

# **The Newfoundland Fishery A Descriptive Analysis**

by

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## 1. Introduction

Newfoundland is Canada's tenth province. It joined the Canadian federation in 1949. The 1996 census recorded a provincial population of 570,711, which amounted to only 1.9 percent of that of the entire country. The population has been roughly stable over the past two decades, but has been declining recently in response to adverse economic conditions.

The province's gross domestic product in 1996 amounted to C\$10 billion, or C\$17,600 per person, a level that was only 68 percent of the Canadian average.<sup>1</sup> The impact of this relatively low level of productivity on living standards is alleviated by a substantial (\$2.1 billion in 1996) import surplus, financed mainly through federal government operations and transfers.

Canada is a federal country, and so government responsibilities are allocated constitutionally between the federal government and the provinces. Fisheries management is the responsibility of the federal government, but the provincial government has jurisdiction over on-shore processing activities through its responsibility for "Property and Civil Rights in the Province." However, processors who wish to export their product are regulated as well by the federal government, which has jurisdiction over international trade.

Historically, the fishery has been the mainstay of the Newfoundland economy (Copes 1970). The first occupational census, collected in 1857, reveals that in that year, fully ninety percent of the male labour force was engaged in the catching and curing of fish (Table 1). Inevitably, this ratio declined as economic development proceeded, but was still quite substantial at the time of Confederation with Canada. Since then, however, the census figures show a precipitous decline in the importance of the fishery in providing employment to the local labour force up to 1961 (after which the proportion appears to have stabilized). The census data suggest that only about five percent of the labour force now make a living as fishers.

However, other evidence suggests that these figures may underestimate the economic importance of the industry. For one thing, the fishery is of significant *regional* importance within the province; there are areas in which the fishery is the only significant employer. For another, there are two classes of workers that are not captured in these census statistics: part-time fishermen

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<sup>1</sup>The Canadian dollar was worth about US\$0.74 in 1996.

who may be classified in some other occupation, and fish plant workers. As for the former, the Department of Fisheries and Oceans, the federal government department that regulates fisheries, registered over 14,000 full-time fishermen and over 10,000 part-time fishermen in 1991;<sup>2</sup> however, most of the part-timers probably were not actively fishing.<sup>3</sup>

**Table 1**  
Number of Fishermen by Census  
Newfoundland, Various Years

Year	Fishing Occupations	Total Labour Force	Percent Fishermen
1857	38,578	42,671	90.4
1901	41,231	67,368	61.2
1945	31,634	101,899	31.0
1951	18,342	106,411	17.2
1961	8,183	112,310	7.3
1971	7,260	147,990	4.9
1981	12,030	222,475	5.4
1991	12,690	267,155	4.8

*Source:* For the years 1897–1945, “Male population engaged in catching and curing fish,” *Census of Newfoundland and Labrador, 1935* for 1857 and 1901, and *Census of Newfoundland, 1945*, as reported in Copes 1970, Table 3. For the years 1951–1981, “Occupational group: Fishermen, Trappers & Hunters,” *Census of Canada, 1951, 1961, 1971, 1981, 1991*, as reported in *Historical Statistics of Newfoundland and Labrador*, Volume I(1), Table C-5, and Volume II(VII), Table C-4.

Assessing the employment impact of the processing sector is even more problematic. The 1993 Task Force on Incomes and Adjustment in the Atlantic Fishery (Cashin Task Force), despite the expenditure of considerable resources on the question, found it quite difficult to come up with a hard number. However, Statistics Canada Taxfiler data and a DFO Plant Survey suggest

<sup>2</sup>Newfoundland and Labrador, *Historical Statistics of Newfoundland and Labrador* (St. John’s: Department of Public Works and Services, 1994), volume II(VII), Table K-7.

<sup>3</sup>According to the D.F.O. 1988 Survey of Atlantic Fishermen, 88 percent of fishermen in Newfoundland with full-time registration were engaged in fishing activity in that year, as opposed to only 37 percent of fishermen registered as part-time. *1988 Survey of Atlantic Fishermen*, Table 3.1.

employment in the range of 27,000 in 1990.<sup>4</sup> This is not full-time employment; for example, Statistics Canada's Census of Manufacturers (which admittedly covers only the larger plants) reports full-time-equivalent employment of 9,000 workers in 1990.<sup>5</sup>

The contribution of the fishing industry to production is documented in Table 2. Since 1971, fish products have accounted for a stable but small (5–7 percent) proportion of production in the Newfoundland economy. A striking trend revealed in this table is the very sharp increase in the relative importance of the services sector to the Newfoundland economy.<sup>6</sup> Indeed, in contrast to other goods-producing industries, and particularly other primary industries (e.g., forestry, mining), until recently the fishery has at least held its own.

**Table 2**  
Gross Domestic Product by Industry  
Newfoundland, Selected Years

	1971		1981		1989		1992	
	\$ mil.	%	\$ mil.	%	\$ mil.	%	\$ mil.	%
Fishing and fish products <sup>a</sup>	59	5	247	6	449	6	295	4
Other primary industries	153	13	539	12	418	6	372	5
Other goods production	337	28	981	22	1,493	20	1,576	19
Total goods production	549	45	1,766	40	2,360	31	2,243	27
Total services	670	55	2,630	60	5,226	69	5,965	73
<b>Total goods and services</b>	<b>1,219</b>	<b>100</b>	<b>4,396</b>	<b>100</b>	<b>7,586</b>	<b>100</b>	<b>8,208</b>	<b>100</b>

Source: Statistics Canada, cat. nos. 13-213 and 15-203, as reported in *Historical Statistics of Newfoundland and Labrador*, Volume II(VII), Table F-4.

Note: A redefinition of wages and salaries in 1984 makes the series before and after this date not directly comparable.

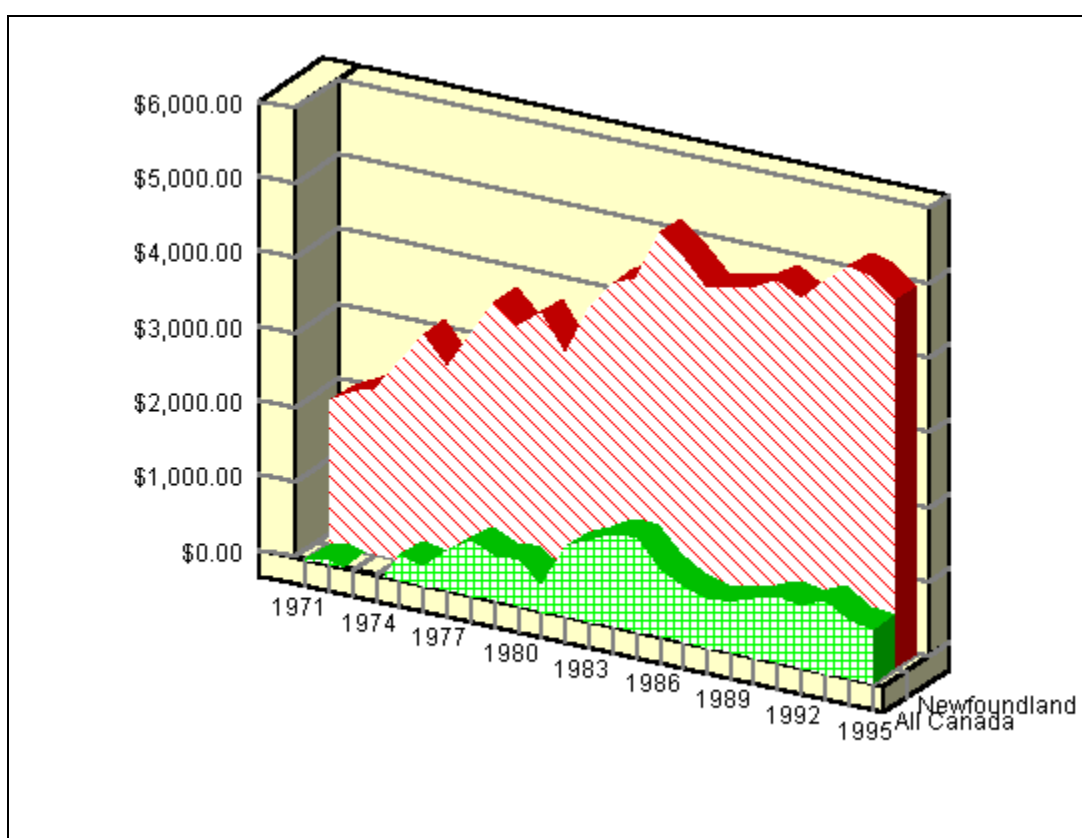
<sup>a</sup>Includes fish processing.

<sup>4</sup>Task Force on Incomes and Adjustment in the Atlantic Fishery 1993, Tables 9 and 16.

<sup>5</sup>Statistics Canada, *Food Industries*, cat. no. 32-250, as reported in *Historical Statistics of Newfoundland and Labrador*, Volume II(VII), Table N-3.

<sup>6</sup>This trend is exaggerated somewhat by a data redefinition in 1984 which had the effect of increasing the share of the services sector in that year by four percentage points. Nonetheless, the trend to an enlarged services sector is apparent in the series both preceding and following this data break.

While a number of factors might be involved here, attention should be drawn to the very substantial rise in federal government involvement in the Newfoundland economy over the period. Figure 1 depicts the per capita level of the federal government deficit, both overall and within Newfoundland, in 1986 dollars over the period 1971–1995. The difference between these two series can be interpreted as the regional redistributive impact of the federal budget in this period. This redistributive impact has averaged about \$4,000 per person (in 1986 dollars) over the past decade,<sup>7</sup> and has permitted an expansion in the public sector at both the federal and (through intergovernmental transfers) provincial levels in Newfoundland. This public expenditure alone would have accounted for much of the expansion in the services sector noted above, since these government activities are largely recorded as service industries.



