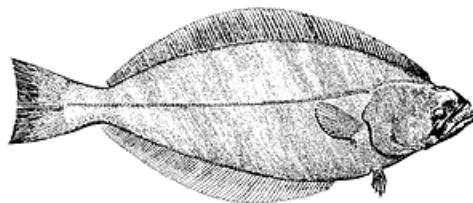

**SURVEY ON
THE OPERATING RESULTS
OF TURBOT FISHERMEN
(GREENLAND HALIBUT)**

1997-2000

QUEBEC REGION



Fisheries and Oceans Canada

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SUMMARY

- This update of the "Economic Portrait of the Greenland Halibut Fishery", which covered the year 1997, describes the exploitation results of the fishing fleets for the years 1998 to 2000. The methodology used in this document is similar to the one used in 1997.

- Population samples are drawn from four fleets classified according to the length of their vessels (less or more than 45 feet) and according to the importance of greenland halibut landings in the overall value landed by the fishing businesses (over or below 75%).

- Through the data collected it was possible to compute the cash flows of most of the fleets from 1997 to 2000. The results thereby obtained led to establish that the 1999 cash flow was higher than in 1997, 1998 and 2000 for most greenland halibut fishermen. Actually, it seems that the introduction of the Individual Quota Regime in 1999 combined with a more equitable spread of the landings over the entire fishing season may partially explain this situation.

- Taking the availability of the resource into consideration, the year 2000 was a difficult one: the landed volume declined by 25%. However, the decline of the resource was partially compensated by the \$2.13/kg price in 2000. Such a landing price has been the highest ever since 1997.

- Fishermen specializing in greenland halibut in the Quebec Region usually had lower cash flows compared to more diversified fishermen whose income has been constantly on the rise in the past four years. Such an income is associated with the amount available for the captain-owner to earn a salary as well as to make a profit. Specialized fishermen accounted for more than 79% of the total population which was the focus of the study. Besides, specialized fishermen's average income was lower by half of the diversified fleets one.

- Fleet B, that is the fleet of fishermen specializing in greenland halibut and operating vessels less than 45 feet, comprised more than 73% of the population in 2000 and generated a cash flow lower than \$6,000, except in 1999 when the cash flow was estimated at \$12,000. In addition, the 2000 season was particularly difficult with a cash flow at \$208. Since 1997 reduced financial charges have been an important factor to consider. Such a reduction may "entail" an economic depreciation of the fleet assets. This slump in the asset value therefore forecasts that the need for investments may increase in the coming years.

- Fleet D, which comprised fishermen specializing in greenland halibut and operating vessels over 45 feet, generated the lowest cash flow at the time the survey was conducted. This variable went down from \$436 in 1997 to a loss of \$5,283 in 2000. Conversely however, the population of this fleet included very few individuals, less than 10 fishermen since 1998.

- Fleet A, which comprised diversified fishermen operating vessels less than 45 feet, steadily increased their cash flow at the time the survey took place. The fishermen's cash flow went up from a loss of \$3,549 in 1997 to a \$20,010 cash flow in 2000.
- Fleet C, which comprised diversified fishermen operating vessels over 45 feet, had yielded the best cash flow since 1997. The pinnacle of the period at the time of the survey was in 2000 with \$32,000.
- The availability of increasing cash flow for the diversified fleets (Fleets A and C) was largely due to growing incomes generated by the landings of other species. It seems therefore that the higher incomes earned by the diversified fleets (Fleets A and C) were largely obtained through an increase in the landed value of cod and Atlantic halibut.
- Finally, it is essential to note that the owners' incomes originating from other sources such as employment insurance, the leasing of quotas and The Atlantic Groundfish Strategy program (TAGS) were relatively stable and, for all the fleets surveyed, amounted to about \$11,000 per year during all the years which were the focus of this survey.

ACKNOWLEDGEMENTS

We hereby extend our heartfelt thanks to all the fishermen who agreed to take part in the survey. Without their collaboration, this study would never have taken place. Considering this, it is important to stress that all the fishermen selected for inclusion in the sample population agreed to take part in the survey on an entirely voluntary basis. Also, we would like to underscore the invaluable collaboration we received from fishermen's associations and their representatives, which made our work much easier.

TABLE OF CONTENTS

1. Methodology	2
1.1 DATA COLLECTION	5
1.2 DATA VALIDATION	5
2. Results and Analysis	6
2.1 CASH FLOW	6
2.2 OWNERS' INCOME.....	11
2.3 CHARACTERISTICS OF THE FLEETS	13
2.4 AVERAGE LANDING PRICE	14
2.5 STRUCTURE OF THE LANDINGS	15
2.6 ECONOMIC BREAK-EVEN POINT.....	16
3. Conclusion.....	21

LIST OF TABLES

Table 1 : Population and Sample Size Per Fleet.....	4
Table 2 : Cash flow and Structure of Operating Costs.....	8
Table 3 : Owners' Average Total Income Per Fleet	11
Table 4 : Characteristics of Various Greenland Halibut Fishing Fleets	13
Table 5 : Greenland Halibut Average Landing Price (\$/kg)	14
Table 6 : Share of the Overall Income Originating From Greenland Halibut.....	15
Table 7 : Quantity of Greenland Halibut Needed to Reach the Economic Break-even Point.....	17
Table 8 : Disparities Between Actual Greenland Halibut Landings	19

LIST OF DIAGRAMS

Diagram 1 : Cash flow of the Four Fleets.....	10
Diagram 2 : Calculation of the Economic Break-even Point.....	18

LIST OF ANNEXES

Annex 1 : Key Information Gathered During the Survey.....	24
Annex 2 : Cash Flow and Structure of Operating Costs - Fleet A Greenland Halibut Fishermen (Vessel <45', Diversified).....	25
Annex 3 : Cash Flow and Structure of Operating Costs - Fleet B Greenland Halibut Fishermen (Vessel <45', Specialized).....	26
Annex 4 : Cash Flow and Structure of Operating Costs - Fleet C Greenland Halibut Fishermen (Vessel >45', Diversified).....	27
Annex 5 : Cash Flow and Structure of Operating Costs - Fleet D Greenland Halibut Fishermen (Vessel >45', Specialized).....	28
Annex 6 : Owners' Overall Income Per Fleet	29
Annex 7 : Characteristics of the Various Greenland Halibut Fishing Fleets	30
Annex 8 : Structure of Greenland Halibut Landings	31
Annex 9 : Structure of the Landings For Each Fleet	32
Annex 10 : Amounts of Greenland Halibut Needed to Reach the Ec. Break-ev. P. (1997)	33
Annex 11 : Amounts of Greenland Halibut Needed to Reach the Ec. Break-ev. P. (1998)	34
Annex 12 : Amounts of Greenland Halibut Needed to Reach the Ec. Break-ev. P. (1999)	35
Annex 13 : Amounts of Greenland Halibut Needed to Reach the Ec. Break-ev. P. (2000)	36

INTRODUCTION

The Policy and Economics Branch of Fisheries and Oceans Canada, Quebec Region, conducted this survey on the expenses incurred and income earned by greenland halibut fishermen from the years 1998 to 2000. The current survey is an update of the "Economic Portrait of the Greenland Halibut Fishery" which focused on the 1997 exploitation year. The methodology used for this update is similar to the one used in 1997, which will allow a better comparison of the results.

