

Inefficiency Through Government Regulations: The Case of Norway's Fishery Policy

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Abstract The fishery is a classic example of market failure. Government intervention does not necessarily correct this, but may instead seek economically inefficient solutions, because of either a deliberate trade-off between efficiency and equity or political expediency. Norway's fishery policy is seen as a case in point. Its stated objectives put a low priority on economic efficiency, while various objectives based on equity are put in the foreground. The result is that the contribution of Norway's fisheries to the national income is slight. Norway's fishery policy consists of two largely uncoordinated parts, one concerned with maintaining fishermen's incomes and the other with managing fish stocks.

Since the introduction of the 200-mile limit, most fish stocks exploited by Norway have been managed by total allowable catches (TACs). While this has prevented the depletion of fish stocks, the regulations introduced to enforce the TACs have been an economic failure. The setting of TACs has in some cases revealed a willingness to attain solutions expedient in the short term at the expense of long-term benefits.

Introduction

The fishery is a classic example of an industry in which competitive markets fail to achieve efficient allocation of resources. Like all other common-property resources, fish stocks tend to be overexploited. Government regulation for the purpose of correcting the inefficiency generated by unbridled market forces is the remedy prescribed by Paretian welfare economics.

It has long been obvious to economists with some knowledge and experience of fishery policy that few, if any, governments seem to follow the Paretian prescription very closely. This observation does not apply to fishery policy alone; other industries provide similar examples. The inefficiency associated with excessive harvesting of fish stocks is usually corrected to some extent, but is seldom eliminated. What is still worse, the regulators usually create inefficiencies of their own.

Why does regulation generate inefficiencies? The ideal government assumed by Paretian welfare economic theory is concerned not only with efficiency but also with equity. In the real world it is not as easy to attain the two goals at the same time as the conventional assumptions of lump sum taxation would have it. Therefore governments are often forced to make deliberate trade-offs between equity and efficiency. The gap between reality and the ideal of Paretian welfare economics is even wider, however. Governments are not made up of disinterested individuals trying to maximize a Bergsonian social welfare function. Like the rest of us, people in government (whom we shall call "politicians," not in a derogatory sense but for the sake of brevity) may be expected to try to advance their own interests. Although politicians in democratic societies have to face judgment by the electorate periodically, they may, in fact, best secure their tenure by intervening in markets against the public interest. The general public's myopic perception of economic benefits helps to explain this apparent paradox. Even if market imperfections—such as monopolies, tariffs, or overexploitation of common-property resources—lead to an aggregate loss of economic welfare, there are always individuals or groups who gain from such arrangements. Typically such gains are concentrated in

relatively few hands and are, therefore, clearly recognized by those who benefit, while the advantages that would accrue from the elimination of such inefficiencies are widely dispersed and not as easily perceived. As a result, the individual citizen tends to be preoccupied with protecting or seeking some market distortion to his or her own advantage, thus giving politicians the incentive to advance their own interests by maintaining or creating such distortions instead of correcting them. Inefficiencies that we find in regulated markets need not, therefore, be the result of deliberate trade-offs between efficiency and equity; instead they may be due to political intervention on behalf of special interest groups.

In this paper we examine Norway's fishery policy in this light. In the next section we discuss the policy objectives as stated in relevant official documents. Economic efficiency is only one of these objectives and has, at times, faded into the invisible background, while the maintenance of employment and the support of disadvantaged areas are listed as overriding goals. As the documents make clear, these objectives are based on considerations of fairness; in particular, equal distribution of income and welfare. The question that immediately arises, however, is whether or not such laudable objectives require workers to be employed in fisheries where their contribution to the national income is negligible or even nonexistent. The trade-off between equity and efficiency appears to have been weighted heavily in favor of the group interests of fishermen.

Given the relatively low priority attached to economic efficiency, it is not surprising to find that Norway's fishery policy consists of two largely disconnected parts—an income maintenance policy and a fish stock management policy. As every resource economist knows, the support of fishermen's incomes has repercussions on the level of fishing effort and the effectiveness of fish stock management. In Norway, support of fishermen's incomes has precipitated excessive catch capacity in most fisheries. The development of income support policy will be traced in the third section.

Finally, management of fish stocks will be considered in the last section. Before the introduction of the 200-mile limit, fish stock management amounted to little more than regulation of mesh size, arrived at in agreement with other countries, in an attempt to miti-

gate the consequences of excessive fishing effort. The migratory character of most fish stocks in Norwegian waters necessitates agreements with one or more neighboring countries for effective management, despite the 200-mile limit. To this end, general agreements have been concluded with neighboring countries under which catch quotas are negotiated every year. In most cases the Norwegian quotas have been much smaller than needed to keep fishing vessels fully utilized, which has often led to detailed regulations. These regulations cause inefficiencies of their own, in addition to the inefficiency inherent in too many men and boats chasing a limited number of fish. Surprisingly little attention seems to have been given to the long-term objective of what catch quotas would be in Norway's best interest, and how much capital and labor would be needed to catch them effectively.

The Objectives of Fishery Policy in Norway

Although Norway has been ruled by governments of different political hue during the last 20 years, fishery policy has been little affected. Such policy changes as have occurred owe more to alterations in circumstances and the prevailing mood of the times than to shifting political regimes. Three documents, the first two drafted by Labor governments and the latest by a Conservative government, are especially important as sources for policy objectives. A 1964 General Agreement between the government and the Fishermen's Association, which is still valid, states explicitly that the economic assistance given to the fisheries should aim at restoring profitability (*Stortingsmelding*, 1964–1965). The Long-Term Plan passed by the Storting (the Norwegian parliament) in 1977 is not particularly concerned with profitability, but lists three primary policy objectives: (1) preservation of the pattern of settlements; (2) provision of employment; and (3) conservation of fish stocks (*Stortingsmelding*, 1977–1978). These three goals are, to some extent, mutually inconsistent and incompatible with efficiency. In the Guidelines for Fisheries Policy submitted to the Storting in 1983 (*Stortingsmelding*, 1982–1983), the pendulum has swung back slightly. Here profitability is emphasized and recognized as being incompatible with the three previous objectives, which are never-

theless still affirmed as valid. We shall next take a closer look at the three policy objectives.

