

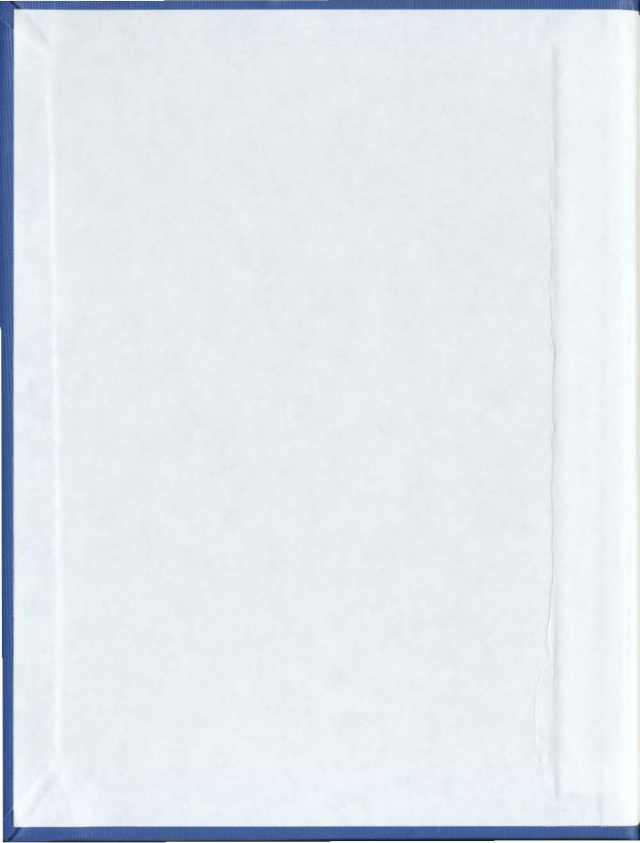
PAST AND FUTURE GOALS AND OBJECTIVES IN THE  
ALLOCATION OF THE NORTHERN COD RESOURCE

CENTRE FOR NEWFOUNDLAND STUDIES

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GLENN BLACKWOOD







**Past and Future Goals and Objectives in the  
Allocation of the Northern Cod Resource**

by

*Glenn Blackwood*

A thesis submitted to the  
School of Graduate Studies  
in partial fulfilment of the  
requirements for the Degree of  
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## **ABSTRACT**

The collapse of the Northern cod stock and subsequent closure of the fishery in NAFO divisions 2J+3KL, is reflective of the worldwide crisis in fisheries management. The uncertainty surrounding the future of this resource and the thousands of people dependent upon it has led to changes in the management process; however, the resource allocation issue has not been resolved and as in the past remains a major source of controversy.

This study examines the allocations and catches of Northern cod during the 1977 to 1991 period. This information is presented in the context of the stated goals and objectives for the allocation of the resource. The study reveals that despite public statements and published documents of a priority access to the inshore sector, the greater part of the resource was allocated to other users such as the Canadian offshore fleet and foreign countries as part of Canada's bilateral agreements. This failure to adhere to stated goals and objectives was largely owing to the overly optimistic resource projections of the late 1970s which projected a 350,000-400,000 mt. total allowable catch (TAC) by 1985 and estimated the inshore requirement to be approximately 230,000 mt.. These projections opened the door for new users and allowed for foreign allocations which led to a redistribution of the economic benefits of the Northern cod resource away from the traditional inshore sector which was to have been the principal beneficiary of the 200 mile limit. This euphoric phase of the late 1970s was followed by a period of uncertainty

during the 1980s, fuelled by the repeated failure of the inshore fishery to harvest its allocation of 115,000 mt. The crisis phase began in 1989 when scientists recommended dramatic reductions in the total allowable catch. Unfortunately this advice was not taken by the Department of Fisheries and Oceans and the TACs were set at more than twice the advised level until the stock collapsed in 1992.

The stated goals and objectives of priority for the inshore sector were never achieved and by 1986 the inshore fishery accounted for only 26% of the total catch. Now that the fishery is closed there are a number of reports that restate the priority allocation to the inshore sector and recommend that when the fishery reopens the first 100,000 mt. of catch be allocated exclusively to the inshore fishery. It remains to be seen if these goals and objectives will be the cornerstone of future allocation and management or like those of the late 1970s and early 1980s will be neither adhered to nor attained.

## ACKNOWLEDGEMENTS

Deciding to return to University after an extended period requires a major commitment on behalf of the student but also on behalf of everyone else involved at the academic, professional and especially the personal level.

Since meeting Dr. Alistair Bath in 1992 I have acquired a totally different perspective on fisheries management issues, and I have gained an immense respect for "Saskatchewan Farmers". I give Alistair full credit for encouraging me to start the program and especially for keeping me enthused after I discovered early on that there was no magic formula by which to manage fisheries. I will always respect and admire his ability to change opinions and attitudes (especially mine) in a non-confrontational way. I would also like to thank Dr. Keith Storey for numerous votes of confidence, mixed with healthy doses of constructive criticism, Dr. Roger White for deep thoughts and hospitality; Ms. Carole Ann Coffey for always having a smile and the answers to my questions; and everyone else in the Geography Department who made me feel welcomed from the start.

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compensated for my limited computer skills and more importantly offered endless encouragement. Also, a special thanks to Ms. Eileen Riche who convinced me that the English language can be as difficult and as much fun as fisheries management.

Finally I have to thank my wife and our two young sons for their great contribution to this thesis. I owe its completion to my wife, Christine (a true geographer) who, for the past three years, has mastered the use of the "carrot and the stick", has been both mom and dad on occasion, and has sacrificed a great deal to ensure that I could devote endless nights and weekends to this work. Ben and Christopher have not known life without the thesis and will no doubt wonder why I'm home on Sunday mornings. Unfortunately, I no longer have an excuse for three years of procrastination around the house.

A part-time masters program is easy to start but impossible to finish without an incredible amount of support. To all the people acknowledged here and the many others who offered encouragement and assistance during the past 3 1/2 years I offer my sincere appreciation and thanks.

## **DEDICATION**

To my parents, Cherry and Eric A. (Gus) Blackwood, who provided a loving home, placed a great deal of emphasis on education, and who still take great pride in all their children's accomplishments. If "Education is a journey not a destination," then you both have travelled with me from the start.

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## **Chapter 1: Introduction**

A clear research priority for geographers, if we are to contribute to fisheries management, is to conduct hindsight evaluations of specific resource allocations, and to relate these to the needs of future organization for fisheries management. (Draper 1981)

The Newfoundland and Labrador groundfish fishery is in a state of crisis with nearly all of the traditional fisheries closed and the groundfish stocks at, or near, the lowest level of abundance ever recorded. The social and economic impact has been severe, with between 30,000 to 40,000 people negatively affected and now dependent upon Federal assistance programs for a portion or all of their livelihood (Cashin 1993).

Both Federal and Provincial governments and the entire fishing industry are grappling with low resource prospects and the looming problem of capacity reduction in the harvesting and processing sectors and, in this context, fisheries management and allocation are subjects of considerable debate throughout Atlantic Canada. In Newfoundland and Labrador it is often stated that in the inshore sector there are "too many fishermen chasing too few fish" and that this fundamental problem must be addressed. Despite the current low level of the Northern cod stock upon which many of these fishermen have historically depended, the size of the future inshore fishery will depend upon more than the recovery of the stock. The allocation or sharing of the Northern cod stock will be critical in deciding the future of the inshore sector since it will determine the amount of fish available. Only after the allocation issue is settled can the harvesting and processing components of the inshore and offshore sectors be rationalized, based on resource availability.

Despite the principle of allocation, that reflects adjacency and history, and despite the stated objectives giving inshore fishermen priority access to the Northern cod made in the late 1970s, the inshore fishermen's share of Northern cod has been steadily eroded. Despite the objections of traditional users, the Government of Canada ignored warnings of inshore fishermen and set total allowable catches (TACs) which in retrospect were too high and then allocated the lions' share of Northern cod to foreign countries, the Canadian offshore sector and new entrants from other regions. The inshore fixed-gear sector's share of the Northern cod stock, which had historically been 85-90% of the total catch, and nearly 100% of the Canadian share, was thus eroded to less than 50% of the Canadian allocation by 1986. Preliminary analysis of catch statistics indicates that the inshore fishery accounted for only approximately 25% of the total catch because of the low level of the resource and the high level of catches by foreign vessels outside of 200 miles.

The failure to adhere to stated objectives, to follow the principles of allocation, to acknowledge the warnings and concerns of the traditional users, to deal with the overfishing outside of 200 miles and to set total allowable catches (TACs) based on the scientific advice have all contributed to the overexploitation and subsequent collapse of the Northern cod stock. In the wake of the catastrophe, the inshore fishery is again stated to have priority of access to the first 100,000 to 115,000 metric tonnes (Government of Newfoundland and Labrador 1993; Cashin 1993; DFO 1995); however, these stated objectives echo those of the late 1970s when the Northern cod stock was projected to be growing beyond the needs or harvesting capabilities of the inshore sector (DFO 1979) and

was allocated to other sectors to address overcapacity problems in the harvesting sector elsewhere in Atlantic Canada and to satisfy the demands of foreign nations under bilateral agreements.

This thesis will conduct a hindsight evaluation of the allocation of the Northern cod stock in the 1977 to 1991 period by documenting stated allocation objectives and actual decisions; by examining the allocation process; by analyzing past allocations and actual catches and by identifying the spatial impacts of the allocations. In addition, the importance of goals and objectives in future allocation and resource management processes will be discussed.

## **1.1 Global Crisis in Fisheries Management**

The stewardship of marine fisheries is one of the most difficult resource management problems facing mankind. In recent years the concepts of sustainable development and resource conservation have received considerable attention; however, marine resources are still characterized by "boom and bust" fisheries, resource over-exploitation and increasing conflict between users, be they individual fishermen, gear sectors, regions or nations. The extraction of fish from the ocean is often termed "the last wild harvest", for mankind has not been able to manage fisheries resources on a sustainable basis with over-exploitation, destruction of habitat, lost growth potential and commercial extinction being the norm (Leopold 1948; Cole-King 1993; Acheson 1981; Ludwig *et al.* 1993; Walters 1986).

Currently, marine fisheries are in a state of crisis worldwide, with the majority of fish stocks over-exploited or in a state of collapse (Ludwig *et al.* 1993; Hinds 1992; FAO 1994). Canada is no exception; groundfish populations in Atlantic Canada are at or near the lowest level of abundance ever recorded, and most fisheries have been closed. Northern cod was the largest groundfish stock in Atlantic Canada but a number of studies have documented its over-exploitation and the management decisions that led to its collapse (Steele *et al.* 1992; Hutchings and Myers 1994; Haedrich 1994; Martin 1995). The biological collapse and subsequent fisheries closures have also resulted in negative social and economic impacts throughout Atlantic Canada and especially in Newfoundland and Labrador which was heavily dependent upon groundfish and particularly upon the Northern cod stock (Storey 1993; Cashin 1993; Hamilton and Seyfrit 1994).

## **1.2 Fisheries Allocations**

The collapse of the groundfish fishery in Atlantic Canada has also resulted in a review of fisheries management and has led to dramatic changes in the Canadian decision-making process with respect to the level at which fish populations should be harvested. The Fisheries Resource Conservation Council (FRCC) was created as a "council for the fish" to replace the industry advisory process which focused on allocations, often to the detriment of the resource.

Unfortunately, to date there has been no replacement mechanism to allow input of the user groups into the resource allocation process. Because most stocks are closed, the

absence of such a process has not received much attention. However, as fish stocks rebuild, it is recognized that considerable industry downsizing must occur. The harvesting and processing of groundfish in coming years will likely provide approximately 50% of the jobs and economic benefits seen in the 1980s (Cashin 1993: 56), and the fight for the fish will be subject to incredible conflict between regions, provinces, fleet sectors, towns and individual fishermen. In this respect, the allocation process is equally as important as the rebuilding of fish stocks because a rebuilt resource will not generate economic activity unless it can be accessed through the allocation process.

The need to address the resource allocation issue is best summarized in the report of the recent Task Force on Incomes and Adjustments in the Atlantic Fishery:

The current resource crisis will not be solved, nor will the chronic over-capacity in the harvesting sector, by taking one fleet sector's allocation and giving it to another fleet sector. Beyond the issues of allocation among fleet sectors, there is the linkage between coastal areas and the resources upon which they have traditionally relied. Sometimes, what is presented as fleet sector or gear technology issues are really demands from one coastal area to have resources reallocated to them from another. This is no way to decide the future of coastal areas and the resources upon which they have traditionally relied (Cashin 1993, p.65).

Despite this looming conflict, the Government of Canada has not addressed the issue of resource allocation and has, in fact, moved away from its stated allocation principles and set up "special" programs which undermine the past principles and stated objectives of fisheries allocation. The "Principles of Allocation" which were the

cornerstone of the groundfish management plan during the 1980s were renamed "Essential Elements" in 1993 and are now called "Guidelines" (DFO Annual Atlantic Groundfish Management Plans 1982-95). This weakening of the rules has allowed regional reallocation of resources and is exactly the problem the Cashin Task Force (1993) described.

The challenge for the coming years is to develop an equitable and consistent allocation policy for Canada which will treat all regions and user groups fairly. An important and vital component of this policy must be clearly-stated goals and objectives (Barber and Taylor 1990) which should be developed through full public consultation. Once these goals and objectives are established, the annual "fight for the fish" will be greatly diminished, and the rationalization of an industry can proceed on a regional and fleet sector basis. The fishing industry and both levels of government may then be able to focus on resource conservation instead of the age old conflict over dividing the pie.

### **1.3 Geography and Resource Allocation**

Resource management is defined by O'Riordan as "a process of decision-making whereby resources are allocated over space and time according to the needs, aspirations and desires of man within the framework of his technological inventiveness, his political and social institutions and his legal and administrative arrangements" (Mitchell 1979). The process of resource management is often seen as a process of "muddling through" (Krueger and Mitchell 1977) owing to the vast array of biological, social, economic, legal,

institutional, technological and political perspectives which must be incorporated at differing spatial and temporal scales (Figure 1.1). In attempting to improve resource management, it is necessary to evaluate past management decisions; one of the best mechanisms to judge the success or failure of the past process is to examine the allocation of resources.

Geography is unique in its ability to be integrative (Spooner 1990) and a review of resource geography by Ferguson and Alley (1984) suggests that some larger view is necessary to understand how geography fits within the complex resource-management framework. "Allocation processes offer one means of forming such a framework" (Ferguson and Alley 1984). The examination of the spatial scale has also been central to geography. In examining resource management, the ultimate goal for geographers "should be to understand spatial allocations of resources..." (Krueger and Mitchell 1977).

Resource allocation is a central theme of resource geography and offers a means to evaluate the management process. The role of geographers in resource analysis was reviewed by Mitchell (1979) who identified four areas of research: 1) Studies of natural resources themselves....2) Studies of alternative allocations (spatial, temporal and functional)...3) Studies of variables which condition resource allocation...and 4) Studies of the impact of specific resource allocation" (Mitchell 1979).

