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PART 1

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P R E F A C E

This Cooperative Research Report (Parts 1 and 2) contains the reports of the Advisory Committee on Fishery Management issued in 1993.

Shortly after the May meeting, ICES issued the Report to the International Baltic Sea Fishery Commission (IBSFC), the first part of the Report to the North-East Atlantic Fisheries Commission (NEAFC), and the Report to the North Atlantic Salmon Conservation Organization (NASCO). Shortly after the October-November meeting, the second part of the Report to NEAFC was issued together with a Report on Harp and Hooded Seals to the Government of Norway.

The two parts of the Report to NEAFC have, in Part 1 of this publication, been edited into a single report with the stocks in logical sequence and including all advice on each stock together. Part 2 contains the Reports to IBSFC, NASCO and the Government of Norway.

Copenhagen, February 1994
ICES Fishery Secretary and Secretary to ACFM

**MEMBERS AND ALTERNATE MEMBERS OF
THE ADVISORY COMMITTEE ON FISHERY MANAGEMENT
IN 1993¹**

Affiliation	Member	Alternate
Chairman	Dr F. Serchuk Mr E. Kirkegaard (from 1 Nov.)	
Chairman of Demersal Fish Committee	Mr E. Aro	
Chairman of Pelagic Fish Committee	Mr O. Hagström	
Chairman of Baltic Fish Committee	Mr B. Sjöstrand	
Belgium	Dr R. De Clerck	Mr W. Vanhee
Canada	Mr J.J. Maguire	Mr J.S. Beckett
Denmark	Mr E. Kirkegaard Mr P. Degnbol (from 1 Nov.)	Mr P. Degnbol Mr H. Lassen (from 1 Nov.)
Finland	Mr E. Ikonen	Mr R. Parmanne
France	Mr B. Mesnil	Mr A. Forest
Germany	Mr H.P. Cornus	Mr B. Vaske (until 1 Nov.)
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Sweden	Mr J. Modin	
UK	Dr J.W. Horwood	Dr R.M. Cook
USA	Mr R. Mayo	Mr R.J. Conser

¹Newly elected Chairmen of ACFM and the Fish Committees take up their posts on 1 November. National membership may be changed at any time of year. This list includes the members and alternates as at the times of the ACFM meetings in spring and autumn.

ADVISORY COMMITTEE ON FISHERY MANAGEMENT

Participants

Affiliation	Spring 1993	Autumn 1993
Chairman	Dr F. Serchuk	Mr E. Kirkegaard
Chairman, Consultative Committee	Prof. C.C.E. Hopkins ¹	Prof. C.C.E. Hopkins ¹
Chairman, Demersal Fish Committee	Mr E. Aro	Mr E. Aro
Chairman, Pelagic Fish Committee	Mr O. Hagström	Mr O. Hagström
Chairman, Baltic Fish Committee	Mr B. Sjöstrand	Mr B. Sjöstrand
Belgium	Dr R. De Clerck	Dr R. De Clerck
Canada	Mr J.J. Maguire	Mr J.J. Maguire ¹
Denmark	Mr E. Kirkegaard	Mr P. Degnbol
Finland	Mr E. Ikonen	Mr E. Ikonen
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Germany	Mr B. Vaske (Alternate)	Mr H.P. Cornus
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Netherlands	Prof. N. Daan	Prof. N. Daan
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Poland	Dr J. Netzel	Dr J. Netzel
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Spain	Mr F.J. Pereiro (Alternate)	Mr J.A. Pereiro
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Chairman, Baltic Salmon and Trout Assessment Working Group	Mr C. Eriksson ¹	
Chairman, Working Group on <i>Nephrops</i> and <i>Pandalus</i> Stocks	Mr N. Bailey ¹	
Chairman, Study Group on Long-Finned Pilot Whales		Prof. D.S. Butterworth
ICES Fishery Secretary, Secretary to ACFM	Dr R.S. Bailey	Dr R.S. Bailey
ICES Fishery Assessment Scientist	Mr H. Sparholt	Mr H. Sparholt
ICES System Analyst	Mr L. Pedersen ¹	Mr L. Pedersen ¹

¹Participated part time

ACFM ADVICE

1. THE FORM OF ACFM ADVICE

At its autumn 1991 meeting, ACFM redefined the basis and form of the advice which it would provide, and this was described in the introductory section "ACFM Advice" of the 1991 Reports of ACFM (ICES Cooperative Research Report No. 179). The new Form of ACFM Advice has been formally presented at the annual meetings of NEAFC in 1991, and NASCO and IBSFC in 1992, and has also been discussed within ICES. In addition, comments have been received from some ICES Member Countries. ACFM intends to keep its Form of Advice under constant review and encourages management bodies to comment upon it and suggest how it can be improved.

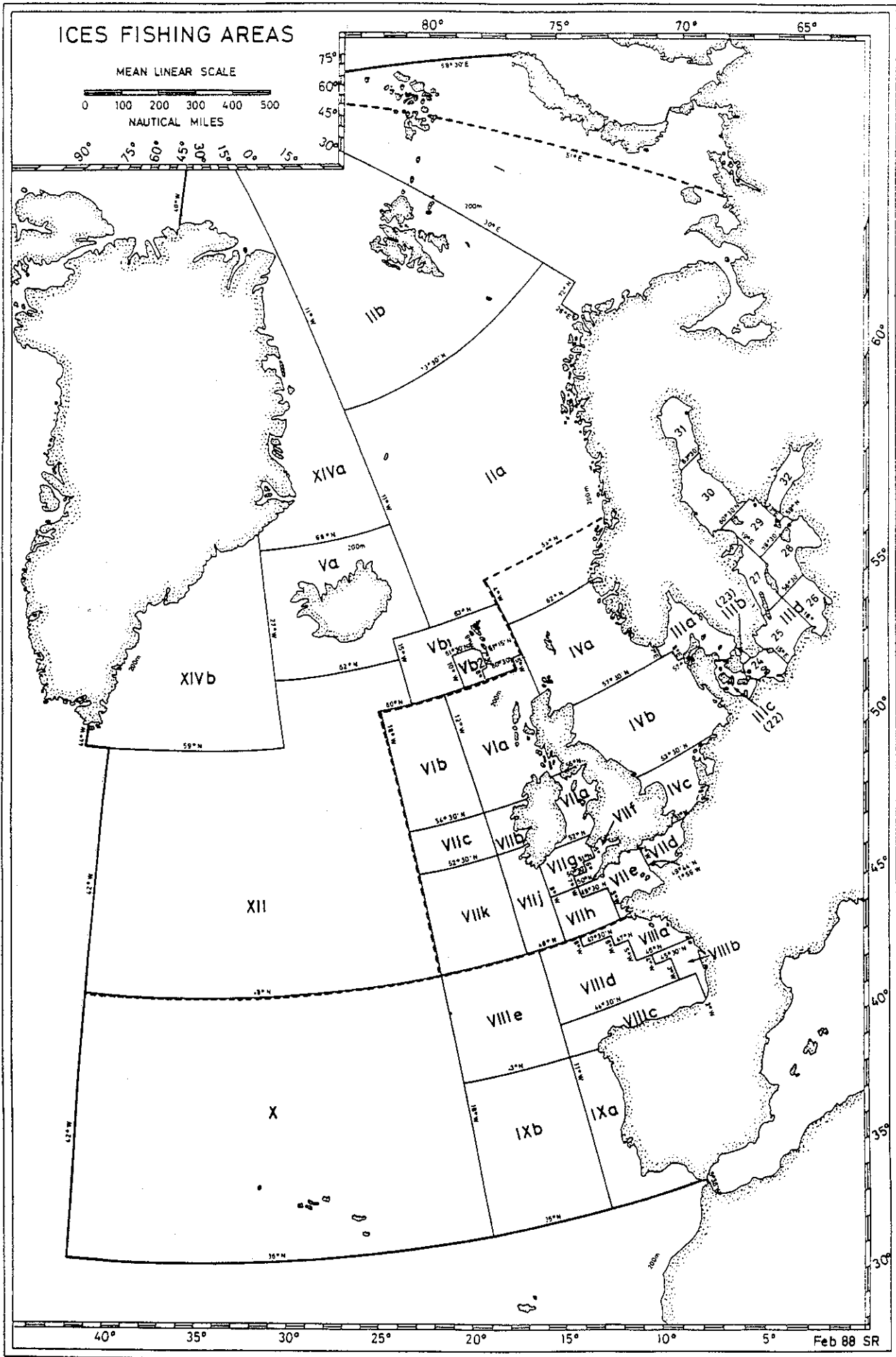
2. REVIEW OF ADVICE FOR 1993

ACFM wishes to stress that its definitive advice on each stock is based on all the data available to ICES, and that the timing of the advice on each stock is determined by the need for that advice to be as accurate as possible.

While new information can be used to redefine the advice, ACFM considers that mid-year revisions are in general unnecessary. The precision of stock size estimates is such that there would need to be quite major changes before any revision in advice was justified. Minor changes would simply serve to create instability in advice.

ACFM nevertheless recognizes that it has a responsibility to draw the attention of managers, as early as possible, to any necessary alteration in scientific advice and to the need for a change in management action.

Note: Dashed lines represent boundaries between NEAFC regions.



REPORT TO THE NORTH-EAST ATLANTIC FISHERIES COMMISSION

1. INTRODUCTORY ITEMS

1.1 Review of Nominal Catches in NEAFC Area

The assessments presented in this report are carried out using the best catch data available to the working groups and to ACFM. These data are not necessarily identical with the official statistics but, where appropriate, include estimates of unreported landings as well as corrections for misallocation of catches by area and species. Despite considerable effort exerted to this problem, there is no guarantee that all instances of misreporting were discovered. Often working group catch data are collated on a stock basis rather than an area basis, and so straightforward comparisons between these figures and the official statistics, which are provided on an area basis, are not appropriate.

In the assessments, the working groups try to estimate the total catch taken, including slipped catches, discards, landings which are not officially reported, and the composition of the industrial by-catches. These amounts of different species, which have to be included in the estimates of what has been taken from a given stock in order for the assessments to be correct, thus appear in the tables and figures produced by the working groups. These levels of discards, slipped fish, unreported landings, and industrial by-catches vary considerably between different stocks and fisheries, being negligible in some cases and constituting important parts of the total removal from other stocks.

The catch data used in the assessments are given in the table section. In cases where there might be doubt, it has been indicated if discards, by-catches, and estimates of unreported landings are included in the assessments. Estimates of catches landed as by-catches, especially from the industrial fisheries, are included in the assessments wherever data allow it and are included in the catch options.

It should be noted that, in general, catches in the industrial fisheries of protected species above the minimum landing size which are sorted out and landed for human consumption, are included in the estimates of human consumption landings, both in the catch input data and in the projected catch options. Estimates of industrial by-catches cover, in most cases, that part of the by-catch which is used for reduction purposes.

ACFM in the past has noted the problems associated with discrepancies between the official landing figures reported to ICES by member countries and corresponding catch data used by assessment working groups. ACFM recognizes the need for a clear identification of the categories of the catch data used for assessments. Working groups have been requested to specify the composition of the catch data used to estimate fishing mortalities. It is necessary that the working groups clearly identify factors contributing to the total fishing mortality in the various stocks, e.g.:

- recorded landings,
- discards at sea,
- slipping of unwanted catches,
- losses due to burst nets etc.,
- unreported landings,
- catch reported as other species,
- catch reported as taken in other areas,
- catch taken as by-catch in other fisheries.

It is recognized by ACFM that working groups should not be required to reveal the sources of the data. The groups should, however, indicate whether the data originate from sampling programmes, field observations, interviews, etc., in order to allow ACFM and other interested parties to evaluate the quality of the data, and hence the basis for the assessment.

The overall responsibility of obtaining reliable, adequate and timely fisheries statistics for publication in *ICES Fisheries Statistics* does not rest with ACFM. It is the opinion of ACFM that national offices for fisheries statistics are responsible for providing the catch data needed for assessments. These offices should ensure that catch statistics are collected on a gear basis and that the species composition of landings is determined in the case where landings are made unsorted by species.

1.2 Deterioriation of Quality of Fishery Statistics

ACFM expressed the greatest concern over the quality of catch and effort data from most of the important fisheries in the ICES area. Under-reporting and misreporting have increased dramatically in recent years. ACFM stressed that the immediate consequences of this are that ACFM will be unable to provide reliable estimates of current stock sizes and forecasts that have been used to set TACs. Trends in stock size and the overall status of the stock can sometimes be evaluated from research vessel surveys, but such information alone cannot be used to give the short-term TAC advice usually required.

2 STOCKS IN NEAFC REGION 1

2.1 North-East Arctic Cod

(Tables 2.1.1-2.1.3; Figure 2.1.1)

Source of information: Report of the Arctic Fisheries Working Group, August/September 1993 (C.M.1994/Assess:2).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC ³	<446	<645	530 ⁴	300	172	215	250 ⁵	385 ⁵			
Agreed TAC ³	400	560	590 ⁴	300	160	215	356 ⁶	500			
Official landings	454	552	459	343	207	269	378	-			
Unallocated landings	0	0	0	0	25	50	130	-			
Catch as used by ACFM ³	430	523	435	332	212	319	508	-	1343	212	677
Landings of											
Norwegian coastal cod	26	31	22	17	24	25	41	-			
Sp. stock biomass	175	152	160	178	375	787	1047	943 ²	3877	152	726
Recruitment (age 3)	952	288	243	159	162	363	642	702 ⁷	1836	113	598
Mean F(5-10,u)	0.92	1.02	0.90	0.72	0.23	0.25	0.39	-	1.02	0.19	0.60

¹Over period 1946-1992. ²Forward projection. ³Norwegian coastal cod not included. ⁴New advice May 1988: 325,000-363,000 t, agreed TAC reduced to 451,000 t. ⁵Status quo F advised to stabilize fishery. ⁶Revised from 300 due to information on increased individual growth. ⁷Predicted (survey estimate). Weights in '000 t, recruitment in millions.

Separate assessments are carried out for the North-east Arctic Cod and the cod caught in the Norwegian coastal area.

a. North-east Arctic cod

Catches: From a historic low catch of 212,000 t in 1990, the landings in 1992 increased to 508,000 t. The landings in 1993 are expected to be 630,000 t. This is close to the historic mean. Unreported landings are included in the years 1990-1992.

Data and assessment: Analytical assessment based on catch-at-age data. Assessment tuned using 6 time series of trawl and acoustic surveys. Recruitment estimated by combination of data from 16 index series. However, there are uncertainties in the assessment due to the increasing amount of unreported catches in 1992 for which there is no information about age distribution.

Fishing mortality: Fishing mortality increased to a record-high level in 1987 (1.02), but subsequently decreased to 0.25 in 1991. It increased to 0.39 in 1992.

Recruitment: All year classes recruiting to the fishery at age 3 in 1987-1991 (1984-1988 year classes) are well below the historic mean. The 1989-1992 year classes are estimated to be close to average.

State of stock: From an average level of about 1 million t in the 1980s, the total stock biomass has increased rapidly to 2.3 million t in 1993. Total biomass is currently similar to that of the mid-1970s and close to the long-term average.

The spawning stock biomass is at a high level, only exceeded by that in the 1940s. However, the high stock sizes in the late 1940s are most probably overestimated due to incorrect weight-at-age data.

Forecast for 1994:

Assuming $F(93) = 0.42$, Basis:TAC + unreported landings 130,000 t; Catch(93) = - , Landings (93)= 630. Growth: medium; Weights in '000 t.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F_{low}	0.32	768		552	785	SSB above long-term mean
B	F_{92}	0.39			649	734	Slightly above long-term mean
C	F_{med}	0.46			750	681	Slightly below long-term mean

Continued fishing at current levels of fishing mortality will stabilize the spawning stock and allow some increase in landings in the medium term.

Management advice: The stock is within safe biological limits. ACFM notes that there are no long-term benefits in yield from increasing fishing mortality above its present level.

Special comments: The spawning stock estimate is considered uncertain due to uncertainties in the estimation of the proportion of each age group mature.

Individual growth in the stock has decreased slightly, but is still above the mean level. Due to the dramatic decrease in the capelin stock (Section 2.10.1), which is the main food for cod, the prognosis of expected weights at age in the catch and the stock are uncertain. During the collapse of the capelin stock in 1986-1988 the 1984-1986 year classes of cod disappeared probably as a result of cannibalism. These year classes gave high indices on the 0-group surveys. During this period the average weights at age both in the catch and in the cod stock were reduced by 30-40%. However, the present situation is different due to the presence of large quantities of immature Norwegian spring spawning herring (Section 2.9.2). There is no information available to ACFM on the extent to which herring will provide the necessary food for the cod stock. Under these circumstances ACFM has applied a medium level of growth (average 1983-1993) in the calculation. If a low level of growth is applied (average 1987-1990) the same number of individuals landed will correspond to about an 8% lower weight and to about an 11% lower spawning biomass.

b. Norwegian coastal cod: (Table 2.1.3)

Catches: The landings of Norwegian coastal cod were 41,000 t in 1992, which is the same level as in 1980-1983.

Data and assessment: Catch-at-age data for Norwegian coastal cod are not available and a SHOT forecast was made for 1994.

Forecast for 1994: A SHOT forecast for Norwegian coastal cod, assuming landings of 47,000 t in 1993, gives a prediction of 51,000 t in 1994.

Special comments: Norwegian coastal cod is not included in the assessment or in the projected catches for the North-east Arctic cod. However, since cod in the North-east Arctic is managed as one unit, the SHOT forecast of 51,000 t for 1994 should be included in a total cod TAC for this area.

2.2 North-East Arctic Haddock

(Tables 2.2.1-2.2.2; Figure 2.2.1)

Source of information: Report of the Arctic Fisheries Working Group, August/September 1993 (C.M.1994/Assess:2).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC ³	100	160	<240	<103	- ⁴	- ⁴	35 ⁵	56 ⁷			
Agreed TAC ³	100	250	240	83	25	28	63 ⁶	72			
Official landings	101	155	95	60	27	34	58	-			
Catch as used by ACFM ³	97	151	92	55	26	34	53	-	320	18	123
Sp. stock biomass	51	31	49	58	57	66	82	94 ²	436	31	162
Recruitment (age 3)	333	82	28	13	18	72	164	254 ⁸	1,041	5	176
Mean F(4 - 7,u)	.51	.60	.59	.50	.21	.31	.45	-	.89	.21	.54

¹Over period 1950-1992. ²Forward projection. ³Norwegian coastal haddock not included. ⁴No directed fishery. ⁵Within safe biological limits. ⁶Increased during the year by 8,000 t. ⁷Predicted catch at *status quo*. ⁸Predicted (survey estimate). Weights in '000 t, recruitment in millions.

Catches: Landings have rapidly declined from 151,000 t in 1987. In 1990 and 1991 only a very small haddock fishery has been allowed with landings of 26,000 t and 34,000 t respectively. An increase to 53,000 t was observed in 1992.

Data and assessment: Analytical assessment based on catch-at-age data. Assessment tuned using 4 time series of trawl and acoustic surveys. Recruitment estimated by combination of data from 10 index series.

Fishing mortality: Decreased from an average level in 1985-1989 to the lowest level on record in 1990 ($F=0.21$) and increased to above $F_{med} = 0.35$ in 1992.

Recruitment: After the poor year classes of 1985-1987, improved recruitment has been observed. Although there is considerable uncertainty in the estimates of recruitment of the 1989-1992 year classes, these year classes are considered to be about the long-term average.

State of stock: Spawning stock biomass has doubled since 1984 but still remains below the long-term average. An increment can be expected in the near future, mainly due to the recruitment of the 1989 and 1990 year classes.

Forecast for 1994:

Assuming $F(93) = 0.45$, Basis: *Status quo* TAC, Catch(93) = , Landings (93) = 74, Growth: Medium

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F_{med}	0.35	117		97	175	SSB increasing.
B	F_{92}	0.45			119	162	SSB increasing.
C	$1.2 \times F_{92}$	0.53			138	152	SSB increasing.

Continued fishing at current levels of fishing mortality will lead to an increase in both catch and spawning stock in the short term.

Management advice: The stock is within safe biological limits. ACFM notes that there are no long-term benefits in yield to be expected from increasing fishing mortality beyond F_{med} .

Special comments: Although there are no indications of unreported landings of haddock, the close connection between the cod and haddock fisheries suggests that unreported landings might also have affected the reliability of the catch statistics for haddock.

The fishing mortality has stabilized above F_{med} in the last 2 years but both the total stock and spawning stock biomass are expected to increase during 1994 if fishing continues at the current level. This is due to the recruitment of the relatively good 1989-1991 year-classes.

Changes in relative stock sizes of capelin and herring make the prognosis of individual growth uncertain (Special comments in Section 2.1a). ACFM has applied a medium level of growth (average 1983-1992) in the calculations. If a low level of growth is applied (average 1987-1990) the same number of landed individuals corresponds to about a 9% lower weight in the catch and about a 28% lower spawning biomass.

2.3 North-East Arctic Saithe

(Table 2.3.1; Figure 2.3.1)

Source of information: Report of the Arctic Fisheries Working Group, August/September 1993 (C.M.1994/Assess:2).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	74 ⁴	<90	<83	120	93	90	115 ⁶	132 ⁶			
Agreed TAC ⁵	-	-	-	120	103	100	115	132			
Official landings	67	92	114	122	96	108	125	-			
Catch as used by ACFM	70	92	115	123	95	108	125	-	262	70	162
Sp. stock biomass	75	73	68	98	98	86	79	67 ²	605	68	265
Recruitment (age 1)	119	105	123	358	360 ³	255 ³	255 ³	255 ³	456	105	279
Mean F(3 - 6,u)	.40	.35	.42	.59	.48	.41	.42	-	.74	.16	.42

¹Over period 1960-1992. ²Forward projection. ³Assumed. ⁴Catch at F_{max} . Reduction to this level as quickly as possible recommended. ⁵Target set by Norwegian authorities. ⁶Predicted catch at *status quo* F. Weights in '000 t, recruitment in millions.

Catches: From a level at or above 150,000 t during the 10 years prior to 1985, the landings decreased rapidly to the lowest on record in 1986. Since then the catches have fluctuated reaching 125,000 t in 1992.

Data and assessment: Analytical assessment based on catch-at-age data. Assessment tuned using CPUE from Norwegian trawlers and purse seiners and acoustic survey data. Reliable recruitment indices are not available.

Fishing mortality: Fishing mortality has been higher than F_{med} since 1970. Since 1989, fishing mortality has declined.

Recruitment: The 1983 year class was strong, the 1984 year class average and the year classes of 1985, 1986 and 1987 were very poor. The 1988 year class appears to be strong.

State of stock: The spawning stock is at present close to the record low level. Due to improved recruitment the stock is expected to increase.

Forecast for 1994:

Assuming $F(93) = 0.41$, Basis: Expected catch; Catch(93) = , Landings (93) = 138.

Option	Basis	F(94)	SSB(94)	Catch(94)	Landgs(94)	SSB(95)	Consequences/implications
A	F_{low}	0.20	124	83		217	SSB increasing
B	F_{max}	0.26		106		202	SSB increasing
C	F_{med}	0.34		132		185	SSB increasing
D	F(92)	0.42		158		169	SSB increasing

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a slight increase in catches and to an increase in spawning stock biomass.

Management advice: The stock is at present considered to be outside safe biological limits but it is expected to improve in the near future. To reduce the probability of the stock decreasing to levels outside safe biological limits in the medium-term, ACFM recommends that fishing mortality should not be allowed to increase.

Special comments: There are no indices of recruitment for this stock and for this reason the predicted catch and SSB figures given above are very uncertain.

2.4 Redfish in Sub-areas I and II (Tables 2.4.1-2.4.5)

Source of information: Report of the Arctic Fisheries Working Group, August/September 1993 (C.M.1994/Assess:2)

Total redfish landings in Sub-areas I and II which declined continuously from 132,000 t in 1982 to 35,000 t in 1987, and increased to 63,000 t in 1990 and 1991, showed a sharp decline in 1992. Landings in 1992 were 33,000 t, the lowest level since 1969.

2.4.1 *Sebastes mentella* in Sub-areas I and II (Table 2.4.5)

Source of information: Report of the Arctic Fisheries Working Group, August/September 1992 (C.M.1994/Assess:2).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	85	70 ²	11	12	18	12	22 ³	18			
Agreed TAC	85	85	-	-	-	-	-	18			
Catch as used by ACFM	23	11	16	23	35	45	16	13 ²	269	5	63

¹Over period 1965-1992. ²Expected catch. ³Precautionary TAC. Weights in '000 t.

Catches: The landings have decreased from 1991-1993.

Data and assessment: An analytical assessment was attempted on the basis of catch-at-age data, but it was considered unreliable.

Fishing mortality: Not known, but effort has been increasing in recent years up to 1991, and showed a sharp decrease in 1992.

Recruitment: From survey data the 1982 year class is estimated to be more abundant than adjacent year classes, but the overall level of recruitment is not known, and this year class does not show up in the catch-at-age data. The 1988 and 1989 year classes seem to be of average strength, while the most recent 0-group indices of redfish (1991 and 1992) are very low.

State of stock: Historical catches indicate that the stock is at a low level. CPUE declined to a record low level in 1992.

Management advice: If a TAC is to be implemented, ACFM can only advise that a precautionary TAC should reflect the decreasing trend in the catches in the most recent years.

Special comments: From preliminary catch statistics, a continued decrease in catches is expected in 1993. Although accompanied by a reduction in effort, a rapid decline in Russian catch per unit effort is seen after 1990, the value for 1992 being the lowest on record. An increase in CPUE in 1993 is explained by reduced effort restricted to the optimal area and time of the year. A decrease in Norwegian CPUE on grounds not harvested until the mid-1980s gives cause for concern because this part of the stock probably served as a buffer to the exploited part of the stock in the previous years. The decrease in landings and catch per unit effort may reflect a stock decline.

ACFM notes that for the *S. mentella* and *S. marinus* stocks, there are unsolved problems in estimating the species composition in the redfish catches in addition to the problems with age determination. As a result, it is difficult to get reliable information about the actual status of each stock and any procedure to regulate catches separately would be hard to implement. ACFM notes, however, that a management strategy could be to introduce either TAC or effort control in smaller areas. This procedure could be based on CPUE or survey indices and could be defined in such a fashion as to safeguard against depletion of either of the stocks.

2.4.2 *Sebastes marinus* in Sub-areas I and II

(Table 2.4.5)

Source of information: Report of the Arctic Fisheries Working Group, August/September 1993 (C.M.1994/Assess:2).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	15 ²	- ³	15	24	23	24	25 ²	12 ²			
Agreed TAC	15	-	-	-	-	-		12			
Catch as used by ACFM	30	24	26	23	28	17	17	15 ⁴	49	13	25

¹Over period 1969-1992. ²Precautionary TAC. ³Recommended that a precautionary TAC is set on the basis of recent catches.

⁴Expected catch. Weights in '000 t.

Catches: Landings declined from 49,000 t in 1976 to 16,000 t in 1982. In more recent years they have been fluctuating around the mean level, but are expected to be only 15,000 t in 1993.

Data and assessment: Catch at age data are available. An analytical assessment was attempted using catch-at-age data, but it was considered unreliable.

Fishing mortality: Not known.

Recruitment: Not known.

State of stock: Not known.

Forecast for 1994: SHOT forecasts were conducted, but these are entirely dependent on the recruitment index, for which there is no reliable estimate.

Management advice: If a TAC is to be implemented for this stock, a precautionary TAC should be set on the basis of recent catch levels.

2.5 Greenland Halibut in Sub-areas I and II (Tables 2.5.1-2.5.4; Figure 2.5.1)

Source of information: Report of the Arctic Fisheries Working Group, August/September 1993 (C.M.1994/Assess:2).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	20	⁴	19	21	15	9	6	7			
Agreed TAC	20	-	-	-	-	-	7 ⁵	7 ⁵			
Official landings	23	19	20	20	23	30	8	-			
Catch as used by ACFM	23	19	20	21	23	30	9	-	89	13	30
Sp. stock biomass	82	73	62	59	62	68	66	80 ²	244	59	109
Recruitment (age 3)	32	33	42	44	39	10 ³	10 ³	10 ³	54	10	33
Mean F(6 - 10,u)	0.34	0.33	0.35	0.29	0.36	0.39	0.14	-	0.41	0.13	0.28

¹Over period 1970-1992. ²Forward projection. ³Assumed. ⁴Precautionary TAC based on recent catches recommended. ⁵Target set by Norwegian authorities. Weights in '000 t, recruitment in millions.

Catches: Landings have been stable at around 20,000 t for more than 10 years, but increased in 1991. A sharp decrease occurred in 1992 due to the cessation of the directed trawl fishery.

Data and assessment: Analytical assessment based on catch-at-age data. Assessment tuned using one time series of survey data and one time series of commercial CPUE data. Restrictions on the fishery made the CPUE for 1992 not comparable with that in previous years, and the data for this year were not used in the assessment.

Fishing mortality: Varying around 0.3 since 1984. The decrease from 1991 to 1992 was due to the restrictions in the fishery.

Recruitment: Has generally varied little between years, but information from several surveys indicates low recent recruitment. The reliability of these indices has not yet been established.

State of stock: Both the total stock and the spawning stock are at historically low levels.

Forecast for 1994:

Assuming $F(93) = 0.11$, Basis: Expected catch, Catch(93) Not calculated, Landings (93) = 11.5.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	No fishing	0	85	0	0	98	SSB increasing.
B	0.5(F92)	0.07		9	9	90	SSB increasing.
C	F93	0.11		13	13	86	SSB stable.
D	F92	0.14		16	16	83	SSB stable.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a slight increase in catch and an unchanged spawning stock biomass.

Management advice: The total stock biomass is at a historically low level and there are indications of recruitment failure. ACFM considers the stock to be outside safe biological limits.

ACFM recommends that the fishing mortality be reduced to a level which will allow an increase in the spawning stock in the coming years ($F < 0.1$).

2.6 Demersal Stocks at Greenland and Iceland

2.6.1 Cod stocks off Greenland (ICES Sub-area XIV and NAFO Sub-area 1) (Tables 2.6.1-2.6.2)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
East Greenland											
Recommended TAC	4	5	5	5	-	-	-	-			
Agreed TAC	11.5	11.5	11.5	15	15 ²	25	17.25	⁵			
Official landings	5	7	12	16	33	22	11.5	-			
Catch as used by ACFM	5	7	9	15	33	22	11.5	-	33	2	14
West Greenland											
Recommended TAC	Various options (see Special comments)										
Agreed TAC	12.5	12.5	53	90	110	90	66	⁵			
Official landings	7	12	60	109	68	20	6	-			
Catch as used by ACFM	7	12	63	112	68	20	6	-	112	6	42
Greenland (total)											
Recommended TAC											
Agreed TAC					125	115	83.25	83.25 ⁵			
Official landings	12	19	72	125	101	42	17.5	-			
Catch as used by ACFM	12	19	72	127	101	42	17.5	-			
Greenland stock biomass index ³	129	690	661	573	100	38	(2) ⁴				

¹Over period 1981-1992. ²During 1990 combined with West Greenland TAC to 125,000 t. ³From groundfish survey. ⁴Survey in East Greenland incomplete in 1992. ⁵TAC not allocated by area.

Catches: From 1990 to 1992 catches dropped dramatically at West Greenland (92%), especially offshore, also at East Greenland (65%). Due to low catch rates the directed trawl fishery stopped at West Greenland during 1991.

Data and assessment: No analytical assessment available. Groundfish survey indices available but incomplete at East Greenland in 1992.

Fishing mortality: No information available.

Recruitment: Year classes of 1986-1991 are all estimated to be very poor.

State of stock: The offshore cod stock complex at Greenland is severely depleted. No recovery is expected in the next few years.

Forecast for 1994: Not available

Management advice: ACFM considers that the offshore cod stock complex is well below the minimum biologically acceptable level (MBAL) and recommends that no fishing should take place until a substantial increase in recruitment and biomass is evident.

Special comments: Since 1992 no specific TACs have been advised for West Greenland, but a number of management options concerning the exploitation of the 1984 year class have been advised by NAFO. Emigration of this year class has been more extensive than assumed. TACs are fixed until 1994 under a contract between Greenland and the EC. In Greenland waters there are inshore fjord cod stocks and an offshore cod stock. Given suitable climatic conditions (water temperature) and prudent management, sustained production of offshore cod in this area is possible. However, interaction between the East Greenland and Irminger currents since the mid-1980s has apparently rendered climatic conditions unsuitable for offshore cod. Combined with quite high fishing mortality, this has caused the offshore cod stock virtually to disappear. In order to take advantage of suitable climatic conditions when they occur, it is necessary to protect the remaining biomass of offshore cod.

2.6.2 Icelandic cod (Division Va)

(Table 2.6.3; Figure 2.6.1)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC ⁴	300	300	300	300	250	240 ⁶	250 ⁷	154			
Agreed TAC ⁵	300	330	350	325	300	245 ⁶	265 ⁷	205 ⁷			
Official landings	369	392	378	356	335			-			
Catch as used by ACFM	369	392	378	356	335	313	265	-	538	265	384
Sp. stock biomass	267	251	188	259	332	221	260	209 ²	1383	188	490
Recruitment (age 3)	331	334	170	86	141	135	155	137	428	73	197
Mean F(5-10,u)	0.78	0.84	1.00	0.71	0.77	0.91	0.88	-	1.00	0.25	0.62

¹Over period 1955-1992. ²Predicted. ³Preliminary. ⁴National advice 1986-1992; ACFM advice 1993. ⁵National TAC. ⁶January-August 1991. ⁷Fishing year September - August ending in year indicated. Weights in '000 t, recruitment in millions.

Catches: Catches have exceeded national advice and national TAC levels considerably for the past decade.

Data and assessment: Analytical assessments based on VPA with survey and CPUE data. Catch-at-age data considered reliable.

Fishing mortality: Close to F_{high} (0.85).

Recruitment: Poor recruitment of year classes from 1985 onwards.

State of stock: SSB is close to the lowest level on record and has shown a declining trend since 1955.

Forecast for 1994:

Assuming $F(93) = 0.80$, Basis: Expected catch(93) = 230, Landings (93) = 230.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.6 F(93)	0.48	210	150	150	234	Increasing SSB
B	0.8 F(93)	0.64	200	189	189	200	Constant SSB
C	F(93)	0.80	191	225	225	171	Decreasing SSB

Weights in '000 t.

Medium-term consequences: Current levels of fishing mortality and spawning stock biomass make the stock vulnerable to recruitment collapse, as indicated in recent years. A 40% reduction in fishing mortality will in the short term bring the SSB back to the low levels observed from 1988-1991 and reverse the current decline. In the longer term this reduced fishing mortality is expected to result in SSB becoming twice as large as that expected with the current fishing level, along with greater catches. If recruitment improves with the reduced exploitation and increased SSB, this effect will be magnified.

Management advice: This stock is considered to be at or below the minimum biologically acceptable level. Therefore, ACFM recommends an immediate and substantial reduction in fishing mortality in 1994. This reduction should be put into effect during the 1993/94 fishing year. Fishing mortality in 1994 should be no higher than 60% of that in 1993 corresponding to a catch in 1994 of no more than 150,000 t.

Special comments:

1. A 40% reduction in fishing mortality will, with high probability, lead to an increase in SSB. This corresponds to catches of about 150,000 t in 1994, increasing by about 10% each year in the near future.
2. A 20% reduction in fishing mortality is expected to lead to a stable SSB and catches of about 190,000 t in 1994. This is considered a high-risk option since there is considerable probability of a continued decline in the SSB.
3. Under the 1993 level of exploitation, with expected catches of about 225,000 t in 1994, the stock will continue to decline. Since recruitment has been lower at low SSB levels, this considerably endangers the stock.
4. The prediction is based on an expected catch in 1993 which is calculated as follows. Although the quota is set at 205,000 t during the fishing year 1993/1994, this quota can be modified within the system, using allowances for specific fishing gears (hooks and lines) and the transfer of quota between fishing years. Taking this into account, the maximum catch allowed by the system within the quota year 1993/1994 will be 247,000 t. This is based on a transfer of 27,000 t from the previous fishing year and no transfer to the next. This assumption is highly unlikely. On average the transfers between fishing years should cancel. The predicted 230,000 t thus reflects the expectation that (a) 15,000 t will be transferred between the fishing years 1992/1993 and 1993/1994, (b) lower catches are expected in September-December 1993 (part of calendar year 1993) than in September-December 1992 (part of the possible catch (247,000 t) in the fishing year), as catches are declining.

2.6.3 Icelandic saithe (Division Va)

(Table 2.6.4; Figure 2.6.2)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	60	64	64	80	80	87	70	75			
Agreed TAC	70	70	80	80	90	65 ⁴	75 ⁵	95 ⁵			
Official landings	65	81	77	82	98	101	77	-	102	57	73
Catch as used by ACFM	66	81	77	82	98	102	79	-	103	57	74
Sp. stock biomass	160	156	149	154	175	183	188	205 ²	188	147	161
Recruitment (age 3)	74	102	61	42	40	40 ³	40 ³	40 ³	102	19	45
Mean F(4-9,u)	0.27	0.38	0.36	0.31	0.34	0.37	0.30	-	0.39	0.25	0.33

¹Over period 1980-1992. ²Predicted. ³Assumed. ⁴National quota for the period 1 January-31 August 1991. ⁵National quota for fishing year September - August ending in year indicated. Weights in '000 t, recruitment in millions.

Catches: During 1987-1989 catches were around 80,000 t, in 1991 catches were the highest recorded, 103,000 t. Preliminary reported landings for 1992 are 79,000 t.

Data and assessment: To estimate the terminal fishing mortalities, the Time Series Analysis method was applied using only catch-at-age data. Maturity at age has been revised using models which incorporate effects due to migration and/or density dependence, but this analysis has not yet been extended to years before 1980.

Fishing mortality: Fishing mortality has fluctuated between 0.25 and 0.39 in the period 1980-1992.

Recruitment: Year classes 1983-1985 are well above average. Average recruitment assumed for the most recent years.

State of stock: The stock has increased in the period 1988-1992 and is currently at its highest level in the past decade.

Forecast for 1994:

Assuming $F(93) = 0.35$, Basis: Expected catch(93) = 90, Landings (93) = 90.

Option	Basis	F(94)	SSB(94)	Catch(94)	Landgs(94)	SSB(95)	Consequences/implications
A	$F_{0.1}$	0.18		48	48	216	SSB increasing
B	0.8 F(93)	0.28		71	71	195	SSB slightly decreased from the 1992 level
C	F(92)	0.30		75	75	192	
D	F(93)	0.35		84	84	183	
E	1.2 F(93)	0.42		98	98	171	SSB decreasing
F	F_{max}	0.44	196	102	102	168	

Weights in '000 t.

Continued fishing at the 1993 level of fishing mortality will lead to a slight decrease of the SSB.

Management advice: Exploitation of this stock is currently well within the safe biological limits. An increase in fishing mortality from the 1993 level ($F \approx 0.35$) will not lead to measurable gains in the long term.

Special comments: Earlier problems with maturity at age for this stock have been alleviated, resulting in a more reliable assessment.

2.6.4 Greenland halibut in Sub-areas V and XIV (Tables 2.6.5-2.6.8; Figure 2.6.3)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	≤28	≤28	33	-	40	30	30 ⁶			
Agreed TAC	30	30	30	30	45	30 ⁴	25 ⁵	30 ⁵			
Official landings	33	47	51	61	39	38	35				
Catch as used by ACFM	33	47	51	61	39	38	35		61	19	37
Sp. stock biomass	101	111	114	101	85	88	68	75 ²	114	68	88
Recruitment (age 5)	45	38	27	31	30	33 ³	33 ³	33 ³	45	27	37
Mean F(8-12,u)	0.23	0.31	0.37	0.49	0.39	0.35	0.41	-	0.49	0.23	0.36

¹Over period 1980-1992. ²Predicted. ³Assumed. ⁴National quota in Division Va for the period 1 January-31 August 1991. ⁵National quota in Division Va for the fishing year August - September ending in year indicated. ⁶ACFM advised no increase in effort. Weights in '000 t, recruitment in millions.