Preserving the Pattern of Settlements

Preindustrial technology made a pattern of scattered settlements a necessity for whatever precarious living could be wrested from Norway's harsh countryside and capricious seas. Industrialization and modern technology have changed this radically, but the pattern of settlements responds with a certain time lag and social tension. Fishing settlements, for example, were established as closely as possible to the fishing banks, on isolated islands and peninsulas, a need that modern technology and communications have eliminated. Today these sites are at an economic disadvantage, and various forms of government support have been required to maintain them.

In terms of economic growth and efficiency the Norwegian policy makers' commitment to the maintenance of an obsolete pattern of settlement makes little sense. The roots of this policy are partly emotional; on a more prosaic level, its widespread acceptance if not support can be explained by the general public's myopic perception of economic benefits. The advantages flowing from the policy of supporting economically disadvantaged settlements accrue to comparatively few individuals and are channeled through government institutions and special interest organizations, whose professionals are both influential and articulate. The costs of this policy are spread widely because they are financed out of general government revenue. Some costs are even hypothetical, such as benefits forgone by weakening incentives to seek more productive use of labor and capital.

The settlement policy serves some interest organizations extremely well, particularly the interests of farmers and fishermen. While it is invariably invoked in support of subsidies to fishing and farming, most of these transfers end up as rents to intramarginal production units. As a case in point, the larger part of the subsidies allocated to the fisheries is used to raise the ex-vessel price of fish. While the marginal fisherman just breaks even, the subsidies benefit

intramarginal fishermen in an inverse relationship to their opportunity costs.

Provision of Employment

Most of Norway's fish and fish products are sold in foreign markets where Norwegian influence on prices is limited at best. The provision of attractive and secure employment opportunities would therefore seem to imply the pursuit of economic efficiency. This is not the case. As we shall show in greater detail in the following section, the government has gone a long way toward guaranteeing fishermen an income on a par with comparable occupations, using subsidies to boost the otherwise insufficient profitability of the fisheries. The justification for this policy, in terms of efficiency, would call for conditions either of general unemployment or of severe geographical or occupational immobility among those employed in the fishing industry. Both of these justifications seem far-fetched. First, the level of unemployment in Norway is of the order of 3 to 4 percent of the work force, which is more than twice as much as it was in the 1960s and 1970s but is still low enough to be characterized as mainly frictional. Secondly, Norwegian fishermen generally possess skills and abilities demanded by other sectors of the economy. Such alternative employment would, however, often require geographical mobility, thus contradicting the settlement policy.

Conservation of Fish Stocks

Conservation of fish stocks, appropriately interpreted, is the essence of normative fisheries economics. The theoretical literature on the subject shows how optimal resource stocks are jointly determined by economic and biological parameters. Although many Norwegian civil servants, as well as some people in the fishery sector itself, are familiar with this theory, its impact on policy is slight. In practice, conservation usually means one of two things: (1) avoidance of irreversible disasters; that is, not reducing fish populations below threshold levels at which they are unable to replenish themselves; or (2) maintenance of a standing stock to give maximum sustainable yield. Management for the purpose of maximizing

the economic rent a stock is capable of yielding is an objective which is conspicuous by its absence.

It is not, therefore, an exaggeration to describe Norwegian fisheries policy as proceeding on two separate stages without any coordination, one supporting fishermen's incomes and the other managing fish stocks. This dichotomy may have been easier to understand in the past, when management of fish resources outside national boundaries was a cumbersome and self-defeating process. However, after the general extension of fishing limits in the latter half of the 1970's, fish stocks occurring in Norwegian waters have come under the joint control of Norway and her neighbors. Under these circumstances, it is certainly irrational to ignore the implications that fish stock management holds for the economics of the fishing industry. Although Norway cannot expect other countries to agree to its first best option for fish stock management, it should certainly be of interest to know what is the second, third, or *n*th best economic option. Furthermore, having agreed on a stock management policy that is perhaps the *n*th best, it would still be important to know the optimal fleet capacity corresponding to that option.

With this introduction in mind, we shall, in the two following sections, consider in further detail these two approaches to fisheries policy—support of fishermen's incomes and fish stock management.

Income Support Policy

The fishery is comparable to agriculture in many respects. Easily perishable primary products are involved; prices fluctuate under the impact of variations in supply caused by the vagaries of nature; and demand is inelastic, so that gains in productivity translate easily into steeply falling prices. A large number of people are involved, selling their labor indirectly through primary commodities, their incomes being determined by the prices of these commodities. The income-generating role of prices readily conflicts with their role as signals for efficient allocation of resources, and political pressures, together with generally accepted income distribution criteria, compel governments to intervene. Such scenarios are familiar to agri-

cultural policy in the United States and the European Economic Community (EEC) as well as in other parts of the world.

