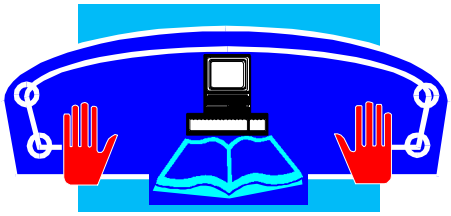

Ways Of Expanding The Winter Fishery In The Nwt Phase Iii - Great Slave Lake; Volume I Fisheries, Great Slave Lake Fishery

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CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY AND CONCLUSIONS

1. **At current winter fishing prices and current rests of operations, fishermen can receive a reasonable return for their** investment and their efforts during the winter fishing season. For the 1980-81 winter season, we estimate that efficient fishing operations must receive an average price range of $.48 per pound to $.64 per pound to yield a fair return for the fishermen's investment and effort.

2. We have segregated the Great Slave Lake fishermen into three groups; large operations, medium operations, and small operations. In general, the large operations are earning the greatest net income from the winter fishery. However, we are of the opinion that most efficient operations are the medium operations. These operations are characterized not only by size, but also by the fact that in general, the head fishermen are engaged in the greatest personal fishing effort.

3. There are considerable discrepancies in the net income of the head fisherman generated by the operations of the same size and general characteristics. The major factors resulting in difference in net income earned by different operations are

as follows:

a. **The volume of the catch delivered;**

b. **The relative specie mix of catch delivered;**

c. **Freighting costs and distances from Hay River.**

Of these, by far the most significant is the volume of catch delivered.

4. For one particular fisherman, we analyzed the net income for the winter season of 1978-79 as opposed to the net income for the summer season of 1979. This fisherman's net income for the winter season of 1978-79 was $26,000 as compared to $3,000 for the sumner of 1979. However, interviews with the fisherman indicate that he believes the reverse to be the case.

In general, we found that the large f ishermen are not aware of their relative earning powers **for the winter season. This could have serious consequences to the Fishery since some of these fishermen are considering withdrawing from the winter fishery or reducing their winter fishing efforts.**

5. *The* pricing policy of the Freshwater Fish Marketing Corporation results in a subsidy of the summer fishery by the winter fishery. The factors contributing to the subsidy include:

a. The setting of winter premiums that do not fully compensate for the increased returns from the sale of export whitefish

delivered during the winter season.

b. Allocating the excess operating costs of the Lake Stations\ H. Broadhead delivery system (approximately $.12 per pound for the stunner of 1979) against the initial price of product delivered (summer and winter) rather than as a direct charge to the fisherman.

Fishermen are not aware of the relative support that the summer fishery receives from the winter fishery. In particular, the results of our analysis indicate that freighting costs are approximately the same for both the summer and the winter season. However, because the summer costs are buried in the fish price (both summer and winter) fishermen believe that the costs of freighting during the winter season are significantly higher than during the summer season.

The effect of the above could be to discourage fishermen's winter fishing effort. This in turn could result in a decrease in total net returns from the fishery.

6. The costs of freighting during the winter season, particularity as they relate to the operations of the Bombadier Snowmobile are increasing. We forecast that efficient operation of Bombadier freighting from Area IV to Hay River would cost approximately $.09 per pound. As gasoline prices increase, and the Bombadier fleet becomes older, this cost is likely to increase substantially.

7. At present the cost of freighting by Bombadier Snowmobile compares favourably with the summer costs of freighting using the H. Broadhead. The costs of freighting with the Bombadier Snowmobile is estimated at approximately $.09 per pound compares with the 1979 rests of freighting on the H. Broadhead of approximately $.10 per pound.

8. At present, highway transportation is being combined with Bombadier freighting at the only points where it could be economically feasible. AS the costs of Bombadier freighting escalate, a combination of highway vehicles and Bombadier freighting will be more viable for other areas. The highway freighting may be in the form of freighting on winter roads to the edge of the lake or freighting on winter roads on the Lake. However, because of the costs of building winter roads it is unlikely that this type of freighting will be feasible within the next 5 years. Rather, this should be considered as a potential solution to the freighting problem in the long term.

9. At present there is no adequate replacement vehicle for the Bombadier Snowmobile for the purposes of fishing and freighting on Great Slave Lake.

10. For the long-term, a common carrier system should be establis&3 on Great Slave Lake. However, we are of the opinion that over the next 1 to 3 years a common carrier cannot operate viably on Great Slave Lake. The major reason for this is the fishermen ' s expressed reluctance to freight with a common carrier

during the winter season.

11. **We reject the concept of a Fishermen's Garage operated by the Fishermen's Federation because we are of the opinion that it would not be a viable operation. This is both because of the lack of sufficient volume to support a full time operation and our concern as to the Fishermen's Federations ability to operate a business.**

12. An organized effort is required to ensure that used Bombadiers that are available for sale from other segments of the economy are sold to the Fishery. The FFMC is in the best position to undertake this function by both putting fishermen buyers in contact with sellers, and by acting as a middle man in the purchase of used Bombadiers.

13. The Government of Canada operates a subsidy program for fishing vessels, but riot for the purchase of Bombadiers. Representation should be made to the Government of Canada to discontinue this policy which in effect discriminates against the winter Inland Fishery.

14. Based on our cursory analysis of the summer versus winter fishery, there is some question as to the logic of setting winter limits on Areas IV and V on an economic basis. rover, a more detailed analysis of the summer f ishery is required before this can be answered absolutely.

15. **Because of our concern as to the ability of the Fishermen's Federation to operate a business on a viable basis, we are of the opinion that the FFMC retail store operations should not be sold to the Fishermen's Federation.**

16. **The FFMC retail store operations should only be sold to a private individual, if that individual guaranteed to provide adequate service to the fishermen and to maintain prices at a level lower than those of other stores in the Town of Hay River.**

B. RECOMMENDATIONS

Based on our analysis in this report, we recommend the following:

1. The Government of the Northwest Territories should encourage expansion of production from the winter fishery on Great Slave Lake. However, this must be qualified to the extent that it does not reduce summer production. A more detailed study of the summer fishery would be required before recommendations could be. made as to the comparative prof inabilities of the summer and winter fisheries.

2. The Government of the Northwest Territories should consider the analysis of fishermen's net income and breakeven prices included in this report when determining the levels of prices to support for the winter fishery.

3. Representation should be made to the FFMC to be exceedingly careful in its pricing policy to ensure that it does not inadvertently discourage winter fishing.

4. Representation should be made to the FFMC to act as a middleman in the purchase of used Bombadiers for fishermen.

5. The Government of the Northwest Territories should make representation in conjunction with other provinces if possible to Federal Fisheries to extend its Fishing Vessel Subsidy Program to include Bombadier Snowmobiles.