Catches: Catches were stable in 1983-1986, approximately doubled in 1989, and declined to 39,000 t in 1990 and to 35,000 t in 1992.

Data and assessment: Assessment tuned with effort data estimated from the Icelandic trawler fleet. No recruitment indices are available.

Fishing mortality: Fishing mortality has fluctuated between 0.23 and 0.49 in the period 1980-1991. In 1992 the estimated fishing mortality was 0.41.

Recruitment: Increased from 28 million in 1983 to about 45 million in 1986 which is the highest on record. Since then, recruitment has been lower and about average.

State of stock: Spawning stock biomass increased from 71,000 in 1983 to 114,000 in 1988 and has been decreasing since then.

Forecast for 1994:

Assuming F(93) = 0.36, Basis: Expected catch(93) = 34, Landings (93) = 34.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F _{0.1}	0.18	75	19	19	88	SSB increasing
B	40% reduction in F	0.22		23	23	85	
C	20% reduction in F	0.29		29	29	80	
D	F ₉₃	0.36		34	34	76	SSB stable
E	1.1 F(93) (≈ F _{max})	0.41		38	38	73	

Weights in '000 t.

Continued fishing at the 1993 level of fishing mortality will lead to a stable SSB.

Management advice: This stock is assessed to be inside safe biological limits. There are several uncertainties involved in the assessment, however, including the stock distribution, effect of fleet movement and the use of a single commercial fleet for tuning purposes. Because of the uncertainties in the assessment, it would be prudent for managers to consider not allowing fishing effort to increase about the 1993 level until more information is available.

Special comments:

Catches in Division Va are TAC-regulated with some transfer allowed between fishing years. In 1991, a considerable amount of the TAC was transferred to and taken in the following year, resulting in a TAC overrun in that year. It is expected that the national TAC of 25,000-30,000 t in the 1992 and 1993 fishing years, along with possible allowances, will result in a catch of 30,000 t in Division Va in 1993, and that an additional 4,000 t will be caught outside Division Va.

2.7 Redfish in Sub-areas V, VI, XII and XIV

Stocks

The Irminger Sea redfish stock complex comprises *S. marinus* and *S. mentella* stocks on which the so-called "traditional" redfish fishery along East Greenland, Iceland and Faroes coasts is based and the *S. mentella* oceanic stock which is fished in the open sea, mainly in international waters outside the national economic zones. At present, ACFM has no new evidence at hand to justify splitting the *S. marinus* and *S. mentella* stocks fished in the traditional redfish fishery into separate stock units in Greenland, Iceland or Faroese waters. Although the area separation of the spawning stocks of the oceanic-type and traditional *S. mentella* has not yet been well defined, the Study Group on Oceanic-type *Sebastes mentella* (ICES, C.M.1990/G:2) and the Study Group on Redfish Stocks (ICES, C.M.1992/G:14) considered the oceanic type to be a separate stock.

Landings

The total landings from the Irminger Sea redfish stock complex (i.e., redfish in all Sub-areas) reached their highest level on record in 1982 with some 230,000 t. Since then, landings have declined to the level of 143,000 t in 1990 but increased again to 168,000 t in 1992 (Tables 2.7.1 - 2.7.14). The catches based on the oceanic *S. mentella* reached a maximum of 105,000 t in 1986 (Table 2.7.13). Since then, the catches have declined to approximately 91,000 t in 1987 and 1988 and to the very low levels of 38,000 t, 32,000 t and 23,000 t in 1989, 1990 and 1991 respectively. The 1991 catches of only 23,000 t were the lowest since the beginning of this fishery. In 1992 the catches were up to the level of 57,000 t.

Stock Distribution with Respect to National Fisheries Zones

The distribution of the *S. marinus* and the traditional *S. mentella* stocks in the national fisheries zones is reflected in the catch statistics. All catches taken in ICES Sub-area XIV are within the national fisheries zone of Greenland. Likewise, catches reported in Divisions Va and Vb are taken within the national fisheries zones of Iceland and the Faroes, respectively. In Sub-area VI, the catches could be taken within the fisheries zone of the EC (United Kingdom) or the Faroe Islands, depending on where they are taken.

ACFM noted that the newly found distribution of traditional *S. mentella* in international waters in the Irminger Sea might also have an impact on considerations on stock distribution with respect to national fisheries zones.

Catches from the oceanic *S. mentella* stock have so far all been taken in Sub-areas XII and XIV, and recently also in minor quantities in Division Va almost exclusively in international waters, i.e., outside the national fisheries zone of the neighbouring countries with the exception of some catches within the national fisheries zone of Greenland and, at the beginning of 1991, also in the Icelandic fisheries zone. In 1992 about 2,000 t were taken in the Icelandic fisheries zone.

From distribution information available it is obvious that a substantial part of the adult oceanic *S. mentella* stock is, at least at times, to be found within the national fisheries zones of Iceland and Greenland. In the present state of knowledge, ACFM has no way to quantify the proportion of the adult stock occurring in respective national zones.

Assessments

ACFM would like to point out some inherent problems in assessing redfish stocks and in advising TACs for them:

The catch is landed as redfish with no specification as to species. The necessary allocation of the landings by species therefore has to be done on the basis of sampling, which has now become difficult because of increased processing at sea.

Age determination of redfish is a very difficult task for several reasons. The growth is very slow, the growth increments are indistinct both in scales and otoliths, and the fish recruit to the fishery at a late age. Furthermore, a validation of the ageing methods is badly needed.

Area coverage on ichthyoplankton and acoustic surveys for oceanic *S. mentella* has differed from year to year and the survey results therefore do not necessarily reflect changes in stock abundance. The acoustic estimates have (apparently) improved and a comparison of the estimates in a given area between 1991 and 1992 gave rather convincing results (differing only by 7%). Furthermore, with the right setting of the acoustic instruments the noise has been excluded to a greater extent.

If ACFM is to provide any advice other than for precautionary TACs in the future, several of the problems mentioned above have to be resolved.

2.7.1 Redfish *Sebastes marinus* and *Sebastes mentella* "traditional fishery" in Sub-areas V, VI and XIV

(Table 2.7.11-2.7.12)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	129	≤83 ²	≤84 ²	117	116	117 ³	116 ³	120 ³			
Agreed TAC	-	-	-	-	-	-	-				
Landings as used by ACFM, total	124	115	121	112	112	123	111	-	169	112	131
Division Va	87	88	94	92	92	96	93	-	125	72	97
Division Vb	21	17	15	15	12	15	15	-	21	7	14
Sub-area VI	1	1	1	1	1	1	+		1	+	1
Sub-area XIV	15	8	10	3	7	11	3	-	43	3	19

¹Over period 1980-1992. ²For *S. marinus* only. ³Precautionary. Weights in '000 t.

Catches: Total catches reached a peak of 169,000 t in 1982 but declined to around 110,000-120,000 t from 1989-1992.

Data and assessment: No analytical assessment could be made due to age reading problems.

Fishing mortality: No information available.

Recruitment: Icelandic 0-group surveys since 1970 indicate good recruitment of redfish during the period 1972-1974. From 1975-1989 most indices were below average. Higher values were found in 1985, 1987, 1990 and 1991. In 1992 the values were below average.

State of stock: Unknown, but CPUE for the Icelandic trawlers fishing in Division Va was stable until 1992 when a considerable decline in CPUE was observed.

Management advice: If a precautionary TAC is to be set, ACFM recommends that it be no greater than 100,000 t, a reduction which corresponds to the decrease observed in the CPUE data.

2.7.2 *Sebastes mentella* "oceanic type" in Sub-areas XII and XIV
(Tables 2.7.13-2.7.14)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	66	- ²	~50			
Agreed TAC	-	-	-	-	-	-					
Landings as used by ACFM, total	105	91	91	38	32	23	56	-	105	23	63
Division Va	-	-	-	-	-	-	1	-	1	-	1
Sub-area XII	24	3	10	17	7	7	10	-	61	3	23
Sub-area XIV	81	88	82	21	25	16	45	-	88	+	34

¹Over period 1982-1992. ²Preference for no major expansion of fishery. Weights in '000 t.

Catches: The fishery started in 1982. Landings increased from 1984 to 1986 and subsequently declined until 1992 when they increased again.

Data and assessment: No analytical assessment is available due to age reading problems. Effort series are available for two fleets. Comparable acoustic estimates are available for a given area from 1991 and 1992.

Fishing mortality: No information available.

Recruitment: No estimates available.

State of stock: Due to uncertainties regarding this stock ACFM carried out simulations with various input parameters in order to examine the possible response of this stock to fishing. The 1992 Icelandic acoustic survey estimated a stock biomass of 1.3 million t in the area surveyed by Iceland. In an area not covered by the Icelandic survey but covered at the same time by Russia, a biomass of 630,000 t was estimated, giving a total estimate of 1.9 million t in the area covered in the two surveys.

Management advice: The simulations indicate that a TAC of over 150,000 t may reduce the stock to low levels during the next 10 years. A TAC of about 100,000 t for the next 10 years will result in less than 50% reduction from the virgin (1982) biomass level under the most likely scenarios.

Special comments: Due to the uncertainties regarding this stock, it is essential that it be monitored regularly (e.g. every third year) using acoustic surveys.

2.8 Demersal Stocks at the Faroe Islands

2.8.1 Faroe saithe (Division Vb)

(Table 2.8.1; Figure 2.8.1)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	≤32	≤32	40	-	30	27 ⁴	<37			
Agreed TAC	-	-	-	-	-	-	-				
Official landings	42	40	45	44	60	53	36	-	60	10	34
Unallocated landings	-	-	-	1	2	1	1	-	-	-	-
Catch as used by ACFM	42	40	45	45	62	54	37	-	62	10	34
Sp. stock biomass	111	96	100	104	90	78	56	66 ²	120	56	95
Recruitment (age 3)	62	47	44	29	23	32	23	29 ³	62	8	25
Mean F(4-8,u)	0.51	0.40	0.45	0.36	0.58	0.69	0.49	-	0.69	0.10	0.30

¹Over period 1960-1992. ²Predicted. ³Assumed. ⁴Significant reduction of fishing mortality. Weights in '000 t, recruitment in millions.

Catches: The catches increased from 25,000 t in 1980 to 55,000 t in 1984. From 1985 to 1989 the catches were around 40,000-45,000 t but increased to 62,000 t in 1990 due to the recruitment of the good 1983-1985 year classes combined with an increase in effort. The decline in catches in 1991 to 54,000 t continued in 1992 to 36,000 t.

Data and assessment: Assessment tuned with effort data from a group of pair trawlers. No recruitment indices are available.

Fishing mortality: The fishing mortality increased steadily from 1980 with some fluctuations, reached its highest level of 0.69 in 1991, but decreased in 1992.

Recruitment: After good recruitment in 1983-1985, the year classes have been at the average level.

State of stock: SSB was at a record low in 1992.

Forecast for 1994:

Assuming $F(93) = 0.49$, Basis: $F93 = F92$, $Catch(93) = 34$, $Landings(93) = 34$.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	$F_{0.1}$	0.15	55	12	12	73	SSB increasing
B	50% reduction in F	0.25		19	19	67	
C	40% reduction in F	0.29		23	23	64	
D	30% reduction in F	0.34		26	26	62	SSB slightly increasing
E	F_{max}	0.43		32	32	57	
F	F_{92}	0.49		34	34	55	SSB stable at historically low level

Weights in '000 t.

Continued fishing at current levels of fishing mortality will keep the SSB at its present very low level.

Medium-term consequences: SSB in 1992 was at a record low. As there are indications of poor recruitment at low levels of SSB, there is a considerable probability of low recruitment unless the SSB is allowed to increase. A 40% reduction in fishing mortality will increase the SSB. This will have no measurable effect on the total catches obtainable from incoming year classes (less than 5%) but in the longer term the reduced fishing effort is expected to result in a considerably larger SSB than without the reduction.

Management advice: The spawning stock biomass has reached a historically low level at which recruitment appears to be depressed. Thus, the stock is estimated to be at or outside biologically safe limits. ACFM, therefore, recommends that, as a first step, fishing mortality be reduced by at least 30% to allow SSB to begin to increase towards safer levels. This corresponds to a TAC of no more than 26,000 t in 1994 and is expected to increase the SSB by 13% by 1995.

2.8.2 Faroe Plateau cod (Sub-division Vb₁)
(Table 2.8.2; Figure 2.8.2)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	22	≤31	≤29	≤19	-	16	20	0			
Agreed TAC	-	-	-	-	-	-	-				
Official landings	35	21	22	21	12	8	7	-	40	7	26
Unallocated landings ³	-	-	1	1	1	+	+	-			
Catch as used by ACFM	35	21	23	22	13	9	7	-	40	7	26
Sp. stock biomass	73	61	51	37	28	20	17	20 ²	114	17	58
Recruitment (age 2)	9	10	9	16	3	6 ²	7 ²	6 ²	48	3	17
Mean F(3 - 7,u)	0.69	0.46	0.62	0.83	0.71	0.56	0.50	-	0.83	0.30	0.51

¹Over period 1961-1992. ²Predicted. ³Reported from Division IIa. Weights in '000 t, recruitment in millions.

Catches: From the good recruitment of the early 1980s, catches were at a high level in 1983-1986. Since then the catches have declined sharply to the lowest level on record of only 6,700 t in 1992.

Data and assessment: The assessment was tuned with groundfish survey and commercial longliner data. Recruitment indices are available.

Fishing mortality: The average fishing mortality has been fluctuating between 0.42 and 0.83 with an average of 0.51 in the period 1983-1992. In 1992, the fishing mortality was about 0.50.

Recruitment: The recruitment since 1984 has been poor.

State of stock: SSB has declined steadily from the high level in 1984 to the lowest level on record in 1992.

Forecast for 1994:

Assuming F(93) = 0.50, Basis: F(93) = F(92), Catch(93) = 7, Landings (93) = 7.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F _{0.1}	0.10	19	2	2	25	SSB increasing
B	F _{max}	0.24		4	4	23	
C	40% reduction in F	0.30		5	5	22	
D	20% reduction in F	0.40		6	6	21	SSB slightly increasing
E	F(92)	0.50		7	7	19	
							SSB stable at historically low level

Weights in '000 t.

Continued fishing at current levels of fishing mortality will result in stabilisation of the SSB at its historically low level, and even significant reductions in fishing mortality will not allow the SSB to increase to acceptable levels in 1995.

Management advice: For at least the next few years, large annual catches cannot be obtained from this stock. The spawning stock is presently below any level previously experienced and the recruitment in recent years has been poor. ACFM considers the present SSB to be below the minimum biologically acceptable level (MBAL) and recommends that no fishing should take place on this stock until there is evidence of a substantial increase in recruitment and biomass.

Special comments: A reduction in mean weight at age has contributed considerably towards the recent decrease in SSB.

2.8.3 Faroe Bank cod (Sub-division Vb₂)

(Table 2.8.3)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18)

Catches: Total landings reached a peak value of 3,500 t in 1987, and then showed a severe drop in 1989. In 1990, a closure of the Bank was introduced for all forms of fishing from 1 June onwards. Subsequently further drops in landings have been observed. In addition to the officially reported catches for 1992 (342 t) catches of ca 160 t were reported to the Working Group arising from experimental fishing by longliners less than 100 GRT and jiggers. The catches for the last three years were between 340 and 570 t.

State of stock: The Faroese ground fish surveys of the Bank indicated a steady decline in the stock from a high in 1986 until 1990. Subsequently, catch rates increased to a level close to that of 1988. The age composition of the survey catches shows that the recent increase is primarily attributable to the growth of older fish with some contribution from recruitment. However, recruitment has been very low for the past four to six years. This indicates that the stock would be vulnerable to future fishing.

Management advice: In view of the uncertainties about the state of this stock, ACFM advises that it still requires protection and that a precautionary TAC of not more than 500 t be set for the entire Bank area (<350 m depth).

Special comments: An experimental longline fishery has operated since 1992 and ACFM noted that results from such surveys would be interpretable only after a series has been undertaken and when catches have been aged. The groundfish surveys provide a consistent means of monitoring the stock and they should be continued to provide indices of catch at age.

2.8.4 Faroe haddock (Division Vb) (Tables 2.8.4 and 2.8.5; Figure 2.8.3)

Source of information: Report of the North-Western Working Group, May 1993 (C.M.1993/Assess:18).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	14	≤17	≤18	≤11	-	11	13-15	<8			
Agreed TAC	-	-	-	-	-	-	-				
Official landings	14	15	12	14	12	9 ⁵	6 ⁵		28	6	17
Catch as used by ACFM ⁴	14	15	12	14	12	9	6		28	6	17
Sp. stock biomass	55	57	54	41	31	26	17	14 ²	103	17	60
Recruitment (age 2)	24	7	15	13	7	1	11 ³	11 ³	77	1	27
Mean F(3-7,u)	0.26	0.32	0.24	0.36	0.40	0.44	0.43	-	0.66	0.18	0.37

¹Over period 1973-1992. ²Predicted. ³Assumed. ⁴Includes catches reported to Division IIa and non-official French catches in Vb. ⁵Preliminary. Weights in '000 t, recruitment in millions.

Catches: Catches have been stable at the level of 12,000-15,000 t but decreased in 1991 and 1992 to 9,000 t and 6,000 t, which is the lowest on record.

Data and assessment: Assessment tuned with groundfish survey and commercial longliner data.

Fishing mortality: The fishing mortality was fairly stable at a level of 0.3 but has increased in the most recent years to a level of 0.4.

Recruitment: Recruitment has decreased since 1982 to the present very low level.

State of stock: SSB has been decreasing since the middle of the 1970s and in 1992 was at the lowest level on record.

Forecast for 1994:

Assuming $F(93) = 0.43$, Basis: $F(93) = F(92)$, $Catch(93) = 5$, $Landings(93) = 5$.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	$F_{0.1}$	0.17	14	2	2	17	SSB increasing
B	40% reduction in F	0.26	14	3	5	16	} SSB stable
C	20% reduction in F	0.34	14	4	6	15	
D	F_{92}	0.43	14	5	5	14	SSB stable at historically low level

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to unchanged SSB at a historically low level.

Management advice: For at least the next few years, large annual catches cannot be obtained from this stock. The spawning stock is presently close to the lowest historically recorded and recruitment in recent years has been poor. ACFM considers the present SSB to be below the minimum biologically acceptable level and **recommends** that no fishing should take place on this stock until there is evidence of a substantial increase in recruitment and biomass.

Special comments: A reduction in mean weight at age has contributed considerably towards the decrease in SSB.

2.9 Herring Stocks North of 62°N

2.9.1 Icelandic summer-spawning herring (Division Va)

(Table 2.9.1; Figure 2.9.1)

Source of information: Report of the Atlanto-Scandian Herring and Capelin Working Group, October 1993 (C.M.1994/Assess:6).

Year ⁴	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	65	70	100	90	90	79	86	110			
Agreed TAC ²	65	72.9	90	90	100	110	110	100			
Official landings	65	75	93	97	102	100	106	-			
Discards/slipping	-	-	-	4	3	9	2	-			
Catch as used by WG	65	75	92	101	106	109	107	-	130	0.3	47
Sp. stock biomass	260	372	429	401	364	310	399	480 ⁵	429	11	180
Recruitment (1-ringers)	608	377	510	372	1217	1196	302	1418 ³	1280	34	385
Mean F (4 - 14,w)	.36	.39	.29	.31	.35	.37	.33	-	1.67	601	41

¹Over period 1947-1992. ²National quota. ³Acoustic estimate. ⁴Year refers to start of season. ⁵Forward projection. Weights in '000 t, recruitment in millions.

Catches: Stable in the period 1979-1985, then increased rapidly in 1986/1987 and have remained at about 100,000 t since then which is the highest level since the mid-1960s.

Data and assessment: Analytical assessment based on catch-at-age data and acoustic surveys. The database is satisfactory.

Fishing mortality: Stable at a level somewhat above $F_{0.1}$.

Recruitment: Variable but with increasing trend. The 1988 and 1989 year classes are estimated to be strong.

State of stock: The stock has recovered from the depleted state of the early 1970s. The SSB in 1993 is now estimated to be about 480,000 t which is the highest on record.

Forecast for 1994:

Assuming $F(93) = 0.25$, Basis: TAC, Catch(93) = 100, Landings (93) = 98

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	Catch 60	0.15	447	60	58	590	Increasing SSB.
B	$F_{0.1}$	0.19		83	81	568	Increasing SSB.
C	F(92)	0.33		141	139	510	Increasing SSB.
D	1.2 x F(92)	0.40		162	160	488	Increasing SSB.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a slight increase in the spawning stock. Fishing at the $F_{0.1}$ level would result in annual catches around 90,000 t in 1994-1996.

Management advice: This stock is within safe biological limits. ACFM notes that fishing mortalities have been above $F_{0.1}$ and that fishing at higher levels of F will not lead to any gain in long-term yield.

Special comments: The present assessment is based on a revised time series of acoustic estimates which results in lower acoustic stock estimates than previously. The stock estimates in the most recent years have, therefore, been revised downwards. This does not change the general trend in the stock.

2.9.2 Norwegian spring-spawning herring

(Tables 2.9.2 - 2.9.3; Figures 2.9.2 - 2.9.3)

Source of information: Report of the Atlanto-Scandian Herring and Capelin Working Group, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	150	150	120-150	100	80	0	0	119			
Agreed TAC	126	115	120	100	80	76	98	200			
Official landings	127	113	125	94	78	80	99	-			
Catch as used by ACFM	225	127	135	104	86	85	104	-	1995	7	534
Sp. stock biomass	381	749	2200	2630	2576	2673	2396	2359 ²	11188	9	2840
Recruitment (age 3)	16694	467	603	52	343	2008	6107	8298 ³	50672	4	3575
Mean F(5 - 9,u)	0.7	0.3	0.3	0.05	0.04	0.04	0.04	-	2.24	0.01	0.31

¹Over period 1950-1992. ²Forward projection. ³Estimate from survey. Weights in '000 t, recruitment in millions.

Catches: Increased to 1986, then decreased to 1991. Catches increasing 1992-1993.

Data and assessment: Assessment tuned to tagging and acoustic estimates. Stock data for the period 1952-1972 are uncertain and are provided here to show the development of the stock over the long term.

Fishing mortality: Has been at a very low level in recent years.

Recruitment: Increasing in the most recent years.

State of stock: This stock has recovered from its depleted state in the 1970s and 1980s. The spawning stock in 1994 will be above the minimum biologically acceptable level.

Forecast for 1994:

Assuming $F(93) = 0.09$, Basis: TAC, Catch(93) = 205, Landings (93) = 200.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	No fishing	0	2788	0	0	4017	Increasing SSB.
B	$F(94) = 0.5 \times F(93)$	0.04	2777	120	115	3891	Increasing SSB.
C	$F(94) = F(93)$	0.09	2766	236	231	3772	Increasing SSB.
D	Gradual increase	0.13	2756	334	329	3660	Increasing SSB.
E	$F(94) = 2 \times F(93)$	0.18	2744	455	450	3562	Increasing SSB.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to an increase in SSB in the coming 2 years, however, still below the MSY level.

Management advice: In 1994, this stock is expected to be above the Minimum Biologically Acceptable Level (MBAL). If a development in the fishery is required, ACFM advises that any increase in fishing mortality should be gradual.

Special comments:

1. A long-term target fishing mortality of $F_{0.1}$ would result in an efficient utilisation of this stock. $F_{0.1}$ has historically been estimated about 0.26. To allow for an orderly development of the fishery and at the same time obtain estimates of the present level of $F_{0.1}$, fishing mortality could be increased gradually towards this level. This could be obtained by applying a fishing mortality of 0.13 in 1994, corresponding to a catch of 334,000 t in 1994. This stock represents a special situation which is not entirely covered by the present form of ACFM advice. The advice given is based on an adaptive management approach which is to be evaluated further in relation to future developments of the form of ACFM advice.
2. The spawning stock is still below the level known to have given good recruitment in the period prior to the collapse of the stock, and is still very much below the historic level in the 1950s (about 7-10 million t). Although the SSB is predicted to increase above 2.5 million t in 1994, this assessment must be considered uncertain due to difficulties in the interpretation of the surveys on which the assessment are based, and to increased natural mortality caused by the *Ichthyophonus hoferi* disease. Furthermore, as the natural mortality in 1991-1992 is estimated to be 4-5 times the fishing mortality, the analytical assessment can only be used to estimate the relative year-class strength.

The acoustic and O-group surveys in the Barents Sea in recent years indicate the recruitment to the herring stock to be good in the coming years. The uncertainties in the further development of the cod-capelin and herring system in the Barents Sea, however, makes it extremely difficult to predict the recruitment to this herring stock in the near future.

Information on *Ichthyophonus hoferi*

Samples of Norwegian spring-spawning herring taken in 1993 revealed variable but significant infestation of *Ichthyophonus hoferi*. In the wintering areas in January infection rates of 6.7% were observed in 1993, as compared to 1-2% in January 1992. Of the infected fish 75% belonged to the 1983 year class. Later when most of the pre-spawning fish had left the wintering area the infestation rate increased to 60-70%. Herring sampled by trawl generally exhibit higher infection rates compared to samples obtained by purse seine. Samples taken off northern Norway (Malangen Bank) in January 1993, mainly of the 1989 year class, indicated an infestation rate of 64%, and in February, 82% from three samples on the spawning grounds were infected.

Information on the Spatial and Temporal Distribution of Norwegian Spring-Spawning Herring

The general distribution pattern of the Norwegian spring-spawning herring in 1992-1993 is shown in Figure 2.9.3. Since 1989 a gradual southward extension of the spawning grounds has been observed, and in 1993 as in 1992 spawning was recorded at Egersund and Siragrunnen. In February 1993, a few specimens of maturing spring-spawning herring were caught in the old spawning areas east of the Faroes.

The feeding areas for the adult stock are in the Norwegian Sea and have gradually been extended in recent years. In June-July 1993 herring were found distributed in very scattered concentrations over wide areas in the Norwegian Sea. Compared to 1992 the distribution in 1993 appeared to be over a wider area both to the north and south.

Since 1986/1987 the wintering areas have been in the fjords of northern Norway between 67° and 69° N.

Since 1988 the most important nursery areas have been in the Barents Sea. In 1993, for the first time since the 1950s, O-group herring were observed in the Norwegian Sea (east of Jan Mayen).

2.10 Capelin

2.10.1 Barents Sea capelin (Sub-areas I and II, excluding Division IIa west of 5°W)

(Table 2.10.1)

Source of information: Report of the Atlanto-Scandian Herring and Capelin Working Group, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	0	0	0	0	0	1000 ³	834	0-600 ³			
Agreed TAC	120	0	0	0	0	850	834	600			
Catch as used by ACFM	123	0	0	0	0	906	1119	586	2940	0	1543
Sp. stock biomass (1 Oct.) ²	63	17	203	181	2620	2117	2201	330	3867	17	1487
Recruitment (age 2)	3	2	29	19	177	574	196	53	574	2	212

¹Over period 1973-1993. ²Year before spawning. ³Winter/spring (January-April) fishery. Weights in '000 t, recruitment in billions.

Catches: There was no fishing between May 1986 and 1991. The fishery was re-opened in January 1991.

Data and assessment: Based on annual acoustic survey.

Fishing mortality: Not estimated

Recruitment: The 1-group estimate for the 1992 year class is extremely low. The 0-group estimated in the autumn of 1993 seems to be very poor.

State of stock: The maturing stock estimated in October 1993 was about 330,000 t. Taking into account the natural mortality from October until spawning in spring 1994, the spawning stock will be much less than the target spawning stock of 400,000-500,000 t.

Management advice: This stock is considered to be outside safe biological limits, and no fishing should take place on this stock in 1994.

2.10.2 Capelin in the Iceland-East Greenland-Jan Mayen area (Sub-areas V and XIV and Division IIa west of 5°W)

(Table 2.10.2)

2.10.2.1 Advice from the May 1993 ACFM Meeting

Source of information: Report of the Atlanto-Scandian Herring and Capelin Working Group, October 1992 (C.M.1993/Assess:6) and Working Paper, April 1993).

Year ¹	1986	1987	1988	1989	1990	1991	1992	1993	Max ²	Min ²	Mean ²
Recommended TAC	1100	500 ³	900	900 ³	500 ³	0 ³	500 ³	900 ³	1100	0	-
Agreed TAC	1290	1115	1065	900	600 ⁴	740	900		1290	0	-
Catch as used by ACFM	1333	1116	1036	808	386	677	793		1333	0	801
Sp. stock biomass	420	400	440	115	330	460	500		500	115	351
Recruitment (age 2) ⁴	66.2	102.6	94.3	53.1	42.3	77.2	97.6 ⁵	144.0 ⁵	91.3	17.1	51.9

¹The figures in the table refer to a fishing season starting in July in the year indicated and ending in March in the following year. ²Over the period 1979-1992. ³Preliminary TAC for the period July-November. ⁴Refers to total year-class abundance by number entering the stock on 1 August in the year indicated, based on back-calculations from acoustic estimates, catches and natural mortality. ⁵Predicted from estimates of maturing 2-group in 1991 and 1992, maturation rates and natural mortality. Weights in '000 t, recruitment in billions.

Catches: After being low in the 1989/1990 and 1990/1991 seasons, the catch rose to 678,000 t in the 1991/1992 season and 793,000 t in the 1992/1993 season. Due to difficult fishing conditions all the TAC could not be taken in the last two seasons.

Data and assessment: Analytical assessment based on acoustic surveys.

Fishing mortality: Not assessed.

Recruitment: Highly variable. In the seasons starting in the autumn of 1989 and 1990 the recruiting year classes did not appear in expected strength. In 1991 recruitment was stronger than expected but it was close to the expected level in 1992.

State of stock: The spawning stock fell below the minimum safe level of 400,000 t in the 1989/1990 and 1990/1991 seasons. The stock recovered quickly due to good recruitment and appears to be strong at present.

Management advice: In order to ensure a spawning stock biomass of 400,000 t in March 1994, a TAC for the first half of the 1993-1994 season should not exceed 900,000 t. This corresponds to two-thirds of an expected recommended TAC of 1,390,000 t for the entire 1993-1994 fishing season..

New information will become available during the summer-autumn fishery and from acoustic surveys planned in October-November 1993 and January-February 1994. ACFM recommends that these data be used when the final TAC for the 1993/1994 season is set.

It is known from acoustic surveys that the main distribution area of juvenile 1-group capelin is usually in the shelf area north and northeast of Iceland. In order to avoid excessive mortalities of juveniles due to their repeated escape through the mesh used in capelin seines, ACFM reiterates its previous recommendation that the most important areas of juvenile abundance remain closed to a commercial fishery, at least until surveys have identified the current situation.

Special comments: The TAC computations are based on the method which was used for the first time in 1992. This involves the use of 1-group indices from the October-November survey for predicting the mature 2-group in the following year. The total 2-group abundance from the same survey and the relationship between maturing ratios and year-class abundance are used for predicting numbers of capelin in the 3-group. The computation further includes a 2/3 rule, intended to reduce the risk of overexploitation.

2.10.2.2 Advice from the October/November 1993 ACFM Meeting

Source of information: Report of the Atlanto-Scandian Herring and Capelin Working Group, October 1993 (C.M.1994/Assess:6).

Management advice: No new assessment was available and the ACFM advice from the May 1993 meeting still pertains.

3. STOCKS IN NEAFC REGION 2

3.1 Herring Stocks South of 62°N

3.1.1 Assessments of herring stocks around Ireland

Information from larval surveys, tagging experiments and the distribution of the fisheries themselves suggest that there is considerable mixing of the stocks between the various areas around Ireland. This has created difficulties for the various assessments and also raises doubts about the appropriateness of the various management units. The difficulties can be summarized as follows:

Division VIIa N (ie Division VIIa excluding the area south of 52°30'N). Tagging results show a strong possibility that a proportion of the young herring present in the Irish Sea are in fact recruits to the Celtic Sea stock. Herring originally tagged in the Clyde have also been recaptured in the Irish Sea. The stock in Division VIIa N is subdivided into the Manx and Mourne components but the dynamics of the individual components are not understood in relation to the total stock. Larvae studies have also shown a drift of larvae from the spawning grounds in the eastern part of Division VIIa S into Division VIIa N.

Division VIIj - Celtic Sea. A similar situation exists in Division VIIj where larvae from the spawning grounds off the southwest coast of Ireland are carried into Division VIIb. In addition, the important fisheries off southwest Ireland straddle the boundary between Division VIIb and Division VIIj at 52°30'N.

Division VIa S and Division VIIb. Larvae surveys in this area suggest a possible drift of larvae from the north coast of Ireland towards Scotland thus suggesting that at least some of the nursery areas for this stock are situated in Division VIa N. A number of tagged herring released in the Clyde area have in recent years been recovered in the fisheries in Division VIa S. There are also important fisheries on the Stanton Bank which is on the boundary (56°) between Division VIa N and Division VIa S.

ACFM considers that a study group should be established to investigate the stock structure in the herring management units around Ireland and their relationship to stocks in other areas. This Study Group should also advise on the necessary changes that should be made to the existing databases if it were found necessary to carry out assessments for areas other than those in existence at present. It would also be advisable if the Study Group could examine all available survey data with a view to obtaining recruitment indices for various stocks and in addition draw up a programme of research necessary to carry out more meaningful assessments.

3.1.2 Herring in Sub-area IV, Division VIId and Division IIIa (Tables 3.1.1-3.1.5; Figure 3.1.1)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC (IV and VIId)											
SUB-AREA IV AND DIVISION VIId											
Recommended Div. IVa,b ⁴	235	600	500	484	373/332	363 ⁹	352	290 ¹⁰			
Recommended Div. IVc, VIId	42	10	15	30	30	50-60 ⁹	54	50			
Expected catch of spring spawners							10	8			
Agreed Div. IVa,b ⁵	500	560	500	484	385	370 ⁹	380	380			
Agreed Div. IVc, VIId	70	40	30	30	30	50 ⁹	50	50			
CATCH (IV and VIId)											
National landings Div. IVa,b ⁶	493	543	644	639	499	495	481				
Unallocated landings Div. IVa,b	2	37	2	-21	-11	8	-9				
Discard/slipping Div. IVa,b ⁷				3	4	2	3				
Total Catch Div. IVa,b ⁸	495	580	646	621	492	505	475	646	10	323	
National landings Div. IVc, VIId ⁶	32	23	21	30	24	42	37				
Unallocated landings Div. IVc, VIId	19	22	31	48	32	16	35				
Discard/slipping Div. IVc, VIId				1	5	3	2				
Total Catch Div. IVc, VIId	51	45	52	79	61	61	74				
Total catch IV and VIId as used by ACFM ⁸	546	625	698	700	553	566	549				
CATCH BY FLEET/STOCK (IV and VIId)											
North Sea autumn spawners directed fisheries (A)			Not available				421	419			
North Sea autumn spawners small mesh fishery (B)			Not available				134	124			
North Sea autumn spawners total	526	611	675	678	544	555	543				
Baltic-IIIa-type spring spawners	20	14	23	20	8	8	8				
Coastal-type spring spawners	0.5	0.3	0.3	2.3	1.1	0.3	0.2				
TAC (IIIa)											
DIVISION IIIa											
Predicted catch of autumn spawners							96	153			
Recommended spring spawners	132	112	99	84	67	91	90	93-113			
Recommended mixed clupeoids		80	80	80	60	0	0	0			
Agreed herring TAC	46	138	138	138	120	104.5	124	165			
Agreed mixed clupeoid TAC	80	80	80	80	65	50	50	45			
CATCH (IIIa)											
National landings	212	234	333	192	202	188	227				
Catch as used by ACFM	217	220	330	162	195	191	227				
CATCH BY FLEET/STOCK (IIIa)											
Autumn spawners human consumption (C)			Not available				26	47			
Autumn spawners mixed clupeoid (D)			Not available				13	23			
Autumn spawners other industrial landings (E)			Not available				38	82			
Autumn spawners total	146	161	201	91	77 ¹¹	77	152				
Spring spawners human consumption (C)			Not available				68	53			
Spring spawners mixed clupeoid (D)			Not available				5	2			
Spring spawners other industrial landings (E)			Not available				40	20			
Spring spawners total	71	59	129	71	118	113	75				
NORTH SEA AUTUMN SPAWNERS											
Total catch as used by ACFM	672	772	876	769	621	635	693	876	11	429	
Fishing mortality age 2-6	0.52	0.50	0.48	0.48	0.37	0.37	0.39	1.52	0.05	0.64	
Spawning stock size	823	959	1179	1456	1354	1307	1184	1055 ²	1456	43	542
Recruitment, millions of 1 ringers	28.3	34.9	27.9	15.0	15.4	14.9	10.5 ³	29.4 ³	34.9	0.8	11.9

¹Over period 1970-1992. ²Predicted. ³Survey estimates. ⁴Includes catches in directed fishery and catches of 1-ringers in small mesh fishery up to 1992. ⁵IVa,b and EC zone of IIa. ⁶Provided by Working Group members. ⁷One fleet only. ⁸Includes spring spawners not included in assessment. ⁹Revised during 1991. ¹⁰Based on F=0.3 in directed fishery only; TAC advised for IVc,VIId subtracted. ¹¹Estimated. Weights in '000t, recruitment in 10⁹.

Catches: Catches in Sub-area IV and Division VIIId are given in Tables 3.1.1 - 3.1.5. 1992 catches in Division IVa,b were 475,000 t. The estimated total catch of the autumn spawned stock in all areas was 693,000 t of which 419,000 t was taken in the human consumption fisheries in Sub-area IV and Division VIIId, 124,000 t in the North Sea small mesh fisheries and 152,000 t in fisheries in Division IIIa. The catches decreased in Divisions IVa,b and increased in Divisions IVc and VIIId and, especially, in Division IIIa.

Data and assessment: Autumn spawners in Division IIIa included. Reduced sampling by some countries, and estimates of discards from one country only. SSB indices from acoustic, larvae and bottom trawl surveys. Recruitment indices from IYFS. Retrospective analysis showed consistency in the assessment but divergence between indices giving uncertainty in the precise level of stock size. The impact of *Ichthyophonus* sp. is uncertain but a very tentative analysis indicates that the disease mortality in 1992 may have been significant (see Special Comment No. 4).

Fishing mortality: Fishing mortality was relatively stable at 0.5 between 1986 and 1989 and thereafter declined to a new stable level of about 0.38. F on 1-ringers close to F on adult fish (ca. 0.3); F on 0-ringers at about 0.08.

Recruitment: Bottom trawl survey covering the North Sea and Division IIIa indicates that the 1991 year class is strong. The 1992 year class appears to be of the same magnitude although the strength of this year class is uncertain.

State of stock: Fairly stable SSB since 1989, reduced in 1992 but still well above the minimum biologically acceptable level of 800,000 t.

Forecast for 1994:

Forecast for 1994 by fleet, total North Sea and Division IIIa combined

(see Special Comment 2)

Assuming $F(93) = F(92)$ for fleets A and B; $Catch(93) = Catch(92)$ for fleets C, D and E. Landings (93) = Fleet A: 413; Fleet B: 110; Fleet C: 47; Fleet D: 23; Fleet E: 83; Total 676.

F(94) relative to average F(90-92) by fleet					1994		Catch in 1994									
						At spawning time		North Sea			Division IIIa				North Sea and Division IIIa	
A	B	C	D	E	$F_{2.6}(94)$	SSB	Biom. 2+	A	B	Total	C	D	E	Total	Total	0 + 1 ringers
1.2	1	$F(94)=F(92)$			0.45	1067	1407	519	139	659	82	38	355	475	1133	560
1.2	1	$F(94)=F(93)$			0.45	1081	1434	523	140	663	53	21	83	157	821	274
1	1	$F(94)=F(92)$			0.39	1115	1462	445	140	585	82	38	355	475	1061	556
1	1	$F(94)=F(93)$			0.38	1129	1490	449	141	589	53	21	83	157	746	270
0.75	1	$F(94)=F(92)$			0.30	1178	1535	346	141	487	82	38	355	475	963	550
0.75	1	$F(94)=F(93)$			0.29	1192	1563	349	142	491	53	21	83	157	648	265
1	0.2	$F(94)=F(92)$			0.38	1132	1498	452	30	481	82	38	355	475	958	475
1	0.2	$F(94)=F(93)$			0.36	1147	1527	455	30	485	53	21	83	157	643	189

Weights in '000 t.

