

7/3/96
WORKSHOP IN POLITICAL THEORY
AND POLICY ANALYSIS
513 NORTH PARK
INDIANA UNIVERSITY
BLOOMINGTON, INDIANA 47407-0186
Reprint files -- CPR

**The Individual Vessel Quota system
in the Norwegian Arctic Coastal Cod Fishery**

Petter Holm

and

Stein Arne Rånes

The Norwegian College of Fishery Science

University of Tromsø, Breivika,

9037 Tromsø, Norway

Paper presentet to

"VOICES FROM THE COMMONS",

The sixth Annual Conference of the

International Association for the Study of Common Property,

5-8 June 1996, Berkely, California

Abstract

In the late 1980s the Norwegian fisheries experienced its most severe crisis in modern times. This occurred when the Norwegian Arctic cod stock declined sharply. In response to this situation, the total quota was cut drastically and a system of *Individual Vessel Quotas (IVQ)* was introduced in 1990. Despite hard criticism from parts of the fishing community, the IVQ-system has survived with minor adjustments. This paper describes the IVQ-system and analyses the policy process by which it was constructed and its consequences.

Petter Holm
Norwegian College of Fishery Science,
Breivika, 9037 Tromsø, Norway
e-mail: petterh@nfh.uit.no
tlf: + 47 77 64 55 48
fax: + 47 77 64 60 21

Stein Arne Rånes,
Norwegian College of Fishery Science,
Breivika, 9037 Tromsø, Norway
e-mail: steinr@nfh.uit.no
tlf: + 47 77 64 60 44
fax: + 47 77 64 60 21

1. Introduction

In opening his now famous article on "The Tragedy of the Commons", Garrett Hardin cited Wiesner and York:

'Both sides in the arms race are confronted by the dilemma of steadily increasing military powers and steadily decreasing national security. *It is our considered professional judgement that this dilemma has no technical solution.* If the great powers continue to look for solutions in the area of science and technology only, the result will be to worsen the situation.' (Wiesner and York, 1964; cited in Hardin, 1968:1243)

Hardin wanted to discuss the population problem, which, like the arms race, belongs to the class of "no technical solution problems." In a finite world, freedom to breed will eventually lead to overpopulation. Hardin saw this as one illustration of the tragedy of the commons, in which there is free access to scarce resources. Since individual users have no reason for restraint, the resource will inevitably be destroyed. Within the commons, there are no technical solutions to this problem. The only escape from tragedy lies, according to Hardin, in replacing the commons institution with other institutional principles, notably state management or private property. As Hardin pointed out, however, the choice among institutional principles should not be regarded as a purely technical issue. Such choices raise fundamental questions of human values and morality. The "no technical solution problems" are, in other words, intensely political ones.

This paper describes and analyzes the establishment of the Individual Vessel Quotas (IVQs) in the Norwegian Arctic cod fishery. Implemented in 1990, the IVQ system substituted a rights-based management regime for an open-access one in the coastal cod fishery. This was a fundamental institutional transformation, raising a tangle of technological, economic, political and moral dilemmas, as "no technical solution problems" often do. The IVQ system did offer obvious technical-economic advantages: it would prevent a wasteful 'olympic' race for a share of the total quota; it would allow better handling of the catch and hence better product quality; and it would improve the distribution of landings over the year. Since the new regime was built on individual vessel quotas, however, it placed the question of distribution of fishing rights on the negotiation table. Who should get what? Why? The cod sector was broken up in a plethora of sub-groups according to vessel size, gear types and geographical location. With the sharp cuts

in the total quota that was the immediate cause for the establishment of IVQs, the question of quota allocation was extremely difficult and quickly became politicized. Thus, the whole issue was cast in a broader perspective of basic values, goals and commitments of the fishery sector. A key question concerned whether the fishery should be perceived as an economy, primarily a provider of employment, income and profit, or as the foundation of a way of life, the carrier of culture and meaning for coastal people.

As often is the case with "no technical solution problems", the outcome of the IVQ reform in the Norwegian Arctic cod fisheries is notoriously ambiguous and difficult to interpret. On the one hand, the establishment of the IVQs was a rejection of the commons institution, an integral part of fishing as coastal culture. Hence, the reform has been perceived as part of a process by which the fisheries gradually are being decoupled from coastal communities and turned into an economic sector like any other. On the other hand, the IVQ system was designed with restraints on such a development, among them a rejection of quota transferability and a strong priority on the smaller vessels in the distribution of fishing rights. In this paper we analyze the effects of the IVQ regime on the nature of the fishery as a social system. Is the IVQ reform part of the process by which the fisheries are gradually turned into an economy, guided by economic efficiency criteria, or will the fisheries, despite the turn to a rights-based management system, remain embedded in traditional coastal communities and culture?

In the next section, we outline the broader biological, historical and institutional ramifications for the Norwegian Arctic cod fishery. Then follows the detailed analysis of the IVQ system, divided in three parts. First, we describe the immediate context for the reform, the resource crisis of the late 1980s and the political process from which the IVQ option emerged as the only viable option. Second, we analyze the design and implementation of the IVQ system in 1990, with particular emphasis on the question of quota allocation. Third, we describe the changes in the system during the next five years, again with particular emphasis on quota distribution. In concluding the paper, we return to the question of the IVQ system's consequences for Norwegian fisheries as a social system.

2. The cod fishery and the north Norwegian economy

The Northeast Arctic Cod stock is potentially the largest stock of true cod (*Gadus morhua* L.) in the world, and the single most important resource in the Norwegian fishery. During the 1946-1978 period, the annual average catch amounted to 800 000 tons (Nakken, 1994), which also is the estimated maximum sustainable yield (Garrod and Jones, 1974). Figure 1 outlines the stock's feeding grounds, spawning areas, and migration routes. The most important feeding grounds are the Barents Sea and the area off Svalbard. At age 7-9 years, the cod reach maturity, and migrate to the spawning grounds along the Norwegian coast. The spawning migration, which occurs from January to March, formed the basis of the Lofoten fishery, traditionally the most important Norwegian cod fishery. During the second decade of this century, for instance, about 18.000 fishers participated in this fishery annually, and the average season's catch was about 110.000 tons. A second important seasonal fishery took place in March to June, targeting the cod that are following the capelin's spawning migration to the coast of Finnmark. During the 1910-1920 period nearly 26.000 fishers participated in this fishery annually, catching on average 60.000 tons (Central Bureau of Statistics, 1969).

[Figure 1 about here]

Traditionally, the fishery was the mainstay of the north Norwegian coastal economy, forming the basis of a barter trade, in which stockfish (dried, unsalted cod) was exchanged for grain and other supplies from continental Europe (Solhaug, 1976). The merchants held the key position in this trade system, in part because they were protected by trade privileges (Steen, 1957), in part because of the workings of the truck system of credit (Fulsås, 1983)¹. Operating from south Norwegian cities, the merchants appropriated most of the economic surplus - the resource rent - generated in the cod fishery (Brox, 1989). The history of north Norway is thus one of the exploitation of coastal people by merchants, and of the exploitation of a northern periphery by a south Norwegian economic and political elite (Drivenes and Jernsletten, 1994).

The modernization of the north Norwegian economy has been late and problematic (Eriksen, 1996). By mid twentieth century, the region was lagging far behind the rest of the country on all major development indicators. In the post-war effort to turn Norway into a welfare state, however, a massive campaign was undertaken to bring north Norway up to national standards. This succeeded to a large extent, and by the mid 1990s, the regional departures from the Norwegian norms have almost disappeared (Tjelmeland, 1994; 1996). In this process, the fisheries' position in the north Norwegian economy has gradually declined, from complete dominance into relative insignificance. Today, there are more teachers than fishers in the region (Tjelmeland, 1994:367). This is to a large extent due to the growth in other sectors, particularly health, education, and other public service sectors. In addition, however, the fishery sector itself has been modernized and rationalized, shedding a huge number of people in the process.² The modernization of the fisheries was a gradual and multi-faceted process, with roots centuries back in time. One important strand in this process was the growth of the salt fish production in the 19th century, which was accompanied by the development of a raw fish market and thereby helped bring the fisheries over on a cash basis (Solhaug, 1976). A second important factor was the motorization of the fishing fleet at the beginning of the 20th century, which required larger investments in gear and vessels, thereby speeding up the transformation of fisher-farmers into full-time, professional fishers (Wille-Strand, 1941). A third important event was the establishment of a national interest organization of fishers during the 1920s, greatly improving their access to the national polity (Hallenstvedt and Dynna, 1976; Hallenstvedt,

1982).

While such changes gradually undermined the basis for the traditional, merchant-dominated regime, the final blow was the economic depression of the 1930s. In a series of reforms, shaped by the fishers in close alliance with the Norwegian Labor Party, which came into power in 1935, the basis for a new sector system was set up. Two pieces of legislation were particularly important. One was the 1938 Raw Fish Act, which gave sales organizations controlled by the fishers' a legal monopoly in the raw fish market, hence turning control over price formation from merchants to the fishers (Hallenstvedt, 1982). Another was the 1936 Trawler Act, which banned the introduction of trawlers in the Norwegian fisheries (Johansen, 1972).³ The adoption of this act meant a rejection of the industrial-capitalist strategy of modernization of the fisheries, based on vertical integration, modern industrial technology, and mass production, in short, the fordist model. Together, the Trawler Act and the Raw Fish Act formed the basis for a corporatist sector system designed to protect the interest of small-scale, coastal fishers (Holm, 1995b; 1996a). In the following, we shall refer to this as the MSO system, named by the Mandated Sales Organization, which was instituted by the Raw Fish Act and which was the basis of the fishers' dominant position within the sector. While the MSO system reinforced the close ties between the fisheries and local communities and the traditional coastal culture, it represented a brake with the past in more ways than its rejection of a patriarchal and exploitative trade system. Equally important was its promotion of the interest of the fishers as petty capitalists, rather than as a multi-occupational domestic commodity producers. The MSO system was anti-fordist, not anti-modern (Holm, 1996a).