6. The winter freighting operations on Great Slave Lake should be continuously monitored. Within three years a more detailed study should be undertaken of a common carrier system for Great Slave Lake and a system of trucking utilizing winter roads to the shore of the Lake and on the Lake.

7. At this time, the Government of the Northwest Territories should not encourage the Fishermen's Federation to operate a Fishermen's Garage.

8. The Government of the Northwest Territories should not encourage the Fishermen s Federation to purchase the FFMC's retail store.

II

INTRODUCTION

A. OBJECTIVES OF THE STUDY

This study was initially proposed during the summer of 1978. At that tire, the Freshwater Fish Marketing Corporation was carrying in excess of four million pounds of inventory of frozen or processed whitefish, most of it frozen dressed export whitefish. The potential market for the sale of frozen dressed export whitefish was becoming very static, and the Corporation was looking for alternative ways of selling export whitefish. on the other hand, the Hay River plant was freezing 100 per cent of the export whitefish catch delivered during the summer season. Furthermore, the plant was being utilized at a level that was significantly below its capacity. These factors combined to result in a situation that required the Government of the Northwest Territories price support to even maintain a $.30 per pound price on dressed Great Slave Lake export whitefish. Increased volumes were required in order to reduce the dollar per pound production costs of the Hay River plant. However, on the other hand, if increased volumes of export whitefish were frozen this would simply add to the stink of inventory and effectively decrease rather than increase the returns to the f ishermen.

Under these conditions the best possibility for increasing returns

to fishermen was to increase the production during the winter season. During the winter season, there is a very strong fresh market for Great Slave Lake export whitefish. Since 1975 almost 100 per cent of the export whitefish produced from Great Slave Lake during the winter season has been sold fresh to the American market at high prices. A large proportion of this fish is routed through Edmonton to the West Coast of the United States. At the time that the study was proposed, there was almost an inelastic demand for Great Slave Lake whitefish during the peak periods of the winter season. There was no doubt at that time that any increase in volumes of Great Slave Lake whitefish during the winter season, especially during the months of March and April, would be immediately sold into the fresh fish market at high prices. The combination of high prices and an increased volume of production for the Hay River plant would result in a general increase in the level of prices to Great Slave Lake fishermen.

Therefore, at the time that the study was proposed, it was clearly evident that the best way to increase gross revenues to fishermen was to encourage the expansion of the winter fishery on Great Slave Lake. Since that time, a number of factors have changed that have resulted in or will result in increased returns from the summer fishery. The most significant of these factors was the sale to Poland of four million pound of whitefish. In addition, the Freshwater Fish Marketing Corporation is currently expanding the production capabilities of the Hay River plant. This expansion should result in the production of products during the summer season that are more profitable than frozen dressed export whitefish. However,

at present, the fresh sales of export whitefish during the winter season still yields significantly better net returns than the revenues from the sale of frozen or processed whitefish products. Therefore, even today, expansion of the winter fishery on Great Slave Lake will still result in the greatest increase in gross revenues to fishermen.

Although it is fairly clear that the expansion of the winter fishery on Great Slave Lake would result in a substantial increase to fishermen's gross revenues, the ef feet of such an expansion of f ishermen's net income is not nearly as clear. There are a number of people including Great Slave Lake fishermen who believe that at the prices currently being offered, winter fishing operations of Great Slave Lake are not viable.

The fundamental objective of the study is to examine the viability of the winter fishery on Great Slave Lake and in doing so to isolate major problems that are either currently effecting the viability of the fishery or may effect the viability of the fishery in the future. A secondary objective of the report is to provide the Government of the Northwest Territories with information that will assist it in determining whether it should support the winter fishery or if it should support it, at what level. A tertiary objective is to provide specific information requested by the Government of the Northwest Territories with regard to specific facets of the fishery.

Finally, we had not intended to compare the winter fishery with the summer fishery in this report. At the time when we proposed the study, there was no question in our minds that the best way of increasing returns to the fishermen of the Northwest Territories was to concentrate on the expansion of the winter fishery as opposed to expansion of the sinner fishery. However, partially because of misconceptions, and partially because of improvements to the over-all picture of the summer fishery, there is now a question as to whether or not efforts at expanding the fishery should be directed towards the winter or the summer fishery. At various points within this report, we deal on a cursory basis with this topic. However, the extent of our analysis is not sufficient to answer the question.

B. SUMMARY

In summary, the purpose of this report is to add to the body of knowledge required to ensure that returns from the Northwest Territories fishery are maximized. The report considers some of the major problems within the winter fishery and suggests remedies that may be implemented over the next 10 years.

III

FISHERMEN'S NET INCOME

A. PURPOSE OF OUR STUDY OF NET INCOME

The general purpose of this study is to determine the economic viability of the winter fishery on Great Slave Lake. To this extent, an analysis of fishermen s net incomes is fundamental. There has been some concern that although winter premiums are being paid, fishermen are losing money during the winter season because of high operating costs. In proposing this study, we were of the opinion that expansion of the winter fishery on Great Slave Lake would result in a more viable fishery for the Northwest Territories. The chief measure of the viability of the fishery is fishermen's net incomes, rather than gross incomes. Measures that could increase f ishermen's gross incomes should not be encouraged if in fact they reduce their net incomes. Therefore, the fundamental purpose of this chapter is to analyze fishermen's net incomes during the winter season to provide an additional source of data to assist in determining whether the winter fishery in the Northwest Territories is a viable one. Furthermore, this data will be helpful in deciding whether or not to encourage expansion of the fishery.

However, we must stress that an analysis of fishermen's net incomes during the winter season by itself is not sufficient to determine whether the winter fishery is viable. First, one must determine whether or not the fishermen are operating efficiently and whether their methods of operations could possibly change to improve fishermen's profitability either in the short-term or the long-term. Secondly, there is a hidden factor that is much more important. This factor relates to the Freshwater Fish Marketing Corporation's method of pricing and pooling. Essentially, the Corporation, based on forecasts of revenues and expenses, calculates an initial price to the fishermen for the total year. To encourage fishing during the winter season at times when the market is strong, the Corporation sets winter premiums for various time periods during the season. However, the winter premium do not adequately reflect the total increase in net returns (total revenues less total expenses before payments to fishermen) for the winter season. As a result, the initial price to fishermen for export whitefish caught during the summer season has been supported by the net returns from the winter season. When the market for frozen dressed export whitefish has been poor, the support of the summer price by winter revenues has been very substantial.. Finally, the Corporations method of pooling revenues as between provinces also must be considered. Under a system of Specie Pooling the revenues and expenses associated with the handling, transporting, processing and selling of all products produced from a particular specie are shared. The residual after subtracting all costs from all revenues is returned to the fisherman as an initial and final

payment for his fish. Under a strict system of Specie pooling net returns earned from the fishery in one Province may support the fishery in other Provinces. Generally, differentials between Provinces result from differences in the market demand for fresh fish from different lakes, and differences in net returns from various processed and frozen products. At present, it is difficult to make any comments on the ef feet of the pooling system on the Northwest Territories because the system as it relates to the Northwest Territories is subject to annual negotiations between the Government of the Northwest Territories and the FFMC.

