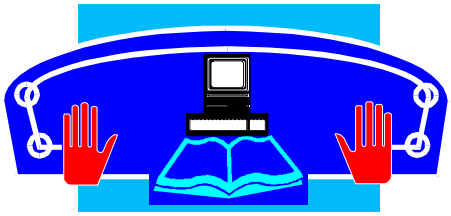

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Report To The Department Of Economic Development On Business Plans For Two Arctic Char Freezing/packing Plants And A
Type of Study: Planning / Strategy
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Report to the Dept of Economic Development & Tourism on Business Plans For Two ARCTIC CHAR FREEZING/PACKING PLANTS AND A FREEZER BOAT: DRAFT

GOLDENGERG

JERROLD S. GOLDENBERG & ASSOCIATES
MANAGEMENT CONSULTANTS LTD.

JERROLD S. GOLDENBERG B. Sc., B. Comm (Hen), CA.

900 SOMMERSET PLACE
294 PORTAGE AVENUE
WINNIPEG, IIAN. R3C 0B9
TELEPHONE (204) 9424330
FAX (204) 942-4339

REPORT TO THE DEPARTMENT OF ECONOMIC DEVELOPMENT ON BUSINESS PLANS FOR TWO ARTIC CHAR FREEZING/PACKING PLANTS AND A FREEZER BOAT

March 31, 1991

Consultants:

Jerrold S. Goldenberg, Bsc., B. Comm Hon.,C.A.
Wayne Dilk, P. Eng.

1.0 Executive Summary

: The Government of the NWT, Department of Economic Development and Tourism (ED&T) engaged the firm of Jerrold S. Goldenberg & Associates, Management Consultants to prepare businesses plans for two fish freezing plants to be located at Whale Cove and Rankin Inlet. The capital plan for each plant was to be based on an evaluation or' the current f acil ity in Arviat.

: Marketing

There are three ways in which arctic char from the NWT 1s marketed.

: Export markets through the Freshwater Fish Marketing Corporation (FFMC).
: Wholesale and retail sales within the NWT
: Smoked canned arctic char test marketed by the Department of Economic Development.

Although FFMC prices have been declining as a result of a soft market, we conclude that the FFMC 1s st111 the preferable vehicle for market ing most of the production because:

: The limited response that we have received to our survey indicates that the price paid by NWT buyers Is not better than the FFMC price.
: The survey respondents state that they want delivery throughout the year. This necessitates storage facilities that are not available. The FFMC takes immediate delivery of all product produced,
: The production of value added products such as canned smoked arctic char is still in the test stage.

: Available resource

: We evaluate the available resource by means of review of historical catch volumes, current and historical quotas and review of the harvesting plan prepared bytheprlor study of R.T. & Associates.
: Projecting catch for this fishery is extremely difficult. The major reason is the risk Involved In fishing. Risk is effected by factors such as weather, timing of the arctic char migration from Hudson Bay Into the river systems, and other more controllable factors such as mechanical breakdown, and the availability of freighting. Quota's are an indication of the maximum production available. But as the DFO explained to us, for systems that have

nOt been fished regularly, the quota's are at best an educated guess. Historical production is the best indication of probable catch. But even in this case there are very wide variations In production from year to year.

: Capital plan

: We prepare a capital plan for the plants based on our evaluation of the Arviat plant. Our prime concern in reviewing the capital plan was to determine that the plants had adequate capacity to handle maximum dally production as determined by our review of production statistics and historical and proposed quotas. This is the case.

: Capital cost (exclusive of land) 1s Whale Cove-$ 178,300; Rankin Inlet-$158,400.

· Operating plan

: As a result of our rough analysis of fishermen's operating costs we determine that a price to fishermen of $ 1.75/pound is required to maintain long term production. Because of the lower freighting costs the price should be higher at Rankin Inlet than at Whale Cove. However, because the recent Whale Cove and Arviat price has been higher than the Rankin price, we concluded that we could not project lower prices at Whale Cove

· The results of Whale Cove operations for 1989 seem to indicate that there is close to sufficient freighting capacity in the region During that year the Whale Cove area produced approximately 42,000 pounds dressed weight of arctic char. The problem may not be the capacity to freight, but whether freighting capacity will be available at an affordable cost.

· Because of uncertainty as to production, we produce a flexible business plan. Our business plans are developed at production levels of 55,000 pounds dressed weight and 28,000 pounds dressed weight for Whale Cove and 18,000 pounds dressed weight for Rankin Inlet.

· Cold storage capacity becomes the major constraint In determining the alternatives for freighting to Winnipeg. The limitation of the freezer Storage capacity is such that the frozen product should be shipped out at least twice weekly. The least cost alternative at present is to transport product from Whale Cove and Chesterfield Inlet to Rankin Inlet via Calm Air and from Rankin to Winnipeg via NWT Air.

: The option for products that may be produced Include fresh dressed, frozen dressed, steaked, f illeted, smoked and canned, smoked and vacuum packed. For reasons explained our business plan consists of producing 10,000 pounds

of fresh dressed from each plant and the balance frozen dressed.

This fishery has more risk than any other with which we have been associated. we compensate for risk by adding 10 percent to tne discount factor In our capital budgeting analysis.

Net present value represents a method of quantifying an Investment decision. A positive net present value represents a positive investment decision, whereas a negative net present value represents a negative decision. The net present values for the investment alternatives areas listed:

Whale Cove Plant, 28,000 pounds production	($ 216,000)
Whale Cove Plant, 55,000 pounds production	($ 106,000)
Rankin Inlet Plant, 18,000 pounds production	($ 193,000)

For the whale Cove Plant, we project losses under all financing alternatives under the scenario of normal production (28,000 pounds dressed weight). The operation is profitable at top production (55,000 pounds dressed weight) earning net income before long term Interest and depreciation of $24,000. In addition, the manager/owner earns a salary of $7,000.

For the Rankin Inlet plant, at a production volume of 18,000 pounds dressed weight, we project an approximate break even before long term interest and depreciation. In addition, the manager/owner earns a salary of $ 7,000,

: Soclo-economic analysis

: We have prepared net present value capital budgeting "soclo-economic" analysis for the plants at the levels of production considered. To the cash flows from the operations, we have added the total of wages and salaries paid by the operation. We are aware that there is other spin off benefits to the region, but leave this analysis to ED&T. The net present values for the investment alternatives are as listed:

Whale Cove Plant, 28,000 pounds production	0147,0001
Whale Cove Plant, 55,000 pounds production	($ 20,000)
Rankin Inlet Plant, 18,000 pounds production	($ 178,0001

· Conclusion

: As a result of the analysis performed In this study, we conclude that under the conditions of normal historical volumes , the operations of the proposed plants at Rankin Inlet and Whale Cove would not be economically viable without government support towards the capital cost of construction and/or operating costs.

: Management plan

: Each plant will have a manager or manager/owner if the plant is privately owned. The number of other employees that would be hired would depend upon the level of production. At the maximum level of production for the Whale Cove Plant we are projecting the following employees:

1-receiver/weigh man

: 2-processing (washing, spooning, fresh packing)

1-freezer and cold storage

: 1-packaging , shipping and sundry

: Chesterfield Inlet and Freezer Vessel

: The Chesterfield Inlet Fishery has not been producing to expectations. It has been suggested that the low production results from the logistics of the fishery Specifically, many of the river systems that have significant arctic char quotas are too distant from the community. The suggestion has been made that if a freezer boat were added to the Infrastructure the distant quotas could be taken.

: Hi-Tech Fabrication has quoted a price of $ 400,000 for an upgraded version of the freezer vessel currently at Coral Harbour.

The best use of the freezer boat would be to fish the quotas at Robin Hood Bay, Step Bank Bay, and the Stony Point Area. The freezer boat would anchor at a centrally located area and the four fishing families would fish the various systems. Under this condition the head of the local fishermen's association estimates that they could take 2,000 pounds per day dressed weight. We estimate that the vessel has sufficient holding capacity to freeze 3 to 4 days production before travelling to Chesterfield to deliver the production to the airport. Fishing would be coordinated so the boat would make one trip to Chesterfield weekly to meet a Calm Air flight that would interline with the NWT Air flight at Rankin Inlet.