In the post-war period, the MSO system was reinforced and extended. This did not happen without opposition, however. As part of the effort to modernize the Norwegian economy after the end of WW II, a fordist development model in the fisheries was promoted as the solution to the north Norwegian underdevelopment problem (Hersoug and Leonardsen, 1979). The Labor Party, still in power, reversed its position as compared to the 1930s, and joined the campaign to rebuild the fishery sector on the basis of trawlers, large-scale frozen fish production and vertical integration. The fishers did not manage to deflect this attack completely. Thus, processor-controlled trawlers gradually became a part of the

fisheries, accounting for about 35 percent of the groundfish catches during the 1970s. The established sector system remained intact, however, with a strong bias in favor of the coastal fishers in terms of economic arrangements⁴, basic value commitments⁵, and political power⁶.

While the MSO system hence escaped relatively unharmed from the industrialization campaign, it turned out to be much more vulnerable to the resource management reform, the basis of which was the establishment of the Norwegian 200 mile Exclusive Economic Zone in 1977. The history of government regulation in the fisheries of course goes centuries back in time, and examples of interventions for resource management purposes can be found also before 1977. Establishing resource management as the overriding concern in the ocean fisheries, however, became possible only with the new oceans regime, when the power's of the state could be mobilized directly behind a scientific management model (Holm, 1996b). The introduction of resource management gradually shifted the focus of the fishery polity away from the key concerns of the MSO system, which was built up around the regulation of markets and trade relations. This shift was accompanied by a redefinition of the attributes of major actors, their relations and basic situation; indeed, of the fundamental problems facing the fishery sector. The MSO system had been built on the image of the fishers as weak and vulnerable, in need of protection from merchant exploitation and capitalist takeover. In contrast, the resource management model defined the fish itself as the party most in need of protection, while the fishers were unsatiable if left on their own, and, hence, should be subjected to strict discipline and control. The reconstruction of the sector system around resource management concerns thus redefined the fisher from hero to villain of the drama of the fisheries (Holm 1995a; 1996a), and was accompanied with a series of legal and organizational reforms.⁷

3. Resource regulation in the Arctic cod fishery until 1989

Historically, the northeast Arctic cod stock has mainly been exploited by the Norwegian coastal population.⁸ With the introduction of steam trawlers during the 1920s and 1930s, however, new participation entered the fishery. While vessels from a large number of countries have tried their luck in the Barents Sea in the post-war period, about 95 percent of the catches has been taken by Norway, the Soviet Union and the United Kingdom (Jacobsen, 1995a). The transformation of the cod fishery from a small-scale coastal fishery into an international trawler fishery set it on a path toward overexploitation. The catches fluctuated around a mean level of about 800 000 until the late 1970s, when a downward trend became clearly visible. At this point, the total biomass of the cod stock already was drastically reduced. The total stock size was 4-5 million tons in the 1950s. In the 1980s it was down to around one million tons (Nakken, 1994).

The Barents sea fishery was not subject to restrictive catch regulations until 1974,⁹ when total quotas were established in a three-party agreement including the UK, Norway and the Soviet Union. The following two years, quota restrictions were negotiated within the North East Atlantic Fisheries Commission (NEAFC).¹⁰ In 1977, Norway and the Soviet Union established 200 mil Exclusive Economic Zones and have since then cooperated closely over the management of the Northeast Arctic cod.¹¹ Claiming management responsibility for the northeast Arctic cod stock,¹² the two countries take 45 percent of the total quota allocation each, leaving ten percent to be shared among third parties.¹³ Table 1 shows total agreed quotas and actual catches in the arctic cod fishery for the 1974 - 1996 period.

The introduction of quota restrictions did not automatically halt the march towards overexploitation. Before 1977, the management regime was too weak to impose substantial restrictions on the fisheries.¹⁴ But even after the EEZs were in place, there was little concern for the status of the cod stock, and the quotas remained generous. When such concerns became pressing and lower quotas were imposed during the 1980s, this did not have the same consequences for all fleet segments. Reflecting the bias in favor of the coastal fishers under the Norwegian MSO system, the small-scale coastal fleet was spared the hardships of stricter resource regulations. While the quota regulations were made binding for the offshore trawler fleet, the coastal fleet was allowed to continue also after

Table 1

Total TAC and actual catches in the Arctic-cod fishery for the 1974-1996 period. '000 tons. Coastal cod included. (Institute of Marine Research, 1974-1996).

Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Agreed TAC	590	850	850	850	850	640	430	340	340	340	260	260
Total landings	1102	829	867	905	699	441	420	448	406	328	311	336

Year	1986	1987	1988	1989	1990 ^a	1991	1992	1993	1994	1995	1996
Agreed TAC	440	600	630 ^b	340	200	245	300 ^c	540	740	740	740
Total landings	456	554	457	349	236	344	549	626	823	781 ^d	-

^a From 1990 an estimate on overfishing has been included in the figures for total catches. For the 1990-1994 period, these estimates are 25.000, 50.000, 130.000, 50.000 and 25.000 tons respectively.

^b Based on new advises from ICES in May, the TAC was reduced to 451 thousand tons.

^c Lifted to 396 due to new information suggesting improved individual growth.

^d Provisional figures.

the Norwegian total quota had been caught. This meant that the Norwegian cod quotas were exceeded several years during the 1980s.¹⁵ Put under pressure by the Soviet Union, the Norwegian government had to impose restrictions also in the coastal fleet, however. From 1981, the coastal fisheries were subject to periodic closures and from 1984, maximum vessel quotas were implemented. The stoppage periods were fairly short, and the vessel quotas fairly large, however, and the coastal fisheries continued under a relative open and unregulated regime.¹⁶ When the coastal fleet towards the end of the 1980s no longer exceeded their quota allowances, this had more to do with poor fishing on the coast than the with the catch restrictions that had been implemented.¹⁷

As is apparent from Table 1, the TAC for 1989 was cut sharply to 340.000 tons, as compared to 630.000 tons the previous year. This created a difficult situation in the cod fisheries, and was the direct impetus behind the establishment of the vessel quota system. Two features of the situation combined to make the quota cut even more problematic than suggested by the numbers alone. First, the coastal fleet had already been through several very bad years.¹⁸ Second, the cuts came at a time when the fishers had been led to expect

that things were about to improve. In 1986, ICES predicted that the cod catches in 1989, depending on the catch regime, would be in the area of seven hundred thousand to one million tons. When 1989 came, however, the TAC was set to 340.000 tons, less than half of the most conservative prognosis a couple of years before (Institute of Marine Research, 1987; 1990).¹⁹ The bad news from marine scientists, released in November 1988, caused a public outcry in north Norway with reverberations across the nation, and set off an intense effort to establish causes, distribute blame, identify victims, and find remedies (Jentoft, 1993; Jentoft and Otterstad, 1994). The fishery crisis hence spawned a large number of responses, for instance the coastal women's campaign, drawing attention to the desperate situation of many fisher households (Lotherington and Thomassen, 1993); the coastal mayors' campaign, focusing on the problems of the fishery-dependent municipalities (Jentoft, 1993); and the Committee of Northern Regions campaign to decentralize the resource management system (The Committee of Northern Regions, 1991). In the end, however, all radical solutions to the crisis - banning trawlers, decentralizing management responsibilities - were rejected. The government did put together an aid package, designed to help the fishers who had been worst hit to keep their vessels and homes (Ministry of Finance, 1990). But otherwise, the quota cuts were dealt with according to established management practices, with one notable exception: The coastal fishery would, for the first time, be called off when the total quota allocation had been taken. As it turned out, however, the combination of a small total quota and a competitive fishery produced unhappy results in the 1989 fishery. In contrast to most years during the latter half of the 1980s, the cod proved easy to catch in 1989. This meant that the total quota for the whole year was finished and all fishing was stopped as early as April 19, only half-way through the traditional Lofoten fishery, and before the Finnmark fishery had even started. The catch distribution within the coastal fleet was thus extremely skewed, with those who started early having good results, while the latecomers, often operating the smallest vessels, were getting little or nothing. The coastal fishers' complaints over the unfairness of the 1989 regulations were not subsiding as they in forced idleness had to watch the trawlers - which they blamed for causing the resource crisis in the first place - continue fishing.²⁰ Out of this emerged a strong resolve to avoid a repetition of the 1989 situation at any cost: "Never again April 19!"²¹

The events of 1989 thus undermined the legitimacy of the existing regime, and triggered a search for alternatives. As already hinted, the result of this process was the establishment of a system based on non-transferable vessel quotas. This model emerged from a complex political process, where small stood against large, north against south, and fixed-gear against mobile-gear. One such confrontation occurred over the allocation of the Norwegian cod quota between the coastal and trawler fleets. A constant battlefield since the Trawler Act was adopted in 1936, this conflict escalated under the resource crisis in 1989, when an explicit division of fishing rights between the two groups no longer could be avoided. This happened with the negotiation of the so-called "trawl ladder" in 1989. The trawl ladder, which was adopted by the Government on the basis of a recommendation from the Fishermen's Association, established how the cod quota would be divided between the off-shore and in-shore groups under different quota levels (see Table 2).

Table 2

The trawl ladder. The division of the Norwegian cod quota between the coastal and trawler fleets under different quota levels. (NFA, 1990).

Norwegian Cod Quota tons	Coastal Fleet's Share %	Trawler Fleet's Share %
less than 100 000	80	20
100 000 - 150 000	75	25
150 000 - 200 000	72	28
200 000 - 300 000	69	31
more than 300 000	65	35

Arguing that the coastal fleet played a crucial role settlement and employment in the coastal regions, the Fishermen's Association wanted to shield the coastal fleet from the effects of the resource crisis (NFA, 1990:57). According to the ladder, the trawler's share of the Norwegian cod quota would be cut from 35 to 20 percent if the total Norwegian quota went from above 300 000 tons to less than 100 000 tons.

