

COUNTRY NOTE ON NATIONAL FISHERIES MANAGEMENT SYSTEMS -- NORWAY

PART I: BACKGROUND

Historical overview

1. Throughout history, fishery has been a major industry in Norway. Norway's geographical characteristics, the long coastline together with climatic factors has made the country extremely well suited for this industry. Thus, Norway is a major European fishery nation, and has been for centuries.

2. The most important stocks exploited by Norwegian fishers have been cod and herring. In addition, sea and river fishing of salmon has been of some importance. In recent times, harvesting of capelin has become very important. Furthermore, aquaculture, mainly of salmon, has grown to become an important industry.

3. Whaling in Antarctic areas became an important Norwegian industry at the end of the nineteenth century. This activity was completely abandoned in the 1960s. Coastal catches of whale has continued until present time, with some interruptions. Hunting of seals in the Arctic areas used to be of some importance, but is now negligible.

4. The fisheries are commonly divided into two broad categories - cod fisheries (demersal) and herring fisheries (pelagic). The first category includes cod, haddock and saithe. These are used directly to consumption. The herring category also includes capelin and mackerel. The greater part of these stocks has traditionally been processed into oil and animal feed.

5. In addition to the above-mentioned species, a great number of stocks are harvested and used for direct consumption or processed into oil and animal feed. The increasing interest in fish consumption has led to harvesting of many species that in earlier times were considered of little interest.

6. For centuries, fish products have been a major export from Norway. Since medieval times, Norwegian cod has been a stable part of the weekly diet in many Catholic European countries. Cod, fished in the northern areas, dried and/or salted in south Norway, was exported in large quantities to central and even more to southern Europe. In later years, some African countries have found dried cod from Norway to be a cheap and healthy food.

Fisheries in the national economy

7. The role of fisheries in Norway's national economy over the years may be described in different ways. One possibility is to look at the contribution to GNP, as in Table 1.

Table 1. Fisheries contribution to gross national product

(per cent)

1930	5.7
1939	2.3
1950	3.7
1960	2.2
1970	1.6
1980	0.8
1989	0.5
2002	0.7

8. These figures are influenced by the fact that whaling, which in earlier times was an important industry, is classified together with fisheries. In the years after 1970 the oil and gas industry is another major reason for the decrease. Another important fact is that fisheries at all times have been the basic industry in most of the coastal counties.

9. Since fish products for centuries have been a major export, the share of total exports also gives an impression of the importance of the industry. This is shown in Table 2.

Table 2. Value of export of fish products as percentage of total exports

1938	14.7
1950	6.2
1960	12.6
1970	7.7
1981	4.5
1990	6.0
2002	5.6

10. These figures must be seen in light of the development of the export of oil and gas, which was non-existent prior to 1970 and is now by far the greatest part of Norwegian export.

11. To these illustrations of the role of fisheries in the national economy must be added different spillover effects of the industry. This includes industries like food processing, shipbuilding etc. Since 1970, aquaculture of salmon has been introduced and has grown to be an important supplement to traditional fisheries, and also a major export commodity.

Structural development

12. Going back in history, Norwegian fishery was initially a coastal fishery. To a great extent, fishery was combined with small-scale farming. Vessels were small, activity was based on the seasonal migration of fish, e.g. to the Lofoten area in January to April, and the activity was limited to grounds near the coast. Since 1900, great structural changes have taken place. Vessels have increased in size, have been changed from open to sheltered boats and area of operation has expanded from coastal areas to the high seas. Fishing gears have increased very much in efficiency, changing from passive to active types of gear. Moreover, the industry has become capitalised and efficiency has improved very much in this century and particularly in the last part of the century. To complete the picture, it must be added that during these changes, elements of the "old" fishing industry has been kept alive. Thus, besides a modern highly efficient

fleet and modern processing plants, small-scale fisheries and small processing plants with very simple technology still exist. This gives an important background for understanding Norwegian fishery policies.

13. The structural changes described above can be illustrated by many statistical figures. In Table 3 the number of fishers from 1930 – 2002 is illustrated.

Table 3. Number of fishers

Year	Total	Sole or principal occupation
1930	102 100	67 100
1940	121 900	80 300
1950	98 300	68 100
1960	70 300	49 700
1970	43 000	31 900
1980	34 700	25 100
1990	27 500	20 400
2002	18 648	13 913

14. Thus, the great decrease in the number of fishers has been most marked after World War II. It must also be added that the increasing role of bigger vessels may have had the effect that people registered as fishers in earlier times, now are been registered as sailors. The significance of this is difficult to assess.

15. A somewhat similar development has taken place in the fleet as Table 4 indicates. Due to classification changes it is difficult to go further back in time.

Table 4. Registered fishing vessels

Year	Total
1950	34 491
1960	41 464
1970	36 201
1980	26 504
1990	17 391
2002	10 649

16. The total gross tonnage has not decreased to the same extent, illustrating the increase in the average vessel size. One particular development behind these figures has been the marked decrease in the purse seine fleet, used in the capelin and herring fisheries. This fleet was reduced from 376 to 94 vessels between 1970 and 2002, partly as a result of government measures, i.e. decommissioning schemes.

17. A classification of the all-year run fleet by size and type in 2001 gives the distribution as in Table 5:

Table 5. Classification of fleet, 2001

(Vessels used the whole year)

Small home-based vessels (24 to 39 feet)	1 180
Coastal fleet (40 to 93 feet)	729
High sea fleet (above 94 feet)	284
<hr/> Total	<hr/> 2 193

18. As indicated by Tables 4 and 5 most of the registered fishing vessels are not run all year round. Furthermore, it is seen that the numbers of the high sea fleet is a small part of the industry. These tables also illustrates the fact that besides the development of a high sea fleet, a great number of small vessels is still an important element in the Norwegian fisheries, vessels which are not used the whole year, and owned by people combining fishery with other activities.