It is not within the scope of this report to examine the FFMC's method of pricing and pooling. However, at present the statement can be made that a decline in the winter catch of export whitefish would almost certainly result in an overall decline in export whitefish prices to fishermen (initial and final), summer and winter.

Since the summer season of 1976, the Government of the Northwest Territories has guaranteed fish prices on Great Slave Lake. These guarantees have been made as a result of hard bargaining and negotiations with the FFMC and the Great Slave Lake fishermen. For the first three years, the prices that were supported were the prices that had been paid in 1975-76. These prices were chosen to be supported because it was generally believed that they would be the minimum prices for which fishermen would fish. For the winter season of 1978-79, the FFMC, based on winter markets'

returns unilaterally raised the winter fish price. For the year 1979-80 summer and winter prices were guaranteed by the Government of the Northwest Territories. The basis of setting the guaranteed price was once again a negotiated process.

If the Government of the Northwest Territories is to continue to set price guarantees, it requires additional information upon which to base its decision. The fundamental tool of the Government should have, in making its decision, is a break-even price analysis for Great Slave Lake fishermen. The inclusion in this study of an analysis of break-even prices for the winter fishery should assist in determining the level of winter prices to be supported. However, at this time, the study has not been extended to the summer fishery.

B. SOURCE OF DATA

The source of data for our study is as follows:

1. Analysis of fishermen's accounts with the FFMC at Hay River;
2. Personal interviews with fishermen;
3. Assigned costs .

1. Fishermen 's Accounts with the FFMC

The basic and most reliable source of data is the fishermen 's account with the FFMC at Hay River. Until January 1 of 1979 the majority of fishermen's expenses, both business and personal, were paid for by the FFMC and charged to the fishermen.

Therefore, analysis of the fishermen's account reveals not only his business expenses but also his personal expenses. To a limited degree, fishermen prior to January 1, 1980 paid sane of their business expenses personally.

2. Personal Interviews with Fishermen

In attempting to ensure that our information is accurate, we interviewed the fishermen in our sample and requested either estimates of total expenses paid directly by fishermen or, if available, a listing of these expenses. Although, the fishermen intervi" ewed co-operated fully with us, we are not confident as to the accuracy of this source. As a result, the data that we are presenting for 1978-79 could be inaccurate to the extent of 10-15 per cent. However, this degree of accuracy is adequate to support our observations and conclusions.

3. Assigned Costs

The basic item of capital equipment employed by the fisherman in the winter fishery is his Bombadier Snowmobile. Most of the Bombadier Snowmobiles utilized on Great Slave Lake are quite old and were purchased second hand at a low capital cost. In most cases, the capital cost of the equipment was financed simply through the f ishermen's account with the FFMC. For #e purposes of our analysis we have assigned an average value to a Bombadier Snowmobile of $7,000 on which we calculate

depreciation and compute interest ata rate of 12 per cent per annum. However, it should be noted that the interest is in fact not being paid by the fishermen since the machine has been purchased outright.

At the time of writing this report, fishing for the winter season of 1979-80 had not yet been completed. Furthermore, because of a change in FFMC policy the fishermen are required to pay directly such costs as fishermen's wages which had formerly been paid by the FFMC and charged to their account. Therefore, we have had to rely on information from the fishermer with regard to these costs. Because we did not want to restrict our study to only one winter season, we have assigned some costs to the f ishermen for the 1979-80 season that are estimates calculated by ourselves. Therefore, the data with regard to the 1979-80 season should be considered as additional information only. Its degree of accuracy is questionable and is being presented only in support of the data derived for the 1978-79 season.

c. ANALYSIS OF DATA

1. Sample Selection Procedures

In approaching this study we decided to select a sample of f ishermen falling in three size categories: large, medium, and small . Furthermore, we selected specific fishermen in the large and medium categories based on our predetermined

bias that some of these fishermen were efficient operators and others were inefficient. One of the fishermen in the small fishermen category was selected as a result of a conversation with him at the 1978 Fishermen's Federations Annual Meeting and Dance. The other two were a random selection of regular productive small fishermen.

2. Extent of the Sample

In Table 1, we list quantitative statistics with respect to the sample of fishermen selected. The fishermen selected produced 71 per cent of the catch for the 1978-79 season. As stated above, our sample has been intentionally biased. However, for the purposes of this study the biased sample is more appropriate than an unbiased sample.

On the following page we include a map of Great Slave Lake showing the areas where our selected fishermen fish and the volumes that they produced during the 1978-79 season. To protect the confidentiality of the data, the fishermen are identified by code only.

3. Fishermen's Income, Winter 1978-79

In Tables IA and IB we list the prices paid to fishermen F. O. B. the Hay River Plant for the winter seasons of 1978-79 and 1979-80.