Fishermen's Marketing Boards

In the 1920s and 1930s the incomes of Norwegian fishermen were repeatedly curtailed by the falling prices of fish, with price volatility posing an additional problem. Hence the income support policy for fishermen began with an attempt to raise and stabilize the prices of fish. An important institutional change to this effect was the introduction in 1938 of a law (amended in 1951) giving monopoly rights of selling fish to a number of marketing boards operating on behalf of fishermen. The law stipulates that no fish may be sold except by or with the consent of these marketing boards. At present there are 12 marketing boards in existence, each enjoying monopoly rights for a particular region or set of species. The marketing boards differ in the strategies they follow to accomplish their objectives; some sell the fish by auction, while others practice price discrimination among end uses. To a large extent the choice of strategy is dictated by circumstances. Some marketing boards in southern Norway sell their fish by auction, while the marketing board operating in northern Norway has resorted to price discrimination, since buyers there are more widespread and end uses more varied. The effect of organizing the market in this way is to give fishermen the largest attainable share of the revenue obtained by selling fish and fish products to domestic or foreign consumers. This policy, it would appear, boosts fishermen's incomes at the expense of processors and traders, but it is not the whole story. A fishermen's monopoly may be able to indirectly extract monopoly rents from the markets for finished products through price discrimination. In addition to diverting rents from processing and trading to the fishermen, the ex-vessel price may be used to discourage competitive processors or exporters from depressing the price of the finished product by buying too much fish at the point of landing (Hannesson, 1985). There is some evidence that the demand curve for Norwegian dried fish in the Italian market is downward sloping and one would expect the same to be true for dried and salted fish in countries such as Nigeria and Brazil, while the market for frozen products appears to be competitive. The marketing board operating in north-

ern Norway lists different prices for fish according to whether it is to be frozen, salted, dried or sold fresh, but to what extent it tries to take different price elasticities of finished products into account we shall not venture to judge.

The 1964 General Agreement

A second major step in income support policy was taken in the early 1960s, a time when the fisheries had lagged behind manufacturing in terms of productivity and earnings. Funds previously accumulated through the taxation of exported fish products had been exhausted in support of fishermen's incomes, and direct government support was increasing. This support was finally institutionalized by an agreement (ratified by the Storting) between the Ministry of Fisheries and the Norwegian Fishermen's Association. The agreement gives the Fishermen's Association the right to demand negotiations with the Ministry of Fisheries concerning support to fishermen whenever their "earnings potential" is not comparable to incomes in other industries (*Stortingsmelding*, 1964-1965). Precisely what "comparable" means or which industries fishermen should compare themselves with is not further specified. It is, of course, not surprising to find ambiguities in a document such as this; it would be economically and politically unwise to undertake a precisely defined obligation to support a specific industry, regardless of the economic circumstances or political expediency that might prevail when that support comes due. Still, the agreement does appear to acknowledge the important principle that it is the government's responsibility to provide fishermen with adequate incomes. This is quite different from claiming that it is the responsibility of government to provide an adequate income for all by pursuing a policy of full employment and supporting the disabled and involuntarily unemployed. If universally implemented, a policy of unconditional income support in a particular industry would ultimately destroy the link between profitability and incomes, which would paralyze any market economy.

The ambiguous wording of the agreement affords great leeway as to whether support for fishermen's incomes is called for. Should support be given only under exceptional circumstances, contingent upon restructuring the industry to enable it to support itself? Or

should any minor deviation of fishermen's incomes from some norm be compensated, regardless of the profitability of the industry? Until the beginning of the 1980s, implementation of the agreement moved closer to the latter interpretation, but the terms of the agreement itself and the documents accompanying it to the Storting show that those who drafted it did not intend to support the fisheries permanently. Any support given was intended to promote efficiency and rational development. The agreement stated explicitly that direct subsidies of landings (price subsidies) should be phased out before the end of 1968. At the insistence of the Fishermen's Association and other interest organizations in the fishing industry, the phasing out of direct subsidies was, nevertheless, made contingent upon the

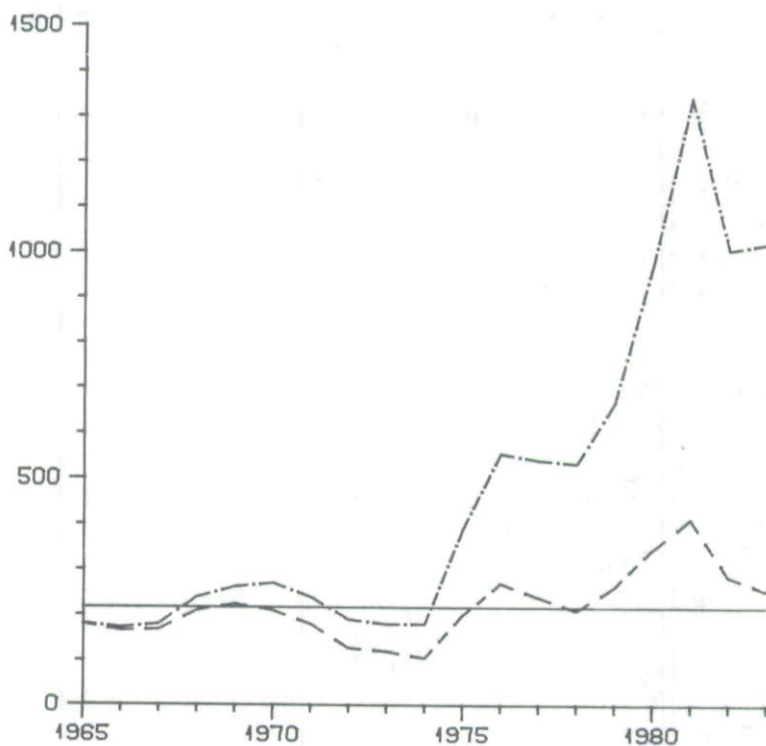


FIGURE 1. Government support for fisheries, 1965–1982, at current and 1965 prices (Source: *Stortingsmelding* No. 93, 1982–1983). —·—·—, Current expenditure in million "kroner"; — — —, 1965 "kroner"; — — —, average in 1965 "kroner."

event that increased efficiency, together with advantageous development of prices and costs, would sufficiently improve fishermen's incomes. Figure 1 shows annual subsidies to fisheries since the General Agreement was concluded.