Catches and stock sizes

19. Throughout history, catches in Norwegian fisheries have varied substantially. Especially catches from important pelagic stocks like Norwegian Spring Spawning herring have varied from about zero to more than one million metric tonnes. Also catches of groundfish species like North-East Arctic cod have varied considerably during the years.

20. Preliminary figures indicate that the total Norwegian landings, including seaweed, amounted to about 2.8 million metric tonnes both in 2000 and 2001, and 2.9 million metric tonnes in 2002. The total first-hand value increased from NOK 9.9 billion in 2000 to NOK 11.4 billion in 2001, but decreased to NOK 11.1 billion in 2002.

21. The total catch of groundfish species increased by about 2% in 2001 compared to 2000. The most important groundfish species are Cod, Haddock and Saithe. The total first-hand value on groundfish increased by 4% indicating that the positive development in the prices for these species in recent years continued in 2000 and 2001. In 2002 catches increased by some 4% compared to 2001, while the total first-hand value decreased by more than 6%. This indicates a rather substantial reduction in groundfish prices from 2001 to 2002.

22. The total catch of pelagic species was reduced by approximately 2% from 2000 to 2001 but increased to the 2000-level in 2002. Preliminary figures indicate that the total catch for reduction purposes increased while the catch for direct human consumption decreased in the period. The total first-hand value increased by 48% in 2001 compared to 2000. The average price for all pelagic species for reduction purposes increased by more than 10% whereas the price for the most important species for human consumption more than doubled from 2000 to 2001. On average, prices remained stable from 2001 to 2002.

Table 6. Share of value of landings by the Norwegian fishing fleet 1998 – 2001

(per cent)

	1998	1999	2000	2001	2002
Gadoids etc.	60.5	61.7	55.0	50.0	47.7
Pelagic fish	31.1	28.2	33.2	41.5	43.9
Shellfish	8.1	9.8	11.4	8.2	8.1
Seaweed	0.3	0.3	0.4	0.3	0.3
Total	100.0	100.0	100.0	100.0	100.0

Source: Directorate of Fisheries, 2003

23. Stock sizes have also shown great variability over the years. The stock of Norwegian Spring Spawning herring collapsed after strong fishing pressures in the 1960s. This fishery was stopped after 1970 in an effort to build up the stock again. At the moment the stock supports a high yield between 700 000 and 1 000 000 metric tonnes. Capelin has since to a great extent replaced herring as basis of the oil production. The stock of capelin however, has also shown great short-term variations collapsing in 1986 and then again in 1993. It is believed that the fluctuations in the capelin stock are caused by interactions between sea mammals, cod and herring.

24. Also the stock of cod has shown great variations, but less than for herring and capelin. There has been a long-term decline in the stock, but according to the latest stock assessments, the later years' attempts to increase the stock by regulations seem to have given results.

Organisation

25. It can generally be said that fishers throughout history have been a strong political force in Norway. In earlier times, the small-scale fishing industry meant that the large number of fishers in itself was a dominating group in several counties. More recently, the organisation of fishers since 1926 has become an important political factor. The opposition from the fishery industry was a decisive factor behind Norway's negation of joining the European Community in 1972. Fisheries are also one of the main issues in the discussion on a possible membership in the European Union today.

26. Back in history, small-scale coastal fishers sold their catches to the local buyer, who processed it further and/or sold it. The buyer usually was a local capitalist who also took part in financing the fleet. Thus, in the large number of ports along the coast there was a tight economic dependency between the local capitalist and a number of local fishers. This asymmetric relation may be said to be the background for the organisation of the fishers.

27. The organising of the fishing industry has developed along two lines. In 1926, "The Norwegian Fishermen's Association" was established. This is, in essence, a labour union, which has a strong political influence, and also takes part in discussions and decisions on fishery management, e.g. quota decisions. Later, during the 1930s, the fishermen's sales organisations were established. These organisations have by government regulation got an exclusive right to organize the first-hand sale of fish. These organisations enter each year into negotiations with the buyers about the first-hand prices. Indeed, if these negotiations do not lead to an agreement, the sales organisations have the right to determine a minimum price.

28. From this it is clear that the fishery sector is an important political factor and that the government has to take this into account in its fishery policies decisions. Moreover, the fact that the fishery sector is so concentrated regionally strengthens this relation.

Management

29. From ancient times regulatory measures have been used in Norwegian fisheries. During most of the time these measures had a local and distributive character, e.g. reserving certain areas for specific gear. It is only in the last century that regulatory measures have been based on biological considerations. The first nationwide regulations were mainly restricted to regulations on ownership of fishing vessels and of licences to fish. Only at a later stage were regulations used explicitly to reduce fishing activity.

30. At times there have, throughout history, been tensions between fishers using old and new technology and different types of gear. As a consequence, trawling has been particularly subject to strong regulations. It has been argued that trawling is ecologically unsound by overexploiting young fish. Regulation of trawl fisheries has limited the area for this gear to a certain distance outside the coast, and landing of trawled fish in Norway has been restricted.

31. Since 1960, more explicit regulation, both of effort and catches has been put into effect. Licences, quotas and other measures have been introduced as instruments to cope with the two most pressing problems in the industry: deterioration of stocks and over-capacity. Moreover, the economic difficulty in the industry also led to rather heavy government subsidies to the industry. These subsidies have decreased very much in later years and are now practically non-existent.