TABLE I

CATCH AND GROSS INCOME STATISTICS

SELECTED FISHERMEN AND ALL FISHERMEN

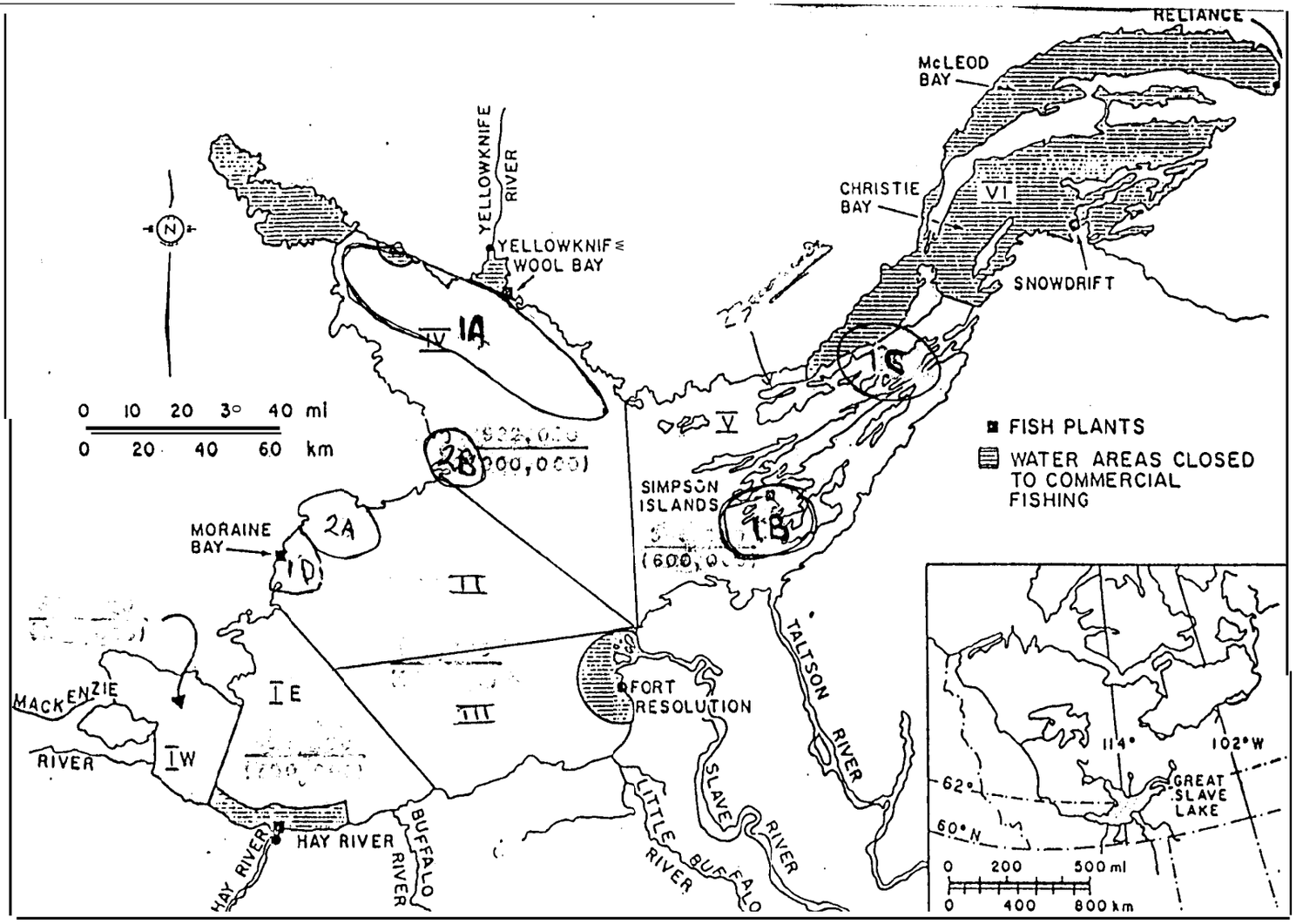
WINTER 1978-79

	Number of Fishermen	Equivalent lbs.	Actual lbs.	$	Number of Deliveries	—per delivery— Delivery Weight	$
Group 1							
1A		123,445	102,001	54,434	52	1,961	1,047
1B		144,643	115,528	46,230	38	3,040	1,217
1C		104,700	85,343	43,076	33	2,564	1,292
1D		78,238	63,602	30,744	43	1,479	715
Total Group 1	4	451,026	366,474	174,484	166		
Average Group 1		112,757	91,619	43,621	42	2,181	1,038
Group 2							
2A		44,929	34,787	13,357	8	4,348	1,670
2B		26,566	22,073	U, 552	12	1,839	963
2C		49,433	39,954	18,104	30	1,332	603
2D		36,374	29,292	11,790	22	1,331	536
2E		45,113	36,934	17,245	33	1,119	523
Total Group 2	5	202,435	163,040	72,048	105		
Average Group 2		40,487	32,608	14,409	21	1,553	686
Group 3							
3A		11,678	9,411	4,099	15	627	273
3B		20,951	16,724	7,210	47	355	153
3C		9,397	7,529	3,510	21	358	167
Total Group 3	3	42,026	33,664	14,819	83		
Average Group 3		14,009	11,221	4,940	28	401	176
Total sample fishermen	12	695,487	563,178	261,351	354		
Total all fishermen	53	981,072	793,639	356,203	711		
Sample fishermen/ all fishermen	23%	71%	71%	73%	50%		

SELECTED FISHERMEN

CATCH VOLUMES AND AREAS FISHED

WINTER 1978-79



Fisherman #	Catch (rounded)
1A	144,643
1B	123,445
1C	104,700
1D	78,238
2A	44,929
2B	2[illegible].566
2C	49,433
2D	36,374
2E	45,113
3A	11,678
3B	20,951
3C	9,397

TABLE IA

PRICES PAID TO FISHERMEN

F. O. B. HAY RIVER PLANT

WINTER 1978-79

	Initial Price $/lb.	Final Price $/lb.	Total $/lb.
Export Whitefish, dsd.			
January 1, 1979			
Jumbo	.65	16	81
Large	.55	16	71
Medium	.45	16	61
Small	.25	16	41
March 1, 1979			
Jumbo	.70	16	86
Large	.60	16	76
Medium	.50	16	66
Small	.30	16	46
Northern Pike			
2-4 dsd.	.19	.065	.255
4-9 dsd.	.24	.065	.305
Trout			
0-4 dsd.	.36	.10	.46
4-8 dsd.	.38	.10	.48
Inconnu	.15	.05	.20

TABLE 1B

PRICES PAID TO FISHERMEN

F. O. B. HAY RIVER PLANT

WINTER 1979-80

	Nov. 1 Initial Payment	Jan. 1 Initial Payment	Mar. 1 Initial Payment
Export whitefish, dsd.			
Jumbo	.60	65	.70
Large	.50	55	.65
Medium	.45	50	.55
small	.30	30	.35
Smoker Whitefish, dsd.			
Large	.55	.60	.65
Medium	.50	.55	.60
Northern Pike, dsd.			
4-9	.42	.42	.42
Trout, dsd.			
2-4	.39	.39	.39
4-8	.52	.52	.52
Inconnu	.30	.30	.30

In Table II we present schedules of operations for the selected fishermen included in our sample for the winter season of 1978-79. Net income is disclosed as follows:

a. Net income before assigned capital charges and before final payments;

b. Net income before final payments;

c. Net income.

The final payment amount is not the amount received by the fishermen during the season, but rather the amount earned by the fishermen on his catch for that season.

4. Fishermen's Income, Winter 1979-80

Table III included at Appendix A presents schedules of operations for the selected fishermen for the winter season of 1978-79. The comments tha apply to the 1978-79 winter season are also appropriate for the 1979-80 season. However, as stated previously, at the time of writing this report the season had not been completed. As a result of this and the FFMC's change of policy with respect to paying fishermen's expenses, we are not satisfied with the accuracy and meaningfulness of these operating statements. Therefore, we do not use this data to draw any direct conclusions, but present it as additional information only.

