
**COMPARATIVE STUDY OF CRABBERS'
EXPLOITATION RESULTS IN AREAS 12C-13-14-15-16
1998-2000**

QUEBEC REGION



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1. Introduction

This document is a comparative analysis of the crabbers' exploitation in Areas 12C, 13, 14, 15 and 16 during the years 1999 and 2000. The data used come from surveys on costs and incomes carried in these areas by the Quebec Region in 2001. Moreover, results from a previous study which focused on the 1998 operations are provided for comparison purpose. For each of the fleets, additional information may be provided by the specific document which deals with the exploitation results of the fleet.

1.1 Data Collection

The Areas surveyed included 112 Quebec crabbers and 52 of these fishermen were interviewed for the purpose of this study. Thus, the sample is made of 4 fishermen out of 5 in Area 12C, 18 fishermen out of 43 in Area 13, 9 fishermen out of 21 in Area 14, 5 fishermen out of 8 in Area 15 and finally, 16 fishermen out of 38 in Area 16.

2. Results and Analysis

2.1 Cash flow

Table 1 shows the averages of the 1999 and 2000 gross income and operating costs for the overall sample. These data are used to calculate the average cash flow for each of the years. The cash flow is the calculation of a financial result which takes into account annual incomes earned and disbursements made by the fishing businesses. Consequently, the cash flow represents the amount of capital available for the owner to be paid for his work and to make a business profit after all expenses have been met. It should be noted that labour costs are considered as variable charges in Areas 12C, 13, 14 and 15, whereas in Area 16 they are considered as fixed charges.

Table 1
Cash flow and Structure of Operating Costs
Crabbers in Areas 12C, 13, 14, 15 and 16 in 1999 and 2000