A: Directed herring fisheries (mainly for human consumption) in the North Sea.

B: Small-mesh fisheries in the North Sea.

C: Human consumption landings in Division IIIa.

D: Mixed clupeoid landings in Division IIIa.

E: Other industrial landings in Division IIIa.

Management advice: The SSB has been fairly stable fluctuating between 1.0-1.5 million tonnes. ACFM therefore considers that the stock is well within safe biological limits and has presented a range of catch options for 1994 for consideration by managers. Yield per recruit calculations based on the present exploitation pattern indicate that there are no long-term gains when fishing mortality is in excess of 0.3.

Special comments:

1. ACFM notes that the catches of 0-ringers in 1992 reached very high levels similar to those observed in the early 1980s. In last year's report ACFM presented an evaluation of the potential impact on yield and SSB of reducing or eliminating catches of juveniles. Based on the catches and fishing pattern in 1991, that analysis showed that if all

fishing on 0- and 1-ringed herring could be prevented the relative increase in yield would be about 9% and about 43% in SSB. In 1991 two relatively weak year classes entered the juvenile fishery. This analysis is, however, very much influenced by the size and spatial distribution of the year classes. Because of the much stronger 1991 year class the situation was very different in 1992. ACFM, therefore, decided to evaluate the potential impact of the juvenile fishery in 1992 based on the catches and geographical distribution of the 1991 year class. If the catch of 0- and 1-ringers in 1992 (214,000 t) was prevented an increase in yield and SSB in the following years assuming F on 2+ringers remained at the 1992 level of 0.39 would be:

Year	Extra SSB in t.	Extra yield of 2+ringers in t
1993	73,000	39,000
1994	226,000	97,000
1995	247,000	88,000
1996	153,000	64,000
1997	98,000	41,000
1998	60,000	25,000
1999	39,000	16,000
2000	34,000	15,000
2001	24,000	11,000
Total	954,000	396,000

Thus the net gain in yield would have been $396,000 - 214,000 = 182,000$ t. The effect of the different fleets is summarized below as accumulated gain over the years 1993-2001 in net yield and SSB

Preventing fishing for juveniles in		Ages	Predicted Increase in t	
			Yield	SSB
North Sea	Fleets A and B	0+1	120,000	542,000
Division IIIa	Fleets C,D,E	0+1	61,000	412,000
	Fleet D (Mixed clupeoid fishery)	0+1	22,000	106,000
North Sea and Division IIIa		0+1	181,000	954,000

ACFM, therefore, reiterates that catches of juveniles, both in the North Sea and Division IIIa, substantially reduce the long term yield of adult herring and the spawning biomass.

2. This year for the second successive year, ACFM presents a limited number of catch options by fleet and area. Given the complexity of the fishery on North Sea herring the number of possible scenarios is virtually unlimited. ACFM, therefore, would welcome clearly formulated guidelines from managers on the management objective(s) for this stock and which catch options should be investigated in the future.
3. In the case of catch sampling, some improvements have been achieved, but there are still problems of access to landings, especially the Swedish landings in Division IIIa. In general the sampling is still at a critically low level. ACFM strongly recommends that all landings should be covered by national sampling programmes. The sampling programme should also include discarding.
4. The fungus disease *Ichthyophonus* sp., which was identified in 1991, still occurs in the stock. The current evaluation of the additional mortality based on data only from the 1992 summer survey, indicates that the mortality could be significant. This evaluation is, however, very uncertain as the model used has not been validated and only a very limited set of data has been made available for analysis. It may, therefore, be necessary to review the present assessment at the ACFM November meeting when more data should be available.

3.1.3 Herring in Divisions IVc and VIId (Downs herring)

(Table 3.1.5)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	42	10	15	30	30	50-60 ³	54 ⁴	50			
Agreed TAC	70	40	30	30	30	50 ³	50	50			
National landings ²	32	23	21	30	24	42	37	-			
Unallocated landings	19	22	31	48	32	16	35	-			
Discards/slipping	---- Not available ----			1	5	3	2	-			
Catch as used by ACFM	51	45	52	79	61	61	74	-	79	1	41
Sp. stock biomass											
Recruitment (age)	----- Included in total North Sea -----										
Mean F(- ,u)											

¹Over period 1972-1992. ²Provided by Working Group members. ³Revised during 1991. ⁴Predicted catch at recommended F. Weights in '000 t.

Catches: The 1992 catch (74,000 t) was 48% above the agreed TAC. Since 1987 the catches have been higher than the agreed TAC.

Data and assessment: Catch-at-age data were provided but no assessment was made as the stock also supports catches in Divisions IV a,b. No reliable fishery-independent data were available. (A larvae survey indicates normal production of larvae in 1992).

Fishing mortality: The fishing mortality is not known.

Recruitment: No data.

State of stock: The current state of the stock is not known. The larvae survey indicates a stable SSB since 1981.

Forecast for 1994: Included in total North Sea

Management advice: The level of TAC agreed for 1993 (50,000 t) is expected to allow the stock to remain at a fairly stable level. A catch of 50,000 t in 1994 is expected to allow the stock to remain at this level.

Special comments: The spawning grounds and spawning season seem to be very restricted suggesting a high susceptibility of the stock to environmental conditions and fishing operations. The population spawning in the southern North Sea is part of the total North Sea stock and the catches taken in this area are part of the total North Sea TAC (see Section 3.1.2).

3.1.4 Herring in Sub-divisions 22-24 and Division IIIa

(Table 3.1.6-3.1.8; Figure 3.1.2)

Source of information: Report of the Working Group on Assessment of Pelagic Stocks in the Baltic, April 1993 (C.M.1993/Assess:17). Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
NORTH SEA											
CATCH											
Baltic-Div.IIIa-type spring spawners	20	14	23	20	8	8	8				
TAC											
DIVISION IIIa											
Pred. catch of autumn spawners							96	153			
Recommended spring spawners	132 ⁴	112 ⁴	99 ⁴	84 ⁴	67	91	90	93-113			
Recommended mixed clupeoids		80	80	80	60	0	0	0 ⁵			
Agreed herring TAC (spring & autumn)	46	138	138	138	120	104.5	124	165			
Agreed mixed clupeoid TAC	80	80	80	80	65	50	50	45			
CATCH											
National landings ⁶	212	234	333	192	202	188	227				
Catch as used by ACFM	217	220	330	162	195	191	227				
CATCH BY FLEET/STOCK											
Autumn spawners landed for human						26	47				
Autumn spawners in mixed clupeoid		Not available				13	23				
Autumn spawners in other ind. landings						38	82				
Autumn spawners total	146	161	201	91	77 ⁷	77	152				
Spring spawners landed for human						68	53				
Spring spawners in mixed clupeoid fishery		Not available				5	2				
Spring spawners in other ind. landings (E)		Not available				40	20				
Spring spawners total	71	59	129	71	118 ⁷	114	75				
TAC											
SUB-DIVISIONS 22-24											
Recommended TAC			97	90	64	87	80	57-68			
Agreed TAC Sub-divisions 22-29 and 32	399	399	399	399	399	402	402	560			
(Agreed TAC Sub-divisions 30 and 31)	91	91	91	91	84	84	84	90)			
CATCH											
National landings	95	102	99	95	78	70	85				
Catch as used by ACFM	95	102	99	95	78	70	85				
SUB-DIVISIONS 22-24 AND DIVISION IIIa SPRING SPAWNERS											
Total catch as used by ACFM	186	175	251	186	204 ⁷	192	168		261	86	172
Spawning stock size	246	204	251	248	267	291	283	232 ²	291	81	194
Recruitment, age 0	12.0	6.4	7.4	3.4	3.7	3.0 ⁸	4.4 ⁸	6.1 ³	12.0	2.5	5.9
Mean F(2-6u)	0.68	0.63	0.62	0.48	0.48	0.40	0.50		1.17	0.40	0.73

¹Over period 1974-1992; 1974-1990 for recruitment. ²Predicted. ³Assumed. ⁴Adult herring fishery in Division IIIa only. ⁵Substantial reduction. ⁶As reported by Working Group members. ⁷Estimated. ⁸Estimated from surveys. Weights in '000 t, recruitment in billions.

Catches: Estimated catches of this stock decreased in 1992 to the long-term average. Catches from this stock are made by four separate "fleets" (see special comments). National landings of herring (spring and autumn-spawners combined) are given in Tables 3.1.6-3.1.8.

Data and assessment: Stock estimates from acoustic and trawl surveys used in the assessment. Because the surveys gave unexpectedly high estimates of stock biomass in 1991 and 1992, average results for the last 5 years was given the most influence in the assessment.

Fishing mortality: Decreased from a high level (about 1.0) in the late 1970s to about 0.5 in 1991-1992 which is below the long-term average for this stock. The present level is uncertain.

Recruitment: Declining recruitment since the mid-1980s and the 1991 and 1992 year classes are among the lowest in the series from 1974-1992.

State of stock: SSB fairly stable in recent years and above the average level, but some decrease predicted in 1993. Increasing trend since the mid-1970s with a decline from a peak in 1991.

Forecast for 1994: A forecast for this stock was made for four fisheries that exploit the stock in such a way as to be consistent with the forecast for North Sea herring which are also exploited in Division IIIa. The definitions of each fishery and the assumptions made in the forecasts are given under Special Comment 2.

F(94)				Catches of spring-spawning stock in 1994						SSB(95)
Fisheries				Division IIIa				Sd 22-24	Total	
C	D E	F	Overall F ₂₋₆ (94)	SSB(94)	C	D	E	Total		
F(94) = F(93)	0.8 F(92)	0.30	213	28.5	0.8	3.9	33.2	79.7	112.9	242
"	1.0 F(92)	0.36	212	27.8	0.8	3.8	32.4	97.3	129.7	228
"	1.2 F(92)	0.42	210	27.1	0.8	3.7	31.6	114.0	145.6	215
F(94) = F(92)	0.8 F(92)	0.44	210	63.7	2.2	26.2	92.1	75.7	167.8	209
"	1.0 F(92)	0.50	209	62.2	2.1	25.6	89.9	92.4	182.3	197
"	1.2 F(92)	0.56	208	60.8	2.1	25.0	87.9	108.4	196.3	186

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to decreased SSB due to declining recruitment.

Management advice: The stock has been increasing over the past 20 years and reached a record high level in 1991. The stock is currently considered to be within safe biological limits. The most recent year classes are poor and the spawning stock size is expected to decrease in 1993. Catches in the range of 130,000-180,000 t from the stock in 1994 will maintain the stock at its present level.

Special comments:

1) The sampling level in 1992 was generally higher than in previous years for the landings made for human consumption. There are, however, large uncertainties about the quantities and age composition of the part that goes for reduction. A major part of the Swedish landings for industrial purposes (both from the Skagerrak and the Baltic) has not been adequately sampled. This amount was about 130,000 t in 1992. This lack of sampling makes the assessment, both of the North Sea autumn spawners and of spring spawners, more uncertain.

2) The four fisheries exploiting this stock used in the forecast table are defined as follows:

C:-A directed fishery for herring in Division IIIa in which trawlers (with 32 mm mesh size) and purse seiners take part. Catches are landed mainly for human consumption, but a variable proportion is landed for reduction purposes.

D:-The "Mixed clupeoid fishery" in Division IIIa is carried out under a special "Sprat" TAC for all species caught in this fishery. Danish boats are obliged to use a 32 mm mesh (since 1 Jan. 1991). The Swedish fishery includes purse seiners fishing for sprat along the coast as well as trawlers using small-meshed gear (less than 32 mm). The Norwegian fishery is a purse seine sprat fishery for the canning industry. In the Danish mixed clupeoid fishery the proportion of herring has declined and in 1992 the proportion was 57%.

E:-Catches of herring also occur as by-catches in other fisheries, such as the Norway pout and sandeel fisheries. The catches in the forecast table under this fishery include these by-catches together with some other landings of herring made for reduction (see Fishery C).

F:-Landings from Sub-division 22-24

The category "Mixed clupeoids" (Fishery D) only refers to Danish landings in this fishery since it was not possible to separate the Norwegian and Swedish "Mixed" landings from other industrial landings. All Swedish landings for industrial purposes are counted under "Landings for industrial purposes" (Fishery E) whereas the Norwegian industrial landings are given under "Landings for human consumption" (Fishery A).

Attempts have been made to forecast the landings in these fisheries separately. The results are given in the forecast table.

The fisheries catching herring in Division IIIa (C, D, E) exploit both spring spawners that are indigenous to the Baltic and Division IIIa and immigrant autumn spawners from the North Sea. Any change in exploitation of herring in Division IIIa will thus affect both the spring spawners and the autumn spawners.

The assumptions made in each option in the forecast table are given in the table below.

a) For **1993** it is assumed that the values of fishing mortality in each fishery that operates in Division IIIa (ie C, D, & E) will be consistent with the fishing mortality expected on the autumn-spawning North Sea herring that form the predominant part of the catch in Division IIIa. Reductions in fishing mortality rate are expected in Division IIIa in 1993 because, in spite of an expected increase in the abundance of North Sea herring in this area, the total catch of herring is likely to be limited by capacity. The reductions in fishing mortality assumed are thus chosen to correspond to those giving equal catches of North Sea autumn-spawners in 1993 and 1992 in each of these fisheries.

The fishing mortality in the directed fishery in Sub-divisions 22-24 in 1993 is assumed to remain the same as in 1992.

b) For **1994** two sets of options are given. In one, the fishing mortalities in fisheries C, D and E are assumed to remain the same as in 1993 while in the other they are assumed to revert back to their 1992 level. Within each of these sets, fishing mortality options are given for the directed fishery in Sub-divisions 22-24. The assumptions made for fisheries C, D and E in 1994 correspond to those given in the section on North Sea Herring (Section 3.1.2).

c) For **1995** the assumption is made that the fishing mortality in all fisheries that exploit the stock will be at the 1992 level.

Table showing the fishing mortality options used in the forecast.

Year	Fisheries				Resulting fishing mortality, F(2-6)
	C	D	E	F	
1993	0.42 F(92)	0.36 F(92)	0.14 F(92)	1.00 F(92)	0.36
Expected catch of spring spawners in 1993	25,670 t	679 t	3,320 t	93,864 t	Total catch 123,533 t
1994	0.42 F(92)	0.36 F(92)	0.14 F(92)	0.80 F(92)	0.30
"	"	"	"	1.00 F(92)	0.36
"	"	"	"	1.20 F(92)	0.42
"	1.00 F(92)	1.00 F(92)	1.00 F(92)	0.80 F(92)	0.44
"	"	"	"	1.00 F(92)	0.50
"	"	"	"	1.20 F(92)	0.56
1995	"	"	"	1.00 F(92)	0.50

3) The fungus disease *Ichthyophonus* sp., which was identified in 1991, still occurs in the stock. The current evaluation of the additional mortality, based on data only from the 1992 summer survey, indicates that the mortality could be significant. This evaluation is, however, very uncertain as the model used has not been validated and only a very limited set of data has been made available for analysis. It may, therefore, be necessary to review the present assessment at the ACFM November meeting when more data should be available.

3.1.5 Celtic Sea and Division VIIj herring (Tables 3.1.9-3.1.10)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC ²	17	18	13	20	15	15 ⁴	27 ⁵	20-24 ^{5,8}			
Agreed TAC ³	17	18	18	20	17.5	21	21	21			
National landings ^{6,7}	13.3	17.8	16.8	17.9	17.0	21.3	18.6				
Unallocated landings ⁶	6.1	5.3	-	1.3	0.7	0.4	2.3				
Discards/slipping ⁶	3.9	4.2	2.4	3.5	2.5	1.9	2.1				
Catch as used by ACFM ⁶	23.3	27.3	19.2	22.7	20.2	23.6	23.0		27.3	7.2	18.2
Sp. stock biomass	64.9	70.0	77.8	-	-	-	-		85.0	25.1	52.7
Recruitment (age 1)	459	760	367	No assessment available					867	133	392
Mean F(3 - 6 ,u)	0.64	0.73	0.38	[VPA using F=0.50 in 1992].					1.19	0.38	0.68

¹Over period 1977-1992, 1970-1988 for stock data. ²VIIj, VIIg, and VIIa south of 52°30'N for 1 April-31 March. ³VIIg-k and VIIa south of 52°30'N for calendar year. ⁴Expected discards should be deducted to give a TAC of 12,500 t. ⁵Including discards. ⁶Calendar year. ⁷Provided by Working Group members. ⁸Precautionary. Weights in '000 t, recruitment in millions.

Catches: Catches over the period 1988-1992 have been stable, averaging about 21,000 t. Discard levels, although not reliably estimated, are believed to have decreased. Catch statistics have improved since 1989. Over 95% of the total catches are taken by the Irish fishery.

Data and assessment: There is very good biological sampling of this fishery but no reliable independent estimate of stock size. Acoustic surveys, started in 1989, have not yet been used to estimate stock size. An assessment was carried out to study development of the stock prior to 1989 but the results were not used to estimate current stock size.

Fishing mortality: Estimates of F have been consistently high in this stock. They were very high in the early 1980s (0.89 from 1980-1984) and subsequently declined to a level (0.56 from 1985-1988) which can still be considered high. The present level is not known.

Recruitment: No recruit surveys are carried out. The acoustic survey and the 1992/1993 catch-at-age data suggest that the 1990/1991 year class may be strong.

State of stock: Precise level of stock is not known. Believed to be at a high level in 1990-1992.

Forecast for 1994: No predictions carried out.

Management advice: Landings have been reasonably stable over recent years and are close to the long-term mean. The stock size appears to be stable under the present catch level. If a TAC is to be implemented, a precautionary TAC of 20-24,000 t (including discards) seems appropriate in 1994.

3.1.6 Herring in Division VIa (North)

(Table 3.1.11; Figure 3.1.3)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	37-45	38-55	46	58	61	57	≤62	54-58			
Agreed TAC ⁴	51.9	49.7	49.8	58	75	62	62	62			
National landings ⁵	43.9	45.0	42.2	49.3	66.3	60.0	57	-			
Unallocated landings	37.8	18.0	5.2	2.1	2.4	-10.6	-5.5	-			
Discards/slipping	⁻⁶	⁻⁶	⁻⁶	1.6	1.3	1.2	0.2	-			
Catch as used by ACFM	81.7	63.0	47.4	53.0	70.0	50.6	51.6	-	208.5	0.06	84.0
Sp. stock biomass	239	245	381	400	397	379	431	406 ²	600	55	268
Recruitment (age 2)	652	592	1,570	674	659	593	640 ³	640 ³	1,569	171	721
Mean F(3 - 6,u)	0.40	0.29	0.20	0.17	0.21	0.17	0.16	-	1.07	0.001	0.46

¹Over period 1970-1992. ²Predicted. ³Assumed. ⁴VIa(N), VIb and EC zone of Vb. ⁵Provided by Working Group members.

⁶Included in landings. Weights in '000 t, recruitment in millions.

Catches: Since 1987 catches have fluctuated between 47,000-70,000 t. The TAC was not reached for the fifth year in succession, but there is no evidence that this is due to any scarcity of fish. Few estimates of discards and limited information on the quantities of undeclared landings.

Data and assessment: Sampling levels are adequate, but in some years there have been large quantities of unallocated landings. Fishery independent information is available, but the assessment is very uncertain. Heavy dependence on a short series of acoustic estimates.

Fishing mortality: Not reliably known but likely to be low at around $F_{0.1}$.

Recruitment: No independent estimate available except for a bottom trawl survey which is highly variable. Acoustic survey estimates cannot yet be used.

State of stock: Available evidence suggests an increasing trend since 1980, but recent levels of stock size are uncertain.

Forecast for 1994: Not available.

Management advice: SSB appears to be stable and the stock seems to be within safe biological limits. Continued fishing at recent levels is likely to provide catches in 1994 in the range 50,000 - 60,000 t.

Special comments:

1. ACFM stresses that the present assessment must be treated with caution. Improved sampling of the catches and better fishery-independent estimates are needed: the acoustic surveys and larvae surveys should be continued and improved.
2. The Faroese catches of herring in Division Vb were of the order of 11,000 t in 1992, compared with 6,700 t and 16,000 t in 1990 and 1991. The stock origin of these fish is uncertain. Including these landings in the Division VIa N assessment will only make small changes in the present assessment. The stock identity of the autumn-spawning herring caught at the Faroes should be clarified in order to reduce the uncertainties in this and other herring assessments.

3.1.7 Clyde herring (Division VIa) (Table 3.1.12)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	3.07	3.5	3.2	2.9-3.4	2.6	2.9	1.6 ³	- ⁴			
Agreed TAC	3.4	3.5	3.2	3.2	2.6	2.9	2.3	1.0			
National landings ²	3.4	2.9	1.6	2.1	2.2	0.7	0.9	-			
Unallocated landings	0.6	0.3	1.1	0.2	0.1	-	-	-			
Discards/slipping	0.7	0.4	0.2	-	-	-	-	-			
Catch as used by ACFM	4.6	3.6	1.9	2.3	2.3	0.7	0.9	-	7.8	0.7	3.8
Sp. stock biomass											
Recruitment (age)									No estimates available		
Mean F(- ,u)											

¹Over period 1970-1992. ²Provided by Working Group members. ³Preferred TAC. ⁴Lowest possible level. Weights in '000 t.

Catches: Remaining at lowest level recorded and well below TAC. Fishing effort decreased further to a very low level.

Data and assessment: Catch sampling at an acceptable level. No information on discards. Egg surveys not carried out since 1991. In the absence of survey data and reliable allocation of landings to local spring-spawners and immigrant autumn-spawners, no analytical assessment possible. Accuracy of age determination also uncertain and has deteriorated in the last year.

Fishing mortality: No information.

Recruitment: No evidence of improved recruitment.

State of stock: Available information suggests that the indigenous spring-spawning stock is at a very low level.

Forecast for 1994: Not available

Management advice: The state of the stock is uncertain but it currently suffers from low recruitment and fishing at the current low level is likely to reduce the stock size to a historically low level. ACFM, therefore, recommends that, until recruitment has improved, the fishery should be at the lowest possible level.

ACFM advises that the technical measures applied in this fishery should remain in place (spawning season closure, and spawning area closure to all active fishing).

3.1.8 Herring in Divisions VIa (South) and VIIb,c (Table 3.1.13)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	17	18	11-18	15	27/25	<26	29 ⁴	29 ^{4,6}			-
Agreed TAC	17	17	14	20	27.5	27.5	28	28			
National landings ⁵	17.0	16.6	15.3	21.1	27.6	23.1	27.1	-			
Unallocated landings	11.8	32.0	13.8	7.1	13.8	11.2	4.6	-			
Discards/slipping	--- No estimates ---			1.0	2.5	3.4	0.1	-			
Catch as used by ACFM	28.8	48.6	29.1	29.2	43.9	37.7	31.8	-	48.6	15.0	29.3

¹Over period 1970-1992. ²Predicted. ³Assumed. ⁴Including discards. ⁵Provided by Working Group members. ⁶Precautionary.

⁷Estimated over 1970-1987. Weights in '000 t, recruitment in millions.

Catches: Catches in 1991 and 1992 decreased from the high level of 1990. 95% of the catch is taken by the Irish fleet. Unallocated catches decreased due to lower level of misreporting.

Data and assessment: Good sampling data but no fishery-independent estimates of stock size. Assessment carried out in order to study development of stock prior to 1988. No analytical assessment of current exploitation level.

Fishing mortality: No recent estimates available.

Recruitment: No recruitment estimates available. The 1985 year class which recruited in 1988 was the largest year class on record.

State of stock: Not known.

Forecast for 1994: Not available.

Management advice: Catches roughly at level of agreed TAC in 1992. If a precautionary TAC is to be set for 1994, the currently agreed level of 28,000 t seems appropriate.

Special comments: It is important to initiate acoustic surveys in this area. Considerable changes in the spawning stock composition have occurred in recent years. There has been a big increase in the winter spawning herring component of the catch (40% of catch in 1st Quarter of 1993).

3.1.9 Irish Sea herring (Division VIIa)

(Table 3.1.14)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	6.3	4.3	10.5 ²	5.5	5.7	5.6	~6.6	4.9-7.4			
Agreed TAC	6.3	4.5	10.5	6.0	7.0	6.0	7.0	7.0			
National landings ³	6.0	4.5	10.2	5.0	6.3	4.4	5.3	-	38.6	3.9	12.1
Unallocated landings	1.4	1.3	-	-	-	-	-	-	4.1	1.2	-
Discards/slipping	----- Not estimated -----								-	-	-
Catch as used by ACFM	7.4	5.8	10.2	5.0	6.3	4.4	5.3	-	38.6	3.9	12.1

¹Over period 1972-1992. ²Revised in May 1988 to 5.6. ³Provided by Working Group members. Weights in '000 t.

Catches: Catches since 1984 have fluctuated between 4,400 and 10,200 t with recent catches (1989-1992) between 4,400 and 6,300 t. The majority of the catches are taken by the Northern Irish fleet.

Data and assessment: Biological sampling of catches remains good. An assessment was carried out to evaluate the historical trends in the stock. Fishery-independent estimates of this stock are being developed but are unreliable at present.

Fishing mortality: Estimates of fishing mortality were very high over the period 1974-1980 and lower in 1981-1985. The current fishing mortality is unknown.

Recruitment: There are no fishery-independent assessments of recruitment. The catch at age suggests that the 1990 year class may be strong. Similar suggestions came from adjacent divisions; however, the acoustic survey did not corroborate this evidence.

State of stock: Not precisely known.

Forecast for 1994: Not available.

Management advice: If a precautionary TAC is to be set it should not exceed the average over the period 1989-1992, i.e. around 5,300 t. ACFM recommends that the spawning and nursery closures should be maintained.

Special comments: Assessment of this stock is expected to improve with development of an acoustic survey time series.

3.1.10 The effect of *Ichthyophonus* on herring stocks

The first observations of herring infected by the fungus disease *Ichthyophonus* in European waters were made in July 1991. At the May 1993 ACFM Meeting the implications of this disease for the herring stocks in the North Sea, Division IIIa and Sub-divisions 22-24 were discussed but only limited information on the distribution and prevalence of the disease was available. ACFM, therefore, decided that further evaluation should be carried out intersessionally and the results of this analysis were reported to the October-November 1993 ACFM Meeting.

The model used to analyse the effect of *Ichthyophonus* on herring stocks works in an analogous way to a conventional catch projection and an additional "infected" state is introduced. The assumptions and constraints applied are not yet validated and the estimates calculated using this model can be regarded as indicative only.

The prevalence data used in the simulations are based on macroscopic examination of herring.

For the spring-spawning stock in Division IIIa and Sub-divisions 22-24 prevalence data from Sweden and Denmark were used. From examination of about 10,000 herring sampled in the commercial landings and about 3,800 herring in research vessel samples in 1992, the prevalence was estimated to be in the range 1.3 - 1.7% in the population.

For the North Sea stock very few commercial samples were available and data from the ICES-coordinated acoustic survey in 1992 and preliminary data from 1993 were used. The estimated prevalence ranged from 0.4% to 5% being lower in 1993.

Examination based on both micro- and macroscopic inspection of herring has indicated that the prevalence is on average 2.3 times higher using the microscopic method. The prevalence values from macroscopic diagnostics of the disease have, therefore, been raised by this factor to provide an example of what could be considered a "worst case" analysis.

The "worst case" analysis suggests that the impact of the *Ichthyophonus* outbreak on the total stock size of North Sea herring is a 20% reduction assuming unchanged fishing mortality. This rather high figure is reached only by making the most pessimistic assumptions throughout the analysis, and it seems likely that a more reasonable estimate of the impact of the disease is a reduction in stock size by less than 10 to 15%.

In the case of the spring-spawning stock in Division IIIa and Sub-divisions 22-24 the analysis suggests a reduction in 1992 of about 3-5% and the most pessimistic assumptions indicate a reduction of about 10% in stock size due to the *Ichthyophonus* outbreak.

ACFM considers that the results of these simulations are still preliminary and recommends further monitoring and evaluation of the *Ichthyophonus* disease. The analysis suggests, however, that the expected impact will not change the present perception of the status of these two stocks.

3.2 Industrial Fisheries in the North Sea and Adjacent Waters

3.2.1 Overview

Definition of industrial fisheries

The usual definition of industrial fisheries is that these are fisheries with small-mesh gear directed at catching fish for reduction purposes, but in terms of the Working Group on the Assessment of Norway Pout and Sandeel "industrial landings" derive from industrial fisheries with small-mesh trawl only. Data on such landings do not include a) fish caught by small-mesh trawl but used for human consumption, b) fish caught for human consumption but used for industrial purposes due to market conditions and c) fish caught by other small-mesh gears (e.g. purse seines) and used for reduction purposes .

Total catches are, however, used for the assessment of sprat, sandeel and Norway pout. Sandeel assessment areas are shown in Figure 3.2.1.

Data available

Data on landings, fishing effort and species composition are available from all industrial fisheries. The sampling schemes for length and age data, which broke down in 1990 were restarted in 1991, and data were available to estimate the 1990 age compositions.

The stocks of these relatively short-lived species are inherently variable and, with the exception of some of the sprat stocks, the available evidence suggests that the stocks can sustain fisheries at the present level of exploitation. Therefore, there does not seem to be an urgent need to impose management measures on these fisheries for conservation of those species. However, sandeel, Norway pout and sprat serve as fish food for many of the species caught in the human consumption fisheries and also as food for other top predators in the ecosystem. Multispecies assessment has clearly identified these interactions. For a proper evaluation of the status of all fish stocks in the North Sea, monitoring of the changes in the prey stocks in response to fishing and predation is extremely important. Further, by-catches in these fisheries can impact on other fisheries. Therefore, adequate sampling of the industrial catches is needed to obtain reliable information on length, weight and age distributions. In addition, fishery-independent information (i.e., research vessel surveys) is needed to clarify several important aspects of the population dynamics of these species which have a bearing on their assessment and management.

Trends in industrial landings

The total annual landings of sandeel, sprat and Norway pout together with by-catches of herring and blue whiting in Division IIIa during the period 1974-1991 have varied around a mean of 160,000 t (Table 3.2.1). Landings have been below the mean since 1987 but increased from 97,000 t in 1991 to 148,000 t in 1992. In addition about 25,000 t of herring and 2,000 t of sprat were taken in the mixed clupeoid fishery in 1992.

Industrial landings from the North Sea (Table 3.2.2) over the same period have varied from 1.0 million to 1.9 million t. In 1992 the catch increased by 16% to 1.6 million t, mainly due to the sprat and Norway pout catches. There is an increasing trend in the sprat and Norway pout landings which have been at low levels. Industrial landings of herring in the small-mesh trawl fishery increased slightly from 115,000 t in 1990 to about 130,000 t in 1991-1992.

Landings from the industrial fisheries in Division VIa are given in Table 3.2.3.

By-catches of protected species

The annual landings of haddock, whiting and saithe taken in the industrial fisheries in the North Sea decreased to 38,000 t in 1992, of which an estimated 27,000 t was whiting and 11,000 t haddock (Table 3.2.2).

3.2.2 Sprat in Division IIIa (Table 3.2.4)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	- ²	- ²	- ²	-	-			
Agreed TAC ³	80	80	80	80	65	50	50	45			
Official landings	62	68	63	62	43	44	40	-			
Other species taken in the industrial fishery ⁴	-51	-53	-53	-52	-33	-32	-30	-			
Catch as used by ACFM	11	14	9	10	10	14	10	-	100	9	44

¹Over period 1974 -1992. ²Lowest possible level. ³Mixed clupeoid TAC. ⁴Other species reported as sprat taken in the "mixed clupeoid fishery". Weights in '000 t.

Catches: Catches in the period 1974-1992 have varied between 9,000 and 100,000 t. Since the mid-1980s they have been at a low but stable level averaging around 11,000 t.

Data and assessment: There are no reliable fishery-independent estimates of this stock. Biological sampling improved in 1992 (Danish) but there was no sampling of the Swedish catches, which make up about 65% of the total.

Fishing mortality: No estimates.

Recruitment: The International Bottom Trawl Survey indices are available but have not been validated. The 1993 index decreased compared to 1992, but was at the same level as in the 1980s. Little consistency in the 1-group and 2-group indices for the 1983-1991 year classes.

State of stock: No reliable estimates.

Management advice: Sprat in Division IIIa are caught in both the "mixed clupeoid" fishery and the directed fisheries for human consumption, mainly with purse seine. The catches of sprat in the "mixed clupeoid" fishery have been at a low level in recent years and the estimated catch is mainly from the purse seine fisheries in the fjords.

Most of the catches in the "mixed clupeoid" fishery are other species of which the catches of juvenile "human consumption" species (herring and gadoids) have a negative effect on the yield per recruit for these species.

A reduction of the catches of juvenile "human consumption" species will improve the yield per recruit for these species. This could be obtained by managing the sprat fishery with a separate TAC based on recent estimated catch levels and reducing the catches of other species to the lowest possible level.

Special comments: ACFM recommends that the landings of sprat should be covered by national sampling.

3.2.3 Sprat in Sub-area IV (Table 3.2.5)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M.1993/Assess:15).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	0	0	0	-	-	-	-	-			
Agreed TAC ²	100	57	57	59	59	55	55	114			
Official landings	54	78	93	50	49	92 ⁴		-			
Unallocated landings	-38	-45	-6	13	22	18		-			
Catch as used by ACFM ³	16	33	87	63	71	110	124	-	641	16	213

¹Over period 1974-1992. ²Division IIa (EC zone), Sub-area IV (EC zone). ³Excluding Norwegian fjords. ⁴Preliminary. Weights in '000 t.

Catches: The catches increased from 16,000 to 124,000 t in 1986-1992.

Data and assessment: Sampling of the landings vastly improved in 1992. No VPA carried out due to inadequate catch-at-age data. Analysis based on catch and survey data did not prove to be reliable.

Fishing mortality: Not known.

Recruitment: The bottom trawl survey indices indicate that recruitment has improved since 1990.

State of stock: Not precisely known.

Special comments: The assessment is hampered by the poor quality of the catch-at-age data.

3.2.4 Sprat in Divisions VIa

Landings for 1983-1992 are given in Table 3.2.6.

3.2.5 Sprat in Divisions VII d,e

(Table 3.2.7)

Source of information: Report of the Herring Assessment Working Group for the Area South of 62°N, March/April 1993 (C.M. 1993/Assess:15).

Catches: Landings at a low level and below the long-term average.

3.2.6 Norway pout in Division IIIa

(Table 3.2.8)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Official landings	32.5	49.2	46.2	17.2	41.3	49.3	84.1	-	86	17	43
Catch as used by ACFM	6	3	8	6	27	32	42	-	46	3	24

¹Over period 1974-1992. Weights in '000 t.

Catches: A marked increase since 1989 to almost the highest recorded in 1992.

Data and assessment: No assessment.

3.2.7 Norway pout in Sub-area IV

(Table 3.2.9)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ⁴	368	200	200	200	200	200	200	220			
Official landings	227	215	187	276	216	223	342	-			
Unallocated landings	-53	-68	-87	-113	-76	-68	-87	-			
Discards/slipping								-			
Catch as used by ACFM	174	147	102	163	140	155	255		736	102	310
Sp. stock biomass	92	95	118	82	131	148	222	433 ²	373 ³	82 ³	180 ³
Recruitment (age 1)	24	41	13	36	36	42	94	35 ²	107 ³	13 ³	60 ³
Mean F(1 - 2,u)	1.03	0.91	0.74	0.70	0.74	0.68	0.57		1.22 ³	0.57 ³	0.86 ³

¹Over period 1974-1992.²Forward projection. ³Over period 1982-1992. ⁴Ila (EC), IIIa, IV (EC). Weights in '000 t, recruitment in '000 million.

Catches: Increased in 1992, but still below the long-term mean.

Data and assessment: Catch at age data available except for 1990. Standardized effort and survey data available. Age-based analytical assessment.

Fishing mortality: Declining trend.

Recruitment: Recruitment has improved since 1988. The 1991 year class appears to be strong. The 1992 year class still uncertain.

State of stock: SSB and recruitment have increased in recent years, but due to short life span, the stock is unstable.

Special comments: Assessment considered acceptable to indicate trends in the stock, but forecasts considered unreliable.

3.2.8 Norway pout in Division VIa

(Table 3.2.10)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Official landings	5.8	38.3	6.7	28.2	3.3	4.3	5.1	-	38.3	3.3	12.2

¹Over period 1974-1992. Weights in '000 t.

Catches: Generally at a low level, well below average in 1992.

Data and assessment: No assessment.

3.2.9 Sandeel in Division IIIa

(Table 3.2.11)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Official landings ²	73.1	5.4	23.2	18.2	15.8 ³	23.0 ³	38.8 ³	-	73.1	5.4	25.8

¹Over period 1982-1992. ²Provided by Working Group members. ³Preliminary. Weights in '000 t.

Catches: Increasing trend since 1990.

Data and assessment: No assessment.

3.2.10 Sandeel in the southern North Sea

(Tables 3.2.12-3.2.13; Figure 3.2.1)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Agreed TAC	-	-	-	-	-	-	-	-			
Catch as used by ACFM	457	403	488	526	367	459	669	-	669	117	401
Sp. stock biomass	378	1,759	1,075	499	583	369	530	1,868 ²	1,759 ³	343 ³	740 ³
Recruitment (age 1)	412	60	44	154	72	154	547	32 ²	547 ³	42 ³	195 ³
Mean F(1-2,u)	0.37	0.29	0.28	0.48	0.64	0.69	0.34	-	0.85 ³	0.28 ³	0.48 ³

¹Over period 1972-1992. ²Forward projection. ³Over period 1982-1992. Weights in '000 t, recruitment in '000 million.

Catches: Vary with incoming year classes. The 1992 catch is the highest on record. Since 1990, a fishery for sandeel has developed rapidly off the Firth of Forth. In 1992 this amounted to approximately 60,000 t.

Data and assessment: Catch at age data available except for 1990. Standardized effort data available. No survey data.

Fishing mortality: Variable without any particular trend.

Recruitment: Variable. The estimates of the 1991 and 1992 year classes are very uncertain.

State of stock: Uncertain.

3.2.11 Sandeel in the northern North Sea

(Tables 3.2.12-3.2.13; Figure 3.2.1)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Agreed TAC	-	-	-	-	-	-	-	-			
Catch as used by ACFM	375	396	385	492	220	373	177	-	492	74	233
Sp. stock biomass	147	335	711	211	221	129	117	152 ²	711 ³	114 ³	230 ³
Recruitment (age 1)	98	153	33	129	30	84	40	274 ²	153 ³	17 ³	63 ³
Mean F(1 - 2,u)	1.04	0.78	0.97	0.93	0.91	1.01	1.09	-	1.09 ³	0.40 ³	0.83 ³

¹Over period 1972-1992. ²Forward projection. ³Over period 1982-1992. Weights in '000 t, recruitment in '000 million.

Catches: Decreased in 1992 from a high level to below average.

Data and assessment: Catch at age data available except for 1990. Standardized effort data available. No survey data.

Fishing mortality: Stable close to 1.0 despite fluctuations in effort.

Recruitment: Variable. The estimates for the 1991 and 1992 year classes are very uncertain.

State of stock: Uncertain.

3.2.12 Sandeel in the Shetland area

(Table 3.2.13; Figures 3.2.1 and 3.2.2)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Catch as used by ACFM	14.0	7.2	4.7	3.5	2.3	+	0	0	52.0	0	18.2
Sp. stock biomass	24.8	15.8	18.2	11.9	7.6	6.5	5.9	43.8 ²	35.5	5.9	13.0
Recruitment (age 0)	16.6	1.3	1.4	3.7	1.6	54.0	4.7	-	54.0	1.3	15.8
Mean F(1 - 3,u)	0.44	0.15	0.18	0.14	0.15	0	0	0	0.52	0	0.21

¹Over period 1974-1992 for catches; 1984-1992 for stock data. ²Forward projection. Weights in '000 t, recruitment in '000 million.