**Figure 1.** Federal government deficit per capita, in 1986 dollars, for all Canada and Newfoundland

Source: Statistics Canada CANSIM series D11170, D22125, D31236, D31248, D44750, and D44764.

<sup>7</sup>Statistics Canada, *Provincial Economic Accounts*, Cat. No. 13-213.

In addition, these government fiscal operations have enhanced local incomes, and therefore also local expenditures. In the normal course of events, demand for both goods and services would have risen. Most services are by nature locally produced goods; commodities, on the other hand, can usually be imported. Federal government fiscal operations have permitted Newfoundland (and the other Atlantic provinces) to sustain a high level of imports that did not have to be paid for by exports. These imports can meet the additional local demand for commodities. Indeed, they can permit resources to be released from local commodity production, in order to satisfy the demand for additional local production of services, both private and government.

Three events in the post-war period have had a major impact on the industry. The first event was the very heavy exploitation, beginning in the 1960's, by distant water nations of stocks traditionally harvested by Newfoundland fishermen. The second was the extension of jurisdiction by Canada over the major portion of these stocks in 1977. The third was the moratorium imposed in 1992 and 1993 on fishing most of these stocks as a result of severe stock depletion. The impact of these three events on the northern cod stock (known officially as 2J3KL cod, after the NAFO divisions in which the stock is harvested), the most important stock for the Newfoundland fishery, is clearly apparent in Figure 2 below.

There has always been some distant-water participation in the fisheries off Newfoundland going back at least to the sixteenth century (Innis 1978), if not earlier. However, in 1959–60, distant water nations began to increase substantially their exploitation of northwest Atlantic groundfish stocks. By 1968, total catches were about 2½ times the level that was being experienced in the 1950's. While this increase was clearly unsustainable, the impact on catchability was initially fairly modest, and Canada was able to maintain its groundfish catch at levels close to those prevailing in the 1950's. However, the less mobile inshore cod fishery began to show markedly reduced catches in the mid-1960's, and this reduction induced a drop in the number of fishermen beginning in 1965.

After 1968, the effect of exploitation beyond maximum sustainable yield became apparent, and total catches began to decline despite increased offshore effort. In Newfoundland, total fish landings began to decline, at first marginally and then more precipitously. The inshore northern cod fishery was particularly hard hit, and catches fell to 35 thousand tonnes in 1974, as compared with a post-war peak of 185 thousand tonnes in 1954. This reduction was reflected in a decline in the number of fishermen to 12,000 in 1974, from 22,000 only ten years earlier.

Government response to the crisis was twofold. First, the federal government took a more aggressive posture within the International Convention for the Northwest Atlantic Fisheries (ICNAF), the heretofore ineffective international regulatory body responsible for managing these stocks (Munro 1980, ch. 3). This new aggressiveness resulted in reduced allocations of groundfish stocks to the distant water nations, and ultimately (in 1977) in the establishment of Extended Fisheries Jurisdiction (EFJ) within 200 miles of the coast. Second, government financial support for the industry, already substantial, received a major increment in 1974 and subsequent years, and



**Figure 2.** Cod catch in ICNAF/NAFO divisions 2J+3KL, Canadian and total

Source: Northwest Atlantic Fisheries Organization, Statistical Bulletin; Department of Fisheries and Oceans, *Atlantic Groundfish Management Plan*, various years.

for several years actually exceeded the value of the catch in Newfoundland. We have documented (Schrank, Skoda, Roy and Tsoa, 1987) and discussed the political implications (Schrank, Ommer, Roy, and Skoda 1992) of this increase elsewhere, and so we will not pursue the matter further here. The effect of Extended Fisheries Jurisdiction, however, does merit further examination.

The declaration of Extended Fisheries Jurisdiction was widely expected to lead to improved management of the fishing stocks, which had now been brought entirely or mainly within the jurisdiction of one sovereign authority, the government of Canada. It was also widely expected that the fishing effort of distant water nations would be displaced by additional Canadian effort, as was permitted by Article 62 of the United Nations Convention on the Law of the Sea.<sup>8</sup>

<sup>8</sup>While the convention was concluded in 1982, that part of the convention which pertained to fisheries (Part V) had been agreed to by 1975. This part of the convention had become generally regarded as part of

For these two reasons, the establishment of Extended Fisheries Jurisdiction generated a wave of optimism in the industry, which expected to be the beneficiary of a vastly increased share of a properly managed stock. In fact, landings in Newfoundland nearly doubled in real terms from 1974 to 1979.

Despite this increase in landings, it is fair to characterize the outcome of Extended Fisheries Jurisdiction as one of unfulfilled promise. While landings increased enormously over the period 1974–79, landings per fisherman showed, at best, a modest *declining* trend in real terms over the same period (Roy 1988). That is, while landings rose substantially, the number of fishermen rose even more, increasing from under 13,000 in 1976 to 35,000 in 1980. As a result, the increased landings made little impact on the real income of the average fisherman. Overall, there is no noticeable trend in real landings per fisherman over the broader period 1954–84, although it is notable that this value reached a post-war peak in 1976, the year *before* Extended Fisheries Jurisdiction was declared (Roy 1988).

This dismal scenario is, of course, consistent with the proposition of long-run rent dissipation in an open-access fishery (see, for example, Munro and Scott 1985). In fact, Extended Fisheries Jurisdiction appears to have accelerated the process considerably, leading to such widespread expectations of higher incomes in the fishery, that none of the participants had the opportunity to earn such higher incomes, even temporarily. By the time a freeze on personal fishing licences was finally introduced in 1980, the damage had already been done (Schrank 1995).

Another factor was at work here, however. Historically, since at least the middle of the nineteenth century, the northern cod stock has sustained annual catches averaging no greater than 250,000 tonnes (Northern Cod Review Panel 1990, ch. 2). By 1959, this pattern had been disrupted by a massive increase in foreign fishing effort, resulting in catches which had peaked at a level of 783,000 tonnes in 1968. While ICNAF began to impose TAC quotas in 1973, these were not set at levels which were binding until 1977, by which time the bulk of the stock had come under Canadian jurisdiction as a result of EFJ.

Canadian management policy since EFJ has been based on the so-called  $F_{0.1}$  management rule (Gulland 1968), which is more conservative than maximum sustainable yield (Canada Department of Fisheries and Oceans 1981). The expectation was that after an initial period of stock rebuilding, catches could be raised to (and indeed beyond) historical levels (Munro 1980, ch. 3). For example, a Canadian government document published in 1979 forecast a TAC of 402,000 tonnes for northern cod by 1980 (Canada Department of Fisheries and Oceans 1979). Similar increases were expected in other stocks.

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customary international law, and had been formally recognized as such by the International Court of Justice (Munro 1988). Ironically, Canada has yet to ratify the convention, apparently out of concerns that such ratification would *limit* Canada's ability to protect its extra-territorial interests under other aspects of international law.



Catches never came close to satisfying these expectations. Particularly disappointing was the inshore catch, which showed continuously declining catches through the early 1980's. As a result, in 1987 the Minister of Fisheries commissioned a blue-ribbon group chaired by Lee Alverson of the University of Washington to examine the question. While the Task Group's report (Task Group on Newfoundland Inshore Fisheries 1987) was somewhat tentative in its observations, it did conclude that the northern cod stock had not been regenerating as rapidly as what the pre-1968 experience would have led one to expect (Task Group on Newfoundland Inshore Fisheries 1987, 40).<sup>9</sup> It also concluded that total allowable catches for northern cod had been set by the Department of Fisheries and Oceans on the basis of an assumed fishing mortality rate that the Task Group concluded had been consistently underestimated, perhaps by a factor of 2 or more (Task Group on Newfoundland Inshore Fisheries 1987, 34–37).<sup>10</sup> This miscalculation may have been a direct result of the underestimate of natural recruitment mentioned above. This consistent pattern of underestimation has since been confirmed both by the Canadian Atlantic Fisheries Scientific Advisory Committee (CAFSAC), which was the body responsible for providing stock assessment advice to the fisheries managers, and by the subsequent independent Northern Cod Review Panel. In response, the TAC was reduced marginally from 266,000 tonnes in 1988 to 199,000 in 1990 (CAFSAC's advice<sup>11</sup> having been a TAC of 125,000).

In retrospect, this response was too little and too late (Schrank 1997). By 1992, the spawning stock biomass had fallen into a range of 48,000–108,000 tonnes, the lowest value on record (Coady 1993). In July 1992 a moratorium on fishing the stock was declared. The moratorium has since been extended to twelve other groundfish stocks. Prognosis for northern cod is poor; the most recent stock status report<sup>12</sup> finds that the stock is still at an extremely low level. Of particular concern is the absence of any indication of good recruitment.