	Crab 12C			Crab 13			Crab 14 *			Crab 15			Crab 16					
	1999	2000	Var. %	1999	2000	Var. %	1999	2000	Var. %	1999	2000	Var. %	1999	2000	Var. %			
Population	5	5		43	43		20	20		8	8		36	36				
Sample	4	4		18	18		9	9		5	5		16	16				
Gross income	163 740 \$	223 336 \$	36%	70 968 \$	104 114 \$	47%	97 974 \$	151 011 \$	54%	198 775 \$	275 963 \$	39%	305 393 \$	574 073 \$	88%			
Labour costs	59 009 \$	81 652 \$	38%	34 910 \$	49 152 \$	41%	47 706 \$	70 081 \$	47%	106 167 \$	139 173 \$	31%	83 563 \$	105 638 \$	26%			
Variable costs	19 019 \$	20 965 \$	10%	19 858 \$	21 706 \$	9%	21 704 \$	28 592 \$	32%	25 217 \$	18 194 \$	-28%	34 104 \$	48 597 \$	42%			
Fuel, oil & grease	Confidential			3 121 \$	4 738 \$	52%	3 631 \$	5 818 \$	60%	4 213 \$	3 365 \$	-20%	6 058 \$	8 042 \$	33%			
Food				1 260 \$	1 845 \$	46%	1 407 \$	1 248 \$	-11%	1 083 \$	1 190 \$	10%	1 307 \$	1 558 \$	19%			
Bait serv., ice & salt				2 110 \$	2 174 \$	3%	1 025 \$	1 793 \$	75%	1 775 \$	1 223 \$	-31%	5 975 \$	8 339 \$	40%			
Fishing gear repl. & acq.				2 736 \$	4 156 \$	52%	4 794 \$	4 900 \$	2%	4 135 \$	1 732 \$	-58%	2 780 \$	4 944 \$	78%			
Vessel rep. & maintenance				4 194 \$	4 693 \$	12%	5 591 \$	12 322 \$	120%	8 488 \$	6 378 \$	-25%	10 231 \$	17 198 \$	68%			
Dockside monit., sea observers Marketing board				3 198 \$	1 249 \$	-61%	4 598 \$	1 757 \$	-62%	5 044 \$	4 048 \$	-20%	6 023 \$	7 082 \$	18%			
Expenses related to land assets				1 746 \$	1 529 \$	-12%	410 \$	492 \$	20%	479 \$	258 \$	-46%	0 \$	289 \$	N.D.			
Others				1 492 \$	1 322 \$	-11%	247 \$	262 \$	6%	0 \$	0 \$	0%	1 730 \$	1 146 \$	-34%			
Fixed costs				51 718 \$	64 827 \$	25%	11 006 \$	19 980 \$	82%	12 395 \$	15 905 \$	28%	18 042 \$	15 948 \$	-12%	63 669 \$	74 008 \$	16%
Fisher's registration Vessel registration Fishing licence				Confidential			1 605 \$	1 645 \$	2%	1 616 \$	1 595 \$	-1%	5 774 \$	5 987 \$	4%	10 317 \$	11 573 \$	12%
Vessel storage	741 \$	792 \$	7%				326 \$	308 \$	-6%	280 \$	250 \$	-11%	890 \$	973 \$	9%			
Wharf	53 \$	49 \$	-7%				21 \$	34 \$	61%	68 \$	68 \$	0%	489 \$	641 \$	31%			
Association	159 \$	257 \$	62%				121 \$	110 \$	-9%	112 \$	100 \$	-11%	253 \$	241 \$	-5%			
Vessel insurance	831 \$	1 230 \$	48%				1 834 \$	1 734 \$	-5%	1 700 \$	1 728 \$	2%	5 380 \$	5 701 \$	6%			
Legal & administrative fees	2 154 \$	3 023 \$	40%				1 317 \$	1 734 \$	32%	1 087 \$	1 452 \$	34%	18 496 \$	18 774 \$	2%			
Quota & vessel leasing	0 \$	0 \$	0%				0 \$	0 \$	0%	0 \$	0 \$	0%	0 \$	10 750 \$	0%			
Interest	1 201 \$	2 970 \$	147%				1 934 \$	2 341 \$	21%	1 339 \$	951 \$	-29%	6 197 \$	6 651 \$	7%			
Loan reimbursement	3 474 \$	9 000 \$	159%				3 947 \$	5 953 \$	51%	6 300 \$	3 983 \$	-37%	21 647 \$	18 705 \$	-14%			
Others	787 \$	1 014 \$	29%				1 279 \$	2 097 \$	64%	1 381 \$	1 428 \$	3%	0 \$	0 \$	0%			
Overall operating costs	129 746 \$	167 444 \$	29%	65 773 \$	90 838 \$	38%	81 805 \$	114 579 \$	40%	149 425 \$	173 314 \$	16%	181 336 \$	228 244 \$	26%			
Cash flow	33 994 \$	55 892 \$	64%	5 194 \$	13 276 \$	156%	16 169 \$	36 432 \$	125%	49 350 \$	102 649 \$	108%	124 057 \$	345 830 \$	179%			
Employment Insurance	9 864 \$	9 633 \$	-2%	10 252 \$	10 093 \$	-2%	10 248 \$	9 838 \$	-4%	9 619 \$	10 125 \$	5%	851 \$	738 \$	-13%			
Other income	0 \$	0 \$	0%	0 \$	0 \$	0%	0 \$	0 \$	0%	0 \$	0 \$	0%	0 \$	0 \$	0%			
Overall fisher's income	43 858 \$	65 524 \$	49%	15 447 \$	23 369 \$	51%	26 417 \$	46 271 \$	75%	58 969 \$	112 774 \$	91%	124 908 \$	346 568 \$	177%			

*: Fishing businesses holding licences both for Area 13 and Area 14 were withdrawn from the sample

** : Results of the year 1998 for Area 12C fleet cannot be displayed herein to protect the privacy of the fishers interviewed

The figures displayed on Table 1 show that Area 13 fleet had the lowest cash flow with \$5,194 in 1999 and \$13,276 in 2000. Further, there is respectively Areas 14, 12C, 15 fleets and finally Area 16 fleet which as a cash flow amounting to \$124,057 in 1999 and \$345,830 in 2000. It is important to note that the classification of the fleets according to cash flow is similar for these two years. These results also reveal that the year 2000 was more productive than the year 1999 if one compares cash flows in all the areas. That is an increase ranging from 64% in area 12C fleet to 179% in area 16 fleet.

The classification of the fleets according to the gross fishing income is identical to that of the cash flow in 1999 and 2000. Area 13 fleet was the less lucrative with a gross income of \$104,114 in 2000 whereas Area 16 fleet was the most lucrative with a landed value amounting to \$574,073 in 2000. Just like the cash flow, the gross fishing income increased from 36% to 88% during these two years in all the areas studied. Higher landing prices in 2000 were the main contributory factor for the gross income increase in the fishing business.