Catches: The fishery remained closed for the whole of 1992.

Data and assessment: Catch-at-age and standardised effort data are available. Trawl survey indices are available for 1984-1993. Analytical assessment was done utilizing survey indices and effort data.

Fishing mortality: Zero due to closure of fishery.

Recruitment: 1991 year class is very strong. Strength of subsequent year classes uncertain.

State of stock: Spawning biomass has increased due to the maturation of the strong 1991 year class, but precise level uncertain.

Forecast for 1994: Not available.

Management advice: As there is evidence of improved recruitment in this stock, ACFM recommends that a limited fishery could be allowed in 1994 with a precautionary TAC of 3,000 t, equal to the average of the 1989 and 1990 landings.

3.2.13 Sandeel in Division VIa

(Table 3.2.14; Figure 3.2.3)

Source of information: Report of the Norway Pout and Sandeel Assessment Working Group, Copenhagen, October 1993. (C.M.1994/Assess:7).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Official landings	24.5	14.5	24.5	18.8	16.5	8.5	4.9	-	24.5	0.2	13.5
Catch as used by ACFM	24.5	14.5	24.5	18.8	16.5	8.5	4.9	-	24.5	0.2	13.5
Sp. stock biomass	51	72	132	95	63	79	98	-	132	47	76
Recruitment (age 0)	187	33	29	95	96	397	-	-	397	29	116
Mean F(1 - 3,u)	0.19	0.08	0.15	0.16	0.10	0.04	0.01		0.19	0.01	0.11

¹Over period 1980-1992 for catches; 1983-1992 for SSB and F; 1983-1991 for recruitment. Weights in '000 t, recruitment in '000 million.

Catches: Decreased by 42% compared to 1991; lowest since 1980.

Data and assessment: Catch at age and effort data available. Analytical assessment was done utilizing effort data.

Fishing mortality: Gradually declining in time with effort. Fishing effort in 1992 was the lowest since 1980.

Recruitment: The 1991 year class is estimated to be quite strong. Estimate of 1992 year class not considered reliable.

State of stock: Virtually unexploited at present.

3.3 Demersal stocks in Division IIIa

3.3.1 Overview

The demersal stocks dealt with in this overview are cod in the Skagerrak and haddock, whiting and plaice in the whole of Division IIIa.

The databases for the assessments of these stocks are generally poor. The major deficiencies are insufficient age sampling or lack of age compositions from fisheries for industrial purposes and some other minor fleets, lack of discard data, lack of effort data with associated catches by age and lack of recruitment indices with a convincing relation to VPA-derived recruitment estimates. Also misreporting and non-reporting of catches occurred particularly in the case of cod. Estimates of the amount of cod not reported vary considerably. According to some sources these landings are comparable to the total reported landings while other sources guess at much more limited amounts. It has not been possible to document any of these guesses.

Indices from the International Bottom Trawl Survey (IBTS) in April, September and November exist, but are not yet useful in the assessments because the time-series only include the period 1991 - 1993.

For cod and plaice, however, there has been a significant improvement of the database since the last assessment, and data have now become available which permit analytical assessments.

The assessments indicate inconsistencies in the databases. These may partly be due to the data deficiencies mentioned above. It is, however, probable that the inconsistencies also reflect the linkage between the Division IIIa stocks and the much larger North Sea stocks. Separate assessments for some stocks in Division IIIa may be invalid even if perfect data were to be available from the area.

The general trend in the stocks in Division IIIa is an increase in abundance. For all four stocks several average or above average year classes seem to be present in the stock.

It is not possible to provide reliable forecasts for these stocks and, as none of them appear to be outside safe biological limits, a common advice is given.

Management advice for cod in the Skagerrak and haddock, whiting and plaice in Division IIIa:

ACFM advises precautionary TACs to be based on recent catch levels.

3.3.2 Cod in the Kattegat

(Table 3.3.1; Figure 3.3.1)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the Baltic, April 1993 (C.M.1993/Assess:16).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	³	<13	<15	10.0	7.0	6.3	⁴	⁵			
Agreed TAC	17.0	15.5	15.0	12.5	8.5	6.65	6.65	6.80			
Catch as used by WG	9.1	11.5	5.5	8.6	5.9	6.8	6.3	-	21.9	5.5	13.0
Sp. stock biomass	12.7	9.1	8.3	9.1	7.2	4.1	8.3	8.9 ⁶	51.9	4.1	23.5
Recruitment (age 1)	17.9	5.7	7.8	3.4	14.5	7.6	8.5	10.0 ²	38.3	7.6	16.8
Mean F(2-6,u)	1.03	1.33	0.87	1.19	1.28	1.44	0.89	-	1.44	0.38	0.83

¹Over period 1971-1992. ²Survey estimate. ³Precautionary TAC based on recent catch levels. ⁴Reduction in effort by 30% would reduce F to level before stock decline. ⁵30% reduction in fishing effort. ⁶Projection. Weights in '000 t, recruitment in millions.

Catches: The 1992 catch was about 50% of the long-term mean. Catches decreased in 1988 and have stayed at the lower level since then. Catch figures in recent years uncertain.

Data and assessment: Catch-at-age data available only from Denmark. Swedish catches were distributed according to Danish data and the small German catches accordingly. Assessment using commercial CPUE data from two fleets and trawl survey data. Recruitment estimated from survey data. Assessment uncertain.

Fishing mortality: Fishing mortality has increased steadily since 1989 and was the highest on record in 1991. A decrease was estimated from 1991 to 1992.

Recruitment: Recruitment poor in 1987-1989 and 1991-1992. 1989 year class around average, but 1992 year class only about 60% of the long-term mean.

State of stock: The SSB was at a record-low level in 1991, but increased in 1992. There is mixing with Skagerrak cod in the northern Kattegat and with western Baltic cod in the southern Kattegat. Although the precise fishing mortality in 1992 is uncertain, because of the low quality of input data, it is likely that it is still high. Catch per unit effort data indicate that the stock has been decreasing in recent years.

Forecast for 1994: No forecast available.

Management advice: Despite uncertainties, the available information indicates that the stock is outside safe biological limits. In order to allow the stock to increase, ACFM recommends that catches of cod in the Kattegat in 1994 should be lower than in the recent two years.

Special comments: The assessment is still uncertain due to misreporting of catches, unreliable catch figures in recent years, mixing of stocks in the northern and southern parts of Kattegat and deficiencies in the basic data.

3.3.3 Plaice in Division IIIa

(Table 3.3.2)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC:											
Kattegat	²	²	≤3.7	≤2.9	1.3	1.1 ³	} 14.0	²			
Skagerrak	²	²	²	²	10.0	10.0 ³					
Agreed TAC:											
Kattegat	5.5	4.75	4.75	4.0	2.0	1.3	2.8	2.8			
Skagerrak	14.5	14.5	15.0	15.0	11.0	10.0	11.2	11.2			
Catch as used by ACFM	14.0	15.8	12.9	7.7	12.1	8.7	11.8	-	26.5	7.7	15.1

¹Over period 1972-1992. ²Precautionary TAC. ³In May 1991 ACFM revised its advice to 12.0 for both areas combined. Weights in '000 t.

Catches: Fluctuating in recent years at below-average level.

Data and assessment: Assessment attempted using data from three fleets, but not considered sufficiently reliable as a basis for management advice.

Forecast for 1994: Not available.

Management advice: ACFM advises a precautionary TAC to be based on recent catch levels.

Special comments: The available data allow a formal analytical assessment. However, the data series are not internally consistent. The conclusion is that no reliable analytical assessment can be presented.

3.3.4 Sole in Division IIIa

(Table 3.3.3)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the Baltic, April 1993 (C.M.1993/Assess:16).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	< 800	600 ²	600 ^{2,3}	1,000	1,000			
Agreed TAC	600	850	950	800	500	1,000 ⁵	1,400 ⁵	1,600 ^{5,7}			
Official landings	783	830	705	816	629	1,011	1,629	-			
Unallocated landings	-140	-108	1	8				-			
Catch as used by WG	643	722	706	824	1,050 ⁴	- ⁶	- ⁶	-	824	183	430

¹Over period 1970-1989. ²Precautionary TAC. ³Revised in May 1991 to 1,000 t. ⁴Qualified guess. ⁵EC TAC. ⁶Catch figures uncertain. ⁷Increased to 2,100 t. Assumed range between 2,500-4,500 t. Weights in t.

Catches: Increasing since 1985. Catches in 1992 highest on record. Catch figures in 1989-1992 uncertain because of restrictions in the fisheries and misreporting of catches. Significant amount landed unreported in 1992.

Data and assessment: No analytical assessment. Catch curve analysis based on Danish data. Catch figures for 1991 and 1992 highly uncertain. Discards data from *Nephrops* trawl fishery. Recruitment indices from surveys using length composition data.

Fishing mortality: In recent years the fishing mortality has been increasing.

Recruitment: From recruitment indices the 1990 and 1991 year classes are estimated to be above average. These year classes will recruit to the exploitable stock in 1993 and 1994.

State of stock: SSB is expected to increase due to the 1990 and 1991 year classes.

Forecast for 1994: No reliable forecast due to uncertainties in basic data.

Management advice: Despite uncertainties, the information available indicates that this stock is increasing. Catch levels in 1991 and 1992 are not known, and thus ACFM is not in a position to provide management advice for this stock.

3.3.5 Cod in the Skagerrak

(Table 3.3.4; Figure 3.3.2)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC ³	- ⁴	<21	- ⁴	<23	21.0	15.0	- ⁵	- ⁴			
Agreed TAC ³	29	22.5	21.5	20.5	21.0	15.0	15.0	15.0			
Catch as used by ACFM ³	20.1	19.9	17.0	18.8	17.8	12.1	14.0	-	28.9	9.3	17.9
Sp. stock biomass	20.4	14.4	23.9	20.8	21.2	16.3	15.6	15.9 ²	33.4	14.4	22.5
Recruitment (age 1)	33.6	10.8	18.0	12.7	9.5	12.6 ⁶	17.5 ⁶	20.0 ⁶	33.6	9.5	18.1
Mean F(3-6,u)	1.44	1.04	0.83	0.98	0.88	0.85	0.75	-	1.44	0.50	0.95

¹Over period 1971-1992 for catch; 1978-1992 for stock data. ²Forward projection. ³Norwegian fjords not included.

⁴Precautionary TAC (based on recent catch levels). ⁵Effort should be reduced, preferably by 30%. ⁶From survey indices. Weights in '000 t, recruitment in millions.

Catches: Landings have fluctuated and have been just below the average in recent years.

Data and assessment: Catch at age information only available from Denmark, covering, however, 80% of total landings. Effort for three Danish fleets and IBTS February data used in tuning of assessment.

Fishing mortality: Fluctuating at a rather high level without marked trends in the period 1978-1992.

Recruitment: Variable without trend.

State of stock: SSB fluctuated in the latest decade with a somewhat declining trend since 1988.

Forecast for 1994: Due to the uncertainty regarding recent catch levels no quantitative forecast has been made.

Management advice: There are no benefits in terms of long-term yield by increasing fishing mortality. ACFM advises a precautionary TAC based on recent catch levels. For cod in this area, TACs should be set separately for the Skagerrak and Norwegian coastal areas.

Special comments: The analytical assesment for cod in the Skagerrak provided reasonable results in spite of the considerable variance in the estimates. The assessment allows conclusions to be drawn regarding the trends and the status of the stock. However, due to the uncertainty concerning recent catch levels the data are considered too unreliable to support a short-term forecast.

3.3.6 Haddock in Division IIIa

(Table 3.3.5)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	. ²	. ²	. ²	. ²	. ²	4.6 ³	4.6 ³	. ²			
Agreed TAC	11.5	11.5	10.0	10.0	10.0	4.6	4.6	4.6			
Catch as used by ACFM ⁴	5.3	5.3	4.4	4.5	6.1	6.7	9.0	-	15.2	4.4	7.8

¹Over period 1975-1992. ²Precautionary TAC based on recent catch levels. ³Precautionary TAC. ⁴Including by-catches in small-mesh industrial fishery. Weights in '000 t.

Catches: Increasing since 1988-1989, largely as a result of increased by-catches in the industrial fishery.

Data and assessment: No assessment carried out.

Forecast for 1994: Not available.

Management advice: ACFM advises a precautionary TAC to be based on recent catch levels.

Special comments: The deficiencies in the data are such that it is impossible to present an analytical assessment with any credibility.

3.3.7 Whiting in Division IIIa

(Table 3.3.6)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	²	²	²	²	²	²	²	²			
Agreed TAC	22.15	17.0	17.0	17.0	17.0	17.0	17.0	17.0			
Catch as used by ACFM ³	13.0	16.7	11.8	13.2	19.3	14.1	12.2	-	49.1	11.8	20.5

¹Over period 1975-1992. ²Precautionary TAC based on recent catch levels. ³Includes by-catches in small-mesh industrial fishery. Weights in '000 t.

Catches: Fluctuating in recent years at a below-average level. A high proportion of the catches is taken as by-catches in the industrial fishery.

Data and assessment: No assessment carried out.

Forecast for 1994: None available.

Management advice: ACFM advises a precautionary TAC to be based on recent catch levels.

Special comments: Assessments cannot be made due to lack of basic age information.

3.4 *Pandalus borealis* in Division IIIa and the North Sea

Figure 3.4.1 shows the management units for *Pandalus* in the North Sea and Division IIIa. Table 3.4.1 summarises the landings by country.

3.4.1 *Pandalus borealis* in Division IIIa and Division IVa East (Skagerrak and Norwegian Deeps) (Table 3.4.2)

3.4.1.1 Advice from the May 1993 ACFM Meeting

A large part of the 1994 catch will consist of the 1992 year class. So far only an 0-group estimate of this year class is available. Additional information on this recruitment will be obtained from the October 1993 Norwegian trawl survey. ACFM, therefore, postpones its advice on this stock until the November 1993 ACFM meeting when the October 1993 survey results should be available.

3.4.1.2 Advice from the October-November 1993 ACFM Meeting

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC					10.0	12.0	. ⁵	. ⁵			
Agreed TAC				3.1 ³	2.75 ³	8.55 ⁴	10.5 ⁴	10.5 ⁴			
Discards/slipping	0.5	0.8	0.8	1.5	1.7	0.8	0.7				
Landings as used by ACFM	12.8	14.3	12.0	11.0	10.2	11.6	13.0	-	14.3 ⁷	4.3 ⁷	8.6 ⁷
Catch as used by ACFM	13.3	15.1	12.8	12.5	11.9	12.4	13.8				
Sp. stock biomass	14	20	14	10	9	14	18	17 ⁶	21	9	15
Recruitment (age 0)	14.1	8.9	15.2	24.2	23.5	16.8	32.0 ²	21.7 ²	32.0	8.9	18.9
Mean F(1-3, u)	.36	.43	.61	.84	.71	.91	.57	-	.91	.36	.61

¹Over period 1985-1992. ²Survey estimate. ³Division IIIa (Skagerrak) EC only. ⁴Division IIIa (Skagerrak only). ⁵Inside safe biological limits. ⁶Forward projection. ⁷Over the period 1970-1992. Weights in '000 t, recruitment in billions.

Catches: Have remained at a level above 10,000 t since 1985.

Data and assessment: Age based assessment tuned with effort data from three fleets.

Fishing mortality: Has decreased from a level slightly above the natural mortality.

Recruitment: A series of good year classes: 1989, 1990 and 1992 has recruited. The 1993 year class is also indicated to be large.

State of stock: SSB at a high level compared to 1989-1990.

Forecast for 1994:

Assuming $F(93) = 0.57$, Basis: $F(93)=F(92)$, $Catch(93) = 17$, $Landings(93) = 15$.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8F(92)	0.46	23	16	14	24	SSB remains at high level
B	1.0F(92)	0.57	22	19	17	21	
C	1.2F(92)	0.68	22	22	20	19	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to increased catch and increased SSB.

Management advice: ACFM considers that this stock is within safe biological limits.

3.4.2 *Pandalus borealis* in Division IVa - Fladen Ground

(Table 3.4.3)

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Special comments: Estimated landings of this stock are given in Table 3.4.3. Lack of adequate age and recruitment data ruled out an assessment and forecast. Without such data, and given the short lifespan of Fladen shrimp, annual assessment of this stock will continue to be imprecise and unreliable.

3.4.3 *Pandalus borealis* in Division IVb - Farn Deep

(Table 3.4.4)

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

This is a sporadic fishery which reached a peak in the mid- to late 1980s but declined rapidly to an extremely low level (1 t) in 1992. The reason is not thought to be the low stock level but rather a lowering of market price and a drop in demand.

Few data are available for this fishery and no assessment has been attempted. Fluctuations in catches appear to be market-driven.

3.5 Demersal Stocks in the North Sea

3.5.1 Overview

ACFM recommends that the fishing effort in the directed fisheries on North Sea roundfish, except saithe, is reduced significantly and on a sustained basis relative to effort levels in the most recent years.

A significant reduction is, as a minimum, a reduction to 70% of the effort level in recent years implemented in such a way that a similar reduction in fishing mortality is achieved.

For saithe, plaice and sole, separate recommendations are given under the respective stocks.

The main demersal stocks harvested for human consumption purposes (cod, haddock, saithe, whiting, sole and plaice) are all intensively exploited. The recent fishing mortality rates for all the stocks are the highest in their respective historical series.

The high exploitation level has resulted in the roundfish stocks and the fisheries on them being entirely dependent on the irregular occurrence of abundant year classes. For some of these stocks the low spawning stock biomass in recent years has been accompanied by a series of poor year classes. If the present level of fishing mortality is maintained in the future all these stocks are expected to remain close to or outside safe biological limits for long periods, possibly interrupted by short temporary periods of recovery when a good year class is produced.

The present situation for the stocks is that:

The SSB of **cod** seems to have stabilised at a very low level, approximately one third of the level of 150,000 t which is considered by ACFM to be the lowest desirable biological level. Only one of the year classes that has recruited since the strong 1985 year class appears to be around average; the other year classes are all below average. Continued fishing at high levels of fishing mortality is likely to result in continued low levels of SSB, which, in conjunction with the recent series of poor recruitment, gives rise to serious concern that the stock is no longer able to replenish itself.

The SSB of **haddock** has declined since 1985 to reach a historically low level in 1991. Since then a slight increase is indicated due to the recruitment of year classes that have been average or above average. The SSB is expected to increase in the short term due to these year classes but will decrease below safe biological limits if a few poorer year classes are recruited and the present fishing mortality level is maintained. Sequences of several poor year classes are common in the time series of recruitment to the haddock stock and must be expected to occur regularly in the future.

The estimates of the 1989 and 1990 year classes of **whiting** have been adjusted downwards to a considerable extent. The SSB appears to have stabilised close to the historical minimum level. The major part of the SSB now consists of two poor year classes. In the medium term, however, a slight increase in SSB is expected with the present exploitation pattern.

The SSB of **saithe** shows a continuous downwards trend and is at a historically low level.

The **sole** stock is considered to be within safe biological limits. The SSB is presently well above the minimum level due to the abundant 1987 year class. After a short period of decline the SSB is expected to rise again in 1994 due to the recruitment of the strong 1991 year class. However, with the present level of fishing mortality there is a high risk that the SSB will fall below safe biological limits in the long term.

The **plaice** stock is declining slightly, yet, as the result of a series of average year classes, the SSB is estimated to be just above the minimum desirable level. There has been a decline in catches in all fleets. In the medium term SSB is expected to decline to a lower level and close to the minimum desirable level of 300,000 t.

ACFM considers that the stocks of cod and saithe are at present outside safe biological limits. In the short term the stock of haddock will be within safe biological limits but, for the reasons given above, it is by no means sure that this position will be maintained in the medium term. For whiting the SSB is at a historical minimum while the SSBs of sole and plaice have been maintained above the lowest desirable levels.

In view of the critical state of the cod and saithe stocks, the increasing time period with low cod recruitment and the fact that continued haddock recruitment at the high level seen in two recent years is without precedent, ACFM is of the opinion that strong, efficient and immediate measures must be taken to improve the situation.

Management considerations for North Sea roundfish stocks are complicated because, to varying degrees, they are caught simultaneously by various fleets in mixed fisheries. Saithe is the only stock which to a large extent is caught in single species fisheries and for which recommendations and management can be applied separately.

ACFM has for many years recommended reductions in fishing mortality, particularly in view of the situation for both cod and haddock. These recommendations were translated into TACs. However, this procedure did not result in decreases in fishing mortality rates. The reasons for this were discussed at length in the 1990 and 1991 reports of ACFM.

Therefore, in 1990, 1991 and 1992, ACFM refrained from advising a TAC and recommended that "fishing effort in the directed fisheries on North Sea Roundfish stocks, except saithe, should be limited to 70% of the 1989 fishing effort". This was a compromise taking into consideration the fact that the demersal stocks are caught in mixed fisheries and that a total closure of the cod fisheries would amount to closing most demersal fisheries in the North Sea. In 1992, in view of the aggravation of the situation for saithe, it was furthermore recommended that, for saithe "the fishing mortality in 1993 be reduced by 30% from the 1991 level". ACFM has also stressed that a reduction in effort should be seen as a long-term strategy regardless of short-term fluctuations in fishing mortality.

ACFM reiterates its view that

- seen in isolation the effort on cod should be reduced to zero in the short term
- a significant and sustained reduction in overall effort in the directed fisheries on North Sea roundfish is a necessity if these stocks are to recover and be maintained within safe biological limits in the future.
- the fishing mortality on saithe should be reduced to enable the stock to recover inside safe biological limits

Although various regulations have been implemented the assessments of these stocks indicate that the regulations have so far failed to achieve the primary objective - to reduce fishing mortality. Fishing mortalities have not decreased and are even increasing for some stocks.

In view of this and considering that a significant reduction in fishing effort is a necessity for the long-term recovery of all the stocks, ACFM is of the opinion that significantly stronger measures for effort reduction than those taken so far should be implemented.

ACFM, therefore, **recommends** that the fishing effort in the directed fisheries on North Sea roundfish, except saithe, is reduced significantly and on a sustained basis relative to effort levels in the most recent years.

A significant reduction is, as a minimum, a reduction to 70% of the effort level in recent years implemented in such a way that a similar reduction in fishing mortality is achieved.

3.5.2 Cod in Sub-area IV (North Sea)

(Table 3.5.1; Figures 3.5.1 - 3.5.2)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	<130	<125	≤148	<124	113	³	³	³			
Agreed TAC	170	175	160	124	105	100	100	101			
Official landings	157	167	142	110	99	86	98	-			
Unallocated landings	6	9	8	6	6	1	-	-			
Discards/slipping	-	-	-	-	-	-	-	-			
Catch as used by ACFM	163	175	150	116	105	87	98	-	341	87	203
Sp. stock biomass	98	89	82	76	65	60	64	58 ²	266	60	161
Recruitment (age 1)	592	243	150	257	113	150	410 ⁴	199 ⁴	869	108	375
Mean F(2 - 8,u)	0.86	0.89	0.88	0.95	0.72	0.85	0.86	-	0.95	0.47	0.73

¹Over period 1963-1992. ²Forward projection. ³30% reduction in fishing effort relative to 1989. ⁴Estimated from surveys. Weights in '000 t, recruitment in millions.

Catches: These have decreased steadily since 1981, and landings in 1991 were the lowest since 1956. In 1992 landings were slightly higher.

Data and assessment: Analytical assessment of catch-at-age data, using CPUE and research vessel data. Discard data only available for Scottish fleets, and not used in assessment. Uncertainties regarding catch levels in 1992.

Fishing mortality: Increased continuously since the start of the time series to reach 0.9 in 1982. Appears to have stabilised at record-high levels subsequently. The exploitation pattern is far from optimal with landings dominated by 2-year-old immature fish.

Recruitment: Out of the seven most recent year classes, only the 1991 year class was slightly above average. The other year classes were all below average. The average over the last seven years is the lowest in the historic time series.

State of stock: Spawning stock biomass has decreased sharply since 1970 and reached a record-low value at the start of 1993.

Forecast for 1994:

Assuming F(93) = 0.86, Basis:F(93)=F(92), Catch(93) = Not calculated, Landings (93) = 142.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0	0	62	-	0	162	Increase in SSB above minimum desirable level.
B	0.6F(92)	0.52			91	94	Some increase in SSB.
C	0.8F(92)	0.69		-	113	79	SSB increases slightly but will still be at historically low level.
D	1.0F(92)	0.86		-	131	66	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to no increase in the spawning stock biomass.

Management advice: The stock is outside safe biological limits. Seen in isolation the fishing effort on cod should be reduced to zero in order to increase the stock towards its "lowest desirable level" of three times the present level at the fastest possible rate.

ACFM recommends that the fishing effort in the directed fisheries on North Sea roundfish, except saithe, is reduced significantly and on a sustained basis relative to effort levels in the most recent years.

Special comments: A significant reduction in fishing effort is, as a minimum, a reduction to 70% of the effort level in recent years implemented in such a way that a similar reduction in fishing mortality is achieved.

An improvement of the present sub-optimal exploitation pattern is also desirable to enhance stock recovery. It is further recommended that effort reduction be supplemented with measures to protect juvenile cod.

The latest assessment confirms the severity of the situation for cod, as demonstrated in previous assessments. Fishing mortalities reached record-high levels in the early 1980s and have remained close to these levels since. The average recruitment over the last seven years has been the lowest in history. If the fishing mortality of recent years is maintained, the size of the stock and the catches taken from it will remain low and even decrease in the long term unless recruitment returns to the high levels of the 1970s for a protracted period. There is a considerable risk that the stock may decrease significantly and the probability of improvements close to the safe minimum level is extremely low.

Detailed data for North Sea cod exist from 1963 onwards. The spawning stock was low (around three times the present level) between 1977 and 1979 but recovered briefly in the period 1980-1982. Since then the spawning stock has declined to historically low levels in the last 6 years. Having observed a recovery of the spawning stock biomass from the levels in 1977-79, ACFM, in conformity with its previous advice, advises this level as the "lowest desirable". The present level is only one third of this level, and the stock must, therefore, be considered to be in an extremely critical state. A danger of the present situation is that the low egg production associated with the current very low spawning stock biomass will require high survival of eggs to produce even an average year class. The sequence of year classes in recent years gives reason for concern in this respect.

The high exploitation level exacerbates the situation even further. With the present exploitation pattern and effort level less than 1% of the juveniles at age 1 survive to become mature. The probability of recovery is thus very low under the present exploitation regime.

The quality of the landings data has been deteriorating in spite of the overall agreement between landings and TACs. If landings data continue to deteriorate there may be problems in providing advice based on analytical assessments in the future similar to the problems encountered for haddock in the assessment this year.

3.5.3 Haddock in Sub-area IV (North Sea)

(Table 3.5.2; Figures 3.5.3 - 3.5.4)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	<239	<120	<185	<68	50	- ⁴	- ⁴	- ⁴			
Agreed TAC	230	140	185	68	50	50	60	133			
Official landings	167	109	105	64	42	44	51	-			
Unallocated landings	-1	-1	-	12	9	1	19	-			
Landings as used by ACFM ⁶	169	112	109	78	54	50	81	-	705	50	181
Industrial by-catch	3	4	4	2	3	5	11	-	338	2	37
Discards/slipping	52	59	62	26	33	40	48	-	383	26	110
Catch as used by ACFM	220	172	171	104	87	90	129	-	929	87	291
Sp. stock biomass	219	154	155	125	77	58	89	165 ²	897	58	257
Recruitment (age 0)	48.3	3.8	8.0	7.9	25.2	45.1 ⁵	83.1 ⁵	17.6 ⁵	387.1	2.4	53.4
Mean F(2 - 6,u) ³	1.06	0.99	0.99	0.87	0.99	0.92	1.31	-	1.31	0.57	0.88

¹Over period 1960-1992. ²Forward projection. ³Human consumption + discards. ⁴30% reduction in fishing effort relative to 1989. ⁵Estimated from surveys. ⁶Includes industrial by-catch. Weights in '000 t, recruitment in thousand millions.

Catches: The 1992 human consumption landings are believed to be substantially above the TAC. The increased catch reflects the recruitment of better year classes to the fishery.

Data and assessment: Substantial misreporting has seriously affected the catch and effort data used in the assessment. The assessment was tuned with research vessel data only, to reduce the bias caused by commercial data. Discards are extrapolated from Scottish data.

Fishing mortality: The assessment suggests that fishing mortality increased in 1992 but it seems likely that these estimates are distorted by poor quality data. The high 1991 values estimated last year have been revised downwards. Large catches of immature fish occur.

Recruitment: Recent year classes have been above average. The 1991 year class is still of uncertain strength although it dominates the catch forecast estimates. The 1993 year class may be below average according to 0-group surveys.

State of stock: Recent good year classes are entering the spawning stock which is expected to recover strongly from recent very low values. The level of exploitation remains high and if future recruitment is poor, the stock will decline rapidly.

Forecast for 1994: A reliable forecast cannot be made due to uncertainties concerning catches in 1992. Based on uncertain estimates of 1992 catches, landings at *status quo* in 1994 are predicted to be 240,000 t for human consumption and 13,000 t as industrial by-catch, while discards are predicted to be 150,000 t.

Management advice : The fishing mortality is at a high level and SSB is not expected to be within safe biological limits in the long term. ACFM recommends that the fishing effort in the directed fisheries on North Sea roundfish, except saithe, is reduced significantly and on a sustained basis relative to effort levels in the most recent years.

Special comments: A significant reduction in fishing effort is, as a minimum, a reduction to 70% of the effort level in recent years implemented in such a way that a similar reduction in fishing mortality is achieved.

The uncertainty concerning recent catch levels has made assessments too unreliable for dependable forecasts to be made. The picture emerging from the trends is, however, sufficiently clear: the fishing mortality is at a high level and the SSB is only expected to be above the minimum acceptable level in the short term due to a sequence of abundant year classes which is without precedent in the history of this stock. With the present exploitation level a few successive year classes below average will bring the stock back below the lowest desirable level.

Given the present high fishing mortality and the suboptimal exploitation pattern, only 2% of the fish recruiting to the stock at age 0 survive to reach maturity and the spawning stock is largely composed of one or two year classes. The history of recruitment for the stock is a pattern of several consecutive below-average year classes interrupted by a single large year class. Under the present exploitation regime the SSB is thus expected to be very variable and can only be expected to reach and stay within safe biological limits in the long term if the exploitation level is reduced so that SSB is maintained above the lowest desirable level independently of short-term recruitment variation.

3.5.4 Whiting in Sub-area IV (North Sea)

(Table 3.5.3; Figures 3.5.5 - 3.5.6)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	135	127	134	115	130	- ⁴	- ⁴	- ⁴			
Agreed TAC	135	135	120	115	125	141	135	120			
Official landings	67	65	66	40	n/a	47	47	-			
Unallocated landings	9	13	34	43	51	38	27	-			
Landings as used by ACFM ³	76	78	100	83	93	84	72	-	225	59	122
Industrial by-catch	18	16	49	43	51	38	27	-	152	8	54
Discards/slipping	78	53	28	35	54	33	30	-	241	26	84
Catch as used by ACFM	154	132	127	118	147	117	102	-	361	97	206
Sp. stock biomass	271	283	279	261	286	228	209	265 ²	607	209	371
Recruitment (age 0)	41	28	53	23	21	49 ⁵	50 ⁵	33 ⁵	116	14	48
Mean F(2 - 6,u) ⁶	0.88	1.10	0.82	0.78	0.78	0.70	0.85	-	1.51	0.54	0.84

¹Over period 1960-1992. ²Forward projection. ³Includes industrial by-catch. ⁴30% reduction in fishing effort relative to 1989. ⁵Estimated from surveys. ⁶Human consumption landings + discards. Weights in '000 t, recruitment in '000 millions.

Catches: Human consumption landings stable at lower level than in the 1980s. Industrial by-catch and discards together constitute more than half the catches.

Data and assessment: Analytical assessment of catch-at-age data, using CPUE and recruit survey indices. Age composition in industrial by-catches estimated from direct sampling since 1991. Discards extrapolated from Scottish data.

Fishing mortality: Human consumption fishing mortality in 1992 has increased. Fishing mortality due to discards has increased compared to 1991, while industrial by-catch fishing mortality has decreased. Overall fishing mortality is variable at a high level without clear trends.

Recruitment: Recruitment in recent years is around average except for the 1989 and 1990 year classes which were at half this level.

State of stock: Due to the poor year classes in 1989 and 1990 the SSB in 1992 was at its lowest level since 1960.

Forecast for 1994:

Assuming F(93) = 0.85, Basis: F(92), Catch(93) = 137, Landings (93) = 90 (46 human consumption; 44 industrial by-catch).

Option	Basis	F(94)	SSB(94)	Catch(94)				SSB(95)	Consequences/implications
				Total catch	Human consumption landings	Industrial by-catch	Discards		
A	0.6 F(92)	0.51	315	114	37	46	32	321	Increase in SSB
B	0.8 F(92)	0.68		132	46	45	41	304	
C	F(92)	0.85		149	55	44	50	289	Decrease in SSB
D	1.2F(92)	1.02		164	63	43	58	276	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a slight increase in landings, but the SSB will decrease in 1995 after a short recovery in 1993 and 1994.

Management advice : ACFM recommends that the fishing effort in the directed fisheries on North Sea roundfish, except saithe, is reduced significantly and on a sustained basis relative to effort levels in the most recent years.

Special comments: A significant reduction in fishing effort is, as a minimum, a reduction to 70% of the effort level in recent years implemented in such a way that a similar reduction in fishing mortality is achieved.

The SSB has decreased to close to the historical minimum level due to two consecutive poor year classes but is expected to increase slightly in the medium term with the present exploitation pattern. The North Sea cod, which is caught together with whiting in mixed fisheries, is considered outside safe biological limits. The advice given is, therefore, linked to the recommendation given for the North Sea roundfish in general.

3.5.5 Saithe in Sub-area IV and Division IIIa (North Sea)

(Table 3.5.4; Figures 3.5.7 - 3.5.8)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	195	<198	156	170	120	125	≤102	93			
Agreed TAC	240	173	165	170	120	125	110	93			
Official landings	167	154	113	92	85	92	94	-			
Unallocated landings	-3	-5	-8	-	3	7	-2	-			
Discards/slipping	-	-	-	-	-	-	-	-			
Catch as used by ACFM	164	149	105	92	88	99	92	-	320	88	175
Sp. stock biomass	95	98	102	84	69	70	81	81 ²	455	70	205
Recruitment (age 1)	178	92	179	201	108	191 ³	191 ³	191 ³	643 ⁴	92 ⁴	234 ⁴
Mean F(3 - 6,u)	0.93	0.68	0.67	0.73	0.59	0.59	0.59	-	0.93	0.30	0.58

¹Over period 1970-1992. ²Forward projection. ³Assumed. ⁴Over period 1970-1990. Weights in '000 t, recruitment in millions.

Catches: Since 1986, the catches have been considerably less than the agreed TAC and are presently at a historically low level.

Data and assessment: Analytical assessment of catch-at-age data using CPUE. No independent estimates of year class strength.

Fishing mortality: Increased up to 1986 with a shift towards heavy exploitation on fairly young fish. Fishing mortality decreased between 1986 and 1990, and seems to have stabilised since 1990.

Recruitment: No independent estimates of recruitment are available. The last 6 year classes estimated from catches have been below the average of the preceding decade.

State of stock: The stock is declining and is now at a historically low level.

Forecast for 1994: The reliability of short-term forecasts is entirely dependent on the estimate of recruiting year classes. Since such estimates are not available the forecast below is based on average recruitment. Actual catch opportunities will depend entirely on the actual size of recruiting year classes.

Assuming $F(93) = 0.59$, Basis: $F(93)=F(92)$, Landings (93) = 89.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.6F(92)	0.36	76	-	64	108	SSB increases.
B	0.8F(92)	0.47	-	-	81	96	
C	1.0F(92)	0.59	-	-	97	85	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a slight increase in SSB due to the assumption of average recruitment.

Management advice : The stock is considered to be close to or outside safe biological limits. ACFM recommends that the fishing mortality in 1994 be reduced by 30%.

Special comments: Since 1989 the SSB has stabilised around a record low level and had been declining for several years up till then. Fishing mortality is high and average recruitment will be insufficient to maintain the SSB. The stock is thus in a state which is without precedent and for which advice cannot be based on historical experience. ACFM is concerned that this stock is close to or outside safe biological limits.

Furthermore, there are no measures of recent recruitment on which to base a forecast of the SSB or short-term catches. ACFM has formerly advised a reduction of the fishing mortality to 70% of the level in 1991. The TAC which was set to accomplish this was based on forecasts which assumed average recruitment to year classes contributing 90% to the catch prediction. Since recent recruitment has been below average the forecast of the catches associated with a reduction of the fishing mortality by 30% have been overestimates. The result is that the fishing mortality has been maintained at a high level even though the TAC has not been taken. Regulation through a TAC is obviously not the most appropriate tool to achieve a target fishing mortality in this case. The advice is, therefore, to reduce fishing mortality through effort measures.

3.5.6 North Sea plaice

(Table 3.5.5; Figures 3.5.9 - 3.5.10)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	<160	120	150	<175	171	169	³	³			
Agreed TAC	180	150	175	185	180	175	175	175			
Official landings	128	131	138	152	77 ⁴	144	120	-			
Unallocated landings	37	29	24	18	91	14	1	-			
Discards/slipping	-	-	-	-	-	-	-	-			
Catch as used by ACFM	165	160	162	170	168	157	121	-	170	73	125
Sp. stock biomass	355	391	380	423	400	333	319	338 ²	508	299	361
Recruitment (age 1)	1355	570	568	404	471	644 ⁵	702 ⁵	529 ⁵	1355	234	492
Mean F(2 - 10,u)	0.45	0.40	0.42	0.37	0.38	0.47	0.46	-	0.47	0.21	0.33

¹Over period 1958-1992. ²Forward projection. ³No long-term gain in increasing F. ⁴Not reported for all countries. ⁵Estimated from surveys. Weights in '000 t, recruitment in millions.

Catches: High until 1992 when they dropped to the lowest level since 1979. 1993 catches will probably not be higher. The TAC has not been taken for several years.

Data and assessment: Uncertainties in landings reported in previous years may affect the present assessment. Forecast made in 1992 was a gross overestimate. Discards not included in the assessment.

Fishing mortality: Increase in 1991 and 1992 to the upper historical limit; twice as high as F_{max} .

Recruitment: Above average recently, but possibly overestimated.

State of stock: SSB declining, still above historical minimum. The uncertainty in catch levels in earlier years makes the time series of SSB uncertain.

Forecast for 1994:

Assuming $F(93) = 0.46$, Basis: $F_{93} = F_{92}$, Catch(93) = Not calculated, Landings (93) = 143

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8F(92)	0.36	336	-	123	352	SSB will increase.
B	1.0F(92)	0.46		-	147	329	SSB more or less stable.
C	1.2F(92)	0.55		-	170	309	SSB will decrease.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to an SSB in 1995 10% above the target minimum of 300,000 t.

Management advice: The stock is considered to be within safe biological limits. There are no long-term gains in yield by increasing the fishing mortality above the present level.

3.5.7 North Sea sole

(Table 3.5.6; Figures 3.5.11 - 3.5.12)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	12.0	11.0	11.0	14.0	25.0	27.0	21.0	-			
Agreed TAC	20.0	14.0	14.0	14.0	25.0	27.0	25.0	32.0			
Official landings	12.9	13.8	13.4	14.4	n/a ³	27.6	25.7	-			
Unallocated landings	5.3	3.5	8.2	7.4	-	10.7	3.4	-			
Discards/slipping	-	-	-	-	-	-	-	-			
Catch as used by ACFM	18.2	17.4	21.6	21.8	35.1	38.3	29.1	-	38.3	11.3	22.3
Sp. stock biomass	36	31	42	37	93	78	66	50 ²	147	25	65
Recruitment (age 1)	164	76	451	101	137	49 ⁴	275 ⁴	56 ⁴	552 ⁵	12 ⁵	134 ⁵
Mean F(2 - 8,u)	0.45	0.43	0.49	0.38	0.43	0.52	0.50	-	0.55	0.14	0.37

¹Over period 1957-1992. ²Forward projection. ³Not reported for all countries. ⁴Estimated by surveys. ⁵Over period 1957-1990. Weights in '000 t, recruitment in millions.