In reviewing the future and potential contribution of the role of geographers to fisheries management, Draper (1981) recommended hindsight evaluation of resource allocations:

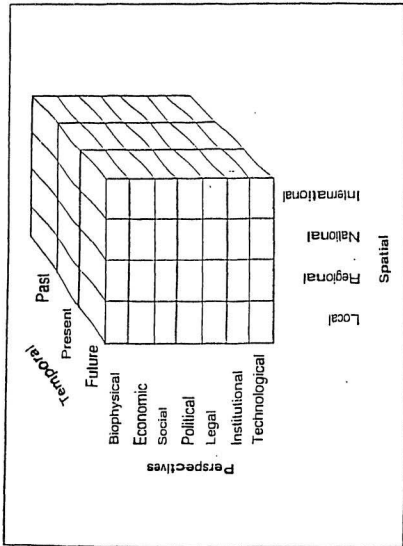


Figure 1.1: The Dimensions of Resource Management (Krueger and Mitchell 1977)

A clear research priority for geographers if we are to understand and contribute to fisheries management, is to conduct hindsight evaluations of specific resource allocations, and to relate these to the needs of future organizations for fisheries management.

In the context of Newfoundland and Labrador, Draper suggested that

Geographers can and should explore such areas including the issues of inshore/offshore tradeoffs...(which) combined with the domestic-foreign allocation problem on the east coast, will need to be analysed in a broad way in recognition of regional economic differences.

Unfortunately, since 1981 very little research has been done with respect to the fisheries allocation issues identified by Draper.

#### **1.4 Purpose of Study**

The purpose of this study is to document fisheries resource allocation decisions and their impacts with respect to the Northern cod (2J+3KL) stock in the 1977 to 1991 period. This will be accomplished through hindsight evaluation (as suggested by Draper) of inshore/offshore splits and foreign allocations and catches in the context of the stated allocation objectives. The implications for future resource allocation and management will also be discussed.

This study will focus on the past management and allocation of the Northern cod stock to achieve the following objectives: (Hypothesis shown in Brackets)

- 1) to document the allocation of the Northern cod stock from 1977 to 1991;

- 2) **to illustrate the shifts in resources which took place between the inshore, offshore and foreign sectors which affected the regional distribution of the resource;**

(Given the emphasis on adjacency, historic dependency and priority of access to the resource by inshore sector it is hypothesized that the inshore would see its share of the resource increase.)

- 3) **to identify and evaluate the priorities for the allocation of the Northern cod resource in terms of stated objectives and actual decisions;**

(It is hypothesized that there is no difference between the stated objectives of allocation and the actual allocation decision. Stated goals from reports will be compared to actual allocation decisions in groundfish management plans and quota reports.)

- 4) **to discuss the importance of goals and objectives in the resource allocation process and draw implications for future fisheries allocation and management.**

## **1.5 Justification for Research**

Research can make a contribution to the literature from a methodological, theoretical and applied perspective. Resource geography research often has a strong applied dimension; however, the other aspects are equally important. The contribution of this thesis to the theoretical aspect of resource-management is its development of a mechanism to conduct hindsight evaluations of resource management decisions by documenting resource-allocation decisions, describing how they differ from stated objectives and illustrating how such decisions affect the spatial distribution of the resource. Because of the vast array of interacting factors to be taken into consideration when

managing natural resources, the failures greatly outnumber the successes; however, improving resource management in the future depends upon the evaluation of resource-allocation decisions and processes since these are the only means to document and analyze past decisions (Mitchell 1979).

Very little work has been done on the evaluation of resource allocation decisions in terms of the allocation process. Elster in his 1992 review of allocation processes stated that "there have been virtually no attempts to study the whole range of questions of this kind, and to develop a conceptual and theoretical framework to describe and explain how institutions allocate goods and burdens" (Elster 1992). The inclusion of goals, objectives and values in the resource-allocation process is also seen as a critical component of effective fisheries management (Barber and Taylor 1990).

From an applied perspective the allocation of fisheries resources is the most conflict-producing type of management decision (Hanna and Smith 1993). Since the declaration of the Canadian 200 mile limit in 1977, the sharing of Atlantic Canada's groundfish resources has been subject to great debate and conflict, usually to the detriment of the resource. The current low biological level of the resource has resulted in a new process for resource conservation which has placed the biological health of the resource above all other concerns (FRCC 1993). No such process or mechanism has been put in place to deal with the allocation of fisheries resources despite the fact that resource allocation is the most controversial aspect of fisheries management. The battle lines have

been drawn and once stocks begin to recover the conflict will again intensify (Martin 1995).

From a spatial perspective the economic future of many communities and entire regions depends upon access to resources which are controlled and allocated by national or international organizations. These communities are not able to influence the allocation policy and are often not privy to the decision-making process, yet they are vulnerable to national and international allocation decisions which result in negative social and economic impacts at the local and/or regional level. Since Draper (1981) identified fisheries allocation as an area for geographers to examine, the groundfish fishery in Newfoundland and Labrador has gone from a period of high catches and optimism to a time of closed fisheries and deep pessimism.

This thesis will illustrate how the allocation process is a critical component of fisheries management and will emphasize the importance of goals and objectives upon spatial and sectoral inconsistencies in the resource allocation process. Since the Amulree Commission in 1933 it has been repeatedly stated that there are; "too many fishermen chasing too few fish" in Newfoundland and Labrador (Blake 1994); the allocation decisions of the past 18 years have not addressed this perceived problem. In fact, the national allocation policy for Northern cod, despite its stated objectives, has increased the access of new users and diverted significant amounts of fish to other regions and countries at the expense of traditional users and dependent regions, thereby, exacerbating the problem.

In Parsons' (1993) review of fisheries management in Canada the process of resource allocation is described as "sharing a limited pie" (Parsons 1993:156)). The most recent review of Atlantic Canada's fishery states that 50% of the harvesting and processing capacity must be removed from the industry and that downsizing must be done on a regional basis by industry renewal boards. Such boards should "define the geographic areas within which harvesting capacity reduction take place" (Cashin 1993:39). Obviously, balancing the numbers of fishermen with the resource base is affected by resource allocation. The Cashin Task Force goes on to state that "Capacity reduction should be based on the principle that coastal areas would maintain priority access to resources upon which they have traditionally relied" (page 40), and that the inshore fishery would have priority access to the Northern cod stock for the first 115,000 mt. These words echo those of the reports of the late 1970s and more recent documents such as the Harris Panel (1990), the Dunne Report (1990) and the Government of Newfoundland and Labrador's "Changing Tides" document (1993). In theory, such statements should give direction and provide goals and objectives to the allocation process, yet, unless the process changes, the future allocation of Northern cod will likely continue to be a misguided process of "muddling through" driven by crisis management.

The following chapter will identify the data sources and methodology used to conduct an evaluation of past allocations of the Northern cod resource and to identify past goals and objectives. Chapter 3 will review the evolution of the allocation process and the principles of groundfish allocation in Canada. Chapter 4 details the past allocation and

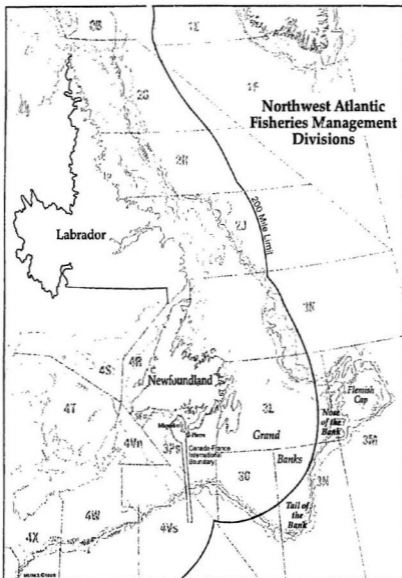
catches of Northern cod in the 1977-91 period and shows how those allocations and catches compare to the stated objectives. The impact of allocation decisions are given in Chapter 5 which examines the stated versus actual decisions, the economic impact of the decisions and the spatial shift of the resource which occurred as the result of allocation decisions. Chapter 6 reviews the statements of goals and objectives in the 1977-91 period and focuses on the allocation goals and objectives in recent documents relating to the "fishery of the future". The findings and conclusions are given in Chapter 7 along with suggestions for future research with respect to resource allocation and the spatial implications of allocation decisions. The need for clearly stated allocation goals and objectives is also discussed in terms of clarification of the fisheries allocation decisions and in the future evaluation of the management process.

## **Chapter 2: Approach and Methodology**

### **2.1 Study Area**

This study will examine the allocation of the stock of cod (*Gadus morhua*) commonly referred to as Northern cod in the waters off the Northeast coast of Newfoundland and Labrador, in the Northwest Atlantic Fisheries Organization's (NAFO) divisions 2J, 3K and 3L (Figure 2.1). Within these divisions it is recognized that a number of sub-components of the stock may exist; however, the stock is managed as one discreet unit (Lear and Parsons 1993) and it is treated here as such.

The management of the cod stock is done by Canada on the basis of the entire stock area; however, landings are often reported on a smaller geographical scale eg. community or NAFO Division 2J or 3K. Likewise, landings of cod from stock area 2J + 3KL in non-adjacent areas of the Province or Atlantic Canada can be documented from the Canadian Atlantic Quota Report. The unregulated foreign fishery which occurs outside Canada's two hundred mile limit takes place in NAFO division 3L in an area known as the Nose of the Bank. In documenting past management and allocation decisions, and the resultant spatial shifts in the distribution of the Northern cod resource, references will be made to the Gulf Region (4RST and 3Pn), the Scotian Fundy region (4VWX) and to the south coast of Newfoundland (3Ps)



## 2.2 Background

The allocation of the Northern cod stock is documented in annual publications such as the Atlantic Groundfish Management Plan and the Canadian Atlantic Quota Report. While there are no academic publications dealing specifically with the allocation of the Northern cod stock, a number of papers (Harris 1990, Storey 1993, Steele *et al* 1992, Parsons 1993, Lear and Parsons 1993) deal with the overall management of the resource. The study of the allocation process is a research area in resource geography which is receiving increasing attention; Mitchell (1979), reviewed the role of the geographer; Hann and Smith (1992) reviewed the role of allocation conflict in resource management, and Pinkerton (1989) reviewed the scale at which allocation decisions are made.

While no academic studies have focused specifically on the allocation of Northern cod, there is a significant amount of literature on the stock which makes specific recommendations with respect to how it should be allocated. In the context of Canada's management of the Northern cod resource, the first detailed study to focus on allocation was the published account of the Northern cod seminar entitled "Towards a Policy for the Utilization of Northern Cod" (DFO 1979) which was held in Corner Brook in 1979. This study projected that the future growth of the Northern cod stock would allow a harvest of 350,000 to 400,000 mt. The inshore share based on its historic catch was defined as 230,000 mt. and the remainder was to be allocated to the Canadian offshore sector and foreign nations under bilateral trade agreements (DFO 1979). During the early 1980s the

Kirby Task Force (1983) also made allocation recommendations for Northern cod based on the fact that the stock was growing beyond the needs of the inshore sector. During 1986, the Government of Newfoundland and Labrador published "Strength from the Sea" expressing concern over the allocation of Northern cod to new users from other provinces while the traditional inshore fishery was failing. In 1987, the Alverson Task Force attempted to explain the continuing failure of the inshore fishery and also noted the priority of access to the inshore sector. In this same year the Government of Newfoundland and Labrador produced "Northern Cod Under Attack" in response to a proposal from Nova Nord, a Quebec/New Brunswick consortium, for an allocation of 10,000 mt. of Northern cod.

The Harris Panel in 1990 provides one of the best overviews of the allocation issue and stresses the need for clearly stated goals and objectives for the management and allocation of Northern cod. The Dunne Report on the "Implementation of the Harris Panel's Recommendations" stated that priority access be given to the inshore sector based on its dependency, history and adjacency (DFO 1990). Following the closure of the fishery for Northern cod in 1992, the focus of most publications shifted from the allocation of the resource to dealing with the social and economic consequences of the collapse. The social and economic issues have now been largely addressed through The Atlantic Groundfish Strategy (TAGS) and attention has returned to the allocation issue. The Cashin Task Force report is very clear in its statements with respect to the future allocation of Northern cod in terms of giving priority access to the inshore fishery for the first 115,000

mt. Likewise, the Government of Newfoundland and Labrador policy paper entitled "Changing Tides" (1993) recommends that the first 100,000 mt. of Northern cod be allocated to the inshore fishery with the allocation of any future increases to be decided by public hearings. It is important to note that the new reference level of 100,000 to 115,000 mt. reflects the inshore catch in the past 15 to 20 years and is approximately 50% of the 230,000 mt. long-term average catch which was the reference point during the late 1970s. The aforementioned reports outline past and future goals and objectives with respect to allocation of the Northern cod resource and provide a benchmark to evaluate the past management. A review of those various reports, comparing goals and objectives and integrating those sources is an integral part of this study. A detailed assessment of the management and allocation process is provided in Chapter 3.

## **2.3 Data Sources and Methodology**

Northern cod in 2J+3KL has been reported as a unit since 1951, with the data presented on an annual basis. A major problem in conducting analysis of fisheries information is the lack of a data base which is complete from both a chronological and spatial perspective. Foreign catches are reported in the NAFO Statistical Bulletin, whereas, Canada's quotas and catches are reported in the Canadian Atlantic Quota Report. In addition, the information is presented in a format which makes the analysis of spatial distribution of the resource difficult with landings being reported in different publications by country, region, fleet sector and community. This thesis will examine different

statistical data bases across both the spatial and temporal time period in question to provide a basis on which to evaluate the changes which occurred over the 1977 to 1992 period.

### **2.3.1 Data Sources**

The focus of this thesis is the allocation of the Northern cod resource. Unlike catches, allocations are clearly identified and not subject to the same disputes and debates with respect to accuracy. Catches are used to supplement the allocation data and to illustrate how catches often differ from allocations, as in the case of foreign catches which exceeded its allocation and the inshore sector which did not catch its allocation. Catch data are also used to illustrate shifts in the spatial distribution of landings on a regional basis since allocations, although not assigned to communities or regions, indirectly determine where fish is landed.

The annual year end Canadian Atlantic Quota Report and the annual Atlantic Groundfish Management Plan are the primary sources of data on the allocation to and catch by Canadian fleets. The foreign catch is taken from NAFO statistical bulletins and other sources such as Lear and Parsons (1993). The NAFO landings data base is problematic for the late 1980s and 1990s when the conflict between Canada and the European Union intensified. It is suspected that landings may not be as low as stated in the NAFO Statistical Bulletin. Indeed, Canada's aerial surveys of the 3L area called the Nose of the Bank reveal effort and catches in excess of those reported to NAFO. Thus, for the purpose of this analysis, the foreign catch of Northern cod as reported should be treated as the minimum amount harvested.

The Canadian fisheries landing data are less of a problem since the offshore fleets were under quota management and were subject to closure during the 1977-82 period. While discarding was a problem during the early years of the enterprise allocation program, by 1986 the offshore harvest was subject to full coverage by observers. The inshore catch is estimated by purchase slips which are issued for all sales. In addition, DFO estimates the amount caught but not sold during each month (Chen 1994). Given the fact that the inshore was on an allowance system, there was no reason to mis-report catch.

The allocation between nations and between sectors within Canada is found in the Atlantic Groundfish Management Plan. The allocation is established at the beginning of each year and is not likely to change during the year because of the intense conflict between the different users.

The stated goals and objectives of allocation are found in special studies, task force reports, and annual management plans. Northern cod was the major stock in Atlantic Canada during the study period and there are a large number of published reports dealing with the allocation of that resource.

### **2.3.2 Methodology**

Draper (1981) stated that geographers should conduct hindsight evaluations of the inshore and offshore tradeoffs, but did not offer a method to conduct such evaluations. Obviously, since the landing ports of the inshore and offshore Canadian fleets and the foreign fleets are geographically separate, the allocation to and catch by each sector affects the geographic distribution of the landings and hence the distribution of economic benefits.