The study which was carried out incorporates three surveys conducted in 1998, 1999 and 2000. The average cash flows, the main characteristics of the fleets as well as the economic break-even points are also presented. Additionally, it is possible to observe the annual trends of each of these variables between 1997 and 2000 as well as the annual averages of each of the four fleets.

1. Methodology

The current study is the product of three separate surveys carried out with four samples of fishermen whose livelihood closely depended on greenland halibut fishing. Sampling procedures used for each year were identical to the one used for the 1997 survey, which means that the fishing businesses under study were defined according to the Department's statistical database on landings.

For each of the three years, fishing businesses with earnings totaling at least one dollar of greenland halibut landings in the year the survey took place form the initial population. Fishermen whose landings did not total 25% of the average landed by the initial population were withdrawn from the population studied along with fishermen whose greenland halibut amounted to less than 50% of the total in landed value. Businesses with snow crab landings granted and fished as temporary allocations were also withdrawn from the sample since the costs and income thereby generated could be partially attributed to temporary fishing activities associated to temporary allocations.

Based on this methodology, the population of fishermen whose main fishing resource was greenland halibut and who did not have snow crab or shrimp landings was 83 in 1998, 61 in 1999 and 45 in 2000.

As agreed with the industry, the businesses included in the fishermen's populations who depended mainly on fishing greenland halibut were classified according to the length of their vessels and the importance of their greenland halibut landings in relation with the overall landed value of the businesses. Four fleets were therefore defined, namely :

Fleet A - Businesses operating vessels less than 45 feet and with a landed value of greenland halibut lower than 75% of their overall landings.

Fleet B - Businesses operating vessels less than 45 feet and with a landed value of greenland halibut higher than 75% of their overall landings.

Fleet C - Businesses operating vessels more than 45 feet and with a landed value of greenland halibut lower than 75% of their overall landings.

Fleet D - Businesses operating vessels more than 45 feet and with a landed value of greenland halibut higher than 75% of their overall landings.

Sample size was determined through the application of an 80% confidence interval and a 10% margin of error on the fishermen's population of these four fleets for each year under study¹. The spread of fishermen's populations per fleet and the size of the samples are shown on Table 1.

Owing to the large number of groundfish licences retired from the fisheries during the years under study, it was necessary to remove inactive fishermen in 2000 from the fishermen's samples they had been included in during the years 1998 and 1999. Such a withdrawal aimed at improving the rate of respondents to the survey and at better targeting and focusing on the financial picture of fishermen actively involved in the fisheries at the time the survey was being conducted.

¹ This sampling methodology implies that, according to a normal gross income distribution curve, in 80% of the cases, the gross average revenue of the sample is not statistically different from the average of the population with a margin of error less than or equal to 10 %.

Table 1
Population and Sample Size Per fleet

	1998		1999		2000	
	Population	Sample	Population	Sample	Population	Sample
Fleet A (vessel <45', diversified)	10	7	7	6	4	4
Fleet B (vessel <45', specialized)	56	17	45	18	33	22
Fleet C (vessel >45', diversified)	8	8	7	6	3	3
Fleet D (vessel >45', specialized)	9	6	2	0	5	4
Total	83	38	61	30	45	33

Sources : DFO Data (gross fishing income)

Table 1 is an indication that Fleet B was the one with the highest population each year, that is about 70 % of the population. This fleet was the one that included fishermen specializing in greenland halibut and operating vessels less than 45 feet. The table also shows clearly that the population of Fleets A, C and D was smaller in 2000. It is therefore possible that the average variability presented for the three fleets be high. However, the fleets sample remains highly representative of the active fishermen population. It has to be noted that Fleet D could not be surveyed in 1999, to respect confidentiality of these two fishermen.

Due to this situation, no result can be reported for Fleet D in 1999. One should also be cautious as to the scope of the results reported for Fleets A, C and D in 2000. This is due to the small size of the population of these fleets.

The landed values of greenland halibut caught by the fishermen group who were part of the total sample (population of the four fleets) in 1998 represented about 75% of the overall landed values of greenland halibut for the entire Quebec Region. This ratio fell to 61% in the year 1999 and went down to almost 59% in the year 2000. The reduction in the shares of landed catch made by the fleet of fishermen who depended primarily on greenland halibut fishing can be explained partly by a decline in the number of fishing businesses which had more than 50% of their landed value originating from greenland halibut during all those years.

1.1 Data Collection

The survey was carried out using a questionnaire developed by the Department. This questionnaire contained all the information associated with the requirements of the survey. It is important to underline that this information is confidential and that the results discussed in this report only represent averages. The main data gathered by processing the questionnaire are described in Annex 1.

The rate of respondents to the questionnaire was excellent since all fishermen selected agreed to take part in the survey. The size of the samples compiled therefore equals the actual size of the samples computed.

1.2 Data Validation

Data validation is performed by comparing some deviations with the fleet average and by "cross-checking" with research officers in order to detect possible inconsistencies. Through this process, some minor corrections were made.

2. Results and Analysis

2.1 Cash Flow

Table 2 shows the average gross income and the average operating costs of the four fleets. The results of the three years under study are displayed thereon as well as the results of the 1997 study. These data were used to compute the average cash flow for each year. The cash flow is a financial result which takes into account the incomes earned and the disbursements made by the fishing businesses during the year. It does not take asset depreciation into account (which is not disbursed); however, it takes into account any loan reimbursement made during the year. Consequently, investments needed to renew assets are not considered in the costs. The cash flow represents the amount available for the owner to be paid for his work and to make a business profit after all expenses have been met.

The cash flow may sometimes be overestimated. Actually, some expenses such as maintenance costs may be financed through loans or funds from the previous years' exercise, which does not generate any capital outflow in the current year. The calculation of the cash flow that follows takes into account the hypothesis which holds that the owner has met all his obligations during the year (with the exception of financial expenses for which effective payment is considered). The cash flow can therefore be computed as follows :

OVERALL INCOME *minus* - variable operating expenses (*details in Annex 1*)
- fixed operating expenses (*details in Annex 1*)

The **overall income** corresponds to the total of incomes generated by the sale of fish and other incomes associated with the fishing business operations as established in the Department' statistical database on landings.

Variable operating costs correspond to expenses directly associated with fishing activities as well as variable costs related to the use of assets other than the vessel, such as vehicles, facilities and equipment. In the case of greenland halibut fishermen, labour costs are considered variable charges. It is also important to note that the captain-owner's salary is not included in the variable operating costs. It is considered to be part of the cash flow.

Gear-related expenses include the net acquisition of fishing gear (purchase minus sales) as well as maintenance costs and gear repairs.

Maintenance costs include all costs incurred to maintain business assets in fine working condition including vehicles, facilities and equipment used on land. However they do not include expenses related to the maintenance and repairs of fishing gear.

Fixed operating costs include annual fixed expenses related to equipment and facilities such as financial expenses, insurance and licences.

Once again, it is important to stress that fixed and variable operating costs take into account expenses incurred only during the years under study. The purpose of this study is not to assess investments required on a short term or long term basis to maintain the fishing business assets in good order.

