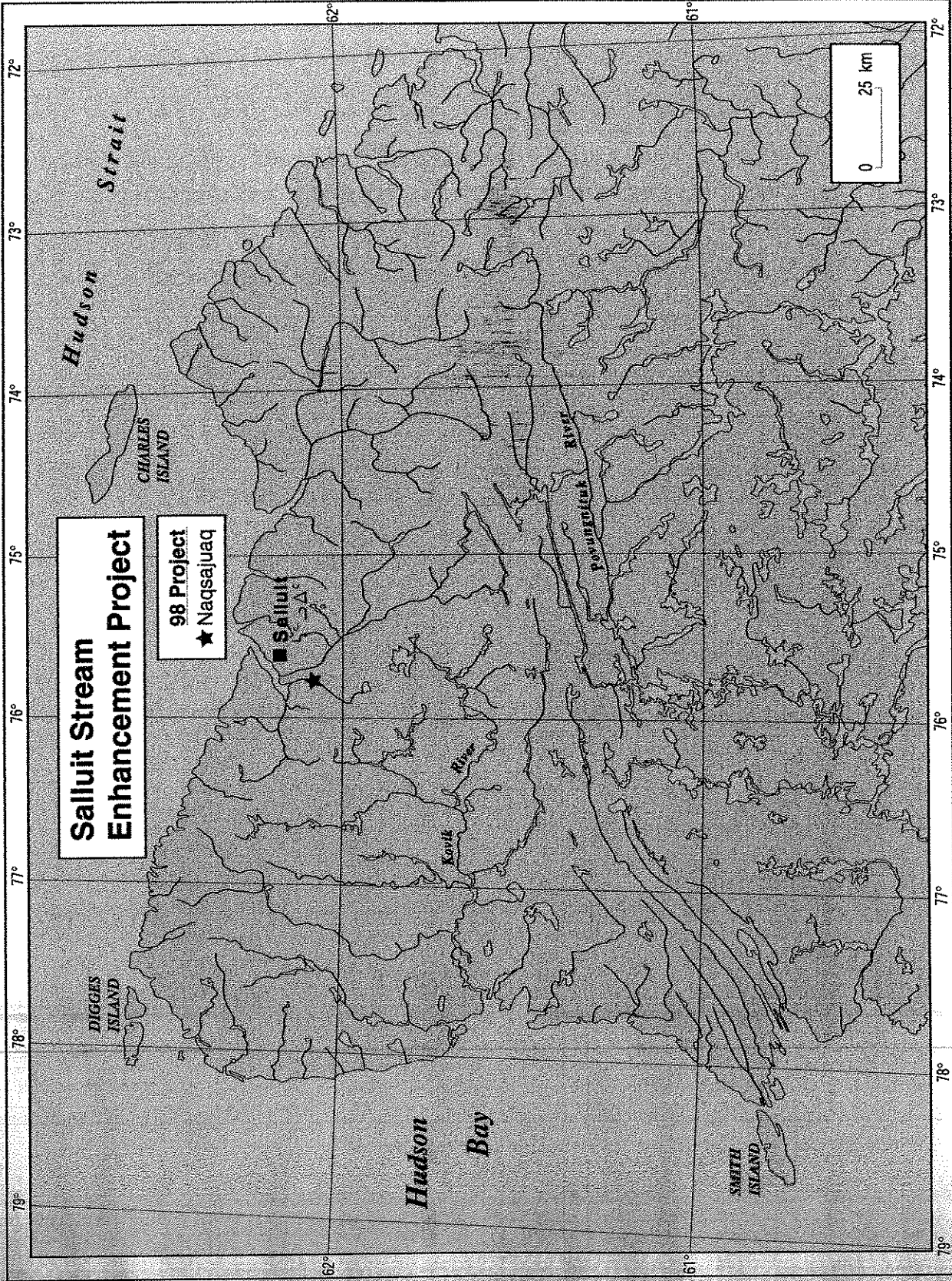


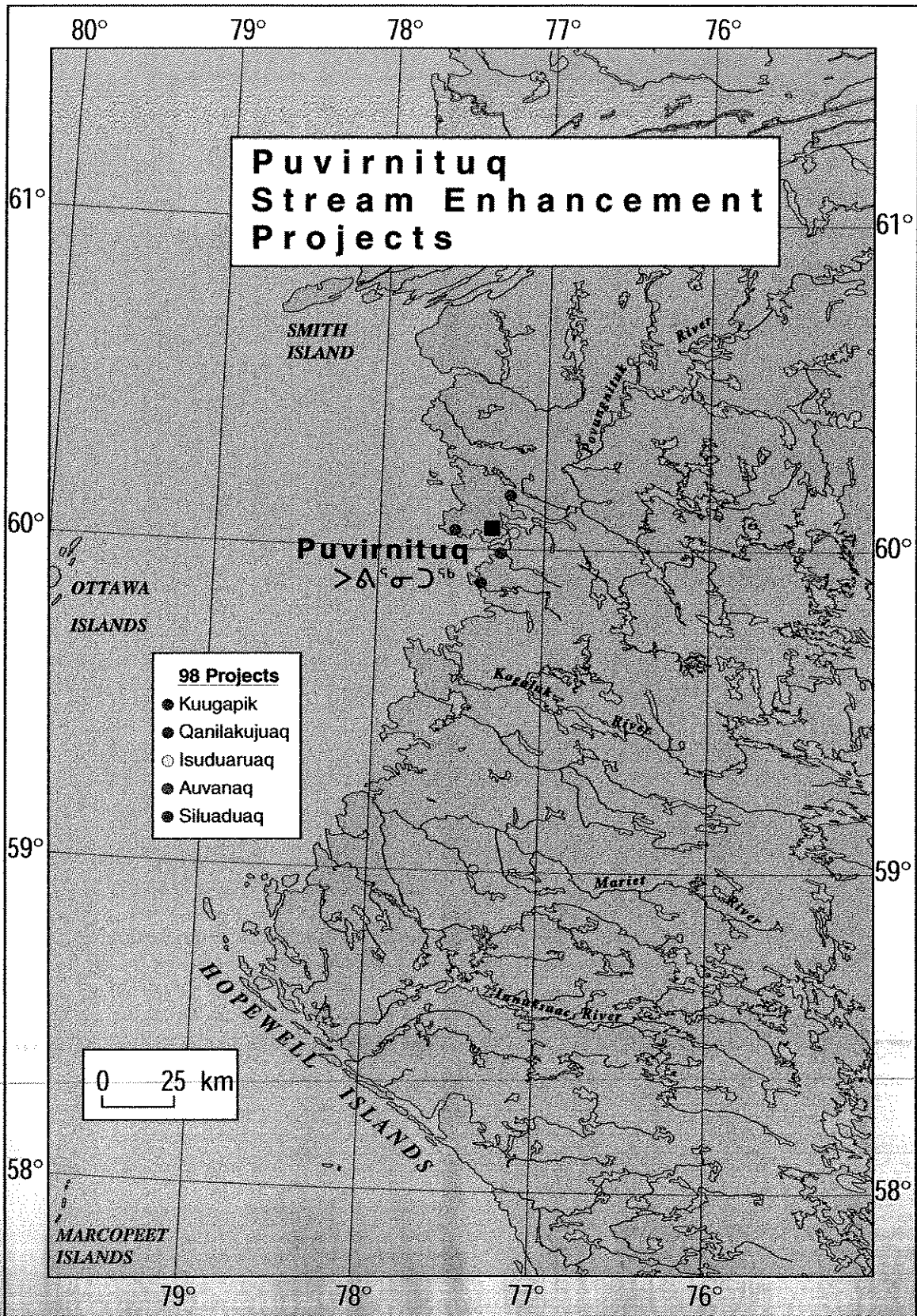