Catches: Estimated landings in the last 3 years are well above average. They are dominated by a very abundant 1987 year class. Level of landings in the last 10 years uncertain and cause for concern.

Data and assessment: Analytical assessment of catch-at-age data using CPUE and survey indices. Adequate sampling of age compositions and weight at age. Recruitment surveys available. Poor effort series. Discards not included in the assessment.

Fishing mortality: Assessment indicates fishing mortality at a high level.

Recruitment: Recruitment is variable without trend. Surveys indicate a strong 1991 year class but the prediction of its actual size is still uncertain. Year classes spawned in 1990 and 1992 appear to be poor.

State of stock: The SSB recovered in 1990 from a low level as a result of one very abundant year class (1987) and has declined rapidly since then. It is expected to increase again when the 1991 year class recruits to the SSB in 1994.

Forecast for 1994:

Assuming F(93) = 0.50, Basis:F(92), Catch(93) = Not calculated, Landings (93) = 28

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8F(92)	0.40	68	-	26	60	SSB will decrease for all these options.
B	1.0F(92)	0.50		-	31	54	
C	1.2F(92)	0.60		-	36	49	

Weights in '000 t.

Continued fishing at current levels of fishing mortality is expected to lead to a temporary increase in the SSB in 1994 and a decrease in 1995 to the present level. Increased fishing mortality will lead to SSB dropping below 50,000 t. There is a high probability of SSB being below 50,000 t in the medium term if present exploitation levels are maintained.

Management advice: There are no long-term gains in yield by increasing fishing mortality above the present level.

Special comments: The stock is considered to be within safe biological limits. Long-term analyses indicate that at the present level of fishing mortality there is a 70% risk that SSB will be below 50,000 t and thus enter an uncertain area. To reduce this risk to 10%, a reduction in the level of fishing mortality of about 40% is required.

3.6 Demersal Stocks in Division VIIId

3.6.1 Overview

Landings of cod, whiting, sole and plaice are made by France, Belgium and the UK. Landings of cod and whiting are both at historically low levels while those of plaice and sole, in contrast, remain near their peak. Effort by small inshore vessels has increased in both France and the UK.

Analytical assessments were carried out on the cod, whiting, sole and plaice stocks. The data base for cod and whiting remains poor with uncertainties about the level of landings and no information available on discards.

The assessments indicate inconsistencies in the data bases. These may be partly due to the data deficiencies mentioned above. It is, however, probable that the inconsistencies also reflect the linkage between the Division VIIId stocks and the much larger North Sea stocks. Separate assessments for Division VIIId may be invalid even if perfect data were available from the area.

The SSB of cod is near to the minimum level observed following a period of low recruitment since 1985. Fishing mortality remains at a high level and, at current levels of F , the SSB is expected to decline further. The assessment is uncertain.

The SSB of whiting has been stable at a relatively low level and is expected to increase in the near future.

The SSB of sole has declined since 1988 to close to historically low levels while F remains high. Fishing at current levels of F is likely to lead to a further slight decline in SSB, although recent recruitment appears to be above average and this could temporarily reverse the situation.

The SSB of plaice remains at a high level following recruitment of the very strong 1985 year class. Recruitment in recent years has remained close to average but the spawning biomass has remained within safe historical limits.

3.6.2 Cod in Division VIIId

(Table 3.6.1; Figure 3.6.1)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Areed TAC	-	-	-	-	-	-	-	-			
Official landings	11.4	9.4	10.1	n/a	n/a	n/a	n/a	-			
Unallocated landings	1.4	4.8	-0.8	-	-	-	-	-			
Discards/slipping	-	-	-	-	-	-	-	-			
Catch as used by ACFM	12.8	14.2	9.4	5.5	2.7	1.9	2.7	-	14.2	1.9	5.9
Sp. stock biomass	1.23	2.02	1.26	2.73	1.17	0.82	0.41	0.1 ²	2.73	0.41	1.36
Recruitment (age 1)	27.3	6.3	3.7	2.4	0.6	1.0	-	-	27.3	0.6	6.5
Mean F(2 - 4,u)	1.69	1.37	1.31	1.51	1.27	1.57	1.49	-	1.69	0.65	1.33

¹Over period 1972-1992 for catch; 1976-1992 for stock data. ²Forward projection. Weights in '000 t, recruitment in millions.

Catches: These have fallen since 1987 to record low levels.

Data and assessment: Analytical assessment of catch-at-age data using CPUE. Independent recruitment estimates are not available. No discards data are available. The assessment demonstrates considerable inconsistencies in the data available. This is probably due to interactions with the North Sea cod stock. The overall trends emerging from the assessment are considered reliable.

Fishing mortality: At a high level.

Recruitment: All year classes after the 1986 year class are weak.

State of stock: SSB is currently at its historical minimum level.

Management advice: All available evidence indicates that the fishing mortality is high and that the spawning stock biomass is at an extremely low level. The stock is furthermore connected to the North Sea stock. In accordance with the advice given for the North Sea cod stock ACFM advises that fishing mortality should be reduced. A precautionary TAC based on recent landings should only be based on the most recent years with low catch levels.

3.6.3 Whiting in Division VIIId

(Table 3.6.2; Figures 3.6.2 - 3.6.3)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Areed TAC	-	-	-	-	-	-	-	-			
Official landings	4.8	7.2	7.8	n/a	n/a	n/a	n/a	-			
Unallocated landings	0.7	-2.5	-3.4	-	-	-	-	-			
Discards/slipping	-	-	-	-	-	-	-	-			
Catch as used by ACFM	5.5	4.7	4.4	4.2	3.5	5.8	5.8	-	9.2	3.5	6.6
Sp. stock biomass	8.0	5.6	6.3	7.2	7.1	7.0	6.1	10.5 ²	19.2	5.6	11.0
Recruitment (age 1)	19.8	40.5	26.2	26.3	27.2	43.6	67.2	26.6 ³	76.9	9.6	40.5
Mean F(2 - 4,u)	1.30	1.18	0.90	0.59	0.49	0.99	0.87	-	1.30	0.39	0.82

¹Over period 1976-1992. ²Forward projection. ³Assumed. Weights in '000 t, recruitment in millions.

Catches: Estimated landings in 1991 and 1992 are below the historical mean level.

Data and assessment: Analytical assessment of catch-at-age data using CPUE and recruit survey indices. No discard data are available.

Fishing mortality: F is highly variable but shows no trend in time. F_{92} is between F_{med} and F_{max} .

Recruitment: Variable without trend. The 1991 year class appears to be above average.

State of stock: SSB in 1986-1992 is half the level of that in previous years.

Forecast for 1994:

Assuming $F(93) = 0.87$, Basis: $F(93)=F(92)$, Landings (93) = 8.2

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8F(92)	0.69	9.2		5.7	7.9	SSB decreases.
B	1.0F(92)	0.87			6.7	7.0	
C	1.2F(92)	1.04			7.5	6.2	

Weights in '000 t.

Management advice: The stock is considered to be within safe biological limits. The fishing mortality is high and there are no long-term gains in yield from an increase in fishing mortality.

3.6.4 Sole in Division VIId (Eastern English Channel)

(Table 3.6.3; Figures 3.6.4 - 3.6.5)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	2.6	3.1	3.4	3.8	3.7	3.4	≤2.7	2.8			
Agreed TAC	3.2	3.85	3.85	3.85	3.85	3.85	3.5	3.2			
Official landings	2.9	3.8	3.3	2.9	3.0	3.8	3.6	-			
Unallocated landings	1.0	1.0	0.6	1.2	1.0	0.5	0.5	-			
Discards/slipping	No information										
Catch as used by ACFM	3.9	4.9	3.9	4.2	4.0	4.3	4.1	-	4.9	0.9	2.9
Sp. stock biomass	10.1	9.4	9.6	7.0	7.9	6.2	7.1	7.8 ³	10.1	6.2	8.5
Recruitment (age 1)	26.5	11.0	25.7	13.8	36.4	26.3	12.2	19.8 ²	36.4	11.0	20.7
Mean F(3 - 8,u)	0.41	0.63	0.45	0.63	0.47	0.56	0.56	-	0.63	0.34	0.49

¹Over period 1974-1992 for catch; 1983-1992 for stock data. ²Assumed. ³Forward projection. Weights in '000 t, recruitment in millions.

Catches: Relatively stable at a high level since the peak in 1987. Uncertainties about the catch level with up to 30% unreported in some years.

Data and assessment: Analytical age-based assessment. Data collected before 1983 are of poor quality. Fishery-independent data from surveys.

Fishing mortality: Currently at a high level.

Recruitment: 1989 year class substantially higher than the average figure used previously. Uncertainties about the strength of the 1991 year class could affect predicted catch in 1994.

State of stock: SSB is close to the historical low level and will decline further unless the 1991 year class is stronger than predicted.

Forecast for 1994:

Assuming F(93) = 0.56, Basis:F(93)=F(92), Catch(93) = Not calculated, Landings (93) = 4.5

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8F(92)	0.45	6.0	-	3.2	6.2	Stable at historical minimum.
B	F(92)	0.56		-	3.8	5.6	SSB will continue to decline.
C	1.2F(92)	0.67		-	4.3	5.1	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a further decline in SSB.

Management advice: The SSB is at a low level relative to the historic time series. The stock may be outside safe biological limits but the time series is too short to evaluate this possibility with confidence. In view of this and the high fishing mortality ACFM advises that fishing mortality should be reduced.

3.6.5 Plaice in Division VIIId (Eastern English Channel)

(Table 3.6.4; Figures 3.6.6 - 3.6.7)

Source of information: Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, Copenhagen, October 1993 (C.M.1994/Assess:6).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	6.2	6.8	6.9	11.7	10.7	8.8	-	-			
Agreed TAC (VIIId,e)	6.9	8.3	9.96	11.7	10.7	10.7	9.6	8.5			
Official landings	5.7	7.9	9.1	6.7 ³	7.7 ³	7.4 ³	5.9 ³	-			
Unallocated landings	1.1	0.4	1.3	2.1	1.2	0.4	0.5	-			
Discards/slipping	No information										
Catch as used by ACFM	6.8	8.3	10.4	8.8	9.0	7.8	6.3	-	10.4	2.0	5.6
Sp. stock biomass	11.2	14.7	17.8	17.7	18.0	12.7	11.3	9.5 ⁴	18.0	5.9	11.8
Recruitment (age 1)	65.1	35.0	29.2	18.8	23.0	30.9	33.6	29.2 ²	65.0	13.4	29.6
Mean F(2 - 6,u)	0.58	0.47	0.48	0.51	0.53	0.58	0.42	-	0.62	0.40	0.51

¹Over period 1976-1992 for catch; 1980-1992 for stock data. ²Assumed. ³For France Division VIIId is estimated by the Working Group. ⁴Forward projection. Weights in '000 t, recruitment in millions.

Catches: Increased steadily up to 1988, and have decreased since then.

Data and assessment: Analytical assessment using 4 commercial fleets and 2 surveys. Database poor prior to 1985. Independent recruitment data available.

Fishing mortality: Stable since the 1980s.

Recruitment: Variable around average levels in recent years.

State of stock: Prior to 1986, SSB was around 9,000 t, but has since been up to 18,000 t and is now declining rapidly.

Forecast for 1994:

Assuming $F(93) = 0.42$, Basis: $F(93)=F(92)$, Catch(93) = Not calculated, Landings (93) = 6.6

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8F(92)	0.34	10.6	-	5.9	12.1	SSB stable at high level.
B	$F(92)=F_{med}$	0.42	10.5	-	7.2	11.0	SSB at long-term average.
C	1.2F(92)	0.50	10.3	-	8.3	10.0	SSB decreases below long-term average.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to SSB remaining around the long-term average.

Management advice: The stock is considered to be within safe biological limits.

Special comments: The plaice is taken together with sole in a mixed fishery. The management of plaice in Division VIIId should be considered in relation to any management measures for sole.

3.7 Demersal Stocks in Sub-area VI

3.7.1 Roundfish in Sub-area VI: Overview

The assessment of roundfish stocks in Sub-area VI continued to be hampered by the poor quality of the catch data which continue to deteriorate.

Most of the roundfish stocks in Sub-area VI continue to be in a poor state and, because of the high fishing rates, the prognosis for each of them depends largely on the estimates or assumptions of current recruitment levels. The assumption of mean recruitment has frequently been made in the catch predictions.

All stocks, with the exception of haddock in Division VIb (whose status is uncertain), were at their lowest recorded spawning stock levels in 1992. Fishing mortalities continue to fluctuate about high levels. For cod and whiting recent recruitment has been below average, whereas for haddock and saithe recruitment has been around average.

The short-term forecasts indicate that the size of the spawning stocks will remain stable or increase marginally but that they will nevertheless remain at critically low levels. The evaluation of the status of the gadoid stocks remains unchanged with fishing rates excessively high and spawning biomasses critically low. As in previous years, management advice is to reduce fishing effort rather than to rely on TACs by themselves.

3.7.2 Cod in Division VIa (West of Scotland)

(Table 3.7.1; Figure 3.7.1)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	25.0	22.0	16.0	16.0	15.0	- ⁴	- ⁴	- ⁴			
Agreed TAC ³	25.0	22.0	18.4	18.4	16.0	16.0	13.5	14.0			
Official landings	12	19	19	N/A	N/A	N/A	N/A	-			
Unallocated landings	-	-	1	-	-	-	-	-			
Catch as used by ACFM	12	19	20	17	12	11	9	-	24	9	16
Sp. stock biomass	19	21	27	24	19	17	15	18 ²	56	15	31
Recruitment (age 1)	13	29	4	13	5	8	11	10 ⁵	29	4	11
Mean F(2- 5,u)	0.79	0.95	0.87	0.96	0.76	0.81	0.72	-	0.99	0.44	0.69

¹Over period 1966-1992. ²Forward projection. ³TAC is for the whole of Sub-area VI. ⁴30% reduction in fishing effort relative to 1989. ⁵Assumed. N/A - not available. Weights in '000 t, recruitment in millions.

Catches: Averaged 23,000 t during 1967-69 and 20,000 t during 1981-1988. Reduced levels of 12,000 to 14,000 t taken during the 1970s. Catches in 1992 at a historical low level.

Data and assessment: Analytical assessment based on catch-at-age data, CPUE data, and research vessel recruitment indices from Division VIa. Catch and effort data in 1992 considered to be poor due to misreporting.

Fishing mortality: Ranged from 0.5 to 0.7 during 1966-78. Increased from 0.8 to a record high level of 1.0 between 1979 and 1985, and remained at about 1.0 until 1989. Declined over recent years.

Recruitment: Record high 1986 year class followed by record low year class of 1987. The 1989 and 1990 year classes are well below average. The 1991 year class is average.

State of stock: SSB is at a historical low level.

Forecast for 1994:

Assuming F(93) = 0.72, Basis: F(93) = F(92), Catch(93) and Landings (93) = 11.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.6 F(92)	0.43	20	-	8	27	Landings reach new historic low. SSB increase.
B	0.8 F(92)	0.57			10	24	Landings increase from historic low; SSB increases from historic low.
C	1.0 F(92)	0.72			12	22	
D	1.2 F(92)	0.86			14	19	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to an increase in landings and SSB but both will remain at low levels.

Management advice: ACFM considers that this stock is outside safe biological limits. ACFM has recommended for several years that fishing effort in the directed fisheries for cod, haddock and whiting in Division VIa be permanently reduced to 70% of the level in 1989. This was because of the low levels of spawning biomass in all stocks and because continued fishing, after restrictive TACs are exhausted, would cause discarding or underreporting. ACFM recommends that restrictions on effort are still required to protect this stock and that effort should not be allowed to exceed 70% of that in the late 1980s.

Special Comments: The current analyses, although uncertain due to deteriorating data, suggest that there has been a small reduction in fishing mortality and that a reduction in effort of 20% compared to 1992 is consistent with previous advice. This implies a fishing mortality rate in 1994 of $F = 0.57$.

3.7.3 Cod in Division VIb (Rockall)

(Table 3.7.2)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Special comments: There is no new information on the status of Division VIb cod and recent catch data are considered unreliable due to misreporting. Official catch data are also incomplete. If a precautionary TAC is required for this Division, to be combined with management measures agreed for Division VIa, it should be based on the more reliable catches reported earlier which were about 1,000 t per year.

3.7.4 Haddock in Division VIa (West of Scotland)

(Table 3.7.3; Figure 3.7.2)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	<23.0	25.0	15.0	14.0	⁴	⁴	⁴			
Agreed TAC ³	34.5	32.0	35.0	35.0	24.0	15.2	12.5	17.6			
Official landings	20	27	21	N/A	N/A	N/A	N/A	-			
Unallocated landings	-1	-	-2	-	-	-	-	-			
Landings as used by ACFM	20	27	19	17	10	11	7	-			
Discards/slipping	8	16	9	3	5	9	6	-			
Catch as used by ACFM	27	43	28	20	16	20	13	-	58	13	34
Sp. stock biomass	61.9	50.3	43.2	36.1	20.1	16.2	15.1	23.5 ²	163.1	15.1	63.8
Recruitment (age 0)	313	25	28	115	98	154	107 ⁵	107 ⁵	1249	20	192
Mean F(2 -6,u)	0.45	0.91	0.73	0.91	0.83	1.12	0.79	-	1.12	0.41	0.72

¹Over period 1965-1992. ²Forward projection. ³TAC is set for Divisions VIa and VIb combined with restrictions on quantity that can be taken in VIa from 1990. ⁴30% reduction in fishing effort relative to 1989. ⁵Assumed. Weights in '000 t, recruitment in millions. N/A - not available.

Catches: Average 49,000 t during 1968-1973, declining to an average of 22,000 t during 1977-1980. Catches exceeded 40,000 t in 1984-1985 and 1987, but have declined to record low levels since 1989.

Data and assessment: Analytical assessment based on catch, effort and survey data. Continued uncertainty about the true level of catch and effort due to mis-reporting and non-reporting of landings.

Fishing mortality: Close to 1.0 in 1969 and 1972, declining to 0.4 - 0.5 during 1980-1983. Between 1987 and 1990 fishing mortality ranged between 0.7 and 0.9, and reached a new historical high of 1.12 in 1991.

Recruitment: Highly variable. All year classes after 1986 are below average. The strength of the 1992 year class is not known.

State of stock: The spawning stock is at the lowest recorded level but is predicted to increase in 1993. However, the 1991 year class will soon be fished out at the current level of fishing mortality.

Forecast for 1994:

Assuming F(93) = 0.79, Basis: F93 = F92, Catch(93) = 20, Landings (93) = 12.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.6 F(92)	0.48	24.6	13	8	30	Slight increase in SSB.
B	0.8 F(92)	0.64		16	10	26	
C	1.0 F(92)	0.79		19	12	23	Slight decrease in SSB.
D	1.2 F(92)	0.96		22	14	20	Decline in SSB.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to continuation of current low level of SSB.

Management Advice: ACFM considers that this stock is outside safe biological limits. ACFM has recommended for several years that fishing effort in the directed fisheries for cod, haddock and whiting in Division VIa be permanently reduced to 70% of the level in 1989. This was because of the low levels of spawning biomass in all stocks and because continued fishing, after restrictive TACs are exhausted, would cause discarding or under-reporting. ACFM recommends that restrictions on effort are still required to protect this stock and that effort should not be allowed to exceed 70% of that in the late 1980s.

Special comments: The current analyses, although uncertain due to deteriorating data, suggest that there has been a small reduction in fishing mortality and that a reduction in fishing effort of 20% compared to 1992 is consistent with previous advice. This implies a fishing mortality rate in 1994 of $F = 0.64$.

3.7.5 Haddock in Division VIb (Rockall)

(Table 3.7.4)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	5.0	10.0	10.0	18.0	5.5	5.5	3.8 ²	3.0			
Agreed TAC	Included in Sub-area VI combined TAC										
Official landings	4.8	8.0	7.6	N/A	N/A	N/A	N/A	-			
Unallocated landings	0.3	0.4	0.3	-	-	-	-	-			
Discards/slipping	Not known										
Catch as used by ACFM	5.1	8.4	7.9	6.7	3.9	5.7	5.9	-	9.8	3.9	6.7

¹Over period 1985-1992. ²Precautionary. Weights in '000 t. N/A - not available.

Catches: Catches have varied between 9,800 t in 1985 and 3,900 t in 1990. 1992 catches increased slightly but remained a little below average.

Data and assessment: An analytical assessment was undertaken but was rejected because of the poor quality of the catch-at-age, catch rate and discard data.

Fishing mortality: Not known.

Recruitment: The 1989 and 1990 year classes are thought to be slightly above average.

State of stock: The state of the stock is not known with any reliability.

Management advice: If a TAC is to be set for this stock, a precautionary TAC should be set in line with recent catches.

3.7.6 Whiting in Division VIa (West of Scotland)

(Table 3.7.5; Figure 3.7.3)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	13.0	15.0	15.0	13.0	11.0	- ⁴	- ⁴	- ⁴			
Agreed TAC ³	16.4	16.4	16.4	16.4	11.0	9.0	7.5	8.7			
Official landings	8.4	12.4	11.9	7.7 ⁵	N/A	N/A	N/A	-			
Unallocated landings	-	-0.9	-0.6	-0.2	-	-	-	-			
Catch as used by ACFM	8.4	11.5	11.3	7.5	5.6	6.7	6.0	-	24.9	6.0	13.9
Sp. stock biomass	21.6	22.7	22.6	13.1	14.3	12.9	12.8	12.9 ²	53.4	12.8	31.4
Recruitment (age 1)	52.0	68.1	17.8	45.1	29.7	38.2	33.8	47.3 ⁶	214.3	17.8	72.9
Mean F(2- 4,u)	0.66	0.76	0.91	0.90	0.63	0.78	0.74	-	1.29	0.35	0.74

¹Over period 1965-1992. ²Forward projection. ³TAC is set for Divisions VIa and VIb combined. ⁴30% reduction in fishing effort relative to 1989. ⁵Preliminary. ⁶Assumed. Weights in '000 t, recruitment in millions. N/A - not available.

Catches: Ranged from 15,000 t to 20,000 t between 1965 and 1985, occasionally as low as 11,000 t. Since 1986, catches have seldom exceeded 10,000 t, declining to a record low in 1990, and remaining at low levels in 1991 and 1992.

Data and assessment: Analytical aged-based assessment, tuned with four fleets and recruitment indices from research vessel surveys. Estimates of discards not considered reliable for inclusion in assessment.

Fishing mortality: Generally ranged from 0.8 to 1.3 during 1971 and 1976, declining to 0.3 to 0.5 during 1980-1983. F has increased in recent years and is currently at the historical average level.

Recruitment: Recruitment has been below the long-term mean since 1980, reaching a record low with the 1987 year class. The 1990-1991 year classes are well below average.

State of stock: The SSB is at a historical low level.

Forecast for 1994:

Assuming F(93) = 0.74, Basis: F(92) = F(93), Catch(93) = Not calculated, Landings (93) = 6.6.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8 F(92)	0.59	14.8	-	6.1	17.4	Close to minimum level of SSB.
B	1.0 F(92)	0.74		-	7.2	16.2	
C	1.2 F(92)	0.89		-	8.2	15.1	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a slight increase in SSB and landings but these will remain well below the average levels.

Management advice: ACFM considers that this stock is outside safe biological limits. ACFM has recommended for several years that fishing effort in the directed fisheries for cod, haddock and whiting in Division VIa be permanently reduced to 70% of the level in 1989. This was because of the low levels of spawning biomass in all stocks and because continued fishing, after restrictive TACs are exhausted, would cause discarding or underreporting. ACFM recommends that restrictions on effort are still required to protect this stock and that effort should not be allowed to exceed 70% of that in the late 1980s.

Special comments: The current analyses, although uncertain due to deteriorating data, suggest that there has been a small reduction in fishing mortality and that a reduction in fishing effort of 20% compared to 1992 is consistent with previous advice. This implies a fishing mortality rate in 1994 of F = 0.59.

3.7.7 Whiting in Division VIb (Rockall)

(Table 3.7.6)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Special comments: Landings of whiting from Division VIb are negligible.

3.7.8 Saithe in Sub-area VI (West of Scotland and Rockall)

(Table 3.7.7; Figure 3.7.4)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	20	23	35	20	24	21	<16	6.3			
Agreed TAC	27.8	27.8	35	30	29	22	17	14.0			
Official landings	35	33	33	N/A	N/A	N/A	N/A	-			
Unallocated landings	5	-2	1	-	-	-	-	-			
Catch as used by ACFM	40	31	34	26	20	17	12	-	42	7	24
Sp. stock biomass	55	50	43	26	19	15	11	10 ²	91	11	47
Recruitment (age 1)	29	30	21	20	13	28 ³	28 ³	28 ³	43 ⁴	17 ⁴	28 ⁴
Mean F(3-6,u)	0.59	0.50	0.56	0.85	0.76	0.81	0.59	-	0.85	0.23	0.42

¹Over period 1963-1992. ²Forward projection. ³Assumed. ⁴Over period 1963-1989. Weights in '000 t, recruitment in millions. N/A-not available.

Catches: Greater than 40,000 t in 1976 declining to 22,000 t in 1980. Catches increased to 40,000 t in 1986 but have since declined, reaching a record low level.

Data and assessment: Analytical assessment of catch-at-age data using CPUE data tuned with five fleets. Tuning data set of poor quality. No independent estimates of year class strength.

Fishing mortality: Remained at less than 0.5 up to 1985, increased to around 0.85 in 1989-1991 and decreased in 1992.

Recruitment: Relatively stable but below average in 1988-1990.

State of stock: SSB at record low level.

Forecast for 1994:

Assuming $F(93) = 0.59$, Basis: $F(93) = F(92)$, Catch(93) and Landings (93) = 13.2.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.4 F(92)	0.24	9.1	-	7.2	19.1	SSB (95) = SSB (90)
B	0.8 F(92)	0.47		-	13.1	14.6	Halts decline.
C	1.0 F(92)	0.59		-	15.7	12.8	
D	1.2 F(92)	0.71		-	18.0	11.2	SSB remains at low level.

Lowest level of SSB on record in 1994.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to new record low level of SSB in 1994 then to a small increase assuming mean recruitment.

Management advice: The spawning biomass was at its historical minimum in 1992 and is expected to decline further in 1993. This stock is considered to be outside safe biological limits. ACFM recommends that fishing mortality be reduced to the lowest possible level.

Special comments: About 75% of the catches forecast for 1994 come from year classes for which average recruitment has had to be assumed. However, the SSB forecast for 1995 is insensitive to the size of these year classes.

3.7.9 Megrin in Sub-area VI

(Table 3.7.8)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ³	3.9	4.4	4.84	4.84	4.84	4.84	4.84	4.84			
Official landings	2.8	3.9	4.5	N/A	N/A	N/A	N/A	-			
Catch as used by ACFM ²	-	-	-	-	2.9	2.7	2.3	-	2.9	2.3	2.6

¹Over period 1990-1992. ²Division VIa ³Vb (EC), VI, XII, XIV. Weights in '000 t. N/A - not available.

Catches: Catches contain two species: *Lepidorhombus whiffiagonis* and *L. boscii*. Official catch statistics are incomplete.

Data and assessment: Age-based data available for 3 years. Steady-state assessment on average age composition was performed and used as input to age-based yield per recruit analysis, based on both landings and catch data.

Fishing mortality: Indicated to be between 0.6 and 0.8 on older age groups. F_{max} is not well determined.

Recruitment: No information.

State of stock: The status of the stock is not known. The yield-per-recruit analysis indicates that the stock is fully exploited.

Forecast for 1994: Not available

Management advice: ACFM notes that no gains in long-term yield will be obtained from an increase in fishing mortality.

Special comments: Megrin are taken in a mixed fishery and the stock should, therefore, be managed in accordance with the other stocks taken in this fishery.

3.7.10 Anglerfish in Sub-area VI

(Table 3.7.9)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ³	7.5	7.8	8.6	8.6	8.6	8.6	8.6	8.6			
Official landings	4.4	5.2	7.7	N/A	N/A	N/A	N/A	-			
Catch as used by ACFM ²	-	-	-	-	5.8	5.4	4.6	-	5.8	4.6	5.3

¹Over period 1990-1992. ²Division VIa. ³Vb (EC), VI, XII, XIV. Weights in '000 t. N/A - not available.

Catches: Catches contain two species: *Lophius piscatorius* and *L. budegassa*. Official catch statistics are incomplete.

Data and assessment: Age-based steady-state assessment was used to provide input to age-based yield per recruit analysis.

Fishing mortality: Indicated to lie between 0.5 and 0.75 on older ages, and is above F_{max} .

Recruitment: No information.

State of stock: The status of the stock is not known. The analysis, nevertheless, indicates that the stocks are fully exploited.

Forecast for 1994: Not available.

Management advice: ACFM notes that no gains in long-term yield will be obtained from an increase in fishing mortality.

Special comments: Anglerfish are taken in a mixed fishery and the stocks should, therefore, be managed in accordance with the other stocks taken in this fishery.

3.7.11 Blue ling, ling and tusk stocks in Sub-areas V, VI and XIV

(Tables 3.7.10 - 3.7.24)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess 20).

Special comments: Catch data are presented in Tables 3.7.10 - 3.7.24.

It is not at present possible to conduct any assessments of these stocks. Improved data on catch and effort should be made available, if at all possible.

3.8 Demersal Stocks in the Irish Sea

3.8.1 Overview

Current fishing mortalities remain very high for cod and whiting stocks in Division VIIa. Cod reached a new record low spawning biomass in 1992 suffering below average recruitment since 1987. The spawning biomass of this stock is likely to decline further and remedial management measures are required. The spawning biomass of whiting continued to increase from its record low in 1990. Nevertheless, it remains below average and it has been sustained in spite of high fishing mortality, by average to strong recruitment over the period 1989-1991. Catch predictions for whiting are sensitive to the assumed effects of the use of square mesh panels in the fishery.

The spawning biomass of plaice in Division VIIa is midway between its historical low (in 1977) and the long-term average, having declined since 1988. Fishing mortality has been fairly stable, fluctuating about the mean of 0.6. Recruitment in recent years has been below average. The spawning biomass of sole has recovered to an average level from its historic low in 1991. Fishing mortality has fluctuated about an average level (0.4). The apparent recovery stems from the maturation of the 1989 year class which is almost twice the average abundance. Subsequent year class strengths are not reliably known.

3.8.2 Cod in Division VIIa (Irish Sea)

(Table 3.8.1; Figure 3.8.1)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	10.7	10.3	10.1	≤13.4	15.3	6.0	10.0	10.2			
Agreed TAC	15.0	15.0	15.0	15.0	15.3	10.0	10.0	11.0			
Official landings	10.1	13.2	15.8	11.3 ³	N/A	N/A	N/A	-			
Unallocated landings	-0.2	-0.3	-1.7	1.5	-	-	-	-			
Discards/slipping	None recorded										
Catch as used by ACFM	9.9	12.9	14.2	12.8	7.4	6.7	7.2	-	14.9	6.3	9.8
Sp. stock biomass	6.1	6.4	6.2	6.4	4.3	3.2	3.2	3.2 ²	10.9	3.2	7.4
Recruitment (age 0)	18.8	8.9	3.8	5.0	6.4	6.9	3.5	7.3 ⁴	18.8	3.3	8.0
Mean F(2 - 5,u)	0.90	0.94	0.98	1.15	1.09	0.93	1.15	-	1.15	0.51	0.80

¹Over period 1968-1992. ²Forward projection. ³Preliminary. ⁴Assumed. Weights in '000 t, recruitment in millions. N/A-not available.

Catches: Variable, ranging from 6,000 t to 15,000 t during 1968-1992. Catches in recent years have been close to the historical minimum.

Data and assessment: Analytical age-based assessments tuned with CPUE data for two fleets. Recruit indices incorporated in assessment.

Fishing mortality: Fishing mortality is now at its highest level on record.

Recruitment: All year classes since 1987 have been below average. The 1992 year class is one of the lowest on record.

State of stock: Spawning stock biomass has decreased sharply since 1989 and is now at a historical low level.

Forecast for 1994:

Assuming F(93) = 1.15, Basis: *Status Quo*, Catch(93) and Landings (93) = 7.8.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.4 F(92)	0.46	4.5	-	3.7	6.4	Significant increase in SSB.
B	0.6 F(92)	0.69	4.0	-	5.0	4.6	Slight improvement in SSB.
C	0.8 F(92)	0.92	3.5	-	6.2	3.4	SSB remains at low level.
D	F(92)	1.15	3.1	-	7.1	2.5	Reduction of SSB to new historical low level.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a continued decline in SSB and landings.

Management advice: Recruitment to this stock is reduced at the current levels of spawning biomass and the stock is considered to be outside safe biological limits. The current fishing mortality rate is very high. ACFM recommends that fishing mortality be reduced to restore the spawning biomass to levels experienced in the late 1980s at which good recruitments have been observed. This can be achieved by a 60% reduction in fishing mortality.

Special comments: Impacts on other species need to be considered in management decisions for cod as important catches of *Nephrops*, hake and plaice are taken simultaneously with cod.

When cod was more abundant there was a pronounced spring spawning fishery and a slightly smaller autumn fishery. Now the seasonal pattern is much less pronounced and much of the cod is taken in mixed fisheries. A simple reduction in the TAC is thus likely to lead to discarding and misreporting of marketable cod and the effects of complementary technical measures should be examined.

Multispecies studies indicate that large reductions in the mortality of cod will reduce the yield of *Nephrops* and the combined yield. Nevertheless, to ensure a sustained recovery of cod, fishing mortality rates need to be significantly reduced.

3.8.3 Whiting in Division VIIa (Irish Sea)

(Table 3.8.2; Figure 3.8.2)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	16.0	16.0	12.0	≤11.0	8.3 ⁴	6.4 ⁴	9.7 ⁴	6.5			
Agreed TAC	18.2	18.2	18.2	18.2	15.0	10.0	10.0	8.5			
Official landings	10.0	11.7	11.5	11.3	N/A	N/A	N/A	-			
Unallocated landings	+	-1.0	-1.5	-0.1	-	-	-	-			
Discards from <i>Nephrops</i> fishery	2.3	3.7	1.9	2.0	2.7	2.7	4.1	-	4.1	0.9	1.6
Catch as used by ACFM	12.4	14.4	11.9	13.2	10.7	9.6	11.1	-	20.6	9.6	14.1
Sp. stock biomass	7.3	7.6	9.5	6.4	5.4	5.6	6.4	7.6 ²	17.0	5.4	8.9
Recruitment (age 0)	176	93	101	127	117	194	113 ³	113 ³	194	64	125
Mean F(2 - 5,u)	1.32	1.04	1.01	1.64	1.37	1.30	1.37	-	1.64	0.81	1.17

¹Over period 1980-1992. ²Forward projection. ³Assumed. ⁴Not including discards from the *Nephrops* fishery. Weights in '000 t, recruitment in millions. + less than 50 t. N/A-not available.

Catches: Landings in 1991 were the lowest recorded over 1980-1992 and remained almost unchanged in 1992. Discards increased in 1992 due to a strong 1991 year class.

Data and assessment: Analytical age-based assessment tuned with CPUE data for three fleets. Research vessel indices of recruitment available. Effects of square mesh introduction included in predictions.

Fishing mortality: Fishing mortality has remained very high since 1982.

Recruitment: Ranged from 64 to 194 million. The 1991 year class is currently estimated to be the strongest in the 1980-1992 series. In predictions, the 1992 year class is assumed to be average but limited evidence suggests that it may be very small.

State of stock: Spawning stock biomass has shown a decline since 1981 to a historic low level in 1990. SSB has increased slightly in 1991 and 1992 but remains below the long-term average.

Forecast for 1994:

Assuming F(93) = 1.33¹, Basis: *Status Quo*, Catch(93) = 12.5, Landings (93) = 10.9.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.6 F(92)	0.80	7.8	-	7.0	9.5	SSB above average, catch reduced.
B	0.8 F(92)	1.06	7.2	-	8.5	7.7	SSB below average, catch reduced.
C	1.0 F(92)	1.33	6.7	-	9.9	6.4	SSB below average, catch reduced.

¹The prediction is based on landings only, assuming a 25% reduction in discard F from 1993 onwards due to use of square mesh.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a temporary increase in landings due to the strong 1991 year class. SSB increased in 1993 due to the strong 1991 year class but remains below average and will decline in 1994 and 1995 if recruitment from 1992 onwards remains average.

Management advice: It is considered that this stock is within safe biological limits.

Special comments:

The stock is now considered to be within safe biological limits because it has apparently produced a good year class in 1991 when it was at a record low level.

Fishing mortality rates are very high and long-term yields and the stability of the fishery will benefit from a reduction.

Cod and whiting are taken in mixed fisheries and management should take into account the state of the cod stock (see Section 3.8.2).

The effectiveness of square mesh in this fishery still remains uncertain. All UK vessels are required to use square mesh. Irish vessels will be required to use square mesh from the end of 1993. A reduction in discard fishing mortality is expected, but the magnitude is uncertain. Forecasts are based upon assumptions of a 25% reduction in discarding.

3.8.4 Plaice in Division VIIa (Irish Sea)

(Table 3.8.3; Figure 3.8.3)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	5.0	5.0	4.8	5.8	5.1	3.3	3.0	2.8			
Agreed TAC	5.0	5.0	5.0	5.8	5.1	4.5	3.8	2.8			
Official landings	4.6	5.6	4.4	4.2	N/A	N/A	N/A	-			
Unallocated landings	+	0.4	0.4	0.2	-	-	-	-			
Discards/slipping	0.2	0.3	0.2	-	-	-	-	-			
Catch as used by ACFM	4.8	6.2	5.0	4.4	3.3	2.5	3.2	-	6.2	2.5	4.0
Sp. stock biomass	6.8	6.2	6.2	6.0	5.3	4.4	4.2	4.3 ²	9.9	2.7	6.1
Recruitment (age 1)	19.8	21.4	13.0	7.1	13.5	15.9	16.1 ³	16.1 ³	33.1	7.1	16.8 ⁴
Mean F(3 - 6,u)	.58	.81	.75	.59	.57	.47	.72	-	.90	.30	.60

¹Over period 1964-1992. ²Forward projection. ³Assumed. ⁴1964-1991. Weights in '000 t, recruitment in millions. + less than 50 t. N/A - not available.

Catches: Recent catches have declined sharply from a peak in 1987 to the lowest level recorded.

Data and assessment: Analytical assessment based on catch-at-age, commercial CPUE and survey CPUE data. Recruitment indices from survey data in Division VIIa.

Fishing mortality: Variable, ranging from 0.3 - 0.5 during 1964 - 1970, increasing to 0.7 - 0.9 during 1973 - 1977 and 1987 - 1988, and decreasing 1989 - 1991. F is currently above recent levels, and 20% above the long-term mean.

Recruitment: Variable. Recent year classes have been near the long-term mean, following 3 below-average year classes.

State of stock: Spawning stock biomass has gradually declined since 1986 to 50% above the historic low 1977 level, but 30% below the long-term mean.

Forecast for 1994:

Assuming F(93) = 0.72, Basis: *Status Quo*, Catch(93) = 3.7, Landings (93) = 3.7.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.6(F92)	0.43	4.6	2.4	2.4	5.5	SSB increases to 1990 level.
B	0.8(F92)	0.58	4.4	3.1	3.1	4.9	SSB increases.
C	1.0(F92)	0.72	4.3	3.7	3.7	4.3	SSB stable at low level.
D	1.2(F92)	0.86	4.2	4.2	4.2	3.8	SSB falling.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to catches below the long-term average level and spawning stock remaining at a low level (70% of mean).