Table 2
Cash flow and Structure of Operating Costs

	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized	OVERALL AVERAGE
<i>1997</i>					
Overall income	68,614	40,555	114,446	54,405	60,050
Overall variable costs	44,519	24,651	71,602	41,549	39,125
Overall fixed costs	27,644	10,589	27,530	12,420	16,969
<i>Cash flow</i>	<i>- 3,549</i>	<i>5,315</i>	<i>15,314</i>	<i>436</i>	<i>3,956</i>
<i>1998</i>					
Number of fishing trips	43.3	65.9	12.3	21	43.4
Overall income	74,326	53,296	104,820	68,505	70,419
Overall variable costs	48,445	38,246	67,273	50,107	48,109
Overall fixed costs	17,043	9,075	22,283	16,627	14,516
<i>Cash flow</i>	<i>8,838</i>	<i>5,975</i>	<i>15,264</i>	<i>1,771</i>	<i>7,794</i>
<i>1999</i>					
Number of fishing trips	24.8	65.2	32.3	-	50.5
Overall income	78,386	57,727	115,867	-	73,487
Overall variable costs	46,487	35,718	70,430	-	44,814
Overall fixed costs	18,593	9,296	19,192	-	13,135
<i>Cash flow</i>	<i>13,306</i>	<i>12,713</i>	<i>26,245</i>	<i>-</i>	<i>15,538</i>
<i>2000</i>					
Number of fishing trips	21.3	62.8	18.3	54.8	52.8
Overall income	92,723	39,722	128,702	64,663	57,259
Overall variable costs	57,919	31,113	67,705	55,402	40,633
Overall fixed costs	14,594	8,401	29,177	14,544	11,785
<i>Cash flow</i>	<i>20,210</i>	<i>208</i>	<i>31,820</i>	<i>- 5,283</i>	<i>4,841</i>

Sources : Fishermen Sample Survey and DFO data (gross fishing income)

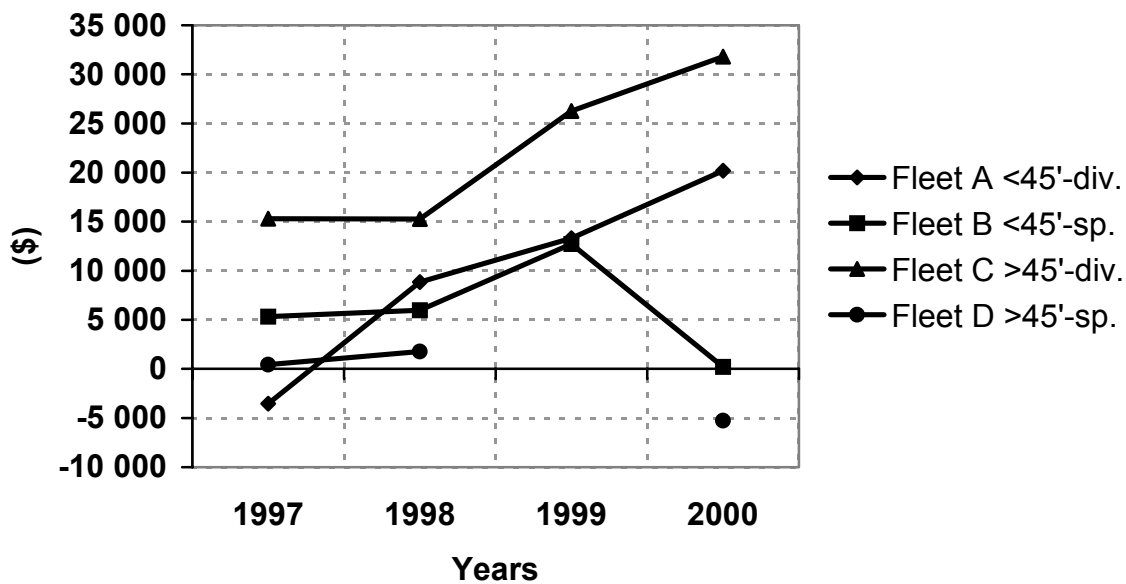
The overall average shown is the pondered average of each fleet according to the actual population in each sample. This variable is shown in most of the following tables. It thereby shows the annual overall picture of greenland halibut fishing, all fleets included. On this table, the variable reveals some measure of stability in the gross income of the fishing businesses, at around \$65,000 during the four years under study. The variable charges of these businesses were on the rise in 1998 totaling \$48,109. Later on, they

declined steadily to finally stabilize at around \$40,633 in 2000. Considering the fixed charges, one noted a steady downward trend. The average value of these charges totaled only \$11,785 in 2000, which represented more than a 30% reduction in four years. The fishermen's cash flow was generally below \$8,000 in 1997, 1998 and 2000. However the year 1999 recorded slightly higher results with an average cash flow of \$15,538.

Assessment of the fishing effort was based on the number of fishing trips. Thus, since 1998, this variable has displayed a significant reduction of the fishing effort for the diversified fleet less than 45 feet. In the case of Fleet B, which represented the majority of the total population, this variable revealed that a slight but steady decline of the fishing effort had taken place since 1998. This decline amounted to 5% for the entire three years period.

A close look at the results on Table 2 demonstrates that diversified fleets (Fleets A and C) enjoyed both a gross income and cash flow significantly higher than those of the fleets more specialized in greenland halibut (Fleets B and D), except in 1997. Diagram 1 shows that in 1999 and 2000, Fleet C recorded the highest results with more than \$25,000 in cash flow. With respect to Fleet A, the fishermen have constantly improved their gross income and cash flow since 1997. Actually, the gross fishing income of this fleet increased by more than 42% during the four years studied, whereas their cash flow increased by about \$24,000 from 1997 onward.

Diagram 1
Cash Flow of the Four Fleets



Fleet B fishermen earned both the lowest gross fishing income and had the weakest costs structure for each of the years under study. Their cash flow amounted to \$208 in 2000 and corresponds to the amount available for the captain-owner to be paid a salary as well as to make a profit. These fishermen, who operated a vessel less than 45 feet, represented the

majority of the total population whose fishing income was largely generated by greenland halibut. Although these fishermen's cash flow was positive, it remained generally under \$6,000 in 1997, 1998 and 2000. The year 1999 showed slightly higher results with a cash flow reaching about \$12,700.

The fleet with the lowest cash flows included fishermen specializing in greenland halibut and operating vessels more than 45 feet (Fleet D). This fleet earned cash flows lower than \$2,000 in 1997 and 1998 and incurred losses amounting to about \$5,000 in 2000.

Note that it is possible to view the detailed results per fleet and per year in the Annexes 2, 3, 4 et 5 of this document.

2.2 Owners' Income

Table 3 displays the owners' average total income in each of the fleets. The total income is defined by the sum total of the cash flows, of the income from employment insurance, of the income generated by the leasing of quotas and of the income originating from special programs like The Atlantic Groundfish Strategy (TAGS).

Table 3
Owners' Overall Average Income Per Fleet

Year	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized	OVERALL TOTAL
1997	7,575	16,721	26,914	11,990	15,363
1998	18,560	15,623	26,475	12,228	17,913
1999	24,730	24,543	42,624	-	28,197
2000	32,504	12,591	47,003	6,579	17,404

Sources : Fishermen Sample Survey and DFO data (gross fishing income)

The trends observed on Table 3 are identical to those displayed on Table 2. The addition of income from employment insurance, of income generated by the leasing of quotas and of income originating from programs like TAGS have had an almost constant impact according to the fleets and years. The owners' income has been generally \$11,000 higher than the business cash flows since 1997.

This table shows that the owners' overall average income improved in 1999, the year which recorded the best results, with an overall average of \$28,197, whereas 2000 was a more difficult year for the fishermen who experienced a 38% decline in their average income. However, 2000 was a better performance than 1997 which yielded an overall average income of \$17,404 compared to \$15,363 in 1997.