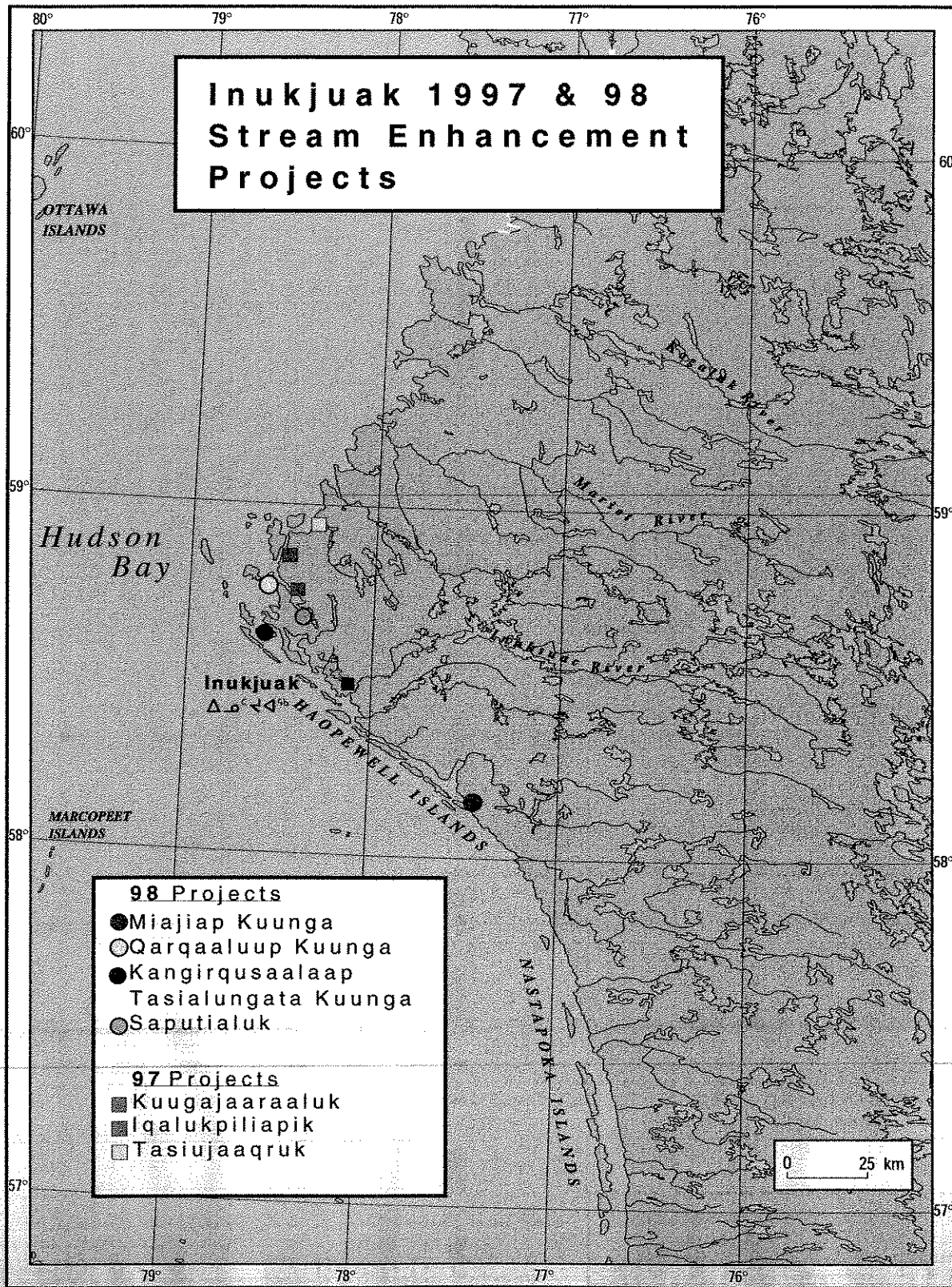
# Kangiqsujuaq Stream Enhancement Projects

- 1998 Projects**
- Natirnajuaq
  - Kangiqsujuaq
  - Paussiaq
  - ★ Allaariaq Kuunga