Consequences of the Income Support Policy

The income support policy appears to have been successful in providing fishermen with incomes comparable to those obtained in other industries. Figure 2 shows fishermen's average income per

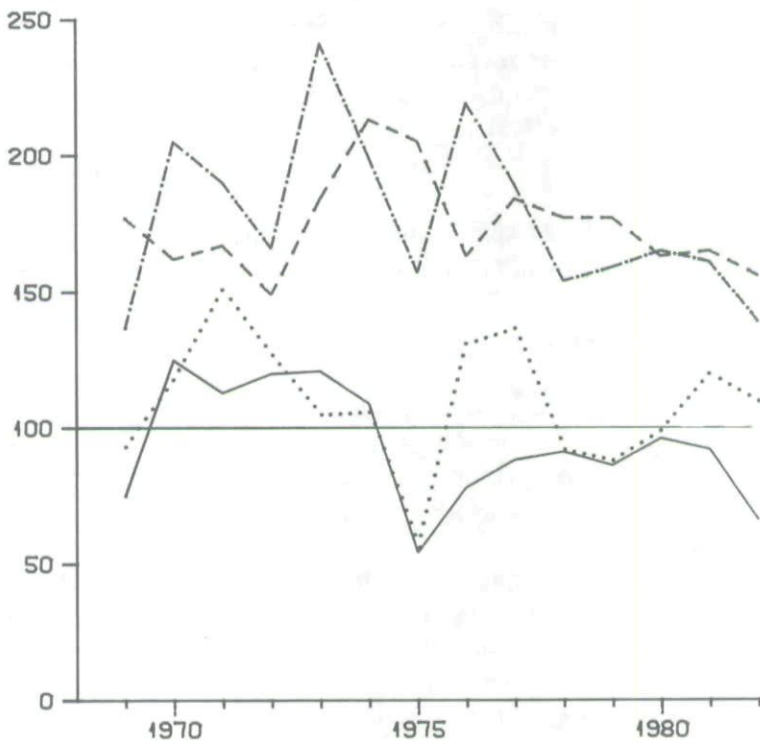


FIGURE 2. Fishermen's remuneration per year, in percent of average income per year for all wage and salary earners in Norway. — · — · —, Trawlers larger than 200 GRT; — — — —, purse seiners; — — — —, coastal vessels in Troms; · · · · ·, coastal vessels in western Norway. [Source: "Budsjettnemnda for fiskenaeringen," *Lønnsomhetsundersøkelser* (profitability investigations).]

year as a percentage of the average income of all wage and salary earners in Norway. While the annual incomes of fishermen are much more variable than the average of all employees, there is no clear trend over the period considered (1969–1982). Trawlermen and purse seine fishermen, for instance, obtain incomes up to twice as high as the average of all wages and salaries, which places them well ahead of the average worker in, say, the construction industry. Fishermen on coastal vessels, of which two representative groups are shown in Figure 2, are on a par with or perhaps a little below the average wage and salary earner, but still slightly above the average income in manufacturing. While one may argue at length about what “equitable incomes to fishermen” really means, the point is that fishermen’s incomes have risen at approximately the same rate as average incomes in other industries, an accomplishment achieved by a substantial subsidization of the fisheries, as indicated in Figure 1. Table 1 shows that government subsidies amounted to almost half of value added in the years 1975–1979, jumping to about 80% in 1980.

The output of Norwegian fisheries for the years 1962–1982, as well as the input of labor and capital at fixed prices, is shown in Figure 3. This is one of the cases where it is, in fact, more meaningful to add apples and oranges than to use exchange values, since price subsidies distort the value of landings. A more meaningful index of output is obtained by adding the catches of similar fish species. We have identified two main categories of fish for this purpose. First, there are the pelagic species, including capelin, mackerel, herring, and other types used mainly for producing meal and oil. Then we have the so-called codfishes; that is, cod, haddock, saithe, and so forth, used for human consumption. From 1965 to 1967 the catch of pelagic species rose rapidly, while subsequent years were characterized by large variations in output but no long-term increase. However, the curve conceals an important change. Before 1967, herring provided the bulk of the catch. But after the collapse of the Atlanto-Scandian herring stock in 1968, capelin has been the main source. Catches of cod and similar species increased gradually up to 1972, but since then have remained the same or even declined. The Norwegian fisheries may therefore be said to have stagnated in terms of output after 1972. The input of capital nevertheless

Table 1
Gross income, value added, and government subsidies in the fisheries, 1975-1982^a

Parameter	1975	1976	1977	1978	1979	1980	1981	1982
Gross income ^b	2,142	3,008	3,306	3,152	3,396	3,782	4,292	4,202
Value added ^b	681 (32)	1,272 (43)	1,242 (38)	1,028 (33)	1,039 (32)	1,293 (34)	1,619 (38)	1,478 (35)
Government subsidies ^c	405 (19)	541 (18)	564 (17)	446 (14)	639 (19)	1,031 (27)	1,318 (30)	1,018 (24)

^a In millions of kroner; numbers in parentheses show percent of gross value.

^b Central Bureau of Statistics of Norway (1982).

^c *Stortingsmelding* No. 29, 1976-1977; No. 37, 1978-1979; No. 116, 1980-1981; No. 86, 1983-1984.