The income of fishermen belonging to the diversified fleets (Fleets A and C) has been steadily on the rise since 1997. In 2000, it totaled \$32,504 for Fleet A and \$47,003 for Fleet C.

Fleets B and D, which comprised fishermen specializing in greenland halibut fishing, were those with the lowest incomes. Actually, the average income of these fleets was half the income of the diversified fleets. Fishermen's incomes in Fleet B were about \$15,000 in 1997, 1998 and 2000 while Fleet D fishermen had an average income below the \$12,500 mark during the three years under study. One can therefore conclude that the overall average income of specialized fleets tends to diminish while the income of diversified fleets tends to increase.

Annex 6 allows the examination of the owners' income broken into components. The components are: cash flow, employment insurance, the income generated by the leasing of quotas and the income originating from The Atlantic Groundfish Strategy program (TAGS).

2.3 Characteristics of the Fleets

Table 4 shows the main characteristics of the fleets for the year 2000. The variables described are later used to compute the debt ratio per asset; a ratio which reflects the debt level in the fishing business.

Table 4
Characteristics of Various Greenland Halibut Fishing Fleets

2000	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized	OVERALL AVERAGE
Average fleet age	11	13	20	17	14
Vessel average length	41	39	52	49	42
Loan reimbursement (31 Dec.)	19,400	19,998	69,100	7,035	22,818
Vessel purchase price	108,750	52,282	170,000	112,000	77,067
Asset purchase price on land	9,250	16,786	14,167	21,100	16,157
Major additions or modifications	32,600	26,501	44,600	51,500	31,916
Overall depreciation	72,198	60,775	154,573	106,542	76,234
Balance of assets on 31-12-00	78,402	34,794	74,194	78,058	48,906
Debts/assets ratio	0.25	0.57	0.93	0.09	0.51

Source : Fishermen Sample Survey

The results shown on Table 4 reveal that the four fleets were relatively aging fleets. In addition, a brief look at Annex 7 leads to the perception that very few investments were made during the four years under study. Considering the purchase price of the vessels, the average sale price of the fleet of vessels more than 45 feet was \$170,000 for the diversified fleet, and \$112,000 for the specialized fleet, mainly because the dimensions of the vessels in the diversified fleet were longer in average.

As to the fleet of vessels less than 45 feet, it is to be noted that the average costs of the vessels of the diversified fleet was double that of the specialized fleet (\$108,750 vs \$52,283). A partial explanation is that the diversified fleet owned vessels which were generally slightly longer (41' vs 38') and less old (11 years vs 13 years).

Survey on the Operating Results of Turbot Fishermen (Greenland Halibut) 1997-2000

Furthermore, the smaller size of the population of the diversified fleet A in 2000, which amounted to four businesses only, had an impact on the resulting averages. In actual fact, a single business caused the average purchase price of the fleet vessels to vary considerably. The balance of the assets of Fleets A, C and D amounted to about \$75,000 while it was only \$35,000 for Fleet B fishermen.

By measuring up the debt against the asset value ratio, one can determine which proportion represented debt obligations compared to business assets. This leads to the statement that Fleet C fishermen were those most heavily in debts with a ratio of 0.93. The debt ratio of the three other fleets was lower than that of Fleet C, respectively 0.53 for Fleet B, 0.25 for Fleet A and 0.09 for Fleet D.

The characteristics of the various fleets for the four years surveyed are displayed in Annex 7.

2.4 Average Landing Price

Table 5 shows the average landing price obtained for greenland halibut by each fleet during the four years period under study.

Table 5
Greenland Halibut Average Landing Price (\$/kg)

Year	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized	OVERALL TOTAL
<i>1997</i>	1.59	1.59	1.56	1.52	1.57
<i>1998</i>	1.64	1.67	1.68	1.64	1.66
<i>1999</i>	1.99	2.00	2.03	-	2.00
2000	2.13	2.13	2.13	2.13	2.13

Source : DFO data (fishing gross income)

A first look at Table 5 points out to the fact that prices have improved steadily since 1997. Such an increase, which is within the 25%-29% range for each fleet, ensured a ceiling price of \$2.13/kg in 2000. The explanation for such a price increase can be partially found in the establishment of an Individual Quota regime in 1999. This type of management system ensured a better and more equitable spread of the landings over the entire fishing season. The resulting outcome was better quality for the resource landed and increased opportunity for fish processors to market greenland halibut in fresh fillets rather than frozen fish. Such an enhanced quality on the retail market enabled fishermen to obtain a higher price for the resource.

Annex 8 shows the structure of greenland halibut landings and the price observed by each fleet since 1997.

2.5 Structure of the Landings

Table 6 shows the shares of the overall total that originated from greenland halibut landings. It is important to remember that the initial sampling methodology limited diversified fleets to shares of greenland halibut with landed values between 50% and 75% and limited specialized fleets to shares of greenland halibut with landed value over 75%.

Table 6
Share of the Overall Income Originating From Greenland Halibut

Years		Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized
1998	Income (Share)	\$73,783 (62%)	\$53,296 (92%)	\$104,820 (66%)	\$68,505 (88%)
1999	Income (Share)	\$78,053 (66%)	\$57,727 (94%)	\$115,493 (62%)	-
2000	Income (Share)	\$92,598 (65%)	\$39,176 (92%)	\$128,702 (61%)	\$64,663 (88%)

Source : Fishermen Sample Survey

Table 6 points out to the fact that part of the income generated by greenland halibut in the landed value of the fleets was generally stable during the three years. The only exception was Fleet C with its shares of greenland halibut landed value undergoing a decline in favor of cod and decreasing from 66% in 1998 to 61% in 2000.

The incomes of the diversified fleets (Fleets A and C) generated by other species was mostly from Atlantic halibut and cod. Since 1998, the shares of Atlantic halibut landed value in the income of Fleet A has declined, going down from 14% to 10%, while at the same time the shares of cod landed value went up from 9% in 1998 to almost 24% in 2000. Considering Fleet C, the shares of cod landed value increased, going up from 12% in 1998 to 23% in 2000, while the shares of Atlantic halibut landed value decreased from 22% in 1998 to 15% in 2000.

Fleet B which, year after year, yielded shares of greenland halibut landed value amounting to about 93%, spread the stream of income over its other species, mainly Atlantic halibut, herring and flounder. The shares of cod in the fishermen's landings went up in 2000, and ranked second for the first time since 1997 with almost 4% of the overall total in landed value.

Fleet D, just like the diversified fleets, spread the stream of income over its other species, mainly Atlantic halibut and cod, with about 5% of the shares in landed value going to each of the two species.

The structure of the landings for each fleet broken down by main species is shown in Annex 9.

2.6 Economic Break-even Point

The following table shows the amount of greenland halibut needed to reach the economic break-even point for each fleet. The economic break-even point can also be called "threshold of profitability" because it allows the computation of the quantity of greenland halibut needed to cover and meet all the average charges (operating expenses) incurred by the fleet in a given year.

The economic break-even point takes fixed costs and variable costs into account and is computed as follows :

$$ECONOMIC\ BREAK-EVEN\ POINT = \frac{FC}{MBFC}$$

Where :

$FC =$ fixed costs or charges (\$)

$MBFC =$ margin before fixed charges $= 1 - \frac{VC}{Landings}$

$VC =$ variable costs or charges (\$)

The following table shows the amounts of landed greenland halibut needed to reach the economic break-even point. Any other additional amount therefore allows the captain-owner to be paid a salary and a profit.