Management advice: The stock is within safe biological limits but fishing mortality is high and well in excess of F_{max} and F_{med} . ACFM advises that increases in long-term yield and SSB would result from a decrease in fishing mortality.

Special comments: Plaice and cod are caught in mixed fisheries and management should take into account the state of the cod stock (see Section 3.8.2).

3.8.5 Sole in Division VIIa (Irish Sea)

(Table 3.8.4; Figures 3.8.4 - 3.8.5)

Source of information: Report of the Working Group on the Assessment of Northern Shelf Demersal Stocks, June 1993 (C.M.1993/Assess:20).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	1.65	1.9	1.6	<1.48	1.5	1.3	- ⁴	0.92			
Agreed TAC	1.9	2.1	1.75	1.48	1.5	1.5	1.35	1.0			
Official landings	1.9	2.0	1.9	1.8	N/A	N/A	N/A	-			
Unallocated landings	0.1	0.8	0.1	+	-	-	-	-			
Discards/slipping	None recorded							-			
Catch as used by ACFM	2.0	2.8	2.0	1.8	1.6	1.2	1.3	-	2.8	1.1	1.5
Sp. stock biomass	6.1	7.4	6.0	4.9	3.7	3.4	5.2	4.9 ²	7.4	3.4	5.1
Recruitment (age 2)	24.6	3.8	3.6	5.4	7.1	17.4	7.0 ³	7.0 ³	24.6	2.4	8.8
Mean F(4-7,u)	0.44	0.82	0.51	0.47	0.54	0.41	0.36	-	0.82	0.33	0.42

¹Over period 1970-1992. ²Forward projection (*Status quo*). ³Assumed. ⁴No long-term gains in yield by increasing F. Weights in '000 t, recruitment in millions. N/A - not available.

Catches: Landings in 1992 were less than half the peak level of 1987 and near the record low.

Data and assessment: Analytical age-based assessment tuned with two fleets. Recruitment indices come from commercial and survey data in Division VIIa.

Fishing mortality: Fishing mortality in recent years has been close to the long-term average, which is just above F_{med} and F_{max} .

Recruitment: The year classes of 1982-1984 were all strong. Subsequently all year classes have been poor except that of 1989 which is now estimated to be twice average strength.

State of stock: The spawning stock in 1992 has recovered and is now close to average.

Forecast for 1994:

Assuming $F(93) = 0.24$, Basis: TAC, Catch not calculated, Landings (93) = 1.0.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	$0.6 \times F_{92}$	0.21	5.2	-	0.96	5.4	Below average catch. SSB close to historical average.
B	$0.8 \times F_{92}$	0.28	5.2	-	1.25	5.1	
C	$1.0 \times F_{93}$	0.36	5.1	-	1.51	4.8	Landings and SSB average.
D	$1.2 \times F_{92}$	0.43	5.1	-	1.76	4.5	SSB falling.

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to landings and SSB remaining at average levels.

Management advice: ACFM considers the stock to be within safe biological limits. There will be no long-term benefits in yield from increasing the fishing mortality above the current level.

3.9 Demersal Stocks in the Celtic Sea and Western English Channel

3.9.1 Celtic Sea cod (Divisions VII^f and g)

(Table 3.9.1; Figure 3.9.1)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess: 3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	5-6	<6.4	7.0	8.6	9.2	4.5	- ³	6.5			
Agreed TAC	TAC covers Sub-areas VII (except Division VIIa) and VIII										
Catch as used by ACFM	8.0	7.9	12.0	15.3	8.7	6.0	6.4	-	15.3	2.1	5.9
Sp. stock biomass	7.8	5.7	5.3	12.6	9.1	4.5	3.2	4.3 ²	12.6	3.1	5.8
Recruitment (age 1)	2.1	13.1	5.6	1.7	1.9	4.4	4.0	2.9 ⁴	13.1	0.4	3.0
Mean F(2-5,u)	0.88	0.89	0.78	0.94	1.00	1.05	1.03	-	1.05	0.37	0.70

¹Over period 1971-1992. ²Forward projection. ³Reduced fishing mortality. ⁴Assumed. Weights in '000 t, recruitment in millions.

Catches: Have decreased sharply since the record high 1989 level, to come close to the average of the early 1980s. A slight increase in 1992.

Data and assessment: Age-based analytical assessment using catch-per-unit effort data from one fleet.

Fishing mortality: At the highest level in the series (about 1.0 and close to F_{high}) since 1990. F_{max} estimated to be at 28% and F_{med} at 75% of current F.

Recruitment: Returns to average level.

State of stock: SSB has been sharply decreasing since the record high level in 1989, as a consequence of high fishing mortality and reduced recruitment in 1989-1990.

Forecast for 1994:

Assuming $F(93) = 1.03$, Basis: $F(92)$, Landings (93) = 7.3.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F_{max}	0.29	5.2		2.6	9.1	SSB above average.
B	$0.6 \times F(92)$	0.62	4.8		4.6	6.1	
C	$0.8 \times F(92)$	0.82	4.5		5.6	4.7	
D	$F(92)$	1.03	4.3		6.5	3.6	SSB decreases to near minimum level.
E	$1.2 \times F(92)$	1.23	4.1		7.2	2.8	SSB decreases below minimum

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a further decrease of catches (5,900 t) in 1995.

Management advice: SSB has been decreasing sharply in recent years and is predicted to decline further to near the minimum level if the current high fishing mortality is maintained. A significant reduction in fishing mortality is required to halt the decline of the stock. ACFM, therefore, considers that this stock is almost outside safe biological limits and recommends that fishing mortality in 1994 be reduced to 80% of the level in 1992 corresponding to a TAC of 5,600 t in 1994.

Special comments: This stock should be managed as a unit separate from the other cod stocks in Sub-areas VII and VIII.

3.9.2 Celtic Sea whiting (Divisions VIIIf and g)

(Table 3.9.2; Figure 3.9.2)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	8-10	7.1	7.0	7.9	8.4	8.0	8.0	6.6			
Agreed TAC	TAC covers Sub-area VII (except Division VIIa)										
Catch as used by ACFM	6.8	8.7	9.7	12.4	10.1	9.5	8.7	-	12.4	6.8	8.8
Sp. stock biomass	9.6	10.1	18.1	22.4	14.0	10.0	12.4	14.2 ²	22.4	7.9	12.0
Recruitment (age 1)	33.6	64.6	53.6	16.1	25.6	45.9	44.1	28.8 ³	64.6	16.1	34.3
Mean F(2-5,u)	1.10	1.35	1.05	1.07	1.00	1.31	1.16	-	1.42	1.00	1.17

¹Over period 1982-1992. ²Forward projection. ³Assumed. Weights in '000 t, recruitment in millions.

Catches: Have continued to decrease from the record high catch in 1989 to the average level in 1992.

Data and assessment: Age-based analytical assessment using catch-per-unit effort data from one fleet.

Fishing mortality: At a high level (above 1.0) but close to the average and to F_{med} . F_{max} estimated to be at 32% of current F.

Recruitment: Fluctuating widely with strong 1986 and 1987 year classes. Year classes 1990 and 1991 estimated to be above average.

State of stock: SSB has decreased since the peak value in 1989 and is currently about average. Due to the short data series it is not possible to evaluate the historic changes in the stock.

Forecast for 1994:

Assuming $F(93) = 1.16$, Basis: $F(92)$, Landings (93) = 10.5.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	$0.8 \times F(92)$	0.93	12.0		8.1	11.4	SSB about average.
B	$F(92)$	1.16	11.6		9.4	10.0	SSB decreasing
C	$1.2 \times F(92)$	1.40	11.2		10.5	8.8	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a further decrease of catches to 8,100 t in 1995.

Management advice: The SSB is currently close to the average level and recruitment fluctuates about the mean. The stock is considered to be within safe biological limits.

Special comments: Decreasing fishing mortality from the current high level would be beneficial for long-term yield and stability. This may be achieved if measures are taken similar to those recommended to reduce fishing mortality on Celtic Sea cod, which is caught by the same fleets as whiting.

This stock should be managed as a unit separate from the other whiting stocks in Sub-area VII.

3.9.3 Celtic Sea plaice (Division VIIIf and g)

(Table 3.9.3; Figure 3.9.3)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	1.6	-	-	-	~1.9	~1.7	. ³	. ³			
Agreed TAC	1.8	1.8	2.5	2.5	1.9	1.9	1.5	1.4			
Official landings	1.5	1.9	2.1	2.2	2.1	1.5	1.2	-			
Unallocated landings	0.2	-	-	-	-	-	-	-			
Catch as used by WG	1.7	1.9	2.1	2.2	2.1	1.5	1.2	-	2.2	0.8	1.5
Sp. stock biomass	2.8	2.8	2.8	2.5	2.5	1.8	1.5	1.2 ²	2.8	0.9	1.9
Recruitment (age 1)	8.6	11.4	7.1	2.6	1.6	5.8	3.6	5.7 ⁴	11.4	1.6	5.9
Mean F(3-6,u)	0.56	0.57	0.77	0.75	0.88	0.78	0.81	-	0.88	0.49	0.66

¹Over period 1977-1992. ²Forward projection. ³No long-term gains in yield by increasing F. ⁴Assumed. Weights in '000 t, recruitment in millions.

Catches: Catches increased to 1988, remained high during 1988-1990, and dropped in 1991 and 1992.

Data and assessment: Age-based analytical assessment using CPUE for two fleets and a new beam trawl groundfish survey. Sampling of the length compositions of the catches should be improved.

Fishing mortality: Stable up to 1987, higher in recent years. 1992 F close to F_{med} but more than twice F_{max} .

Recruitment: 1986 year class was twice the average strength, the 1988, 1989 and 1991 year classes were poor.

State of stock: SSB was high in 1985-1990, but has declined sharply in 1991 and 1992 to below average levels.

Forecast for 1994:

Assuming $F(93) = 0.81$, Basis: $F(93)=F(92)$, Catch(93) = Not calculated, Landings (93) = 1.2.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.6 x F(92)	0.49	1.3	-	0.8	1.7	SSB returns almost to average level. SSB further decreases below present and average levels.
B	0.8 x F(92)	0.65	1.2	-	1.0	1.4	
C	1.0 x F(92) = F_{med}	0.81	1.2	-	1.2	1.3	
D	1.2 x F(92)	0.97	1.2	-	1.3	1.1	

Weights in '000 t.

Continued fishing at current levels of fishing mortality in 1995 will lead to little change in SSB, which would nevertheless remain below average.

Management advice: SSB is below the long-term mean. Despite high fishing mortalities, the stock is considered to be within safe biological limits, though recent recruitment has been below average. ACFM notes, however, that no gains in long-term yield will be obtained from an increase in fishing mortality.

Special comments: Plaice are taken in a mixed otter trawl fishery and as a by-catch in the beam trawl fishery for sole in Division VIIIf and g, and recent F trends on both stocks are similar. Effects on plaice of a departure from *status quo* fishing mortality for sole, and vice versa, should be considered.

3.9.4 Celtic Sea sole (Divisions VII f and g)

(Table 3.9.4; Figure 3.9.4)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	0.9	1.0	1.2	1.1	1.1	- ⁴			
Agreed TAC	1.5	1.6	1.1	1.0	1.2	1.2	1.2	1.1			
Unallocated landings	-	-	-	-	-	-0.2	-				
Catch as used by ACFM	1.6	1.2	1.1	1.0	1.2	1.1	1.0		1.9	0.8	1.2
Sp. stock biomass	3.0	2.3	2.3	1.9	2.0	1.9	2.3	2.3 ²	5.1	1.9	3.1
Recruitment (age 2)	5.0	2.7	5.2	4.2	3.8	7.2	4.2 ³	4.2 ³	7.2	2.6	4.5
Mean F(4-8,u)	0.55	0.58	0.59	0.58	0.76	0.51	0.46	--	0.76	0.22	0.42

¹Over period 1971-1992. ²Forward projection. ³Assumed. ⁴No long-term gain in yield by increasing F. Weights in '000 t, recruitment in millions.

Catches: Catches have been relatively stable over the last decade.

Data and assessment: Age-based analytical assessment using catch-per-unit effort data from two fleets.

Fishing mortality: Increased from about 0.28 in the 1970s to 0.76 in 1990, then declined to 0.46 in 1992.

Recruitment: Has been relatively stable. The 1989 year class confirmed to be strong.

State of stock: SSB has declined from an average of 3,600 t in the 1970s to 2,800 t in 1980s and then to a minimum value of 1,890 t in 1991. Subsequently increased to 2,300 t in 1992.

Forecast for 1994:

Assuming F(93) = 0.46, Basis: F(92), Catch(93) = , Landings (93) = 1.0.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F _{max}	0.26	2.5	-	0.6	2.8	SSB increases but still below long-term mean.
B	F _{med} 0.85 x F(92)	0.39	2.4	-	0.9	2.5	Slight increase in SSB.
C	F ₉₂	0.46	2.3	-	1.0	2.3	SSB stable at low 1992 level.
D	1.2 x F(92)	0.56	2.3	-	1.1	2.1	SSB decreases below 1992 level.

Weights in '000 t.

Continued fishing at current levels of fishing mortality in 1995 will lead to stabilizing SSB at the low 1992 level.

Management advice: Fishing mortality has been high, resulting in a decrease of SSB since 1986 to a record low level in 1991. However, recruitment has been stable and the strong 1989 year class seems to enhance SSB. Therefore, the stock is not considered to be outside safe biological limits. ACFM notes, however, that no long-term gains in yield would be obtained by increasing fishing mortality.

Special comments: Sole and plaice in the Celtic Sea are taken in a mixed fishery. If departure from *status quo* fishing mortality is implemented for either species, the implications for the associated species should be considered.

3.9.5 Cod in Division VIIe (Western English Channel)

Officially reported landings data are very incomplete for recent years. Landings as estimated by the Working Group are given in Table 3.9.5.

Data not available for an analytical assessment.

Cod in Division VIIe is managed by means of a TAC applicable to all stocks in Sub-area VII, with the exception of Division VIIa.

3.9.6 Whiting in Division VIIe (Western English Channel)

Landings are given in Table 3.9.6.

The same comments given for cod above apply to whiting in this Division.

3.9.7 Plaice in Division VIIe (Western English Channel)

(Table 3.9.7; Figure 3.9.5)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC (VIIId,e)	6.2	6.8	6.9	11.7	10.7	8.8	-	-			
Agreed TAC (VIIId,e)	6.9	8.3	9.96	11.7	10.7	10.7	9.6	8.5			
Official landings	1.7	1.9	2.4	2.3	n/a ⁴	n/a ⁴	n/a ⁴	-			
Unallocated landings	0.1	0.1	0.1	0.1	-	-	-	-			
Catch as used by ACFM	1.8	2.0	2.5	2.4	2.6	1.8	1.6	-	2.6	0.6	1.6
Sp. stock biomass	2.7	2.3	3.3	3.6	3.4	2.7	2.2	1.9 ²	3.6	1.3	2.4
Recruitment (age 1)	13.3	11.9	8.4	3.4	3.8	4.9	10.3	5.4 ³	13.3	2.0	6.2
Mean F(3-7,u)	0.54	0.63	0.46	0.63	0.70	0.62	0.70	-	0.70	0.40	0.55

¹Over period 1976-1992. ²Forward projection. ³Assumed. ⁴Not reported for all countries. Weights in '000 t, recruitment in millions.

Catches: Increased steadily since late 1970s, peaking during 1988-1990, and decreasing in 1991 and 1992.

Data and assessment: Analytical age-based assessment tuned with CPUE data from two commercial fleets and a trawl survey.

Fishing mortality: Stable during 1979-1985 and has since increased to record high levels (Figures). Current F is above F_{max} (= 0.25) and F_{med} (=0.49).

Recruitment: 1985-1987 year classes strong, 1988-1990 below average. The 1991 year class is provisionally estimated as being strong.

State of stock: SSB reached a peak in 1988-1990, and has since decreased to below average.

Forecast for 1994:

Assuming $F(93) = 0.70$, Basis: $F(93)=F(92)$ *Status quo*, Catch(93) = Not calculated, Landings (93) = 1.6.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F_{med}	0.49	2.2	-	1.5	2.5	SSB recovers to above average
B	$0.8 \times F(92)$	0.56	2.2	-	1.6	2.4	SSB recovers to average
C	$1.0 \times F(92)$	0.70	2.1	-	1.9	2.1	SSB remains low
D	$1.2 \times F(92)$	0.84	2.1	-	2.2	1.8	SSB decreases further

Weights in '000 t.

Continued fishing at current levels of fishing mortality in 1995 will lead to an increase in catches and SSB remaining low.

Management advice: Fishing mortality is currently high resulting in a marked decrease in SSB since 1989. However, SSB is within the range of past observations and the stock is considered to be within safe biological limits.

Special comments: A reduction in fishing mortality would lead to long-term gains in the yield of plaice in the western English Channel. Because plaice in the English Channel as a whole are covered by a single TAC, management of the much larger eastern English Channel plaice stock may affect what happens to this stock. This stock should therefore be managed as a separate unit from other plaice stocks in Sub-area VII.

ACFM notes that, unlike in Divisions VII f and g, fishing mortality trends for Division VII e sole and plaice are different, indicating that the linkage between the fisheries on these two stocks is not as strict as assumed hitherto.

3.9.8 Sole in Division VIIe (Western English Channel)

(Table 3.9.8; Figure 3.9.6)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	1.3	1.3	1.3	1.0	0.9	0.54	0.77	0.7			
Agreed TAC	1.3	1.15	1.3	1.0	0.9	0.8	0.8	0.9			
Official landings	1.5	1.1	0.9	0.8	0.8	0.6	0.6	-			
Unallocated landings	-0.1	0.1	0.4	0.4	0.3	0.1	0.2	-			
Catch as used by ACFM	1.4	1.2	1.4	1.2	1.1	0.7	0.8	-	1.5	0.4	0.9
Sp. stock biomass	3.5	3.4	3.4	2.5	2.3	2.0	2.6	2.9 ²	5.1	2.0	3.2
Recruitment (age 1)	5.2	3.0	3.1	2.3	7.3	4.6	3.8 ³	3.8 ³	8.3	1.1	4.2
Mean F(3 -7,u)	0.43	0.37	0.45	0.53	0.51	0.38	0.37	-	0.53	0.17	0.31

¹Over period 1964-1992. ²Forward projection. ³Assumed. Weights in '000 t, recruitment in millions.

Catches: Have been decreasing since 1983. Catches in 1991 and 1992 were the lowest since 1978.

Data and assessment: Analytical age-based assessment tuned using data from two commercial fleets and a trawl survey. Data series and sampling satisfactory.

Fishing mortality: Increased in the 1980s, peaking at record-high values in 1989-1990. Fishing mortality decreased in 1991 and 1992, to just above F_{med} (0.32).

Recruitment: 1986-1988 year classes below average, 1989 year class near the record high, 1990 year class about average.

State of stock: SSB has increased above the record-low level of 1991, but remains below the long-term mean.

Forecast for 1994:

Assuming $F(93) = 0.37$, Basis: $F(93)=F(92)$, Catch(93) = Not calculated, Landings (93) = 1.0.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	0.8 F(92)	0.29	2.8	-	0.8	2.9	SSB steady but below average
B	$\approx F_{med}$	0.32	2.8	-	0.9	2.8	SSB steady
C	F(92)	0.37	2.8	-	1.0	2.7	SSB falling
D	1.2 x F(92)	0.44	2.8	-	1.1	2.5	

Weights in '000 t.

Continued fishing at current levels of fishing mortality in 1995 will lead to increased landings and falling SSB as the good 1989 year class passes away.

Management advice: Although the stock has improved slightly as a result of a good year class, it is still at a relatively low level. To ensure that it does not fall outside safe biological limits in the near future, fishing mortality should not be allowed to increase.

3.9.9 Stocks in Divisions VIIb,c, h-k

Officially reported landings of cod, whiting, plaice and sole in Divisions VIIb,c, h-k are given in Tables 3.9.9 - 3.9.10.

Data are at present insufficient for assessment purposes.

4. STOCKS IN NEAFC REGIONS 2 and 3

4.1 Hake in Sub-areas III, IV and VI-IX

4.1.1 Hake - Northern stock (Division IIIa, Sub-areas IV, VI and VII, and Divisions VIIIa,b)

(Table 4.1.1; Figure 4.1.1)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	.5	.5	54	54	59	59	61.5 ⁶	-			
Agreed TAC ⁴	48.86	63.46	66.16	59.67	65.1	67.0	69.0	71.5			
Landings as used by ACFM	57.3	63.3	64.8	66.5	59.9	57.6	56.6	-	66.5	50.5	58.2
Discards/slipping	2.9	2.0	2.0	2.3	1.5	1.7	1.7	-	7.2	1.5	2.6
Catch as used by ACFM	60.3	65.3	66.8	68.8	61.4	59.3	58.3	-	68.8	52.9	60.9
Sp. stock biomass	203	195	169	163	145	139	121	110 ²	203	121	175
Recruitment (age 0)	253	257	365	228	308	241	271	250 ³	511	228	314
Mean F(1-4,u)	0.25	0.22	0.22	0.27	0.28	0.28	0.30		0.34	0.17	0.26

¹Over period 1978-1992. ²Forward projection. ³Assumed. ⁴Sum of area TACs corresponding to Northern stock plus Division IIIa (EC zone only). ⁵Based on recent landings. ⁶Precautionary. Weights in '000 t, recruitment in millions.

Catches: Landings relatively stable in the range 60,000 - 65,000 t during 1984-1990, with a peak in 1989, but have continuously decreased until 1992 to similar levels prevailing in 1978-1984. Actual discards of about 2,000 t in each year. Large numbers of undersized fish are landed.

Data and assessment: Length composition data by fishery unit available annually for 1978-1989 and quarterly for 1990-1992. Prior to 1992, converted to age compositions by numerical methods. In 1992, age readings were used. Analytical assessment tuned on 6 commercial fleets and one survey.

Fishing mortality: An increasing trend has taken place during recent years. F_{max} is at 30% of the present level of fishing mortality.

Recruitment: A good year class in 1985, followed by subsequent year classes 15% below the pre-1985 average.

State of stock: SSB has decreased continuously since 1987 to the minimum value of the time series available, about 30% below average.

Forecast for 1994:

Assuming $F(93) = 0.30$, Basis: $F(92)$, $Catch(93) = 50.8$, $Landings(93) = 48.7$.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	$F(94) = 0.6 F(92)$	0.18	103	31.0	29.8	113.3	SSB stabilised
B	$F(94) = 0.8 F(92)$	0.24		39.7	38.2	104.7	Continued decrease in SSB.
C	$F(94) = 1 \times F(92)$	0.30		47.8	45.9	96.9	
D	$F(94) = 1.2 \times F(92)$	0.35	103	55.2	53.0	89.6	

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a decrease in SSB to a new record low level.

Management advice: The stock may be outside safe biological limits and at present levels of fishing mortality is expected to fall further. ACFM, therefore, recommends that fishing mortality should be significantly reduced.

ACFM notes that large numbers of juvenile hake are still being caught and recommends that current legislation on mesh size and minimum landing size be enforced. This would assist but would not be sufficient by itself for a prompt recovery of SSB.

Special comments: Medium-term predictions indicate that SSB and landings are likely to decrease steadily if the current level of fishing mortality is maintained, whereas a 20% reduction would allow SSB and landings to be stabilized, albeit at a low level.

4.1.2 Hake - Southern stock (Divisions VIIIc and IXa)

(Table 4.1.2; Figure 4.1.2)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	15.0	15.0	15.0	15.0	15.0	10.0	10.0 ³	1.0 ⁶			
Agreed TAC	-	25.0	25.0	20.0	20.0	18.0	16.0	12.0			
Landings as used by ACFM	16.2	15.2	15.4	12.9	12.0	11.6	12.8	-			
Discards/slipping	No information available										
Catch as used by ACFM	16.2	15.2	15.4	12.9	12.0	11.6	12.8	-	34.8 ⁴	11.6 ⁴	19.4 ⁴
Sp. stock biomass	29.9	29.7	26.9	23.9	22.7	23.4	23.8	21.8 ⁵	54.1	22.7	32.3
Recruitment (age 0)	113.7	101.5	92.8	61.4	48.8	28.9	26.3	50.0 ²	142.8	26.3	89.7
Mean F(2-5,u)	0.37	0.34	0.29	0.31	0.27	0.23	0.30	-	0.38	0.23	0.30

¹Over period 1982-1992. ²Assumed. ³Precautionary. ⁴Over period 1972 - 1992. ⁵Forward projection. ⁶Maximum catch that will allow SSB to rebuild to 20,000 t within 3 years. Weights in '000 t, recruitment in millions.

Catches: Declining trend in landings from 1983 to 1991; 10% increase in 1992 over 1991.

Data and assessment: Revised length composition data for landings during 1982-1992 converted to age by numerical method. Analytical assessment tuned with data from 5 commercial fleets and 3 surveys.

Fishing mortality: 1992 fishing mortality has increased but at same level as the average for the whole period.

Recruitment: Has been declining since 1984. Recent recruitment has been low.

State of stock: SSB has declined since 1982 but has stabilized in 1991 and 1992.

Forecast for 1994 and 1995:

Assuming $F(93) = 0.30$, Basis: $F(93) = F(92)$, $Catch(93) = N/A$, $Landings(93) = 10.5$.

Options	Basis	F(94-95)	SSB(94)	Lndgs(94)	SSB(95)	Lndgs(95)	SSB(96)
A	No fishing	0.0	19.7	0.0	25.3	0.0	30.9
B	0.2 x F(92)	0.06		2.0	23.4	2.4	26.5
C	0.4 x F(92)	0.12		4.0	21.7	4.3	22.7
D	0.6 x F(92)	0.18		5.8	20.0	5.8	19.6
E	0.8 x F(92)	0.24		7.4	18.6	6.9	16.9
F	F(92)	0.30		8.9	17.3	7.8	14.6

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a decrease in SSB and in landings in 1994 and 1995.

Management advice: The spawning stock biomass has been at very low levels in recent years and is expected to decline further at current fishing intensity. The stock is outside safe biological limits.

ACFM considers that SSB should be rebuilt to the level of 1986-1988 at which it produced above-average recruitments. ACFM therefore recommends that fishing mortality should be kept at the lowest possible level and that it should certainly not exceed 20% of that in 1992.

Special comments: This year's assessment has resulted in an upward revision of spawning stock biomasses for the whole time series. However, this has not altered the perception of the relative trends in spawning stock biomass and recruitment.

The age range for mean F has been changed from 1-4 to 2-5 due to poor representation of age 1 fish in catch samples in recent years.

4.2 Megrin (*L. whiffiagonis*) in Divisions VIIb-k and VIIa,b

(Table 4.2.1; Figures 4.2.1 - 4.2.2)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ²	-	16.46	18.1	18.1	18.1	18.1	18.1	21.46			
Landings as used by ACFM	16.7	16.9	17.7	18.3	14.0	14.7	15.0	-	18.3	14.0	16.4
Discards/slipping	2.3	1.7	1.7	2.6	3.1	3.2	3.0	-	3.2	1.7	2.4
Catch as used by ACFM	19.0	18.6	19.4	20.9	17.1	17.9	18.0	-	20.9	17.1	18.8
Sp. stock biomass	123	124	113	93	89	94	103	115 ³	124	89	108
Recruitment (age 1)	241	217	234	412	778	420	310 ⁴	310 ⁴	778	217	349
Mean F(3-6,u)	0.15	0.19	0.19	0.22	0.22	0.34	0.22		0.34	0.15	0.21

¹Over period 1984-1992. ²Includes Division VIIa. ³Forward projection. ⁴Assumed. Weights in '000 t, recruitment in millions.

Catches: Stable in the range 17,000 t to 21,000 t. Landings ranged from 14,000 t to 18,300 t. Discards varying between 2,000 t and 3,200 t, and comprising fish in a large range of sizes.

Data and assessment: Length compositions available annually for 1984-1989 and quarterly for 1990-1992. for 1984-1986 age compositions obtained using single combined age/length key over the years 1987-1990, since 1987 with annual age/length key. Assessment was tuned using data from four commercial fleets.

Fishing mortality: Stable at a low level close to the assumed natural mortality level.

Recruitment: Stable, with strong 1988, 1989, and 1990 year classes.

State of stock: SSB below average in 1989-1991, increased in 1992 and 1993.

Forecast for 1994 and 1995:

Assuming $F(93) = 0.22$, Basis: $F(93) = F(92)$, $Catch(93) = 19.5$, $Landings(93) = 15.8$.

		Predicted							
Option	Basis	F(94-95)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Catch(95)	Lndgs(95)	SSB(96)
A	0.8 x (F92)	0.18	120.5	17.7	14.3	127.6	19.1	15.8	132.2
B	F(92)	0.22		21.7	17.5	122.7	22.4	18.5	122.8
C	1.2 x F(92)	0.27		25.4	20.5	118.1	25.1	20.7	114.0

Weights in '000 t.

Continued fishing at current levels of fishing mortality in 1995 will lead to a 1996 SSB of 122,800 t, equal to the 1995 SSB and close to the high levels in 1986-1987.

Management advice: The stock is considered to be within safe biological limits.

Special comments: For most fleets megrim is only a by-catch caught with hake, anglerfish, *Nephrops*, cod and whiting. It is noted that catches include a large proportion of undersized megrim (less than 25 cm). This may not yet be a problem for the stock (current F is close to F_{max}), but indicates a poor exploitation pattern. Catches of *L. boschii* in these areas are about 5% of those of *L. whiffiagonis*.

4.3 Anglerfish in Divisions VIIb-k and VIIa,b (*L. piscatorius* and *L. budegassa*)

(Tables 4.3.1 - 4.3.3; Figure 4.3.1)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ²	-	39.08	42.99	42.99	42.99	42.99	42.99	25.1			
Catch as used by ACFM	30.3	27.0	27.3	28.3	27.3	24.4	20.2	-			
Catch of <i>L. piscatorius</i>	20.4	19.1	17.7	18.6	18.4	15.5	12.2	-	20.4	12.2	17.4
Catch of <i>L. budegassa</i>	9.9	7.9	9.6	9.7	8.9	8.9	8.0	-	9.9	7.9	9.0
Sp. stock biomass ³	52.5	48.9	43.0	40.8	37.3	34.5	34.0	33.9 ⁴	52.5	34.0	41.6
Recruitment (age 0) ³	14.3	11.3	10.9	11.6	15.6	15.0	12.6 ⁵	12.6 ⁵	15.5	10.9	13.0
Mean F(3 - 7,u) ³	0.29	0.25	0.32	0.35	0.40	0.34	0.23	-	0.40	0.23	0.31

¹Over period 1986-1992. ²Includes Division VIIa; applies to both species. ³Refers to *L. piscatorius* only. ⁴Forward projection.

⁵Assumed. Weights in '000 t, recruitment in millions.

Catches: Decreasing for both species, more sharply for *L. piscatorius*, close to minimum for the series.

Data and assessment: Age based analytical assessments using CPUE data from 3 fleets. Assessment unreliable for *L. budegassa*.

Fishing mortality: Decreasing sharply since the peak in 1990 for *L. piscatorius*. Unknown for *L. budegassa*.

Recruitment: Fluctuating in a narrow range.

State of stock: SSB of *L. piscatorius* has been decreasing continuously to the lowest level in 1992. Unknown for *L. budegassa*.

Forecast for 1994: *L. piscatorius*

Assuming F(93) = 0.23, Basis: F(93)=F(92), Catch(93) = - , Landings (93) = 11.2.

Option	Basis	F(94)	SSB(94)	Catch(94)	Landgs(94)	SSB(95)	Consequences/implications
A	F _{max}	0.13	36.9		7.5	45.4	SSB increases to near average
B	0.8 x F(92)	0.18	36.4		9.7	42.5	
C	F(92)	0.23	35.9		11.9	39.8	
D	1.2 x F(92)	0.27	35.5		13.8	37.3	SSB returns to 1990 level

Weights in ' 000 t.

Continued fishing at current levels of fishing mortality in 1995 will lead to a slight decrease in SSB of *L. piscatorius*. Although uncertain, a *status quo* forecast indicates catches of *L. budegassa* of about 7,000 t in 1994.

Management advice: There has been some concern about the decrease in SSB of *L. piscatorius* and in catches of both species in recent years. However, there is no evidence that the stocks are outside safe biological limits.

Special comments: In contrast with previous years, the 1993 TAC has been set closer to actual catches.

5. STOCKS IN NEAFC REGION 3

5.1 Sardine in Divisions VIIIc and IXa

(Table 5.1.1)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	90	140	150	212	-	176	-	135 ²			
Agreed TAC	-	-	-	-	-	-	-	-			
Catch as used by ACFM	181	169	159	137	139	128	126	-	214	126	164

¹Over period 1975-1992. ²Precautionary. Weights in '000 t.

Catches: Total landings remained at the same level as in 1991, having declined from a near-record high of 204,000 t in 1985.

Data and assessment: Analytical assessment was attempted but was not considered reliable.

Fishing mortality: Not estimated.

Recruitment: The 1991 year class is about average with previous year classes below average.

State of stock: Cannot be adequately assessed.

Forecast for 1994: A *status quo* catch is estimated as 118,000 tonnes in 1994.

5.2 Anchovy in Sub-area VIII (Bay of Biscay)

(Table 5.2.1)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	³	-	12.3	14.0	-	-			
Agreed TAC	32	32	32	32	30	30	30	30			
Official landings	8	14	14	n/a	n/a	n/a	n/a	-			
Unallocated landings	-	1	1	-	-	-	-	-			
Catch as used by ACFM	8	15	15	10	34	19	38	19 ⁴	84	5	31
Sp. stock biomass		29 ²	63 ²	12 ² /16 ⁵	98 ²	19 ² /80 ⁵	91 ² /98 ⁵				
Recruitment (age 1) ²		656	2349	246	5613	647	5571				

¹Over period 1940-1992. ²Egg survey estimates. ³Not greater than the 1985-1987 level. ⁴1st half of year. ⁵Acoustic survey estimates. Weights in '000 t. Recruitment in millions.

Catches: Except in 1990 and 1992, catches have been relatively low in recent years.

Data and assessment: Catch-at-age and catch-at-length data from French and Spanish fisheries. Stock biomass estimates from egg and acoustic surveys both of which were ended in 1993. No new assessment was carried out due to the absence of a survey in 1993.

Fishing mortality: Based only on surveys and catch-at-age data, the natural mortality and fishing mortality rates are estimated to vary widely. An increase in fishing mortality has been recorded over the last 3 years.

Recruitment: Very variable. Two good recruitments during the last 3 years. No estimate of the 1993 recruitment is available.

State of stock: In the last decade, the biomass has been at a low or medium level and below the level of the 1960s.

Forecast for 1994: No forecast available (see special comments).

Management advice: Reduced fishing mortality on juvenile anchovy will on average increase the spawning biomass without major loss in total yield. This may be achieved by closing the fishing areas with high abundance of 1-group anchovy. To this end, ACFM advises that fishing for anchovy could be prohibited between January and June inclusive within the area defined by the following boundaries:

- from the Spanish coast north along longitude 1°35'W to latitude 44°45'N
west to longitude 1°45'W
north to latitude 46°00'W
and east to the French mainland.

Special comments: The stock is likely to fluctuate widely due to the large variations in mortality and recruitment. The low catches in the 1980s and the change in exploitation pattern towards juveniles indicate a relatively low spawning stock biomass.

For the future it may be possible to give advice on the basis of a provisional TAC which could be revised during the fishing season according to updated estimates of stock biomass and recruitment. For this to be possible, a regular series of annual acoustic surveys would be required with egg surveys on a less frequent basis. An initial series of surveys would be necessary to evaluate the methodology.

Detailed advice on possible approaches to management was given last year (Rep. ACFM, Cooperative Research Report No. 193) but application will rely on a continuing commitment to regular and reliable surveys.

5.3 Anchovy in Division IXa

(Table 5.3.1)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ²	-	4.6	6	6	9	9	12	12			
Catch as used by ACFM	n/a	n/a	4.7	6.2	6.5	5.9	3.2	-	6.5	3.2	5.3

¹Over period 1988-1992. ²TAC for Sub-areas IX and X and CECAF 34.1.1. Weights in '000 t.

Catches: Catches given above for 1988-1992 are available for both Spain and Portugal. For 1943-1987 data are available for Portugal only, and for this country catches ranged from 88 t to 12,610 t.

Data and assessment: No assessment because of insufficient data.

Fishing mortality: Not available.

Recruitment: Not available.

State of stock: Not known.

Forecast for 1994: Not available.

Management advice: If a TAC is to be set for 1994, a precautionary TAC at the level of recent catches is appropriate.

5.4 Megrim in Divisions VIIIc and IXa

5.4.1 Megrim (*L. boscii*) in Divisions VIIIc and IXa

(Table 5.4.1; Figure 5.4.1)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ³	-	13.0	13.0	13.0	13.0	14.3	14.3	8.0			
Landings as used by ACFM	1.1	1.7	2.2	2.6	1.9	1.7	1.8	-	2.6	1.1	1.9
Sp. stock biomass	4.6	4.8	6.0	6.0	5.6	5.3	4.6	4.0 ⁴	6.0	4.6	5.3
Recruitment (age 1)	54.8	48.3	30.9	36.5	34.5	13.6	38.4	40.0 ²	54.8	13.6	36.7
Mean F(2-4,u)	0.24	0.30	0.33	0.41	0.26	0.21	0.39		0.41	0.21	0.31

¹Over period 1986-1992. ²Assumed. ³Including *L. whiffiagonis*. ⁴Forward projection. Weights in '000 t, recruitment in millions.

Catches: Landings increased since 1986 to reach a peak in 1989 and decreased to 1991. In 1992 a slight increase is observed.

Data and assessment: Revised length and age compositions for 1986-1990. Analytical assessment tuned with one commercial fleet and two surveys. However, assessment is uncertain and results should only be considered as indications of relative trends.

Fishing mortality: No clear trend in fishing mortality.

Recruitment: Rather stable but, apparently, a poor year class in 1990.

State of stock: SSB has been decreasing since 1989.

Forecast for 1994: No reliable prediction. However, a *status quo* forecast indicates landings of about 1,800 t for 1994.

Management advice: There is no evidence that the stock is outside safe biological limits. However, there would be no long-term gain in yield from increasing fishing mortality.

Special comments: TACs include both species of megrim and have been far above actual catches in recent years.

5.4.2 Megrim (*L. whiffiagonis*) in Divisions VIIIc and IXa

(Table 5.4.2)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess: 3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ²	-	13.0	13.0	13.0	13.0	14.3	14.3	8.0			
Landings as used by ACFM	0.7	0.5	0.8	0.7	1.0	0.6	0.5	-	1.0	0.5	0.7

¹Over period 1986-1992. ²Including *L. boscii*. Weights in '000 t.

Catches: Have been increasing from 1986 to 1990, decreasing afterwards.

Data and assessment: Length compositions for 1986-1992. Catch-at-age data for the same period. CPUE data from commercial fleets and surveys. Analytical assessment too uncertain to provide estimates of the stock.

Fishing mortality: Not known.

Recruitment: High recruitments of 1987, 1988 and 1991 year classes and poor 1990 year class as suggested by the Spanish and Portuguese surveys.

State of stock: The CPUE data indicate a marked decline in abundance between 1990 and 1992.

Forecast for 1994: Not available.

Special comments: TACs include both species of megrim and have been set far above actual catches in recent years.

5.5 Anglerfish in Divisions VIIIc and IXa (*L. piscatorius* and *L. budegassa*)

(Tables 5.5.1 - 5.5.3)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ²	-	12.0	12.0	12.0	12.0	12.0	12.0	13.0			
Catches as used by ACFM ²	9.4	9.5	10.0	7.6	6.1	5.8	5.5	-	10.0	5.5	7.7
<i>L. piscatorius</i>	6.9	5.8	6.3	5.0	3.8	3.6	3.4	-	6.9	3.4	5.0
<i>L. budegassa</i>	2.5	3.7	3.7	2.6	2.3	2.2	2.1	-	3.7	1.8	2.8

¹Over period 1984-1992. ²For both species combined. Weights in '000 t.