The effect of these events on the value of fish landings in Newfoundland in real terms is presented in Figure 3. It can be seen that the value of groundfish landings reached its peak in 1987, this peak

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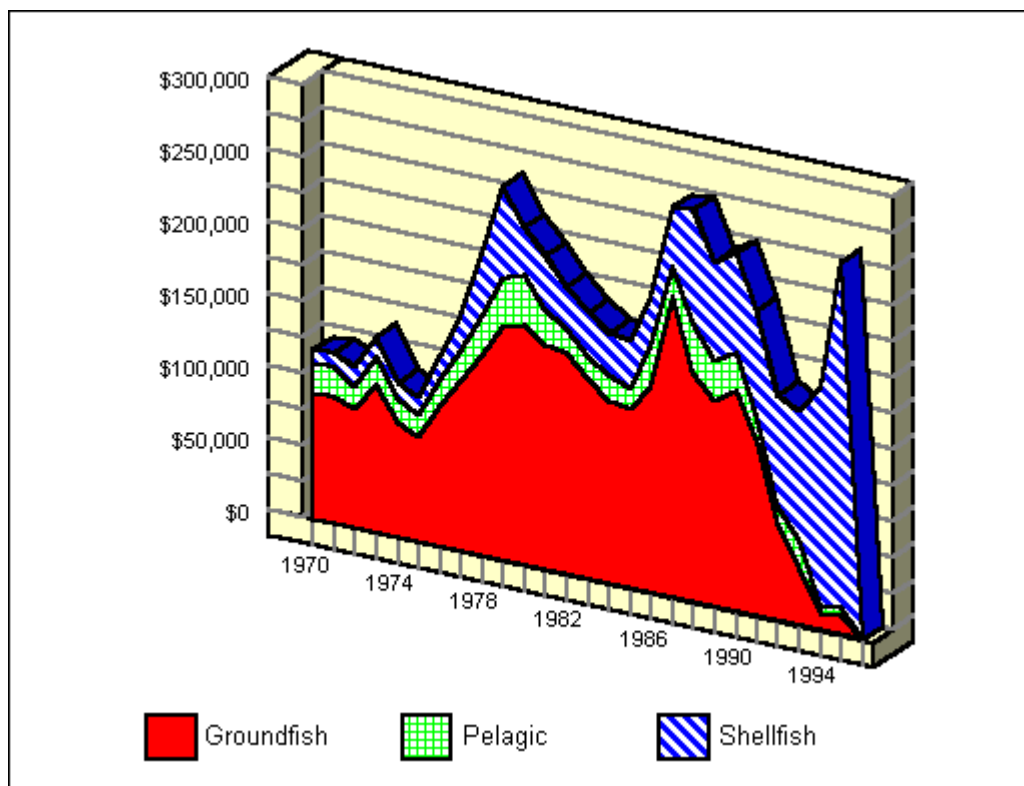
<sup>9</sup>One may speculate that the extremely heavy exploitation of the stock by the distant water nations in the period 1959–1976 caused a significant departure from stock-recruitment relations appropriate to more typical conditions. The Task Group Report hints at such a departure, and then rather pointedly (and uncharacteristically) suggests "that it would be irresponsible not to take the possibility into account in setting management measures" (emphasis in original).

<sup>10</sup>In the period immediately after EFJ, total allowable catches were set to achieve a fishing mortality rate (catch as a proportion of stock biomass) of 0.16, and later 0.2. In fact, the actual rate appears to have been around 0.5 (Task Group on Newfoundland Inshore Fisheries 1987, Table 4). Unfortunately, in subsequent years the discrepancy actually widened, to a level which by some calculations exceeded 1.0 (Roy 1996).

<sup>11</sup> Canadian Atlantic Fisheries Scientific Advisory Committee, Advice for 1989 in the Management of Cod in Division 2J3KL. *CAFSAC Advisory Document 89/1* (Ottawa, 1989).

<sup>12</sup>Department of Fisheries and Oceans, *Stock Status Report. Cod: southern Labrador and northern Grand Banks (2J+3KL)*. DFO Atlantic Fisheries Stock Status Report 96/45 (Ottawa, 1996). Online. Internet. August 1997. Available HTTP: [csas.meds.dfo.ca/csas/STATUS/1996/96\\_045e.htm](http://csas.meds.dfo.ca/csas/STATUS/1996/96_045e.htm).

due more to exceptionally high cod prices than to particularly high landings *per se*. Over the period 1990–94, the value of groundfish landings declined precipitously to about five percent of this peak.



**Figure 3.** Value of seafish landings, Newfoundland, in thousands of 1986 dollars

*Source:* 1970–89: Dept. of Fisheries and Oceans, *Canadian Fisheries Annual Statistical Review*; 1990–95: Dept. of Fisheries and Oceans, *Canadian Fisheries Landings* (data are preliminary). Data are deflated by the Consumer Price Index for St. John's, all items (CANSIM series P801000).

It can also be seen that this decline has been almost entirely offset by a rise in the value of landings of molluscs and crustaceans. Indeed, in 1995 the real value of landings was only marginally below the peak experienced in 1987–88. It should not be concluded, however, that there is not still serious hardship within the industry. First, the shellfish fisheries are limited access, and only a minority of fishermen possess the appropriate licences (Table 9). Second, shellfish are typically high value, low-volume fisheries, often involving fairly minimal processing. Only a relatively small number of plants and plant workers benefit from these fisheries. There remains considerable unemployment in harvesting and processing capacity in the industry.

The changes that have taken place leave us with a dilemma as to the period on which to focus in our analysis of the Newfoundland fishery. It is our (perhaps optimistic) view that the collapse of

the groundfish stocks is a temporary phenomenon, and that the fishery of the 1980's still has relevance. This relevance is reinforced by the absence of any real structural change in the industry in response to the current crisis (Schrank 1997). Other than the absence of finfish, there is not much in the Newfoundland fishery that has really changed since 1987.

In the analysis below, we shall pay particular attention to the state of the industry as of 1989, which in our view was the last more-or-less normal year experienced by the Newfoundland fishery. However, attention will also be paid to changes which have occurred since that year which have some potential to become permanent.

The state of the resource stocks is described in Section 2. The structure of the harvesting and processing sectors is examined in Section 3. Government policies affecting the industry are analyzed in Section 4.

## **2. The Resource Stocks**

Table 3 presents the breakdown of fish landings by species, both for our last 'normal' year of 1989, and for 1995. In the former year, it is apparent that the Newfoundland fishery was predominantly a groundfish fishery. The most important species were cod (45%) and shrimp (17%), followed by plaice and greysole, capelin, and lobster, each accounting for 7 percent.

By 1995, the groundfish stocks (except for turbot) had collapsed, the capelin fishery was closed, and the fishery was almost entirely dependent on a strengthened shrimp fishery (23%), along with newly established or greatly expanded fisheries for clam (5%), scallop (4%), and especially crab (50%). Only the lobster fishery was in the same relative position as before.

The remainder of this section provides a brief review of the state of the more important stocks utilized by the Newfoundland fishery. Further details can be found in the DFO Atlantic fisheries stock status report<sup>13</sup> for the relevant stock, and (for groundfish) in the annual report of the independent Fisheries Research Conservation Council, which is mandated to make recommendations to the Minister on total allowable catches for Atlantic groundfish resources (Canada Fisheries Resource Conservation Council 1996).

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<sup>13</sup>At time of writing (August 1997), the full set of stock status reports for 1996 were available on-line at [http://csas.meds.dfo.ca/csas/STATUS/1996/Lst\\_ssre.htm](http://csas.meds.dfo.ca/csas/STATUS/1996/Lst_ssre.htm).

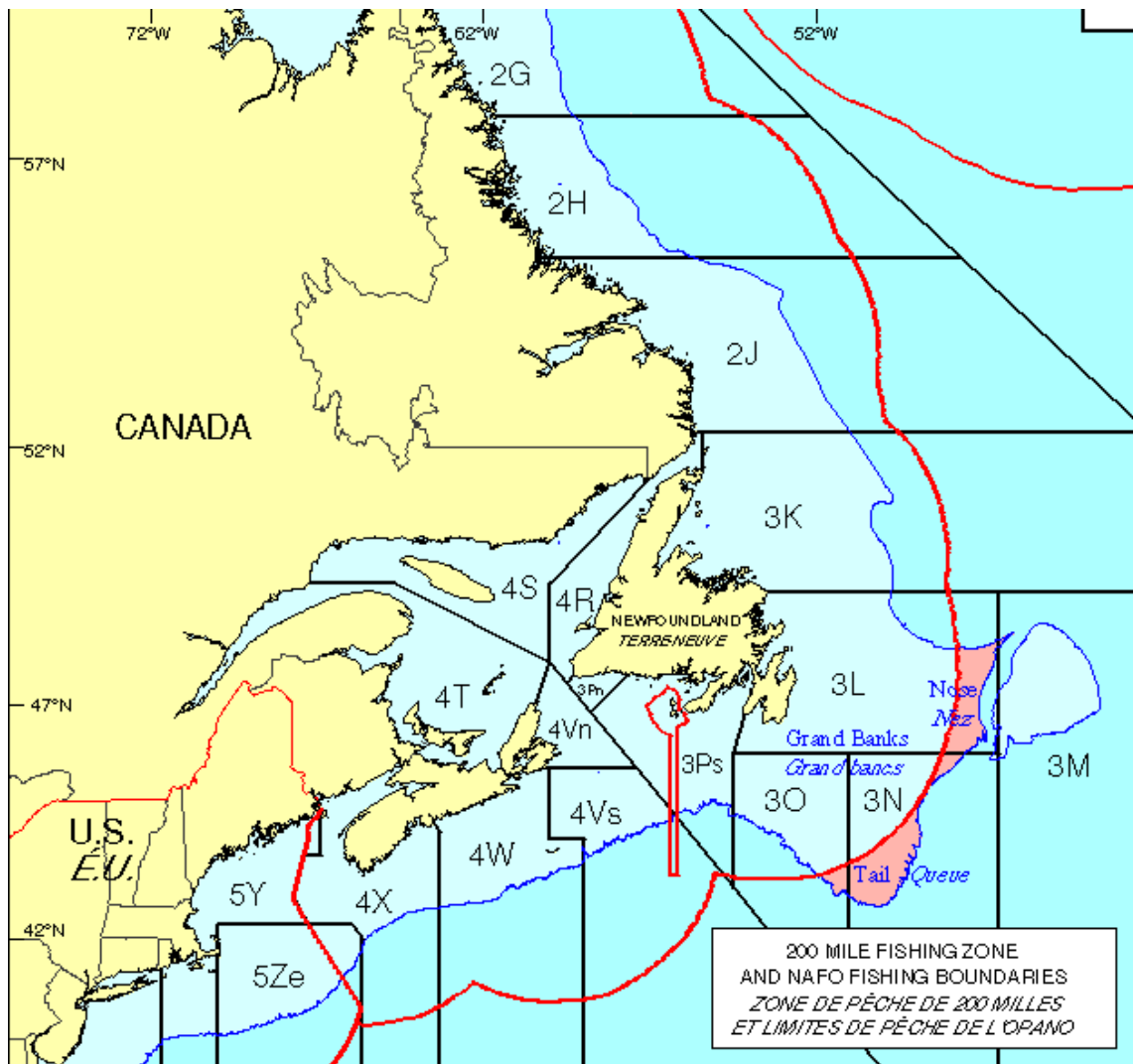
**Table 3**  
Value of Landings by Species  
Newfoundland, 1989 and 1995 (Preliminary)