Assuming that the vessel had a useful life of 20 years and was financed at 12 percent, the interest and depredation In the first year would amount to $ 68,000. Assume also that the vessel resulted in taking an additional 30,000 pounds of arctic char as discussed above. After subtracting the Interest and depreciation, there would only be $ 30,000 to cover all operating costs and payments to fishermen. If volumes were less than 30,000 pounds (which Is likely) substantial losses would be Incurred. Detailed analysis will be Included in the final report.

Marine exploratory fishery

- DFO personnel do not have much confidence that sufficient stocks exist to justify a Commercial fishery. As well exploratory fisheries in the strait and northern Hudson Bay have produced negative results.
- Our research to date indicates that the freezer boat could be used for the exploratory fishery, but is not really designed for it and will require extensive modifications. Preliminary estimates indicate that the costs of conversion may exceed $ 100,000.

2.0 RT & Associates-Keewatin Region Commercial Fishing Industry Business and Operation Plan

In September 1989 RT & Associates issued a report that presented a business plan for the Keewatin Fishery, The report recommended a fishery that would Include the following:

: A freezing plant located at Rankin Inlet.

: Fresh fish packing and holding stations at Arviat and Whale Cove.

: Use of the Chesterfield Inlet freezing plant as a holding station.

A Cessna 207 on lease to fly fish from the communities to Rankin Inlet.

: Two existing freezer boats, the Natsiak and the Arctic Tern.

: 13 fishing yawls of the type used on Lake Winnipeg for fishing more remote areas.

The plan called for fresh packing at the stations, shipping 20,000 to 30,000 pounds fresh to the FFMC, and freezing the balance of the production in an approximate 50/50 ratlo between the freezer boats and the Rankin plant. Al 1 of the production was to be sold to the FFMC because the FFMC Is capable of selling the entire Keewatin production and paid the highest price.

We are not aware If the recommendations of this study have been rejected. However, the construction of a freezer plant at Arviat, and the issuance of this study to prepare business plans for freezer plants at Whale Cove and Rankin Inlet Is In conflict with the key RT recommendation.

3.0 Marketing

There are three ways in which arctic char from the NWT is marketed,

- Export markets through the Freshwater Fish Marketing Corporation (FFMC).
- Wholesale and retail sales within the NWT.
- Smoked canned arctic char test marketed by the Department of Economic Development.

3.1 Results of prior studies:

RT & Associates- September 1989

The RT Associates study examined the alternative markets for fresh and frozen and come to the conclusion that 100% of the arctic char produced in the Keewatin Region should be marketed through the FFMC. They reached this conclusion for the following reasons,

- The net price after freighting costs for sales to the FFMC is between 50% and 100% greater than from sales to communities within the NWT.
- The FFMC has the potential to market the entire possible catch from the Keewatin region,
- The FFMC offers guaranteed sales and volume purchases.
- Regional storage costs are kept to a minimum since the FFMC takes

delivery of the entire production over the fishing season,

: The FFMC provides promotion, marketing assistance and management advice,

The study determined that there was a market in Yellowknife for 8,500 pounds per year and markets in the Keewatin for 72,000 pounds of char per year. The net price from Yellowknife sales amounted to$3,08versus$ 1.33 to $1.83 for sales within the Keewatin region. This compared to a net price of $3,87 for sales to the FFMC.

Thorne Stevenson & Kellogg- 1984

We will not dwell on this study because it is old and possibly outdated. The study was very supportive of the FFMC. It also expressed strong concern about the effects of Increasing retail prices too high,

Deloitte & Touche-Draft report - January 1991.

The consulting firm of Deloitte and Touche were engaged by the Department of Economic Development and Tourism to test market smoked and canned arctic char in Vancouver. The product is a smoked chunk with skin on , canned and packaged in one of two attractive boxes, One package displays a Maple Leaf and an arctic char. The other displays two Inuit and the arctic char, Both carry the following caption:

: *Arctic char, a northern cousin of salmon is caught by Inuit fishermen during their upstream runs from Arctic seas. The delicate taste of this rare fish is in demand by gourmet palates. Replaces salmon in any recipe.*

The product was test marketed to a number of gourmet shops at a wholesale price of $5.80 per 200 gram tin.

The consultants report indicates that the reaction to the product was mixed. There appeared to be some price resistance. As well, where an in store test was conducted the perception of the product was "not too great", "tasted like canned tuna" and "hada strongt asted and odour".

The consultants concluded that " **the future for arctic char Is promising but some** product **form and marketing changes** are **needed",** '

3.2 FFMC

To reiterate the conclusion of the prior studies is that the FFMC is the preferred vehicle for marketing arctic char, The FFMC purchases the arctic char from the Keewatin plants in either the fresh dressed or frozen dressed forms. The FFMC considers the arctic char as one of its specie pools. As such the FFMC pays the NWT plants a net price which equates to the wholesale selling price received by the FFMC less Its direct selling costs and allocation of indirect costs based on formulae. In a subsequent chapter we present a schedule that

shows that over the past three years, the FFMC has paid the producer approximately 90% of the wholesale price that it receives for the final product. The 10% charged to the pool covers the costs of Selling, storage, grading, glazing and repackaging, working capital Interest (on accounts receivable) and an allocation of administrative overheads,

On the next page we present two schedules, The first presents the FFMC's wholesale selling price for arctic char for the years 1985- 1990, Over this period the wholesale price averaged approximately $ 4,00/pound dressed weight. The average price had a high of $4,65 in 1988 and a low of $3,15 in 1986. Since 1988 the average price has backed off $0,80 to $3.88 for 1990.

The second schedule shows arctic char sales by country for two years. These two years are representative of most years over the history of arctic char. For the most part arctic char sells in Canada, with most of these "outside of the NWT sales" in Alberta, Manitoba and Ontario, Our best guess as to why arctic char sales have not expanded beyond its traditional markets 1s that it does not have to. The quantity of the arctic char produced is very small and the traditional markets are adequate to absorb the production for most years, Establishing new markets would require promotional costs that would only be warranted if the selling price to these markets was dramatically higher than to the traditional markets, In other sections of this report , we discuss the promotional efforts that the Government of the NWT is now undertaking to expand the markets.

A FFMC manager Informed us that the "export market" for arctic char is currently soft. Some of the factors resulting in the softening of the market are:

: Stiff competition from salmon;

: Competition from farmed arctic char;

: Competition from Labrador arctic char;

There is no indication that the char market will be Improving in the near term.

As noted previously, R.T. & Associates reported on the fact that the price paid by the FFMC is higher than by local NWT buyers. Although the FFMC price has fallen since the R.T. study, the FFMC Is still likely the preferred buyer for the following reasons:

: The I imited response that we have received to our survey Indicates that the price paid by NWT buyers 1s not better than the FFMC price.

: The survey respondents state that they want delivery throughout the year. This necessitates storage f acilities that are not aval lable. The FFMC takes Immediate delivery of all product produced. .

SCHEDULE OF WHOLESALE SALES BY

THE FRESHWATER FISH MARKETING CORPORATION

(nearest 000 lbs dressed weight)

Year	Fresh lbs.	$/lb.	Frozen lbs.	$/lb	Total lbs.	$/lb
1990	22	4.54	145	3.78	167	3.88
1989	18	4.72	123	4,28	141	4.33
1988						4,65
1987						3.70
1986						3.15
1985						4.28

SCHEDULE OF FFMC WHOLESALE

SALES BY COUNTRY

(nearest 000 pounds dressed weight)

Year	Canada	USA	Europe	Total
1990	160	6		166
1989	124	3	11	138

who is making American [illegible] they know U.S. and Europe, is there a market.

3.3 Survey of NWT hotels and restaurants

We surveyed NWT hotels and restaurants with regard to their requirements for arctic char. A questionnaire was mailed to 15 hotels and restaurants in the NWT. A self addressed, stamped envelope was Included with a request that the questionnaire be answered and returned to us, Because of the late date for commencement of this study, the results of the survey will be reported as an addendum to the final report. To the date of writing of this report, the response was disappointing. We are sending second requests and hope to have a better response before issuing the final report.