While the adoption trawler ladder certainly demonstrates the coastal fishers' considerable

influence in Norwegian fisheries, it also reflects the that the two fleet groups did not depend on the cod fishery to the same extent. Whereas the cod fishery was of overriding importance to the coastal fleet, the trawlers could fish a number of alternative species and fishing grounds. Hence, the trawl ladder was a compromise, based on the principle that Norwegian would continue to have a "differentiated fishing fleet". This tendency towards middle ground was also visible in outcome of the confrontation over the principles for allocating quota rights within the coastal fleet. The principle of non-transferable vessel-quotas was adopted as a direct consequence of the rejection of two alternative models, individual fisher quotas and transferable vessel quotas. The proposal for *individual fisher quotas* was introduced from academia in the beginning of 1989 (Brox, 1989) and was partly supported within the Fishermen's Association²² (Hersoug, 1991). According to this model, which was heavily committed to the idea of fishing a basis for traditional coastal communities and culture, the total quota would be divided by the number of fishers wanting to participate, so that each fisher would get an equal-size individual quota. The main argument for this model was that it would reduce the investment race in the fisheries, since the only way to increase net incomes would be to reduce costs. In this way, the system would solve the overcapacity problem, and at the same time maintain the fisheries open and accessible for a large number of coastal people. The proposal for *individual transferable quotas*, which at the time was heavily promoted by fishery economists, was supported by the Ministry of fisheries as solution to the problems in the coastal cod fishery. The main argument for this model, representing an essentialist economic perspective, was that the market mechanism automatically would benefit the fishers that could get the most out of the quota (Ministry of Fisheries, 1992a: 120). Both proposals were rejected; the individual fisher quota model because it was regarded as impossible, or at least forbiddingly expensive, to implement and enforce (Director of Fisheries, 1989a); the ITQ model because it was met with massive resistance from virtually all parts of the industry (Moldenæs, 1993).

4. The IVQ system 1990

The unhappy results of the 'olympic' race for fish in 1989 formed the basis for introducing a rights-based management system in the coastal cod fishery. The legitimacy of a right's-based regime was further strengthened when ICES in October²³ 1989 recommended that the cod quota for 1990 should be cut considerably. If unrestrained competition within a total quota had been problematic in 1989, it would be worse under the even smaller quota of 1990. Since both the principle of individual fisher quotas and the principle of quota transferability were vetoed during the policy process, the result was a system of non-transferable vessel quotas. This section gives an overview of the process by which the IVQ system was designed and describes its main features.

The policy process was centered in the Regulatory Council, which met three times during the fall of 1989. Formed in 1983 through an amendment of the Salt Water Fishing Act, the council constitutes the arena from which industry representatives can influence the fisheries management decisions. Conforming to the Norwegian corporatist tradition (Apostle and Mikalsen, 1995), the council counts fourteen members, of which nine are industry representatives.²⁴ On the basis of detailed proposals from the Director of Fisheries, the council works out its recommendations as to the detailed design of the regulations. While the council formally only advice the Minister of fisheries, who is responsible for taking the final decisions, its recommendations have considerable weight, in particular when the allocation of fishing rights among different groups of fishers is concerned (Hoel, Jentoft and Mikalsen, 1996).

When the council in its September 1989 meeting agreed that vessel quotas were going to be implemented in the coastal cod fishery, the key problem was to define the group of fishers that would be allowed to participate in the system, and, hence, who and how many would be excluded. To understand the agonies of this process, it must be kept in mind that there was no way to externalize the conflict. The trawler ladder, adopted by the Fishermen's Association and accepted by the government, had fixed the quota division between the coastal and the trawler fleet. And even though tougher restrictions on sports fishing were implemented from 1990,²⁵ this could do little to ease the internal conflict over quota allocation within the coastal fleet. During the latter half of the 1980s, the coastal

fleet comprised about 22.000 vessels. The total quota available for this group was 84.750 tons in 1990. If all vessels were to participate on an equal basis, no-one would be able to make a living. The main criteria for allocating the quotas were that of cod-dependency and historical rights: Those who had depended on cod fishing would get the largest quotas. These criteria seem to have been regarded as reasonable and just by the all key actors. Thus, the confrontations during the fall of 1989 did not pertain so much to these criteria themselves as to their implementation in practice.

Table 3

The Directorate of Fisheries' four alternative qualification schemes to the vessel quota systems. Qualification limits in tons of cod landed in one of the years 1987, 1988, 1989 (Director of Fisheries, 1989c).

Vessel length (m)	Alternative I	Alternative II	Alternative III	Alternative IV
0 - 6,9	3	3	4	6
7 - 7,9	3	4	5	8
8 - 8,9	3	5	6	10
9 - 9,9	6	6	7	12
10 - 10,9	6	8	10	16
11 - 11,9	6	10	13	20
12 - 12,9	12	13	17	26
13 - 13,9	12	16	21	32
14 - 14,9	12	19	25	38
15 - 17,9	25	25	35	50
>18	25	40	50	80
Number of eligible vessels	3902	3492	3021	2038

According to the criterion of cod-dependency, only those vessels that had landed more than a certain quantity of cod during one of the three previous years (1987-1989), would get full vessel quotas, to be taken whenever the skipper decided. The vessels that did not qualify would be allowed to participate in a maximum-quota fishery, based on free competition within a total quota combined with fairly small maximum vessel quotas. In its September meeting, the Regulatory Council agreed on this division in principle, and left it

to the Directorate of Fisheries to propose how it should be implemented. Early in November, the Directorate sent its proposal out on hearing. As a basis for discussion, the Directorate had worked out four alternative qualification schemes for the vessel quota system, where the first was the most inclusive, granting full quota rights to 3.902 vessels, and the fourth was the most exclusive, only including 2.038 vessels (Table 3). All four alternatives were differentiated by vessel length, so that the larger vessels had to have landed more fish than the smaller in order to qualify for a vessel quota.

Without committing himself too strongly, the Director of Fisheries supported Alternative III, allowing 3.021 vessels to participate in the vessel quota system. During hearing round, this alternative was supported by some organizations²⁶ but was strongly opposed by the Fishermen's Association. The Association promoted Alternative I, which was most inclusive, arguing that a high qualification limit would exclude a large number of fishers for whom the cod fishery provided a small but absolutely necessary part of their income. The Ministry of Fisheries was not persuaded by this argument. Trying to accommodate the interests of the vessels operating on a year-round basis, Alternative III was adopted in the Cabinet meeting of December 8, 1989 (Director of Fisheries, 1989c: J-206-89).

This happened only four days before the final Regulatory Council's meeting of the year. At the opening of this meeting, the Fishermen's Association representatives expressed great displeasure with the Ministry of Fisheries decision. As the case now stands, they argued, it was very difficult for Association to take any responsibility for the implementation of the regulations. Having voiced their protest, however, the fisher's representatives decided to continue participating in the process (Director of Fisheries, 1989a). After this problem had been settled, the first question on the agenda was whether any vessels that fulfilled the qualification requirement adopted by the government should be excluded.²⁷ Again referring to the criterion of cod dependency, the Council agreed that the largest vessels and the vessels that participated in other fisheries should be excluded, or get restricted vessel quotas.²⁸

The main issue for the meeting concerned the detailed rules as to the allocation of quotas among the participants of the maximum quota and vessel quota groups respectively. There

was broad agreement within the Council that the vessel quota group should be allowed the bulk of the total quota available for the coastal fleet, which amounted to 84.750 tons. After a brief discussion, 12.000 tons were allocated to the maximum quota group, 64 750 tons were allocated to the vessel quota group, while 11.000 tons were set aside for by-catches.

For the maximum-quota group, the main problem was that of a small quota and a huge number of potential participating vessels in a competitive fishery. To ensure an equitable outcome, the Council recommended a combination of periodical quotas and individual maximum quotas of 2.5 tons for vessels below 12 meter and 3.5 tons for vessels above 12 meters. With a total group quota of 12.000 tons and about 18.000 potential participating vessels, only a few vessels would manage to reach their individual quota limits before the total quota was taken. In practice, however, only 4193 vessels participated in the fishery, giving an average catch of 2.9 tons per vessel (Director of Fisheries, 1994d).

The greatest challenge facing the Council was to find an allocation principle within the vessel quota system. As a starting point for the discussion, the Directorate of Fisheries had calculated a "historical key", showing the vessel's mean catch during the 1987-89 period broken down on size categories. The Directorate's allocation proposal was based on this key. While the smallest vessels would get a quota share of 100 percent of their historical catch, the share would be decreasing with increasing vessel size, with vessels above 27,5 m only receiving 50 percent. The proposal thus favored the smaller vessels. The fishers' representatives were still not satisfied, and wanted to go even further in this direction. Reflecting the strong support among coastal fishers for individual fisher quotas, the representatives of the Fishermen's Association in the Regulatory Council proposed that crew size should be a key criterion in the quota allocation process. According to this alternative, the smallest vessels would get 140 percent of their historical catch, while vessels above 27,5 m would be allowed less than 30 percent. The fishers' proposal was quickly rejected during the Council's negotiations, primarily since the principle of crew size was claimed to be impossible to enforce. In addition, the Council found it unacceptable that some vessel groups - in the midst of a devastating resource crisis - would have their catch basis improved as compared to previous years. After a short

discussion, the representatives of the Fishermen's Association withdrew their proposal, after which the Directorate's alternative was unanimously approved.

With this recommendation, the Regulatory Council had finished its treatment of the 1990 quota regime. Still, the policy process was not over. Through direct discussion between the Fishermen's Association and the Ministry of Fisheries during December, the Ministry agreed to increase the number of vessels in the vessel quota group. In part, this happened because it was realized that the adopted criteria for vessel quotas only would allow about 2.800 vessels into this group, 200 less than planned. In part, it was an attempt to stifle the storm of protest and rage from fishers that had been excluded from the vessel quota group on what they felt were unreasonable grounds. For instance, the adopted qualification criterion did neither allow for special treatment of fishers that had missed the catch limit because of illness and accidents, nor for those who during 1989 had invested in new vessel or gear in order to expand their activity within the fishery (Director of Fisheries, 1990e). To remedy these problems, the Ministry opened the vessel quota group up for 500 vessels in addition to the 2800 already qualified. The allocation of these quotas was delegated to the Regional Fishery Directors ("Fiskerisjefene"), who were given wide discretion in granting vessel quotas in cases where the exclusion of vessels was felt to be unreasonable.²⁹

Table 4 shows the initial quota allocations within the coastal cod fishery of 1990. The total number of participating vessels in the vessel quota system was 3.579. The table also shows the readjustments that were made in the quota allocations over the year. Assuming that all vessels would not be able to finish their quota, the aggregate of the individual vessel quotas at the beginning of the year had been set 18 percent larger than the total quota allocation for the group. Towards the end of the year, however, it became clear that the vessel quotas still were too low. Additional quotas were therefore allocated two times during the fall, in October and December, both times utilizing the historical key that had formed the basis for the initial quota allocations. The sum total of the individual vessel quotas was close to 103.000 tons, as compared to a total group quota of 72.750 tons (including the 11.000 ton bycatch quota) and 80.642 tons actually landed.