The method chosen to conduct the hindsight evaluation as suggested by Draper (1981) is to identify the stated allocation goals and objectives from published reports and then examine the subsequent allocations to determine whether the allocation objective was achieved. This will test the hypothesis with respect to the expected increase in the inshore's share of the Northern cod resource. Catches are also used in the evaluation since the inshore sector was not able to catch its allocation.

The annual allocation and catch data presented in the Atlantic Groundfish Management Plans and the Canadian Atlantic Quota Reports are combined with the foreign allocation and catch data from the NAFO data base to provide data from 1977 to 1991 that illustrate a time series of the shifts in the allocations and resultant catches of the resource among different users. This complete data base for the stock does not currently exist in the literature and will provide the basis for a quantitative analysis of the changes in allocation which occurred in comparison to the qualitative objectives.

To illustrate the shift in the spatial distribution of the resource over time, the portion of the 2J+3KL stock landed in each NAFO division is shown, as well as the top 15 landing sites from the community landings data base. Both sources of information are available from DFO statistics and can be used to illustrate large scale spatial shifts. In both cases, the shift from North to South is the result of allocation decisions which increased allocations to the offshore sector and thus lowered the share available to the inshore sector.

### **Chapter 3: Fisheries Resource Allocation**

Historically, allocation of fisheries resources reveals a decided lack of sophistication. From man's earliest existence...fish and game resources allocation was a function of brute force. In recent times political strength has been substituted for physical strength. (Stroud *et al.* 1980)

The management of marine fisheries has evolved from Huxley's concept of inexhaustible seas (Smith 1995) to the realization that resources are finite and that excessive fishing pressure can reduce fish populations to the point of commercial and biological extinction. In order to "control" or manage the impact of mankind upon fish resources, various management measures have evolved which restrict spatial access, limit the amount to be harvested, and restrict gear types and fishing seasons. A key component of these management measures is the allocation of fisheries resources which determines the spatial, temporal and technological restrictions placed upon fishermen and also determines the distribution of economic benefit from the common property resources. The purpose of this section is to review the history of fisheries management with emphasis on the resource allocation process in the context of the groundfish fishery in the Northwest Atlantic and, in particular, the Northern cod fishery. This will provide a background to the allocation process and provide a data base to evaluate the changes in allocation in the 1977 to 1992 period.

### 3.1 History of Management up to 1977

The settlement of Newfoundland and Labrador is historically linked to the harvest of marine resources that occurred in abundance in the coastal and offshore areas. Northern cod was the "*raison d'être*" of the vast majority of settlements along the coast of northeastern Newfoundland and Labrador (Harris *et al* 1990; Copes 1980) with the Island viewed as "the great ship moored near the fishing banks" (Harris *et al* 1990). This geographic advantage held for hundreds of years as the inshore fixed-gear fishery centred around the annual migration of cod to the coast. During the period from the 1500s to the 1900s there was virtually no management in the form of licences, TACs, mesh sizes, etc. There was, however, spatial separation of fishing areas between different nations with the French and English occupying different geographic regions (eg. the French Shore). However, the major constraint was the forces of nature in terms of geographic, physical and seasonal limitations. When fish did not show up or ice conditions prevented a harvest, it was generally seen as "one for the fish" (N. Bates 1995 Pers. Comm.). The absence of a management regime did not jeopardize the health of the groundfish stocks and indeed the Northern cod fishery from 1850 to 1950 could be viewed as a model of stability and sustainable resource usage (Harris *et al* 1990: 23. Fig 3.1).

The development of otter trawl and freezing technology vastly changed the harvest

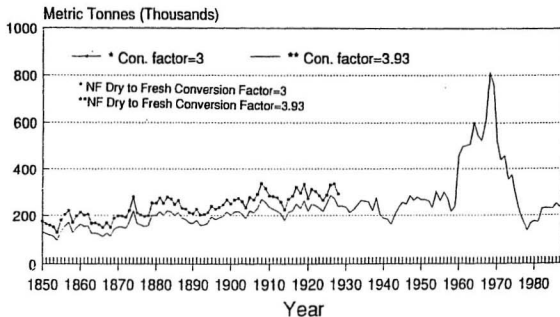
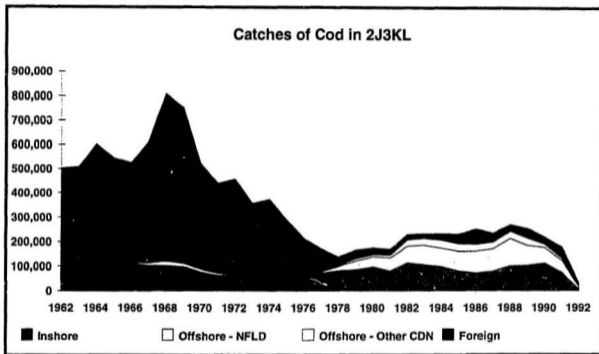


Figure 3.1: Historic Landings of Northern Cod  
 From: Harris et al. 1990; page 23

of many fisheries resources worldwide. This was especially true for the Northern cod stock as the development of the factory freezer trawler during the 1950s led to a dramatic increase in total harvest and a change in the spatial and temporal limitations on the resource. The allocation of the resource during the 1950s and 1960s was not an issue since the fishery essentially operated as a free-for-all with very limited controls on the overall harvest; however, as offshore effort increased the inshore fishery by 1974 had plummeted to less than 20% of its long term average (Harris *et al* 1990). As the exploitation of the high seas intensified in the post-war era, international organizations were formed to monitor and eventually manage fish stocks found in international waters. The International Convention on Northwest Atlantic Fisheries (ICNAF) was formed in 1949 to provide scientific and statistical information to those participating in the fishery. It made early attempts to regulate mesh size and, in 1972, established TACs. However, "as an agency for conservation ICNAF was a total failure" (Harris *et al* 1990) since the total allowable catches were established at levels which were not restrictive to the fishing fleets. The foreign effort increased dramatically during the 1960s and as a result the unregulated harvest of Northern cod peaked at 810,000 mt. in 1968 (Harris *et al* 1990; Lear and Parsons 1993). The Northern cod stock subsequently collapsed, and in 1977 Canada declared a 200 mile limit (Figure 3.2) in a belated attempt to control the situation.

In retrospect, it is easy to blame ICNAF for its failure in the management of the Northern cod stock during the 1950s, 1960s and 1970s. It must be remembered, however, that the over-exploitation of marine resources was occurring on a world-wide basis during



Source: NAFO Statistical Bulletins 1962 - 1978; Canadian Atlantic Quota Report 1979 - 1992

Figure 3.2: Landings of Northern Cod by Sector and Region 1962 - 1992.

the 1960s and 1970s (Hinds 1992, Ludwig *et al* 1993, WCED 1987). Indeed, the inability of mankind to control or manage technology was a factor behind the United Nations Law of the Sea Convention which extended the rights of coastal states to 200 nautical miles, with the intention of ending two decades of over-exploitation. During these two decades the traditional inshore catch of Northern cod had continuously declined from average landings of between 200,000 to 250,000 mt. during the early 1900s to 172,000 mt. by 1956 and a low of 35,000 mt. in 1974 (Harris *et al* 1990; NORDCO 1981; Lear and Parsons 1993). The social and economic impact of this decline was enormous as tens of thousands of people abandoned the fishery as a means of livelihood and many communities were deserted (Harris *et al* 1990; Parsons 1993; Blake 1994). Canada was involved in extensive negotiations in the 1958 to 1977 period with the other nations of the world regarding the management of marine resources. The plight of coastal communities which were adjacent to and historically dependent upon the Northern cod resource was central to Canada's arguments at the United Nations Law of the Sea Conference for extended jurisdiction of its exclusive economic zone.

The massive overfishing of marine resources which had occurred on a world wide basis during the 1960s and 1970s lead to increasing pressures for change in the management of the oceans. The "freedom of the high seas" ended in 1977 because "the technological revolution created a legal and political vacuum which was filled by this international law concept in a surprisingly brief period" (Evensen 1985 as quoted in Parsons 1993: 243). Thus, in 1977 Canada gained control of a vast fishery zone and the

spatial allocation of access became a major component of fisheries management for both foreign nations wanting to fish inside the zone and for Canadian fishermen within the zone.

## **3.2. Canadian Management after 1977**

### **3.2.1 The Spatial Allocation of Access**

The United Nations Law of the Sea effectively brought about an end to decades of massive over-exploitation by vast fleets of factory freezer trawlers from Europe and East Block countries. As a result of the Law of the Sea Agreement, the resource management process and the allocation process shifted from the international scale to the national scale (Figure 1.1). Canada subsequently implemented regional restrictions on licenses and vessel movements, an example of which was Sector Management which allowed for regional management of resources (DFO 1985).

#### **3.2.1.1 The Two Hundred Mile Limit**

On January 1, 1977 Canada declared a 200 nautical mile fishing zone on the Atlantic coast encompassing 503,000 square miles (Parsons 1993). The worldwide acceptance of exclusive economic zones allowed most countries to extend their area of control over fisheries through customary international law, since the Law of the Sea Convention has still not been ratified.

The access to the Canadian zone by foreign vessels remains a very contentious issue. Under the terms of the Law of the Sea, resources which are surplus to Canada's

needs must be allocated to other nations. Following the extension of jurisdiction, Canadian fishermen expanded their harvesting capacity and gradually harvested all "surplus" fisheries resources for which these fleets had markets or could fish profitably. However, during the 1980s Canada allocated non-surplus amounts of Northern cod to countries in exchange for market access and cooperation in the management of Northern cod and other stocks which straddle the 200 mile limit.

#### **3.2.1.2 Sector Management**

Managing 503,000 square miles of ocean as a unit proved to be impossible and following the extension of jurisdiction restrictions on access were implemented on a regional basis. In order to allow for regional planning and to develop fisheries in line with the local resource base, the Government of Canada implemented a sector management policy on January 1, 1982 (Figure 3.3). The policy applies to all inshore vessels less than 65 ft. (19.8 metres) which fish groundfish. It allows for decentralization of the management of the inshore fishery to the regional headquarters level, and allows each region to respond quickly to local fisheries problems and align fishing effort to the resource availability (DFO 1985).

While it is perceived that fishermen in Newfoundland and Labrador were the major beneficiaries of this policy, it was actually implemented to prevent vessels based in Southwest Nova Scotia from fishing in the Gulf of St. Lawrence (Parsons 1993:137). The sector management policy also affected the scale of decision-making by allowing for more regional input. During the 1980s the sector management plan, which limited access of the

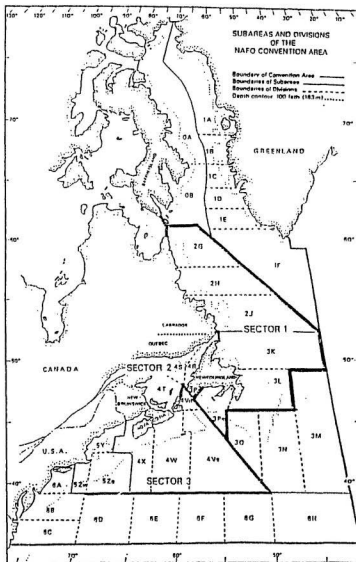


Figure 3.3: The Three Sector Management Areas on the Atlantic Coast  
 From: Parsons 1993; page 138

inshore fishery to resources on a regional basis, came under continuous attack and there was a continued erosion of the policy which negatively impacted upon the fishermen of Newfoundland and Labrador (Maloney 1990).

### **3.2.2 Allocation of Resources - Sharing the Pie**

By the time Canada gained control of the 200 mile limit the management of fisheries by Total Allowable Catch (TAC) was an internationally accepted means of managing groundfish resources. Canada adopted the national allocation approach of ICNAF and adapted it to its domestic fleet (Parsons 1993: 114).

#### **3.2.2.1 Total Allowable Catches**

Following the extension of jurisdiction Canada was also faced with a major problem with respect to stock assessment because in order to set a TAC it was necessary to know the size of the biomass of various stocks. Canada opted for a conservative level of fishing mortality approximating 20% of the fishable biomass known as  $F_{0.1}$  for its groundfish resources. For Northern cod, the TACs were set below the  $F_{0.1}$  level to accelerate stock rebuilding. In retrospect these attempts were in vain as an over-estimation of biomass led to TACs and catches which were nearly double the desired level of fishing mortality (CAFSAC 1987).

In effect, the assessment process defines how much resource is available and the level of exploitation (eg.  $F_{0.1}$ ) determines the total allowable catch (size of the pie). Despite the difficulties in setting appropriate TACs and managing within established limits, the assessment of groundfish stocks and the setting of TACs in annual management plans

became the cornerstone of groundfish management during the late 1970s and 1980s. Despite the problematic past and lack of success in terms of biological management, the TAC system of management is still widely accepted today. However, once it is determined how much can be harvested, the conflict between user groups over how the resource should be allocated or shared intensifies (Hanna and Smith 1992).

#### **3.2.2.2 Sharing the Pie**

The sharing of TACs into national allocations by ICNAF in 1971 was a departure from the common property nature of fisheries. Canada again adopted this method of pie sharing in its fisheries management process in the post-1977 period. A major management crisis occurred at the time of extension of jurisdiction with the collapse of the Gulf redfish resource and resulted in the removal of Nova Scotian and Newfoundland vessels from the redfish fishery in the Gulf of St. Lawrence. The excess harvesting capacity that was removed from the Gulf in 1977 was subsidized by the federal government to fish for Northern cod off Labrador (this will be discussed in detail in section 4.4). This "shifting the burden" approach was to become commonplace during the 1980s and continues today.

Following the extension of jurisdiction in 1977 the removal of foreign fleets provided access to enough fish to solve most domestic allocation problems. However, as the Canadian capacity to harvest expanded, the conflict between competing users intensified. The total allowable catch for most stocks was divided between the inshore and offshore sector with each sector getting its own quota. The "race for the fish" in the offshore sector eventually lead to an enterprise allocation system in 1982 whereby each

company received an individual share of the overall offshore quota and could plan its harvesting in terms of its fleet and its markets.

The inshore sector in most of Atlantic Canada continued to operate on a quota system while the inshore fishery for Northern cod in 2J+3KL operated on an allowance which, because of seasonal and geographic fluctuations in fish migration and abundance, was necessary to allow the fishery to continue after the share was harvested. The inshore allowance was one of the few quotas in Atlantic Canada which was not fully harvested or exceeded on an annual basis. In retrospect, the inability of the inshore sector to harvest its allowance should have been a warning to resource managers since it was reflective of the low level of the resource.

### **3.3 The Fisheries Resource Allocation Process**

The process or mechanism for allocating fisheries resources varies considerably depending upon the resource, the users and the institutional arrangements in place. In 1977, when Canada assumed responsibility for managing the resources within the two hundred miles, there were no formal mechanisms to allow for consultation with the user groups or stakeholders in the Atlantic fishery. However, "with the introduction of resource allocation....the clash of conflicting interests became apparent, so did the need for structured consultation." (Parsons 1993: 463)

The Atlantic Groundfish Advisory Committee (AGAC) became the flagship of a process based upon local consultations feeding into regional advisory committees which

then fed into the Atlantic-wide advisory committees. This process grew during the 1980s and by the end of that decade there were 11 committees in the Newfoundland region, 34 committees in the Scotia-Fundy region and 46 advisory committees in the Gulf (Parsons 1993). In addition, the Federal-Provincial Atlantic Fisheries Committee and the Atlantic Council of Fisheries Ministers dealt with resource management and policy issues.