	1989		1995p	
	\$,000	%	\$,000	%
<b>Total Landings</b>	266,357	100%	339,678	100%
Groundfish, Total	155,460	58%	18,384	5%
Cod	119,943	45%	839	0%
Plaice & Greysole	19,639	7%	1,126	0%
Redfish	4,734	2%	1,824	1%
Turbot	7,613	3%	12,595	4%
Other	3,531	1%	2,000	1%
Pelagic & Estuarial, Total	30,140	11%	7,353	2%
Capelin	19,101	7%	44	0%
Herring	3,573	1%	3,567	1%
Salmon	3,620	1%	343	0%
Other	3,846	1%	3,399	1%
Molluscs & Crustaceans, Total	75,484	28%	304,103	90%
Clams	433	0%	18,444	5%
Lobster	17,933	7%	24,039	7%
Scallops	661	0%	12,250	4%
Crab	10,304	4%	171,521	50%
Shrimp	45,378	17%	77,657	23%
Other	775	0%	192	0%
Miscellaneous Items	5,311	2%	9,838	3%

Sources: Dept. of Fisheries and Oceans, *Canadian Fisheries Annual Statistical Review*, Volume 22, 1989, Table 28 (1989); Dept. of Fisheries and Oceans, *Canadian Fisheries Landings*, Vol 17(4), Dec. 1995, Table 5 (1995).

*Cod*. This species is managed as six distinct stocks in the waters off Newfoundland. Three of these stocks are of particular significance to the Newfoundland fishery, those located in divisions 2J3KL, 3Ps, and 3PnRS respectively (Figure 4)<sup>14</sup>. The 2J3KL (northern) cod stock, found along

<sup>14</sup>However, these distinctions are somewhat arbitrary. On the one hand, there is some mixing between these stocks; for example, the 3Ps stock is seasonally augmented by migration from 3Pn and 3L. On the other hand, these stocks typically consist of several sub-stocks, with distinct spawning sites and migration patterns. Overfishing a substock may result in a reduction in the genetic diversity of the population (Canada Fisheries Resource Conservation Council 1997).



**Figure 4.** NAFO divisions and Canadian fishing zone, Atlantic coast

the northeast coast of Newfoundland and Labrador, has historically been the most important (1989 Canadian catch of 253 thousand tonnes). As discussed above, a moratorium on catches was imposed in 1992 and remains in effect. Spawning and total biomass is currently very low and recruitment is poor. Prognosis for this stock is poor. A part of this stock in division 3L lies outside the Canadian fishing zone (1989 foreign catch of 39 thousand tonnes) and is subject to regulation by the Northwest Atlantic Fisheries Organization (NAFO), the successor body to ICNAF.

The 3Ps (St. Pierre Bank) cod stock (1989 Canadian catch of 27 thousand tonnes) was closed in 1993 as a result of low biomass estimates. The apparent presence of one strong (1989) and one average (1990) year-class in this stock led to a limited (10,000 t) fishery in 1997. Under the 1994 Canada-France Agreement, 15.6 percent of the stock is shared with the French islands of St.

Pierre and Miquelon. Similarly, the 4RS3Pn (Gulf of St. Lawrence) cod stock (1989 Canadian catch of 42 thousand tonnes) was closed in 1994, but despite low biomass and weak recruitment, a limited (6,000 tonne) fishery was permitted in 1997. These openings have not been without criticism, and indeed the 1996 DFO Science overview document warns that “it will be necessary to have several year-classes mature in order to successfully rebuild the spawning stock biomasses and secure a potential sustainability for cod, flatfish, and white hake. For these stocks it will take at least 7 to 12 years from the time the strength of year classes increases before spawning stocks can be expected to rebuild. . . . Re-opening the fisheries with the same sized fleet and using the same management approaches or abusive fishing practices as when the stocks declined would probably result in immediate overfishing.”<sup>15</sup>

*Plaice & Greysole.* This category encompasses a variety of species and stocks, of which the most important to the Newfoundland fishery has historically been 3LNO Plaice (1989 Canadian catch of 28 thousand tonnes). This stock is a straddling stock, subject to NAFO regulation (1989 foreign catch of 13 thousand tonnes). As a result of record low biomass and high juvenile mortality (the continental slope outside the Canadian zone is a nursery area), a moratorium was put in place in 1995. There is no sign of recruitment beyond the 1990 year-class. There are eight additional stocks of plaice, yellowtail, and witch flounders off Newfoundland, which together accounted for 20 thousand tonnes of Canadian landings in 1989. All except two are currently subject to moratoria or a no-directed-fishing regime.

*Redfish.* The most important stock, Unit 1 Redfish (Gulf of St. Lawrence), was responsible for a 1989 Canadian catch of 45 thousand tonnes. A moratorium was imposed in 1995 because of very low biomass and no sign of incoming recruitment. The DFO Stock Status Report indicates that recovery may occur in 7–9 years, but only after significant recruitment has occurred. Unit 2 redfish (Laurentian Channel) shows no sign of good recruitment subsequent to the 1988 year-class, but remains open with a TAC of 10,000 tonnes, about the level of the 1989 catch. Other redfish stocks in the area are mainly of interest to foreign harvesters.

*Other groundfish.* There appears to be good recruitment in turbot. Since 1992 effort has been diverted to species such as skate, monkfish, winter flounder, etc., which previously were considered of minor importance. Little is known about the biology of these stocks.

*Capelin.* This species is harvested seasonally as it comes inshore to spawn (a directed foreign offshore fishery was terminated in 1992). Capelin is a key element in the food chain of cod, turbot, salmon, and marine mammals; as a result, it has purportedly been managed conservatively on the basis that no more than 10 percent of the projected mature biomass be removed annually in the commercial fishery. While catches in 1994 and 1995 were poor, mainly because of small fish size, the 1996 fishery caught 24 thousand tonnes in 2+3KL. This is about equal to the historical

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<sup>15</sup>Department of Fisheries and Oceans, *Overview of the Status of Canadian Managed Groundfish Stocks in the Gulf of St. Lawrence and in the Canadian Atlantic*, DFO Atlantic Fisheries Stock Status Report 96/40 (Ottawa, 1996).

average, but is far below the 80 thousand tonnes caught in 1989 and 1990. The stock status report for 1996 reports the presence of four abundant year-classes in 2+3KL.

*Crab:* Snow crab off Newfoundland waters is managed as one stock, since there are no known barriers to larval drift or other evidence to indicate distinct stocks. Landings are widely distributed, but concentrated in NAFO divisions 3KL. Landings have increased steadily since the late 1980's and reached a record high of almost 38,000 tonnes in 1996, more than double the historical peak in 1981, largely as a result of expansion of the fishery to offshore areas. The crab fishery is now Newfoundland's most valuable fishery. The most recent DFO Stock Status Report expresses no major concerns regarding sustainability. The total allowable catch was increased by 15 percent to 44,300 tonnes in 1997.

*Shrimp.* The northern shrimp stock, harvested in NAFO divisions 0B through 3K, has grown from a level of 3,000 tonnes in 1984 to one in excess of 30,000 tonnes in 1996, with no signs of stock depletion. Part of the reason for the expansion has been the discovery of new fishing grounds in the area. There is also a mature shrimp fishery, managed separately, in the Gulf of St. Lawrence, which the Newfoundland fleet shares with adjacent provinces. This fishery has shown a stable pattern of landings since the late 1980's. The Newfoundland fleet concentrates its operations in the Esquiman channel (roughly Division 4R), which has seen landings of around 5,000 tonnes since 1988.

In 1997 (a few weeks before a general election was held), the TAC for northern shrimp was increased to 59,050 tonnes (from 37,600 in 1996). While there is no evidence of overfishing (yet), the most recent DFO Stock Status Report on northern shrimp made the following observations:

The current high level of shrimp abundance . . . is unprecedented in the Newfoundland-Labrador offshore area . . . . Surveys of the early 1980's produced extremely low shrimp catches in areas where abundance now is high. It is clear that the present environment is favourable for shrimp survival. The absence of predators throughout the region implies decreased natural mortality for shrimp and the cold period from the late 1980's to the early 1990's might have contributed positively to the survival of larvae.

An opportunity now exists to expand the shrimp fishery substantially with a minimal risk of overexploitation. However, beyond the next few years, it is not possible to predict how long high abundance will last. Although water temperatures have moderated in the past year or two, there is little indication that finfish abundance is increasing. Recent conditions of low water temperature, reduced groundfish abundance and healthy shellfish populations appear anomalous and a return to more "normal" conditions at some time in the future is probable.

Any plan for expansion of the northern shrimp fishery will have to address this possibility.<sup>16</sup>

There is no indication that the 1997 management plan for the stock<sup>17</sup> has more than nominally addressed this possibility. One can further question whether a TAC increase of 57 percent in one year is consistent with the “precautionary approach” that is supposed to newly inform Canadian fisheries management (Canada Fisheries Research Conservation Council 1997), and which governs the UN Agreement on the Conservation and Management of Straddling Fish Stocks, which Canada played a significant role in negotiating.<sup>18</sup>

### 3. Fishing and Fish Processing Industries

A heterogeneous fleet exists in Newfoundland to harvest these stocks (Economic Council of Canada 1980, ch. 6). Customarily, the fleet is divided into ‘inshore’ and ‘offshore’ vessels, with the dividing line at 65 feet (or 19.8 meters) length overall.<sup>19</sup> Generally speaking, an inshore fishing licence is issued in the name of the individual fisher, who is required to fish the licence personally. Corporations are not issued inshore licences.