Table 4

Number of vessels and quota allocations (tons) by size groups in the 1990 vessel quota system (Director of Fisheries, 1990d).

Vessel length	Number of vessels	Initial quota	Extra quota	Total quota
0,0 - 6,9 m	288	4,3	1,8	6,1
7,0 - 7,9 m	432	5,6	2,4	8,0
8,0 - 8,9 m	549	7,7	3,2	11,0
9,0 - 9,9 m	684	11,2	4,8	16,0
10,0 - 10,9 m	585	14,6	6,0	20,7
11,0 - 11,9 m	93	21,1	8,8	29,9
12,0 - 12,9 m	167	23,2	9,6	32,9
13,0 - 13,9 m	96	29,7	12,4	42,1
14, 0 - 14,9 m	128	37,0	15,6	52,6
15,0 - 17,9 m	230	44,7	18,6	63,4
18,0 - 27,4 m	234	62,4	26,0	88,4
27,5 - 33,9 m	46	98,5	41,2	139,7
> 34	47	121,3	50,8	172,1
Total	3 579	72 625	30 359	102 984

The regulations adopted for the 1990 season meant an end to the traditional open-access regime in the coastal cod fishery. The access to the fishery was not completely closed off, however, as all registered fishing vessels still could participate in the maximum quota fishery,³⁰ even those that had not landed one fish since 1987. Nevertheless, the total amount of fish available for this groups was fairly small,³¹ as was the maximum quota each vessel was allowed to take.³² While the principle of open access still was applied, its usage had been drastically reduced and delimited. From a main principle of the coastal cod fishery, it had become an exception.

The Fishermen's Association very reluctantly accepted the transition from free access to a rights-based management system, and then only as a practical way to avoid repetition of the unhappy situation of 1989. The Association saw the vessel quota system as a temporary crisis measure to be terminated once the cod stock recovered (NFA, 1990;

1991; Humberstet, 1996). While other concerns certainly were involved, the Association's position on this issue was closely tied to the definition of the fisheries as more than an economy. Free access to the fishery resources was regarded as an important part of the coastal culture and way of life. When the Association in the face of the resource crisis was forced to accept individual vessel quota system, its representatives in the Regulatory council systematically attempted to make it as broad and inclusive as possible, with particular regard for the interests of small-scale, part-time and seasonal fishers. During the policy process, this perspective on the fisheries confronted actors in pursuit of other concerns and views, among them the processors' representatives, who wanted a management system that would ensure a stable landing pattern; the Director of fisheries, who wanted regulations that would be easy to implement and enforce, and the Minister of fisheries, who wanted a management system that would allow the economic survival of the core segment of the coastal fleet (Moldenæs, 1993). All these concerns were pulling towards a narrow vessel quota system, including relatively few vessels with generous individual quotas, favoring the larger vessels and full-time, professional fishers. In stark opposition to this coalition of interests, the Fishermen's Association were remarkably influential. Even though the Association as we have seen did lose some battles along the way, its representatives were able to set the agenda and dominated the debates. Their influence on the process is also clearly visible on its outcome: a quota regime heavily biased towards the interests of the small-scale, part-time fishers.

5. Adjustments in the quota regime 1991- 1996

The total TAC for the Arcto-Norwegian cod stock increased from 200.000 tons in 1990 to 740.000 tons in 1996. During the same period, the total Norwegian cod quota went from 113.000 tons to 314.000 tons,³³ while the coastal fleets' quota went from 84.750 tons to 223.780 tons (Table 5).³⁴ Since the number of vessels in the coastal fleet declined slightly the average vessel quota within the coastal fleet tripled.

The introduction of a right-based management regime in 1990 was reluctantly accepted by the Fishermen's Association as a temporary crisis measure. Despite the recovery of the cod stock, the rights-based management regime has not been abandoned, however. This does

not mean that no changes have occurred. Over the years, the management model, which from the beginning was rather rigid, has been made more flexible. A major concern in this respect has been the barriers dividing the maximum quota group and the vessel quota group, and requirements for going from one to the other. As we have already seen, the question of where the cut-off point between the two groups should go was a major conflict issue when the management model was designed during the fall of 1989. The same conflict surfaced once more in preparation for the 1991 fishery. There was broad agreement that the vessel quota regime was not well suited for the smallest vessels, particularly within the traditional small-scale fjord fisheries.³⁵ To solve this problem, all vessels under 9 m were transferred to the maximum quota group in 1991. At the same time, both the total group quota and the individual maximum vessel quotas were increased (Table 5). Although this was an attempt to improve the conditions for the smallest vessels, the outcome was not as intended. While some vessels gained, a majority lost.

Table 5

Number of vessels, total quota and average vessel quota^a for vessel quota group, maximum quota group and coastal fleet within the cod fishery 1990-1996. (Director of Fisheries, 1990-1996d)

		1990	1991	1992	1993	1994	1995	1996
Vessel quota group	No. Vessel	3.534	2.367	3.640	3.618	3.446	3.363	3.388
	Tot. Quota (t)	61.750	70.375	118.760	133.420	187.430	186.460	192.780
	Av. V. Quota (t)	17,5	29,7	32,6	36,9	54,4	55,4	56,9
Maximum quota group	No. Vessel	4.172	5.401	4.697	4.463	4.140	3.874	-
	Tot. Quota (t)	12.000	18.500	12.400	17.000	21.000	21.000	21.000
	Av. V. Quota (t)	2,9	3,4	2,6	3,8	5,1	5,4	-
Total Coastal Fleet	No. Vessels	7706	7768	8103	8081	7606	7237	-
	Tot. Quota (t) ^b	84.750	96.375	137.160	176.820	217.425	226.460	223.780
	Av. V. Quota (t)	11	12,4	16,9	21,9	28,6	31,3	-

^a The average vessel quota is calculated as total group quota divided by number of vessels in group, and should not be confused with the quotas allocated to individual vessels.

^b Total coastal fleet quota includes the bycatch quota and is hence larger than the sum of the total quotas for vessel quota and maximum quota groups.

The maximum quota fishery in 1991 turned into a reprise of the infamous 1989 season, with the total quota taken as early as April 12. This resulted in harsh words against the authorities, who had assured that the adjustment would be an improvement. The adjustment was thus deemed a failure, and the smallest vessels were returned to the vessel quota system in 1992.

While the return of the smallest vessels to the vessel quota system solved the immediate allocation problem, it brought forward another: the management regime's implications for the Saami population.³⁶ The fjord fisheries for cod have had considerable importance for the Saami (Jentoft and Mikalsen, 1994). Most of them were part-timers, however, and did not qualify for vessel quotas. To protect their interests without creating an "ethnic quota", which was politically unfeasible, a regional quota was established in the core Saami area.³⁷ This arrangement was upheld until 1995, since when vessels shorter than 10 m in the region have been allowed to take the full maximum quotas.

The adjustments discussed so far have been connected to the problem of the appropriate location of different categories of fishers - in the maximum quota or vessel quota systems. Another policy issue integral to the new management system concerns the mechanisms by which individual vessels can be transferred into and out of the vessel quota group, in other words, the recruitment problem. During 1991 and 1992 a small share of the quota was set aside for recruiting new fishers to the vessel quota system.³⁸ This quota was distributed on counties, where the Regional Fishery Director was made responsible for their allocation among individual fishers. In 1993, no quota was allocated for this purpose. According to the Minister, bringing more vessels into the vessel quota system without taking any out would only reduce the profitability for the whole group (Ministry of Fisheries, 1992b). A solution to this problem was established in 1994, since when the vessel quota group has been made subject to an activity requirement. To keep the quota, a vessel has to land at least 40 percent of its quota allocation. In 1994, 93 vessels missed this limit. They were subsequently transferred to the maximum quota group and their quotas redistributed.³⁹

As shown in Table 5, the total allocation of cod to the coastal fleet was already in 1993 more than twice as large as in 1990. In spite of this, the Ministry of Fisheries did not want

to abandon the vessel quota system. With reference to overcapacity in the coastal fleet, it was argued that the quota was still not large enough to allow all vessels a "normal" level of operation (Ministry of Fisheries, 1992b). In spite of its acceptance of the vessel quota system only as a crisis measure, the Fishermen's Association supported this view (NFA, 1992).

The Association's change of position must at least partly be understood on the backdrop of the conflicts over the trawl ladder. The ladder had been established to shield the coastal fleet in times of crisis, also implying that the trawlers would get the largest quota improvements when the cod stock recovered. Thus, while the coastal fleet's quota increased 109 percent from 1990 to 1993, the increase of the trawler quota was 181 percent. On the level of individual vessels, the incongruity was even greater, since the number of coastal vessels had grown slightly, while the number of trawlers had decreased.⁴⁰ With the well-entrenched hostility against trawlers among coastal fishers, such changes in the quota distribution between the two groups could not go unnoticed. A virtual storm of criticism was raised against the authorities and the Fishermen's Association. The trawl ladder represented "the greatest unfairness within the cod regime" (Fiskeribladet, May 25, 1995). The coastal fishers demanded the ladder changed in their favor, or else they would leave the Association. The trawler group responded in kind, threatening to abandon the organization if their quota was slashed. During the Association's National Congress in October 1994, the renegotiation of the trawler ladder was the most important issue on the agenda. Two days overdue, a result was reached by vote. The trawler group won, as the ladder remained virtually unchanged.⁴¹ Despite this, the coastal fishers did not act on their threat to leave the Association (Ratvik, 1994).

This meant that the coastal fishers were prevented from solving their internal problems by getting a larger share of the total quota. Internal tensions were mounting as they were forced to seek compromises within the established quota restrictions. The result was a replication of the traditional offshore-inshore controversy, now within the coastal fleet. A conflict of interest existed between large and small vessels, as the former were satisfied within the vessel quota system while the latter wanted to go back to a more competitive regime. This was also a confrontation between north and south, since the average vessel

size tend to decrease as one moves north along the Norwegian coast. The geographical dimension of the conflict was further underlined since north Norwegian fishers⁴² thought that a competitive regime would be beneficial to them because of their location close to the traditional fishing grounds (NFA, 1993).