32. A major change for Norwegian fisheries took place with the introduction of 200 miles economic zones in 1977. This gave Norway an exclusive right to the fish stocks within this area. As a consequence of the zones, Norway negotiates quotas with Russia for the northern areas, and with EU for the North Sea.

Norway's fisheries today

33. The most important parts of the Norwegian fisheries industry today are Cod fisheries (coastal and high seas), Herring, Capelin, Mackerel and Aquaculture, mainly salmon.

34. Included in the cod fisheries are also haddock and saithe. These are mainly used for consumption. Capelin is mostly used as input in oil and meal production. Herring and mackerel are used both for consumption and also processed into oil and meal. The first-hand value of the cod fisheries was in 2002, NOK 4.7 billion, while the value of the herring was NOK 2 billion, capelin NOK 0.6 billion and mackerel was NOK 1.4 billion. Together these fisheries amounted to NOK 8,7 billion in 2002.

35. The first-hand value of farmed salmon was in the same year NOK 7.7 billion, slightly less than the total value from traditional fisheries. Thus, farmed salmon has grown to be an important industry judged by first-hand value.

Resources

36. At present, the resource situations for two of the most important species, cod and herring are better than it has been for a long time.

37. The total allowable catches (TACs) and SSBs for the most important commercial fish stocks in Norway's exclusive economic zone for the period 1998 to 2003 are listed in Table 7.

Table 7: TACs and SSBs in metric tons for the most important commercial fish stocks in Norway's exclusive economic zone for the period 1998 to 2003

Species							
Cod in the Northeast Atlantic north of 62°N	TAC	Year	1998	1999	2000	2001	2002
			654 000	480 000	390 000	395 000	395 000
	SSB	Year	1999	2000	2001	2002	2003
			251 988	222 138	321 408	505 018	653 307
Cod in the North Sea/Eastern Channel/Skagerrak	TAC	Year	1998	1999	2000	2001	2002
			140 000	132 000	81 000	48 600	49 300
	SSB	Year	1999	2000	2001	2002	2003
			56 902	41 110	30 278	37 600	35 400
Haddock in the Northeast Atlantic north of 62°N	TAC	Year	1998	1999	2000	2001	2002
			130 000	78 000	62 000	85 000	85 000
	SSB	Year	1999	2000	2001	2002	2003
			92 714	51 506	91 165	86 176	120 009
Haddock in North Sea/Skagerrak	TAC	Year	1998	1999	2000	2001	2002
			119 700	92 000	74 800	63 000	107 000
	SSB	Year	1999	2000	2001	2002	2003
			109 600	83 800	210 700	347 000	221 000
Saithe in Northeast Atlantic north of 62°N	TAC	Year	1998	1999	2000	2001	2002
			145 000	144 000	125 000	135 000	162 000
	SSB	Year	1999	2000	2001	2002	2003
			427 592	409 326	441 069	447 221	437 232
Saithe in North Sea/Skagerrak/West of Scotland and Rockall	TAC	Year	1998	1999	2000	2001	2002
			107 900	117 500	92 000	96 000	149 000
	SSB	Year	1999	2000	2001	2002	2003
			208 500	205 200	247 000	298 000	325 000
Herring in Northeast Atlantic north of 62°N	TAC	Year	1998	1999	2000	2001	2002
			1 300 000	1 300 000	1 250 000	850 000	850 000
	SSB	Year	1999	2000	2001	2002	2003
			6 525 000	5 259 000	4 773 000	5 098 000	5 200 000
Herring in North Sea/Eastern Channel/Skagerrak	TAC	Year	1998	1999	2000	2001	2002
			254 000	265 000	265 000	265 000	265 000
	SSB	Year	1999	2000	2001	2002	2003
			850 300	829 400	1 271 000	1 588 000	2 231 000
Capelin in Northeast Atlantic north of 62°N	TAC	Year	1998	1999	2000	2001	2002
			0	80 000	435 000	630 000	310 000
	SSB	Year	1999	2000	2001	2002	2003
			505 000	760 000	751 000	544 000	
Capelin in Iceland- East Greenland-Jan Mayen area	TAC	Year	1998	1999	2000	2001	2002
			1 200 000	1 000 000	1 090 000	1 300 000	1 000 000
	SSB	Year	1999	2000	2001	2002	2003
			650 000	450 000	475 000	410 000	578 000
Mackerel in Northeast Atlantic	TAC	Year	1998	1999	2000	2001	2002
			549 000	562 000	612 000	670 000	683 000
	SSB	Year	1999	2000	2001	2002	2003
			3 215 136	3 156 635	3 423 557	3 080 000	
Blue Whiting in Northeast Atlantic	TAC¹	Year	1998	1999	2000	2001	2002
	SSB	Year	1999	2000	2001	2002	2003
			4 210 000	4 102 000	4 030 000	3 824 000	3 258 000

38. Except for cod in the North Sea/Eastern Channel/Skagerrak area (“North Sea cod”), the state of all stocks must be considered as good. In fact, all stocks except from North Sea cod are now above, some even far above the level of the SSB that ACFM considers as the precautionary reference point for the stock in question. As to capelin, precautionary reference points for the SSB are not relevant due to its special population dynamics (dies after spawning).

39. When it comes to the development of the SSB for the different stocks during the period 1999–2003, we can see that for most stocks SSB has been stable or increased during these five years. Hence, for these stocks the level of the TAC during the period 1998-2003 must be considered as adequate to ensure a sustainable harvesting of the resource in question. This must partly be seen in connection with the long-term management plans with limit and target reference points that Norway together with other countries have adopted for the stock in question.