Table 7
Quantity of Greenland Halibut Needed to Reach the Economic Break-even Point (kg)

Years	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized
1997	28,369	14,318	2,743	30,617
1998	12,677	16,958	15,413	32,607
1999	9,447	10,606	2,735	-
2000	2,995	16,448	5,835	45,003

Source : Fishermen Sample Survey

Table 7 is an indication that the quantity of greenland halibut needed to reach the economic break-even point, in kilogrammes, has diminished considerably for the diversified fleet with vessels less than 45' since 1997. Conversely, for specialized fleets, the quantity needed to reach the economic break-even point has increased considerably (case of Fleet D) or has stabilized around 16,000 kg (case of Fleet B). For the diversified fleets, the lowering of the economic break-even point originated primarily from a growth in the landings of fish other than greenland halibut. For Fleet B, the economic break-even point established at 16,448 kg means that such landings would generate an income equivalent to the sum total of fixed and variable costs as demonstrated on Diagram 2.

Diagram 2
Calculation of the Economic Break-even Point
Case of Fleet B (<45', specialized) in 2000

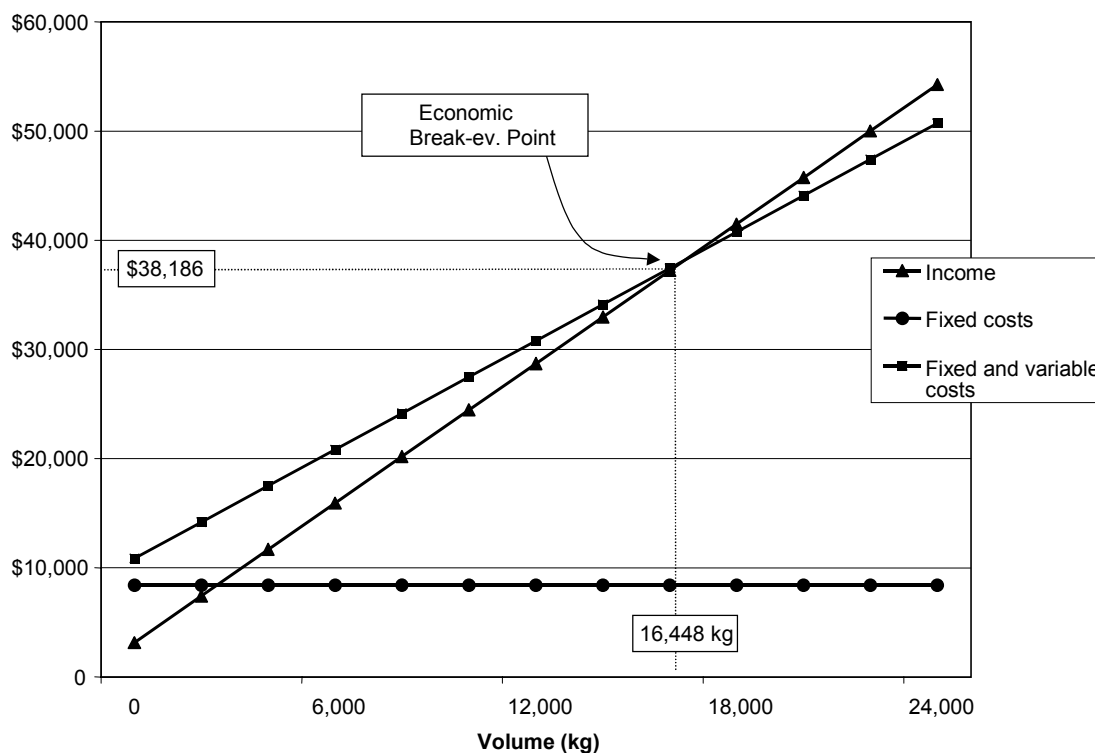


Table 8

Disparities Between Actual Greenland Halibut Landings (Kg)

Years	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized
1997	- 6,372	8,514	26,219	1,211
1998	15,319	12,533	25,535	4,282
1999	16,391	16,606	32,000	-
2000	25,363	454	31,263	- 18,392

Source : Fishermen Sample Survey

Table 8 reveals the gap between actual greenland halibut landings and the economic break-even point. The computed values come from the difference between greenland halibut landings and the economic break-even point.

$$\text{Greenland halibut landings (kg)} - \text{Economic break-even point (kg)}$$

According to this equation, a negative value implies that the quantity of greenland halibut landed *is lower* than the quantity of greenland halibut needed to reach the economic break-even point if one holds the hypothesis that the value of other landed species remains constant. Therefore, the value attached to this negative sign corresponds to the quantity of greenland halibut, in kilogrammes, needed to reach the economic break-even point.

Conversely, a positive value is an indication that the quantity of greenland halibut landed *is higher* than the quantity of greenland halibut needed to reach the economic break-even point if one holds the hypothesis that the value of other landed species remains constant. Thus, the value attached to this positive sign corresponds to the quantity of greenland halibut, in kilogrammes, which is higher than the economic break-even point and ensures that the captain-owner is paid a salary and a profit.

Table 8 reveals that only Fleet A in 1997 and Fleet D in 2000 showed negative values. Therefore, these two specific fleets did not land enough greenland halibut to reach their economic break-even point respectively during these years.

Fleet B made just enough landings in 2000 to achieve its economic break-even point. Therefore, if one holds the hypothesis that the structure of costs and income for this fleet remained constant, a decrease in the volumes of greenland halibut in 2001 could be harmful to the financial viability of this fleet since, for the time being, it only lands 454 kilogrammes above its economic break-even point.

Annexes 10, 11, 12 and 13 reveal more details on the calculation of the economic break-even point and on the disparities between greenland halibut landings for the years 1997, 1998, 1999 and 2000.

3. Conclusion

Basically, it has to be stated that the performance in the year 1999 was relatively better than in the years 1997, 1998 and 2000 for most greenland halibut fishermen. Actually, it is quite clear that the introduction of the Individual Quota regime in 1999 combined with a more equitable spread of the landings over the entire fishing season may partially explain such an improvement. Considering the availability of the resource, the year 2000 was a difficult one since the landed volume decreased by more than 25%. However, the decline of the resource was partially compensated by a price of \$2.13/kg in 2000. This landing price has been the highest price recorded so far since 1997.

Fishermen specializing in greenland halibut fishing generally had a lower cash flow income compared to diversified fishermen whose income increased steadily during the four years. Specialized fishermen represented more than 79% of the overall sample population under study, and their average total income was half the income of the diversified fleets.

Fleet B, which comprised more than 73% of the population in 2000, is the fleet of fishermen specializing in fishing greenland halibut and operating a vessel less than 45 feet. It generated a cash flow income lower than \$6,000, except in 1999 when the cash flow income was estimated at about \$12,000. In addition, the 2000 season was particularly difficult with a cash flow amounting to \$208. The reduction of financial charges since 1997 is an important factor to be considered. This reduction may have entailed an economic depreciation of the fleet assets. This slump in the asset value points out to the fact that there might be growing need for investments in the years ahead. In actual fact, the fleet assets were almost 55% lower than those of the three other fleets (Fleets A, C and D). An increase in the fixed charges may therefore occur if and when the fishermen's capacity to pay improves.