The inshore fleet can usefully be categorized into two components. There is a small-boat fleet consisting of generally open vessels less than 35 feet (10.7 meters) long, which specialize in cod and sometimes lobster and herring. There is also a fleet of decked vessels, between 35 and 65 feet (10.7–19.8 meters) long, normally called ‘longliners’, although only a minority still use longlines extensively as fishing gear. This sector, sometimes called the nearshore sector, is a multispecies fleet active in catching cod, turbot, flatfish, capelin, crab, shrimp and scallops.<sup>20</sup> Both sectors use mainly fixed gear types such as traps, gillnets, longlines, and handlines, although the larger longliners sometimes use mobile gear such as otter trawls and Danish seines as well. Despite the

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<sup>16</sup>Department of Fisheries and Oceans, *Northern Shrimp off Newfoundland and Labrador*, DFO Science Stock Status Report # C2-05 (Ottawa, 1997). Online. Internet. August 1997. Available HTTP: [csas.meds.dfo.ca/csas/STATUS/1997/c2-05.e.pdf](http://csas.meds.dfo.ca/csas/STATUS/1997/c2-05.e.pdf).

<sup>17</sup>Department of Fisheries and Oceans, Northern Shrimp, Backgrounder B-HQ-97-24 (Ottawa, 1997). Online. Internet. August 1997. Available HTTP: [www.ncr.dfo.ca/communic/backgrou/1997/hq24e1.htm](http://www.ncr.dfo.ca/communic/backgrou/1997/hq24e1.htm).

<sup>18</sup>United Nations, Draft Agreement For the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Document No. A/CONF.164/33 (New York, 1995), Article 6. Online. Internet. August 1997. Available GOPHER: [gopher.undp.org:70/00/unconfs/fish/fish1](http://gopher.undp.org:70/00/unconfs/fish/fish1).

<sup>19</sup>When Canadian fisheries regulations were developed, the English system of measurement was still the standard. This system has essentially been “grandfathered” in the fisheries regulations.

<sup>20</sup>Some linguistic confusion is created by a concurrent practice to use the term ‘inshore’ to refer to only the small-boat fleet, and not the small-boat and longliner fleets together. This paper avoids using this terminology.



‘nearshore’ rubric, longliners have been fishing increasingly further offshore, sometimes beyond the 200 mile limit, as inshore stocks have become further depleted. Both sectors have become well equipped with electronic, communications, and hydraulic gear (Program Coordination and Economics Branch 1993).

The ‘offshore’ sector likewise can be divided into a small ‘midshore’ fleet of vessels between 65 and 100 feet (19.8–30.5 meters) long, and a much larger offshore trawler fleet of vessels in the 120-200 foot (36.6–61 meters) range, specializing in shrimp and groundfish. The larger vessels are typically owned and operated by processing companies.

Table 4 outlines the size distribution of registered (but not necessarily active)<sup>21</sup> fishing vessels, and Table 5 the distribution of landings by species and vessel length, for the year 1989. The former table confirms the broad distribution of vessel sizes in the Newfoundland fleet, with the exception of the 65–125 foot midshore range. The latter table highlights the species dependence of the very small and very large boats, and the species versatility of the nearshore fleet. It is clear from Table 5 that the groundfish moratoria of the 1990's were particularly devastating to the small-boat and offshore fleets, which were the most dependent on groundfish catches.

**Table 4**  
Number of Registered Fishing Vessels by Overall  
Length  
Newfoundland, 1989

Length in Feet	Number
Under 35 (10.7 m.)	15748
35 to 44.9 (10.7–13.7 m.)	715
45 to 64.9 (13.7–19.79 m.)	489
65 to 89.9 (19.8–27.4 m.)	7
90 to 99.9 (27.4–30.5 m.)	2
100 to 124.9 (30.5–38.1 m.)	8
125 to 149.9 (38.1–45.7 m.)	25
150 (45.7 m.) and over	52

*Source:* Department of Fisheries and Oceans, Canadian Fisheries Annual Statistical Review, Volume 22, Table 89.

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<sup>21</sup>Carew (1987) estimates that 16 percent of vessels registered by full-time fishers, and 63 percent of those registered by part-time fishers, in the Newfoundland Region (NAFO Divisions 2+3KLPs) were inactive in 1985.

**Table 5**  
Value of Catches by Vessel Length and Main Species  
Newfoundland, 1989 (in Millions of Dollars)

Species	Vessel Length				
	< 35 ft.	35–45 ft.	45–65 ft.	65–100 ft	> 100 ft.
<b>Groundfish</b>					
Cod	40.9	9.3	25.5	2.8	41.5
Redfish	0.2		0.9		3.6
Turbot	0.7	0.9	4.4	0.5	1.0
Plaice & greysole	1.6	1.3	2.3	0.1	14.3
<b>Total</b>	<b>43.8</b>	<b>11.7</b>	<b>33.6</b>	<b>3.5</b>	<b>62.8</b>
<b>Pelagics</b>					
Herring	0.5	0.2	1.2	0.8	0.9
Salmon	3.6				
Capelin	9.4	3.4	5.3	0.5	0.5
<b>Total</b>	<b>14.2</b>	<b>3.9</b>	<b>8.4</b>	<b>1.4</b>	<b>2.2</b>
<b>Molluscs &amp; crustaceans</b>					
Lobster	17.8	0.1			
Shrimp			4.6		40.7
Crab	0.4	1.4	8.5		
<b>Total</b>	<b>19.3</b>	<b>1.7</b>	<b>13.2</b>	<b>0.1</b>	<b>41.2</b>
<b>Grand Total</b>	<b>81.5</b>	<b>17.9</b>	<b>55.7</b>	<b>5.0</b>	<b>106.2</b>

*Source:* Department of Fisheries and Oceans, *Canadian Fisheries Annual Statistical Review*, volume 22 (Ottawa, 1996), Table 89.

*Note:* Columns may not sum to totals because miscellaneous categories are omitted.

The tremendous expansion in the crab fishery was of primary benefit to the nearshore fleet. However, in 1995 temporary seasonal permits for inshore vessels (less than 35 feet in length) were introduced. In 1996, 1,800 (out of a total 2,600) inshore vessels took advantage of such permits. This sector has been assigned a quota of 5,895 tonnes (out of a TAC of 43,000 tonnes) for 1997.

The increase in shrimp landings has been of primary benefit to the offshore fleet; up until now, the northern shrimp stock (outside of the Gulf of St. Lawrence, which is separately managed) has been exploited by about 12 large offshore trawlers.<sup>22</sup> However, when the TAC was increased in 1997 from 37,600 to 59,050 tonnes, Fisheries and Oceans announced that only 7,870 tonnes of the increase would be allocated to existing licence holders. Of the remainder, 'priority access' would be given to inshore vessels (less than 65 feet in length).

There has been a general long-term downward trend in the number of registered vessels since 1980. The number of small boats less than 35 feet fell from 18,197 to 13,588 in 1992; that of nearshore vessels from 1,392 to 1,122; and that of offshore vessels from 116 to 77. However, indications are that *within* these categories, vessels have gotten larger. They certainly have become better equipped. Even open trap skiffs in the small-boat fishery now possess hydraulic haulers, sounders, and so on, enabling them to fish with fewer crew members and to fish more gear (Program Coordination and Economics Branch 1993). It is generally accepted that there was substantial excess harvesting capacity in the Newfoundland fishery even before the moratorium, and may be up to two or three times larger than is needed (Task Force on Incomes and Adjustment in the Atlantic Fishery 1993, ch. 5; Canada Fisheries Resource Conservation Council 1997, ch. 2).

Table 6 presents the economic position of a random sample of full-time inshore enterprises located in NAFO divisions 3K, 3L, and 3Ps. The returns, while positive, are not high.<sup>23</sup> Moreover, it is likely that the earnings reported are dominated by a small number of 'highliners' in the fleet; most of the fishing enterprises are likely to be in a more precarious position than is represented. The data on the length of the fishing season is an indication of how seasonal fishing activity is in the region.

This bleak picture is confirmed by the results of an income survey of Atlantic fishermen taken in 1988, the results of which are summarized in Table 7. The survey not only reinforces the low level

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<sup>22</sup>However, some of these trawlers are foreign flag vessels paying a royalty to the licensee. Approximately 25–30 percent of the northern shrimp catch is landed in Greenland (Sutherland 1990).

<sup>23</sup>Needless to say, the returns and costs measured are private, and not social, returns. An estimate of social returns and costs in the Newfoundland groundfishery for the year 1978 was made in Roy, Schrank and Tsoa (1982). In most fleet sectors, costs exceeded earnings by an amount equal to about \$1.50 for every dollar of catch. The same authors (Schrank *et al.* 1987) later calculated the amount of government expenditures on the Newfoundland fishery over the period 1972–80. For the year 1978, these constituted an amount equal to 1.7 times the value of the groundfish catch.

of incomes received, but indicates that even for full-time fishermen, fishing income constitutes barely more than half of income from all sources.

**Table 6**  
Economic Position of Average Full-Time Small-Boat and Nearshore Enterprise  
NAFO Divisions 3K, 3J, and 2Ps, 1989

	Small-Boat	Nearshore
Fish sales	\$16,168	\$74,872
Labour share (deckhands)	\$3,838	\$26,910
Crew size (excluding skipper)	1.0	2.6
Average share per crew member	\$3,838	\$10,350
Gross return to owner and skipper (after depreciation)	\$5,515	\$13,576
Average investment (after grants)	\$14,429	\$114,421
Average days fished	74.8	64.1
Average weeks fished	20.8	22.0

*Source:* Department of Fisheries and Oceans, *Cost and Earnings of Selected Inshore and Nearshore Enterprises in the Newfoundland Region 1989*, Economic and Commercial Analysis Report No. 93 (St. John's, 1991).