40. For saithe in the North Sea/Skagerrak/West of Scotland and Rockall-area, herring in the Northeast Atlantic north of 62°N, herring in the North Sea/Eastern Channel/Skagerrak-area, and mackerel in the Northeast Atlantic, such management plans have already been into place for several years. In addition, Norway and Russia have recently adopted long-term management plans for the stocks of cod and haddock in the Northeast Atlantic north of 62°N, which hopefully will ensure that the positive development of these two stocks in later years also will continue in the years to come.

41. Due to their special population dynamics, it is not possible to establish long-term management plans for the stocks of capelin in the Northeast Atlantic north of 62°N and in the Iceland- East Greenland-Jan Mayen-area similar to the management plans that apply to the other stocks mentioned above. There are however adopted harvest control rules for these capelin stocks which are intended to ensure that their SSBs are above a certain minimum level at the time of spawning, but these rules can never give the same security as long-term management plans against stock collapse.

42. Some of the stocks in Table 7 give rise to some concern. Of particular concern is the state of the North Sea cod stock as its estimated SSB is now only one half of what ACFM considers to be the critical level for this stock, $B_{lim}/70.000$ tons. In addition the SSB has also been substantially reduced since 1999. Hence, although a long-term management plan has been into place for this stock from 2000, this has so far not been sufficient to reverse this trend. In addition Norway and the EU have therefore adopted a recovery plan for the North Sea cod stock, which includes technical measures to improve the exploitation pattern in the North Sea.

43. The sharp decrease in the estimated SSB of the haddock stock in the North Sea/Skagerrak-area from 2002 to 2003 could also give rise to some concern. On the other hand, however, the haddock SSB has doubled since 1999 and is still well above B_{pa} in 2003. Furthermore, there is also a long-term management plan into place for this stock that hopefully will ensure that the SSB remains above B_{pa} in the future.

44. As to the blue whiting stock, although it must be pointed out that the current estimates are uncertain, there seems to have been a constant negative trend in the SSB of this stock since 1999. However, as long as the states involved - EU, Norway, Iceland, Faroe Islands, Greenland and Russia – are unable to agree on an allocation of this stock, it seems difficult to find measures to reverse this trend.

Factor input

45. From Tables 3 to 5 above it is seen that the number of fishermen is around 18 600, of which 4 700 are part-time fishers and that only 2 000 of 10 000 vessels are used the whole year. It is also seen that vessels are generally small, with the exception of the high sea fleet.

46. The location of the industry is very much concentrated regionally. Four of the 19 counties had 72% of the registered single-occupation fishers in 2002, of these, 48% lived in the three northern counties. This was also the case in 1989. This means that fisheries are a fundamental factor behind the population in the northern areas. Many communities are totally dependent upon fishing and fish processing. Also in many small communities we still find the traditional combination of one single buyer/processor supplied by a number of small local vessels. Thus, fisheries policy in Norway is very much influenced by regional considerations and the aim of keeping small fishery communities alive.

47. The State Fishery Bank¹ was earlier the major source of financing of the investment in the industry. In recent times private banks have played a much greater role, in particular in financing larger vessels in the high sea fleet.

Processing and export

48. The processing industry in Norwegian fisheries includes a diversified number of plants. The oldest part of the industry consists of so-called traditional plants. These are often small establishments with a simple technology producing salted and dried fish. Of newer date is canning plants including canning of herring, sprat and sardines and also more developed products based on cod fisheries. Also, the oil and meal industry has long traditions, giving rise to rather large plants by Norwegian standards. The latest development is the freezing plants, which were introduced after World War II.

49. Of the total catches in 2002, Table 8 illustrates the per cent distribution of the use.

Table 8. Use of the total catches, 2002

(per cent, preliminary figures)

Fresh	7.8
Frozen	38.7
Dried	1.2
Salted	8.8
Canned	0.2
Meal and oil	43.3
Other	0.2

Source: Statistics Norway, 2003

50. The major parts of Norwegian fish products are exported. The most important exports are given in Table 9.

¹ As from 1997 The State Fishery Bank was integrated into The Norwegian Regional and Industrial Development Fund. SND promotes economically viable business development all over Norway by contributing towards developing, modernising and readjusting Norwegian trade and industry, forming a basis for product development and new establishments throughout the country and supporting measures that will give long-term and profitable employment in regions with special employment problems or a generally weak economic basis.

Table 9. Major Norwegian fish exports 2002

(farmed fish included, per cent of total fish exports)

Salmonids	38
Gadoids	27
Pelagic species	25
Shrimps	3
Others	7

Source: Norwegian Seafood Export Council, www.seafood.no

51. Exports amount to a total of NOK 28.7 billion. Farmed fish amounted to about NOK 11 billion. There is little of vertical integration in the industry. Some very few enterprises combine harvesting with processing. But in general these two activities are economically separated.

PART II: THE NORWEGIAN MANAGEMENT REGIME

Main objectives

52. The Norwegian model for sustainable marine resource management rests on certain key principles: sustainable harvesting, multi-species approach, adequate regulations and an efficient control and enforcement scheme.

Legal and institutional framework

53. Several administrative measures are applied to limit the fishing effort in Norwegian fisheries. The Act of 1951 and the Act of 1972 were the basic legal instruments for the arrangement of fishing licenses as well as other types of effort regulation introduced to the fishing fleet. The Acts of 1917, 1951 and 1972 were replaced by the Act of 1999 on the Regulation of the Participation in Fisheries as of 1st January 2000. In general, the registration of fishing vessels in the register "Register of Norwegian Fishing Vessels", as well as the acquisition of an already registered fishing vessel, requires a permit from the authorities.