The purpose of the consultation/advisory process was identified in 1986 by the Department of Fisheries and Oceans in a paper on reforming the consultative process as:

1. To advise the principal user groups and the provincial governments on the basic direction and content of the proposed management plans; and
2. To arrive at a broadly-based consensus on the major elements of these plans, particularly with respect to the sharing of the fish quotas among the different user groups. (Parsons 1993: 466)

It is noteworthy that the essential purpose of the process designed to manage fisheries resources was to deal with "sharing of the fish quotas among different user groups." The fight over allocation overshadowed all other aspects of resource management such as conservation. Those experienced with the AGAC consultative process believe this conflict eventually led to its derailment (L. Dean 1995 Pers. Comm.).

The process of consultation was in retrospect much more than a mechanism for input into management decisions. It revealed major differences in regional input as indicated by the difference in the number of committees on a regional basis and in the strength of the different user groups in terms of their ability to use the process to their

advantage. The latter has implications for issues such as inshore/offshore shares especially during the critical period of the late 1970s (Parsons 1993:463).

### **3.4 Principles of Allocation**

The debate over resource allocation is often intense and has historically been the cause of conflict between users and regions (Hanna 1994; Hanna and Smith 1992; Smith 1994; Stevenson *et al.* 1994). The allocation debate over Northern cod intensified as the amount of fish available was reduced, and the conflict occurred in many geographic areas and at many geographic scales, ranging from the international conflict (Sullivan 1989; Day 1995; Rowe 1993) to the intense domestic struggle between regions and communities (Martin 1994; Steele *et al.* 1992; Vardy 1994; Maloney 1990; Government of Newfoundland and Labrador 1987). Domestically, the allocation of the groundfish resource increasingly became the major source of conflict throughout Atlantic Canada in the years following the declaration of the 200 mile limit. Bitter and intense debates between inshore/offshore interests, gear types, regional groups and provinces were part of the process of developing a groundfish management plan. Specifically, the allocation debate in the late 1970s and early 1980s centred on; "1) the general inshore/offshore splits; 2) access to the Gulf of St. Lawrence by large trawlers based outside the Gulf and 3) inter-provincial rivalry between Newfoundland and Nova Scotia about the share of Northern cod and where Northern cod catches should be landed" (Parsons 1993: 122).

To reduce the annual conflict and *ad hoc* decision making, the Government of Canada developed a set of allocation principles which were designed to protect the interests of the user groups. The allocation principle was one of several overall principles in the annual groundfish management plan and stated:

Allocation of fishery resources will be on the basis of equity taking into account adjacency to the resource, the relative dependency of coastal communities and the various fleet sectors upon a given resource, and economic efficiency and fleet mobility (Atlantic Groundfish Management Plan 1984).

These principles were designed to provide a basis for resource allocation decisions during the 1980s; however, as this thesis will show, they were not always adhered to or applied consistently on a regional basis. The lack of agreement between user groups on major allocation issues resulted in such issues ending up "on the Minister's desk for decision" (Parsons 1993: 157).

It is also interesting to note that since the crisis of the early 1990s the "basic principles" of the Atlantic Groundfish Management Plan changed to "guidelines" in 1993 and two special clauses have been added.

XII. Adjustments in the inshore/offshore ratios for particular stocks may be considered by the minister.

XIII. Allocations may be made for special programs in specific stock areas included within the Canadian quota (Atlantic Groundfish Management Plan 1995).

Both of these measures have increased the power of the Minister of Fisheries and Oceans and have led to a great deal of uncertainty with respect to future allocations.

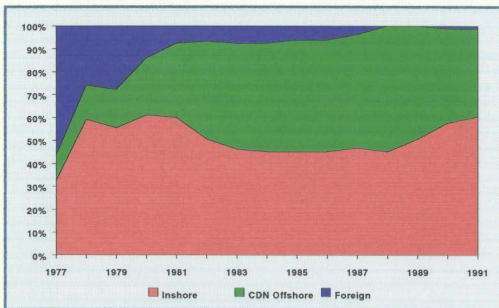
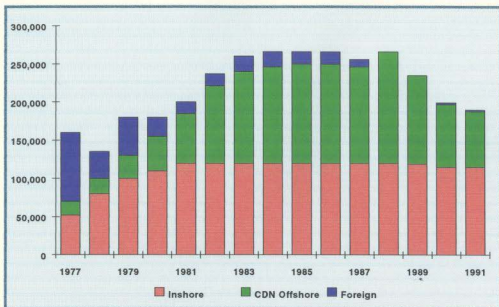
## **Chapter 4: Past Allocations of Northern Cod**

**It is apparent that the policies enunciated by the Department of Fisheries and Oceans and expressed in the Groundfish Management Plan's have been only words on paper to be ignored or disregarded at will. (Steele *et al* 1992)**

The purpose of this section is to document the allocation and catches of Northern cod since Canada took management control following the declaration of the 200 mile limit on January 1, 1977, up to collapse of the stock in the early 1990s, and the subsequent declaration of a moratorium on commercial harvesting on July 2, 1992. During this fifteen year period Northern cod was consistently at the centre of the controversy surrounding Canada's management of Atlantic fisheries and was therefore subject to a number of task forces, special studies, and publications with respect to its management. In almost all cases the allocation of the resource between regions, fleet sectors, gear types and the splits between the inshore and offshore sectors were the focal points of these reports. The allocations to various user groups and their resultant catch is given in Appendix one and shown graphically in Figure 4.1 and Figure 4.2.

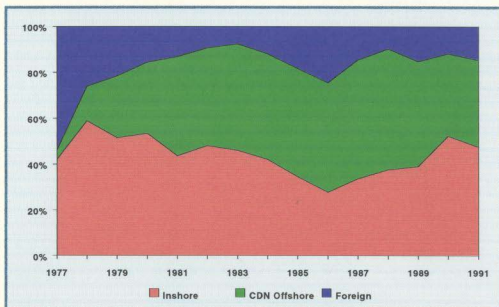
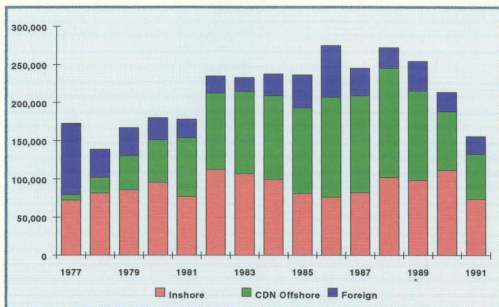
These figures are a result of combining and manipulating the various data bases that exist and presenting these data in a form that addresses the stated objective concerning resource allocation decisions.

Since the setting of the TAC impacts directly upon the allocation process, the first section will review the scientific advice and TACs with respect to Northern cod. The



Sources: 1977 - 1979 - CAFSAC - 92/75, and NORDCO 1981; 1980 - 1991 - Canadian Groundfish Management Plans and Quota Reports.

Figure 4.1: Inshore, Canadian Offshore and Foreign Allocations of Northern Cod 1977 - 1991.



Sources: 1977 - 1979 - CAFSAC - 92/75, and NORDCO 1981; 1980-1991 - Canadian Groundfish Management Plans and Quota Reports.

Figure 4.2: Inshore, Canadian Offshore and Foreign Catches of Northern Cod 1977-1991.

second section examines the stated objectives and principles of allocation and is followed by an overview of how the TAC was allocated by Canada to foreign nations and to the domestic inshore and offshore sectors.

#### **4.1 Setting the Total Allowable Catch**

Following Canada's extension of jurisdiction, the adoption of the TAC as a means for fisheries management posed a very difficult problem; TACs are set based on harvesting a certain percentage of the total fishable biomass, thus it is essential that the size of the biomass be known. This requirement led to a rapid increase in fisheries stock assessment by the Department of Fisheries and Oceans in the post-1977 period. Since Canada did not have a time series of research vessel surveys prior to 1977 and the Canadian offshore fleet had little or no presence in the Northern cod fishery before this date, the assessment of the Northern cod stock in the 1977 to 1986 period was conducted by the Northwest Atlantic Fisheries Organization (NAFO). Canadian scientists participated in the NAFO scientific process and gradually acquired a time-series of Canadian research vessel surveys and Canadian offshore catch rate data that enabled them to carry out their own assessments in 1987 (DFO 1988).

Unfortunately, during this transition period very optimistic resource projections lead to intense pressure with respect to the future allocation of the Northern cod stock. These projections resulted in non-surplus allocations to foreign countries, allocations to the Canadian offshore sector and to new users from other regions. During the early 1980s it

also became obvious that the inshore sector was not seeing an increase in the resource. In fact the inshore fixed gear fisheries, a sector which had traditionally harvested 200,000 to 250,000 mt. of Northern cod in the 1860-1960 period was unable to catch its 115,000 mt. allocation during the 1980s. Initially, the failure of the Northern cod stock to migrate inshore was blamed on cold water (CAFSAC 1986) but the inshore failure worsened and lead to the appointment of the Alverson Task Force on Newfoundland Inshore Fisheries in August 1987. Also, in December 1986, the Newfoundland Inshore Fisheries Association (NIFA) released a report it had commissioned by fisheries scientists at Memorial University of Newfoundland. The Keats Report raised very serious concerns over the use of offshore catch rates in the estimation of biomass size and that the stock biomass had been consistently over-estimated (Keats *et al.* 1986). The retrospective analysis conducted by CAFSAC in 1988 illustrates the magnitude of the problem (Table 4.1). If Canada had known that in 1981 the TAC should have been 120,000 mt. instead of the 250,000 mt. advised by the NAFO Scientific Council the TAC would not have been set at 200,000 mt. The over-estimation of TACs in the early 1980s resulted in high levels of exploitation through the allocation of non-surplus fish to foreign countries and the allocation in excess of 100,000 mt. of Northern cod to the Canadian offshore sector. Both of these decisions had a very detrimental effect on the traditional inshore sector.

In allocating the Northern cod TAC, the inshore sector was accorded first priority; "the inshore allocation is taken off the top (ie. the inshore sector gets the first slice of the pie)" (DFO 1989). However, in reality, the inshore sector never received its share. For

Table 4.1: Retrospective Analysis of Northern Cod TAC's

2J3KL Cod					
Year	Advised Fo.1	Tac	Retrospective Fo.1	Difference (Advised - Retro)	Catch
1975	-	554,000	-	-	288,000
1976	-	300,000	-	-	214,000
1977	160,000	160,000	45,000	115,000	173,000
1978	160,000	135,000	60,000	100,000	139,000
1979	200,000	180,000	90,000	110,000	167,000
1980	210,000	180,000	110,000	100,000	176,000
1981	250,000	200,000	120,000	130,000	171,000
1982	270,000	230,000	130,000	140,000	230,000
1983	300,000	260,000	140,000	160,000	232,000
1984	270,000	266,000	165,000	105,000	230,000
1985	270,000	266,000	180,000	90,000	232,000
1986	240,000	266,000	215,000	25,000	252,000
1987	240,000	256,000	120,000	120,000	235,000
1988	233,000	266,000	-	-	269,000
1989	125,000	235,000	-	-	253,000
1990	N/A	199,000	-	-	219,000
1991	N/A	190,000	-	-	171,000
1992					

MORATORIUM IMPOSED JULY 2 1992

MORATORIUM IMPOSED JULY 2, 1992

Source: CAFSAC 1987 - 1989; CAFSAC 1992

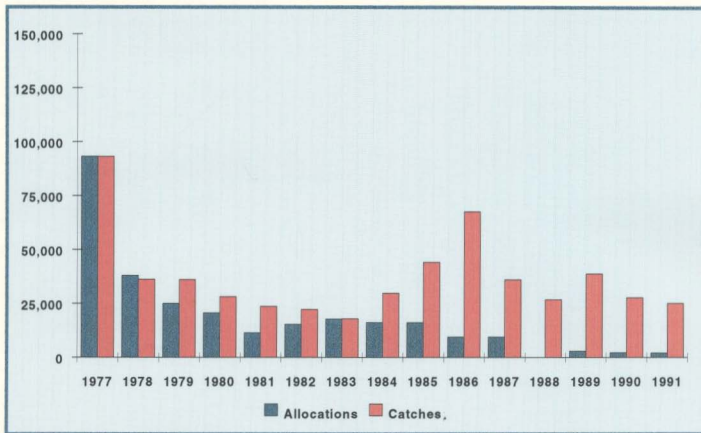
example, in 1989 when scientists discontinued using offshore catch rates and recommended a TAC of 125,000 mt. the Minister of Fisheries and Oceans set the TAC at 235,000 tonnes. This resulted in a catch of 254,000 mt. with Canadian and foreign offshore mobile gear vessels catching 150,555 mt.. Not surprisingly, the inshore fishery failed to harvest its allowance, but through increased effort, smaller mesh sizes and moving further from shore it managed to catch 102,869 mt. of fish, much of very small size (CAFSAC 1992: 19). The small size was also evident in offshore catches.

While the setting of appropriate TACs and the interaction between science and fishermen is critical to future management (Finlayson 1994), it is not the subject of this thesis. Yet, the fact cannot be ignored that the level of the TAC indirectly affects the allocation process especially when stocks are over-exploited and at low levels of abundance. Under such circumstances mobile gear vessels are able to maintain catch rates by hunting for fish while passive fixed gear catches invariably decline. The role of scientists in setting TACs and the implications for allocation issues were highlighted in an address by Mr. Cabot Martin at the 1994 annual meeting of the American Fisheries Society:

If the cod comes back every inshore fisherman knows that FPI and National Sea will be back, too. But this time we know the fatal consequences of a half-fought battle; this time we will be ready; and this time, if God gives us a "this time", I hope to see more fisheries scientists on our side of the barricades (Martin 1994).