Catches: *L. piscatorius* represents 62% of the catches and has shown a 50% decline since 1986. Landings of *L. budegassa* reached a peak in 1987 and 1988 but have declined since. Overall landings of both species have declined by 50% since 1988.

Data and assessment: Length composition by species available for 1986-1992. The age composition data were considered unreliable and no analytical assessment was carried out.

Fishing mortality: No assessment. Previous length-based assessments indicated that recent levels were beyond F_{max} for *L. piscatorius* and for both species combined.

Recruitment: No information available.

State of stock: CPUE series indicate a decreasing trend in abundance of *L. piscatorius*. No particular trend apparent for *L. budegassa*.

Special comments: The agreed TACs have been about double the catches of both species combined in recent years.

5.6 Sole in Divisions VIIa,b (Bay of Biscay)

(Table 5.6.1; Figure 5.6.1)

Source of information: Report of the Working Group on the Assessment of Southern Shelf Demersal Stocks, September 1993 (C.M.1994/Assess:3).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	3.7	4.5	5.1	4.7	5.0	-			
Agreed TAC	3.3 ³	4.4	4.0	4.8	5.2	5.3	5.3	5.7			
Official landings	4.6	4.4	4.4	5.8 ⁴	5.5	4.7 ⁴	5.5	-			
Unallocated landings	0.2	0.7	1.0	+	0.4	0.9	1.1	-			
Landings as used by ACFM	4.8	5.1	5.4	5.8	5.9	5.6	6.6	-	6.6	2.6	4.5
Discards as used by ACFM	0.2	0.6	0.6	0.7	0.6	0.4	0.4	-	0.7	0.2	0.4
Catches as used by ACFM	5.0	5.7	6.0	6.5	6.5	6.0	7.0	-	7.0	2.9	5.0
Sp. stock biomass	15.4	16.1	15.3	14.0	13.7	14.1	14.2	13.4 ⁵	16.1	6.5	12.8
Recruitment (age 0)	52.8	48.0	56.8	48.3	45.5	50.3 ²	50.3 ²	50.3 ²	58.8	45.5	50.8
Mean F(2-6,u)	0.33	0.35	0.40	0.47	0.43	0.39	0.48		0.48	0.26	0.35

¹Over period 1979-1992. ²Assumed. ³Sub-area VIII (EC zone). ⁴Not reported for all countries. ⁵Forward projection. Weights in '000 t, recruitment in millions.

Catches: Increased since 1979 (except in 1991) to a record high level in 1992.

Data and assessment: Age-based analytical assessment (including discards) tuned with data from two fleets. No recruit indices available.

Fishing mortality: Increased to high level in 1989, decreased slightly in 1990 and 1991, and increased to record high level in 1992. F_{max} is 30% of current F (landings only).

Recruitment: Recruitment stable.

State of stock: SSB has fluctuated within a narrow range and is currently above the long-term mean.

Forecast for 1994:

Assuming $F(93) = 0.48$, Basis: $F(93) = F(92)$, $Catch(93) = 6.7$, $Landings(93) = 6.2$.

Option	Basis	F(94)	SSB(94)	Catch(94)	Lndgs(94)	SSB(95)	Consequences/implications
A	F_{max}	0.14	13.2	2.3	2.2	18.2	Large increase in SSB above maximum.
B	$0.8 \times F(92)$	0.39		5.5	5.1	14.3	SSB stable at recent level.
C	$F(92)$	0.48		6.6	6.1	13.0	SSB at mean level.
D	$1.2 F(92)$	0.58		7.6	7.0	11.8	SSB below the long term mean.

Weights in '000 t.

Continued fishing at current levels of fishing mortality in 1995 is likely to lead to a slight decrease in SSB.

Management advice: The stock is considered to be within safe biological limits despite the increase in fishing mortality in recent years. ACFM notes, however, that no long-term gain in yield can be achieved by an increase in fishing mortality.

Special comments: The improvement in exploitation pattern has enabled catches and SSB to be maintained. However, results of medium term forecasts indicate that maintaining the current fishing mortality is likely to result in slowly decreasing SSB, whereas a 10% reduction (corresponding to the average level in 1989-1992) is expected to stabilize both landings and SSB.

6. STOCKS IN NEAFC REGIONS 1, 2, AND 3

6.1 *Nephrops* in Sub-areas III-X

6.1.1 General comments

Functional Units and Management Areas

There were no changes to the functional units or the management areas listed in 1992. Figures 6.1.1 - 6.1.3 illustrate the locations of these and Table 6.1.1 summarizes the management areas and their constituent functional units.

Last year ACFM pointed out that the management of *Nephrops* is best achieved through management areas of limited size comprising only a few functional units. However, TACs in 1993 have once again been set for much larger regions. The risks of continuing this approach were pointed out last year and remain present. Sub-areas VII and IV in particular contain examples of functional units showing a range of states of exploitation where an overall TAC may compromise some functional units; particular problems arise from the potentially large fishery on the Fladen Ground which presently shares a TAC with over-exploited functional units such as the Farn Deeps and Firth of Forth. ACFM again recommends that TACs be set by the recommended management areas.

Trends in Landings, Effort, CPUE, LPUE, and Mean Size

Trends in landings, effort, catch per unit effort (CPUE), landings per unit effort (LPUE), and mean size of *Nephrops* caught, landed and/or discarded were examined over the past 10 years for all functional units.

Trends over the most recent years (1986-1992) are giving particular cause for concern in the Skagerrak (3) and Kattegat (4) units: The landings were the lowest in this period and the LPUE shows a falling trend.

Three other functional units where landings and LPUE are currently at a relatively low level are the Farn Deeps (6), Firth of Forth (8) and Firth of Clyde (13). While these are presently not regarded as requiring restrictive action, they will need to be carefully examined in the future.

In most other functional units, CPUE and/or LPUE have been fairly stable, fluctuated without trend or risen slightly over the most recent years and consequently give little cause for concern.

Furthermore, an example of a functional unit exists where there is scope for expansion. On the Fladen Ground LPUE has been maintained at a high level and the advice has therefore been revised upwards.

Assessments

Length cohort analysis (LCA) and Yield per recruit (Y/R)

New length cohort analyses were carried out for functional units where it was judged there were sufficient new data or changes in parameters to justify this, or where it was considered that the reference period in the previous assessment was no longer relevant to the current situation in the fishery.

The following functional units were assessed: 3+4, 5, 6, 8, 9, 11, 12, 13, 14, 16, 23+24, 26, 28+29.

'Age-based'

VPAs using catch at nominal age data obtained by converting the length compositions into their component age compositions were performed for the following functional units: 5, 6, 8, 9, 11, 12, 13, 15, 16, 20-22, 25, 28+29. For three of these (6, 8 and 9) the VPA performed quite well and the results were used in assessing the state of the functional units. Short-term prediction methods on the lines of those employed in finfish assessment were used for two functional units (8 and 9).

Mesh Assessments/Minimum Landing Size

Mesh assessments were not repeated since there were no new selectivity data (see 1991 ACFM report). For the Skagerrak/Kattegat the point was again made that the minimum landing size is inconsistent with the mesh size in operation and that this is leading to excessively high levels of discards.

Management Guidelines and Precautionary TACs

Assessments of *Nephrops* stocks are rather uncertain and these stocks must therefore be classified as category III stocks for which ACFM advises precautionary TACs. However, in some stocks there are indications of whether they are underexploited, fully exploited or overexploited based on the estimated current level of fishing mortality in relation to the position of the maximum on the Y/R curve.

To provide guidance on precautionary TACs in relation to the state of exploitation, one of the three options given below was calculated depending on the availability of data for each functional unit:

1. The mean landings within the time period corresponding to the reference period used in the LCA with an overriding minimum of five years.
2. The mean effort over the same period.
3. The maximum landings over the same time period.

For the majority of functional units the new information which became available in 1993 suggested no basis for revising the previous precautionary TAC. Table 6.1.2 summarises the precautionary TACs advised for each management area for 1994.

6.1.2 *Nephrops* in Division IIIa

Units included in recommended Management Area: a) Skagerrak (Unit 3) and b) Kattegat (Unit 4).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	-	~4.0	~4.3			
Agreed TAC ³	-	-	-	-	-	-	3.5	3.5			
Landings ⁴											
a) Skagerrak	2.0	2.4	2.3	2.6	2.9	2.9	1.9 ²	-	2.9	1.0	2.2
b) Kattegat	1.8	1.6	1.4	1.3	1.5	1.3	1.0 ²	-	2.0	1.0	1.6
Total area	3.8	4.0	3.7	3.9	4.4	4.2	2.9 ²	-	4.7	2.7	3.8

¹Over period 1981-1992 ²Preliminary. ³Overall TAC in IIIa-d (EC zones). ⁴Provided by Working Group members. Weights in '000 t.

Landings: Fairly stable until 1991 but a steep drop in landings in 1992 is noted.

Data and assessment: Landings per unit effort data (LPUE) are available. Length compositions 1990-1992. Length cohort analysis carried out for areas combined but biological data are still insufficient to support reliable analytical assessments. Rough assessments of stock mainly based on CPUE and effort data.

Fishing mortality: In the Skagerrak effort rose in the early period but declined recently. In the Kattegat effort has fallen recently. Preliminary assessments suggest that current F is above F_{max} in males and close to F_{max} in females.

State of stock: The state of the stock cannot be precisely assessed. LPUE is decreasing in both stocks and this may indicate a declining stock size.

Management advice: Taking into account the major drop in recent catches and the decrease in LPUE in both the Danish and the Swedish fleets, ACFM advises that the precautionary TAC set for 1994 should not exceed the 1992 catch, viz. 2,900 t.

Special comments: A high proportion of the catches are of undersized *Nephrops* reflecting the fact that the minimum landing size is not in line with the mesh size. A very useful step would be to review the possibilities of the use of more selective trawls.

6.1.3 *Nephrops* in Division IVa Rectangles 44-48 E6-E7+44E8

Units included in recommended Management Area: a) Moray Firth (Unit 9) and b) Noup (Unit 10).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	2.33	~2.4	2.4			
Agreed TAC ³	-	-	-	-	-	-	12.0	12.0			
Landings ⁴											
a) Moray Firth	2.14	1.99	1.96	2.58	2.04	1.52	1.57 ²	-	2.58	0.94	1.71
b) Noup	0.07	0.04	0.08	0.08	0.22	0.20	0.18 ²	-	0.22	0.02	0.09
c) Others ⁵	0.04	0.03	0.05	0.04	0.07	0.07	0.04 ²	-	0.07	0	0.03
Total area	2.26	2.07	2.08	2.71	2.32	1.79	1.80 ²	-	2.71	0.96	1.83

¹Over period 1981-1992. ²Preliminary. ³Overall TAC in IIa and IV (EC zones). ⁴Provided by Working Group members.

⁵Landings taken within the Management Area, but outside the Units under a) and b). Weights in '000 t.

Landings: a) Moray Firth: 1992 landings were similar to the previous year and well below the high level of 1985-1990. b) Noup: landings fluctuating and were relatively high in 1990-1992.

Data and assessment: LPUE, landings/area and effort/area data were available for both units. Mean size data available for Moray Firth. No length composition data available for Noup. Length- and age-based assessments carried out for the Moray Firth. The age-based assessment performed reasonably well for this unit.

Fishing mortality: a) Moray Firth: current effort is lower than for any year since 1984; length-based assessment suggests current F is below F_{max} in males and well below F_{max} in females. Age-based assessment suggests fishing mortality on males has declined from peak levels of 1989-1990. b) Noup: effort fluctuating.

State of stock: a) Moray Firth: long-term data series shows LPUE strongly fluctuating, with low level of 1984-1987 followed by an increase since then. Y/R analysis suggests that this functional unit is currently underexploited. b) Noup: LPUE fluctuating strongly.

Management advice: ACFM advised a precautionary TAC of about 2,400 t for the Management Area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

Special comments: It should be noted that this recommended management area includes two functional units and that a TAC set for the entire area will not necessarily result in a balanced exploitation between the two units.

6.1.4 *Nephrops* in Divisions IVa (Rectangles not included under Section 6.1.3)

Units included in recommended Management Area: a) Fladen Ground (Unit 7).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	2.37	~2.7	2.7			
Agreed TAC ³	-	-	-	-	-	-	12.0	12.0			
Landings ⁴											
a) Fladen Ground	1.54	1.72	1.57	2.36	2.59	4.24	3.27 ²	-	4.24	0.38	1.72
b) Other ⁵	0.02	0.01	0.05	0.07	0.08	0.14	0.08 ²	-	0.14	+	0.04
Total area	1.56	1.73	1.62	2.43	2.67	4.38	3.35 ²	-	4.38	0.38	1.76

¹Over period 1981-1992. ²Preliminary. ³Overall TAC in IIa and IV (EC zones). ⁴Provided by Working Group members.

⁵Landings taken within the Management Area, but outside the Unit under a). Weights in '000 t.

Landings: Increased markedly over the reference period; in 1992 landings declined from the 1991 peak.

Data and assessment: LPUE, mean size, landings/area and effort/area data available. Length-based and age-based assessments were not repeated since both are considered to be unreliable because of inadequate data. Stock abundance and biomass estimate from TV and fishing survey.

Fishing mortality: Substantial fall in effort in 1992 compared to 1991 peak. Effort is not considered to be high in relation to the area of ground available.

State of stock: LPUE remains high (Scottish and Danish data). Preliminary survey results suggest that the unit may sustain higher catch rates.

Management advice: In the light of new information regarding the distribution and biomass of the stock, ACFM advises a precautionary TAC of about 5,000 t to permit a controlled expansion of fishing in the Management Area.

6.1.5 *Nephrops* in Divisions IVb,c east of 1°E

Units included in recommended Management Area: a) Botney Gut and Silver Pit (Unit 5).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	0.77	~0.87	0.875			
Agreed TAC ³	-	-	-	-	-	-	12.0	12.0			
Landings ⁴											
a) Botney Gut etc.,	≥0.4	≥0.4	0.55	0.65	0.75	0.76	0.51 ²	-	0.76	0.38	0.58
b) Other ⁵	+	+	0.07	0.13	0.13	0.17	0.20 ²	-	0.20	+	0.09
Total area	≥0.4	≥0.4	0.62	0.78	0.88	0.93	0.71 ²	-	0.93	0.39	0.64

¹Over period 1981-1992. ²Preliminary. ³Overall TAC in IIa and IV (EC zones). ⁴Provided by Working Group members.

⁵Landings taken within the Management Area, but outside the Unit under a). Weights in '000 t.

Landings: Landings (sexes combined) increased from 1986-1991 but fell in 1992. Landings of males increased in 1986-1988 then stable. Female landings rose sharply in 1988-1989 then stable to 1991 but fell dramatically in 1992.

Data and assessment: LPUE data available for males and females separately. Y/R length-based assessment carried out with length compositions for 1989-1992. Age-based assessment also carried out but results not considered reliable.

Fishing mortality: Effort increasing generally in recent years. Current F estimated to be close to F_{max} in males and far below F_{max} in females.

State of stock: Changes in LPUE of females (decreasing since 1989) attributed to changes in burrowing behaviour and to changes in seasonal distribution of fishing effort. Male LPUEs decreased to 1991 but increased in 1992. Mean size of both sexes relatively stable. No further room for expansion of effort.

Management advice: ACFM advised a precautionary TAC of about 875 t for the Management Area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

6.1.6 *Nephrops* in Divisions IVb,c west of 1°E

Units included in recommended Management Area: a) Farn Deep (Unit 6) and b) Firth of Forth (Unit 8).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	4.49	~4.6	~4.17			
Agreed TAC ³	-	-	-	-	-	-	12.0	12.0			
Landings ⁴											
a) Farn Deep	2.02	2.19	2.50	3.10	2.50	2.06	1.46 ²	-	3.10	1.07	2.08
b) Firth of Forth	2.26	1.67	2.53	1.89	1.93	1.40	1.72 ²	-	2.53	1.01	1.79
c) Other ⁵	0.14	0.14	0.31	0.16	0.13	0.35	0.27 ²	-	0.35	0.07	0.17
Total area	4.42	4.01	5.34	5.14	4.56	3.82	3.45 ²	-	5.34	2.15	4.04

¹Over period 1981-1992. ²Preliminary. ³Overall TAC in IIa and IV (EC zones). ⁴Provided by Working Group members.

⁵Landings taken within the Management Area, but outside the Units under a) and b). Weights in '000 t.

Landings: a) Farn Deep: landings decreased further in 1992 to lowest level since 1981; landings now less than half the peak level of 1989. b) Firth of Forth: increasing trend up to 1988, then declined; 1992 landings up on previous year. For the area as a whole 1992 landings were lower than at any time since 1981.

Data and assessment: LPUE and mean size data available for both units. CPUE data available for Farn Deep since 1984/1985. Landings/area and effort/area indices available for Firth of Forth. Length- and age-based analyses carried out for both units. The age-based assessment performed well for these units.

Fishing mortality: a) Farn Deep: effort and fishing mortality increased up to 1989/1990 but have since fallen. Y/R analysis suggests current F is above F_{max} in males, below F_{max} in females. b) Firth of Forth: effort generally shows increasing trend, but reduced since 1988. Age-based assessment shows that current F ($= 0.9$) is below 1988 level ($F = 1.3$). Y/R analysis suggests current F is well above F_{max} in males, below F_{max} in females.

State of stock: a) Farn Deep: CPUE and LPUE have fallen to lowest level in the reference period. Mean size decreased up to 1988, steady recently. Age-based assessment suggests declining TSB in males. b) Firth of Forth: LPUE at a low level in long-term data series. Mean size shows decline up to 1988, steady recently. Age-based assessment suggests TSB is currently lower than at any time in the reference period.

Management advice: ACFM advised a precautionary TAC of about 4,170 t for the Management area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

6.1.7 *Nephrops* in Division VIa

Units included in recommended Management Area: a) North Minch (Unit 11), b) South Minch (Unit 12) and c) Firth of Clyde (Unit 13).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	11.7	~11.4	~11.3			
Agreed TAC	14.8	16.0	16.0	16.0	16.0	13.5	12.0	12.0			
Landings ³											
a) North Minch	3.38	4.08	4.04	3.21	2.54	2.79	3.48 ²	-	4.14	2.54	3.38
b) South Minch	3.32	3.71	4.31	4.41	4.21	4.21	4.05 ²	-	4.42	3.25	3.83
c) Firth of Clyde	4.34	3.01	3.66	2.81	2.91	3.04	2.79 ²	-	4.34	2.62	3.32
d) Other ⁴	0.26	0.45	0.70	0.56	0.41	0.50	0.41 ²	-	0.70	+	0.35
Total area	11.30	11.25	12.70	10.98	10.07	10.54	10.73 ²	-	12.70	8.70	10.84

¹Over period 1981-1992. ²Preliminary. ³Provided by Working Group members. ⁴Landings taken within the Management Area, but outside the Units under a), b) and c). Weights in '000 t.

Landings: a) North Minch: landings fluctuating, rising in 1991 and 1992 and now close to reference period mean. b) South Minch: landings show falling trend since 1989 peak, now close to average for reference period. c) Clyde: landings show falling trend since 1986 peak. In other rectangles, landings fluctuating, now below 1988 peak.

Data and assessment: LPUE, mean size, landings/area and effort/area data available for all units. Y/R analysis repeated using most recent four years' trawl data (a)-(c). Age-based assessment attempted for trawl and creel fisheries separately (a)-(c), but results inconclusive.

Fishing mortality: a) North Minch: effort falling 1987-1990, up slightly in 1991 and 1992. Current F slightly above F_{max} in males, well below F_{max} in females. b) South Minch: effort increasing up to 1990, currently below 1990-1991 peak. Current F above F_{max} in males, well below F_{max} in females. c) Clyde: effort tending to level off but still above reference period average. Current F above F_{max} in males, well below F_{max} in females.

State of stock: a) North Minch: LPUE fluctuating, in 1992 higher than previous six years; mean size fluctuating in both sexes without obvious trend. b) South Minch: LPUE fluctuating, that in 1992 showing improvement on 1990-1991; mean size fluctuating without obvious trend. c) Clyde: LPUE declined further to lowest level since 1975-1976; mean size fluctuating in both sexes.

Management advice: ACFM advised a precautionary TAC of 11,300 t for the Management area for 1993. There was no basis for revising this figure for 1994 on the basis of new information.

6.1.8 *Nephrops* in Divisions Vb (EC zone) and VIb

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Special comments: There are no reported landings of *Nephrops* from this area, so it is suggested that a zero TAC would prevent misreporting.

6.1.9 *Nephrops* in Division VIIa (excluding rectangles 33E2-E5)

Units included in recommended Management Area: a) Irish Sea east (Unit 14) and b) Irish Sea west (Unit 15).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	8.76	~8.9	9.40			
Agreed TAC ³	-	-	-	-	-	-	20.0	20.0			
Landings ⁴											
a) Irish Sea E	0.69	0.47	0.50	0.43	0.63	0.86	0.49 ²	-	0.90	0.43	0.64
b) Irish Sea W	8.75	9.26	8.25	8.07	8.28	9.46	7.68 ²	-	9.46	6.43	8.23
Total area	9.43	9.73	8.75	8.50	8.91	10.32	8.17 ²	-	10.32	6.95	8.87

¹Over period 1981-1992. ²Preliminary. ³TAC for Sub-area VII as a whole. ⁴Provided by Working Group members. Weights in '000 t.

Landings: a) Irish Sea East: following recent rise, 1992 landings fell by 43%. b) Irish Sea West: after highest in series in 1991, landings fell by 19% to the lowest since 1985.

Data and assessment: LPUE and mean size data available for both units. a) Length-based yield/recruit assessment (new 1993). b) Length-based yield/recruit assessment (old, 1991); age-based assessment also available for this functional unit but results not considered reliable.

Fishing mortality: a) Irish Sea East: effort generally decreasing, low in 1992. Current F at F_{\max} for both males and females. b) Irish Sea West: following an increasing trend since 1986, effort dropped in 1992. Current F above F_{\max} in males and females.

State of stock: a) Irish Sea East: LPUE declined after recent rise. Mean size in 1992 comparable to that in the mid-1980s. b) LPUE not available for 1992, previously fluctuating without obvious trend. Mean size in catches remains stable but mean size in landings shows declining trend.

Management advice: ACFM advised a precautionary TAC of about 9,395 t for the Management area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

Special comments: It should be noted that this Management Area includes two functional units and is further combined into a TAC for the whole of Sub-area VII. This will not necessarily result in a balanced exploitation between these and other units within Sub-area VII.

6.1.10 *Nephrops* in Divisions VIId,e

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Special comments: There are no reported landings of *Nephrops* from this area, so it is suggested that a TAC of zero would prevent misreporting.

6.1.11 *Nephrops* in Divisions VIIb,c,j,k

Units included in recommended Management Area: a) Porcupine Bank (Unit 16), b) Aran Islands (Unit 17), c) NW and W Ireland (Unit 18) and d) SW Ireland (Unit 19).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	5.09	3.8	~4.0			
Agreed TAC ³	-	-	-	-	-	-	20.0	20.0			
Landings⁴											
a) Porcupine Bank	2.57	2.44	2.32	2.11	1.88	1.61	1.76 ²	-	4.29	1.61	2.78
b) Aran Islands	1.05	1.18	0.75	0.83	0.35	0.52	0.11 ²	-	1.99	0.11	0.80
c) NW and W Ireland	+	+	0.01	0.01	0.01	0.0	+ ²	-	0.09	0	0.02
d) SW Ireland	0.47	0.72	0.60	0.65	0.57	0.87	0.82 ²	-	0.87	0.31	0.58
e) Other ⁵	0.14	0.17	0.19	0.14	0.11	0.20	0.32 ²	-	0.32	+	0.18
Total area	4.23	4.52	3.88	3.74	2.92	3.19	3.02 ²	-	6.85	2.92	4.36

¹Over period 1981-1992. ²Preliminary. ³TAC for Sub-area VII as a whole. ⁴Provided by Working Group members. ⁵Landings taken within the Management Area, but outside the Units under a)-d). Weights in '000 t.

Landings: a) Porcupine Bank: Decline in landings was halted in 1992 but they remain low. b) Aran Islands: Landings decreased sharply in 1992 to very low level. c) NW Ireland - the small landings continue to fluctuate, at present low. d) SW Ireland, revised landings figures show that 1991 and 1992 were the highest in the series. e) Landings from other rectangles fluctuate without trend.

Data and assessment: CPUE, LPUE and mean size data were available for the Porcupine Bank. Length composition data were available for the Porcupine and Aran grounds (latter 1990-1991). Yield/recruit assessments carried out for Porcupine (1993) and Aran grounds (1992). Age-based assessment carried out for Porcupine males and females but not considered reliable. Assessment not possible for c) NW Ireland or d) SW Ireland.

Fishing mortality: a) Porcupine Bank: effort decreasing in Spanish fleet but decline in French fleet effort reversed in 1991/1992. Current F higher than F_{max} in males and close to F_{max} in females. b) Aran grounds: 1992 assessment suggested F close to F_{max} in both males and females.

State of stock: a) Porcupine Bank: CPUE (Spanish) and LPUE (French) decreased markedly in mid-1980s but have been fairly stable since 1989. Mean size is fairly stable.

Management advice: ACFM advised a precautionary TAC of about 4,000 t for the management area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

Special comments: It should be noted that this Management Area includes four functional units and that a TAC set for the entire area will not necessarily result in a balanced exploitation between the four units. At present this Management Area is within a much larger TAC area where the problem referred to will be even greater.

6.1.12 *Nephrops* in Divisions VII f,g,h and VII a Rectangles 33E2-E5

Units included in recommended Management Area: a) Celtic Sea (Units 20, 21 and 22 combined).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	3.83	~3.8	3.8			
Agreed TAC ³	-	-	-	-	-	-	20.0	20.0			
Landings ⁴											
a) Celtic Sea	2.81	3.14	2.91	3.88	4.30	3.31	4.56 ²	-	4.56	2.81	3.64
b) Other ⁵	+	0.24	0.16	0.10	0.08	+	+ ²	-	0.24	0	0.05
Total area	2.81	3.37	3.07	3.98	4.38	3.31	4.57 ²	-	4.57	2.81	3.67

¹Over period 1981-1992. ²Preliminary. ³TAC for Sub-area VII as a whole. ⁴Provided by Working Group members. ⁵Landings taken within the Management Area, but outside the Units under a). Weights in '000 t.

Landings: Celtic Sea landings have been without trend. The 1992 figure is the maximum of the series, due to a general increase of landings in the three countries involved in the fishery (France, U.K., Ireland).

Data and assessment: LPUE and mean size data (France) available. Length compositions of landings and discards used in length-based yield/recruit assessment (last performed 1991). VPA for males performed but data not regarded as reliable.

Fishing mortality: Fishing effort fluctuating without obvious trend. Current fishing mortality in males is estimated to be above F_{max} although the curve is relatively flat-topped with little to be gained by reducing effort; in females current F is below F_{max} .

State of stock: After the unexplained drop in LPUE in 1991, values have recovered, confirming that fluctuations of LPUE do not show any obvious trend. Mean size remains relatively stable.

Management advice: ACFM advised a precautionary TAC of about 3,800 t for the Management Area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

6.1.13 *Nephrops* in Divisions VIIa,b

Units included in recommended Management Area: a) Bay of Biscay North (Unit 23) and b) Bay of Biscay South (Unit 24).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	5.19	~6.8	6.8			
Agreed TAC	7.5	7.5	7.5	7.5	7.5	6.5	6.8	6.8			
Landings ³											
a) Biscay N	3.97	5.07	6.02	4.60	4.60	4.35	5.21 ²	-	6.02	3.97	4.87
b) Biscay S	0.37	0.47	0.66	0.63	0.36	0.40	0.51 ²	-	0.66	0.18	0.39
c) Other ⁴	0.10	0.11	0.14	0.14	0.09	0.06	0.05 ²	-	0.14	0.05	0.10
Total area	4.43	5.66	6.81	5.37	5.05	4.81	5.77 ²	-	6.81	4.43	5.32

¹Over period 1981-1992. ²Preliminary. ³Provided by Working Group members. ⁴Landings taken within the Management Area, but outside the Units under a) and b). Weights in '000 t.

Landings: For a) and b) combined, fluctuating without trend. The decline observed since 1988 was reversed in 1992.

Data and assessment: LPUE, length compositions of discards and landings and mean sizes were available for a) Biscay N. Length-based yield/recruit assessments carried out on two time periods.

Fishing mortality: Fishing effort (based on Biscay N) slowly decreasing but showing a slight reversal of the trend in 1992. Current F above F_{max} in both males and females but assessment of recent period (since mesh increase) shows current F moving towards F_{max} .

State of stock: LPUE stable and showing no obvious trend. Generally at a low level. Mean sizes of males and females have increased in recent years. 1990 mesh change appears to have been beneficial for exploitation pattern, but stock still appears to be slightly overexploited from results of length-based assessments.

Management advice: ACFM advised a precautionary TAC of about 6,800 t for the Management Area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

Special comments: It should be noted that this recommended Management Area includes two functional units and that a TAC set for the entire area will not necessarily result in a balanced exploitation between these two units.

6.1.14 *Nephrops* in Division VIIIc

Units included in recommended Management Area: a) North Galicia (Unit 25) and b) Cantabrian Sea (Unit 31).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	0.51	~0.51	0.51			
Agreed TAC	0.4	0.5	0.5	0.6	0.8	0.6	0.8	1.0			
Landings ³											
a) N. Galicia	0.36	0.41	0.45	0.38	0.29	0.42	0.43 ²	-	0.51	0.29	0.41
b) Cantabrian	0.13	0.12	0.15	0.14	0.19	0.11	0.09 ²	-	0.19	0.06	0.12
Total area	0.49	0.53	0.60	0.52	0.48	0.53	0.52 ²	-	0.61	0.32	0.51

¹Over period 1981-1992. ²Preliminary. ³Provided by Working Group members. Weights in '000 t.

Landings: a) North Galicia: Landings maintained around the mean level of previous years, after a decline in 1989-1990. b) Cantabrian Sea: Landings falling since 1990, at lowest level in 1992.

Data and assessment: CPUE and mean size data available for both stocks. a) North Galicia: yield per recruit length-based analysis (1991). Age-based methods were tried, but were not regarded as reliable. b) Cantabrian Sea: Length-based assessment (1991).

Fishing mortality: a) North Galicia: Effort fluctuating. Current fishing mortality is above F_{max} for both sexes although long-term gains in moving to F_{max} are less than 10% and short term losses are about 20%. b) Cantabrian Sea: Effort decreasing. Current F is above F_{max} in males and below F_{max} in females.

State of stock: a) North Galicia: CPUE increasing after the fall in 1990. Mean sizes of males and females fluctuating without obvious trend. b) Cantabrian Sea: CPUE slowly decreasing below the level of the period 1987-1990; mean size of males and females stable.

Management advice: ACFM advised a precautionary TAC of about 510 t for the Management Area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

Special comments: It should be noted that this recommended Management Area includes two functional units and that a TAC set for the entire area will not necessarily result in a balanced exploitation between these two units.

6.1.15 *Nephrops* in Divisions VIII d,e

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Special comments: Units included - none. There are no reported landings of *Nephrops* from this area, so it is suggested that, if required, a TAC of zero would prevent misreporting.

6.1.16 *Nephrops* in Division IXa

Units included in recommended Management Area: a) West Galicia (Unit 26), b) North Portugal (Unit 27), c) Southwest Portugal (Unit 28), d) South Portugal (Unit 29) and e) Gulf of Cadiz (Unit 30).

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
TAC preferred by ACFM	-	-	-	-	-	1.84	1.3	1.3			
Agreed TAC	4.1	4.8	4.8	4.8	4.7	3.0	2.5	2.5			
Landings ³											
a) W. Galicia	0.66	0.67	0.64	0.63	0.40	0.55	0.58 ²	-	0.82	0.40	0.65
b) N. Portugal	0.04	0.07	0.10	0.09	0.05	0.05	0.06 ²	-	0.10	0.01	0.05
c) SW Portugal	0.47	0.51	0.42	0.47	0.37	0.48	0.47 ²	-	1.43	0.26	0.60
d) S. Portugal											
e) Gulf of Cadiz	0.22	0.30	0.14	0.17	0.22	0.23	0.24	-	0.30	0.14	0.22
Total area	1.38	1.55	1.30	1.36	1.04	1.31	1.36	-	2.29	1.04	1.45

¹Over period 1981-1992. ²Preliminary. ³Provided by Working Group members. Weights in '000 t.

Landings: a) West Galicia: Landings continue to rise after decline in 1990. b) North Portugal: Catch fairly stable in last three years. c) + d) SW and S Portugal: Fluctuating without obvious trend. e) Gulf of Cadiz: Fluctuating without trend.

Data and assessment: a) LPUE and mean size data. Yield per recruit assessment using length-based analysis (new 1993). b) CPUE, effort and mean size data available but quality poor. Length-based assessment (1991). (c + d) CPUE, effort and mean size data. Length-based assessment (new 1993) and age-based assessment also carried out although quality questionable. e) No data - no assessment.

Fishing mortality: a) W. Galicia: Effort fluctuating without trend. Current F above F_{max} in males and females. b) North Portugal: Effort fairly stable in last four years. Yield per recruit shows F above F_{max} in males but below in females. (c + d) SW and S Portugal: Effort stable at present. Yield per recruit shows F above F_{max} in both sexes. e) Gulf of Cadiz - no information.

State of stock: a) West Galicia: CPUE fluctuating without trend. Mean size of both sexes continuing to rise after fall in 1989-1990. b) N Portugal: Mean size decreased in 1991, probably due to marketing and sampling problems. (c + d) SW and S Portugal: CPUE fluctuating without trend, mean size stable. e) No information.

Management advice: ACFM advised a precautionary TAC of about 1,300 t for the Management Area in 1993. There was no basis for revising this figure for 1994 on the basis of new information.

Special comments: It should be noted that this recommended Management Area includes five functional units and that a TAC set for the entire area will not necessarily result in a balanced exploitation between the five units.

6.1.17 *Nephrops* in Division IXb and Sub-area X

Source of information: Report of the Working Group on *Nephrops* and *Pandalus* Stocks, February/March 1993 (C.M.1993/Assess:11).

Special comments: Unit included - none. There are no reported landings of *Nephrops* from this area, so it is suggested that, if required, a TAC of zero would prevent misreporting.

6.2 Mackerel

6.2.1 General Comments

Catches for all areas are given in Tables 6.2.1 - 6.2.6.

6.2.2 North Sea mackerel

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max	Min	Mean
Recommended TAC ¹	LPL ⁴	LPL ⁴	LPL ⁴	LPL ⁴	LPL ⁴	LPL ⁴	LPL ⁴	LPL ⁴			
Agreed TAC ²	55	55	55	49.2	45.2	65.5	76.3	83.1			
Official landings	No data on a stock basis										
Unallocated landings											
Discards/slipping											
Catch as used by ACFM ³	25	3	6	7	10	- ⁵	- ⁵				
Sp. stock biomass	45	-	37	-	78	-	-				

¹TAC for Sub-area IV and Division IIIa. ²TAC for Sub-area IV, Division IIIa, IIIb,c,d (EC zone) and Division IIa (EC zone) (see Special Comments under Western mackerel). ³Estimated landings of North Sea stock. ⁴LPL = Lowest Practicable Level.

⁵No information. Weights in '000 t.

Catches: Recent catches from this stock are not known.

Data and assessment: No analytical assessment possible. There are problems in estimating catches from the stock due to overlap of distribution with western mackerel. Egg surveys carried out on an international basis every second year up to 1990.

Fishing mortality: Not available.

Recruitment: The increase in SSB from 1988 to 1990 was due to the 1987 and 1988 year classes. Poor recruitment in the 1970s and 1980s.

State of stock: The stock is still at a historically low level and is outside safe biological limits.

Management advice: This stock still needs the maximum possible protection and ACFM, therefore, reiterates its previous recommendation that:

- There should be no fishing for mackerel in Divisions IIIa and IVb,c at any time of the year.
- There should be no fishing for mackerel in Division IVa during the period 1 January - 31 July.
- The 30 cm minimum landing size at present in force in Sub-area IV should be maintained.

Special comments: The closure of Divisions IIIa and IVb,c for the whole year will protect both the North Sea stock of mackerel and juvenile fish from the Western stock, the latter being particularly numerous in these areas in the second half of the year.

Maximum protection could be given to the North Sea stock by a closure of Division IVa but, since a considerable quantity of Western mackerel are present in this area during the second half of the year, this would seriously affect the fishery for Western mackerel.

6.2.3 Western mackerel

(Figure 6.2.1)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC ³	290	380	430	355	480	500	670	670			
Agreed TAC ⁴	367	405	573	495	525	575	594	647			
Official landings	473	567	557	539	597	603	702	-			
Unallocated landings	58	37	35	21	+	13	15	-			
Discards/slipping	7	11	36	7	19	31	25	-			
Catch as used by ACFM ⁵	538	615	628	567	606	646	742	-	742	326	582
Sp. stock biomass	2129	2438	2475	2483	2314	2662	2786	2899 ²	3044	2016	2511
Recruitment (age 0)	2975	5405	2706	5855	3192	6102 ⁶	4746 ⁶	3500 ⁷	7399	1002	4253
Mean F(4-8,u)	.19	.19	.21	.18	.19	.24	.27	-	.27	.12	.20

¹Over period 1976-1992. ²Forward projection. ³Recom. TACs for areas (VI, VII, VIIa,b, Vb, IIa, and from 1988, IV). ⁴See Special comments. ⁵Landings and discards of Western stock. ⁶Estimated from recruitment surveys. ⁷Assumed. Weights in '000 t, recruitment in millions.

Catches: Catches increased in 1992 to 742,000 t which is the highest level recorded for this stock. Catches again exceeded the recommended and agreed TACs which were at about the highest level. Discards estimates apply to only one fleet, not to the overall catch and are therefore underestimates. Misreporting amounted to 127,000 t in 1992 (i.e., catches taken in Division IVa but reported as Division VIa).

Data and assessment: Analytical assessment based on VPAs tuned to egg surveys. Independent analysis produced results in close agreement with those from VPA.

Fishing mortality: F values have been very stable (about .20) since 1980 but increased in 1991 and 1992.

Recruitment: Recruitment has been sustained at near average level in recent years with no poor year classes. Preliminary results suggest that the 1991 year class may be strong.

State of stock: The spawning stock has increased in recent years because of good recruitment and is currently at a high level.

Forecast for 1994 and 1995:

Assuming $F(93) = 0.24$, Basis = TAC, Catch(93) = 750, Landings (93) = 720.

Option	Basis	F(94+95)	SSB(94)	Lndgs(94)	SSB(95)	Lndg(95)	SSB(96)	Consequences /implications
A	$0.7 \times F_{92}$	0.19	3010	593	3050	605	3000	Reduced catch/stable stock
B	$0.8 \times F_{92}$	0.22	2980	674	2970	674	2860	Stable catch/slow stock decline
C	$0.9 \times F_{92}$	0.24	2960	753	2880	737	2740	Increased catch/stock declining
D	$1.0 \times F_{92}$	0.27	2930	831	2800	796	2620	High catch/stock declining
E	$1.1 \times F_{92}$	0.30	2900	907	2730	851	2510	Record catch/stock declining

Weights in '000 t.

Continued fishing at current levels of fishing mortality will lead to a decrease in spawning stock after 1994.

Management advice: The management of the fishery on the Western stock should reflect the necessity to protect the North Sea stock (see Management advice for North Sea mackerel (Section 6.2.2)).

Catch options are presented for two years as the stock is above minimum biologically acceptable levels and as the assessments are significantly updated only following the triennial egg surveys.

The stock is considered to be within safe biological limits. Fishing mortality is at the highest level on record, however, and no advantage in terms of yield is to be gained from any further increase in F.

Special Comments:

ACFM notes that the results of the egg surveys on which the assessment is based are subject to considerable uncertainty.