A copy of our questionnaire is included in the appendix,

3.4 Canned smoked arctic char

As stated previously in an attempt to find markets for a value added product the Department of Economic Development and Tourism is test marketing canned smoked arctic char. The Department initially Contracted with a B.C. cannery to custom can an order of 10,000 tins of smoked arctic char, The product is being marketed In the NWT and in some specialty shops in the south at a wholesale price of $ 5.80 per 200 gram tin. Most of the initial production run has been marketed and we understand that a second order will be prepared,

The product is still in its Infancy and it is too early to determine whether a large portion of the char catch could be marketed In this form, Later in this report, we compare profitability of the smoked canned product to fresh and frozen,

4.0 Evaluation of available resource.

4.1 Historical production

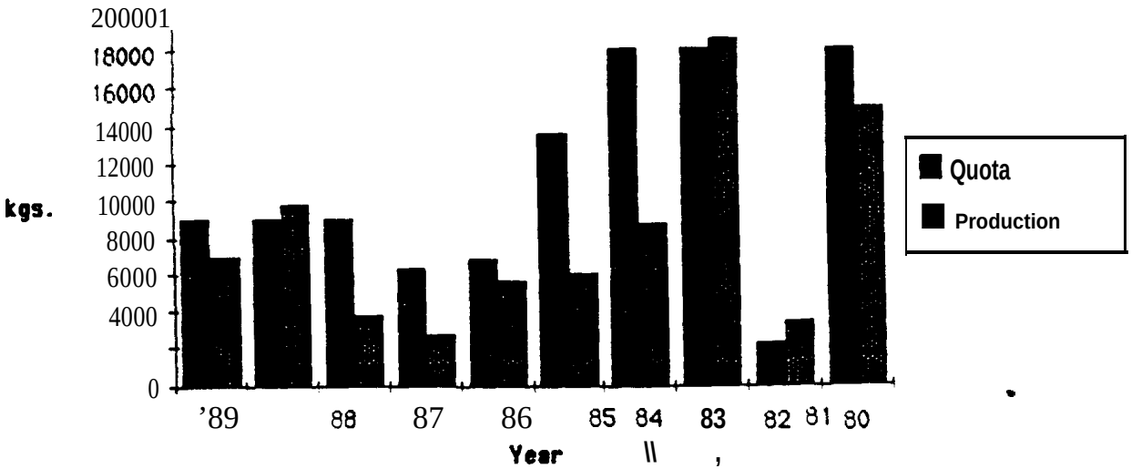
4.1.1 Rankin Inlet Area

In the attached schedule and graph we display commercial quotas and actual production for the Rankin Inlet area arctic char fishery for the years 1980-1989. Over the 10 year period production averaged 6600 kilograms round weight with 1989 production of 6900 kilograms. Open quotas for the period averaged 9300 kilograms with the 1989 quota of 9100 kilograms. Production peaked in 1983 at 18,800 kilograms, but with the closing of the Rankin Inlet Bay area it has been less than half that volume for most years since 1983.

4.1.2 Whale Cove Area

In the attached schedule and graph we display commercial quotas and actual production for the Whale Cove area arctic char fishery for the years 1980-

Rankin Inlet Area
Schedule of Production
1980-1989



Should this not be read

Total Area	
Quota	Production
9100	6928
9100	9854
9100	3786
6300	2829
6800	5703
13600	6097
18200	8798
18200	18777
2268	3475
18144	15012
9266.8	6624.7

1989. Over the 10 year period production averaged 10,900 kilograms round weight, with 1989 production of 21,600 kilograms. Open quotas for the period averaged 25,400 kilograms with the 1989 quota of 25,200 kilograms. The Ferguson River was the major production area, yielding 11,400 kilograms in 1989.

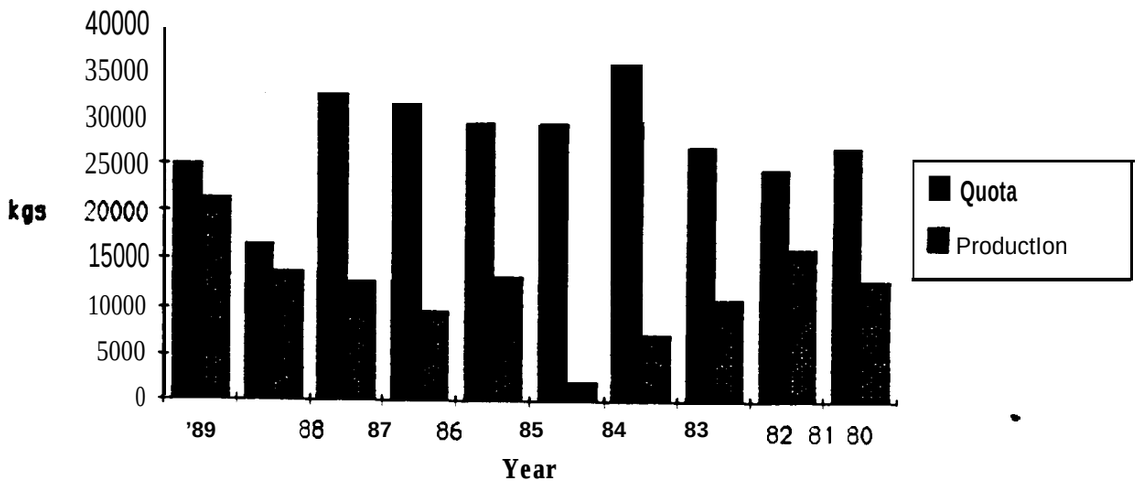
4.1.3 Chesterfield Inlet Area

In the attached schedule and graph we display commercial quotas and actual production for the Chesterfield Inlet area arctic char fishery for the years 1980-1989. Over the 10 year period production averaged 3,000 kilograms round weight, with 1989 production of 5,100 kilograms. open quotas for the period (for systems that were fished) averaged 4,800 kilograms with the 1989 quota of 4,600 kilograms.

4.2 Quotas

Recommended commercial quotas are set each year and are included in schedule v of the Northwest Territories Fishery Regulations for Region v, Keewatin. At a meeting with Department of Fisheries and Ocean employees it was explained that the quotas listed in schedule v are the Departments best guess at the ability of an area to sustain a fishery, Where an area is commercially fished on a regular basis the Department has relatively good information to use in adjusting quotas, However, where there has been little

Whale Cove Area
Schedule of Production
1980-1989



orno fishing can only make a guess based on the best information it can obtain. Because an untested area has a commercial quota does not mean that quota amounts would be taken if the area was commercially fished.

In the following schedule, we present proposed quotas for 1991, The totals are; Rankin area- 15,900kg.; Whale Cove area- 37,300kg.; Chesterfield Inlet area-37,300 kg.

4.3 Estimate of maximum potential production

One estimate of maximum potential production would be the quotas listed above. However this must be taken in context of the statement made above. As well Certain areas that have been productive in the past, and possibly could be productive in the future are closed to allow stocks to recover from heavy fishing.

The terms of reference state that the fish plant will be identical to the Arviat plant. When reviewing the adequacy of the plants we assume that the plants require sufficient dally capacity to handle the maximum production based on the quotas 1 isted above, We set maximum dally freezing capacity at 1200 kgs.