## 4.2 Foreign Allocations and Overfishing

The declaration of the 200 mile Exclusive Economic Zone (EEZ) on January 1, 1977 was expected to bring about an end to the over-exploitation of the Northern cod stock by foreign fleets. However, foreign harvests of Northern cod have continued and even increased during the 1980s. Foreign catches are of two types; those occurring within the Canadian EEZ through bilateral agreements with Canada, and those occurring outside of 200 miles in the area known as the "Nose of the Bank". Canada's management of the Northern cod fishery since 1977 has always been a fine balancing act of allocating resources inside the zone in return for market access and/or cooperation in not fishing outside the zone. The allocations to foreign countries inside the 200 mile limit, the subsequent catch and the "illegal" catch outside the zone in the 1977 to 1991 period are shown in Figure 4.3. The allocation and catches by country are given in Table 4.2. The foreign allocations inside the Canadian zone was a very controversial issue with respect to Northern cod in the late 1970s and early 1980s as Canada took responsibility for the management of the Northern cod stock (Parsons 1993; Harris 1990). In 1977, Canada extended jurisdiction but "treated 1977 as a transitional year. Accordingly, it adopted the TAC and national allocations agreed to in ICNAF during 1976" (Parsons 1993: 244) therefore, foreign countries were allocated 90,000 mt. of the 160,000 mt. TAC. In retrospect, the TAC for 1977 at the  $F_{0.1}$  level of fishing mortality should have been only



Source: Lear and Parsons 1993

Figure 4.3: Foreign Allocations and Catches of 2J+3KL Cod (mt) as reported to NAFO

Table 4.2: Northern Cod Allocations and Catches by Country 1977 to 1991  
(From: Lear and parsons 1993, Page 77)

COUNTRY	1977	1978	1979	1980	1981	1982	1983	1984
BULGARIA	1400	18	700	0	1,031	700	12	0
CUBA	1,810	1,110	1,400	0	1,810	1,400	0	0
E.E.C.	1,400	1,110	1,400	0	1,810	1,400	0	0
FRANCE	1,810	1,110	1,400	0	1,810	1,400	0	0
F.R.G.	1,810	1,110	1,400	0	1,810	1,400	0	0
ITALY	1,810	1,110	1,400	0	1,810	1,400	0	0
NETHERLANDS	1,810	1,110	1,400	0	1,810	1,400	0	0
NETHERLANDS	1,810	1,110	1,400	0	1,810	1,400	0	0
NORWAY	1,810	1,110	1,400	0	1,810	1,400	0	0
POLAND	1,810	1,110	1,400	0	1,810	1,400	0	0
ROMANIA	1,810	1,110	1,400	0	1,810	1,400	0	0
SPAIN	1,810	1,110	1,400	0	1,810	1,400	0	0
U.S.S.R.	1,810	1,110	1,400	0	1,810	1,400	0	0
OTHERS	1,810	1,110	1,400	0	1,810	1,400	0	0
TOTAL	93,140	93,159	34,000	10,182	25,640	38,120	28,700	18,300
1985	1986	1987	1988	1989	1990	1991	1992	1993
BULGARIA	0	0	0	0	0	0	0	0
CUBA	0	0	0	0	0	0	0	0
E.E.C.	9,500	9,500	9,500	9,500	9,500	9,500	9,500	9,500
FRANCE	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
F.R.G.	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
ITALY	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
NETHERLANDS	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
NETHERLANDS	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
NORWAY	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
POLAND	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
ROMANIA	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
SPAIN	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
U.S.S.R.	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
JAPAN	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
OTHERS	1,115	23,484	1,115	1,115	1,115	1,115	1,115	1,115
TOTAL	18,200	44,199	9,500	27,588	22,262	27,824	2,140	22,123

E.E.C. Allocation was distributed to France, Federal Republic of Germany and United Kingdom during 1980 and 1982-1987.  
1985-87 Figures are preliminary.  
Catches for France during 1987, 1990 and 1991 are from CAPSAC data. Does 1987 and 1975.

45,000 mt. (CAFSAC, 1987). Thus in retrospect the foreign allocation represented fishing at twice the desired level of fishing mortality.

During the 1977 to 1980 period the "surplus" allocations of Northern cod decreased from 90,000 mt. to 25,000 mt. and by 1981 increasing Canadian effort meant there was no longer any "surplus". In the 1981 to 1987 period Canada allocated non-surplus amounts of Northern cod to foreign countries in return for market access and cooperation in conservation of straddling stocks and highly migratory species such as salmon (Sullivan 1989, Parsons 1993, Day 1995). During the early 1980s the euphoria of the projected growth of Northern cod stock began to dissipate as the inshore sector consistently failed to harvest its allowance of 115,000 mt. The TACs, which were projected to grow to 400,000 mt. at  $F_{0.1}$ , peaked at 266,000 mt. and, in light of the consistent overestimation of the biomass, should have been much lower.

The pressure to reduce non-surplus allocations to foreign nations increased as Canada's offshore fleet began to harvest all of its allocation (Kirby 1983). Consequently, during the 1982 to 1986 period, fishing outside of the 200 mile limit began to increase as Canada no longer had the surplus resources to "buy" the cooperation of other nations.

The European Community (E.C.) was the main beneficiary of the non-surplus allocations of Northern cod as the result of a long-term agreement (LTA) signed with Canada on December 30, 1981 to extend to December 31, 1987.

This Agreement exchanged, inter alia, quotas in Canadian waters for E.C. vessels for tariff quotas at reduced rates for fish products of interest to Canadian exporters. An integral part of the LTA was

that Canada gave the E.C. catch quotas of non-surplus Northern cod from within the Canadian zone on the understanding that E.C. member nations would not fish for this species or NAFO managed stocks outside the 200 mile limit beyond the quotas set by NAFO for the EC (Sullivan 1989: 127).

This attempt to buy cooperation failed and the problem of overfishing the Northern cod stock outside of 200 miles escalated during the 1982 to 1986 period (Parsons 1993, Lear and Parsons 1993, Sullivan 1989). 1985 proved to be a critical year for Canada's foreign allocation policy when oceanographic conditions caused an unusual abundance of fish to occur outside the 200 mile limit on the Nose of the Bank. Having harvested its share of the LTA inside the zone, the Federal Republic of Germany began fishing outside the zone and harvested 15,000 mt. of Northern cod in excess of its quota. The following year Spain and Portugal, which had consistently overfished their allocations, joined the European Community (Lear and Parsons 1993). Unfortunately, the harvesting capacity of the Spanish and Portuguese fleets could not be accommodated within European waters and the exclusion of the Spanish from other areas such as Namibia meant that the Spanish and Portuguese targeted the unprotected area outside of Canada's 200 mile limit (Day 1995). This led the E.U. to consistently use the "objection procedure" at NAFO. In essence, this allows any member not agreeing with its quota to "object" and set its own unilateral quota. In the case of Northern cod, the E.C. used the objection procedure continuously from 1986 to 1992. Despite the fact that NAFO agreed to a moratorium on fishing cod outside of 200 miles in 3L, the E.C. set unilateral quotas for the 1986 to 1991 period for a total of 346,360 mt. while reporting to NAFO a catch of 206,123 mt. for the

same period. Canadian estimates place the catch at higher levels, for example, in 1991 the E.C. reported a catch of 22,835 mt. of Northern cod whereas the Canadian estimate was 41,900 mt (CAFSAC 1992).

In summary, Canada initially began a phase-out of foreign vessels through surplus allocations (though retrospectively these allocations were not truly surplus) in the late 1970s and during the early 1980s Canada tried to use non-surplus allocations of Northern cod to get other nations to limit their catches outside of 200 miles. The 1986 to 1992 period resulted in increased conflict with the European Community, and the overfishing outside of 200 miles intensified. Following Canada's declaration of a moratorium on Northern cod on July 2, 1992 an agreement to respect the moratorium was reached with the European Community.

The only allocation of Northern cod to foreign countries since the expiry of the LTA in 1987 has been to France. In order to get France to agree to a boundary settlement in area 3Ps the Government of Canada granted France an allocation of Northern cod notwithstanding the strong opposition of the fishing industry and the Government of Newfoundland and Labrador. In the words of then Premier, Brian Peckford, "They sold the shop!"

#### **4.3 Inshore Allocation**

The history of the inshore sector was essentially the history of the Northern cod fishery up until the development of foreign factory freezer trawlers in the 1950s. The

inshore sector operated on a seasonal basis using passive fixed gear which exploited the cod stock during its spring and summer migrations to coastal waters. The catch was subject to annual variations but in the 1850 to 1950 period usually ranged between 200,000 to 300,000 mt. (Lear and Parsons 1993, Harris 1990). With the expansion of the foreign offshore effort in the 1950s and 1960s total catches soared to 810,000 mt. in 1968. By 1974, the inshore catch plummeted to 34,000 mt. as the result of the stock collapse. The declaration of a 200 mile limit meant that the historically dependent inshore sector, and the communities which were nearly totally dependent upon the Northern cod stock, finally had hopes of renewed control of the resource, and expansions were made in both the harvesting and processing sector to reap the economic benefit of a rebuilt Northern cod stock.

The concept of first priority in allocation of the TAC to the inshore sector was repeatedly stated in the 1977 to 1980 period with, then Minister, Romeo LeBlanc stating the following with respect to Northern cod allocations:

I have a clear bias for the inshore fisherman, not because of some romantic regard, not because of his picture on the calendars, but because he cannot travel far after fish, because he depends on fishing for his income, because his community in turn depends on his fishery being protected (Parsons 1993: 123).

Subsequently, the Department of Fisheries and Oceans released resource projections for the Northern cod stock which forecast 1985 landings of 400,000 mt. at  $F_{0.1}$  or 350,000 mt. if an exploitation rate below  $F_{0.1}$  were adopted (DFO 1978). This stock was projected to be the major growth area for all Atlantic Canada and offshore vessels, displaced from

the Gulf, were subsidized to fish for Northern cod in 2J+3KL. Meanwhile, at the special Government - Industry seminar on the management and allocation of Northern cod in August 1979 the then Minister of Fisheries and Oceans, the Honourable James McGrath, stated that:

the Northern cod were the staff of life to the people of Northeast Newfoundland and Labrador...that the policy of the government was that the inshore fisherman had first call on this resource (Lear and Parsons 1993: 66).

The paper on the utilization of Northern cod presented at the seminar estimated that the inshore sector would be able to harvest only 230,000 mt. and therefore based on the 350,000 mt. which would be available in 1985, 120,000 mt. would be available to the Canadian offshore sector and foreign nations through bilateral agreements (DFO 1979). With respect to allocation the seminar concluded that

The first and overriding priority in allocations is to the inshore sector. The consensus from the seminar participants was that two thirds of the TAC of Northern cod should be set aside as an allowance for the inshore fishery (DFO, 1979).

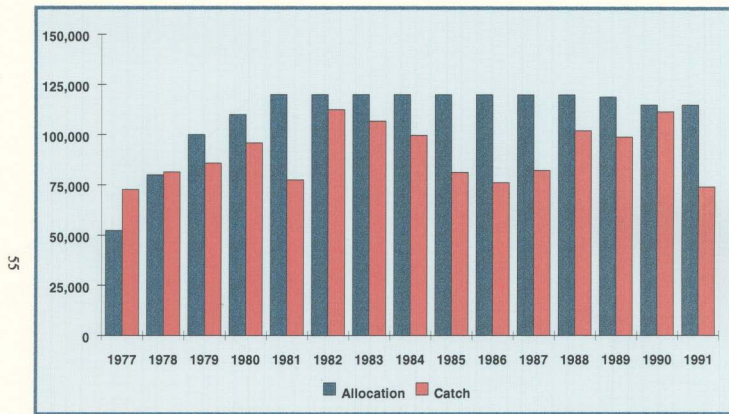
The Province of Newfoundland disagreed with the decision to introduce new users and argued that

The inshore could and should take up to 85% of the Northern cod catch and that any residual should be taken by Newfoundland based offshore effort to supply resource short plants in Newfoundland (DFO 1979).

Both positions assumed a stock capable of supporting a 350,000 to 400,000 mt. TAC by 1985. Given the euphoria associated with gaining control of this vast resource,

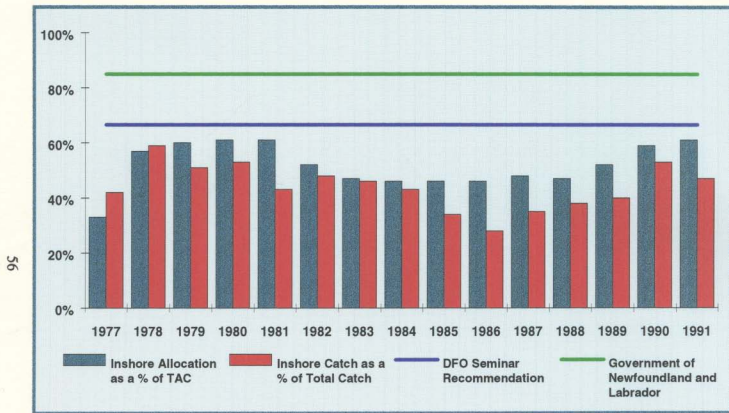
the allocations of 25,000 mt. per year to foreign countries and 120,000 mt. per year to new entrants in the form of Canadian offshore wetfish trawlers were not initially seen as a problem. However, the stock projections were subsequently revised downwards and the fact that the inshore sector was unable to catch its allowance of 115,000 mt. during the early 1980s meant that increases in the TAC went to the Canadian offshore sector. The result was that the inshore sector, which was promised first priority in allocation and were supposed to get two thirds of the TAC was, by 1986, receiving only 43% of the TAC as an allocation and, due to the low level of the stock and foreign harvest outside 200 miles, was accounting for only 26% of the total catch (Appendix One). During the 1982 to 1988 period the inshore sector faced repeated catch failures and hired their own scientist to argue that the TAC was not realistic. The dramatic shift in the scientific advice which resulted in a recommended TAC of 125,000 mt. at  $F_{0.1}$  for 1989 (CAFSAC 1989) would have permitted only an inshore fishery if the scientific advice and the allocation policies had been followed; however, the TAC issue became very political and the final 1989 TAC was announced by the Minister of Fisheries and Oceans at 235,000 mt. down from 266,000 the previous year and with all the cuts borne by the offshore sector. The inshore fishery caught 95,000 mt. in 1989 or 37% of the total catch of 254,000 mt. The TAC for 1990 was set at 199,282 mt. with the cuts again borne by the offshore sector, however, the TAC far exceeded the advice of the DFO scientists, the Harris Panel or the level that the stock could sustain (Steele *et al.* 1992; Hutchings and Myers 1994; Martin 1995).

The 1991 to 1993 TACs were set on a three year plan which would see the TACs gradually reduced symbolically from 190,000 mt. in 1991 to 185,000 mt. in 1992 and to 180,000 mt. in 1993. Again these TACs were of political origin and did not reflect the scientific advice or the long standing commitment of priority allocation to the inshore sector (Steele *et al.* 1992; Martin 1995). The allocation and catches of the inshore fixed gear sector are given in Appendix one and shown graphically in Figure 4.4. Given the retrospective error in setting TACs in the early 1980s and the political TACs of the 1989 to 1992 period, it is clear that despite the promises and priorities, the inshore sector never became the beneficiary of the "recovery" of the Northern cod stock associated with the 200 mile limit. From 1977 to 1992 the inshore sectors allocation accounted for 50% of the total accumulative TACs and the inshore fixed gear catch was only 42.5 % of the total catch of Northern cod. In hindsight, the consistent failure of the inshore sector and the fact that its catch in the 1977 to 1991 period averaged only 89,000 mt. should have been sufficient evidence to seriously question the health of the Northern cod stock. Despite new technology, better vessels, better gear and new modern processing facilities, the inshore sector which traditionally caught 200,000 to 300,000 mt. could not catch its new reference point of 115,000 mt! The percentage allocation to the inshore in the 1977 to 1991 period never reached the two thirds recommended by the Northern cod seminar in 1979 or the 85% recommended by the provincial government (Figure 4.5). It is also worth noting that the 2/3 allocation was based on catching 230,000 mt. of the projected landings of 350,000 mt. by 1985.



Sources: 1977 - 1979 - CAFSAC - 92/75, and NORDCO 1981; 1980 - 1991 - Canadian Groundfish Management Plans and Quota Reports

Figure 4.4: Inshore Allocations and Catches of 2J+3KL Cod for 1977 - 1991



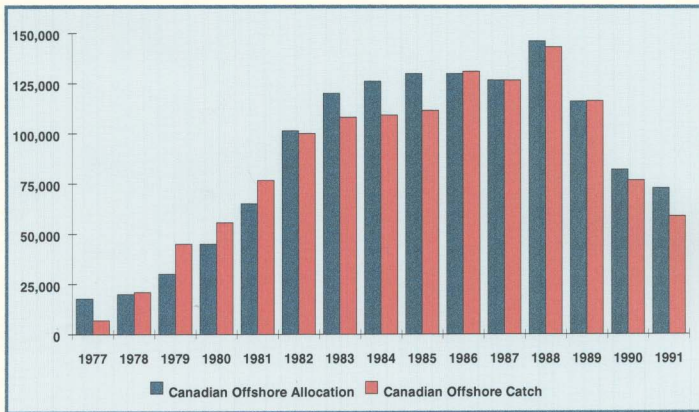
Sources: 1977 - 1979 - CAFSAC - 92/75, and NORDCO 1981; 1980 - 1991 - Canadian Groundfish Management Plans and Quota Reports

Figure 4.5: Inshore % share of the Northern Cod TAC Catch 1977 - 1991 in relation to National and Provincial stated objectives.