2A	2B	2C	2D	2E	3A	3B	3C
$13,357	$11,552	$18,104	$11,790	$17,245	$4,099	$7,210	$3,510
5,659	1,499	4,397	2,096	3,935	-	1,787	-
53	99	186	154	154	32	48	18
5,712	1,598	4,583	2,250	4,089	32	1,835	18
634	587		1,821	1,508	230		455
		25	11			164	-
634	587	25	1,832	1,508	230	164	455
881	1,317	1,255	4,819	2,551	383	703	528
	41	322	125	229		52	150
881	1,358	1,577	4,944	2,780	383	755	678
3,124	1,026	340	374	35	65	292	22
1,414	1,043	1,587	2,084	1,644	274	2,034	
108	94		190				
					201	116	
473	766		84				
5,119	2,929	1,927	2,732	1,679	540	2,442	22
12,346	6,472	8,112	11,758	10,056	1,185	5,196	1,173
2,000	500	1,000	1,000	1,000	500	500	1,000
14,346	6,972	9,112	12,758	11,056	1,685	5,696	2,173

2A	2B	2C	2D	2E	3A	3B	3C
$ (989)	$ 4,580	$8,992	$ (968)	$ 6,189	$2,414	$1,514	$1,337
3,782	3,455	5,455	3,759	5,122	1,281	2,132	995
2,793	8,035	14,447	2,791	11,311	3,695	3,646	2,332
950	950	950	950	950		950	
850	850	850	850	850	300 300	850	300 300
1,800	1,800	1,800	1,800	1,800	600	1,800	600
$ 993	$ 6,235	$12,647	$ 991	$ 9,511	$3,095	$1,846	$1,732

TABLE II

STATEMENT OF ASSUMPTIONS

1. Except for Fisherman 1A and 1C, Camp store expense includes the personal purchases of the head fisherman from the FFMC store.

2. Estimated expenses paid by the fishermen are based on interviews with the fishermen or our own estimates (for Group C) . We are not confident as to the absolute accuracy of the figures.

3. Capital charges are based on following:

   a. The capital cost of the Bombadier is $7,000.

   b. Depreciation is calculated on a 15 year straight line basis.

   c. Interest is calculated on an average basis for the life of the Bombadier at a rate of 12 per cent per annum.

4. Fisherman 2A uses his Bombadier for freighting other than freighting of fish. Some of the costs associated with these activities are included in this schedule.

5. Comments on the Efficiency of Various Operations

The scope of this study was not intended to include a detailed analysis of the relative efficiencies or inefficiencies of various fishermen's operations. A study Of this type would require considerably more analysis than we have performed. The purpose of this analysis is to paint a broad picture of what we believe to be very distinct and different types of fishing operations fishing Great Slave Lake during the winter season. In our opinion, there are two factors that distinguish the fishing operations that we have analyzed. These factors are size and the relative personal degree of effort of the head f ishermen.

a. Description of Operations

In Table IV we list under various categories our description of the fishing operations in our selective sample. The categories chosen to distinguish the operations are:

1. Size;
2. Vehicles employed;
3. Number of crew employed;
4. Description of participation of head f isherman (men).

b. Statistical Analysis

We are not great believers in the value of various types of statistical ratios in analyzing the performance of a business. We believe that statistical ratios can be used

TABLE Iv

DESCRIPTION OF OPERATIONS

WINTER 1978-79

	Size	Vehicle (s) Employed	Average Number of crew Employed	Participation of Head Fisherman
Group 1				
IA	Large	3 Bombadiers 1-1 ton truck (owned)	5	Bombadier Driver and Administrator
lB	Large	3 Bombadiers 1-2 ton truck (rental)	5	Bombadier Driver and Administrator
lC	Large	3 Bombardiers 1-2 ton truck (rental)	5	Bombadier Driver and Administrator
ID	Large	2 Bombadiers	5	Bombadier Driver and Administrator
Group 2				
2A	Medium	several Bombadiers	4	Administrator
2B	Medium	2 Bombardiers	1	Active f isherman Maintain equipment
2C	Medium	2 Bombadiers	1-2	Active f isherman
2D	Medium	2 Bombardiers	2	Active fisherman
2E	Medium	2 Bombadiers	2	Active fisherman
Group 3				
3A	Small	open snowmobile		Active fisherman
3B	Small	1 Bombadier	1	Active fisherman
3C	Small	open snowmobile		Active fisherman

as a tool in such an analysis but by themselves are not of great value . Financial ratios must be accompanied with an understanding of the operations and appropriate comments thereof .

In Table V we present a number of statistical ratios with regard to the operating performance of the fishermen selected in our sample.

c. comments on Performance

i. Large Operations

For the winter of 1978-79 the net income (including final payment) of the large fishermen included in our sample was generally satisfactory. Of course part of the reason for the excellant net income is the record final payment that was paid for the 1978-79 year. Final payments of this magnitude cannot be expected on a regular basis.

To obtain a complete appreciation of the selected fishermen's performance, the reader should study carefully the data presented in Tables 1, II, III, IV, V, VI, VII in this chapter and Tables VII , IX and X in Chapter IV.

Prior to undertaking the analysis of fishermen's

incomes, we had expected that one of the Group 1 operations would be significantly more efficient than the others. The data analyzed for the two seasons is not conclusive, but basically supports the hypothesis. In general, the operations of Fisherman 1A are more efficient than those of the other large fishermen.

Analysis of the data presented in Table IV indicates that in general, all of the fishing operations included in Group 1 are quite similar. However, the results of operations are significantly different. The major factors that we have identified that contribute to these differences in results are as follows:

1. The volume of the catch delivered;
2. The specie of the fish delivered;
3. Freighting cost, particularity air freighting costs ;
4. Consistent fishing effort.

1. The Volume of Catch Delivered

Probably the most significant factor creating differences in net income between the various operations included in Group 1 is the volume of the catch delivered. In Table I we include an analysis of deliveries by f ishermen for the

winter season of 1978–79. As stated above, we consider the operations of Fisherman lA to be the nest efficient of this group. Projecting the volumes of Fisherman lA to the operations of Fisherman lD result in an increase in the gross income of Fisherman ID of approximately $23,000. Inasmuch as, with the exception of freighting, the two operations are operating on a similar scale, it could be stated that a high percentage of this increased revenue would accrue directly to Fisherman IDs net income.

2. The Specie of Fish Delivered

Because fish prices for various specie vary, the ef feet of the relative ratios of various specie delivered has a significant effect on the fishermen's income. For the winter season of 1978-79, the prices paid for export whitefish were significantly higher than those for trout, the other major specie.

There is a significant difference between the ratio of various species delivered by the fishermen of Group 1. Fisherman IA basically fishes for export whitefish. Fisherman lB fishes whitefish but also delivers a significant volume of inconnu. Fisherman lC fishes whitefish but spends a signi-

ficant amount of his time fishing trout. Analysis of the data in Table VI indicates that for the winter season of 1978-79, the average price of the catch taken by the fishermen in Group 1 varies by as much as $.16 per pound. This large variance essentially results from the volume of inconnu caught by Fisherman 1B. The differencial between Fisherman 1A and 1D amounted to $.07 per pound. Applying the differential price to the catch of Fisherman 1D, would increase the gross income of Fisherman 1D by approximately $4,500.