In contrast to the conflict over the trawler ladder, which was purely distributive, both factions could be accommodated in the case of the internal conflict within the coastal fleet. This happened in 1994 when a 28 meter split was introduced in the vessel quota system. The total quota allocation to vessels under and over 28 m respectively was not changed. Different principles for quota allocations to individual vessels were applied in the two groups, however. While vessels above 28 m still got individual vessel quotas, an element of competition was introduced for vessels below 28 m. In practice, this was done by the establishment of a "competition quota" in addition to the vessel quota allocation. For 1994, 33 percent of the quota for the vessel quota group below 28 m was competitive. In 1995, nearly 100 percent of the quota for this group was allocated under a competitive regime.⁴³

We have earlier claimed that the rights-based model introduced from the 1990 season, despite being adopted as a temporary crisis measure, has become a permanent feature of the Norwegian coastal cod fishery. Yet the competitive quota system introduced in full from 1995 closely resembles the maximum quota model. Does not this mean an end to the rights-based regime for vessels below 28 m?

This is a reasonable interpretation in so far that also the vessel quota group now faces maximum quotas rather than guaranteed individual quotas. However, the sharp division between the two groups remains in place. Although the competition among the vessels within the vessel quota group has increased, the average quantity of fish available for each vessel in this group remains much larger than in the maximum quota group. Thus, the average maximum quota vessel in 1995 were able to take less than 20 percent of the allocated quotas, while the average vessel quota vessel were able to take about 80 percent.⁴⁴ This reflects an underlying difference in management targets for the two groups. Under the maximum quota system, the overall group quota is meant to be the effective catch limit. Since there are no checks on the number of participating vessels, and the

sum total of the maximum vessel quotas is considerably larger than the total group quota, the fishery may quickly be over. Under the competitive quota system, one seeks to adjust the sizes of the individual vessel quotas so that the total group quota will not be finished until the end of the year.

Underlying this difference is another, more crucial one. While the competitiveness within the maximum quota system is permanent, the competitive element in the vessel quota system is a temporary adjustment to a situation of very low availability of cod in the coastal fishery. Since 1994, a considerable number of vessels within the vessel quota group has hence not been able to finish their individual quotas. To ensure that the group quota would be caught, a certain degree of "overregulation" has occurred. That is, the individual vessel quotas have been increased in excess of the quantity that would have sufficed if all vessels had been able to catch them. Presently the rate of overregulation is 100 percent, implying that the sum total of the vessel quotas is twice as large as the total group quota. While this introduces an element of competition, it also means that the competitive element is strictly tied to the situation of low availability and overregulation. Once the availability improves, the degree of overregulation will be reduced, as will the competitive element.⁴⁵

While the lower availability of cod made room for larger paper quotas, it has also had strong redistributive effects. While the total landing of cod from vessels below 16 m remained at the same level in 1995 as in 1993, the vessels between 16 and 28 m increased their catch from 47.000 tons to 72.000 tons. At the same time, the vessel quota group as a whole was not able to catch their group quota, and more than 20.000 tons were reallocated to coastal vessels above 28 m and to the trawlers. Thus, the more competitive regime, which was legitimized with reference to the interests of small vessels and north Norwegian fishers, worked exactly the other way around, reallocating resources from small to large vessels, from inshore to offshore, and, hence, from north to south.

6. Fishing as an economy

The vessel quota system, which was introduced as a temporary crisis measure, has become a fixture of the management regime in the Norwegian coastal cod fishery. At the same time, a shift in basic priorities has occurred. While the IVQ system was introduced with strong checks on the effects on small vessels and part-time fishers, it in practice has allowed reallocation of rights and resources to larger vessels and year-round professional fishers. That these developments indicates a more general political and ideological shift is confirmed by the thrust of the current debate over the future structure of the Norwegian coastal fleet. During the spring of 1996, a consensus seems to be emerging among the major actors on the fishery scene that a restructuring of the coastal fleet is needed. A more "robust coastal" fleet must be established, that is, one consisting of larger vessels capable of year-round operation (Ministry of Fisheries, 1995; NFA, 1996; Committee of Northern Regions, 1996). Since such a restructuring must happen within the coastal fleet's present share of the total quota, this means further reallocation of resource rights from small to large vessels.

In keeping with its traditional concern for economic viability, the Ministry of Fisheries supports this development wholeheartedly. First, increasing the vessel size will solve the problem of low availability of cod along the coast, since larger vessels are more mobile. At the same time, the seasonal landing cycles would be less pronounced. Hence, the coastal fleet can be turned into a reliable supplier of fish to the processing industry, the lack of which is cited as a major problem with the present structure. In addition, the Minister has pointed out that a fleet of large, modern vessels will improve the recruitment of young people to the coastal fisheries, and will be better able to accommodate the increasing demands for high product quality and modern quality management systems. In general, the case for restructuring is held in a language of rationalization, economic efficiency and improving profitability (Ministry of Fisheries, 1995).

More unexpected, perhaps, is that the Committee of Northern Regions also supports the proposal for larger coastal vessels. As already mentioned, the coastal fleet in north Norway traditionally has tended towards the small end of the scale. The north Norwegian policy position throughout the post-war period has been a defence of small vessels and part-time

fishers, underscoring the fisheries' role as basis for coastal communities, culture and settlement structure in the region. Hence, one might have expected that the Committee of Northern Regions would be a strong-hold in the fight against the present turn towards economic efficiency and rationalization. Instead, the committee accepts the proposal, citing the imperative of a year-round landings and the need to improve the profitability within harvesting as well as processing. In addition to fulfilling these needs - and central to the committees' position - a fleet of larger north Norwegian coastal vessels can serve as a bulwark against south Norwegian intrusion on traditionally north Norwegian fishing grounds (Committee of Northern Regions, 1996).

Also the Fishermen's Association seems to have retreated from its earlier concern for the small-scale fishers. While the association's final word on the proposal for fleet restructuring is yet to be heard, the signs so far has been in the affirmative. In a report on this issue prepared for the Association's National Congress later in 1996, the proposal for restructuring is seen in the perspective of an urgent need for new investment and renewal in the coastal fleet. Because of a long period of small quotas and low profitability, the fleet is in decay. While this is problematic regardless of vessel size, a heavy emphasis on the need to ensure stable, year-round landings is an argument in favor of the "large coastal vessel" concept (NFA, 1996).

A change in the Association's position thus seems to have taken place. The large-scale professional has substituted for the small-scale part-timer as the association's key client. Instead of the traditional insistence that fishing should be regarded as a cultural bearer and the basis for the a way of life in coastal communities, the association have become preoccupied with the economic imperatives of fishing. We suggest that this redefinition of the fisheries, its problems and their solution was facilitated by the introduction of the vessel quota system in 1990. The IVQ system forced the coastal fishers and their organization to redefine the fishery from an open "frontier", with space for anyone, to a closed shop and a zero-sum game. The changing policy of the Fishermen's Association can be seen as a reluctant but gradual acceptance of this as a predominant feature of the situation within the fishery.

The closing of the fishery frontier has led to a much narrower focus on fishing as an economy rather than as a way of life. To understand why, the new era of resource management must be contrasted with the definition of the fishery that was integral to the institutional reform of the inter-war period and dominated the sector until the 1980s.

Within what we have called the MSO system, the fishers held the key power positions in an elaborate corporatist network of relations between sector interests and government. The whole system was based on and reinforced a definition of fishing as more than an economy. This is particularly visible in the subsidy system that was established by the 1964 Main Agreement. Forming basis for large-scale subsidization on a permanent basis, the Main Agreement institutionalized the principle of fishing as exempt from the criterion of economic efficiency: The fisheries' "responsibility" in providing employment in peripheral coastal regions and thereby maintaining a decentralized settlement structure meant that the sector could not be expected to be profitable, and, hence, that it needed large subsidies. This was a predominant mode of legitimizing the subsidies, and does not say very much about the actual distribution of the transfer payments among groups within the sector (Jentoft and Mikalsen, 1987). Nevertheless, it contributed to the reproduction of a broad and inclusive definition of the sector and gave small-scale, part-time fishers and marginal coastal communities great symbolic value (Holm, 1991; Holm, 1996b).

The introduction of resource management as the key concern within the fisheries led to a large-scale institutional transformation within Norwegian fisheries from the late 1980s. As the main policy focus shifted from trade regulation to resource management, the Regulatory Council took over for the Main Agreement negotiations as the central policy arena. Within the new setting, new strategies and different symbols were required. The initial bias in favor of the small vessels can be interpreted as a remnant of the old policy-style. Since all avenues for externalizing the costs of resource management - increasing the total quota, increasing the share of the quota, increasing government subsidies - proved to be closed, the coastal fishers were forced into hard-nosed internal bargaining over how to divide the quota among themselves. Once the small-scale fishers lost their symbolic value in the policy game, their interests were quickly forgotten. While counting a large number of fishers, the small-scale, part-time fishers are weakly represented within the decision-making bodies of the Fishermen's Association, in part because of the organization's federal

structure, in part because the elected representatives tend to be high-liners (Hallenstvedt and Dynna, 1976; Jentoft and Mikalsen, 1987; Sagdahl, 1982).

The IVQ system was the vehicle by which the hard realities of resource management were forced on the Norwegian coastal cod fishers. While clinging stubbornly to the more happy and harmonious circumstances of the past, the IVQ system compelled the Fishermen's Association to take on the acrimonious business of internal quota allocation. This immediately meant a sharper focus on the economic realities of fishing, a tendency that simultaneously was reinforced by other development processes. In general, the institutional changes at the sector level that was set off by the introduction of resource management idea meant a power shift within the sector, from the fishers towards the processors (Holm, 1995a; 1996b). Previously, the fishers were treated the processing industry as a service facility, the task of which was to allow the fishers to land their catch where they found it convenient. After the sector reform, the roles have shifted. Now, the processing industry has been able to define its goal of stable, year-round landings as an imperative, according to which the coastal fleet must be reconstructed.