RANKIN INLET AREA
Schedule of Recommended Commercial Quotas
1991
KGS-Round Weight

Baker Foreland Area	4600
Corbet Inlet	4500
Unnamed River	6800
	15900

WHALE COVE AREA
schedule of Recommended Commercial Quotas
1991
KGS-Round Weight

Copperneedle River	*	4500
Ferguson River	*	13600
Mistake Bay		2300
Pistol Bay		2300
Wallace River		2300
Willson Bay		10000
Unamed River		2300
		37300

*shared with Arviat

CHESTERFIELD INLET AREA
Schedule of Recommended Commercial Quotas
1991
KGS-Round Weight

Big River Barbour Bay	900
Chesterfield Inlet Fish Bay	4600
Hanway River	2300
Merle Harbour	2300
Ranger Seal Bay	9100
Robin Hood Bay	6800
Step Bank Bay	4500
Stony Point Area	6800
	37300

4.4 Marine fishery

The information in this section was derived as follows:

- Personal Interviews with 5 employees of the DFO.
- Interview with an employee of the Department of Economic Development.
- Review of 1 literature provided by the DFO.
- Interview with T. Echerk, a commercial fishermen who has fished the area for many years,

The ED&T has a staff member working on this project. By way of telephone interview he Informed the consultants that he believes there 1s an abundant population of marine life that can be commercially fished, He states that there 1s brown shrimp In shallow water near the coast, scallop off of Churchill, and crabs about 100 miles out. He also stated that the freezer boat to be considered in this study is not suitable for an exploratory fishery, Rather, he suggests that a trawler should be leased on a 3 year contract

The employees of the DFO do not believe that there are adequate populations of commercial specie to support a commercial marine fishery, They have provided literature to support this point of view. One quote from K.H. Loftus of the Ontario Government states that there have been several exploratory expeditions with negative results, He also states that Hudson Bay is too cold in the winter for ordinary fish.

Wehaverevlewed reports of seven exploratory fisheries in Hudson Strait. However, we have information on only one exploratory fishery in Hudson Bay, In August 1989 the Kinguk survey was undertaken, A traw ler conducted an exploratory fishery in Hudson Strait and northern Hudson Bay as indicated on the map on the subsequent page. The studies conclusion were as f ol lows:

> *Although these tows were spread out over a large area, no commercial potential was exhibited for any marine resources Total catches were very low usually averaging around 25 kg per tow.*

We discussed the marine fishery with Tony Echerk.Mr. Echerk is a commercial f isherman who has fished the area for many years. As we] 1 he has freighted throughout the area using a long 1 iner. Mr. Echerk has a contract with Economic Development to test fish for marine specie this year. However, he cannot confirm the existence of the marine specie in sufficient quantities to support a commercial fishery,

In summary, there has been interest in fishing Hudson Bay for many years. To date exploratory fisheries have not proven that the stocks exist to support a commercial fishery. However we have no knowledge of an exploratory fishery that has fished the shallow waters off the Keewatin coast.

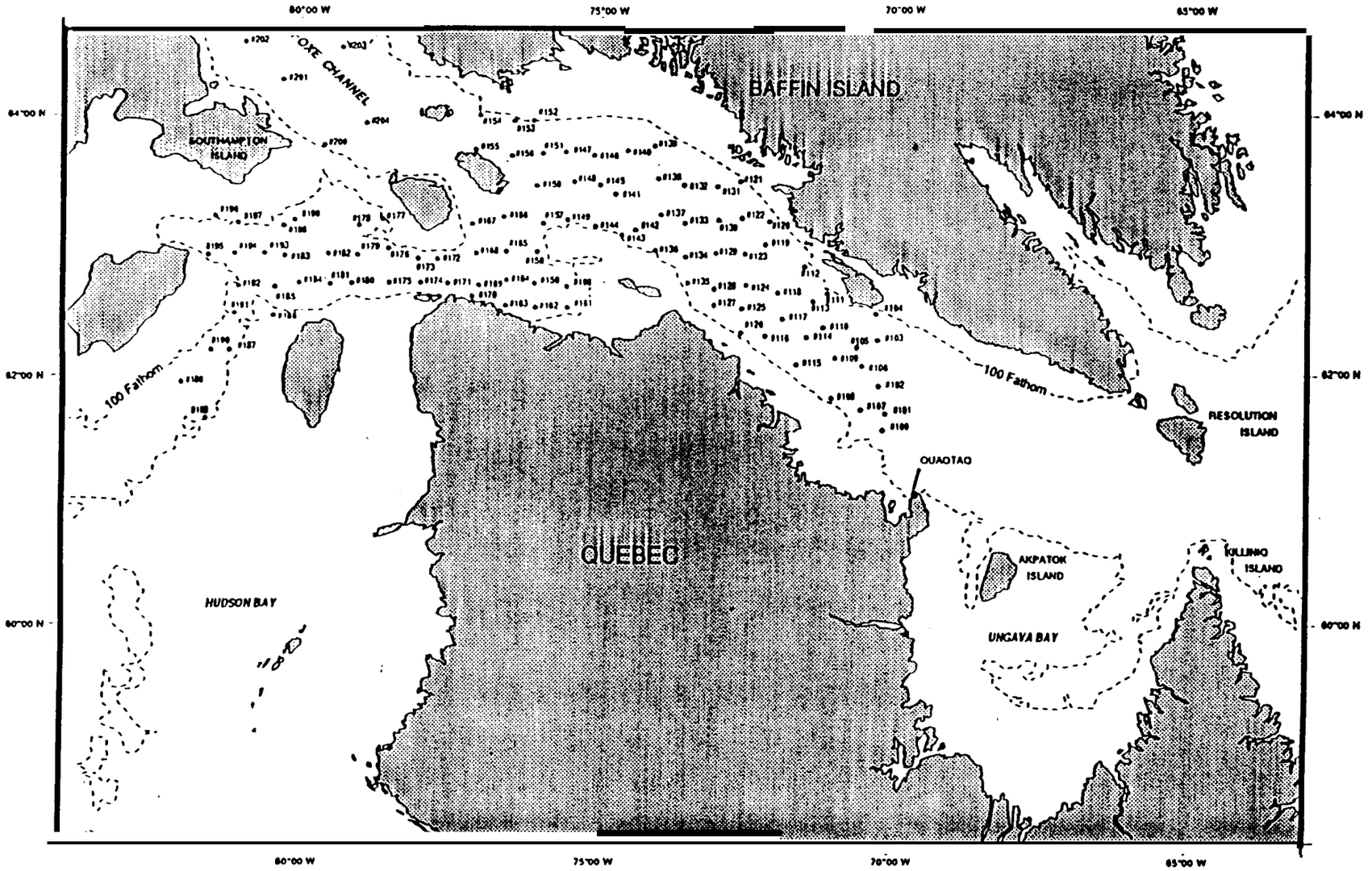


FIGURE 2. STATION MAP, "KINGUK SURVEY", AUGUST, 1989.

In the appendix we attach a research report summarizing the results of various exploratory fisheries.

5.0 Capital Plan

The terms of reference call for "a capital plan for plant and equipment based on an evaluation of the current facility in Arviat". Wayne Dilk, our engineering associate prepared a capital plan based upon an evaluation of the current facility at Arviat with Sam Ransom, Economic Development and Tourism, Yellowknife, Gordon Wheelan, ATCO, Edmonton, and Pat Hinsky, Fisheries and Oceans, Hay River. Mr. Dilk's report is included in the appendix,

Before proceeding with this section there are a number of factors that came to attention that should be mentioned. These include:

Mr. Ransom has informed us that he is working with ATCO on modifying the design of the plants intended for Whale Cove and Rankin Inlet. His intent is that these plants will not be identical to the one at Arviat.

Mr. Ransom Informed us that the plants are intended as multi-purpose processing and freezing plants. In the off season the intent is to use

the plants for processing country foods other than arctic char, As well the plants may be used for smoking and canning arctic char, The Rankin Inlet plant is intended for research and development. In particular it will be used for the development of the marine fishery This plant may consist of modules, each having a different function.

: Mr. Bobinsky Informed us that he has neither seen nor inspected the Arviat plant However, he is aware of the design and is not aware of anything in the design that would result in the plant not being approved by Federal Fisheries

: ATCO would not provide us with complete specifications for the Arviat plant.

The consultants' position is that we have to follow the terms of reference for the study. This was confirmed to us by ED& T. However, as a result of our Interviews with Mr. Ransom and our review of historical production, we reduced the size and capital cost of the Rankin Inlet Plant.

Our prime concern in reviewing the capital plan was to determine that the plants had adequate capacity to handle maximum dally production as determined by our review of production statistics and historical and proposed quotas. In the schedule on the subsequent page we present our review of product on statistics and quotas, The reader will note from the

Whale Cove anti Rankin Inlet
Analysis of Historical Production

whale Cove:		kgs rnd	kgs dsd.
Average annual production 1980-1989		10863	9451
			0
Maximum annual production 1980-1989	1989	21601	18793
			0
Quota -1991		29600	25752
			0
Average quota 1980-1989		25435	22128
			0
Assume 25* production:			0
			0
maximum daily input - 29600/25		1184	1030
assume 5000 kg shipped fresh:			
dally shipped fresh-5000/25		230	200
Balance for freezing		954	830

Should be capable of freezing total daily production. Therefore, maximum daily input of 1030 kgs for freezing.