Fleet D, which comprised fishermen specializing in greenland halibut fishing and operating a vessel more than 45 feet, generated the lowest cash flow at the time of the study. This variable went down from \$436 in 1997 to a loss amounting to \$5,283 in 2000. However, this fleet sample population is very small with less than 10 fishermen since 1998.

Fleet A, which comprised diversified fishermen operating a vessel less than 45 feet, steadily increased their cash flow during the period under study. The cash flow of the fishermen increase from a loss of \$3,549 in 1997 to a cash flow of \$20,010 in 2000.

Fleet C, which comprised diversified fishermen operating a vessel more than 45 feet, has enjoyed the best cash flows since 1997. The highest level for the period under study occurred in 2000 with almost \$32,000.

Increased cash flow for the diversified fleets (Fleets A and C) was mainly due to growing incomes generated by other landed species. It is therefore quite clear that the higher income which the diversified fleets (Fleets A and C) enjoyed was largely due to the increasing landed values of cod and Atlantic halibut.

Finally, it is important to note that owners' incomes originating from other sources such as employment insurance, the leasing of quotas and The Atlantic Groundfish Strategy Program (TAGS) were relatively stable and around \$11,000 per year during all the years under study and for all the fleets surveyed.

ANNEXES

Annex 1

Key Information Gathered During the Survey

- Business general characteristics (main and secondary vessels)
 - CFVN
 - Length
 - Type of hull
 - Gross tonnage
 - Braking power
 - Year construction was completed
 - Year of purchase
- Capital
 - Breakdown of the initial purchase cost according to vessel components
 - Major additions or change made after the purchase
 - Land assets
- Fishing Effort
 - Number days at sea and number of weeks by species
 - Number of trips
 - Crew size per species
- Variables Costs
 - Salaries and social charges
 - Fuel, oil and grease
 - Food
 - Bait, ice and salt
 - Vessel maintenance and repairs
 - Repairs, replacement and acquisition of fishing gear
 - Dockside monitoring
 - Sea observers
 - Vehicle expenses
 - Marketing board
 - Co-management
- Fixed costs
 - Registration, licence and immatriculation
 - Wharf charges
 - Vessel storage
 - Association
 - Insurance
 - Administrative and legal fees
 - Quota rental
 - Vessel rental
 - Interest charges
 - Loan reimbursement
- Loans
 - Balances
- Various types of incomes
 - Gross fishing income
 - Quota rental revenues
 - Others

Annex 2

Cash Flow and Structure of Operating Costs Fleet A Greenland Halibut Fishermen (vessel <45', diversified)

1997		1998		1999		2000	
(\$)	Share in %	(\$)	Share in %	(\$)	Share in %	(\$)	Share in %

INCOME

Gross Income

Gross fishing income	68,614	-	73,783	-	78,053	-	92,598	-
Other income	-	-	543	-	333	-	125	-
Overall income	68,614		74,326		78,386		92,723	

OPERATING COSTS

Variable Costs

Labour costs	22,195	31	29,883	46	30,664	47	35,440	49
Fuel, oil and grease	6,356	9	4,455	7	3,673	6	5,240	7
Fishing gear costs	3,666	5	3,699	6	2,705	4	4,675	6
Maintenance costs	3,484	5	2,657	4	1,832	3	2,225	3
Other (expenses for vehicles, dockside monitoring, etc.)	8,818	12	7,751	11	7,613	12	10,339	14
Subtotal :	44,519	62	48,445	74	46,487	72	57,919	79

Fixed Costs

Financial expenses	18,825	26	12,380	19	13,720	21	8,342	12
Insurance	2,935	4	1,717	3	1,786	3	2,142	3
Others (registration, licence, association, etc.)	5,884	8	2,946	4	3,087	4	4,110	6
Subtotal :	27,644	38	17,043	26	18,593	28	14,594	21

Overall operating costs	72,163	100	65,488	100	65,080	100	72,513	100
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CASH FLOW	- 3,549		8,838		13,306		20,210	
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Sources : Fishermen Sample Survey and DFO data (gross fishing income)

Annex 3

Cash flow and Structure of Operating Costs Fleet B Greenland Halibut Fishermen (vessel <45', specialized)

	1997		1998		1999		2000	
	(\$)	Share in %	(\$)	Share in %	(\$)	Share in %	(\$)	Share in %
INCOME								
Gross Income								
Gross fishing income	40,555	-	53,296	-	57,727	-	39,176	-
Other income	-	-	0	-	0	-	546	-
Overall Income	40,555		53,296		57,727		39,722	
OPERATING COSTS								
Variable Costs								
Labour costs	12,966	37	21,334	45	18,410	41	17,374	44
Fuel, oil and grease	2,398	7	3,303	7	3,220	7	3,287	8
Fishing gear costs	2,577	7	3,872	8	3,204	7	2,514	6
Maintenance costs	2,204	6	2,377	5	3,187	7	1,800	5
Others (vehicle expenses, dockside monitoring, etc.)	4,506	13	7,360	16	7,697	17	6,138	16
Subtotal :	24,651	70	38,246	81	35,718	79	31,113	79
Fixed Costs								
Financial charges	5,742	16	6,067	13	5,152	12	5,120	13
Insurance	1,428	4	1,082	2	1,074	2	868	2
Others (registration, licence, association, etc.)	3,420	10	1,926	4	3,070	7	2,413	6
Subtotal :	10,589	30	9,075	19	9,296	21	8,401	21
Overall operating costs	35,240	100	47,321	100	45,014	100	39,514	100
CASH FLOW	5,315		5,975		12,713		208	

Sources : Fishermen Sample Survey and DFO data (gross fishing income)

Annex 4

Cash flow and Structure of Operating Costs Fleet C Greenland Halibut Fishermen (vessel >45', diversified)

	1997		1998		1999		2000	
	(\$)	Share in %	(\$)	Share in %	(\$)	Share in %	(\$)	Share in %
INCOME								
Gross Income								
Gross fishing income	114,446	-	104,820	-	115,493	-	128,702	-
Other income	-	-	0	-	374	-	0	-
Overall income	114,446		104,820		115,867		128,702	
OPERATING COSTS								
Variable Costs								
Labour costs	42,706	43	42,020	47	45,097	50	44,934	46
Fuel, oil and grease	9,686	9	5,624	6	5,981	7	6,260	6
Fishing gear costs	7,755	8	5,600	6	4,061	4	3,031	3
Maintenance costs	1,583	2	2,668	3	4,003	4	1,807	2
Others (vehicle expenses, dockside monitoring, etc.)	9,872	10	11,361	13	11,288	13	11,673	12
Subtotal :	71,602	72	67,273	75	70,430	78	67,705	69
Fixed Costs								
Financial charges	18,132	18	12,490	14	7,647	9	17,004	18
Insurance	4,645	5	3,842	4	2,270	3	2,848	3
Others (registration, licence, association, etc.)	4,753	5	5,951	7	9,275	10	9,325	10
Subtotal :	27,530	28	22,283	25	19,192	21	29,177	31
Overall operating costs	99,132	100	89,556	100	89,622	100	96,882	100
CASH FLOW	15,314		15,264		26,245		31,820	

Source : Fishermen Sample Survey and DFO data (gross fishing income)

Annex 5

Cash flow and Structure of Operating Costs Fleet D Greenland Halibut Fishermen (vessel >45', specialized)