Notes

1. Most fishers were dependent on the merchant to advance, on a credit basis, the supplies necessary to participate in the fishery. In return, the fisher had to sell his catch to the merchant. The truck system thus created a debt bond between merchant and fisher, which the former could exploit to his own advantage.
2. In 1948 there were 34.548 persons having the fishery as a sole or main occupation in the three northernmost counties. In addition, there were about 15.000 persons for which the fishery was a source of additional income. In 1994 the figures were 7.974 and 3.356 persons respectively (Statistics Norway, 1968; 1995).
3. The Trawler Act banned introduction of new trawlers in the fisheries. The eleven trawlers that already were in operation were allowed to continue.
4. The most important example is the organization of the raw fish trade, where sales organization established according to the Raw Fish Act negotiated prices with the buyer groups. This was advantageous to the fishers in general, since it represented a guarantee that they would be able to sell their catch for a reasonable and stable price. But it was most important to fishers operating small vessels from remote communities, since they were the most likely to be dependent on a single fish buyer (Holm, 1993).
5. Fishery policy and regional policy were thus regarded as two sides of the same coin. The concern for economic efficiency was systematically set aside in the pursuit of other goals, which very often were legitimized with reference to the need of maintaining the established settlement structure (Hannesson, 1985; Hersoug, 1983).
6. The most important illustration is the dominant position of the Fishermen's Association, which was heavily committed to the interests of the coastal fishers. The Association had a privileged position within the MSO system, in particular through its status as exclusive representative for the sector in the annual negotiations for state subsidies to the fisheries, conducted under the 1964 Main Agreement (Jentoft and Mikalsen, 1987; Holm, 1991; Holm, 1995a).
7. These reforms include, among others, the 1989 EFTA free trade Agreement, which banned the most important subsidy mechanism; a new Fish Export Act, which allowed the fish processor's a much stronger position within the sector; and modification in the Raw Fish Act, which weakened the prerogatives of the fishers's sales organization and undermined the position of the Fishermen's Association (Holm and Mazany, 1995).
8. There also was a Russian coastal fishery in on the Murman coast, this fishery was not very large (Sysoev, 1970).
9. The only catch restriction before this time was mesh size limitations, established in 1963 by the North-East Atlantic Fisheries Commission (NEAFC) (Churchill and Ulfstein, 1992).
10. NEAFC's powers were extended in 1974 when it was authorized to regulate the total fishing effort by establishing a Total Allowable Catch (TAC). The TAC could be adopted by a two-thirds majority vote, but each of the member states could reject the decision by submitting a protest within ninety days. The TAC was divided in national quotas. These quota limitations were to be enforced by the coastal state within its fishery zones or by the flag state on the high seas. However, NEAFC hardly got around to seriously consider effective enforcement mechanisms since it was not able to reach agreement on necessary conservation measures (Churchill and Ulfstein, 1992; Hoel, 1994a; 1994b).
11. The key arena here is the Joint Norwegian-Soviet (now Russian) Fisheries Commission. The Commission was established in 1975 and operates based on a reciprocal fishery agreement from 1976. The Commission, with representatives from the Norwegian Ministry of Fisheries and the Russian Fisheries Committee, meets each fall to set total quotas for the joint stocks. As a principle, Norway and Russia retain about 90 percent of

the total quota of cod for their own fishers, leaving the remaining quantity for other countries. The common Norwegian - Russian TAC is then divided according to pre-established keys, which is a 50-50 split in the case of cod. In addition, quotas for a number of species under the jurisdiction of only one of the parties are regularly swapped. Traditionally the Russians have given Norway a extra cod quotas, while Norway has given Russia extra quotas of redfish, herring, and blue whiting (Hoel, 1994b). During the last years, the swapping of cod quota has come to a stop. This is a result of the introduction of a market economy in the former Soviet Union, which has made the cod more valuable to the Russian. The cod quotas are now either sold on the international quota market, or is caught for exports by the Russian trawler fleet.

12. One important problem with the present regime is the "Loophole", a small area in the Barents Sea in between the Norwegian and the Russian EEZs and the 200 mile Svalbard Fishery Zone. The periodical invasion of foreign trawler in this area has challenged the management of the Barents Sea fishery. Besides the growing dissatisfaction among Norwegian and Russian fishers, the exploitation of undersized fish and misinformation on catch quantities has undermined the quality of the data on which the stock estimates relies (Sagdahl 1995). In response, the Norwegian Institute of Marine Research now routinely estimates unreported catches. During the 1991-1994 period, these estimates has varied from 25.000 tons to 130.000 tons (Institute of Marine Research, 1996).

13. Of this the EU countries (France, Germany, Spain, UK) take the main share, with fishers from the Faroes and Greenland taking most of the remainder (Hoel, 1994a).

14. In 1975 the International Council for the Exploration of the Sea (ICES), on which the NEAFC relied for scientific advice, recommended a TAC for North-Arctic cod of 625.000-650.000 tons. The actual TAC adopted by the NEAFC was 810.000 tons. The actual catch this year was 834.000 tons (Churchill and Ulfstein, 1992).

15. In 1981 and 1982 the coastal fleet had a quota allocation of 97.500 and 147.500 tons. The actual landings these years were 251.000 and 261.000 tons, exceeding the allocations with 153.500 and 113.500 tons respectively.

16. Overview over the most important catch restrictions in the coastal fleet 1981-1988

Year	1981	1982	1983	1984	1985	1986	1987	1988
Maximum vessel quotas	no	no	no	400	350	500	600	600
Stoppage periods	3	4	1	4	1	2	1	1
Number of days	53	31	55	71	14	16	n.a.	14

17. Overview over allocations and catches of cod in '000 tons in the coastal fleet during the 1977-1989 period.

Year	1977	1978	1979	1980	1981	1982	1983
Allocated quotas	190	185	190	111	97,5	147	180
Total landings	268	246	194	183	251	261	204
Overfishing	78	61	4	72	153,5	113,5	24

Year	1984	1985	1986	1987 ^a	1988 ^b	1989
Allocated quotas	140	130	157	200	200	116
Total landings	209	176	156	124	124	116
Overfishing	69	46	-1	-76	-76	0

^a Due to low catches in the coastal fleet, 35.000 tons was transferred to the trawlers during the year.

^b On the basis of revised stock assessments from AFCM, Norway and Soviet agreed to reduce the total TAC with 22 percent from 630.000 tons to 491.000 tons during the year. The Norwegian quota was thus reduced from 320.000 tons to 250.000 tons. Because of poor fishing within the coastal fleet, the whole cut was taken on this fleet segment.

18. From 1984 the total landings from the coastal fleet were in decline. Particularly the vessels below 13 m experienced a reduction, and their average catches went down by two-thirds from 1984 to 1988. With respect to landed quantity, 1988 represented the worst crisis year. The main cause for this was the very poor availability of cod along the coast during this period. But the "seal invasion" also contributed to the problems. Such invasions occurred throughout the 1980s. It is assumed that, at their peak, the invasions numbered between 300.000 to 400.000 animals. While such invasions earlier mainly have occurred off the coast of Eastern Finnmark, large number of seals was observed along most of the Norwegian coast during 1987 and 1988 (Eikeland, 1993).

19. The main reason for the discrepancy seems to be an obliviousness to multi-species interaction in stock assessment. In the mid 1980s, there were very small amounts of capelin, the cod's most important prey, in the Barents sea. This resulted in a very low growth rate in the cod stock, probably only half of what had been assumed in the 1986 prognosis. The lack of food led to increased levels of cannibalism in the cod stock, and, because of the larger share of small fish in the catches, higher levels of discards. At the same time, the low sea temperatures in this period led to lower recruitment than expected (Institute of Marine Research, 1990; Nakken, 1994; Jacobsen, 1995).

20. They could do this, since they were on a vessel quota system, and hence could distribute fishing more evenly over the year.

21. "Aldri mer 19. april!" became a much-repeated slogan, summing up and reinforcing the experience of the 1989 regulations (Dreyer, 1995).

22. The model was called "Bulandsmodellen", which also was strongly supported by the Association of Coastal Fishers (Fiskeribladet, November 7, 1989).

23. The first signals of a forthcoming quota cut from AFCM came in the early part of October while the final recommendation was issued towards the end of November.

24. The Council have representatives from the Fishermen's Association (5), the Seamen's Union (1), the Association of Fish Processors (2), the Food and Allied Worker's Union (1), the Directorate of Fisheries (2), the Marine Science Institute (1), the Directorate for the Management of Natural Resources (1), and The Saami Parliament (1). In addition, several organizations and institutions have status as observers. From November 1990 the Norwegian Environmental Conservation Society has been among these observers (Hoel, Jentoft, and Mikalsen, 1996).

25. Following a recommendation from the Regulatory Council, the government implemented new rules on sports fishing. From the 1990 season, persons not registered as commercial fishers were only allowed to fish with rod or handline, and could only catch cod for household needs (Director of Fisheries, 1990c: J-11-90).

26. The Norwegian Seamen's Union.

27. In accordance with §5 third subsection the Salt Water Fishing Act, vessels can be excluded from a quota restricted fisheries when they have reasonable fishing opportunities in other fisheries.
28. The Council recommended that vessels above 27,5 m with licences in the pelagic fisheries with purse seine and/or shrimp trawl should be excluded from the vessel quota system. Further, the council's members agreed that vessels fishing demersal species in other nations' zones, vessels below 27,5 m with shrimp trawler license, and vessels which choose to fish saith with purse seine, would only get 50 percent quotas (Director of Fisheries, 1989a RCIII).
29. The instructions for this allocation were that one in particular should give weight to the vessel's total fishing activity, the fisheries' importance for the supply of fish to a certain district, recent investments and essential obstacles in the fishery in relation to the original activity claim (Ministry of Fisheries, 1990).
30. The only restriction that was made was that participating vessels' on the maximum quota system had to be registered as a fishing vessels before January 26 1990. Since then the registration date has been moved to the subsequent years. In 1994 these vessels in addition need an approval from the Director of Fisheries in order to participate. This implies that vessels have to be inspected and approved as a suitable fishing vessel by the Fisheries Inspectorate.
31. A 12.000 ton cod quota was allocated to the maximum quota group in 1990. This was 14 percent of the total quota allocation to the coastal fleet, and about 10 percent of the total Norwegian cod quota.
32. While a 12 m vessel was allowed a 4,5 ton quota within the max quota fishery, such a vessel would get a 32,6 ton quota within the vessel quota fishery.
33. The increase of the Norwegian cod quota was slightly less than the that of the total TAC, in part due to smaller quota transfers from Russia to Norway, in part due to larger allocations to the EU fleet. From 1990 to 1996 the Norwegian share of the TAC has gone down from 57 to 45 percent. During the same period the Russian share has increased from 37 percent to 43 percent, while the share to third countries has increased from 7 to 12 percent.
34. Because of the workings of the trawl ladder, the coastal fleet's share of Norwegian total cod quota declined from 75 percent in 1990 to 67 percent in 1996. Details later in this section.
35. In the fjord areas along the rugged Norwegian coastline, there has been a longstanding tradition of combining small-scale fishing and agriculture. Historically, the fjord fisheries for cod has been the exclusive domain of the local population, witch uses traditional gear such as hand lines, longlines, and gill nets (Jentoft and Mikalsen, 1994).
36. This question was raised in 1990 by the newly elected Saami Parliament (Sametinget). The Norwegian government promptly responded by asking a distinguished law professor (since then appointed head of the Norwegian Supreme Court) to give an expert opinion on the issue. He concluded that a more direct participation of Saami user groups in regulatory decision making was in order and, furthermore, that discrimination beneficial to Saami fishers and their communities is legally defensible if necessary to sustain Saami culture. The Ministry of Fisheries accepted this, and beginning in 1992 the Saami Parliament was authorized to appoint one delegate to the Regulatory Council (Jentoft and Mikalsen, 1994).
37. This region covers all of Finnmark county and the northern parts of Troms county.
38. 1.296 tons in 1991 and 3.096 tons in 1992.
39. Besides the system of recruitment quotas, it is also possible to get into the vessel quota system by ownership transfers. While free transferability of quotas was rejected in 1991, vessel transfers - including quota rights - are allowed within counties.