Rankin Inlet		kgs rnd	kgs dsd.
Average annual production 1980-1989		6625	5764
			0
Maximum annual production 1980-1989	1982	18800	16356
			0
Quota -1991		9100	7917
			0
Average quota 1980-1989		9300	8091
			0
Assume 25 days production:			0
			0
maximum dally input - 9300/25		**372**	**324**
assume 5000 kg shipped fresh:			
dally shipped fresh- 10000/25		460	400
Balance for freezing		-88	-76

engineering report that the plants have adequate capacity to handle maximum daily volumes as represented by quotas forthe areas(the quotas exceed historical production).

In summary the plants are capable of handling potential volumes for the areas. Capital cost (exclusive of land) for the assembled plants are:

Whale Cove — $178,300

Rankin Inlet $158,400

The Rankin Inlet plant does not include modules that are Intended for purposes other than the processing of arctic char.

6.0 Operational Plan

We have examined the logistics of the operations by means of interviews and discussion, review of operating history, and review of prior consulting reports. As well our experience with the commercial fishery in general and the Keewatin Fishery in specific has been valuable in preparing an operational plan,

6.1 Harvesting logistics

R.T. & Associates and their sub-contractor, Symbion Consultants studied the harvesting sector problems and presented recommendations for increasing the volume of the harvest, For the purpose of this study, we accept their analysts. The fact that three (3) processing plants are being proposed, versus the one (1) plant and two receiving station proposed by R. T. doesnot alter the analysis of the harvest and harvesting opportunities, We have reviewed the consultants analysis with regard to the harvest and accept their recommendations, We note that a key recommendation, that of adding a fleet of Lake Winnipeg Yawls for freighting from more distant river systems is partially in place. However, the two fishermen we interviewed did complain that the price charged for freighting by the yawl owner's is excessive.

We also reviewed the logistics of the harvest in the Whale Cove and Rankin Inlet areas with T. Echerk, a long time fishermen in the region between Rankin Inlet and Arviat. In the schedule on the subsequent page, we present Some of the key Information with regard to the harvest of-systems delivering to Whale Cove and Rankin Inlet.

6.2 Price paid to fishermen

The fishermen are paid a different price depending upon where they deliver their catch. We were informed that for 1990 the fishermen delivering to Arviat and Whale Cove were paid $1.70 / pound dressed weight, whereas the

# of Fishermen	Method of Freighting	Comments
1	Lk Wpg Yawl	shared with Arviat
3	float plane (Beaver) to arviat @ $.10/lb. Lk Wpg Yawl to Whale Cove	shared with Arviat
none	regular canoe	too shallow
none	regular canoe	poor fishing
none		too far
8	canoe	btwn Ferguson & Cooperneedle

# of Fishermen	Method of Freighting	Comments
12	Lk Wpg Yawl	
	Freighting canoes Lk Wpg Yawl	yet to be fished

fishermen delivering to Chesterfield Inlet and Rankin Inlet were paid $1.25/pound dressed weight. We would have expected the price to be higher at Rankin Inlet because of the lower transportation costs.

What is a fair price to the fishermen? This is difficult to answer because there are different types of fishing operations. The fishermen pay for their gear and equipment and are responsible for either delivering the catch to the buyer's plant or paying for the freighting to the buyer's plant. According to Mr. Echerk, the typical small fishermen fishes with the following equipment and gear:

: 22 ft canoe
: 35 h.p.-50 hp. motor
: 10 5 1/2 inch mess nets
: 5-10 tubs
sundry other

The larger fishermen such as Mr. Echerk will fish with several canoes, up to 18 nets, possibly a Lake Winnipeg Yawl equipped with 120 h.p. outboard engine(s). For 1990 because a beaver aircraft was working in the Arviat area, Mr. Echerk was able to fly his fish to Arviat at a cost of $.10/pound. Fishermen who had to freight from the Ferguson River to Whale Cove via a privately owned Lake Winnipeg Yawl paid up to $,40/pound for freighting. The typical small fishermen takes 2,200 pounds dressed weight per season,

this is why we should use Aircraft

Mr. Echerk, in a normal year takes 14,000 pounds,

In the schedule on the next page, we have attempted to estimate the price required for a small fisherman a return of $ 500 for his efforts. We estimate the fish price **required at $ 1,81/pound,** We estimate **the** f ishermen's variable costs at $ 1,08, Although our estimates are rough they do give an indication of the problems in Increasing the volumes harvested. Clearly the fishermen are not earning significant income even at the top price of $ 1.70/pound.

We have not estimated the equivalent price for the larger fishermen, because of differences in their boats, freighting costs etc. However, depending on freighting costs, a fisherman such as Mr. Echerk is doing better that the lower volume fisherman. However, because he has a much greater investment In his gear this fishermen takes a greater risk should he have a bad season due to weather or other conditions that he cannot control.

As a result of this analysis we utilize a loose fish price to fishermen of $ 1.75/pound. We believe that this price is necessary to guarantee long term production. Because of the lower freighting costs the price should be higher at Rankin Inlet than at Whale Cove. However, because the recent Whale Cove and Arviat price has been higher than the Rankin price, we concluded that we could not project lower prices at Whale Cove.

Projected Schedule of Fishermen's Operating Costs

Catch delivered	2200 lbs	$/lb
Fishing supplies	1100	0.50
Fuel and oil	775	0.35
Maintenance	300	0.14
Other	200	0.09
	2375	1.08
Assigned capital charges:		
Depreciation:	500	0.23
Interest	600	0.27
Assigned salary to fisherman owner	500	0.23
	1600	0.73
Total	$3,975	$1.81

Notes to Projections

Fishing supplies:

10 nets amortized over 3 years plus sundry

Fuel and oil:

60 liters per day @ .72/litre; oil 5:1 @ $ 5/litre

Depreciation:
Motor- 10 year st line
Boat -20 year st. line

Jerrold S. Goldenberg Associates

6.3 Transportation to the plant

As shown in the prior schedule freighting to the plant 1s by means of canoe (from fishing areas close to the plant), Lake Winnipeg Yawl (owned by the fisherman or private freighter), and aircraft, The later IS not normally available. There have been no float aircraft stationed in the Keewatln fora decade. As a result, the only way aircraft are available is if one is in the area for another contract and has time to fly fish as well.

In the early years of the last decade, the Arctic Tern, a longl iner owned by Mr. Echerk and converted to a freezer boat, was used to gather and freeze production from the Ferguson River, Copperneddle River and other systems in the Whale Cove area. However, Mr. Echerk has informed us that the freezing equipment was causing a rot problem with the vessel and had to be removed. As a result it is no longer available.

With the assistance of ED&T, three (3) Individuals in the Whale Cove area have purchased Lake Winnipeg Yawls. There is also a Lake Winnipeg Yaw I in the Rankin area. The yawls are being used in either the fishermen's own operations or for contract freighting. One complaint of the fishermen is that the yawlowner's are charging too much for freighting, ($,40/pound from Ferguson to Whale Cove).

The results of Whale Cove operations for 1989 seem to indicate that there is close to sufficient freighting capacity in the region. During that year the Whale Cove area produced approximately 42,()()() pounds dressed weight of arctic char. The problem may not be the capacity to freight, but whether freighting capacity will be available at an affordable cost.