54. All commercial fishing for whitefish by trawlers of any size, purse seiners longer than 90 feet catching herring, mackerel, capelin, sprat, blue whiting or saithe, shrimp trawlers longer than 65 feet operating North of 62°N, North Sea trawling and industrial trawling, require a license. Coastal fishing vessels, defined as vessels operating with traditional gear (net, long-line, hand line, Danish seine etc.) are in general not subjected to licensing, although their access to fisheries are regulated through annual permits.

55. Norwegian fisheries are regulated through annual regulations on the sharing of the Norwegian TAC on all regulated stocks amongst the different groups and amongst the participating vessels. The different regulations give specific rules on the conduct of the fisheries. In addition, rules for periodic regulations of catches, by-catch-rules, start- and stop-dates, sanctions when the regulations are broken, and eventual criteria for exemptions from the main rules of the regulation are set out.

56. Through the regulations the division of quotas on each fishing vessel is set. For some fisheries the group quotas are divided equally amongst the vessels, while for other fisheries the vessel quotas are differentiated by vessel-length, tonnage or other technical criteria.

57. In addition to the regulation of minimum fish size, minimum mesh size and bycatch rules, the most important instruments to secure a sound management of marine resources are as follows: the discard

ban, the closure of fishing grounds with too high intermixture of undersized fish and the requirement that a vessel has to change fishing grounds if the intermixture of undersized fish exceed permitted levels. Another important measure is the use of catch sorting devices, i.e. grids.

58. In order to properly manage the different fisheries, an extensive system to control the fishing activity and the fishing fleet has been established. There are three corner stones in the control and enforcement system in Norway: the Coast Guard, the Directorate of Fisheries and the Sales Organisations.

59. On the basis of the Salt Water Fisheries Act and other laws, a variety of instruments are used in Norwegian fishery management. They are as follows.

Input regulations

60. Several administrative measures are applied to limit the fishing effort in the Norwegian fisheries. The main legislation for these measures is based on the following acts:

- Act of 26 March 1999 relating to the Regulation of the Participation in Fisheries
- Act of 3rd July 1983 relating to Salt-Water Fisheries
- The Act of 1999, which replaced the Act of 1917 Relating to Registering and Marking of Fishing Vessels and the Act of 1951 relating to Fishing with Trawl as of 1 January 2000 are the basic legal instruments for the arrangements of fishing licenses as well as other types of effort regulation.

61. In Table 10 the number of vessels with license and the type of license for these vessels in 2000, 2001 and 2002 are listed.

Table 10. Type of fishing license, the number of licenses and fishing vessels with license in Norwegian fisheries: 2000, 2001 and 2002²

Type of license	Number of licenses		
	2000	2001	2002
Purse seine	97	94	94
Blue whiting	44	45	47
Norwegian Spring	79	73	62
Spawning herring (trawl)			
Industrial/North Sea trawl	142	133	116
Capelin trawl	148	148	130
Mackerel trawl	-	-	49
Cod trawl	102	96	83
Saithe trawl	14	14	11
Shrimp trawl	108	105	99
Other licenses	49	45	36
Total number of licenses	783	753	727
Number of vessels	439	424	388
Average per vessel	1,78	1,78	1,87

Source: Directorate of Fisheries, 2003

² This only applies to the larger segment of the fishing fleet, as the majority of the vessels – the coastal fleet – are regulated through annual permits.

62. As indicated in Table 10, a particular vessel may hold several different types of licenses and may or may not, in the course of one or two years, participate in all fisheries for which it is licensed. The table indicates that the number of vessels that hold more than one license was unchanged from 2000 to 2001, but has increased from 2001 to 2002.

63. The problem of overcapacity is still present in the fishing fleet. To meet the challenge that the unbalance between resource and fleet capacity represents, a number of different input control systems have been established. The two basic models, licences and permits, regulate the number of vessels that can join the different fisheries.

Structure Regulations

64. There has also been established a number of different structure regulations, with the purpose of reducing the fishing capacity in a number of vessel groups.

Closed Access Regime

65. The development of the Norwegian fisheries, from open access when everyone who fulfilled the requirements of being a fisherman would get a permit to fish with his boat, into limited access in addition to different vessel quota systems, has naturally developed a notion of rights within the fishing community.

66. Although, in principle the Norwegian fisheries are open, closed access on stock basis is implemented to such an extent that there are small possibilities of being a professional fisherman living only on unregulated stocks, as some 90% of the catch value comes from access-regulated fisheries.

Unit Quota System

67. Norway also has established a quota transfer system (the unit quota system) for many vessel groups, with the main purpose of reducing the number of vessels which then increases the income of each vessel.

68. The system allows the owner of two vessels to fish both quotas from one vessel if the other vessel is withdrawn from fishing. If the vessel withdrawn from the fishing fleet is sold, the vessel owner may fish both quotas for a period of 13 years, and for 18 years if the vessel is scrapped– the latter to contribute to the reduction of worldwide over-capacity. So far the unit quota system has been implemented for the offshore fishing fleet and for vessels above 28 meters fishing with traditional gear (long-liners). The latter group has been reduced from 98 to 51 vessels since the scheme was introduced in July 2000 (about three years). The number of cod trawlers and purse seiners has also been significantly reduced in recent years.

69. The Norwegian Parliament has as of June 2003 accepted to establish similar arrangements for the coastal fishing fleet. The unit quota system designed for the coastal fleet will enable vessels between 15 and 21 meters and between 21 and 28 meters to transfer a quota from one vessel to another if one vessel is scrapped.