	1997		1998		1999		2000	
	(\$)	Share in %	(\$)	Share in %	(\$)	Share in %	(\$)	Share in %
INCOME								
Gross Income								
Gross fishing income	54,405	-	68,505	-	-	-	64,663	-
Other income	-	-	0	-	-	-	0	-
Overall Income	54,405		68,505		-	-	64,663	
OPERATING COSTS								
Variables Costs								
Labour costs	23,490	44	27,627	41	-	-	26,189	37
Fuel, oil and grease	4,678	9	5,153	8	-	-	7,829	11
Fishing gear costs	3,689	7	5,158	8	-	-	3,956	6
Maintenance costs	3,499	6	2,329	3	-	-	6,481	9
Others (vehicle expenses, dockside monitoring, etc.)	6,193	11	9,840	15	-	-	10,947	16
Subtotal :	41,549	77	50,107	75	-	-	55,402	79
Fixed Costs								
Financial charges	3,153	6	8,493	13	-	-	6,585	9
Insurance	2,593	5	3,792	6	-	-	2,688	4
Others (registration, licence, association, etc.)	6,674	12	4,342	6	-	-	5,271	8
Subtotal :	12,420	23	16,627	25	-	-	14,544	21
Overall operating costs	53,969	100	66,734	100	-	-	69,946	100
CASH FLOW	436		1,771		-		- 5,283	

Source : Fishermen Sample Survey and DFO data (gross fishing income)

Annex 6

Owners' Overall Income Per Fleet

	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized	AVERAGE TOTAL
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1997

Cash flow	- 3,549	5,315	15,314	436	3,956
Employment insurance	10,772	10,244	10,960	10,214	10,452
Income from TAGS	352	1,162	640	1,340	955
Total	7,575	16,721	26,914	11,990	15,363

1998

Cash flow	8,838	5,975	15,264	1,771	7,794
Employment insurance	9,404	9,236	11,211	10,457	9,876
Income from the leasing of quotas	318	0	0	0	59
Income from TAGS	0	412	0	0	184
Total	18,560	15,623	26,475	12,228	17,913

1999

Cash flow	13,306	12,713	26,245	-	15,538
Employment insurance	7,647	8,792	10,422	-	8,889
Income from the leasing of quotas	3,777	3,038	5,957		3,770
Income from TAGS	0	0	0	-	0
Total	24,730	24,543	42,624		28,197

2000

Cash flow	20,210	208	31,820	- 5,283	4,841
Employment insurance	9,234	8,847	11,043	9,870	9,218
Income from the leasing of quotas	3,060	3,536	4,140	1,992	3,346
Income from TAGS	0	0	0	0	0
Total	32,504	12,591	47,003	6,579	17,404

Sources : Fishermen Sample Survey and DFO data (gross fishing income)

Annex 7

Characteristics of the Various Greenland Halibut Fishing Fleets

	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized	AVERAGE TOTAL
1997					
Average fleet age	16	10	15	15	13
Average length of the vessels	41	39	56	50	44
Loan reimbursement on 31-12-97	79,245	31,443	185,319	0	57,440
Vessel purchase price	122,537	70,707	175,040	131,779	109,295
Major additions or modifications	38,200	13,874	69,120	39,064	32,193
Overall depreciation	105,866	29,192	95,839	123,551	74,206
Balance of assets on 31-12-97	54,871	55,388	148,321	47,291	67,281
Debts/Assets Ratio	1.45	0.57	1.25	0	0.73
1998					
Average fleet age	9	12	17	14	13
Average length of the vessels	37	39	56	55	45
Loan reimbursement on 31-12-98	49,438	24,628	118,450	70,906	56,257
Vessel purchase price	89,000	73,130	264,775	228,334	140,906
Purchase price of landed assets	18,472	20,027	15,213	28,250	20,025
Major additions or modifications	24,735	19,917	33,725	25,033	24,519
Overall depreciation	52,652	63,988	180,476	187,406	105,911
Balance of assets on 31-12-98	79,555	49,086	133,237	94,211	79,540
Debts/Assets Ratio	0.62	0.50	0.89	0.75	0.64
1999					
Average fleet age	13	13	19	-	14
Average length of the vessels	39	38	52	-	41
Loan reimbursement on 31-12-99	28,189	15,065	21,067	-	18,890
Vessel purchase price	127,666	52,943	202,500	-	97,799
Purchase price of landed assets	10,833	20,014	28,083	-	19,792
Major additions or modifications	21,967	29,200	48,600	-	31,633
Overall depreciation	92,272	51,875	230,028	-	95,585
Balance of assets on 31-12-99	68,194	50,282	49,155	-	53,639
Debts/Assets Ratio	0.41	0.30	0.43	-	0.35
2000					
Average fleet age	11	13	20	17	14
Average length of the vessels	41	39	52	49	42
Loan reimbursement on 31-12-00	19,400	19,998	69,100	7,035	22,818
Vessel purchase price	108,750	52,282	170,000	112,000	77,067
Purchase price of landed assets	9,250	16,786	14,167	21,100	16,157
Major additions or modifications	32,600	26,501	44,600	51,500	31,916
Overall depreciation	72,198	60,775	154,573	106,542	76,234
Balance of assets on 31-12-00	78,402	34,794	74,194	78,058	48,906
Debts/Assets Ratio	0.25	0.57	0.93	0.09	0.51

Source : Fishermen Sample Survey

Annex 8

Structure of Greenland Halibut Landings

	Fleet A Vessel <45' Diversified	Fleet B Vessel <45' Specialized	Fleet C Vessel >45' Diversified	Fleet D Vessel >45' Specialized	AVERAGE TOTAL
1997					
Greenland halibut (\$)	34,883	36,348	45,187	48,472	39,842
Greenland halibut (kg)	21,997	22,832	28,962	31,828	25,414
Total of landings (\$)	68,614	40,555	114,446	54,405	60,050
<i>Greenland halibut</i> <i>average price (\$/kg)</i>	<i>1.59</i>	<i>1.59</i>	<i>1.56</i>	<i>1.52</i>	<i>1.57</i>
1998					
Greenland halibut (\$)	45,880	49,205	68,817	60,399	54,489
Greenland halibut (kg)	27,996	29,491	40,948	36,889	32,796
Total of landings (\$)	73,783	53,296	104,820	68,505	70,319
<i>Greenland halibut</i> <i>average price (\$/kg)</i>	<i>1.64</i>	<i>1.67</i>	<i>1.68</i>	<i>1.64</i>	<i>1.66</i>
1999					
Greenland halibut (\$)	51,504	54,476	71,835	-	57,353
Greenland halibut (kg)	25,838	27,212	35,335	-	28,562
Total of landings (\$)	78,053	57,727	115,493	-	73,345
<i>Greenland halibut</i> <i>average price (\$/kg)</i>	<i>1.99</i>	<i>2.00</i>	<i>2.03</i>	<i>-</i>	<i>2.00</i>
2000					
Greenland halibut (\$)	60,573	36,025	79,052	56,634	45,410
Greenland halibut (kg)	28,358	16,902	37,098	26,611	21,303
Total of landings (\$)	92,598	39,176	128,702	64,663	56,879
<i>Greenland halibut</i> <i>average price (\$/kg)</i>	<i>2.13</i>	<i>2.13</i>	<i>2.13</i>	<i>2.13</i>	<i>2.13</i>

Source : Fishermen Sample Survey and DFO data (gross fishing income)