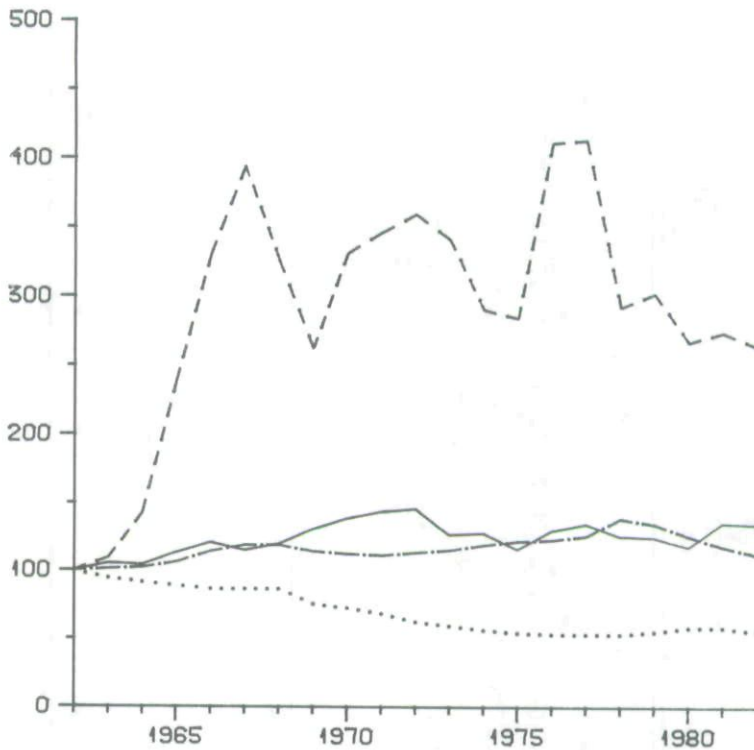


FIGURE 3. Indices of output and input of labor and capital in the Norwegian fisheries, 1962–1982. ———, Pelagic species (capelin, herring, mackerel, etc.); ———, codfishes (cod, haddock, saithe, etc.); - · - · -, capital at 1975 prices; · · · · ·, man-years. *Source:* Central Bureau of Statistics of Norway, Statistical Yearbook, Fisheries Statistics, Oslo, various years.

continued to increase until 1978, while the input of labor stopped declining after 1975.

It is tempting, to say the least, to ascribe the increase in the input of capital and the sustained input of labor, despite stagnated or declining output, to the high level of subsidization from 1975 onward. We seem to be confronted here with a classic policy dilemma: measures designed to affect the distribution of income also affect the allocation of resources, and in an undesirable way. In this case, there are too many boats and fishermen chasing too few fish, which is not a trivial problem in an economy where there is nearly full

employment and excess demand for investment funds. Worse still, an income support policy is likely to be self-perpetuating. This policy leads to increased fishing effort, which in turn depletes fish stocks, causing productivity to decline; to complete the vicious circle, higher subsidies are required to maintain incomes. Policy makers in Norway have, in the past, been surprisingly untroubled by this mechanism, but recent policy papers (*Stortingsmelding*, 1982–1983) show a growing awareness and concern.

Management of Fish Stocks

The International Framework

Most Norwegian fish stocks are shared with other countries, primarily the EEC and the Soviet Union. Shortly after the 200-mile limit was established, general fishing agreements were concluded with countries sharing fish stocks with Norway—the EEC, the Soviet Union, Sweden, the Faroe Islands, and Iceland (*Stortingsproposisjon* Nos. 74 and 92, 1976–1977; Nos. 89 and 141, 1979–1980; No. 90, 1980–1981). These agreements recognize the right of each country to determine a catch quota within its exclusive fishing zone, on the basis of recommendations made by international organizations and after consultation with the other country. The leading international organization in this context is the International Council for the Exploration of the Sea (ICES), founded early in this century for the promotion of biological research on fish in the northeast Atlantic. Under its auspices, international teams of fishery biologists meet regularly to assess the status of the various commercial fish stocks in the northeast Atlantic. On the basis of their findings, the ICES Advisory Committee on Fisheries Management (ACFM) makes recommendations on TAC, which, in the case of shared stocks, must be allocated among the countries concerned. The above mentioned agreements, except the one with Iceland, do not specify how the allocation is to be made. However, certain rules pertaining to the allocation of the agreed TAC have since been established. The Barents Sea cod is, in principle, shared equally with the Soviet Union, but in recent years oceanographic conditions and the age structure of the stock have prevented the

Soviets from taking their half. The Barents Sea capelin is divided 40–60 in favor of Norway, due to her high share of catches in the past. As for the EEC, the division of TACs is based on the geographic distribution of stocks at various stages—eggs and larvae, juveniles, adult fish, and migration and spawning areas (ICES, 1978).

The “Scientific Basis” of Management

The recommendations on TAC given by the ACFM are based exclusively on biological criteria, the most important of which is the ubiquitous “maximum sustainable yield” (MSY) of one species in isolation. The ACFM has recognized, however, that an immediate reduction of fishing mortality F to F_{MSY} would, for heavily overfished stocks, imply catches so greatly reduced as to be infeasible in the short run. In such cases the ACFM recommends more moderate management alternatives.

It is not difficult to find faults in the procedure leading to the recommended TACs; indeed, the ACFM itself is well aware of them. The MSY criterion is inadequate for two reasons: (1) it takes no account of economic circumstances, and (2) it considers only one species at a time, ignoring the interrelations among species. The latter can be a serious shortcoming when the MSY is calculated for interrelated species, all of which are being exploited. The ACFM has recognized the insufficiency of its biological criteria for management. In its 1981 report to the Northeast Atlantic Fisheries Commission (ICES, 1982) it states that

the development of advice for fish stock management should not be entirely the responsibility of ACFM. Ideally, managerial authorities would define their objectives for the different stocks or fisheries and ACFM would thereafter evaluate the biological consequences of these management strategies and define the biological constraints for the attainment of these objectives. Without clear objectives at hand from the managerial bodies, ICES has had to develop certain management objectives which are mainly based on purely biological considerations.

It is possible to identify two justifications for the dominant role in the management of fish stocks of such unambiguous but insufficient criteria as F_{MSY} . The first justification is sound, the other less so. Economic considerations are not purely scientific, but always

involve an element of judgment. Contentious issues are resolved through the political process in the formulation of economic policy at the national level. When two or more sovereign states are involved, no such arbitration is possible. There are bound to be divergent views on how economic considerations should influence the management of fish stocks. Prices and fishing costs may differ among nations, and so may the rates of discount applied to future benefits. All parties bargaining over management options are, however, presumably interested in conducting their negotiations on the basis of the best available objective information. This explains why they solicit advice based solely on biological criteria. The MSY is, however, an insufficient basis for such advice since, as pointed out by the ACFM, what is needed are analyses of different management strategies.