One should point out that labour costs soared to considerable heights in 2000. The steepest increases for businesses could be observed in Area 14 fleet with 47% and in Area 13 fleet with 41%. The most likely explanation for these increases may be that the labour payroll was apportioned to the gross fishing income (variable pay) for businesses operating in these areas. This type of variable payment for the labour was also used by Area 12C and Area 15 fleets. Consequently, when the area gross income increased, likewise the costs of the labour also varied accordingly.

Businesses operating in Area 15 recorded the highest labour-related costs with \$139,173 in 2000. Additionally, there were closely followed by fleets respectively in Areas 16, 12C, 14 and finally Area 13 fleet with \$49,152. The number of crew members was higher in Area 15 fleet compared to those of fleets in other areas and this could be explained by higher labour costs in this area.

Considering variable costs, no significant trend was noticeable which could have been applied to the entire areas. The variable costs of Area 15 fleet decreased by 28% in 2000 and those of Area 16 businesses increased by 42% for this same year. However, as shown on this table, the expenditures of the Areas 14 and 16 fleets which were related to vessel repairs and maintenance increased considerably in the year 2000. These expenditures represented more than double those incurred by businesses in Areas 12C, 13 and 15.

The fleets of Areas 13, 14 and 15 had fixed costs between \$15,000 and \$20,000 in 2000, compared to more than \$64,000 for Areas 12C and 16 fleets. Area 12C fleet had high fixed costs because half the fishermen interviewed resorted to vessel leasing. Area 16 fleet incurred high fixed charges because of higher financial expenses (interest expenses and loan reimbursement) and also because of higher legal and administrative costs.

For Area 13 fleet, their higher fixed costs increased considerably in 2000. The main cause was an increase in the loan reimbursement and fixed costs. Increasing charges such as these came in part from the purchase of new vessels in 2000 by some of the fishermen who were interviewed.

The owners' income varied widely among the five fleets under study. It should be noted that the owners' income is the sum of the cash flow added to income from Employment Insurance. Area 13 fleet was the least lucrative with an owner's income of only \$15,447 in 1999 and \$23,369 in 2000. In comparison, Area 16 fleet was the most lucrative with an owner's income reaching \$124,908 in 1999 and \$346,568 in 2000. These variations were attributable to the increase of cash flow since income coming from other sources (Employment Insurance, TAGS, temporary allocations, etc.) were practically stable during the two years under study.

For all of them, the cash flow more than doubled in 2000 with the exception of Area 12C crabbers. The considerable increase in expenditures related to vessel leasing was one of the elements that accounted for the lower increase of cash flow for Area 12C fleet compared to other fleets.

2.2 Structure of the Landings

Table 2
Structure of Snow Crab Average Landings
Crabbers of Areas 12C, 13, 14, 15 and 16

	Average Landings (\$)	Average Landings (kg)	Average Landing Price (\$/kg)	Snow Crab Shares in Total Landings
<i>Area 12C</i>				
1999	159,949	40,558	3.94	97.6
2000	219,968	41,573	5.29	98.4
<i>Area 13</i>				
1999	60,747	17,061	3.56	86.3
2000	93,545	16,601	5.63	91.5
<i>Area 14</i>				
1999	85,967	24,986	3.44	87.7
2000	139,533	27,240	5.12	92.6
<i>Area 15</i>				
1999	190,322	50,192	3.79	95.6
2000	274,195	51,822	5.29	99.4
<i>Area 16</i>				
1999	304,505	72,782	4.18	99.7
2000	573,226	108,320	5.29	99.9

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

Table 2 shows landings made by the five fleets of the areas under study in 1999 and 2000. As displayed thereon, these five fleets were strongly specialized in snow crab. In fact, the share of snow crab landings in the landings totals varied between 86% and 99.9%. Areas 13 and 14 fleets were those with the largest share of income generated by secondary catches, more specifically cod and Greenland halibut.

The landed price recorded a sharp increase in 2000. An increase amounting to 36%, in average, all fleets included. Besides, in 2000 volumes increased by 19% in average for all the fleets. Such an average increase mostly reflected a 49% increase in the landed volumes in Area 16 fleet. The quantities decreased by 2.7% in Area 13 fleet and increased by less than 10% in Areas 12C, 14 and 15 fleets.