3. Freighting Costs, Particularity Air Freighting

From the map of Great Slave Lake presented previously, it can be seen that Fisherman IA fishes Area 1V. Fisherman 1B and 1C fish Area V and Fisherman 1D fishes Area II. From this one would expect that the freighting costs of f isherman ID would be significantly lower than those of the other three f ishermen.

In Table VIII, we present an analysis of the freighting costs of the selected fishermen. The analysis indicates that Fisherman 1C, who is fishing the outer limits of Area V has significantly higher freighting costs than the other fishermen. However, we believe that the numbers may not be com-

pletely accurate. Fishermen 1B and 1C paritally freight together. It is entirely possible that some of the costs of Fisherman 1B's freighting are being covered by Fisherman C. There also is a possibility that Fisherman IA may have incurred some freighting expenditures that are not included in our analysis.

In general, the freighting operations of all the fishermen are far less costly than we had expected. This is discussed in greater detail in Chapter IV.

4. Consistent Fishing Effort

Based on our analysis of the operations of the two winter seasons , it appears that Fisherman 111 has the most consistent fishing operations. Our discussions with the fishermen did not disclose concrete reasons for this. However, in the case of Fisherman 1B we suspect that because of his relative youth and experience, he is not as consistent as the other fishermen. As stated elsewhere in this chapter it is possible that a large final payment paid to Fisherman 1B during the winter season of 1979-80 influenced his fishing efforts. However, also as stated, this is purely conjecture on our part. Certainly, Fisherman 1A manages his cash flow far better than the

TABLE V

SELECTED FISHERMEN

OPERATING RATIOS

WINTER 1978-79

Fisherman	% Net income/ Gross income	Net income per lbs. delivered	Net income per delivery	Wages per lb. delivered
1A	48	$.33	654	0.12
1B	43	.23	693	0.08
1C	17	.11	276	0.16
ID	27	.17	246	0.21
2A	6	.03	124	0.16
2B	42	.28	520	0.06
2C	53	.32	422	0.11
2D	6	.03	45	0.07
2E	43	.26	288	0.11
3A	58	.33	206	N/A
3B	20	.11	40	0.11
3C	38	.23	82	N/A

other fishermen. This is probably the result of this particular fisherman having a business background outside of fishing.

ii. Medium Sized Operations

Of the operations studied we were most impressed with the medium sized operations. From our analysis of the data for the two winter seasons, we are of the opinion that these operations are the most consistent and probably the most efficient of the fishing operations . Prior to our undertaking this study, we had expected to find that the fishing operations of Fisherman 2B, 2C and 2E would be amoungst the most efficient on the lake. The results of operations as indicated by Tables V and VI, and our interviews with the fishermen supports this hypothesis. There are two factors which in our opinion are very significant in inking these operations most efficient. These are:

1. The head f isherman actively participates in the fishing effort;
2. The experience of these particular fishermen.

AS a group, these fishermen can be distinguished from the fishermen in the larger group on the basis that they actively Participate in the day to day fishing

operations. As opposed to the fishermen in Group A, who basically administer the fishing operation and act as Bombadier drivers, the fishermen included in Group B generally are out on the ice with their crew. It is our opinion that this is a very significant factor in making these operations efficient. In addition, Fishermen 2B, 2C and 2E are amoungst the most experienced fishermen on the Lake.

iii. Small Fishermen

It is our initial intention to examine the operations of small f ishermen, compare them with the larger operations and recommend ways in which the small f ishermen could grow and improve their efficiency. We hypothesized that if adequate financing as to initial capital outlays for equipment and working capital were provialed that there would be a group of f ishermen currently fishing on a small scale who could increase the size of their operations to medium or large scale. With this in mind we discussed the possibility of obtaining grant funds for these operations with officials of Special ARDA, the GDA program and the Government of the Northwest Territories. Although each individual application would have to be reviewed on its merits, we are fairly confident that a viable proposal could be supported with small business loans

and/or government grants.

We initially met with a number of small fishermen at the Fishermen Federations Annual Meeting in November of 1978. The initial intent of this meeting was to discuss the effect that a common carrier could have on the productivity of these fishermen. The fishermen with whom we met showed no interest in the common carrier concept. However, each and every one wished to purchase his own Bombadier Snowmobile. They explained that if they had a Bombadier and sufficient financing that they could greatly increase their productivity.

As part of our analysis we examined the production records of the fishermen with whom we met at the Federation meting. Our examination of the production records in our opinion, did not support most fishermen's claims. In most cases, there is no evidence of consistency in their operations. However, as a direct result of our interviews and review of production records, we included Fisherman 3A in our selected sample. This fisherman's operating results for the winter season of 1978-79 (subsequent to our interviews with him) were promising. However, Fisherman ~~1A~~ 3A did not fish during the winter of 1979-80, and we were not able to locate him when we visited

Hay River. Our review of production records did not isolate other fishermen with growth potential.

During our interviews with the larger fishermen and the manager of the HayRiver plant we asked the questions whether or not they were aware of any fishermen or fishermen's helper who displayed the potential of running his own operation on a large scale basis. The only name proposed was that of a fisherman who is currently operating on a medium sized scale with leased equipment.

In conclusion, we are still of the opinion that new blood is required for the industry. We believe that there must be young men with significant potential available in the Hay River area. Unfortunately, we were not able to locate any good prospects. Probably, the normal market mechanism will result in the entrance of new blood into the industry. Many of the larger fishermen are close to retirement age. Hopefully, as these fishermen retire, they will sell their equipment to capable young men. The Government of the Northwest Territories and the FFMC can certainly assist in this process. Officials connected with the fishery should make every effort to ensure that Bombadier Snowmobiles and other fishing equipment are sold to the most capable young men available.

The primary purpose of this analysis is essentially to analyze the net income of -her operators, rather thanto comment specifically on efficiencies or operations or the possibilities of growth. Basically, the net income of these fishermen for 1978-79 represents a satisfactory return for their investment and fishingefforts. However, this is only because of the large final payment for that year. Forayearin which there would be no final payment or a small final payment these fishing operations probably would not yield an adequate return. This is evident from examination of Table VI.

6. Breakeven Analysis

It was our initial intention to present both a breakeven on an acutal basis and a breakeven on a projected basis. The pro jected basis would calculate a breakeven price for Great Slave Lake for a hypothetical efficient f isherman. However, our analysis of the selected fishermen indicates that there are three different groups of fishermen fishing Great Slave Lake. As stated previously, these can be divided by large operations, medium operations and small operations. Furthermore, it probably would not be to the benef it of the fishery to have all large fishermen fishing the lake. Therefore, when considering a breakeven price that should be supported for the lake, one must consider the medium and small operations as well as the large operations.