6.4 Catch projections

Projecting catch for this fishery 1s extremely difficult, The major reason 1s the risk Involved in fishing. Risk 1s effected by factors such as weather, timing of the arctic char migration from Hudson Bay into the river systems, and other more control lable factors such as mechanical breakdown, and the availability of freighting, Quota's are an indication of the maximum production available. But as the DFO explained to us, for systems that have not been fished regularly, the quota's are at best an educated guess. Historical production is the best Indication of probable catch, But even in this case there are very wide variations in production from year to year. To properly analyze historical production, one has to be aware of all the variables that effected production in each year,

Finally, we note that our assignment is not to perform a general feasibility study for the Keewatin Fishery. The general feasibility study was performed by R.T. & Associates, and they developed a harvesting plan which they estimated would result In Increasing the harvest to

144,000 pounds over a five year period. **Our assignment is to develop business plans for two freezing plants and a freezer boat. Our malor concern is to ensure that the plants have sufficient capacity to handle the production from the region.**

For these reasons, we produce not one business plan but rather a " flexible business plan. For the Whale Cove plant we produce a business plan at two levels of production, the maximum level that could be obtained, and the level equivalent to the average production of the previous 5 years, For Rankin Inlet we consider the level of production equivalent to prior years quotas. We do this because recent years quotas for the area are quite smal 1 and average production has been close enough to the quotas that we would require a plant with capacity to at least handle the quota levels of product Ion.

Our **business plans are** developed at production levels of **55,000** pounds dressed weight and 28,000 pounds dressed weight for Whale .Cove and 18,000 pounds dressed weight for Rankin Inlet.

6.5 Freight out

For reasons explained previously, we assume that the total production will

be sold to the FFMC. As a result, we wish to freight the final product (fresh and frozen) to Winnipeg at the lowest possible cost, As well, in the case of fresh, the product must reach Winnipeg as quickly as possible, The FFMC has informed us that they do not want fresh fish that is more than three (3) days from the nets to Transcona.

Cold storage capacity becomes the major constraint in determining the alternatives for freighting to Winnipeg, The limitation of the freezer storage capacity 1s such that the frozen product should be shipped out at least twice weekly. Thus the alternatives of building loads for charter flights or shipping to Churchi 11 to be transferred to rai l are not available, In the attached schedule, we list the freighting alternatives for fresh and frozen from Whale Cove, Rankin Inlet and Chesterfield Inlet.

NWT Air is offering special rates from Rankin to Winnipeg via its direct flights. The rates are negotiated with the FFMC on an annual basis and are not dependent upon the size of the individual loads. Calm Air commencing in the summer of 1991 is offering daily flights to Winnipeg from all locations. However, the Calm Air rates are so high that this service should only be used if fresh fish must be delivered to Winnipeg and the alternative of transferring to the NWT f 1 ight at Rankin is not available.

We note one anomaly in the freighting rates, The airlines are charging the same rate/pound net fish weight for freighting frozen as fresh, This is

unusual considering that ice has to be shipped with the fresh,

R.T. & Associates recommended chartering an aircraft for the season to fly fish frOm Arviat, Whale Cove and Chesterfield Inlet to Rankin Inlet. We have examined the alternative and are not prepared to recommend it because it will add another risk to the fishery. To charter an aircraft at favorable rates the fishery will have to guarantee minimum mileage, This alternative would **become very expensive during a season of low production.**

The least cost alternative at present is to transport product from Whale Cove and Chesterfield Inlet to Rankin Inlet via Calm Air and from Rankin to Winnipeg via NWT Air. There is a possibility of using Keewatin Arctic Air for flying within the Keewatin. However, at present they do not have an aircraft available for flying fish.

7.0 Optimal product mix

The options for products that may be produced Include the following:

: fresh dressed;
: frozen dressed;
: steaked;
: filleted;
smoked and canned;
smoked and vacuum packed;

For the purpose of our business plan we willeliminate all but fresh dressed and frozen dressed, This does not mean that the other forms may not be moreprofitable.Arctic Char is often served, particularly in restaurants in the steaked or filleted form. **However, the steaking (sawing with a band saw) and filleting is normally performed by the chef or the wholesaler. By** purchasing the fish in the whole form the wholesaler or restaurant reserves the option as to the form in which it will be served. Economic Development & Tourism is currently test marketing smoked canned arctic char with a good degree of success. They may test market other forms such as smoked and vacuum packed in the future. **We** deal with these studies In other sections of this report, **Value added products may eventually** become **a major output of this fishery. However, because the products are still being test marketed, and the volumes to date are relatively small, we prefer to deal with them in a separate section of the report.**

7.1 Contributed margin analysis

Contributed margin is the variable profit from a product. That 1s the variable costs of producing , transport ing, and sel 1 ing the product are subtracted from the sales price to yield the contributed margin or variable profit Ranking products in order of the contributed margin results in the absolute orderof profitability.

In the attached schedule, we calculate the contributed margin for fresh dressed and frozen dressed produced at Rankin Inlet, Whale Cove and Chesterfield Inlet. Clearly the fresh dressed 1s the most profitable, and it 1s desirable to ship fresh when ever possible. **However, we** must qualify this statement. First the differential that the **FFMC 1s paying** for fresh versus frozen ($ 1/pound) is not justified based on returns from the market. Secondly, the FFMC has a market for approximately 20,000 pounds of fresh char. To date It has had a hard time obtaining sufficient product to service this market. However, if the Keewatin region were suddenly to ship quantities of fresh in excess of those that could be sold fresh, the FFMC would have to freeze the arctic char in Winnipeg, and charge the pools with this additional cost of freezing and storage, This would result in lower final payments, For this reason in our business plan, we consider producing only 20,000 pounds of fresh at Rankin Inlet and **Whale Cove. It** would be preferable to produce all of the fresh at Rankin, since its total production would just meet the demand for fresh and NW Air flies only out of Rankin. However) to be fair to Whale Cove, we distr bute the production between the two plants.

8.0 **Risk Analysis**

We have been Involved w 1 th the freshwater commercial f ishery in al l

regions of Western Canada, Ontario, the western and central arctic, It is our opinion that the arctic char fishery of the Keewatin region bears more risk than any other fishery with which we have been associated.

Factors that create risk for this fishery include:

: The short season;

: Uncertain weather;

: Problems resulting from mechanical breakdowns of plant equipment, transportation equipment, fishing equipment.

: Uncertainty as to the timing of the arctic char runs from the Bay into the river systems;

: Small stocks of fish compared to other specie;

I have no doubt that there are many other elements that could be added to this list. In the capital budgeting analysis, we add 10 percent to the discount factor to compensate for risk, and we are not confident that the factor is adequate.

9.0 Business plan and financial projections

In this section , we present flexible budgeting business plan for the operations of freezing and fresh packing plants at Whale Cove and Rankin Inlet. We prepared five year forecasts for the two plants as listed below:

WHALE COVE PLANT

At production volume of 55,000 **pounds dressed weight.**

: Projected balance sheet as at December 31, 1992-1996;

Projected statement of Income for the five years ending December 31, 1992- 1996;

Projected statement of changes in cash position for the five years ending December 31, 1992- 1996;

: Statement of assumptions in support of the projections;

Each of the' above 5 year projections were prepared for each of the following:

: condition of 100 percent debt financing;

: condition of 50 percent debt financing, 50 percent equity financing;

: condition of 25 percent debt financing, 75 percent equity financing;

At production **volume of 28,000 pounds dressed weight.**

: Projected balance sheet as at December31, 1992- 1996;

: Projected statement of income for the five years ending December31, 1992- 1996;

: Projected statement of changes in cash position for the five years ending December 31, 1992- 1996;

: Statement of assumptions in support of the projections;

Each of the above 5 year projections were prepared for each of the following:

: condition of 100 percent debt financing;

Same as above

: condition of 50 percent debt financing, 50 percent equity financing;

: condition of 25 percent debt financing, 75 percent equity financing;

Net present value capital budgeting analysis 1s prepared for each alternative.

RANKIN INLET PLANT

At production volume of 18,000 pounds dressed weight.

: Projected balance sheetasatDecember31, 1992- 1996;

: Projected statement of income for the five years ending December31, 1992- 1996;

: Projected statement of changes in cash position for the five years ending December 31, 1992- 1996;

: Statement of assumptions in support of the projections;

Each Of the above 5 year projections were prepared for each of the following:

: condition of 100 percent debt financing;

: condition of 50 percent debt financing, 50 percent equity financing;

: condition of 25 percent debt financing, 75 percent equity financing;

Net present value capital budgeting analysis 1s prepared for each alternative.