**Table 7**  
Income Sources, Active Fishermen by Registration Status  
Newfoundland, 1988

	Full-Time	Part-Time	Average
Net fishing income	\$9,583	\$5,394	\$8,324
Other employment income	\$842	\$3,998	\$1,791
Unemployment insurance	\$6,132	\$4,009	\$5,493
Other income	\$508	\$901	\$627
Total net income	\$17,066	\$14,301	\$16,234

*Source:* Department of Fisheries and Oceans, 1988 Survey of Atlantic Fishermen, Tables 3.19-3.21 (unpublished data).

We will now outline the structure of the processing sector. The predominant form of processing in Newfoundland is primary freezing; 76 percent of the value of the product was processed in this form in 1989.<sup>24</sup> There is a small amount (7 percent) of product (mainly lobster, cod and salmon) which was sold (perhaps minimally processed) in fresh form. Some cod was sold in salted form, but this product appears to be a dying (if not dead) part of the industry.

Most processing occurs onshore, although northern shrimp is processed at sea. There were 256 registered fish processing facilities in Newfoundland in 1989, ranging in size from “feeder” plants employing a handful of people to process fish to the fillet skin-on stage, to large year-round plants processing fish into various fresh and frozen products including secondary processing. Very few operate on a full-time basis (Moore *et al.* 1993). The size and employment distribution of the plants which were “operational” in 1990 is presented in Table 8.

**Table 8**  
Fish Processing Sector Employment by Plant Size  
Newfoundland, 1990

Plant Size (No. of Employees)	Number of Plants	Employment	
		Average	Total
1–49	101	19	1,919
50–99	40	65	2,600
100–249	52	148	7,696
250+	38	404	15,352
Total	231	119	27,567

*Source:* Task Force on Incomes and Adjustment in the Atlantic Fishery, *Charting a New Course* (Ottawa, 1993), Appendix C, Table 9.

Groundfish processing can be usefully categorized into inshore and offshore facilities. The inshore sector is primarily supplied by inshore vessels less than 65', although some supplementary supplies from offshore trawlers act to extend the processing season. About 160 inshore plants possess primary groundfish licences, although only 102 of these have freezing capacity; the rest are presumably feeder plants or salt dryers.

The offshore plants, of which there were 11 in 1989, are primarily supplied by offshore trawlers. As a result, offshore plants have an extended operating season (usually 40 weeks per year under

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<sup>24</sup>Department of Fisheries and Oceans, *Canadian Fisheries Annual Statistical Review*, Volume 22 1989 (Ottawa, 1996), Table 77.

normal conditions). They are fully integrated enterprises with vessels landing for particular plants. Only one of these plants (Burin) engages in secondary processing. The throughput of these plants is typically supplemented by inshore fish, and in addition, the offshore companies operate inshore plants that are fully supplied by independent inshore harvesters. Other inshore plants are owned by single-facility operators, or by medium-size companies that may own two or three plants. The largest offshore company in Newfoundland is Fishery Products International of St. John's, which owned nine of the offshore plants. Also participating in this sector are National Sea Products, whose activities center in Nova Scotia but with some Newfoundland activity, and more recently the much smaller Seafreeze Corporation.<sup>25</sup>

Fishermen on offshore vessels are not employees in the strict legal sense; they maintain some independence of action, though less now than in earlier years. They are co-adventurers sharing in the value of the catch according to a "lay arrangement" negotiated with the fisherman's union. Prior to the early 1980's, the vessel captain enjoyed considerable freedom in deciding where to fish and for what species. With the introduction of Enterprise Allocations in 1982 (see section 4 below), and a much greater emphasis on fishing to meet market requirements, rather than for volume alone, the companies now exercise much greater control in directing their vessels' fishing effort (Gardner Pinfold 1989).

The inshore sector is highly seasonal, with facilities typically utilized for only 12–15 weeks. There has been an active policy of fleet separation in the inshore sector where processing companies cannot acquire new fishing licences, although existing licences are grandfathered (Canada Department of Fisheries and Oceans 1996, section 15). In practice this constraint has been overcome by plants establishing strong, yet informal relationships with harvesters that result in vessels committing to landing for that facility on an ongoing basis (Moore *et al.* 1993; Gardner Pinfold 1989). Such arrangements involve a variety of legal and quasi-legal financial linkages, including outfitting assistance, working capital loans or direct investment in a vessel where the processing company is effectively a "silent partner" in the harvesting enterprise (Canning and Pitt 1993). While usually there is only one buyer in a fishing port, his bargaining power is considerably weakened by the existence of significant overcapacity in the processing sector, and the resultant shore competition for resources, as well as the presence of a strong union which negotiates minimum prices at the beginning of the season (Gardner Pinfold 1989).

As for other species, capelin is an important species to Newfoundland inshore processors where the roe-present females are sorted and frozen for the Japanese market. The fishery is concentrated at the time of spawning, usually in a short interval in June, and generates significant production revenues (\$37 million in 1989). Significant quantities of capelin are trucked around the island for processing as plants are anxious to share in the high margins usually afforded this fishery. Crab production has been dominated in recent years by the production of IQF sections for the lucrative Japanese market, a move away from frozen meat production. Northern shrimp (not including the

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<sup>25</sup>Both Fisheries Products International and National Sea Products own major downstream secondary processing and marketing operations in the United States.

Gulf of St. Lawrence stock) is processed at sea as either cooked product or in the shell-on form. The smallest or “industrial” shrimp is frozen in bulk for processing on shore. Lobster is typically sold live to the United States and European markets (Moore *et al.* 1993).

Despite the existence of a purported freeze in primary processing licences at the provincial level (Kingsley 1993), the number of registered plants increased from 214 in 1980 to a peak of 281 in 1991, although much of this increase has been for new species and product forms (Moore *et al.* 1993).<sup>26</sup> There is a general consensus that the degree of excess capacity in the processing sector exceeds fifty percent (Task Force on Incomes and Adjustment in the Atlantic Fishery 1993), and numbers as low as 17 percent have been reported for the inshore sector (Kingsley 1993). It is widely anticipated that half of the existing plants will remain closed when the groundfish moratorium is lifted. Only two offshore plants are presently operating, and four have been closed permanently.

#### 4. Government Policies

##### (a) Fisher Registration

Commercial fishermen have been required to register as such with the Department of Fisheries and Oceans on an annual basis. Registration in Newfoundland used to be characterized by a differentiation between full-time and part-time fishermen (Canada Department of Fisheries and Oceans 1989, ch. 2). Generally, full-time status was required to obtain new or transferred licences in limited-entry fisheries. In 1989, 14,052 fishermen were registered as full-time, and 15,124 as part-time in Newfoundland. While most of the full-time fishermen were active participants in the fishery (since failure to fish on a full-time basis for two consecutive years could result in the loss of full-time status), a substantial portion of the part-time fishermen were not.<sup>27</sup>

The differentiation between full-time and part-time fishermen was intended to reflect a distinction between those who had a fundamental commitment to, and dependence on, the industry, and those who did not, without interfering with the historical common-law right to fish in tidal waters — a right which, in English-speaking countries, goes back to the *Magna Carta* (Sutherland 1990). Unfortunately, the distinction failed to produce the desired results. The Cashin Task Force observed:

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<sup>26</sup>Because of the booming crab fishery, 12 new crab processing licences were issued by the province in 1997, over and above the existing 22 licences.

<sup>27</sup>According to the DFO 1988 Survey of Atlantic Fishermen, 88 percent of full-time fishermen in Newfoundland were actively engaged in the fishery in that year, as opposed to only 37 percent of part-time fishermen.

Registration as a part-time fisherman is open to almost anyone who wants it. Anyone who works as crew or as a part-time fisherman during two consecutive years can seek registration as a full-time fisherman, and will receive that status almost automatically (Task Force on Incomes and Adjustment in the Atlantic Fishery 1993, p.61).

In fact, over the period 1986–92, on average there were 3,050 new entrants (part-time fishermen) registered annually in Newfoundland. An average of 645 part-time fishermen were upgraded to full-time status annually (Donahue 1993).<sup>28</sup>

As a result of these deficiencies, in 1996 fisher registration was eliminated and replaced by a system of enterprise registration. The centerpiece of the new system is the definition of a “core” group of inshore enterprises. The head of a core enterprise is required to hold key species licences, have an attachment to the fishery, and be dependent on the fishery. Only core enterprises are able to obtain new or re-issued vessel-based inshore licences, or (for the most part) to split existing licences. Entry into the core is possible only by certified professional fishers,<sup>29</sup> and only by replacing an existing enterprise; thus, at least in principle the number of core enterprises is capped (Canada Department of Fisheries and Oceans 1996, ch. 3). Non-core enterprises can continue to use their existing licences, but these can be transferred (technically, re-issued) only to a core enterprise. Thus, the number of non-core enterprises will be subject to gradual attrition. In Newfoundland, approximately 5,400 enterprises have qualified for core status.<sup>30</sup>

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<sup>28</sup>In fact, by 1991 the Department of Fisheries and Oceans had tightened up eligibility for part-time status. New entrants had to be certified as a crew member for an existing full-time enterprise, and part-time fishermen who had not fished for two consecutive years in 1991 lost their fisherman’s registration and any vessel registrations and species licences which they held (Donahue 1993). The number of registered part-time fishermen declined from 13,697 in 1990 to 10,225 in 1991.

<sup>29</sup>Professional certification is considered a matter of labour standards, which is a subject matter under provincial jurisdiction. While the relevant provincial legislation was approved in 1996 in Newfoundland, the certification process is not fully in place, and is currently subject to grandfathering.