In summary, the Northern cod stock never recovered to the point where the needs of other users should have superseded the inshore's "priority allocation". By the time the biological reality became apparent, however, most of Atlantic Canada's offshore fishery had become dependent upon Northern cod and the inshore sectors concerns and demands were either ignored or treated the same as those of the growing number of other users competing for their share of the Northern cod stock.

#### **4.4 Offshore Allocation**

Since the sector management plan applies to all inshore vessels < 65 ft. and vessels over 65 ft. operate on Atlantic-wide licences, all vessels greater than 65 ft. are considered offshore for the purpose of this analysis. The allocation and catches for the various offshore sectors is given in Appendix One and shown graphically in Figure 4.6. The Canadian offshore sector consists of predominately mobile gear vessels (98% of total offshore catch) using otter trawl technology to harvest fish in the offshore area, primarily during the winter and early spring. This is the time when Northern cod form dense pre-spawning and spawning concentrations. Prior to 1977 the Canadian offshore fleet had no significant presence in the Northern cod fishery with catches in the 1960s and early 1970s being in the range of 2000 mt. per year as a by-catch in the flounder fishery in 3L (Parsons 1993).



Sources: 1977 - 1979 - CAFSAC - 92/75, and NORDCO 1981; 1980 - 1991 - Canadian Groundfish Management Plans and Quota Reports

Figure 4.6: Canadian Offshore (>65 ft.) Allocation and Catches of Northern Cod, 1977 - 1991.

At the time of the declaration of the 200 mile limit, the offshore sector, consisting of mainly side trawlers from the south coast of Newfoundland and Nova Scotia, were in the midst of a resource crisis due to declines in their traditional fishing areas in the Gulf of St. Lawrence. The Gulf redfish and cod stocks upon which this fleet and their plants depended had collapsed and the resultant low TACs were not capable of accommodating both Gulf-based and non-Gulf-based users. The inshore sector in the Gulf of St. Lawrence argued that they were capable of catching all the TACs in the Gulf despite the fact that the offshore vessels from the South coast of Newfoundland and the Scotian shelf for the previous decade harvested 60% of their catch in the Gulf. The "solution" to the overcapacity problem in the Gulf was the Northern cod stock off the Northeast coast of Newfoundland and Labrador which was projected to grow rapidly (DFO 1978). The 1977 Atlantic Groundfish Management Plan was the first by Canada and "attempted to address the problem of resource shortage in the Gulf by pushing the more mobile Nova Scotia and Newfoundland-based trawler fleets out of the Gulf and encouraging the Gulf based offshore trawler fleet to fish outside the Gulf" (Parsons 1993: 120).

In announcing the 1977 plan, the Hon. Romeo LeBlanc stated that the Gulf-based "intermediate and small boats, more than 10,000 of them, had only limited range. Hence, the large trawler fleet had the duty and opportunity of going further afield". In fact, the Government of Canada subsidized the offshore sector to fish for Northern cod in the late 1970s because of the uncertainty with respect to the viability of Canadian vessels fishing cod during the winter off the coast of Labrador; thus, the overcapacity problem in the Gulf

was solved by shifting the offshore sector out of the Gulf. In 1979 the non-Gulf-based vessels' cod allocations in the Gulf were again reduced "in order to provide for adequate fishing opportunities for existing vessels in the Gulf" (Parsons 1993: 125). Consequently, the overcapacity problem was not solved, it was merely shifted from the Gulf of St. Lawrence to the Northeast coast of Newfoundland and Labrador where the resource prospects were supposed to be better. This process of "shifting the burden" continued throughout the 1980s as Northern cod became the solution to resource problems elsewhere in Atlantic Canada.

The Canadian offshore sectors share of the Northern cod stock increased rapidly from 11% in 1977 to 35% in 1981 and by 1986 accounted for 55% of the allocation (See Appendix One and Figure 4.6). Because of the success of the offshore sector, a number of new users and fleet sectors became a part of the Northern cod fishery in the 1980s with new allocations to vessels in the 65 to 100 ft. class which were resource short on the Scotian Shelf. The Kirby Task Force report recommendations resulted in allocations to a new class of "Scandinavian" longliners as named in the Kirby Report and also allocations to the Resource Short Plant Program (RSPP); both programs were designed to catch fish offshore and deliver it to inshore "resource short" plants on the Northeast coast of Newfoundland which were seriously impacted by the "failure" of the inshore fishery. Again resource-short plants elsewhere in Atlantic Canada were included in this program which was expanded to ensure 25% of the total RSPP allocation went to plants outside of Newfoundland and Labrador (Parsons 1993).

The offshore sector's entry into the Northern cod fishery was the focus of the Northern Cod Seminar in Corner Brook in August 1979, and the success of the offshore sector in catching its allocations in record time resulted in increased quotas and the introduction of an enterprise allocation program for mobile gear vessels greater than 100 ft. During the early 1980s it was difficult not to admire the success of the offshore sector which was landing in excess of 120,000 mt. (250 million lbs.) annually and which only a few years earlier had required subsidies and incentives to fish the Northern cod stock. However, in retrospect, the offshore sector's success was like admiring the pump without knowing what was in the well (Leopold 1948).

The offshore catch rates on spawning concentrations were used by NAFO and DFO scientists to calculate the Northern cod biomass and thus the TAC, however, this was discontinued in 1987 when it became clear that the catch rate was a function of technology rather than an indicator of abundance (Keats *et al.* 1986; CAFSAC 1987). Thus, between 1980 and 1987 the offshore catch rate led to TACs which were too high and, therefore, increased the offshore share. The refusal of the Government of Canada to set TACs at the stated management objective of  $F_{0.1}$  in the 1989 to 1992 period also increased the share of the offshore sector. During the 1980s it was apparent that the offshore sector received special consideration due to its ability to catch its quota and employ a large number of people while the inshore fixed gear sector fell into a cycle of inshore failures, make work programs and a high dependence on Unemployment Insurance.

## Chapter 5: Impacts of Allocation Decisions

May concluded by stating he was unsure such a bifurcated system (inshore/offshore) could work and that the government must decide on whether or not there shall be a population on the northern part of the east coast of Canada (Dr. A. May, April 1982 memorandum to Kirby Task Force as quoted in Shrank 1995).

The allocation of fisheries resources creates an atmosphere of winners and losers since the allocation of a ton of fish translates into economic value and subsequently social benefit. In 1988 1,000 mt. of cod was estimated to create 17 person years of employment in the inshore sector and to have a landed value of \$460 per ton (DFO 1988). These numbers will be used to conduct a preliminary assessment of the economic value and employment associated with the allocation process. The spatial shift in the allocation of Northern cod had impacts on the international, national, regional and local levels and these impacts will be examined in terms of the shift in allocations and landings in the 1977 to 1991 period. A further evaluation of the stated goals and objectives in the allocation of Northern cod will also be examined with respect to actual decisions since many of the goals and objectives were based on socio-economic policy.

### 5.1 Stated Objectives vs. Actual Decisions

The stated objectives of allocation of the Northern cod stock are very clearly captured in the management plans, ministerial speeches, press releases and reports of special seminars during the late 1970s. The social and economic objective was to rebuild the Northern cod stock for the benefit of inshore fishermen who were adjacent to the

resource and historically dependent upon it. The inshore fixed gear sector was to be given "first priority in allocation" or "first call on the fish". Based on the allocations and catches for the 1977 to 1991 period, it is obvious that this objective was never realized. In fact, just the opposite occurred.

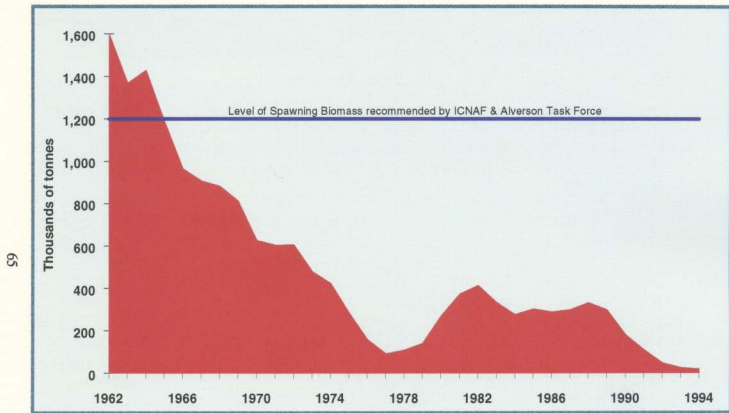
In 1977 an abrupt shift occurred in the spatial scale of management of the Northern cod resource as a 200 mile limit enclosed the bulk of the resource for Canada and shifted management responsibility from the international to the national scale. Unfortunately, this occurred simultaneously with severe resource shortages in the Gulf of St. Lawrence and also at a time of overly optimistic resource projections forecasting a major increase in the Northern cod stock to a TAC of 400,000 mt. at  $F_{0.1}$  (DFO 1978) which was the basis for allocations to the Canadian offshore sector and foreign countries. These error-laden projections were also the basis of the subsequent mismanagement and over-exploitation between 1977 and 1988. Since the Northern cod stock was going to grow to allow a TAC of 400,000 mt. by  $F_{0.1}$  1985 (350,000 mt. at a lower exploitation level), it was seen as a developmental opportunity. It was estimated that the inshore sector would only be able to harvest 230,000 mt. or roughly two thirds of the TAC and, therefore, a minimum of 120,000 mt. would be available to new Canadian users and foreign fleets (DFO 1979). The allocations were made to the Canadian offshore sector and foreign fleets on the basis of these projections. When the fish failed to materialize in the inshore sector, the first reaction was to explain it as a seasonal fluctuation brought about by cold water or abundance of capelin offshore (CAFSAC 1986). This was generally accepted because the

Canadian offshore sector and foreign vessels had no problem catching their allocations. In retrospect, based on the revised TACs provided by CAFSAC (Table 4.1), the TAC at  $F_{0.1}$  in the 1977 to 1992 period would never have been high enough to have allowed allocations to the Canadian offshore sector or foreign fleets.

The biological impact of the allocations was significant since the rebuilding objective was to achieve a spawning biomass of 1.2 million metric tons to ensure the long-term viability of the resource (DFO 1989). Initially, following the extension of jurisdiction considerable rebuilding occurred. However, over-exploitation from the early 1980s to 1992 resulted in very little if any rebuilding and eventually lead to collapse of the stock (Figure 5.1). If there had been adherence to the stated goals and objectives of the late 1970s, this over-exploitation would not have occurred since the inshore sector would not likely have been able to exert enough fishing pressure to cause the stock to decline.

## **5.2 Economic Impacts on Fleet Sectors and Regions**

The social and economic impact of Canada's allocation decisions on the inshore sector was also severe. Between 1977 and 1991, 317,202 mt. of Northern cod was allocated to foreign nations. The subsequent total foreign catch of 546,997 mt. translates into 9,299 person years of employment and \$251,700,670 of landed value in 1988 dollars (Table 5.1). Likewise, the Canadian offshore sector was allocated 1,327,835 mt. and harvested 1,286,187 mt. which equates to 21,865 person years of employment and \$591,838,948 landed value in 1988 dollars.



Source: CAFSAC 1995

Figure 5.1: Northern Cod Spawning Biomass 1962 - 1994.

Table 5.1: Cumulative Allocations and Catches of Northern Cod between 1977 - 1992 and the Social and Economic Impacts

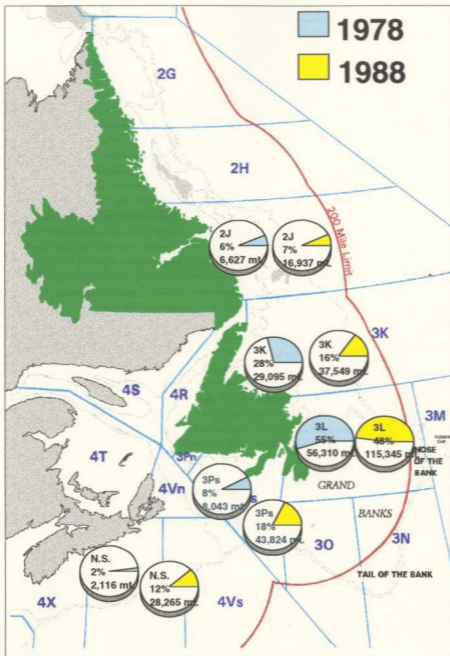
Sector	Allocation(mt)	Person years*	Value (\$)**	Catch (mt)	Person years*	Value (\$)**
Inshore	1,651,225	28,071	\$759,811,184	1,355,854	22,101	\$625,276,008
Canadian Offshore	1,327,835	22,573	\$611,003,275	1,286,187	21,865	\$591,838,948
Foreign	317,202	5,392	\$145,950,500	548,997	9,299	\$251,700,670
<b>Total</b>	<b>3,296,262</b>	<b>56,036</b>	<b>\$1,516,774,959</b>	<b>3,192,038</b>	<b>54,265</b>	<b>\$1,468,816,286</b>

\*Based on Groundfish & Job's, DFO 1988. \*\* Based on value per metric tonne in 1988. Landings & Landed Values, DFO

Obviously, the inshore sector would not have received the entire amount of the value or employment associated with the allocations to other nations or the Canadian offshore sector. But notwithstanding the potential availability of fish, the allocations to other sectors contributed to a poor inshore fishery in the 1980s, one characterized by catch failures, make work programs and abuses of the Unemployment Insurance Program. Despite the stated goals and objectives, other regions of Atlantic Canada with more diverse economies and countries on the other side of the Atlantic received a greater combined benefit from Canada's management and allocation of the Northern cod stock than did the inshore fishermen in the coastal communities adjacent to and historically dependent upon the resource.

### **5.3 Spatial Shift in the Distribution of the Landings**

In addition to sharing the economic and employment benefits between sectors, the allocation process also directly affected the geographic distribution of the Northern cod landings. The concepts of adjacency and historic dependence of fleets and coastal communities, while written into the groundfish allocation principles, were ignored (Steele *et al.* 1992). From 1977 to 1991 a significant geographic redistribution of Northern cod landings was evident. Figure 5.2 illustrates the changes in redistribution of Canadian landings of Northern cod between 1978 and 1988. The increased levels of landings in Nova Scotia and the South coast of Newfoundland were the result of the allocations to the Canadian offshore sector. Between 1977 and 1991 Nova Scotia received 273,358 mt.

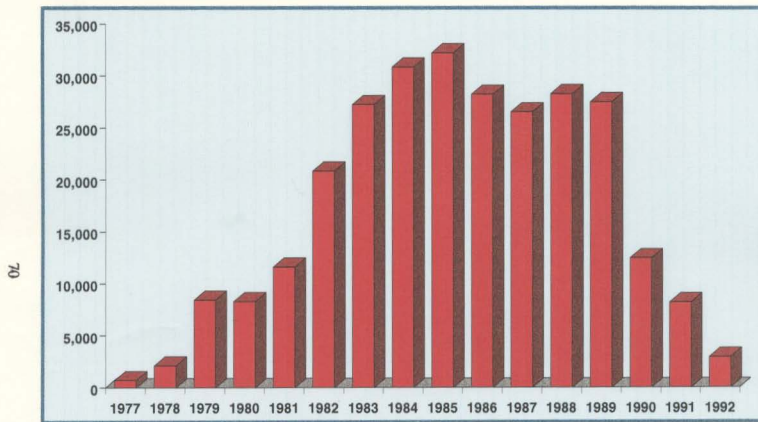


Source: DFO Statistics 1978 - 1988, St. John's, NF.