2.3 Technico-Economic Characteristics in 2000

Table 3
Technico-Economic Characteristics in 2000 (Average Values)
Crabbers of Areas 12C, 13, 14, 15 and 16

Description	Area 12C	Area 13	Area 14	Area 15	Area 16
Average fleet age	17	17	16	16	14
Vessel average length	49'06''	40'04''	41'01''	36'06''	45'00'
Duration of fishing season (weeks)	5.0	8.1	8.1	12.2	14.7
Size of crew	3.8	3.2	3.4	4.6	3.4
Vessel initial purchase price	\$75,000	\$93,769	\$73,311	\$87,000	\$305,340
Purchase price of assets on land	\$20,000	\$17,183	\$1,433	\$10,060	\$25,569
Major additions or modifications	\$12,400	\$19,718	\$45,076	\$18,782	\$70,117
Depreciation	\$43,167	\$53,968	\$57,298	\$56,159	\$158,227
Value of assets on December 31 st	\$64,233	\$76,703	\$62,522	\$59,684	\$242,798
Balance of loans	\$61,427	\$33,236	\$38,344	\$30,472	\$69,730
Debts/Assets ratio	0.96	0.43	0.61	0.51	0.29

Sources: Fishermen Sample Survey

Table 3 shows the main characteristics of the five snow crab fleets in 2000. As displayed thereon, these fleets were relatively aging. The average age of the vessels varied within the 14 to 17 years range.

The initial purchase price of the vessels was somewhere between \$73,000 and \$94,000 for Areas 12C, 13, 14 and 15 fleets and rose as high as \$305,340 for vessels in Area 16. A similar observation could be made during the analysis of the assets value on December 31st, 2000. Areas 12C, 13, 14 and 15 fleets enjoyed assets values worth between \$59,000 and \$77,000 whereas the average assets for a business in Area 16 could be worth as much as \$242,000.

Regarding the debt incurred by the businesses, the fleets which incurred the heaviest debts were those of Areas 12C and 16 with more than \$60,000 in loans. Contrariwise, this type of loan obligations only represented 29% of the assets for Area 16 fleet while it represented almost 100% of the assets value for Area 12C fleet. Areas 13, 14 and 15 businesses had a level of debts obligations lower than 61% of the value of their assets.

ANNEXES

Annex 1
Cash Flow and Structure of Operating Costs
Crabbers of Areas 12C, 13, 14, 15 and 16 in 1998, 1999 and 2000