In total we present 6 possible business plans for the whale cove plant and 3

possible business plans for the Rankin Inlet plant. The reader should take careful note to the statementof assumptions appended to the capital plans. Each item in the financial projections is supported by assumptions Included in the statement of assumptions. The integrity of the projections is dependent upon these assumptions.

The projections are presented In the appendix. In the schedule on the subsequent page, we present a summary of net income and cash flow,

9.1 Key assumptions:

We list below some of the key assumptions upon which the projections are predicated:

WHALE COVE PLANT

: The projections are in constant 1991 dollars,

: 10,000 pounds dressed weight sold fresh and the balance frozen dressed;

: Product sold to the FFMC at $ 4.25/pound fresh dressed and $3.25/pound frozen dressed;

: Shipped via Calm Air to Rankin Inlet, and NWT Air to Winnipeg;

: Fishermen paid $ 1.75/pound dressed weight;

: **Capital cost** of plant and equipment as reported in section 5.

: Plant and equipment have a useful 1 ife of 20 years; / no - to high

: Purchase a used truck for $ 10,000 for running about town and

delivery of product to the airport;

: Manager/owner employed for two (2) months at $3,500/month. Assume the manager/owner is a local person;

: Plant workers are hired at a contract rate of $1 Z/hour;

RANKIN INLET PLANT

: assumptions same as for Whale Cove except that freighting direct by NWT air.

9.2 Sale of product to the FFMC

In the schedule on the subsequent page, we list the FFMC prices paid (initial and final) for 1987-1989 and the percent of the FFMC's wholesale selling price returned to the producer. We note that the FFMC has paid the producer almost 90% of the wholesale price. The 10 percent covered the costs of selling, storage, grading , glazing and repackaging and an al location of overhead. We also note that the price has declined $ .76/pound over the three years. As previously reported the FFMC states that arctic char is encountering a soft market and stiff competition, As a result in our forecasts we use a fresh price of $4,25 and a frozen price of $3.25. We do not Increase the price over the five year period,

what N.W.T Buyers did they Survey.?

We note that the price paid by NWT buyers 1s now close to being competitive wlththe FFMC. However, two factors favour the FFMC. These are:

: They w i1 1 purchase the total production,

Schedule of Prices Paid By
The FFMC To
Keewatin Area Processing Agents

	Initial Price	Final Payt	Total Price	% of Wholesale
Summer season-89:				
fresh	4,00	0.15	4,15	
frozen	3,00	0.15	3,15	
mean	3.23	0.15	3.38	0.87
Summer season-88:				
fresh	4	0,62	4,62	
frozen	3	0,62	3.62	
mean	3.23	0.62	3.85	0.90
Summer season -87:				
frozen	2.50	1.64	4.14	0.89

Whose in 1990 Agreement

: They w111 purchase the production when it is produced,

The respondents to our survey of NWT hotels and restaurants want delivery throughout the year.

9.3 Net present value capital budgeting analysis:

Net present value represents a method of quantifying an investment decision. A positive net present value represents a positive Investment decision, whereas a negative net present value represents a negative decision. The net present values for the investment alternatives are as listed:

Whale Cove Plant, 28,000 pounds production	($ 716000)
Whale Cove Plant, 55,000 pounds production	($ 106,000)
Rankin Inlet Plant, 18,000 pounds production	($ 193,000)

From this analysis, we can say that the prudent private investor would not proceed with this project without government support.

The reader will note that the Rankin Inlet plant at 18,000 pounds is favoured to the Whale Cove Plant at 28,000 pounds. There are two reasons for this:

: The Whale Cove production has to be freighted to Rankin Inlet and then

to Winnipeg in order to take advantage of special rates charged by NWT Air, Calm Air 1s charging $,30/pound to freight from Whale Cove to Rankin Inlet,

Because of the lower volumes, we reduced the size of the Rankin Inlet plant, its capital costs and some associated operating costs **such as power and heat.**

The lower power rate at Rankin Inlet,

The projected ratlo of fresh to frozen 1s much higher for the Rankin Inlet Plant. We have allocated the higher percentage of fresh to Rankin because of the logistics of the fishery

9.4 Net Income and cash flow:

For the Whale Cove Plant, we project losses under all financing alternatives under the scenario of normal production (28,000 pounds dressed weight). The operation is profitable at top production (55,000 pounds dressed weight) earning net income before long term Interest and depreciation of $24,000. In addition, the manager/owner earns a salary of $7,000.

For the Rankin Inlet plant, at a production volume of 18,000 pounds dressed weight, we project an approximate break even before long term interest and depreciation. In addition, the manager/owner earns a salary of $7,000,

1995	! 996
-18	**-18**
-2	-3
-9	-lo
-28	**-28**
-7	**-"8**
-22	**-22**
-7	-8
-38	*-37*
-7	*-8*
-36	**-36**
-7	*-8*
6	s
22	21
14	14
22	**21**

1995	1996
1	1
22	21
7	7
22	21
-9	-8
22	21
-7	-7
22	21

1995	1996
-16	-16
-1	-2
-8	-8
-1	-2
-20	-20
-t	-2
-14	-14
-1	-2
-29	-28
-1	-2
-27	-27
-1	-2

9.5 Conclusion

As a result of the analysis performed in this study, we conclude that under the conditions of normal historical volumes , the operations of the proposed plants at Rankin Inlet and Whale Cove would not be economically viable without government support towards the capital cost of construction and/or operating costs.

10.0 Socio-economic analysts

We have prepared net present value capital budgeting "socio-economic" analysis for the plants at the levels of production considered, To the cash flows from the operations, we have added the total of wages and salaries paid by the operation, We are aware that there is other spin off benefits to the region, but leave this analysts to ED&T. The net present values for the investment alternatives are as listed:

Whale Cove Plant, 28,000 pounds production	($ 142,000)
Whale Cove Plant, 55,000 pounds production	($ 70.0001
Rankin Inlet Plant, 18,000 pounds production	($ 128.000)

We note that the net present value 1s still negative in al 1 cases. This highlights the fact that wages and salaries are not the major factor

the unfavorable results.

The analysis 1s presented in the appendix.

11.0 Management Plan

The number of persons employed by the plants w i 1 l depend upon the volume of operations, Each plant w ill have a manager or manager/owner if the plant is privately **owned.** The manager will be responsible for the following:

: Planning and organizing the fishery in his area, including close communications with fishermen;

: Hiring employees;

: Supervising processing and freezing operations;

: Accounting and finance;

: Sales and coordinating freighting in conjunction with the FFMC;

: Communications with the DFO re quotas etc and with employees of the Government of the NWT;

: Sundry other;

We are of the opinion that the owner/ manager should be a local person. Provided that engineering is available on a contract basis, **the operation of a small freezing plant does not require a great deal of training.** Preferably the owner/manager should have experience in the commercial fishery and should have a high school education,

Training with regard to freezing and processing fish could be provided at the FFMC's Transcona plant. Basic financial and accounting training could be provided on a contract basis by a Chartered Accountant from Rankin Inlet.
We project a manager's/owner's salary of $ 3,500/month for two months per year.

The number of other employees that would be hired would depend upon the level of production. At the maximum level of production for the Whale Cove Plant we are projecting the following employees:

: 1-receiver/welghman
: 2-processing (washing, spooning, fresh packing)
1 -freezer and cold storage
: 1-packaging, shipping and sundry

The plant workers should be able to perform any of these jobs and depending on volume their jobs could be interchangeable, Required training would been the job,

We estimate an average wage Of $ 12/hour inclusive of benefits,

12.0 Custom canning and smoking

Given the current softness the FFMC is finding in the fresh and frozen markets it is desirable to Investigate the marketability of creating value

added products, We have **reviewed the data and reports provided by ED&T and agree that** there is potential to increase the margins for arctic char by producing value added products, The key is whether the market w 111 accept the value added products at premium prices ($ 5.80 wholesale for a 200 gram tin of smoked arctic char). Based on our review of the Deloitte & Touche report, we bel leve that ED&T is one to two years of test marketing away from determining the marketability of these products,

We w111 compare the prof itabi l ity of the custom canned versus fresh and frozen in the final draft of this report.