40. The number of trawlers was reduced from 141 in 1989 to 121 in 1993 due to a system of enterprise quotas (rederikvoter), by which the quota rights were transferred from the vessels to the enterprise. Enterprises with several trawlers hence could scrap or sell some of them, without having their total quota reduced (Ministry of Fisheries, 1993).

41. Two proposals was put to the vote. The first, forwarded by coastal fishers from north Norway, was a ladder going from 25 to 30 percent. The second, forwarded by trawler interests, was a ladder going from 28 to 33 percent. The trawler interests, supported by south Norwegian coastal fishers, came out on top.

42. The Nordland group on the other hand supported the existing regime. Their main argument was that the extreme difficult landing conditions for cod, especially during the Lofoten fishery would deteriorate further with other anagement models (Nordland Fylkes Fiskarlag, 1993).

43. Exempt from this are the vessel below 11 m, for which half the quota is guaranteed.

44. This is based on the quotas allocated at the beginning of the year when the overregulation was 25 percent. During the year the situation changed. May 2 the the overregulation rate was increased to 50 percent. May 24 it was increased to 100 percent. From July 19 the competition quota vessels had no quota limits (Director of Fisheries, 1995c).

45. At least if the goal of not finishing the fishery until the end of the year is maintained. Today this is stated as an important goal, connected to the imperative of stable supply of fish to the processing industry.

References

Apostle, Richard and Knut H. Mikalsen, (1995), "Lessons from Abyss: Reflectins on Recent Fisheries Crisis in Atlantic Canada and North Norway". *Dalhousie Law Journal* 18 (1): 96-115.

Brox, Ottar (1989), *Kan bygdenæringene bli lønnsomme?* Oslo: Gyldendal.

Central Buerau of Statistics of Norway (1969), *Historical Statistics 1968*. Oslo: Central Buerau of Statistics of Norway.

Central Buerau of Statistics of Norway (1995), *Fishery Statistics 1994*. Oslo: Central Buerau of Statistics of Norway.

Churchill, Robin and Geir Ulfstein (1992), *Marine Management in Disputed Areas: The Case of the Barents Sea*. London: Routledge.

Committee of Northern Regions (1991), *Ny ressurspolitikk - innsatsreguleringer i fiske*. Report. Bodø: Committee of Northern Regions.

Committe of Northern Regions (1996), *Strategier for utvikling av nord-norsk fiskerinæring - med særlig vekt på fornying og strukturutvikling i kystfiskeflåten*. Report. Bodø: Committee of Northern Regions.

Director of Fisheries (1977-1995a), *Minutes of the meetings in the Regulatory Council*. Bergen: Director of Fisheries.

Director of Fisheries (1977-1995b), *Catching statistics in the cod fishery*. Bergen: Director of Fisheries.

Director of Fisheries (1989-1996c), *Regulations in the cod fishery*. Bergen: Director of Fisheries.

Director of Fisheries (1990-1996d), *Statistics of quota allocation in the cod fishery*. Bergen: Director of Fisheries.

Director of Fisheries (1990e), *Oppsummering av seminar om regulering av fisket etter torsk med konvensjonelle redskaper nord for 62N.br. i 1990*. Report. Bergen: Director of Fisheries.

Dreyer, Bent (1995), *Endringer i reguleringsregimet - konsekvenser for foredlingsleddet*. Tromsø: Norwegian Institute of Fisheries and Aquaculture.

Drivenes, Einar-Arne og Ragnar Jemsletten (1994), "Det gjenstridige nord-norge: Religiøs, politisk og etnisk mobilisering 1850-1990". In Einar Arne Drivenes, Marit Anne Hauan og Helge A. Wold (eds.), *Nordnorsk kulturhistorie: Det gjenstridige landet*. Bodø: Gyldendal. Eikeland, Sveinung (1993), *Robuste fiskevær? Selinvasjonens*

virkning for finnmarkskysten. NIBR Report 1993:9. Oslo: The Norwegian Institute for Urban and Regional Research.

Eriksen, Erik Oddvar (1996), "Nord-Norge som laboratorium". In Erik Oddvar Eriksen (Ed), *Avhengighet og modernisering i nord*. In press. Fagbokforlaget.

Fulsås, Narve (1983), *Voksteren og fallet til ein nordlandsk handelsstad : Kjærringøy i K. Zahl si tid 1850-1900*. Tromsø: Hovedoppgave i historie - University of Tromsø.

Garrod, D.J., and Jones, B.W. (1974), "Stock and recruitment relationship in the northeast cod stock and the implications for management of the stock." In *Journal of Cons. Int. Explor. Mer* 36: 35-41.

Hallenstvedt, Abraham (1982), *Med lov og organisasjon. Organisering av interesser og markeder i norsk fiskerinæring*. Tromsø: Universitetsforlaget.

Hallenstvedt, Abraham and Bjørn Dynna (1976), *Fra Skårunge til Høvedsmann*. Trondheim: Norwegian Fishermen's Association.

Hannesson, Rögvaldur (1985), "Inefficiency through Government Regulations: The Case of Norway's Fishery Policy" *Marine-Resource-Economics*; 2(2): 115-141.

Hardin, Garrett (1968), "The Tragedy of the Commons." *Science* 162: 1243-1248.

Hersoug, Bjørn and Dag Leonardsen (1979), *Bygger de landet?* Oslo. Pax.

Hersoug, Bjørn (1983), "Fiskeriplanlegging - offentlig styring eller politisk pliktøvelse? In Bjørn Hersoug (ed.), *Kan fiskerinæringen styres?* Oslo: NOVUS.

Hersoug, Bjørn (1991), "Nord-norsk fiskeripolitikk - mellom plan og marked: En vurdering av ulike fiskeripolitiske regimer på 90-tallet". In *Når fisken svikter*. NordREFO 1991:2. København: Holstebro.

Hoel, Alf Håkon, Svein Jentoft and Knut Mikalsen (1996), "User-Groups Participation in Norwegian Fisheries Management." In M. Chang Zhang, M.L. Windsor, B. McCay, L. Husak and R. Muth (eds.) *Fisheries Utilization and Policy. Themen 2. Proceedings from the World Fisheries Congress*. In press. New Dehli: Oxford and IBH Publishing Co.

Hoel, Alf Håkon (1994a), "The Barents Sea Fisheries Resources for Europe and Russia". In Schram Stokke, Olav and Ola Tunander (Eds), *The Barents Region: cooperation in Arctic Europe*. London: Sage.

Hoel, Alf Håkon (1994b), *The Barents Sea fisheries: The legal setting*. Tromsø: NORUT Samfunnsforskning.

Holm, Petter (1991), "Særinteresser versus allmenninteresser i forhandlingsøkonomien. Om hovedavtalen for fiskerinæringen. In *Tidskrift for samfunnsforskning* 32 (2) 99-119.

- Holm, Petter (1993), "Fra husholdsøkonomi til blandingsøkonomi: Institusjonelle endringsprosesser i norsk fiskerinæring". In Petter Holm (Ed), *Et Marked for fisk? Om EFs fiskeripolitikk og norsk fiskerinæring*. Oslo: Kystnæringen.
- Holm, Petter (1994), *The Decline of Corporatist Order in Norwegian Fisheries*. Report. Tromsø: Norwegian College of Fishery Science.
- Holm, Petter (1995a), "The Dynamics of Institutionalization: Transformation Processes in Norwegian Fisheries". In *Administrative Science Quarterly*, 40 (1995): 398-422.
- Holm, Petter (1995b), *From productionism to sustainable development. Two sector systems in Norwegian fisheries*. Paper presented at Working Group 7, XVI Congress of the European Society for Rural Sociology, Prague.
- Holm, Petter (1996a), "Moderniseringsprosesser i fiskerinæringen 1935 - 1995." In Erik Oddvar Eriksen (ed), *Avhengighet og modernisering i nord*. In press. Fagbokforlaget.
- Holm Petter (1996b), "Fisheries Management and the Domestication of Nature. In Press. *Sociologia Ruralis*.
- Holm, Petter and Leigh Mazany (1995), "Changes in the Organization of the Norwegian Fishing Industry". In *Marine Resources Economics* 10: 299-312.
- Humberset, Alf (1996), *Fartøykvotesystemet 1990-1994: Mellom institusjonell læring og pressgruppedpolitikk*. Fiskerikandidatoppgave. Tromsø: Norwegian College of Fishery Science.
- ICES (1986), *Cooperative Research Report: Reports of the ICES Advisory Committee on Fishery Management*. Part I. Copenhagen: International Council for the Exploration of the Sea.
- ICES (1994), *ICES Cooperative Research Report: No. 210. Report of the ICES Advisory Committee on Fishery Management*. Part I. Copenhagen: International Council for the Exploration of the Sea.
- Institute of Marine Research (1974-1996), "Ressursoversikt". In *Fisken og Havet*. Særnummer I. Bergen: Institute of Marine Research.
- Jacobsen, Tore (1995a), *Joint management of cod in the Barents Sea*. Report presented at the Hake Research and Mangement Workshop, Swakopmund, 13-16 March 1995.
- Jacobsen, Tore (1995b), *Cod research and management in the Barents Sea*. Report presented at the Hake Research and Mangement Workshop, Swakopmund, 13-16 March 1995.
- Jentoft, Svein og Knut H. Mikalsen, (1987), "Regional developement or political favouritism?" *Marin Policy* 19 (3): 217- 228.