	Crab 12C		Crab 13			Crab 14 *			Crab 15			Crab 16				
	1999	2000	1998	1999	2000	1998	1999	2000	1998	1999	2000	1998	1999	2000		
Population	5	5	43	43	43	20	20	20	8	8	8	36	36	36		
Sample	4	4	21	18	18	10	9	9	5	5	5	17	16	16		
Gross income	163 740 \$	223 336 \$	41 428 \$	70 968 \$	104 114 \$	96 511 \$	97 974 \$	151 011 \$	159 185 \$	198 775 \$	275 963 \$	246 022 \$	305 393 \$	574 073 \$		
Labour costs	59 009 \$	81 652 \$	21 085 \$	34 910 \$	49 152 \$	46 009 \$	47 706 \$	70 081 \$	81 487 \$	106 167 \$	139 173 \$	70 576 \$	83 563 \$	105 638 \$		
Variable costs	19 019 \$	20 965 \$	14 120 \$	19 858 \$	21 706 \$	23 761 \$	21 704 \$	28 592 \$	20 996 \$	25 217 \$	18 194 \$	41 029 \$	34 104 \$	48 597 \$		
Fuel, oil & grease	Confidential		3 007 \$	3 121 \$	4 738 \$	6 173 \$	3 631 \$	5 818 \$	3 489 \$	4 213 \$	3 365 \$	6 841 \$	6 058 \$	8 042 \$		
Food			1 303 \$	1 260 \$	1 845 \$	2 400 \$	1 407 \$	1 248 \$	1 523 \$	1 083 \$	1 190 \$	3 024 \$	1 307 \$	1 558 \$		
Bait serv., ice & salt			1 725 \$	2 110 \$	2 174 \$	1 853 \$	1 025 \$	1 793 \$	1 973 \$	1 775 \$	1 223 \$	4 919 \$	5 975 \$	8 339 \$		
Fish gear repl. & acq.			2 640 \$	2 736 \$	4 156 \$	2 826 \$	4 794 \$	4 900 \$	2 238 \$	4 135 \$	1 732 \$	6 677 \$	2 780 \$	4 944 \$		
Vessel rep. & maintenance			2 304 \$	4 194 \$	4 693 \$	5 270 \$	5 591 \$	12 322 \$	1 394 \$	8 488 \$	6 378 \$	7 313 \$	10 231 \$	17 198 \$		
Dockside monit., sea observers Marketing board			2 170 \$	3 198 \$	1 249 \$	3 686 \$	4 598 \$	1 757 \$	8 701 \$	5 044 \$	4 048 \$	8 086 \$	6 023 \$	7 082 \$		
Expenses related to land assets			881 \$	1 746 \$	1 529 \$	1 537 \$	410 \$	492 \$	1 378 \$	479 \$	258 \$	2 874 \$	0 \$	289 \$		
Others			90 \$	1 492 \$	1 322 \$	16 \$	247 \$	262 \$	300 \$	0 \$	0 \$	1 295 \$	1 730 \$	1 146 \$		
Fixed costs			51 718 \$	64 827 \$	7 578 \$	11 006 \$	19 980 \$	23 982 \$	12 395 \$	15 905 \$	12 806 \$	18 042 \$	15 948 \$	54 646 \$	63 669 \$	74 008 \$
Fisher's registration, Vessel registration & Fishing licence			Confidential		1 382 \$	1 605 \$	1 645 \$	1 690 \$	1 616 \$	1 595 \$	5 784 \$	5 774 \$	5 987 \$	9 358 \$	10 317 \$	11 573 \$
Vessel storage	444 \$	741 \$			792 \$	830 \$	326 \$	308 \$	597 \$	280 \$	250 \$	719 \$	890 \$	973 \$		
Wharf	9 \$	53 \$			49 \$	19 \$	21 \$	34 \$	38 \$	68 \$	68 \$	219 \$	489 \$	641 \$		
Association	84 \$	159 \$			257 \$	210 \$	121 \$	110 \$	103 \$	112 \$	100 \$	208 \$	253 \$	241 \$		
Vessel insurance	461 \$	831 \$			1 230 \$	3 272 \$	1 834 \$	1 734 \$	1 511 \$	1 700 \$	1 728 \$	5 353 \$	5 380 \$	5 701 \$		
Legal & administrative fees	629 \$	2 154 \$			3 023 \$	786 \$	1 317 \$	1 734 \$	343 \$	1 087 \$	1 452 \$	3 620 \$	18 496 \$	18 774 \$		
Quota & vessel leasing	1 105 \$	0 \$			0 \$	400 \$	0 \$	0 \$	0 \$	0 \$	0 \$	0 \$	0 \$	10 750 \$		
Interest	939 \$	1 201 \$			2 970 \$	9 247 \$	1 934 \$	2 341 \$	1 585 \$	1 339 \$	951 \$	15 539 \$	6 197 \$	6 651 \$		
Loan reimbursement	2 052 \$	3 474 \$			9 000 \$	6 466 \$	3 947 \$	5 953 \$	2 599 \$	6 300 \$	3 983 \$	19 257 \$	21 647 \$	18 705 \$		
Others	473 \$	787 \$			1 014 \$	1 062 \$	1 279 \$	2 097 \$	246 \$	1 381 \$	1 428 \$	373 \$	0 \$	0 \$		
Overall operating costs	129 746 \$	167 444 \$	42 783 \$	65 773 \$	90 838 \$	93 752 \$	81 805 \$	114 579 \$	115 289 \$	149 425 \$	173 314 \$	166 251 \$	181 336 \$	228 244 \$		
Cash flow	33 994 \$	55 892 \$	-1 353 \$	5 194 \$	13 276 \$	2 762 \$	16 169 \$	36 432 \$	43 898 \$	49 350 \$	102 649 \$	79 770 \$	124 057 \$	345 830 \$		
Employment Insurance	9 864 \$	9 633 \$	9 468 \$	10 252 \$	10 093 \$	10 651 \$	10 248 \$	9 838 \$	12 839 \$	9 619 \$	10 125 \$	2 990 \$	851 \$	738 \$		
Other income	0 \$	0 \$	3 033 \$	0 \$	0 \$	1 160 \$	0 \$	0 \$	0 \$	0 \$	0 \$	0 \$	0 \$	0 \$		
Overall fisher's income	43 858 \$	65 524 \$	11 148 \$	15 447 \$	23 369 \$	14 573 \$	26 417 \$	46 271 \$	56 737 \$	58 969 \$	112 774 \$	82 760 \$	124 908 \$	346 568 \$		

*: Fishing businesses holding licences both for Area 13 and 14 were withdrawn from the sample

** : Results of the year 1998 for Area 12C fleet cannot be displayed herein to protect the privacy of the fishers interviewed

Annex 2 Chart of Snow Crab Fishing Areas