70. A “Quota Exchange System” (QES) for vessels less than 28 meters allowing two vessel owners to team-up, fishing both quotas on one vessel for three out of five years, is going to be tested in some counties in 2004. If the arrangement is regarded as successful, it may be introduced nationwide from 2005. The purpose of these arrangements is to improve vessel profitability and in the long run enhance incentives to reduce fleet capacity.

Decommissioning

71. Norway also uses decommissioning schemes as an instrument to reduce the fishing fleet. Various schemes have been in effect more or less continuously for the last 40 years. Approximately 3 500 vessels have been removed through decommissioning grants.

72. Previously, the focus of this scheme was modernisation, but now the aim is reduction of the fleet capacity. Grants for constructing new vessels are no longer given.

73. A new fund for decommissioning of vessels up to 15 meters, whose activity comply to a certain minimum level, will be in place from 2004. The scheme will reach funding through a tax on the value of first-hand landings and through public sector funds.

Output regulation

74. In the Norwegian fisheries several types of output regulations are employed. In most of the fisheries a TAC is set (see Table 7) resulting in a national quota for the Norwegian fishing fleet. As a rule the national quota is divided between groups of vessels, i.e. group quotas. Fisheries for the most important species are regulated by vessel quotas or maximum quotas (a vessel quota is fixed for each participating vessel while a maximum quota is a group quota divided in a manner that results in a certain competition between the vessels in the group). In addition to these measures period quotas, trip quotas and quotas of days at sea are used as output controlling measures in some fisheries.

75. Since most stocks are shared with other countries, the determination of total TACs is based on international cooperation. The basis for the total quotas is the recommendations from the international council for marine research (ICES). Scientific input is given by member country researchers, in the case of Norway, primarily by the Institute of marine research. On this basis national quotas are negotiated between the countries concerned. Norway, Russia and EU are the main partners in these negotiations.

76. Given the national quotas, a further procedure is made to distribute these quotas within Norway. After a discussion in the so-called "Regulatory board", the Directorate of Fisheries makes a proposal to the Ministry of Fisheries, which finally decide upon the quotas. Members of the regulatory board are mainly organisations with economic interests in the industry. The national quotas are distributed between different gears and in some cases between individual vessels.

77. Also more specific output regulation can be made at the discretion of the Directorate of Fisheries. For instance, catch of certain species can be prohibited in certain areas or in certain time periods. Such specific regulations are usually made on the basis of biological recommendations, which are based on the composition of the catches. Moreover, discards are forbidden.

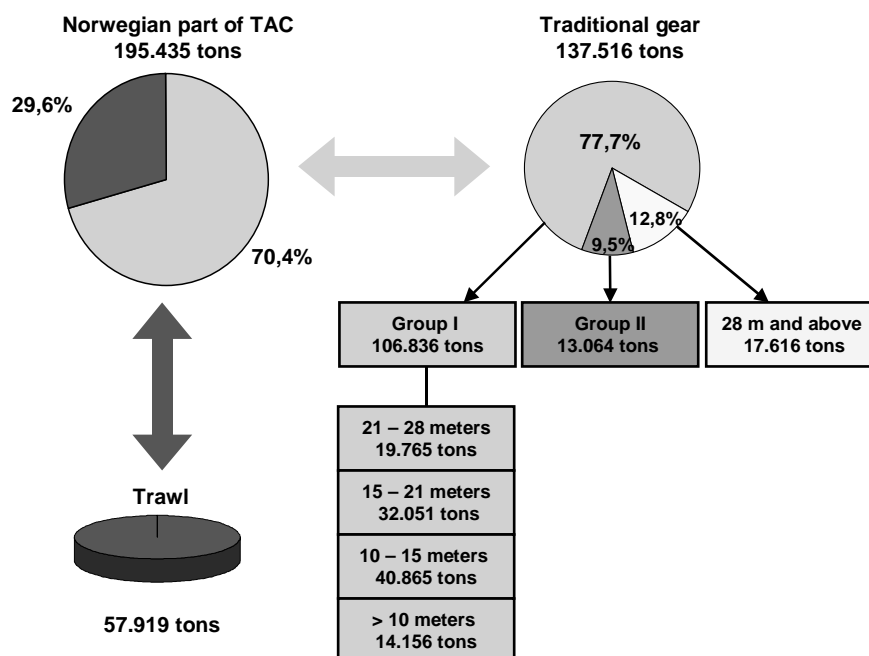
The cod fisheries

78. As illustrated in Figure 1, the Norwegian cod quota is usually divided into two groups: the coastal fleet and the trawler fleet. This corresponds fairly well to a division by length groups - the high seas fleet consisting of larger vessels (above 28 meters), while the coastal fleet consists of smaller vessels (less than 28 meters). Vessels fishing with traditional gear are divided into three vessel groups, "Group I" (vessels bound with an annual permit), "Group II" (open access group) and vessels above 28 meters fishing with traditional gear. The "Group I" -vessels are further divided into length groups, which have a given share of the "Group I" quota.

79. Input regulation has over the years been supplemented by output regulations. As mentioned above, total TAC for the cod fisheries are negotiated between Norway and Russia on the basis of

recommendations from ICES and further divided between the two countries, allowing also quotas for third countries.

Figure 1. Northeast Atlantic Cod. Distribution of National Quota 2002³



80. Of the group quota for vessels between 15 and 28 meters, 25% must be caught after 1 September. This regulation has the purpose of securing raw material for the processing industry (mainly fillet production) for the whole year. Vessels above 28 meters fishing with traditional gear have vessel quotas. Vessels below 15 meters in both “Group I” and “Group II” have similar vessel quotas as a combination-quota consisting of cod, haddock and saithe.