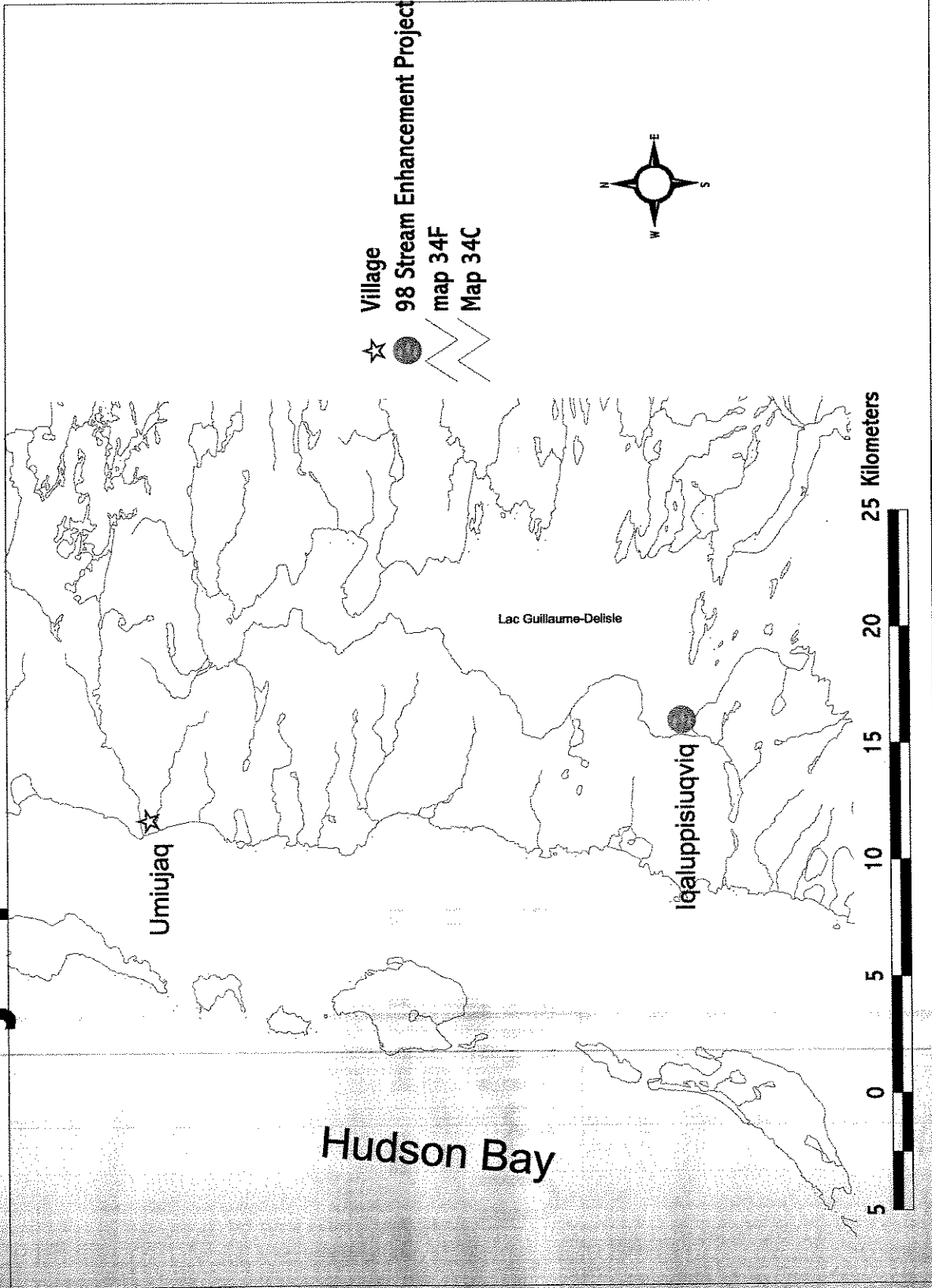






# Umiujaq

Stream Enhancement Project (map 1)



# Umiujaq

## Stream enhancement project (map 2)