13.0 Chesterfield Inlet Fishery and A Freezer/Packer Vessel

The Chesterfield Inlet Fishery has not been producing to expectations. It has been suggested that the low production results from the logistics of the fishery . Specifically, many of the river systems that have significant arctic char quotas are too distant from the community, The suggestion has been made that if a freezer boat were added to the infrastructure the distant quotas could be taken,

13.1 Capital Cost

The terms of reference call for the consultants to obtain a quotation for a

freezer boat Identical to the one currently operating from Coral Harbour. This freezer boat 1s owned by a Mr. Netser.

The Netser vessel was constructed by was constructed by Hi-Tech Fabrications of Selkirk, Manitoba. Our engineer, Wayne Dilk, reviewed the vessel's construction with Mr. J. Sigurdson, the company's president.

The vessel Is welded aluminum hull, 54 ft. long with a 14 ft, beam powered by a single screw 300 hp diesel drive. It requires a 2 man crew and can sleep up to six people,

The refrigeration system is powered by a separate 10kw generator and consists of a 3 ton blast freezer anda 1.5 ton capacity holding cooler. It has no ice making equipment.

There have been some problems with the vessel. To overcome these problems, we are recommending Improvements to the hull and refrigeration system. Hi-Tech has quoted a price of $400,000 for the upgraded version landed in Churchi 11, Manitoba,

13.2 Operational plan

The operat ionai plan has been developed as a result of reviewing the

fisheries operations with Andre Tatu, head of the fishermen's association and Danny Autut, the local economic development officer,

There are four families of fishermen fishing out of Chesterfield Inlet, As well there are six to eight fishermen who fish close close to the community. We previously presented the historical production for the Chesterfield **Inlet Fishery, As noted most of the production was from Chesterfield** Inlet and the Josephine River, Although the Josephine River has not reported production since 1986, we were Informed that the Josephine River 1s still productive. **However, the catch from the Josephine River 1s reported as from two other areas.**

Average annual production **for a ten year period amounted to 3043 kilograms, with a 1989 production of 5 100 kilograms. We do not have production statistics** for 1990, but **deliveries to the FFMC (the bulk of the production) amounted to only 2,200 kilograms, Preliminary quota's** for 1991 total 37,300 kilograms.

We reviewed the list of quota's with Andre Tatu to determine how much local knowledge there was of the systems that were not being commercially fished. As well we obtained the fishermen's opinion as to what the problems of the fishery are, **Of the systems, the Hanway River, and Ranger Seal Bay (combined quotas of 11,400 are unknown to** Mr. Tatu). The systems with the most potential are Robin Hood Bay, Step Bank Bay and the Stony Point Area.

The quota's for these systems and there approximate distance from the community areas listed below:

system	quota	distance
Robin Hood Bay	6,800	50 miles
Step Bank Bay	4,500	35
Stony Point Area	6,800	75
	18,100	

Infrastructure

The basic infrastructure of the fishery consists of a smal 1 freezer plant located in the community and a Hi-Tech speed boat Intended to transport fish from the river systems to the plant for freezing or shipping fresh, The fish is transported, usually by Calm Air to Rankin Inlet where it is off loaded to a NWT flight to Winnipeg. Ice machines at the Plant are the source of all ice. There are no ice housesat the camps.

Problems resulting in low volumes

Mr. Tatu states that the problems resulting in the low volume fishery are:
- the weather

- ice
- transportation
- starting too late in the season

The weather

Bad weather 1s a major problem of the Fishery, Unfortunately there is nothing that can be done about it,

Ice

The source of all ice for fishing is the ice machines at the plant. As a result ice has to be picked up daily by the f ishermen or transported daily to their camps. One suggestion of Mr. Tatu to would be to build some Ice housesat the camps.

Transportation

The fishermen fish with 22 foot canoes with 45-50 Hp outboard engines. For fishermen fishing the Chesterfield Inlet Fish Bay there is no problem picking Up ice in the morning and delivering their catch to the plant. The Hi Tech boat was intended to be used for transportation to and from the more distant systems, The Hi Tech is a 30 foot aluminum high speed boat, It has the speed to make daily trips to the most distant camps (7S miles), The

major complaint 1s the high cost of operations, We have been informed that the boat has been damaged and has not been used in the fishery since 1988.

Timing

Mr. Tatu states fishing begins too late in the year (August). As a result if fishing has to stop because of bad weather the better part of a season can be lost. He states that the systems listed above could be fished in July if a freezer boat was available. He has been in these areas in July and has observed an abundance of fish. Apparently the ice has moved out enough to fish open water and deliver the catch to a centrally located freezer boat. As well since there is still natural ice in the area, there would be no requirement for carrying ice from the plant.

Use of the freezer boat In the operation

A freezer boat identical to the one operating out of Coral Harbour is not ideal for the Chesterfield Inlet fishery because of its limited capacity to store frozen fish. Our engineer estimates that the vessel has holding capacity for 6,500 to 8,000 pounds of frozen fish, 14,000 pounds would be ideal for this fishery,

The best use of the freezer boat would be to fish the quotas previously Identified at Robin Hood Bay, Step Bank Bay and the Stony Point Area, The

freezer boat would anchor at a centrally located area and the four fishing families would fish the various systems. Under this condition Mr Tatu estimates that they could take 2,000 pounds per day dressed weight. We estimate that the vessel has sufficient holding capacity to freeze 3to 4 days product ion before travell lng to Chesterfield to del iver the production to the airport, Fishing would be coordinated so the boat would make one trip to Chesterfield weekly to meet a Calm Air flight that would Interline with the NWT Air flight at Rankin Inlet.

The vessel can carry fresh fish as well as frozen, It is possible that the final days catch could be shipped fresh. However, care would have to be taken to ensure that the fresh fish was moved promptly to Winnipeg.

The operation of grading, glazing and final packaging of the fish would be performed in Winnipeg.

13.3 Financial projections

We previously noted that the cost quoted by Hi-Tech Fabrication for the same vessel as the Netser vessel was $ 400,000. In addition, we wish to make modifications to provide more cold storage holding capacity. The capital cost is such that if the boat was purchased by a private owner without a government grant, the operation could not support the capital

cost. Assuming that the vessel had a useful life of 20 years and was financed at 12 percent, the **interest and depreciation** in **the first** year would amount to $ 68,000, Assume also that the vessel resulted in taking an additional 30,000 pounds of arctic char as discussed above. After subtracting the interest and depreciation, there would only be $ 30,000 to coverall operating costs and payments to fishermen. If volumes were less than 30,000 pounds (which is likely) **substantial losses would be incurred.**

The analysis presented above does not necessarily negate the alternative of a freezer boat for this fishery, All or a significant portion of the capital cost could be covered by Government grants, As well, anew vessel is not the only alternative, An alternative Of placing freezing equipment Into a used vessel should be consi ered.

Because of the high capita cost, a new boat should not be considered until the fishery 1s tested for at east one season using the existing freezer boat,

The detailed financial projections for the freezer boat will be Included in the final draft,

13.4 Personnel and training

The vessel requires a crew of two, Mr. Tatu has Informed us that he is capable of captaining this vessel, He states the captain should be paid

$2,500/ month. The deck hand would be paid $ 12/hour, In addition depending on the volume of production, a processing crew of two to four persons would be required. Processing labour would receive on the job training.

14.0 Marine exploratory fishery

14.1 Historical analysis

As stated previously, DFO personnel do not have much confidence that sufficient stocks exist to justify a commercial fishery. As well exploratory fisheries in the strait and northern Hudson Bay have produced negative results.

14.2 Funding

The potential sources of funding are the EDA, which we understand may allocate between $1 million and $ 1.5 million for the project, and the Canadian Aboriginal Economic Development Program, If an exploratory fishery were approved DFO would be prepared to provide technical assistance in planning the fishery,

14.3 Use of the freezer boat

Our research to date Indicates that the freezer boat could be used for the

exploratory fishery, but 1s not really designed for it and will require extensive modifications. Preliminary estimates indicate that the costs of conversion may exceed $100,000.

We will expand upon this in the final draft.