Jentoft, Svein (1993), *Dangling lines. The fisheries Crisis and the Future of Coastal Communities. The Norwegian Experience*. ISER-books. Memorial University of Newfoundland, St John's Newfoundland.

Jentoft, Svein and Oddmund Otterstad (eds. 1994), *Leve kysten? Strandhogg i fiskeri-Norge*. Oslo: Ad notam Gyldendal.

Jentoft, Svein and Knut Mikalsen (1994), "Regulating fjord fisheries: folk management or interest group politics". In Dyer, C.L. and McGoodwin, J.R. (eds.), *Folk Management in the Worlds Fisheries: Lessons for Modern Fisheries Management*. Colorado: University Press of Colorado.

Jentoft, Svein and Knut Mikalsen (1987), "Government subsidies in Norwegian fisheries. Regional policy or political favouritism?" *Marine Policy* 13 (2) 217-228.

Johansen, Johan (1972), *Trålfiske og trålerdebatt i 1930-årene*. Hovedoppgave i historie. Trondheim: Universitetet i Trondheim.

Lotherington, Ann Therese and Bente Thomassen (1993), "Organisering av kystkvinner". In Oddmund Otterstad og Svein Jentoft (eds.), *Leve kysten? Strandhogg i fiskeri-Norge*. Oslo: Ad notam Gyldendal.

Ministry of Finance (1990), *St.prp.nr.66 (1989-90) Tiltak for å avhjelpe virkningene av ressurssvikten i fiskerinæringen*. Oslo: Ministry of Finance.

Ministry of Fishery (1990), *Orientering til stortingets fiskeri- og sjøfartskomite vedrørende reguleringsopplegget for torsk med konvensjonelle redskaper nord for 62°11,2'N.BR.*. Oslo: Ministry of Fishery.

Ministry of Fisheries (1992a), "Individual Quota Management Systems in Norway". Paper presented on The Committee for Fisheries' Workshop on individual Quota Management Systems, 18th September 1992 in Paris. *The Use of Individual Quotas in Fisheries management*. Paris: OECD.

Ministry of Fisheries (1992b), *S.meld.nr 58 (1991-92) Om struktur og reguleringspolitikk overfor fiskeflåten*. Oslo: Ministry of Fisheries.

Ministry of Fisheries (1993), *Ot.prp.nr. 75 (1992-93) Om enhetskvoteordningen i saltvannsfiskeloven*. Oslo: ministry of Fisheries.

Ministry of Fisheries (1995), "Målkonflikter og dilemmaer i gjennomføringen av fiskeripolitikken - uttaksregulering eller adgangsbegrensning - fornuft eller ufornuft" Foredrag på konferansen "Fra fritt fiske til adgangsbegrensning i torskefiske" Tromsø, 8 November 1995. Oslo: Ministry of Fisheries.

Moldenæs, Turid (1993), *Strukturmeldingen: interessekamp eller helhetsorientering og rasjonelle overveielser*. Report. Tromsø: NORUT.

Nakken, Odd (1994), "Causes of trends and fluctuations in the Arcto-Norwegian cod stock" *ICES Mar. Sci. Symp.*, 198: 212-228.

NFA (1990), *Beretning for 1988 og 1989*. Trondheim: Norwegian Fishermen's Association.

NFA (1992), *Beretning for 1990 og 1991*. Trondheim: Norwegian Fishermen's Association.

NFA (1993), *Reguleringsmodeller. Torskafisket Nord for 62N. Konvensjonelle redskaper*. Trondheim: Norwegian Fishermen's Association.

NFA (1994), *Beretning for 1992 og 1993*. Trondheim: Norwegian Fishermen's Association.

NFA (1996), *Struktur og kapasitetstilpasning i kystflåten*. Trondheim: utredning for Norges Fiskarlag. Trondheim: Norwegian Fishermen's Association.

Ratvik, Ingeborg (1994), *The Case of Norwegian Cod Fisheries*. Report. Tromsø: Norwegian College of Fishery Science.

Sagdahl, Bjørn (1982), "Struktur, organisasjon og innflytelsesforhold i norsk fiskeripolitikk." In Knut H. Mikalsen og Bjørn Sagdahl (eds), *Fiskeripolitikk og forvaltningsorganisasjon*. Tromsø: Universitetsforlaget.

Sagdahl, Bjørn (1995), *Fishery Regulations, Enforcement and Control: A Note on the Regulation between Legitimacy and Control in Management of Complex Ecosystems*. Report. Bodø: Nordland Research Institute.

Solhaug, Trygve (1976), *De norske fiskeriers historie 1815-1880*. Bergen: Universitetsforlaget.

Steen, Sverre (1957), "Det gamle samfunn". In Sverre Steen (1951-1973), *Det frie Norge*. Oslo: Cappelen.

Sysoev, N.P (1970), *Economics of the Soviet Fishing Industry*. Translated from Russian. Moskva: Israel Program of Scientific Translations, Jerusalem, 1974.

Tjelmeland, Hallvard (1994), "Det seinmoderne nord-norge: Om tenesetyting, tettstadar og tusseladdar". In Einar Arne Drivenes, Marit Anne Hauan og Helge A. Wold (Eds.), *Nordnorsk kulturhistorie: Det gjenstridige landet*. Bodø: Gyldendal norsk forlag.

Tjelmeland, Hallvard (1996), "Det seinmoderne nord-norge - likeretting og regionalisering." In Erik Oddvar Eriksen (ed), *Avhengighet og modernisering i nord*. In press. Fagbokforlaget.

Wille-Strand, Erling (1941), *Motorstriden i Lofoten*. Hovedoppgave i histories. Oslo: Universitetet i Oslo.

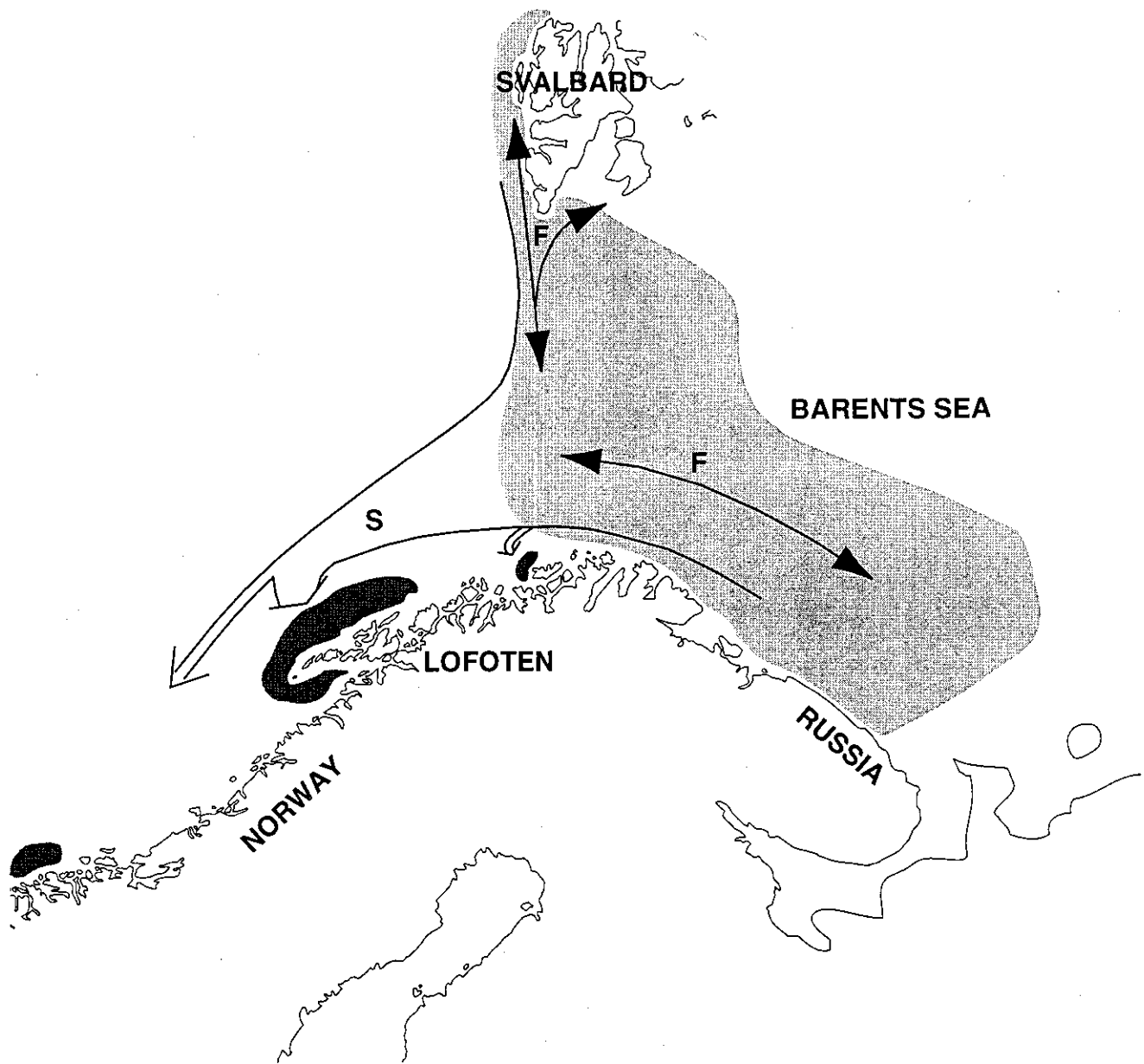


Figure 1. Main feeding area (hatched) and spawning areas (cross hatched) of Northeast Arctic cod with spawning (S) and feeding (F) migration routes (after Mehl, 1991).