From our analysis of the results of operations for the winter season of 1978-79 we are of the opinion that Fisherman IA and Fishermen 2B, 2C and 2E ran completely efficient operations. Therefore, by examining the operations of these fishermen, the reader can be reasonably satisfied that the results of operations are those of efficient operations.

For the reasons stated in the above paragraphs, we are, in Table VI presenting a breakeven schedule on an actual basis for 1978-79, and are not presenting a projected breakeven price for a hypothetical efficient fisherman.

For the winter season of 1978-79, Table VII presents the price required for the selected fishing operations to cover their actual operating costs, assigned depreciation and interest on their Bombadier snowmobiles, and to provide a reasonable return to the fishermen for their personal fishing effo*. With regard to this, we have defined a "reasonable return" for fishing efforts to the f isherman as follows:

a. $1,200 per month for large operators

b. $1,000 per month for medium operators

c. $800 per month for small operators.

From Table VI one can see that for the winter season of 1978-79, the breakeven price for the selected fishermen had a range as follows :

a. before a reasonable salary to the head f isherman

2A	2B	2C	2D	2E	3A	3B	3C
34,782	22,073	39,954	29,292	36,934	9,411	16,724	7,529
.383	.523	.453	.402	.467	.436	.431	.466
.109	.157	.136	.129	.139	.136	.127	.132
.492	.680	.589	.531	.606	.572	.558	.598
.464	.397	.273	.497	.348	.243	.448	.368
$3,000	$3,000	$5,000	$5,000	$5,000	$3,200	$3,200	$3,200
.086	.136	.125	.171	.135	.340	.191	.425
.550	.533	.398	.668	.483	.583	.639	.793

TABLE VI

STATEMENT OF ASSUMPTIONS

1. Wages to the head fisherman are imputed as follows:

Group A	$1,200 per month
Group B	1,000 per month
Group c	800 per month

2. No return on invested capital has been included in the calculations because it is assured that the only capital investment (non-expense item) is the Bombadier or snowmobile, and that the Bombadier is financed 100 per cent with debt capital.

$.27 per pound - $.40 per pound

b. after a reasonable salary to the head fisherman

$.40 per pound - $.53 per pound.

Having undertaken a reasonably indepth study of fishermens incomes for the winter season of 1978-79, we still are of the opinion that we have not absolutely determined a price range that would guarantee a reasonable return to the fishermen for the next winter fishing season. Factors such as bad weather can have just too great of an ef feet on the results of fishermen's operations to absolutely state that the fishermen will receive a reasonable return for his efforts if he has paid a specific price. However, barring "Acts of God," if one were to apply a reasonable inflation factor to the range listed above, a reasonable answer would be obtained. Assuming an inflation factor of 20 per cent between 1979 and 1981, the price required for a reasonably efficient fisherman to receive a satisfactory return for his efforts would vary between $.48 per pound and $.64 per pound.

7. General Comments

Our discussions with the head fishermen included in the group of large fishermen indicated that these fishermen did not believe that they were earning net income for the winter season at the current winter prices. The fishermen stated that although the prices were higher during the winter season, their operating costs are so high that they were losing money. As

a result, two of the large volume producers, Fisherman 1B arid Fisherman 1C are considering discontinuing their winter fishing operations.

Cur analysis of the results of operations for these fishermen for the winter fishing season does not support their pessimistic attitude. The fishermen's misunderstanding of the vaibility of the winter fishery probably stems from a combination of the following:

a. **Until 1978-79, payments to fishermen probably were not adequate to yield a reasonable return to the fishermen for the winter season. As a result, fishermen began to go by the maxim that they made money during the summer season and lost money in the winter.**

b. The living and operating habits of most of the large fisherm differ between winter and summer. During the summer season the fishermen generally go out with their boat and remain with the boat and crew for most of the season. However, during the winter season, the head fisherman is generally resident in Hay River and participates in the freighting activity rather than directly in the fishing activity. The fact that the fisherman is resident in Hay River rather than at the camp usually results in his incurring much higher personal living expenses.

c. The cost of freighting in the summer season is hidden in the fish price. During the winter season the fisherman

not only fishes, but packs and freights his fish to Hay River. Thus the fisherman directly absorbs the full incidence of the costs of the packing arid freighting operations . By comparison, during the summer season, a large percentage of the costs of packing and freighting of fish is paid for the FFMC, but not charged directly to the fisherman. However, these rests result in reductions in the prices paid to fishermen. In fact the costs of summer freighting is charged equally (in terms of dollars per pound) to the summer and winter fish. The result of this is that the fishermen are under the misconception that summer freighting costs are very low whereas winter freighting costs are extremely high. In fact, in the next chapter, we indicate that summer freighting costs are slightly higher than the winter freighting costs.

d. The fishermen generally gauges the results of his operations by the balance in his accounts with the Freshwater Fish Marketing Corporation. Because his personal living expenses are generally much higher during the winter season than in the summer, an increase in the amounts owing to the FFMC may give him the false impression that his winter fishing operations have lost money. In fact, when analyzed on the basis of accounting principles the operations have been profitable.

e. As stated previously, the middle sized f ishermen manage their winter operations differently than the larger fisher-

men. These fishermen generally spend most of their time working in the actual fishing operations with their hired help. It is interesting to note that the fishermen included in this group whom we interviewed do not have the same misconception as to their earnings for the winter season. This is undoubtedly due to the fact that these fishermen are closer to the operations, and are not spending the same proportion of their winter income on personal living expenses . As a result, in most cases, Group B fishermen, rather than being in debt at the end of the season, have received significant cash payouts. It should also be mentioned that because the operations of these fishermen are much smaller and much of the labour employed is their own labour, it is far easier for them to be aware of their relative earnings position as measured by net income

D. COMPARISON OF THE WINTER AND SUMMER FISHERY

It is not within the scope of this study to under-take a detailed comparison of winter and summer fishing. However, because in the course of our study of the winter fishery we have encountered what we believe to be a misconception as to the vaibility of the winter fishery as opposed to the summer fishery, we have extended the scope of the study to include an analysis of one particular fishermen's income for the summer season. The purpose of this analysis is to determine whether it would be warranted to proceed with a more detailed study of the summer fishery. The fisherman chosen for our analysis is Fisherman 1B. We chose Fisherman 1B

for the following reasons:

1. Our analysis of his operations for the winter season for 1978-79 indicated that he earned $26,400 from winter fishing. Yet Fisherman 1B, in an interview with us, stated repeatedly that he had lost money for this period. Furthermore, he is completely convinced that since he started fishing he has always lost money during the winter season and has always earned money during the summer season.