Politics is the other reason why biological criteria, adequate or not, have come to play such a big role. Management measures will often be unpopular among fishermen. Even if such measures are designed to benefit both fishermen and society at large in the long run, they will almost certainly demand short-term sacrifices from the fishermen. Measures that infringe on privileges or rents that fishermen may have acquired at the expense of society at large will obviously not be well received. It is inevitably attractive, therefore, for politicians and civil servants alike to be able to point to "objective scientific advice" rather than to spell out, in full, the economic reasoning behind the actions being taken. Fishery biologists have no reason to welcome the role of scapegoat into which this scenario casts them.

International Agreements and Domestic Regulation

After the ACFM has given its recommendations, it is up to the countries sharing a fish stock to accept or modify the advice received and to divide the TACs among themselves. Usually the parties have agreed on catch quotas, but the ACFM's management policy advice has not always been adopted. Deviations from the ACFM's recommendations result from economic and political considerations, usually reflecting less willingness to wait for the benefit of rebuilding fish stocks than is implied in the advice given

by ACFM. For example, while the ACFM recommended a moratorium on the mackerel and herring catch in 1980 and 1981 (Table 2), the EEC and Norway agreed to harvest a limited amount of mackerel, and Norway permitted a small catch quota to be taken from the Atlanto-Scandian herring stock, confined at present to the exclusive Norwegian fishing zone. Even if modifications of the catch quotas recommended by the ACFM are to be expected, given the narrowness of the criteria on which they are based, such changes in the TACs as have taken place are not necessarily well founded. Indeed, there is some reason to believe that these changes are the result of short-term expediency rather than long-term strategy. The surprisingly wide gap between agreed quotas and actual catches that has occurred in some cases (Table 2) points in that direction. For example, catches of herring and mackerel in the North Sea, Skagerrak, and Kattegat in 1980 and 1981 greatly exceeded the quotas agreed upon. The reason for this was that the EEC commission had not yet obtained the authority it is supposed to have over fisheries policy, and it was even unable to keep track of the catches taken by fishermen from the member countries. The Norwegian quota for Arcto-Norwegian cod has been overfished every year since 1980, exceeding the TAC in 1981 and 1982. This overfishing was due to a loophole in the Soviet-Norwegian agreement, which provides for an unregulated fishery by the Norwegian coastal fleet even though the Norwegian quota has been exceeded.

Even more serious than openly breaching agreements or creeping through loopholes, is the possibility that the parties falsify their catch statistics in order to show compliance when in fact there is none. The ACFM has openly alleged that this has occurred, without naming any culprits (ICES, 1982). Besides contaminating international relations and destroying confidence, this practice erodes the very foundation of sound biological advice, based as it is on the interpretation of catch statistics.

The Making of Norwegian Fishery Regulations

Some regulation of fisheries is usually required in order to fulfill the annual agreements with other countries on catch quotas and other matters. Furthermore, it may be considered necessary to

Table 2

Catches and quotas of most important fish stocks, thousands of tons

Stock and Catch	1977	1978	1979	1980	1981	1982	1983	1984
Arcto-Norwegian cod ^a								
Recommended TAC	850	850	600	390	220-300	240-300	200	150
Agreed TAC	850	850	700	390	300	300	300	220
Catch	905	699	440	380	398	363	290	279
Arcto-Norwegian haddock								
Recommended TAC	110	150	206	55-78	—	—	—	20
Agreed TAC	120	150	206	75	110	110	77	40
Catch	110	95	102	87	80	49	27	21
Atlanto-Scandian herring (Norwegian spring spawners)								
Recommended TAC	0	0	0	0	0	0	0	38
Norwegian TAC	10	7.5	0	9.3	9.3	12	21	38
Catch (reported)	12.7	9.8	2.9	9.3	8.7	11.0	18.1	38.6
Catch (including unreported)	—	—	12.9	17.6	12.8	16.7	—	—
North Sea herring								
Recommended TAC ^b	0	0	—	—	—	60	98	144
Agreed TAC	0	0	0	0	20	72	146	— ^c
Catch (reported)	46	11	19	13	46	122	134	—
Catch (including unreported)	—	—	25	61	141	235	308	—
Kattegat and Skagerrak herring								
Recommended TAC ^d	0	0	45	50	53	30-40	30-40	30-40
Agreed TAC	—	—	45	50	— ^c	54	— ^c	— ^c
Catch (including unreported)	115	88	66	64	171	146	198	—

(continued)

Table 2 (continued)

Stock and Catch	1977	1978	1979	1980	1981	1982	1983	1984
Norwegian Sea saithe								
Recommended TAC ^e	200	160	153	122	123	130	130	103
Catch	176	146	154	142	166	163	154	157
North Sea mackerel ^f								
Recommended TAC	220	145	145	0(50)	0	0	0	0
Agreed TAC	155	145	145	55.5	40	25	30	35
Catch	260	149	153	88	67	32	36	—
Barents Sea capelin								
Agreed TAC	—	—	1,800	1,600	1,900	1,700	2,300	1,200
Catch	2,940	1,894	1,783	1,649	2,006	1,746	2,304	1,300
North Sea sprat								
Recommended TAC	450	400	400	400	400	400	150	115
Agreed TAC	450	400	400	400	400	400	330	200
Catch	304	378	379	323	209	152	88	—

Sources: "Fisken og havet," saernummer (special issue), various years. Norwegian Directorate of Fisheries, Marine Research Institute, Bergen. Reports of the Advisory Committee on Fish Stock Management, ICES, Copenhagen, various years.

^a Including "Murmur" cod but not Norwegian coastal cod.

^b The TACs are seasonal; that is, they refer to the period from autumn of the year listed to February or March the following year.

^c No agreement reached.

^d The TACs are seasonal, referring to January–August of the year listed and September–December of the previous year.