Figure 5.2: Regional Distribution of Northern Cod Landings 1978 & 1988

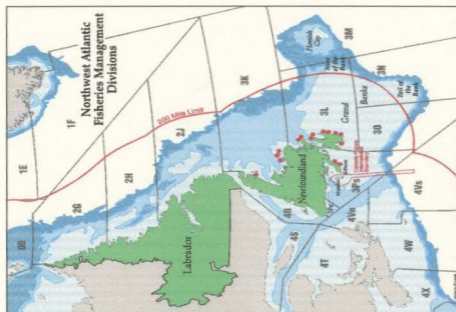
of Northern cod which equated to 4,647 person years of employment and a landed value of approximately \$126 million dollars (Figure 5.3) despite the fact Nova Scotia was neither adjacent to nor historically dependent upon the Northern cod resource. Meanwhile, communities on the Labrador coast and the Northeast coast of Newfoundland, which had been built on the basis of hundreds of years of harvesting Northern cod, were no longer major players in the Northern cod fishery (Figure 5.4). The fact that by 1988 there were no communities in 2J or 3K in the top 15 landing ports was the result of increased allocations to the offshore sector.

The allocation of cod to the Newfoundland offshore sector resulted in nearly year-round employment to communities with offshore plants such as Ramea, Burgeo, Gaultois, Grand Bank, Fortune, Harbour Breton, Marystown and Arnold's Cove. Likewise, on the Northeast coast, communities with offshore plants such as Catalina, St. John's, Trepassey, Harbour Grace prospered, with total landings of up to 80,000 mt. per year. While the economic value of Northern cod to these communities cannot be ignored, it must be remembered that most of these communities and their fish plants were not built on the basis of the Northern cod resource and had been historically dependent upon the cod and redfish stocks in the Gulf (4RST) and on St. Pierre Bank (3Ps) and the cod, haddock and flounder stocks on the Southern Grand Banks (3NO). The expulsion of the offshore fleet from the Gulf in 1977 led to the first offshore allocations of Northern cod, with the Federal Government subsidizing the fleets to fish in the North. Subsequently, the failure



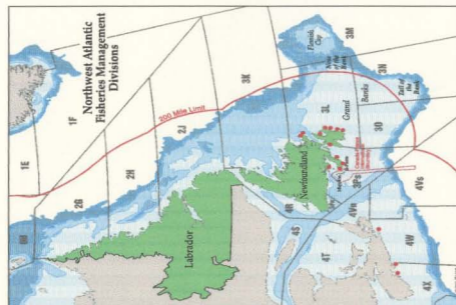
Source: NORDCO 1977 - 1979; Canadian Groundfish Management Plans 1980 - 1992

Figure 5.3: Nova Scotian landings of Northern Cod 1977 - 1992.



**1978**

Source: DFO Statistics



**1988**

Figure 5.4: Top 15 landing sites for Northern Cod in 1978 and 1988.

of NAFO to manage the straddling stocks on the Grand Banks (Rowe 1993; Day 1995) resulted in the further decline of the traditional resource base of the offshore fleet during the mid-1980s to the extent that the Newfoundland offshore sector became almost totally dependent upon Northern cod by the late 1980s. Thus, when faced with a recommended TAC of 125,000 mt. in 1989, the then Minister of Fisheries and Oceans stated "I can't close down entire communities or regions of Atlantic Canada". In essence, the allocation decisions of the late 1980s were not about sharing a growing resource, they were instead focused on securing access to and maintaining shares of a declining resource. In effect, the Government of Canada's politically-motivated setting of the TAC through the 1989 to 1992 period was in effect "robbing Peter to pay Paul". Since there were no new fish to allocate, there was no alternative but to keep the offshore allocations in place by artificially inflating the TAC while at the same time doing nothing about the unregulated foreign harvest outside of 200 miles.

In summary, the benefits of the limited growth in the Northern cod stock in the post 1977 period were not allocated to the inshore sector which had traditionally depended upon this resource for survival. In the 1977 to 1991 period inshore communities throughout Labrador and the Northeast coast of Newfoundland survived on make work projects and special assistance programs while the allocations decisions of the Government of Canada resulted in 4,647 person years of employment in Nova Scotia and even greater benefits to offshore communities, primarily on the south coast of Newfoundland, which received in excess of 17,000 person years of employment. Furthermore, the allocations

to foreign countries and the uncontrolled harvest outside of 200 miles combined to a total catch of Northern cod by foreign nations which equates to 9,299 person years of employment.

A review of past actions taken and the consequences of those actions, however unintended, are critical factors in the formulation of future goals for fishery management. The failure to adhere to stated goals and objectives with respect to the priority of the inshore has resulted, at least in the near term, in the commercial extinction of the major fish resource in the North West Atlantic and the economic failure of hundreds of rural communities in North eastern Newfoundland and Coastal Labrador. Ironically this was predicted by Dr. A. May in 1983 when he stated that "the government must decide on whether or not there shall be a population on the northern part of the east Coast of Canada (Shank 1995).

## **Chapter 6: Factors in the Future Allocation of Northern Cod**

### **6.1 Statements of Goals and Objectives 1977 to 1992**

The statement of goals and objectives is an essential part of natural resource management. Clearly defined goals and objectives are uncommon in fisheries management (Barber and Taylor 1990). When goals have been stated, they have been very general and refer to objectives such as best use, rationalization or conservation. These goals are "good for public relations and political gamesmanship but are difficult as use in effective rational management" (Barber and Taylor 1990: 366).

Unlike many fisheries resources the Northern cod stock was to be managed on the basis of a number of stated goals and objectives which included the biological goal of rebuilding the spawning biomass to 1.2 million metric tonnes (DFO 1989) (see Figure 5.1), and social and economic goals such as allocating the inshore fishery two thirds of the total catch, an estimated 230,000 of the projected 350,000 mt. TAC (400,000 mt. at  $F_{0.1}$ ) (DFO 1979). Unfortunately, these biological and socio-economic goals and objectives were never realized or adhered to. In fact, there is considerable evidence of goal displacement as other objectives superseded allocation priority to the inshore and stock rebuilding. In order to examine the time period in detail, an evaluation of the TACs and major reports such as the DFO Northern Cod Seminar, the Kirby Task Force, the Alverson Task Force and the Harris Panel was conducted. It is proposed that the fisheries

allocation/management process for Northern cod in the 1977 to 1992 period can be viewed in three distinct phases;

**1) Euphoria Phase: 1977 to 1981**

- Very optimistic resource projections.
- Phase out of foreign fleets.
- Statements of priority allocation to the inshore.
- Workshops on how to share the future catch of 350,000 to 400,000 mt.
- Resource problems in Gulf were addressed by the growing Northern cod stock.

**2) Uncertainty Phase: 1982 to 1988**

- Offshore crisis and restructuring with in excess of 100,000 mt. of Northern cod allocated to get enterprise allocations in place.
- Sector management implemented to restrict movement of vessels < 65 ft.
- Inshore fishery consistently failing to catch its 115,000 mt. allocation.
- Scientific advice less optimistic but still projecting growth.
- DFO Science used to explain the failure of the inshore fishery.
- Alverson Task Force on failure of inshore fishery.
- Offshore continues to land its quota and report incredible abundance of fish on the offshore banks.
- Larger inshore vessels begin to move offshore to areas such as the Virgin Rocks.
- Traditional inshore adapts gear and effort to harvest 70,000 to 80,000 mt. per year, however, much of the catch is small fish.

**3) Crisis Phase: 1989 to 1992**

- January 1989 - Scientific advice for a TAC of 125,000 mt. in 1989 down from a TAC of 266,000 mt. in 1988.
- Stock at low level with low levels of recruitment.
- Offshore contends stock is okay.
- Inshore agrees with scientists.
- DFO sets TAC for 1989 at 235,000 mt. the total catch is 253,000 mt.
- Inshore sector (NIFA) takes DFO to court to stop offshore harvest and loses.
- Harris Panel reviews science and the stock and confirms the low level of biomass.

- 1990 TAC set at 200,000 mt.
- There is a 3 year plan of TACs for 1991-93 of 190,000, 185,000, and 180,000 mt..
- Stock collapses with small fish taken by all sectors.
- Offshore fails to catch its quota.
- Fishery closed on July 2, 1992.

The statements of goals and objectives for Northern cod were all made during the Euphoria Phase (1977 to 1981). However, the actual allocation decisions significantly departed from the intended objectives as a result of the resource crisis in the Gulf, bilateral arrangements with foreign countries and restructuring of the offshore sector. During the uncertainty phase (1982 to 1988) the TAC remained stable and therefore the allocation process was relatively problem-free with the major issue of contention being the determination of the size of the stock, the failure of the inshore fishery and access by other regions (Keats *et al.* 1986; CAFSAC 1986; Alverson 1987; Government of Newfoundland and Labrador 1987). The goals and objectives and, indeed, the principles of allocation were also ignored as was evident in the quota increases to the Canadian offshore sector, the middle distant fleet and the Resource Short Plant Program. At the same time, new users such as Nova Nord were demanding allocations of Northern cod and permission was granted to National Sea Products to use a factory freezer trawler to harvest Northern cod (Parsons 1993; Government of Newfoundland and Labrador 1985).

The crisis phase (1989-1992) is where the lack of adherence to goals and objectives became blatantly obvious and ultimately manifest in the collapse of the resource and the management process. In 1989, when faced with a recommended TAC of 125,000 mt.

which was far below that required to satisfy the many demands, then Minister Tom Siddon refused to accept the advice because of the allocation implications (and set an interim TAC while the Harris Panel reviewed the situation). The 1990 report of the Harris Panel confirmed the scientific advice and recommended a reduced TAC; this key recommendation, which was the basis of the report, was not accepted by DFO. In the 3½ years following the advice for a 125,000 mt. TAC, the total cumulative harvest exceeded 700,000 mt. much of it being very small fish. Finally, the resource collapsed in June 1992 and the stock was closed to commercial fishing for a period of 2 years. The moratorium has now been extended indefinitely. The primary cause of the problem has been that in a time of crisis the Department of Fisheries and Oceans abandoned its own policies (Steele *et al.* 1992).

## **6.2 Future Allocations, Goals and Objectives**

Prior to and since the moratorium there have been numerous statements of goals and objectives for the management and allocation of Northern cod. The following provides an overview of the stated allocation policies put forward in recent studies and statements;

### **6.2.1 Harris Panel's Independent Review of the State of the Northern Cod Stock**

Released in February 1990, the Harris Panel Report extended well beyond its original terms of reference and examined the stock as a whole. In the area of resource allocation the Panel recommended the following:

that the principles of adjacency and of essential needs be adopted as a fundamental premise underlying quota allocations (page 6, Executive Summary),

the Panel also identified the need for goals in the fisheries management process and recommended:

19. That the Government of Canada should carefully re-examine its biological, ecological and socio-economic goals in respect of the fisheries to ensure that they are clearly defined, internally consistent, and attainable.

While the recommendations were general, the text of the report was much more specific with respect to allocation:

It is still apparent that we should draw a distinction between conditions of stock abundance which all reasonable expectations for access can be met and conditions of stock depletion when no need can be wholly satisfied. In the Newfoundland context, it would seem altogether appropriate that first preference for access should in all cases go the communities contiguous to the resource and whose survival is historically dependent upon it. In such circumstances it might well be appropriate to consider the adoption of a doctrine analogous to the Hague Preferences.... to take into account the vital needs of local communities particularly dependent on fishing...(Page 40-41).

#### **6.2.2 Dunne Report on the Implementation of the Harris Panels Recommendations**

The Dunne Task Force was established in June 1990 to ensure the implementation of the Harris Panel's recommendations. The Task Force recommendations with respect to resource allocation were as follows:

Allocation priority to the inshore sector.  
Historical dependency and adjacency to be priorities in future allocations.  
Allocation of future quota increases to more selective gears.  
We recommend that the list of goals proposed here be taken as a minimum starting point for further discussion with industry.

### **6.2.3 Government of Newfoundland and Labrador - Changing Tides**

The Government of Newfoundland and Labrador detailed its position on the allocation of Northern cod in 1993 in its Changing Tides document:

Clearly defined fisheries allocation principles must guide fisheries management, and adjacency to the resource and historical dependence must be the underlying principles in resource allocation.

In the case of the 2J,3KL cod fishery, the Province holds firmly that the traditional inshore fleet sector should receive, on an allowance basis, priority in the management of this stock; and at a TAC level below 100,000 tonnes the Province will support a by-catch provision for the offshore fishery. The resource allocation policy for this stock, should it exceed 100,000 tonnes, should be guided by the federal/provincial public hearings process conducted in those regions of the province which have had a presence in the Northern cod fishery.

### **6.2.4 Cashin Task Force on Income and Adjustments**

The Task Force on income and adjustments in the Atlantic fishery (Cashin 1993) has made the following statement with respect to resource allocation:

Capacity reduction should be based on the principle that coastal areas would maintain priority access to resources upon which they have traditionally relied. For example, for northern cod there was a traditional inshore allowance (for vessels less than 65 feet) of 115,000 tonnes. Principally, the harvesters for this were from along northeast coast of Newfoundland and the coast of Labrador. It is unlikely that there will be a directed offshore fishery for northern cod in the future until the total allowable catch approaches or exceeds the traditional inshore allowance (Cashin 1993: 40).

### **6.2.5 Minister of Fisheries and Oceans**

In a speech to the St. John's Board of Trade on October 11, 1995 the Honourable

Brian Tobin stated:

Now, I believe and I remain committed to the notion of a mixed fishery with inshore, with mid-shore and with offshore sectors, but I want to repeat an assurance I've already given, and that is that, as fishery resources rebuild, inshore fleets will be given first access to those resources.

### **6.2.6 Summary of Current Allocation Goals**

Based upon the preceding quotes the inshore sector should receive priority allocation in the future. These stated goals and objectives reflect the same philosophical views as those expressed in the late 1970s, however, the specific goals and objectives have not been clearly identified except for those involving the first 100,000 mt. The questions that remain unanswered include whether the Government of Canada will allocate Northern cod to foreign nations in the future to control the fishery outside of 200 miles or whether the offshore sector will be allocated Northern cod once the TAC exceeds 100,000 mt.; or will exemptions to sector management allow inshore fishermen from elsewhere in Atlantic Canada to access the inshore allocation once the fishery reopens.

## **6.3 Allocation and Capacity Reduction**

### **6.3.1 "Too many fishermen, chasing too few fish".**

This is the often stated cliché to describe the Newfoundland inshore fishery and it is estimated that upwards of 50% of fishermen must leave the industry (Cashin 1993). However, in seeking a balance between the number of harvesters and the availability of

the resource there are two sides to the equation (eg. number of fishermen and the amount of fish). The Department of Fisheries and Oceans controls both sides of the equation through its licencing policy and its allocation policy and, therefore, will decide the balance. The rebuilding of Northern cod stock offers a series of choices as summarized by Steele *et al* 1992:

It is necessary to discuss and plan for the level to which the stock will be rebuilt, and at the same time determine how the stock will be harvested and by whom. Otherwise, projections about how many fishers.....are unwarranted (Steele *et al.* 1992: 65).