2. During his interview with us, Fisherman 1B stated that he plans to discontinue winter fishing after this season. His reason for discontinuing winter fishing is the losses that he claims to be incurring during the winter season. He attributes these losses to the high operating costs of the Bombadier Snowmobile and the high cost of labour.

3. Fisherman 1B fishes both winter and summer in Area V, an area on which a winter limit has been set. This data with regard to his operations could assist Federal Fisheries in assessing their policy as to limits.

In Table VII we compare operating results for Fisherman 1B for the winter season of 1978-79 with the summer season of 1979. The analysis in Table VII indicates that Fisherman 1B earned $26,400 for the winter season of 1978-79 as compared to a projected income of $3,022 for the summer season of 1979 (based on final payment levels for the summer of 1979

being equivalent to those for the year ended April 30, 1978; a supposition not likely to happen fact) .

The results of Fisherman lB's operations for the winter of 1979-80 (to approximately April 15, 1980) are bad, particularity when compared to the winter Of 1978-79. Unfortunately, at the time of writing this report the catch data available to us is not sufficient to attempt to properly analyze the reasons for the decline. However, it appears that the major reason for the decline is a reduction in total revenue. our interv" ews with Fisherman lB did not disclose specific reasons why his gross revenues are off so much during the 1979-80 season. However, we suspect that his fishing efforts may have decreased in 1979-80. This may be at least partly due to the fact that during the winter season of 1979-80, Fisherman lB received a final payment relating to the year ended April 30, 1979 of approximately $26,000. This cash inflow may have reduced his desire to produce a strong fishing effort. However, we must state that this is purely conjecture on our part and is not supported by concrete facts or admissions by Fisherman lB.

The comparative analysis for the winter and summer seasons indicates that winter fishing can be more profitable than summer fishing. However, the extent of the analysis is far too limited to draw any general conclusions from it. Probably the most important factor disclosed is that in the case of Fisherman lB, he is not aware of the relative profitability

TABLE VII

FISHERMAN 1B

COMPARATIVE SCHEDULE OF FISHING OPERATIONS

WINTER 1978-79 - SUMMER 1979

	Winter 1978-79	$/lb. catch (dsd. weight)	Summer 1979	$/lb. catch (dsd. weight)
Lbs. delivered (dsd. weight)	115,520 lbs.		83,840 lbs.	
Gross revenue, initial payment	$46,230	$. 400	$27,332	$.327
Operating expenses:				
Wages	9,360		11,236	
Benefits - UIC	200		264	
	9,560	.083	11,500	.138
Fishing equipment and supplies:				
Nets and fishing equipment	1,803		3,504	
Other	111			
	1,914	.016	3,504	.042
Camp:				
Store and equipment	3,328		5,478	
Propane	286			
Telephone	793		316	
	4,412	.038	5,794	.069
Freighting and fishing:				
Fuel and oil	3,050	.026	3,562	.043
Repairs and maintenance	2,592	.023	1,406	.017
Commercial freighting:				
Air	7,683	.066	3,137	.038
H. Broadhead			1,900	.022
	13,325	.115	10,005	.120

TABLE VII

FISHERMAN 1B

COMPARATIVE SCHEDULE OF FISHING OPERATIONS

WINTER 1978-79 - SUMMER 1979
(continued)

	Winter 1978-79	$/lb. catch (dsd. weight)	Summer 1979	$/lb. catch (dsd. weight)
Sundry	$ 810	.008	$ 657	.009
Total expenses paid by FFMC	30,021	.260	31,460	.378
Estimated expenses paid by fishermen	2,000	.017	1,000	.012
Total expenses	32,021	.277	32,460	.390
Net income (loss) before final payment and assigned costs	14,209	.123	(5,128)	(.061)
Final payment	14,862	.129	11,450	.137
Net income before imputed costs	29,071	.252	6,322	.076
Assigned capital charges:				
Depreciation, Bombadier	1,425		1,500	
Depreciation, boat				
Finance interest	1,275		1,800	
	2,700	.024	3,300	.038
Net income	$26,371	.228	$ 3,022	.038

TABLE VII

STATEMENT OF ASSUMPTIONS

1. Winter 1978-79 per Table II p. 24, 25.

2. Final payment for summer 1979 assured to be at same rate as winter 1978-79.

3. a. Boat depreciation calculated on basis of 20 year straight line. Capital cost estimated at $30,000.

   b. Finance interest calculated at 12 per cent; 10 year amortization. Assumed that 100 per cent of the capital cost of the boat is financed with debt capital. Actual repayment of leans, principal and interest for the period amounted to $3,217.

4. The source of total revenues and catch statistics for the winter season of 1978-79 is the FFMC catch statistics. At the time of writing this report, we had not been able to reconcile the total revenues per the catch statistics to the total receipts per the fisherman's account card. However, the velure of the difference is not significant enough to ef feet conclusions arrived at from an analysis of Table VII.

of his summer and winter operations.

E. SUMMARY AND CONCLUSIONS

1. Summary

Our analysis of fishermen's operations for the winter of 1978-79 and 1979-80 indicate that the winter fishery on Great Slave Lake is a viable one. Basically, the fishermen divide up into groups as to size and fishing effort and the type of operation of each of these groups is distinctly different. At current fish prices, the operations of the large and medium size groups are definitely viable. It is difficult to come to any conclusions as to the operations of the very small fishermen because many of them do not fish on a regular basis.

There appears to be a misconception amoungst the larger fishermen particularity as to actual results of their operations during the winter seasons. Probably the major reasons for this misconception are:

a. The requirement for the fishermen to pay all expenses directly during the winter season whereas some summer expenses are hidden in the fish prices (both for the summer and winter seasons) ;

b. The fishermen's higher personal living expenses incurred during the winter season. The latter is very much the function of the social aspect of fishing during the winter season.

Because we believe that there are a number of misconceptions amoungst not only fishermen, but other people associated with the Fishery, we extended the scope of this study to include an analysis of one fishermen's summer operation. The results of this analysis indicate that the fishermen performed better during the winter Season, but was not aware of it.

2. Conclusions

Based on analysis of fishermen's operations we conclude the following:

1. At current winter fishing prices and current costs of operations, fishermen can receive a reasonable return for their investment and their efforts during the winter fishing season. We estimate that efficient fishing operations must receive an average price range of $.48 per pound to $.64 per pound to yield a fair return for the fishermen's investment and effort.

2. In general, the large scale operators are earning the greatest net income from the winter fishery. However, we are of the opinion that the most efficient operators are those operating on a medium scale basis. These are the fishermen who are also engaged in the greatest personal fishing effort.

3. Based on our preliminary survey of summer incomes versus

winter incomes we are recommending that a detailed study of fishermen's summer incomes be undertaken. The results from that study can be compared with the results being presented in this report.