81. The group quota for vessels between 15 and 28 metres are also divided into vessel quotas. Vessel quotas are dependent upon the size of the vessel. For each year the authorities provides a table showing the relation between vessel size and maximal quota for each vessel. The sum of the maximal vessel quotas is larger than the total group quota, indicating an element of “over-regulating”. The fishery is stopped when the group quota is taken, even if some vessels have not reached their maximal quotas. This, apparently, gives an incentive to fish the quota in shortest possible time. This competitive element may be thought to reduce the number of fishing days, thus reducing variable costs.

82. With increasing TAC, the system is designed to distribute quantity in favour of the coastal fleet.

83. The use of vessel quotas and group quotas is based on considerations of the possible effects of the two systems. Group quotas may stimulate competition but may also give incentives to increase capacity. On the other hand vessel quotas may reduce competition, but also reduce efficiency.

³ Norwegian Coastal cod, 40 000 tons, is included.

84. Thus, the quota system is based on a three stage process: first national quota (negotiated with EU and Russia), then group quotas and then finally vessel quotas.

85. Mesh size and minimum size regulations are used in the cod fisheries. This combined with a general prohibition of discards calls for other instruments in this area. The measure used is to stop fishery in an area where the per cent of fish below minimum size reaches a certain level, usually 5 to 10%. The same procedure applies with regard to bycatch. Vessels are in such cases directed to other fishing grounds. Based on catch reports, the Directorate of Fisheries makes the decisions in these matters on a day-to-day basis.

Part III: Experiences with market-like instruments/incentives

86. Market-like instruments as described above as “The unit quota system” have been introduced to the ocean going part of the Norwegian fishing fleet and are now covering all vessels above 28 meters. The general idea is to reduce the number of vessels in a certain vessel group where fishing capacity is considered to exceed current and future TAC’s.

87. The unit quota system was introduced to the Cod trawlers in 1984. Since the introduction, the scheme has been adjusted several times. The present scheme for cod trawlers has been in place since 2000. Each vessel group have custom made schemes. The Greenland shrimp trawler fleet got their first unit quota system in 1994, purse seiners in 1996, vessels more than 28 meters fishing with traditional gear in 2000, saithe trawlers in 2001 and industrial trawlers in 2002. From 2004 fleet segments covering the largest coastal vessels will also have access to unit quota arrangements, namely vessel groups 15 – 21 meters and 21 – 28 meters.

88. As mentioned earlier, Norway is also testing another market-like instrument in the “Quota Exchange System” (QES) for vessels less than 28 meters.

The purse seine fleet

89. The purse seine fleet has had a remarkable development during the last decade. With the main activity pointed at the herring and capelin fisheries, great variations in stock sizes and hence quotas, affect their economic performance considerably.

90. The purse seine fleet harvesting herring, capelin, mackerel and other inputs to the oil and meal industry experienced a significant reduction in number of vessels during 1970 to 1990. This development was forced by the total disappearance of herring in Norwegian waters during this period. The number of purse seiners was reduced from 279 to 100. Of these 68 were sold abroad. Between 1975 and 1990 55 vessels were scrapped under a government program financing withdrawal from the fisheries on the condition that the vessel was scrapped. A similar reduction of capacity took place in the oil and meal industry, induced by the reduction in available raw material. Part of the reductions in the number of vessels was compensated by increased size of vessels.

91. By 1992, the capacity of this fleet segment was still estimated as too high compared to the available resources and a capacity reduction of about 25% seemed necessary to balance the resource situation in an economic way. As of 2003, 94 vessels hold a license for purse seining (Table 11). Further, their recent economic performance showing the highest operating profit among all Norwegian vessel groups indicates a vessel group fairly well adapted to the current resource base.

92. In that sense it is appropriate to draw the attention to the very positive stock and hence quota development the purse seine fleet has experienced during the latest five years. As mentioned earlier, stocks of pelagic species like herring and capelin may vary considerably over the years due to unanticipated

changes in the marine ecosystem. This may change the picture over a period of only a few years even with conservation and regulation arrangements seeking to diminish these variations. The last year has given the fleet a combination of high quotas on herring, mackerel, capelin and blue whiting as well as favourable prices.

Table 11. Purse seiners 1998 – 2002

	1998	1999	2000	2001	2002
Vessels/licenses	99	100	97	94	94
All year run vessels	91	95	95	91	...
Operating profit (%)	18.1	20.5	15.7	28.0	...
Average age (all)	24.8	21.9	19.8	17.2	17.4
Group quota Norwegian Spring Spawning Herring	421 200	421 200	400 600	246 200	244 900
Group quota Capelin in Barents sea	0	36 700	201 290	283 810	294 910
Group quota Capelin at Iceland, Greenland and Jan Mayen	159 150	129 600	107 000	98 570	119 556
Group quota Mackerel	123 700	123 700	138 270	142 490	143 005

Source: Directorate of Fisheries 2003

Cod trawlers

93. As mentioned above, some Cod trawlers got access to unit quotas in 1984. Since then the fleet segment has had access to limited unit quota arrangements several times, the present one dating back to 2000. According to Table 12 there were 101 cod trawlers in 2000; at the end of 2002 the number was down to 83. This indicates that the scheme has contributed in reducing fleet capacity, but due to relatively low prices for ground fish species, it is still too early to say anything about any enhanced economic performance. Also the quota situation for this vessel group improved from 2000, which contributed to improved operating profit in 2001. As the table indicates, the vessel group may still be subject to over-capacity.