<sup>30</sup>To qualify for membership in the core, Newfoundland fishers had to satisfy the following conditions:

- (a) fished full-time in a seven year qualifying period (1989–1995 for active fishers, earlier for those affected by groundfish moratoria);
- (b) must have a minimum of \$3,000 and 75 percent of reported earned income from fishing during the fishing season for three out of the last four years of the qualifying period;
- (c) must have operated a registered vessel using his own licence and reported a minimum of \$5,000 in fishing income for inshore vessels (less than 35') or of \$10,000 for nearshore vessels (35–65') with at least 50 percent of fishing activity on the fisher’s own registered vessel, for two of the last three years of the qualifying period;
- (d) hold a key licence — groundfish (active), capelin, lobster, crab, scallop, shrimp, all species using purse seine, or (in Labrador) salmon or char.

Conditions (a) and (b) are the grandfathering requirements to achieve the Level II professionalization standard in Newfoundland (Department of Fisheries and Oceans, Atlantic Licencing Policy Reform Newfoundland Region, Background B-HQ-97-44E (Ottawa, 1995). Online. Internet. August 1997. Available HTTP: [www.ncr.dfo.ca/communic/backgrou/1995/hq44e.htm](http://www.ncr.dfo.ca/communic/backgrou/1995/hq44e.htm)).



### (b) Vessel Registration

All vessels used in a commercial fishery must be registered with Department of Fisheries and Oceans in the name of the fisher holding the licence for that fishery. With very limited exceptions,<sup>31</sup> the number of registered vessels in Newfoundland is frozen, reflecting the general perception that the fleet is severely overcapitalized. A vessel registration held by a non-core enterprise may be transferred (“re-issued”), but only to a core enterprise (Canada Department of Fisheries and Oceans 1996, section 12). Non-core enterprises may not replace a registered vessel with one which is larger than the one being replaced. Core enterprises are subject to replacement rules that are a little more flexible (Canada Department of Fisheries and Oceans 1996, section 24), particularly if the vessel is being utilized entirely in fisheries subject to individual quotas (or if a fisher in a competitive fishery agrees to individual harvest restrictions in order to qualify for such eased replacement rules).<sup>32</sup>

### (c) Fishing Licences

At present, fishing for all commercially significant species in Newfoundland is subject to limited-entry licensing by the Department of Fisheries and Oceans.<sup>33</sup> Generally, an inshore fishing licence specifies the species to be fished (although the groundfish licence is not otherwise species-specific), the name of the fisher who can use the licence and of the vessel on which it can be used, the area in which it can be used, and the number and types of gear that can be used. It may also specify the volume permitted to be taken, the period during which fishing can occur, the specific location for the setting of gear, the location, times, and methods by which the catch is landed, and the provision of detailed harvesting information and records including verification by an observer.<sup>34</sup>

An inshore licence must be used personally by the person to whom it is issued, and must be renewed annually. An inshore fisher cannot hold more than one licence for the same species; that is, he cannot “stack” licenses with different conditions (however, a licence may be validated for more than one gear type) (Canada Department of Fisheries and Oceans 1996, section 11).

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<sup>31</sup>A core enterprise with only one registered vessel, which is longer than 25', may register one additional vessel less than 25' long.

<sup>32</sup>Department of Fisheries and Oceans, Supplementary Replacement Rules for Core Enterprises in the Newfoundland Region, Backgrounder number B-HQ-97-25 (Ottawa, 1997). Online. Internet. August 1997. Available HTTP: [www.ncr.dfo.ca/communic/backgrou/1997/hq25e1.htm](http://www.ncr.dfo.ca/communic/backgrou/1997/hq25e1.htm).

<sup>33</sup>However, as recently as 1989, any full-time registered fisher in Newfoundland (outside of the Gulf of St. Lawrence) was free to register a vessel less than 35' long and obtain a ground fish fixed gear licence.

<sup>34</sup>*Fishery (General) Regulations, Fisheries Act*, SOR/93-53, section 22. Online. Internet. August 1997. Available HTTP: [www.ncr.dfo.ca/communic/policy/reg/FG-REG/fgrege.bin](http://www.ncr.dfo.ca/communic/policy/reg/FG-REG/fgrege.bin)

Government licence policy is explicit as to whether a fishing license can be sold or otherwise transferred to another fisher.

A “licence” grants permission to do something which, without such permission, would be prohibited. As such, a licence confers no property or other rights that can be legally sold, bartered or bequeathed. Essentially, it is a privilege to do something, subject to the terms and conditions of the licence. . . . A “fishing licence” is an instrument by which the Minister of Fisheries and Oceans, pursuant to his discretionary authority under the *Fisheries Act*, grants permission to a person including an Aboriginal organization to harvest certain species of fish or marine plants subject to the conditions attached to the licence. This is in no sense a permanent permission; it terminates upon expiry of the licence. The licensee is essentially given a limited fishing privilege rather than any kind absolute or permanent “right or property” (Canada Department of Fisheries and Oceans 1996, section 5).

Notwithstanding this statutory prohibition, the Department will generally permit a licence holder to “recommend” an eligible fisher (who must however be the head of a core enterprise, and otherwise satisfy the conditions of the licence) for a replacement licence when a fishing licence is to be relinquished (the Department avoids the use of the term “transfer” for this operation, and instead uses the word “re-issue”) (Canada Department of Fisheries and Oceans 1996, section 16).<sup>35</sup> As a result, an informal trade has developed in limited-entry licences (Task Force on Incomes and Adjustment in the Atlantic Fishery 1993, 62). Crowley and Palsson (1992) report values, obtained from various informal sources, of \$8,000–12,000 for the sale of capelin licences, \$10,000–100,000 for inshore groundfish licences, \$40,000–100,000 for crab licences, and \$100,000 for offshore tuna licences.

The number of licences issued for the commercially important species is presented in Table 9. The general trend has been for the number of licences to increase in the 1980's. For some species, the number of licences has declined marginally since then.<sup>36</sup> However, the tremendous expansion in crab catches has caused a free-for-all in crab licences. Until 1985, the number of crab licences was tightly controlled at 52. In that year, a new “supplementary” crab fishery was established in divisions 2J, 3K, and 3Ps (and extended to 3L in 1988). The supplementary fishery established separate quotas, smaller trap limits, and shorter seasons than the existing “full-time” fishery. Access to the new fishery was open to full-time fixed-gear groundfish fishermen operating nearshore (35–65 foot) vessels. As a result, the process of acquiring larger vessels was accelerated, particularly in division 3K. The number of supplementary licences increased from 74 in 1985 to over 700 by 1996. In 1995, “temporary” seasonal permits, with relatively modest

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<sup>35</sup>There are exceptions — for example, groundfish, salmon, some lobster, and temporary tuna licences — in cases where the licence is temporary or where the number of licences is considered to be excessive. In these cases, a licence which is not renewed will be retired.

<sup>36</sup>Salmon, however, is a special case. In 1992, the commercial fishery on the island portion of the province was closed indefinitely, and a license buy-back program was introduced. By January 1993, 91 percent of the total eligible licences (3,006) had been retired. The only active licences currently in use are for the Labrador coast.

quotas and trap limits, were introduced. All core enterprises with vessels under 35 feet are eligible to apply for a seasonal permit. In 1996, approximately 1,800 did so. Currently 2,600 enterprises hold snow crab licences in some form.

**Table 9**  
Number of Fishing Licences Issued by Type  
Newfoundland, Selected Years

	1984	1989	1992
Groundfish	9,994	9,820	9,210
Herring	855	3,308	3,104
Mackerel	415	836	896
Tuna	0	29	55
Salmon	4,708	3,101	320
Capelin	959	3,140	3,087
Scallop	606	700	803
Lobster	4,162	4,508	4,375
Shrimp	41	64	64
Crab	52	688	750

*Sources:* Dept. of Fisheries and Oceans, *Canadian Fisheries Annual Statistical Review*, Donahue 1993, Appendix III.

#### (d) Individual Quotas

Table 10 lists the fisheries in Newfoundland waters that are subject to individual quotas. Comparison with Tables 3 and 5 above suggest that the offshore fleet is subject to virtually 100 percent coverage, and that overall about 80 percent of landings are currently subject to individual quotas. Normally, the quota is stated as a given percentage of the total allowable catch, although in the case of tuna, crab, and northern shrimp the quota is expressed in terms of tonnage. Offshore quotas are assigned to the enterprise rather than the vessel (and so is called an Enterprise Allocation (EA) as a result). Companies are free to allocate their EA's among their vessels and plants as they see fit. Because of the fleet separation policy of the Department of Fisheries and Oceans', the distinction between vessel and enterprise is moot for the inshore sector.

**Table 10**  
Individual Quota Fisheries, Newfoundland, by Date of Introduction

Fishery	Date of Introduction
Offshore (>100') groundfish	1982
Purse seine herring (4RTVnWX)	1983
Mobile gear groundfish, 45–65' (4RST3Pn)	1983
Offshore tuna	1987
Northern shrimp	1987
Midshore (65-100') groundfish	1988
Snow crab	1995, 1996

*Sources:* Sutherland 1990; Crowley and Palsson 1993; Donahue 1993; Grafton 1996; Department of Fisheries and Oceans, Newfoundland Region, 1997 Stock Status Report Newfoundland and Labrador Snow Crab (Stock Status Report #C2-01).