Thus the rationalization or capacity reduction process can only take place after the goals and objectives of resource allocation are agreed. For example, the inshore fishermen in the 2J area of coastal Labrador have never exceeded the amount of fish available in and harvested from area 2J; however, allocations to the offshore sector, foreign countries and inshore vessels from other areas resulted in a reduced resource which could not meet their economic needs. Therefore, the resource allocation issue is paramount to the rationalization exercise, especially on a regional basis.

### **6.3.2 Regional Balance**

The proposed rationalization of the offshore and inshore sectors of the Atlantic fishery must take place on a regional basis in line with the resource potential of each region, otherwise the overcapacity problems will be addressed by allocation from one region to another. This "shifting the burden" is a major impediment to capacity reduction since there is no commitment that making difficult decisions now will result in improved

resource availability later. In fact, experience over the past 15 years has clearly demonstrated that allocations will go to areas with the greatest demand or political clout. The erosion of the sector management policy (Maloney 1990), lack of adherence to stated allocation policies (Steele *et al.* 1992), and the move away from allocation "principles" to the more flexible "guidelines" (Atlantic Groundfish Management Plan 1995) are all preventing local and regional rationalization and creating great uncertainty in the industry since there are no firm commitments with respect to future allocation.

#### **6.4 National vs. Regional Allocation Priorities**

The management of Northern cod over the past 18 years as a Canadian or national resource continues to cause numerous conflicts between federal and provincial governments. The allocation issue has invariably been at the centre of these conflicts. The Government of Canada has allocated Northern cod to foreign countries as part of bilateral trade agreements in return for market access. It has allocated Northern cod to other Provinces on the basis of projected growth in the resource and it has allocated Northern cod to other sectors, regions and harvesting technologies to the strong opposition of the Government of Newfoundland and Labrador (Parsons 1993).

These conflicts will not go away and the solution appears to lie in clearly identifying allocation objectives and goals so that each sectoral and regional share is protected. The increasing demands for more local (Pinkerton 1989) or regional (Vardy

1994) input are the result of the past *ad hoc* approach to management which resulted in spatial shifts in resources between communities, fleet sectors, regions, provinces and nations. In the words of the Cashin Task Force, "(t)his is no way to decide the future of coastal areas and the resources upon which they have traditionally relied" (Cashin 1992: 65).

## Chapter 7: Summary and Conclusions

The Government of Canada should carefully re-examine its biological, ecological and socio-economic goals in respect of the fisheries to ensure they are clearly defined, internally consistent and attainable. (Recommendation 19. Harris *et al*, 1990:153)

### 7.1 The Future Management of Northern Cod

The most comprehensive overview of the Northern cod stock undertaken was the "Independent Review of the State of the Northern Cod Stock" by Harris *et al* (1990). This report recommended that goals and objectives be established for the future management of the northern cod stock and stressed that with respect to allocation, "the principles of adjacency and of essential needs be adopted as a fundamental premise underlying quota allocation" (Harris *et al*, 1990:6). The "Report of the Implementation Task Force on Northern Cod" (DFO, 1990) completed later the same year stated that "the priority of allocation access to inshore fishermen should continue" and that "the principle of historical dependency and adjacency should be continued and guide future allocation decisions" (DFO, 1990:14) and recommended that "allocation priority to the inshore sector" be a socio-economic goal (page 15). Two points are worth noting: firstly, the priority of allocation to the inshore should continue and principles of historical dependency and adjacency should continue. The report uses the word continue as if the inshore was receiving priority and the principles were being adhered to, yet the inshore share of the catch in 1986 had fallen to 26% of the total. Secondly, the recommendation of priority allocation to the inshore sector was made in October of 1990. Within months of receiving

this report, the Minister of Fisheries and Oceans announced a three year management plan for the Northern cod stock for the 1991-93 period of 190,000 mt, 185,000 mt. and 180,000 mt. which were approximately double the scientific advice. This resulted in the inshore share of the allocation and catch being 61% and 47% respectively in 1991.

The vast difference between the statements of theory and the quantitative reality was the major problem in the allocation of Northern cod.

Throughout history, even when goals were articulated, they tended to be very general with little specificity. Lackey (1974) acknowledged that fisheries are managed on "soft objectives" (goals) such as "best" or "wise" use. These types of goals are good for public relations and political gamesmanship, but are difficult to use in effective, rational management (Barber and Taylor, 1990:366).

The past management of the Northern cod stock was, with the exception of the 1979 report, devoid of any specific quantitative goals and objectives with words like "priority" being used without any reference to amounts or percentages. Likewise, while historic dependency and adjacency have been principles of allocation they were never clearly defined. For example, adjacency means being in close proximity and it could be argued that while Nova Scotia is not contiguous to the Northern cod stock it may be considered more adjacent than New Brunswick. Given the importance of these words in the allocation debates, it is essential that they be defined and articulated clearly and concisely. In future it is also essential that goals be stated clearly and concisely and also in a quantitative manner which will enable an evaluation of the success in attaining the goals and objectives.

The Northern cod stock is but one of nearly 50 groundfish stocks managed in Atlantic Canada, and the problems in its past and future management are inherent throughout the Atlantic groundfish fishery. The December 1995 report of the Senate Standing Committee on Fisheries entitled "The Atlantic Groundfish Fishery: Its Future" states that

"What has been sorely lacking over the years is a larger, clear and consistent conception of what federal fisheries management policy should be accomplishing, and a strategy on how to achieve those objectives....Too many in the industry believe that issues...especially those concerning licencing and fish allocation...have been, over many years, resolved by political means in favour of the more well organized and powerful industry groups.

The Senate committee goes on to recommend

The Committee recommends that the Department of Fisheries and Oceans issue a clear vision statement and an explicit statement of fundamental and guiding principles for managing the Atlantic fisheries, including clearly expressed objectives with respect to employment in coastal communities.

The Committee recommends that inshore fisheries have priority access to the resources upon which they have traditionally relied. The rules for re-opening fishing grounds should clearly stipulate that in the case of groundfish usually harvested by both the inshore and offshore sectors, no offshore harvesting take place until the inshore has fully recovered. Offshore fisheries for groundfish should be permitted to resume only after a thorough consultation with inshore fishermen (Govt of Canada, 1995, page 38).

The Senate Committee's report highlights the need for clearly stated goals and objectives and makes strong recommendations with respect to future allocation issues.

## **7.2 Areas for Future Research**

The study of fisheries resource management poses many potential research questions especially in the area of resource allocation. This thesis has examined allocation decisions from a qualitative and quantitative perspective for the Northern cod stock and evaluated the management by comparing stated goals with the actual decisions. This research begins to fill the research gaps identified in 1981 by Draper and, since Northern cod is but one of the nearly 50 commercial groundfish stocks in Atlantic Canada, there are significant opportunities for additional research, especially for stocks such as turbot which is currently subject to intense conflict over allocations between nations and sectors and has parallels with the Northern cod crisis of the 1980s.

From a spatial perspective, the impact of allocation decisions upon regions or communities is a major area of applied geographic research. For example, by examining the resource available to a region or community, geographers can assess the impact of allocation decisions and identify issues which need to be addressed to ensure community stability. The development of a methodological approach to regional or community allocations and stability would have major significance from an applied perspective in terms of the rationalization of the current overcapacity problems facing the fishing industry.

### **7.3 Summary and Recommendation**

The past management of the Northern cod stock can be described as a process of "muddling through". The biological and socio-economic goals were never clearly stated and those that were, were neither adhered to nor attained. In Chapters 1-6 the problems of fisheries management and allocation have been examined in the context of the Northern cod stock. The stated goals and objectives were identified from Task Force Reports, policy documents and other sources such as ministerial speeches and consistently reflect a bias or preference towards the traditional inshore fishery sector. The analysis of allocations and catches over the 1977 to 1991 period reveals, however, a completely different bias. The inshore sector never experienced the expected benefits from the recovery of the Northern cod stock following the 200 mile limit because the stock did not recover to a level which would have ensured a consistent inshore harvest at its historic level of 200,000-250,000 mt. During the 1980s the consistent failure of the inshore fishery resulted in numerous studies to explain why the codfish did not migrate to inshore waters. Yet, retrospective analysis of past biomass estimates and TAC's and the low level of spawning biomass reveals the true reason for the failures as being the absence of sufficient biomass. The entrance of the Canadian offshore fleet and the continued over-exploitation by foreign nations also affected the inshore in terms of both allocation and catches. Yet, the Department of Fisheries and Oceans consistently allocated the northern cod resource in a manner which disregarded their own stated objectives of allocation and

ignored the complaints of inshore fishermen who stressed the fact that "you can't catch it twice".

The recent statements of the inshore sector's priority access to the first 100,000-115,000 mt. with any surplus being made available to the offshore sector and foreign nations also reflects a degree of goal displacement since the reference point for the inshore harvest has shifted away from the 1979 level of 230,000 mt.. This thesis has documented the past allocations and catches in terms of the stated goals and objectives for the Northern cod stock and provides a method of conducting hindsight evaluations of resource allocation issues. The shift in allocations and hence catches between sectors and also between geographic regions is the source of turmoil, conflict and unrest in the management of Atlantic Canada's fishery. The future resolution of such conflicts depends upon the development and implementation of clear and concise goals and objectives in the biological and socio-economic management of the resource. The Fisheries Resource Conservation Council has begun to establish the criteria for future biological management of the fish stocks, which will include goals and objectives in terms of biomass size, protection of spawners and minimum fish sizes. Unfortunately, the identification of future goals and objectives by the Government of Canada in the allocation of fish resources has not happened to date.

This analysis illustrates that, despite stated goals and objectives, the allocation of Northern cod from 1977 to 1991 resulted in a shift in access to resources from the traditional inshore sector to the Canadian offshore sector and to foreign nations. Despite

the inshore's "priority" it did not receive the projected benefit due to the lack of adherence by the Government of Canada to its own allocation policy. In order to ensure that the stated goals and objectives of allocation are adhered to in future, it is essential that they be clearly stated and reviewed annually in terms of the actual catches.

Based upon its adjacency and historic dependence, the inshore sector must have sole access to the Northern cod resource as it rebuilds. The ability of the inshore sector to employ large numbers of people will also accomplish government's employment objectives from a social and economic perspective. While there is considerable debate with respect to the recovery time for Northern cod, it is essential that the priority of the inshore be "cast in stone" and quantified before the fishery reopens, otherwise, the lobby from non-traditional users will again result in the erosion of the inshore's share. Given that hundreds of small isolated communities throughout Labrador and the northeast coast of Newfoundland are dependent upon the Northern cod stock for their economic and social survival it is imperative that future management and allocation not be a process of "muddling through".

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## **Appendix One**

Allocations - TAC	1972	%	1978	%	1979	%	1980	%	1981	%	1982	%	1983	%	1984	%
	160,000		135,000		170,000		180,000		200,000		237,000		240,000		268,000	
Foreign/NAFO Quota	50,000	56%	38,000	28%	25,000	15%	25,000	14%	10,000	5%	15,700	7%	20,000	8%	20,000	8%
Canadian Quota:																
In <65'									150,000	60%	115,000	46%	115,000	43%	115,000	42%
In <65'											5,000	2%	5,000	2%	5,000	2%
In 65-100'									2,500	1%	1,000	0%	3,000	1%	3,000	1%
In 65-100'											1,500	1%	1,000	0%	1,000	0%
Vessels >100'									67,500	31%	98,800	42%	106,000	41%	112,000	42%
RSP													10,000	1%	10,000	4%
In >100'(MD)																
Inshore	52,250	33%	77,000	57%	102,000	60%	110,000	61%								
Offshore	17,750	11%	20,000	15%	43,000	25%	45,000	26%								
Total Canadian Quota	70,000	44%	67,000	73%	145,000	85%	155,000	86%	190,000	95%	221,300	93%	240,000	92%	246,000	92%
Canadian Catch:																
In <65'									77,277	43%	112,144	48%	105,316	43%	85,276	40%
In <65'									183	0%	362	0%	1,431	1%	3,711	2%
In 65-100'									785	0%	745	0%	1,190	0%	2,018	1%
In 65-100'											30	0%	4	0%	124	0%
Vessels >100'									50,473	28%	76,266	31%	89,261	32%	92,249	32%
RSP													5,180	2%	6,953	3%
In >100'(MD)																
Inshore	72,623	32%	81,436	50%	85,322	51%	95,844	53%								
Offshore	6,938	4%	20,622	15%	44,957	27%	44,957	26%								
Total Canadian Catch	79,561	46%	102,377	75%	130,779	78%	135,802	84%	152,162	37%	212,532	91%	214,763	92%	208,743	89%
Foreign/NAFO Catch	83,159	54%	36,182	26%	36,120	22%	28,230	16%	23,677	13%	22,422	10%	17,483	7%	28,506	10%
Total Catch	162,720		138,559		166,900		176,856		177,831		234,954		232,246		237,249	

Appendix 1a: Allocations and Catches of Northern Cod 1977 - 1984

Allocations - TAC		1985	%	1986	%	1987	%	1988	%	1989	%	1990	%	1991	%
		256 000		256 000		256 000		266 000		235 000		199 262		190 000	
Canadian Quota		16 350	6%	16 350	6%	9 550	4%					2 262	1%	2 140	1%
Canadian Quota:															
fg 45°		115 000	43%	115 000	43%	115 000	43%	115 000	43%	115 000	48%	115 000	58%	115 000	61%
ma 45°		5 000	2%	5 000	2%	5 000	2%	5 000	2%	3 973	2%				
fg 45-100°		3 000	1%	3 000	1%	4 131	2%	4 131	2%	3 320	1%	2 545	1%	783	0%
ma 45-100°		1 000	0%	1 000	0%	1 000	0%	1 000	0%	792	0%	610	0%	272	0%
vessels >100°		115 700	43%	115 700	43%	117 150	44%	121 200	45%	96 320	41%	73 845	37%	71 845	36%
RSP		10 000	4%	10 000	4%	5 300	2%	13 350	5%	12 200	5%	5 000	2%		
fg >100(IMD)						1 050	0%	4 270	2%	3 320	1%				
Inshore															
Offshore															
Total Canadian Quota		248 750	94%	249 700	94%	246 500	95%	266 000	100%	235 000	100%	197 000	99%	187 860	99%
Canadian Catch:															
fg 45°		78 941	37%	71 351	29%	78 175	31%	69 032	26%	95 000	37%	111 529	57%	74 053	37%
ma 45°		2 380	1%	4 853	2%	4 876	2%	4 059	1%	3 953	2%				
fg 45-100°		779	0%	1 090	0%	3 576	1%	3 455	1%	3 231	1%	2 321	1%	771	0%
ma 45-100°		374	0%	366	0%	370	0%	469	0%	305	0%	391	0%	227	0%
vessels >100°		101 551	33%	130 551	44%	112 046	46%	120 748	44%	97 334	39%	60 144	31%	51 879	37%
RSP		8 503	4%	9 530	3%	9 235	4%	13 247	5%	12 180	5%	4 933	2%		
fg >100(IMD)				511	0%	1 237	1%	4 071	1%	3 284	1%				
Inshore															
Offshore															
Total Canadian Catch		192 428	82%	207 162	77%	208 657	80%	245 081	90%	215 318	90%	180 238	89%	132 690	80%
Canadian Quota Catch		43 319	18%	67 586	25%	36 075	15%	26 867	10%	36 799	15%	26 489	13%	22 930	12%
Total Catch		236 147		274 748		244 932		271 898		252 117		213 727		155 610	

Appendix 1b: Allocations and Catches of Northern Cod 1985 - 1991