Table 12. Cod trawlers 1998 – 2002

	1998	1999	2000	2001	2002
Vessels/licenses	104	105	101	94	83
All year run vessels	91	90	83	76	...
Operating profit (%)	15,5	11,5	3,3	9,6	...
Average age (all)	18,1	18,9	18,4	17,4	18,3
Group quota of Northeast Arctic Cod	101 975	72 510	57 250	57 878	57 878
Group quota of Northeast Arctic Haddock	27 690	17 940	15 000	19 826	19 317
Group quota of Northeast Arctic Saithe	48 400	48 538	41 830	44 120	52 540

Source: Directorate of Fisheries 2003

Vessels above 28 meters fishing with traditional gear

94. Table 13 covers vessels above 28 meters fishing with traditional gear. The vessel group was covered by the unit quota system from mid 2000. The amount of vessels has since then been reduced from 98 to 51 and almost all the remaining vessels in this vessel group are now considered as all year run, which indicates a fleet well adapted to the current resource base. Average vessel age has also declined

considerably since introducing the unit quota system. This is regarded as positive both in the sense of safety and possibilities of recruiting young fishermen. Though it is still too early to say anything about improved profitability, a larger share of the total quota per vessel should imply better profitability for the future.

Table 13. Vessels above 28 meters fishing with traditional gear 1998 – 2002

	1998	1999	2000	2001	2002
Vessels	90	90	79	58	51
All year run vessels	69	65	57	57	...
Operating profit (%)	10,5	9,0	3,6	5,9	...
Average age (all)	23,2	23,1	25,0	18,9	16,6
Group quota of Northeast Arctic Cod	25 115	21 320	17 440	17 608	17 608
Group quota of Northeast Arctic Haddock	⁴	³	4 200	5 582	5 673
Group quota of Northeast Arctic Saithe	5 100	5 418	4 670	4 930	5 936

Source: Directorate of Fisheries 2003

95. It goes without saying that over-capacity in relation to quotas gives rise to low profitability in the fleet. Profits have been spread out very thin both by vessel size and geographically. In many cases income has not been high enough to give a remuneration to labour competitive with other industries. Moreover, since 1958, low profitability has been compensated with government support until recent years. This support reached a peak in 1980 of NOK 2.4 billion for all fisheries together, but was at the level of NOK 70 million in 2003. Much of the remaining funding is given as capacity-reducing schemes and social arrangements. It is officially recognised that government support has been a major factor behind the over-capacity in the fleet.

Other aspects

Harvesting

96. *Integration.* There is little integration in Norwegian fisheries. There is however some vertical integration, i.e. Norway Seafoods that operates in the counties of Finnmark and Nordland. The company owns several processing plants whose own trawlers are connected to ensure continuous deliveries of raw material. Their operations are mainly in the cod fisheries.

97. *Safety.* Historically, fisheries have been an industry with a high frequency of accidents. A government commission investigated accidents in fisheries in 1984-86 and concluded with proposals for reducing the frequency of accidents. One proposal that has been put into effect was to introduce mandatory safety courses for all fishers. Other proposals included construction details for fishery vessels, safety equipment etc. It was concluded that small expenditures in these areas would have great effect. And, furthermore, that much of the accidents could be reduced by better education.

98. *Gear conflicts.* For centuries gear conflicts have been an issue in Norwegian fisheries, now and then giving rise even to violence. The conflict dimension has mainly been between modern and old gear. In general, the authorities have handled conflicts by reserving specific areas for specific gear. An illustration is the general prohibition of trawl fishery within 12 nautical miles from the coast.

⁴ 1998 and 1999 had no specified group quota. All vessels fishing with traditional gear shared a quota of 43 310 tonnes in 1998 and 28 060 tonnes in 1999.

99. Perhaps the most important issue in this area in recent times is the possibility of conflict between fisheries and the offshore oil industry. To compensate for possible damages by the oil industry on fisheries, an “oil-fish fund has been set up”. Apparently, the negative effects have been minor, even in the case of pollution.

Social aspects

100. As indicated above, the long time development of the Norwegian fisheries has been from a small-scale labour intensive industry often in combination with farming, to a professionalised industry based on modern vessels and gear. However, a major part of the fisheries is based on small vessels. The background for general development is cheaper and technology more efficient, and labour relatively more expensive. It is mainly in rural districts with low alternative cost of labour that the combination with other activities and traditional fishery exist.

101. Tension between these two sectors is partly between the coastal and the high seas fleet, and partly between the southern and northern districts of Norway. In particular, the distribution of quotas between the high seas fleet and the coastal fleet is a regular issue of dispute.

102. It is sometimes argued that the system of individual vessel quotas gives rise to a kind of “quota nobility” which can be seen as ownership of a share of the fish stock. Traditional inertia in the management system may account for this.

103. Even if quotas are not transferable in principle, the fact that quotas are linked to specific vessels means that the price of a vessel traded, may include the value of a quota, or more specifically the right to fish.

Administration

104. The administration of Norwegian fisheries is organised with the Ministry of Fisheries in Oslo, a Directorate of Fisheries in Bergen and its regional and local offices. In most counties there are also local fishery advisors financed by the government.

105. The size of the fisheries administration in Norway is by international standards relatively large partly due to the extensive regulatory system. The expenses peaked in the early 1990's, when the public expenditures for the traditional fisheries amounted to 13% for the first hand value of the catches. In 2001 this figure was down to about 6,5%. Most of this was control activity (including the Coast guard); others were advisory activity, management and research.

106. The costs of the administration of fisheries are paid by the central government. Proposals of a “resource tax” to cover these expenses have sometimes been put forward but have so far not been introduced.