Individual quotas are implemented as a condition on the fishing licence. As a result, quota cannot be transferred (or “re-issued”) unless the entire licence is. Because an inshore enterprise cannot hold more than one licence for a given species, such enterprises cannot accumulate quota by acquiring the licences of other enterprises. Thus, individual quotas rank low in both transferability and divisibility. In practice, Department officials are fairly flexible in permitting temporary transfers of quota on a seasonal basis (Sutherland 1990; Grafton 1996). However, permanent transfers, while not unheard of, can take place only outside of the framework of DFO licencing policy (Canada Department of Fisheries and Oceans 1996), and so require the explicit agreement of the Minister of Fisheries “in his absolute discretion.”<sup>37</sup>

What is the prognosis for IQ’s in the remainder of the Newfoundland fishery? A DFO working group in 1990 assessed each fishery in the Atlantic coast as to its suitability for IQ management, and its assessments are presented in Table 11 below. Notably, the main reason for rejecting a fishery for individual quota management was that there were “too many participants” in the fishery. Since then, an IQ system has been introduced into the snow crab fishery which has 2,600 vessels, with no apparent problems (at least related to the number of participants).<sup>38</sup> Admittedly,

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<sup>37</sup>*Fisheries Act Chapter F-14*, section 7. Online. Internet. August 1997. Available HTTP: [www.ncr.dfo.ca/communic/policy/act/F-ACT/facte.bin](http://www.ncr.dfo.ca/communic/policy/act/F-ACT/facte.bin).

<sup>38</sup>The introduction by the industry of a two-price system based on crab size in 1996 has resulted in a considerable amount of highgrading (i. e., discarding of lower-valued sizes) of the catch. This is unquestionably a problem, and one which is endemic to IQ systems (Anderson 1994; Arnarson 1994), but one which is not clearly related to the number of participants. For example, the Enterprise Allocation system in offshore groundfish, with

the limited number of marketing channels available for this product makes a system of dockside monitoring (importantly, one designed and managed by the fishers themselves) fairly easy to administer. Still, it is probable that the apparent success of the program will lead to a reassessment of the importance of numbers to the success of an IQ system.

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only three quota holders, was characterized by considerable highgrading at least in its early years (Crowley and Palsson 1992). This problem was alleviated (but apparently not eliminated) by the institution of 50 percent on-board observer coverage in 1986 — a solution which clearly is not available to the snow crab fleet. Another possible solution would be to allocate quota for the two size-classes of crab separately. Such a system would require a considerable amount of ‘fine-tuning’ in quota allocations, and would probably not be workable in the absence of an active ‘on-line’ market for quota among the participants.

**Table 11**  
Commercial Fisheries Candidates for IQ Management  
Newfoundland, 1990

Fishery	Assessment	Comment
Groundfish, fixed gear	No	Too many participants
Groundfish, <65', mobile gear, Nfld. Region	Yes	
Capelin, fixed gear, <65'	No	Too many participants
Capelin, mobile gear, <65'	Yes	
Salmon	No	Too many participants <sup>a</sup> /No TAC
Herring, fixed gear, <65'	No	Too many participants
Herring, mobile gear, <65', Nfld. Region	Maybe	
Char	No	No TAC
Swordfish	Yes	
Lobster	No	Current management regime satisfactory
Scallops, Nfld. Region	No	No TAC <sup>b</sup>
Scallops, 4R3Pn	No	Too many participants
Shrimp, 4R	Yes	

*Source:* Sutherland 1990, chapter 4.

<sup>a</sup>This fishery was subject to a licence retirement program in 1992.

<sup>b</sup>The 3Ps stock is now mainly under French jurisdiction as a consequence of the delineation of the Exclusive Economic Zone for St. Pierre-Miquelon by the World Court in 1992. A newly discovered stock in division 3LN was subjected to TAC's beginning in 1995.

## (e) Government Subsidies

Government expenditure on behalf of the Newfoundland fishery is substantial, and defies easy summarization (Schrank *et al.* 1995). Table 12 outlines the structure of government expenditure during fiscal year 1989, our benchmark year. Total expenditures by the federal and provincial and provincial governments equaled \$401 million in net terms (that is, after deducting premiums, charges, licencing revenues, loan repayments, and so on obtained from the industry). By way of comparison, in the same year, the industry was responsible for \$266 million in landings, and produced \$722 million in final product.

**Table 12**  
Government Net Financial Outlays on the Newfoundland Fishery,  
by Level of Government  
1989/90, in Millions of Dollars

Type of Expenditure	Federal	Provincial	Total
Net expenditure on goods and services	\$93	\$22	\$115
Net transfer payments	\$248	\$16	\$264
Net loans	\$3	\$19	\$22
<b>Total</b>	<b>\$344</b>	<b>\$57</b>	<b>\$401</b>

*Source:* Schrank *et al.* 1995, Table 3.

Clearly, the most important category here is that of federal government transfer payments; of these, the most significant are those made under the unemployment insurance program. There are two types of unemployment insurance payments: regular benefits and fishermen's benefits. For most of the 1980's, only 10 weeks of employment in a year were required in order to qualify for regular benefits (in a high-unemployment area such as Newfoundland). Once she had qualified for regular benefits, a worker was eligible for up to 50 weeks of benefits (in a high unemployment area), at a rate equal to sixty percent of her average weekly earnings during the qualifying period. Fishers who did not obtain ten weeks of regular employment, were able to use fishing as qualifying employment for fishermen's benefits,<sup>39</sup> and so were able to enjoy such benefits for up to 27 weeks during their off-season (Roy *et al.* 1994; Roy forthcoming). This expenditure must be considered a cross-subsidy, because while the unemployment insurance program is self-financing overall, the fishing industry receives far more in benefits than it pays in premiums — for example,

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<sup>39</sup>A fisherman would be able to combine regular employment and fishing for this purpose, so long as at least six weeks of qualifying employment was spent fishing.

\$105 million in excess of contributions were paid out to fishermen, and \$123 million to fish plant workers, in fiscal 1989 (Schrank *et al.* 1995, Table 6).<sup>40</sup>

While unemployment insurance was the most important transfer element, fishing vessel subsidies of approximately \$12 million, evenly divided between the two levels of government, were also recorded. Plant subsidies of various kinds amounted to \$6 million at the federal level and \$10 million at the provincial level. Various job creation programs on the part of the Canada Employment and Immigration Commission amounted to another \$7.3 million. Of the expenditure on goods and services reported in Table 12, social overhead (infrastructure) expenditures (wharves, breakwaters, etc.) were the most important, amounting to \$17 million at the federal level and \$8 million at the provincial level. The most important of the loan expenditures was the operations of the provincial Fisheries Loan Board, which was responsible for \$4.5 million in net loans to fishermen. However, various other provincial government loans amounted to \$1.9 million on fishing vessels and \$11.9 million to processing plants (Schrank *et al.* 1995, Appendix 4). All this, in a 'normal' year.<sup>41</sup>

It will come as no surprise that the recent groundfish crisis has substantially increased the amount of government financial involvement in the industry. This increased involvement was channeled through three federal government programs — the Atlantic Fisheries Adjustment Program (AFAP), the Northern Cod Adjustment and Recovery Program (NCARP), and The Atlantic Groundfish Strategy (TAGS).

The Atlantic Fisheries Adjustment Program was initiated in 1990 in response to the report of the Northern Cod Review Panel. A sum of \$604 million was allocated over an eight year period. By fiscal 1993, two-thirds of the funds had been spent, about 70 percent in Newfoundland. Objectives of the program were rebuilding the fish stocks, short- and long-term "adjustment", and economic diversification both within and outside the fisheries. While a modest number of new jobs were created, the program was quickly overtaken by events. Schrank (1997, 52) evaluates AFAP as "an anemic response to a major catastrophe, the scope of which was still not understood at the time the program was established."

The Northern Cod Adjustment and Recovery Program was a two-year program instituted in 1992 as a result of the moratorium on the northern cod stock. The program had two broad purposes.

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<sup>40</sup>Since 1989, the generosity of the program has been progressively reduced. In 1997, the system was renamed Employment Insurance, and replaced by an eligibility system based on hours of work instead of weeks of work. Benefits to repeat claimants are to be reduced (Department of Human Resources Development, The New Employment Insurance System (Ottawa, 1996). Online. Internet. August 1997. Available HTTP: [www.hrdc-drhc.gc.ca/hrdc/ei/ina068\\_e.html](http://www.hrdc-drhc.gc.ca/hrdc/ei/ina068_e.html)). Fishers are now subjected to minimum levels of insured earnings in order to qualify for benefits, and payments to individual fishers are expected to decline by about 20 percent. The changes are also expected to impact particularly heavily on seasonal workers such as fish plant workers.

<sup>41</sup>Schrank (1997) calculates that between fiscal years 1972 and 1990, the two levels of government spent nearly \$4 billion on the Newfoundland fishery.



The first was income support for the fishers and fish plant workers who had been displaced by the moratorium. Approximately 16,000 plant workers (6,000 more than expected) and 9,000 fishers (most in Newfoundland, but some in Nova Scotia) were impacted by this aspect of the program, which eventually cost \$484 million. The second purpose was economic adjustment, which included provisions for retraining, early retirement and licence retirement. This part of the program was dramatically undersubscribed; of the \$163 million allocated by the federal government, only a little over \$100 million was spent. In fact, only 1,436 fishers and plant workers took early retirement, and only 876 fishers retired their groundfish licences (Schrank 1997).

The \$1.9 billion TAGS program was introduced in 1994 as a result of the failure of the northern cod stocks to recover before the expiry of NCARP, and the extension of the crisis to most of the remaining groundfish stocks in the Atlantic region. As with NCARP, the program had both income support and economic adjustment components. Unlike NCARP, the program had an explicit adjustment objective: a fifty percent reduction in capacity in the industry. As with NCARP, the income support component of the program was oversubscribed, attracting over 40,000 applicants (24,000 in Newfoundland) instead of the expected 26,500. As a result, the government reallocated funds from the income adjustment part of the program (which, as with NCARP, was undersubscribed<sup>42</sup>), and announced that the income maintenance program would terminate a year early, in 1998. Once more, a program with both income support and economic adjustment objectives ended up producing considerable income maintenance, and almost no economic adjustment (Schrank 1997).

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<sup>42</sup>For example, in 1995, 237 groundfish licences (191 in Newfoundland) were retired, along with the associated vessel registrations, in return for \$29 million, an average of \$121,000 per licence.

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