^e This stock is practically confined to the Norwegian zone and regulated unilaterally by Norway. There are no quotas imposed on the Norwegian fishery, but other countries are allotted a quota amounting to the difference between the TAC and the expected Norwegian catch.

^f Including Skagerrak and Kattegat.

regulate the fishing of stocks for which no agreement has been reached. For example, the fishing of Atlanto-Scandian herring is strictly regulated for the purpose of rebuilding this heavily depleted stock. Negotiations in 1981 with the EEC and Sweden about catch quotas of herring in Skagerrak and Kattegat were unsuccessful, but Norway nevertheless imposed a quota on her own vessels.

It is the responsibility of the director of fisheries to present specific regulatory measures for each calendar year or fishing season. Before sending his proposals to the minister of fisheries, the director consults an advisory committee appointed for this purpose by the government. In this committee, government officials and representatives of the fishing industry are brought together. The committee is composed of:

- Director of fisheries, chairman
- Directorate of fisheries, one representative
- Director of Marine Research Institute
- Ministry of Fisheries, two representatives
- Fishermen's Association, five representatives
- Fish Processors' Association, one representative
- Food Industry Labor Union, one representative
- Seamen's Union, one representative.

Broad representation of producers' interests and limited professional advice are noteworthy features of the committee. In contrast to the American scientific and statistical committees, there are no economists, statisticians, or social scientists as such on the advisory committee, except those serving in the capacity of government officials and their advisers.¹

While the principle of consulting the parties most directly affected by regulatory measures is praiseworthy, caution is necessary since interest organizations exist primarily for promoting the self-interests of their members, if necessary at the expense of the general public. Although being consulted does not amount to making decisions, it is indeed likely to enable the consulted parties to influence the decisions and to bend regulations in their favor. In addition to being heavily represented on the advisory committee, the Fishermen's Association is, as noted above, given the authority to negotiate income support with the government; through the labor market,

there is also a certain exchange of personnel between the interest organizations and the fisheries administration.

The proposals framed by the director of fisheries, in consultation with the advisory committee, may be characterized as short-run management for the purpose of achieving an equitable balance of interests, rather than strategic planning for achieving efficient utilization of resources. While it is true that the proposals refer to regulations to be in effect for one fishing season or calendar year, they would, under ideal circumstances, be conceived within the framework of a long-term plan. The strongest example of long-term planning is in the management of the Atlanto-Scandian herring. After an almost total collapse in the late 1960s, there was, for some years, a moratorium on catches. This policy has turned out to be successful; the stock is now recovering, although it is still far from its previous abundance. Fishery biologists called upon to give advice on the management of this stock, have until recently unequivocally recommended a total ban on catches, while spokesmen of the fishing industry have pointed out that a limited quantity of herring will fetch a high price, and that the markets involved could be irrevocably lost if not catered to regularly. Since the bulk of the catches obtainable from a fully recovered stock would end up as cheap input to the meal and oil industry, and full recovery must be regarded as uncertain, the industry's argument makes good economic sense. The decision to allow limited catches of herring despite objections from fishery biologists thus appears to be well taken. This case illustrates the point that biological advice cannot serve as the sole basis for fish stock management.

Recent events in the management of the Arcto-Norwegian cod, on the other hand, present an example of short-term expediency with little long-term planning. As the Soviet Union has caught less than her quota in recent years, a strict adherence to the Norwegian quota would have meant a quicker replenishment. This option does not appear to have been given any serious consideration by the director of fisheries or the advisory committee. On the contrary, they appear to have been preoccupied with catching as much as possible without exceeding the TAC for the stock, although this was not avoided in 1981 and 1982.

Inefficiency Through Regulation

The regulations proposed by the director of fisheries, in consultation with the advisory committee, put a higher premium on equity than on efficiency. Since 1982, coastal vessels fishing for Arcto-Norwegian cod have been regulated by limiting the time at sea and in certain cases the total catch. These are measures that attempt to reconcile excessive catch capacity with a limited catch quota while sharing the income equitably. This is also the purpose of the quota regulations in the capelin fishery, where regressive vessel quotas (see Figure 4) in effect since the late 1970s prevent the utilization of economies of scale but accomplish a high degree of equalization of fishermen's incomes (see Figure 5). Many regulations of an older vintage are similarly characterized, such as the ban on using purse seines in the Lofoten fishery, which has been in effect since the 1950s. While aimed at protecting the cod, the ban protects fishermen using traditional gear, such as long line and gill nets.²

The emphasis on equity rather than efficiency in the framing of fishery regulations accords with the shortsightedness of the general public's perception of economic benefits and the political incentives this gives rise to. The bias toward equity is enhanced by the extensive consultation with fishermen's interest organizations, which prefer equalization of incomes to equal opportunity. This may be explained to some extent by the fact that numbers count in any organization, and that the innovative and efficient tend to be a minority. The emphasis on equity accords well with the preferences of the regulators, who typically are concerned with resolving conflicts and with sharing limited resources equitably. While these are praiseworthy objectives, they lead to a waste of resources and a retardation of growth in productivity.