Annex 9

Structure of the Landings For Each Fleet

	1998		1999		2000	
	Species	Value (Share %)	Species	Value (Share %)	Species	Value (Share %)
Fleet A Vessel <45', diversified	Greenland halibut	\$45,880 (62%)	Greenland halibut	\$51,504 (66%)	Greenland halibut	\$59,593 (65%)
	Atlantic halibut	\$10,319 (14%)	Cod	\$16,555 (21%)	Cod	\$22,135 (24%)
	Whelk	\$6,807 (9%)	Atlantic halibut	\$6,938 (9%)	Atlantic halibut	\$9,229 (10%)
	Others	\$10,788 (15%)	Others	\$3,056 (4%)	Others	\$660 (1%)
Fleet B Vessel <45', specialized	Greenland halibut	\$49,205 (92%)	Greenland halibut	\$54,476 (94%)	Greenland halibut	\$35,638 (92%)
	Atlantic halibut	\$1,373 (3%)	Flounder	\$1,107 (2%)	Cod	\$1,710 (4%)
	Herring	\$1,193 (2%)	Atlantic halibut	\$875 (2%)	Atlantic halibut	\$649 (2%)
	Others	\$1,531 (3%)	Others	\$1,269 (2%)	Others	\$791 (2%)
Fleet C Vessel >45', diversified	Greenland halibut	\$68,817 (66%)	Greenland halibut	\$71,835 (62%)	Greenland halibut	\$78,106 (61%)
	Atlantic halibut	\$22,616 (22%)	Atlantic halibut	\$20,042 (17%)	Cod	\$29,412 (23%)
	Cod	\$12,674 (12%)	Cod	\$19,737 (17%)	Atlantic halibut	\$19,355 (15%)
	Others	\$713 (0%)	Others	\$3,878 (4%)	Others	\$1,056 (1%)
Fleet D Vessel >45', specialized	Greenland halibut	\$60,399 (88%)	-	-	Greenland halibut	\$56,297 (88%)
	Atlantic halibut	\$3,925 (6%)	-	-	Cod	\$5,252 (8%)
	Cod	\$3,402 (5%)	-	-	Atlantic halibut	\$1,816 (3%)
	Others	\$777 (1%)	-	-	Others	\$961 (1%)

Sources : DFO data (gross fishing income)

Annex 10

Quantity of Greenland Halibut Needed to Reach the Economic Break-even Point Fleets of Greenland Halibut Fishing 1997

		Fleets			
	<i>Unit</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
FIXED COSTS (FC)	\$	27,644	10,589	27,530	12,420
Variable costs (VC)	\$	44,519	24,651	71,602	41,549
Average landings (all species)	\$	68,614	40,555	114,446	54,405
Variable costs / Landings	\$	0.65	0.61	0.63	0.76
UNIT MARGIN BEFORE FIXED COSTS (MBFC)	\$	0.35	0.39	0.37	0.24
ECONOMIC BREAK-EVEN POINT (Total of landings)	\$	78,718	27,002	73,540	52,561
LANDINGS OF GREENLAND HALIBUT NEEDED TO REACH THE ECONOMIC BREAK-EVEN POINT	<i>Kg</i>	28,369	14,318	2,743	30,617
ACTUAL LANDINGS OF GREENLAND HALIBUT MINUS THE ECONOMIC BREAK-EVEN POINT	<i>Kg</i>	- 6,372	8,514	26,219	1,211

Note The calculation of the economic break-even point holds as working hypothesis the constant landings of the other species fished.

Sources : Fishermen Sample Survey and DFO data (landings and gross fishing income)

Annex 11

Quantity of Greenland Halibut Needed to Reach the Economic Break-even Point Fleets of Greenland Halibut Fishing 1998

		Fleets			
	<i>Unit</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
FIXED COSTS (FC)	\$	17,043	9,075	22,283	16,627
Variable costs (VC)	\$	48,445	38,246	67,273	50,107
Average landings (all species)	\$	74,326	53,296	104,820	68,505
Variable costs / Landings	\$	0.65	0.72	0.64	0.73
UNIT MARGIN BEFORE FIXED COSTS (MBFC)	\$	0.35	0.28	0.36	0.27
ECONOMIC BREAK-EVEN POINT (Total of landings)	\$	48,694	32,411	61,897	61,581
<i>LANDINGS OF GREENLAND HALIBUT NEEDED TO REACH THE ECONOMIC BREAK-EVEN POINT</i>	<i>Kg</i>	<i>12,677</i>	<i>16,958</i>	<i>15,413</i>	<i>32,607</i>
ACTUAL LANDINGS OF GREENLAND HALIBUT MINUS THE ECONOMIC BREAK-EVEN POINT	<i>Kg</i>	15,319	12,533	25,535	4,282

Note : The calculation of the economic break-even point holds as working hypothesis the constant landings of the other species fished

Sources : Fishermen Sample Survey and DFO data (landings and gross fishing income)

Annex 12

Quantity of Greenland Halibut Needed to Reach the Economic Break-even Point Fleets of Greenland Halibut Fishing 1999

		Fleets			
	<i>Unit</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
FIXED COSTS (FC)	\$	18,593	9,296	19,192	-
Variable costs (VC)	\$	46,487	35,718	70,430	-
Average landings (all species)	\$	78,386	57,727	115,867	-
Variable costs / Landings	\$	0.59	0.62	0.61	-
UNIT MARGIN BEFORE FIXED COSTS (MBFC)	\$	0.41	0.38	0.39	-
ECONOMIC BREAK-EVEN POINT (Total of landings)	\$	45,349	24,463	49,210	-
<i>LANDINGS OF GREENLAND HALIBUT NEEDED TO REACH THE ECONOMIC BREAK-EVEN POINT</i>	<i>Kg</i>	9,447	10,606	2,735	-
ACTUAL LANDINGS OF GREENLAND HALIBUT MINUS THE ECONOMIC BREAK-EVEN POINT	<i>Kg</i>	16,391	16,606	32,600	-

Note : The calculation of the economic break-even point holds as working hypothesis the constant landings of the other species fished.

Sources : Fishermen Sample Survey and DFO data (landings and gross fishing income)

Annex 13

Quantity of Greenland Halibut Needed to Reach the Economic Break-even Point Fleets of Greenland Halibut Fishing 2000

		Fleets			
	<i>Unit</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
FIXED COSTS (FC)	\$	14,594	8,401	29,177	14,544
Variable costs (VC)	\$	57,919	31,113	67,705	55,402
Average landings (all species)	\$	92,723	39,722	128,702	64,663
Variable costs / Landings	\$	0.62	0.78	0.53	0.86
UNIT MARGIN BEFORE FIXED COSTS (MBFC)	\$	0.38	0.22	0.47	0.14
ECONOMIC BREAK-EVEN POINT (Total of landings)	\$	38,405	38,186	62,079	103,886
<i>LANDINGS OF GREENLAND HALIBUT NEEDED TO REACH THE ECONOMIC BREAK-EVEN POINT</i>	<i>Kg</i>	<i>2,995</i>	<i>16,448</i>	<i>5,835</i>	<i>45,003</i>
ACTUAL LANDINGS OF GREENLAND HALIBUT MINUS THE ECONOMIC BREAK-EVEN POINT	<i>Kg</i>	25,363	454	31,263	- 18,392

Note : The calculation of the economic break-even point holds as working hypothesis the constant landings of the other species fished.

Sources : Fishermen Sample Survey and DFO data (landings and gross fishing income)