Conclusions

Norway's fisheries policy reminds us that market failure is not a sufficient reason for government intervention. One must also consider whether or not governments have the necessary incentives to improve the allocation of resources. Nothing will be gained by substituting government failure for market failure. Norway's fishery

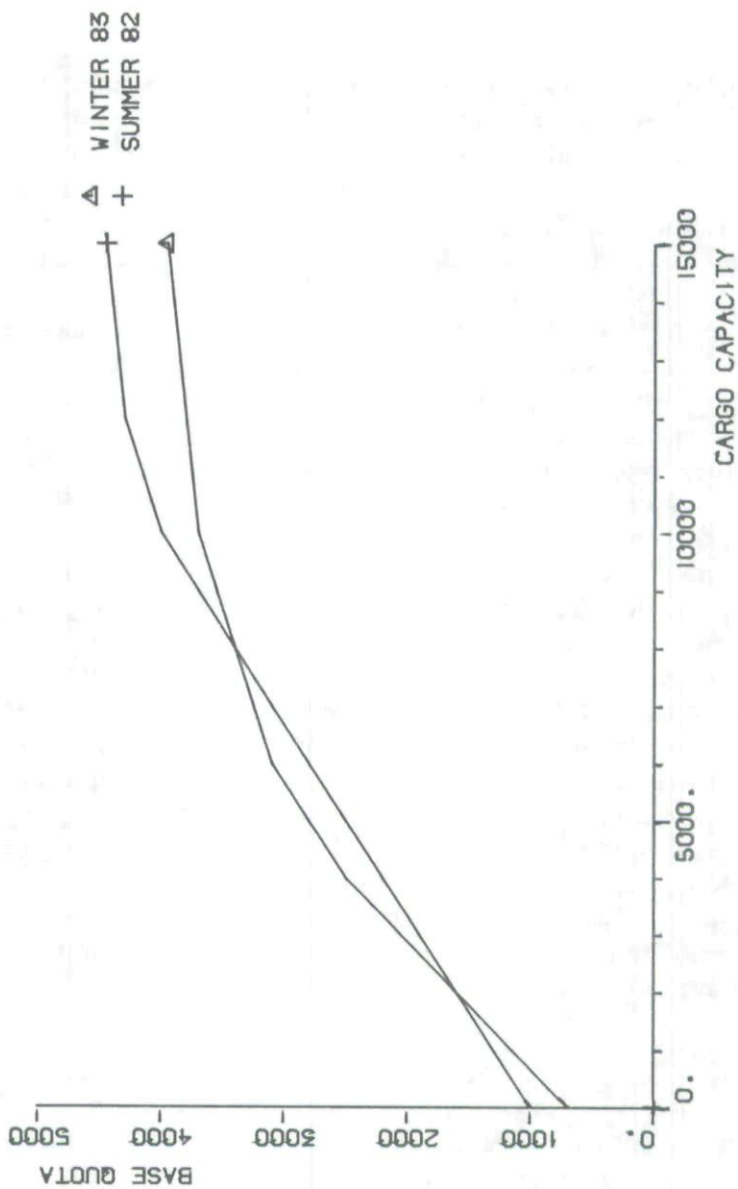


FIGURE 4. Relation between licensed cargo capacity and base quotas in the Barents Sea capelin fishery.

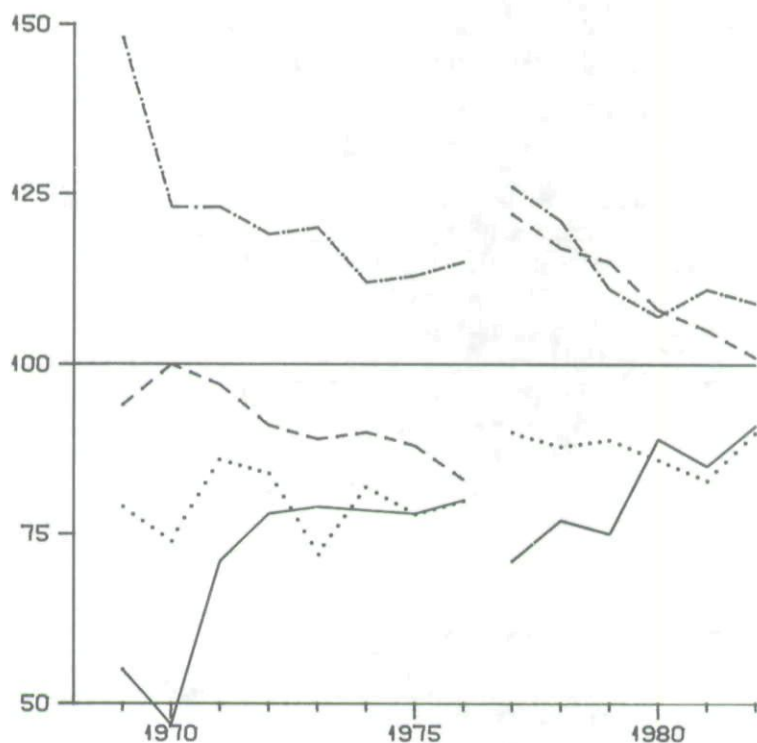


FIGURE 5. Fishermen's annual remuneration as a percent of fleet average. Discontinuity of curves indicates changes in size limits of vessel groups. - · - · -, largest vessels; - - - - -, next largest vessels; · · · · ·, next smallest vessels; ———, smallest vessels. Purse seiners.

policy has primarily been one of supporting fishermen's incomes and maintaining the level of employment in the fisheries, thereby supporting small and remote settlements dependent on fisheries. Substantial economic inefficiency in the long and short term has resulted. In the long term a large excess capacity has been built up, while in the short term the regulations needed to reconcile excessive catch capacity with limited catch quotas have often meant inefficient utilization of the existing fleet. A heretic might ask whether the Norwegian economy is any better off than it would be if the fisheries were left to themselves. If they were, fishermen would be fewer and poorer, but less capital would be wasted on redundant fishing

vessels and processing capacity, and more manpower would be available for producing commodities and services other than fish.

Notes

1. The scientific and statistical committees consist of fishery biologists, economists, and social scientists who advise the regional councils responsible for managing the fisheries. The deliberations of these committees are open to the public, and representatives of the industry, including those of foreign countries, have availed themselves of this right.

2. Even *l'ancien régime* could be receptive to requests for protecting less efficient fishermen. In a letter written in 1744 the Danish king banned the use of long line and gill nets in the Lofoten fishery and permitted only the traditional hand line. This was done in response to requests from people who felt threatened by better-off farmers and townspeople who, it was said, could afford the novel gear. This story was recently told by Foss (1982).

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