TACs up to 1987 were set for the area comprising Sub-areas II (international waters only), VI, VII, VIII (except VIIIc), XII, XIV and Division Vb (EC zone and EC allocation within the Faroese zone of the order of 5,000 t).

In 1988 and 1989, the TACs were set for the area comprising Sub-areas II (except some nations in international waters), VI, VII, VIII (except VIIIc), XII, XIV and Division Vb (EC zone and EC and Norwegian allocations within the Faroese zone of the order of 17,000 t).

In 1990 and 1991, the TACs were set for the area comprising Sub-areas II (except some nations in international waters), VI, VII, VIII (except VIIIc), XII and XIV and Division Vb.

TAC regulations applicable to North Sea and Western Mackerel for 1993

<u>Areas</u>		<u>TAC</u>
IIa ¹ , IIIa, IIIb,c,d ¹ , IV		83150 ⁴
II ² , Vb, VI, VII, VIII(except VIIIc), XII, XIV	EC TAC ³	461050
IIa, IVa	Norwegian TAC ³	160400
Faroes zone, IIa	Faroes TAC ³	25400
Total of autonomous TACs		646850
Total		730000
Total for Western Mackerel		720500

¹EC zone

²Outside EC zone

³Autonomous TACs

⁴This corresponds to 9,500 t of North Sea mackerel taken as unavoidable by-catch and 73,650 t of Western mackerel taken in the North Sea.

6.2.4 Mackerel in Divisions VIIIc and IXa

(Tables 6.2.4 - 6.2.6)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ²	24.7	36.57	36.57	36.57	36.57	36.57	36.57	36.57			
Catch as used by ACFM	25	22	25	18	21	21	18	-	27	15	21

¹Over period 1977-1992. ²Division VIIIc, Sub-areas IX and X, and CECAF Division 34.1.1 (EC waters only). Weights in '000 t.

Catches: 1992 catches in Division VIIIc and IXa remained at almost the same level as in 1989-1991.

Data and assessment: No assessment of the southern stock was made because of insufficient data. The available survey data are of low utility because the surveys are not directed towards mackerel.

Fishing mortality: Not available.

Recruitment: Not available.

State of stock: Unknown.

Forecast for 1994: Not available.

Special comments: Very large quantities of juvenile (ages 0-2) mackerel are caught in Divisions VIIIc and IXa (51 million in 1990, 24 million in 1991 and 57 million in 1992) and a large proportion of the catch is comprised of immature fish. The fishery may have a considerable and adverse effect on the recruitment to whatever stock they belong to. ACFM notes that the agreed TACs are far in excess of the catches in recent years.

6.3 Horse Mackerel

6.3.1 General comments

From catches of about 400,000 tonnes of North Sea and Western horse mackerel in 1992 at least 230,000 t was unsampled. Sampling needs to be improved.

Catches for all areas are given in Tables 6.3.1 - 6.3.10.

6.3.2 North Sea horse mackerel (Divisions IIIa, IVb,c, VIIId)

(Table 6.3.8)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	-	-	-	-	-			
Agreed TAC ²	30	30	50	45	40	45	55	60			
Catch as used by ACFM ⁴	25	12	24	33	19	12	15	-	33	4	19
Sp. stock biomass ³			120	217	255	247					

¹Over period 1982-1992. ²Division IIa and Sub-area IV (EC waters only). ³Egg survey estimates. ⁴See Table 6.3.8. Weights in '000 t.

Catches: North Sea horse mackerel are caught in Division IIIa (the Kattegat and eastern part of the Skagerrak), IVb,c and VIIId. Catches were below 10,000 t before 1984. In 1984-1989, the catches were between 24,000 t and 33,000 t, except for 1987. The majority of the catch is taken as by-catch in the small-mesh industrial fishery while landings from the directed fishery for horse mackerel are limited.

Data and assessment: Samples taken from Dutch commercial catches and research vessel catches were available for the period 1987-1992, but these are not considered representative of the total international catch. SSB estimated from egg surveys in 1988-1991.

Fishing mortality: The low catch compared to estimated SSB indicates a low fishing mortality.

Recruitment: The 1982 year class is very strong. The 1989 year class is considered to be relatively strong. All other year classes since 1980 are poor.

State of stock: SSB increased from 1988 to 1990 and is considered to be at a relatively high level.

Forecast for 1994: Not available.

6.3.3 Western horse mackerel (Divisions IIa, IVa, Vb, VIa, VIIa-c,e-k, VIIIa,b,d,e)

(Table 6.3.8)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	-	-	-	100	~200	-	-	-			
Agreed TAC ²	123	155	169	153	203	230	250	250			
Landings as used by ACFM	97	157	184	267	363	328	369	-			
Discards/slipping	9	-	4	1	10	5	2	-			
Catch as used by ACFM ⁴	106	157	188	269	373	334	371	-	373	42	187
Sp. stock biomass ³	720	-	-	2370	-	-	2320				

¹Over period 1982-1992. ²Division Vb (EC waters only), Sub-areas VI and VII, and VIIIa,b,d,e. ³Egg survey estimates. ⁴See Table 6.3.8. Weights in '000 t.

Catches: Catches have been rather stable in recent years (average 358,000 t from 1990-1992) and considerably higher than in the early 1980s.

Data and assessment: No assessment possible because of poor data.

Fishing mortality: Not known.

Recruitment: The 1982 year class still dominates this fishery. It is possible that the 1987 year class may also be strong. There is no evidence of any other strong year class since 1987.

State of stock: The egg surveys suggest that this stock is about 2.3 million t (\pm 1 million t) - similar to that in 1989.

Forecast for 1994: Not available.

Special comments: The spawning stock of about 2.3 million t is considered to be within safe biological limits. It is estimated that the large 1982 year class was generated by a much smaller stock size.

Catches continue to be dominated by the 1982 year class and ACFM considers that it would be prudent not to increase fishing effort.

6.3.4 Southern horse mackerel (Divisions VIIIc and IXa)

(Table 6.3.7)

Source of information: Report of the Working Group on the Assessment of Mackerel, Horse Mackerel, Sardine, and Anchovy, June/July 1993 (C.M.1993/Assess:19).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC ⁶	-	-	-	-	38	61	61 ²	-			
Agreed TAC ⁶	72.5 ³	72.5 ³	82.0 ³	73.0 ³	55.0 ⁴	73.0 ⁴	73.0 ⁴	73.0 ⁴			
Catch as used by ACFM ⁵	71	55	56	56	49	46	51	-	167	44	101

¹Over period 1962-1992. ²Precautionary TAC. ³Division VIIIc, Sub-areas IX and X, and CECAF Division 34.1.1 (EC waters only). ⁴Division VIIIc and Sub-area IX. ⁵Includes only *Trachurus trachurus* L. (See Table 6.3.8). ⁶Includes all *Trachurus* spp. Weights in '000 t.

Catches: Total catches in 1992 were about 11% higher than in 1991, reversing the trend of the previous three years.

Data and assessment: Analytical assessment attempted but data adequate only to give a *status quo* catch.

Fishing mortality: Not estimated.

Recruitment: The 1987, 1991 and 1992 year classes were about average. The 1986 year class was above average.

State of stock: Cannot be precisely assessed.

Management advice: The *status quo* catch is predicted to be 55,000 t in 1994, applied only to *Trachurus trachurus*, L.

Special comments:

Advice requested by the Spanish delegate of ICES. ICES was requested to address the following questions:

- What would the consequences of a 12 cm minimum size be for the horse mackerel stock?
- What would the consequences be if the 12 cm minimum size applied only to purse seine, maintaining the 15 cm for other gears?
- Would a national sub-quota of horse mackerel 12-14 cm for the purse seine fleet be feasible, which may have little effect on the whole stock?
- Will the questions above be considered in the light of the hypothesis of a single Atlantic stock of horse mackerel (ICES area)?

Quantitative assessment of the effects of changes in minimum mesh and minimum landing sizes (MLS) on stock and catches requires a complex set of data. In particular, data are needed on the selectivity of the trawl and pelagic gears, working under commercial conditions, and on the abundance and size of discards. In addition, it is important to be able to predict the behaviour of the industry to changes, e.g. if they can and will move location and if the gear will be altered. This information is currently not available and it has not been possible to predict the effects of the proposed changes.

Currently horse mackerel of less than 15 cm are caught and some or all are landed. A change to a lower MLS would legitimise landings of most of these fish. If such a change did not affect the behaviour of fishermen then there would be no conservation effects. If, however, the change attracted increased fishing on the smaller fish then recruitment to the spawning stock would be adversely affected.

6.4 Blue Whiting

6.4.1 General Comments

The present separation of blue whiting into two stocks (Northern and Southern) is based more on convenience than on scientific evidence. Whether there exist one, two or more populations in this area, their geographic distribution is not clear and their distribution may also change over time. A recent study gave no indication of genetic substructure among blue whiting from the Norwegian Sea to Gibraltar. ACFM will therefore, if possible, assess the northern and southern stocks as one unit in the future.

6.4.2 Blue Whiting in the Northern Area (Sub-areas I-VI and XIV and Divisions VIIb,c)

(Tables 6.4.1 - 6.4.4)

Source of information: Report of the Blue Whiting Assessment Working Group (C.M.1994/Assess:4).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Recommended TAC	1000	950	832	630	600	670	-	490 ³			
Agreed TAC	-	-	-	-	-	-	-	-			
Catch as used by ACFM	794	632	523	592	529	339	446	448 ²	1092	238	655

¹Over period 1977-1992. ²Estimated. ³Catch at *status quo* F. Weights in '000 t.

Catches: The fishery was fully established in 1977. A maximum in landings in 1979/1980, and a lesser peak in 1986. A notable drop occurred in 1991 partly due to reduced effort. Recommended TAC not reached in any year.

Data and assessment: Analytical assessment using catch-in-number data and acoustic survey results. Tuning based on acoustic survey of spawning area. Assessment not reliable due to inconsistencies in catch-at-age data and conflicting trends between acoustic estimates and analysis based on catch data.

Fishing mortality: Not known precisely.

Recruitment: The 1989 year class is strong and at the same strength as the 1982/1983 year classes. The 1990-1993 year classes are below average size.

State of stock: Acoustic data suggest that the stock had decreased from a peak level in 1988, but the decline halted in 1992 and the stock is now increasing due to the strong 1989 year class.

Forecast for 1994: Not available.

Management advice: ACFM considers that the trend in the acoustic time series reflects the stock development and the stock appears to be within safe biological limits. If a TAC is to be set a precautionary TAC of 485,000 t, being the mean over the period 1988-1992, seems appropriate.

Special comments: ACFM considers that the acoustic methodology has stabilized and that the estimates reflect the trend in the stock. There are, however, still large uncertainties in the actual level of the stock, and the estimates cannot be taken as absolute values.

6.4.2.1 Medium-term prediction requested by NEAFC

ACFM is not in a position to perform a medium-term projection for the stock of blue whiting as the assessment does not allow a reliable estimate of the present level of the stock to be used as a starting point for the prediction. The reasons are given in Section 6.4.1 and in the Special Comments above.

6.4.3 Blue whiting in the southern area (Divisions VIIId,e,g-k and Sub-areas VIII and IX).

(Table 6.4.5)

Source of information: Report of the Blue Whiting Assessment Working Group (C.M.1994/Assess:4).

Year	1986	1987	1988	1989	1990	1991	1992	1993	Max ¹	Min ¹	Mean ¹
Catch as used by ACFM ²	33.1	32.8	30.8	33.7	32.8	32.0	28.7	-	42.8	27.2	32.4

¹Over period 1977-1992. ²Excluding catches in Divisions VIIg,h, allocated to northern stock. Weights in '000 t.

Catches: Fairly constant landings except for high catch of 42,800 t in 1985. Landings mainly of 1-3-year-old fish.

Data and assessment: Available data include catch in numbers, CPUE at age for both single and pair trawlers and bottom trawl survey indices by age in Divisions VIIIC and IXa. No assessment was carried out (see Special comments).

Fishing mortality: Not known.

State of stock: Not known.

Forecast for 1994: Not available.

Special comments: An analytical assessment was not attempted for the southern stock because the landings only covered a limited part of the whole distributional area which is assumed to be from the Porcupine Bank southwards.

6.5 Description of Deep-Water Fisheries South of 63°N

ACFM has begun the task of compiling the data required to provide a description of the fisheries for deep-water species in the area south of 63°N. This subject will be addressed by a Study Group established for this purpose in 1994, and a report will be provided at the ACFM Meeting in October - November 1994.

Table 2.1.1 North-East Arctic COD. Total nominal catch (t) by fishing areas. (Data provided by Working Group members.)

Year	Sub-area I	Division IIa	Division IIb	Total catch
1961	409,694	153,019	220,508	783,221
1962	548,621	139,848	220,797	909,266
1963	547,469	117,100	111,768	776,337
1964	206,883	104,698	126,114	437,695
1965	241,489	100,011	103,430	444,983
1966	292,253	134,805	56,653	483,711
1967	322,798	128,747	121,060	572,605
1968	642,452	162,472	269,254	1,074,084
1969	679,373	255,599	262,254	1,197,226
1970	603,855	243,835	85,556	933,246
1971	312,505	319,623	56,920	689,048
1972	197,015	335,257	32,982	565,254
1973	492,716	211,762	88,207	792,685
1974	723,489	124,214	254,730	1,102,433
1975	561,701	120,276	147,400	829,377
1976	526,685	237,245	103,533	867,463
1977	538,231	257,073	109,997	905,301
1978	418,265	263,157	17,293	698,715
1979	195,166	235,449	9,923	440,538
1980	168,671	199,313	12,450	380,434
1981	137,033	245,167	16,837	399,037
1982	96,576	236,125	31,029	363,730
1983	64,803	200,279	24,910	289,992
1984	54,317	197,573	25,761	277,651
1985	112,605	173,559	21,756	307,920
1986	157,631	202,688	69,794	430,113
1987	146,106	245,387	131,578	523,071
1988	166,649	209,930	58,360	434,939
1989	164,512	149,360	18,609	332,481
1990	62,272	99,465	25,263	187,000
1991	70,970	156,966	41,222	269,158
1992 ¹	120,711	171,586	85,760	378,057

¹Provisional figures.

Table 2.1.2 North-East Arctic COD. Nominal catch (t) by countries (Sub-area I and Divisions IIa and IIb combined). (Data provided by Working Group members.)

Year	Faroe Islands	France	German Dem. Rep.	Germany Fed. Rep.	Norway	Poland	United Kingdom	USSR/ Russia ²	Others	Total all countries
1961	3,934	13,755	3,921	8,129	268,377	-	158,113	325,780	1,212	783,221
1962	3,109	20,482	1,532	6,503	225,615	-	175,020	476,760	245	909,266
1963	-	18,318	129	4,223	205,056	108	129,779	417,964	-	775,577
1964	-	8,634	297	3,202	149,878	-	94,549	180,550	585	437,695
1965	-	526	91	3,670	197,085	-	89,962	152,780	816	444,930
1966	-	2,967	228	4,284	203,792	-	103,012	169,300	121	483,704
1967	-	664	45	3,632	218,910	-	87,008	262,340	6	572,605
1968	-	-	225	1,073	255,611	-	140,387	676,758	-	1,074,084
1969	29,374	-	5,907	5,543	305,241	7,856	231,066	612,215	133	1,197,226
1970	26,265	44,245	12,413	9,451	377,606	5,153	181,481	276,632	-	933,246
1971	5,877	34,772	4,998	9,726	407,044	1,512	80,102	144,802	215	689,048
1972	1,393	8,915	1,300	3,405	394,181	892	58,382	96,653	166	565,287
1973	1,916	17,028	4,684	16,751	285,184	843	78,808	387,196	276	792,686
1974	5,717	46,028	4,860	78,507	287,276	9,898	90,894	540,801	38,453	1,102,434
1975	11,309	28,734	9,981	30,037	277,099	7,435	101,843	343,580	19,368	829,377
1976	11,511	20,941	8,946	24,369	344,502	6,986	89,061	343,057	18,090	867,463
1977	9,167	15,414	3,463	12,763	388,982	1,084	86,781	369,876	17,771	905,301
1978	9,092	9,394	3,029	5,434	363,088	566	35,449	267,138	5,525	698,715
1979	6,320	3,046	547	2,513	294,821	15	17,991	105,846	9,439	440,538
1980	9,981	1,705	233	1,921	232,242	3	10,366	115,194	8,789	380,434
<u>Spain</u>										
1981	12,825	3,106	298	2,228	277,818	14,500	5,262	83,000	-	399,037
1982	11,998	761	302	1,717	287,525	14,515	6,601	40,311	-	363,730
1983	11,106	126	473	1,243	234,000	14,229	5,840	22,975	-	289,992
1984	10,674	11	686	1,010	230,743	8,608	3,663	22,256	-	277,651
1985	13,418	23	1,019	4,395	211,065	7,846	3,335	62,489	4,330	307,920
1986	18,667	591	1,543	10,092	232,096	5,497	7,581	150,541	3,505	430,113
1987	15,036	1	986	7,035	268,004	16,223	10,957	202,314	2,515	523,071
1988	15,329	2,551	605	2,803	223,412	10,905	8,107	169,365	1,862	434,939
1989	15,625	3,231	326	3,291	158,684	7,802	7,056	134,593	1,273	332,481
1990	9,584	592	169	1,437	88,737	7,950	3,412	74,609	510	187,000
1991	8,981	975		2,613	126,226	3,677	3,981	119,427 ³	3,278	269,158
1992 ¹	11,588	1,947		3,911	161,413	6,217	6,120	182,315	4,546	378,057

¹Provisional figures.

²From 1991.

³With Baltic countries

Table 2.1.3 Landings of Coastal cod in:**A)** Norway in Division IIa - area: 05, 00, 06 and 07. (In '000 tonnes).

1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
43	32	30	40	46	24	29	33	47	52
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
49	¹	¹	¹	¹	¹	¹	¹	¹	¹
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
40	49	42	38	33	28	26	31	22	17
1990	1991	1992							
24	25	41 ²							

¹No data ²Provisional data**B)** USSR/Russia of Murman cod in USSR in Division I. (In '000 t)

1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
71	108	114	127	63	52	73	79	118	122
1970	1971	1972	1973	1974					
70	48	23	122	99					

Table 2.2.1 North-East Arctic HADDOCK. Total nominal catch (t) by fishing areas. (Data provided by Working Group Members).

Year	Sub-area I	Division IIa	Division IIb	Total
1960	125,657	27,925	1,854	155,434
1961	165,165	25,642	2,427	193,234
1962	160,972	25,189	1,727	187,888
1963	124,774	21,031	939	146,744
1964	79,056	18,735	1,109	98,900
1965	98,505	18,640	939	118,079
1966	124,115	34,892	1,614	160,621
1967	108,066	27,980	440	136,486
1968	140,970	40,031	725	181,726
1969	88,960	40,208	1,341	130,509
1970	59,493	26,611	497	86,601
1971	56,300	21,567	435	78,302
1972	221,183	41,979	2,155	265,317
1973	283,728	23,348	2,989	320,065
1974	159,037	47,033	5,068	221,138
1975	121,686	44,330	9,726	175,742
1976	94,065	37,566	5,649	137,279
1977	72,159	28,452	9,547	110,158
1978	63,965	30,478	979	95,422
1979	63,841	39,167	615	103,623
1980	54,205	33,616	68	87,889
1981	36,834	39,864	455	77,153
1982	17,948	29,005	2	46,955
1983	7,550	13,872	185	21,607
1984	4,000	13,247	71	17,318
1985	30,385	10,774	111	41,270
1986	69,865	26,006	714	96,585
1987	109,429	38,182	3,048	150,659
1988	43,990	47,086	668	91,744
1989	31,265	23,502	355	55,122
1990	15,138	10,375	304	25,817
1991	18,772	14,417	416	33,605
1992 ¹	29,958	22,434	963	53,355

¹Provisional figures.

Table 2.2.2 North-East Arctic HADDOCK. Nominal catch (t) by countries (Sub-area I and Divisions IIa and IIb combined). (Data provided by Working Group members).

Year	Faroe Islands	France	German Dem.Rep.	Germany, Fed.Rep.	Norway	Poland	United Kingdom	USSR/Russia ²	Others	Total
1960	172	-	-	5,597	46,263	-	45,469	57,025	125	155,651
1961	285	220	-	6,304	60,862	-	39,650	85,345	558	193,234
1962	83	409	-	2,895	54,567	-	37,486	91,910	58	187,438
1963	17	363	-	2,554	59,955	-	19,809	63,526	-	146,224
1964	-	208	-	1,482	38,695	-	14,653	43,870	250	99,158
1965	-	226	-	1,568	60,447	-	14,345	41,750	242	118,578
1966	-	1,072	11	2,098	82,090	-	27,723	48,710	74	161,778
1967	-	1,208	3	1,705	51,954	-	24,158	57,346	23	136,397
1968	-	-	-	1,867	64,076	-	40,129	75,654	-	181,726
1969	2	-	309	1,490	67,549	-	37,234	24,211	25	130,820
1970	541	-	656	2,119	37,716	-	20,423	26,802	-	87,257
1971	81	-	16	896	45,715	43	16,373	15,778	3	78,905
1972	137	-	829	1,433	46,700	1,433	17,166	196,224	2,231	266,153
1973	1,212	3,214	22	9,534	86,767	34	32,408	186,534	2,501	322,626
1974	925	3,601	454	23,409	66,164	3,045	37,663	78,548	7,348	221,157
1975	299	5,191	437	15,930	55,966	1,080	28,677	65,015	3,163	175,758
1976	536	4,459	348	16,660	49,492	986	16,940	42,485	5,358	137,265
1977	213	1,510	144	4,798	40,118	-	10,878	52,210	287	110,158
1978	466	1,411	369	1,521	39,955	1	5,766	45,895	38	95,422
1979	343	1,198	10	1,948	66,849	2	6,454	26,365	454	103,623
1980	497	226	15	1,365	61,886	-	2,948	20,706	246	87,889
1981	381	414	22	2,398	58,856	<u>Spain</u>	1,682	13,400	-	77,153
1982	496	53	-	1,258	41,421	-	827	2,900	-	46,955
1983	428	-	1	729	19,371	139	259	680	-	21,607
1984	297	15	4	400	15,186	37	276	1,103	-	17,318
1985	424	21	20	395	17,490	77	153	22,690	-	41,270
1986	893	33	75	1,079	48,314	22	431	45,738	-	96,585
1987	464	26	83	3,106	69,333	99	563	76,980	-	150,654
1988	1,113	116	78	1,324	57,273	72	435	31,293	41	91,745
1989	1,218	125	26	171	31,825	1	853	20,903	-	55,122
1990	875	-	5	128	17,634	-	569	6,605	-	25,816
1991	1,117	60	<u>Greenland</u>	219	19,285	-	514	12,388	22	33,605
1992 ¹	1,097	546	1,719	383	29,276	38	585	19,699	12	53,355

¹Provisional figures.

²From 1990 onwards Russia.

Table 2.3.1 North-East Arctic SAITHE. Nominal catch (tonnes) by countries in Sub-area I and Divisions IIa and IIb combined as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Denmark	-	-	-	-	1
Faroe Islands	539	503	490	426	712
France	418	431	657	308	576
German Dem.Rep.	-	6	11	-	-
Germany, Fed.Rep.	4,933	4,532	1,837	3,470	4,909
Greenland	-	-	-	-	-
Norway	149,556	152,818	103,899	63,090	85,710
Spain	33	-	-	-	-
UK (Engl.& Wales)	1,251	335	202	54	54
UK (Scotland)	-	-	+	21	3
USSR	206	161	51	27	426
Total	156,936	158,786	107,147	67,396	92,391

Country	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	5	-
Faroe Islands	441	388	1,207	963	519
France	411	460 ²	340 ²	77 ²	256 ²
German Dem.Rep.	17	-	14	-	-
Germany, Fed.Rep.	4,557	606	1,129	2,003	3,451
Greenland	-	-	-	-	734
Norway	108,244	119,625	92,397	104,240 ¹	118,447
Spain	-	-	-	-	6
UK (Engl.& Wales)	436	702	681	449	515
UK (Scotland)	6	23	28	42	12
USSR/Russia ³	130	506	52	518 ²	964
Total	114,242	122,310	95,848	108,297	124,904

¹Provisional figures.

²As reported to Norwegian authorities.

³In 1991-1992.

Table 2.4.1 REDFISH in Sub-areas I and II. Nominal catch (t) by countries in Sub-areas I, Divisions IIa and IIb combined as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Denmark	-	-	-	-	+
Faroe Islands	-	-	-	29	450 ³
France	798	2,970	3,326	2,719	1,611
German Dem. Rep.	3,394	4,168	3,260	1,323	417
Germany, Fed. Rep.	3,395	3,289	3,306	3,561	5,412
Norway	11,083	18,650	20,456	23,255	18,051
Portugal	-	1,806	2,056	1,591	1,175
Spain	222	25	38	-	25
UK (England & Wales)	182	716	167	129	230
UK (Scotland)	-	-	-	14	9
USSR	105,459	69,689	59,943	20,694	7,215
Total	124,533	101,313	92,552	53,315	34,595

Country	1988	1989	1990	1991 ¹	1992 ¹
Denmark	-	-	37 ³	23	614
Faroe Islands	973	338	386	644	240
France	3,369	1,877 ¹	1,826 ¹	804	369 ³
German Dem. Rep.	994	1,978	5,351	-	-
Germany, Fed. Rep.	1,361	2,267	1,390	1,053	632 ²
Norway	24,662	25,295	34,090	44,228 ²	25,224 ²
Portugal	500	340	830	166	977
Spain	26	5 ²	-	1 ²	16 ²
UK (England & Wales)	468	259	332	285	479 ²
UK (Scotland)	2	13	1	64	3
USSR/Russia ⁴	9,139	14,344	18,918	15,354	4,335
Total	41,494	46,716	63,161	62,622	32,889

¹Provisional figures.

²Working Group figure.

³As reported to Norwegian authorities.

Table 2.4.2 REDFISH in Sub-areas I and II. Nominal catch (t) by countries in Sub-area I as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Faroe Islands	-	-	-	-	-
Germany, Fed. Rep.	-	1	143	50	10
Norway	580	1,472	2,378	4,260	2,331
UK (England & Wales)	48	22	43	32	14
UK (Scotland)	-	-	-	3	-
USSR	4,023	532	368	1,066	769
Total	4,651	2,027	2,932	5,411	3,124

Country	1988	1989	1990	1991 ¹	1992 ¹
Faroe Islands	1	13	7	-	-
Germany, Fed. Rep.	6	+	-	-	-
Norway	2,232	1,823 ²	1,263 ²	1,789 ²	2,605 ²
UK (England & Wales)	20	12	+	-	-
UK (Scotland)	-	2	-	-	-
USSR/Russia ³	199	594	114	512	582
Total	2,458	2,444	1,384	2,301	3,187

¹Provisional figures.

²Working Group figure.

³In 1991.

Table 2.4.3 REDFISH in Sub-areas I and II. Nominal catch (t) by countries in Division IIa as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Faroe Islands	-	-	-	29	450 ²
France	798	2,970	3,326	2,719	1,611
German Dem. Rep.	2,500	2,570	2,800	1,252	375
Germany, Fed. Rep.	3,395	3,288	2,972	3,319	3,562
Norway	10,500	17,111	18,062	18,693	15,409
Portugal	-	1,134	1,327	1,273	1,156
Spain	-	-	-	-	-
UK (England & Wales)	134	672	120	94	205
UK (Scotland)	-	-	-	11	8
USSR	82,836	63,342	59,047	19,099	4,953
Total	100,163	91,087	87,654	46,489	27,729

Country	1988	1989	1990	1991 ¹	1992 ¹
Denmark	-	-	-	-	614 ⁵
Faroe Islands	970	315	371	639	228
France	3,349	1,849 ¹	1,821 ¹	791	364 ³
German Dem. Rep.	879	1,468	722	-	-
Germany, Fed. Rep.	1,320	2,144	1,338	735 ²	205 ²
Norway	22,288	23,406 ²	31,286 ²	41,708 ²	22,243 ²
Portugal	467	251	824	159	824
Spain	26	-	-	-	-
UK (England & Wales)	412	240	269	247	234 ²
UK (Scotland)	2	9	1	51	1
USSR/Russia ⁴	7,598	10,661	6,884	8,130	1,500
Total	37,311	40,343	43,516	52,460	26,213

¹Provisional figures.

²Working Group figure.

³As reported to Norwegian authorities.

⁴In 1991.

⁵Includes Division IIb.

Table 2.4.4 REDFISH in Sub-areas I and II. Nominal catch (t) by countries in Division IIb as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Denmark	-	-	-	-	+
Faroe Islands	-	-	-	-	-
France	-	-	-	-	-
German Dem. Rep.	894	1,598	460	71	42
Germany, Fed. Rep.	-	-	190	192	1,840
Norway	3	67	16	302	311
Portugal	-	672	729	318	19
Spain	222	25	38	-	25 ²
UK (England & Wales)	-	22	4	3	11
UK (Scotland)	-	-	-	+	1
USSR	18,600	5,815	528	529	1,493
Total	19,719	8,199	1,965	1,415	3,742

Country	1988	1989	1990	1991 ¹	1992 ¹
Denmark	-	-	37 ³	23	- ⁵
Faroe Islands	2	10	8	5 ³	12 ³
France	20 ³	28 ³	5 ³	13 ³	5 ³
German Dem. Rep.	115	510	4,629	-	-
Germany, Fed. Rep.	35	123	52	318 ²	427 ²
Norway	142	66 ²	1,541 ²	731 ²	376 ²
Portugal	33	89	6	7	153
Spain	26 ²	5 ²	-	1 ²	16 ²
UK (England & Wales)	36	7	63	38	245 ²
UK (Scotland)	-	2	-	13	2
USSR/Russia ⁴	1,342	3,089	11,920	6,712	2,253
Total	1,751	3,929	18,261	7,861	3,489

¹Provisional figures.

²Working Group figure.

³As reported to Norwegian authorities.

⁴In 1991.

⁵Included in Division IIa.

Table 2.4.5 REDFISH in Sub-areas I and II. Nominal catch (t) of *Sebastes marinus* and *Sebastes mentella* in Sub-area I and Divisions IIa and IIb combined.

Species	1982	1983	1984	1985	1986
<i>S. marinus</i>	16,366	19,260	28,379	29,484	30,203
<i>S. mentella</i>	115,383	105,273	72,934	63,068	23,112
Total	131,749	124,533	101,313	92,552	53,315

Species	1987	1988	1989	1990	1991 ¹	1992 ¹
<i>S. marinus</i>	24,077	25,908	23,222	28,091	17,443	16,694
<i>S. mentella</i>	10,518	15,586	23,494	35,070	45,179	16,195
Total	34,595	41,494	46,716	63,161	62,622	32,889

¹Provisional figures.

Table 2.5.1 GREENLAND HALIBUT in Sub-areas I and II. Nominal catch (t) by countries (Sub-area I, Divisions IIa and IIb combined) as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Denmark	-	-	-	-	+
Faroe Islands	-	-	-	42	-
France	67	138	239	13	13
German Dem. Rep.	1,913	2,089	3,807	2,659	1,855
Germany, Fed. Rep.	130	76	193	59	169
Norway	4,883	4,376	5,464	7,890	7,261
UK (England & Wales)	2	23	5	10	61
UK (Scotland)	-	-	-	2	20
USSR	15,152	15,181	10,237	12,200	9,733
Spain	-	-	-	-	-
Total	22,147	21,883	19,945	22,875	19,112

Country	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	11	-
Faroe Islands	186	67	163	314	63
France	67	31	49	119	56
German Dem. Rep.	712	589	909	-	-
Germany, Fed. Rep.	32	11	45	101	27
Greenland	-	-	-	-	13
Norway	9,076	11,043 ²	16,825 ²	26,400 ²	7,506 ²
Portugal	-	-	-	-	31
UK (England & Wales)	82	6	10	+	+
UK (Scotland)	2	-	-	2	-
UK (Scotland)	9,430	8,812	4,764 ²	2,490 ²	718
USSR/Russia	-	-	-	132 ²	23
Spain	-	-	-	-	-
Total	19,587	20,559	20,559	29,569	8,437

¹Provisional figures.

²Working Group figure.

Table 2.5.2 GREENLAND HALIBUT in Sub-areas I and II. Nominal catch (t) by countries in Sub-area I as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Faroe Islands	-	-	-	-	-
Germany, Fed. Rep.	-	-	-	1	2
Norway	490	593	602	557	984
UK (England & Wales)	1	17	1	5	10
UK (Scotland)	-	-	-	1	+
USSR	196	81	122	615	259
Total	687	691	725	1,179	1,255

Country	1988	1989	1990	1991	1992 ¹
Faroe Islands	9	-	7	-	-
Germany, Fed. Rep.	4	-	-	-	+
Norway	978	335 ²	304 ²	1,946 ²	2,221 ²
UK (England & Wales)	7	+	-	-	-
UK (Scotland)	-	-	-	-	-
USSR/Russia	420	482	321 ²	522 ²	467 ²
Total	1,418	817	632	2,468	2,688

¹Provisional figures.

²Working Group figures.

Table 2.5.3 GREENLAND HALIBUT in Sub areas I and II. Nominal catch (t) by countries in Division IIa as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Faroe Islands	-	-	-	6	-
France	67	138	239	13	13
German Dem. Rep.	14	189	82	55	12
Germany, Fed. Rep.	130	76	172	42	63
Norway	4,257	3,703	4,791	6,389	5,705
UK (England & Wales)	1	1	2	5	44
UK (Scotland)	-	-	-	1	10
USSR	5,031	5,459	6,894	5,553	4,739
Total	9,500	9,566	12,180	12,064	10,586

Country	1988	1989	1990	1991	1992 ¹
Faroe Islands	177	67	133	314	63
France	67	31	49	119 ¹	53 ³
German Dem. Rep.	130	94	10		
Germany, Fed. Rep.	20	10	2	21	16 ²
Greenland					13 ⁴
Norway	7,859	7,208 ²	8,025 ²	9,826 ²	3,456 ²
Portugal					15 ³
UK (England & Wales)	56	6	1	+	-
UK (Scotland)	2	-	-	1	-
USSR/Russia	4,002	4,964	1,246 ²	305 ²	58
Total	12,313	12,380	9,466	10,585	3,674

¹Provisional figures.

²Working Group figure.

³As reported to Norwegian authorities.

⁴Includes Division IIb.

Table 2.5.4 GREENLAND HALIBUT in Sub-areas I and II. Nominal catch (t) by countries in Division IIb as officially reported to ICES.

Country	1983	1984	1985	1986	1987
Denmark	-	-	-	-	+
Faroe Islands	-	-	-	36	-
German Dem. Rep.	1,899	1,900	3,725	2,604	1,843
Germany, Fed. Rep.	-	-	21	16	104
Norway	136	80	71	944	572
UK (England & Wales)	+	5	2	+	7
UK (Scotland)	-	-	-	-	10
USSR	9,925	9,641	3,221	6,032	4,735
					-
Total	11,960	11,626	7,040	9,632	7,271

Country	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	11	-
Faroe Islands	-	-	23	-	-
France					3 ²
German Dem.Rep.	582	495	899	-	-
Germany,Fed.Rep.	8	1	43	80	11 ²
Norway	239	3,500 ²	8,496 ²	14,629 ²	1,829 ²
Portugal					16 ³
UK (England & Wales)	19	-	9	+	+ ²
	+	-	-	1	-
UK (Scotland)	5,008	3,366	3,197 ²	1,663 ²	193
USSR/Russia	-	-	-	132 ²	23 ²
Spain					
Total	5,856	7,362	12,667	16,516	2,075

¹Provisional figures.

²Working Group figure.

Table 2.6.1 Nominal catch (tonnes) of COD in ICES Sub-area XIV, 1981-1992 as officially reported to ICES.

Country	1981	1982	1983	1984	1985	1986
Faroe Islands	292	-	368	-	-	86
Germany, Fed. Rep.	7,367	8,940	8,238	7,035	2,006	4,063
Greenland	890	898	438	1,051	106	606
Iceland	1	-	-	-	-	-
Norway	-	-	-	794	-	-
UK(England & Wales)	-	-	-	-	-	-
UK(Scotland)	-	-	-	-	-	-
Total	8,550	9,838	9,044	8,880	2,112	4,755
Working Group estimate	16,000	27,000	13,377	8,914	2,112	4,755

Country	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	-	12	40	-	-	-
Germany, Fed. Rep.	5,358	12,049	10,613	26,419	8,434	6100
Greenland	1,476	345	3,715	4,442	6,677	1,283
Iceland	1	9	-	-	-	-
Norway	-	-	-	17	836 ¹	1,158
UK(England & Wales)	-	-	1,158	2,365	5,832	2,496
UK(Scotland)	-	-	135	93	29	463
Total	6,835	12,415	15,661	33,336	21,808	11,500
Working Group estimate	6,658	9,415²	14,504³	33,465⁴	22,227⁵	11,500

¹Preliminary.

²Excluding 3,000 t assumed to be from NAFO Division 1F.

³Excluding 2,741 t assumed to be from NAFO Division 1F and including 1,500 t reported from other areas assumed to be from Sub-area XIV and including 94 tonnes by Japan.

⁴Includes additional catches by Japan.

⁵Includes additional catches reported to Greenland authorities.

Table 2.6.2 Nominal catch of COD in NAFO Sub-area 1, 1981-1992 as officially reported to NAFO.

Country	1981	1982	1983	1984	1985	1986
Faroe Islands	-	-	1,339	-	-	-
Germany, Fed. Rep.	417	8,139	10,158	8,941	2,170	41
Greenland	53,039	47,693	44,970	24,457	12,651	6,549
Japan	-	-	-	13	54	11
Norway	-	-	-	5	1	2
United Kingdom	-	-	1,174	-	-	-
Total	53,456	55,832	57,641	33,416	14,876	6,603

Country	1987	1988	1989	1990 ¹	1991 ²	1992 ³
Faroe Islands	-	-	-	-	-	-
Germany, Fed. Rep.	55	6,574	12,892	7,515	82	-
Greenland	12,283	52,166	92,152	59,043	20,238	5,665
Japan	33	10	-	-	-	-
Norway	1	7	2	57	-	-
United Kingdom	-	927	3,780	1,632	-	-
Total	12,372	59,684	108,826	68,247	20,320	
Working Group estimate ⁴	-	62,684	111,642	-	-	5,665

¹Provisional data (NAFO SCS 91/17 (except for Greenland)).²Reported to Greenland authorities. (NAFO SCS 92/25).³Only Greenland available.⁴Includes 3,000 t in 1988 and 2,741 t in 1989 reported to be from ICES Sub-area XIV.

Table 2.6.3 Nominal catch (tonnes) of COD in Division Va, 1978-1992, as officially reported to ICES.

Country	1978	1979	1980	1981	1982	1983	1984
Belgium	1,314	1,485	840	1,321	236	188	254
Faroe Is.	7,069	6,163	4,802	6,183	5,297	5,626	2,041
Iceland	319,648	360,077	429,044	461,038	382,297	293,890	281,481
Norway	189	288	358	559	557	109	90
UK (Engl. & Wales)	-	-	-	-	-	-	2
Total	328,220	368,013	435,044	469,101	388,387	299,813	283,868

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	207	226	597	365	309	260	548	222
Faroe Islands	2,203	2,554	1,848	1,966	2,012	1,782	1,323	883
Iceland	322,810	365,852	389,808	375,741	353,985	333,348	306,697	255,844
Norway	46	1	4	4	3	-	-	-
UK (Engl. & Wales)	1	-	-	-	-	-	-	-
Total	325,267	368,633	392,257	378,076	356,309	335,390	308,568	256,949
Working Group estimate	310,499² 265,300³							

¹Preliminary.

²Additional catch by Iceland of 1,931 t included.

³Additional catch by Iceland of 8,350 t included.

Table 2.6.4 Nominal catch (tonnes) of SAITHE in Division Va, 1978-1992 as officially reported to ICES.

Country	1978	1979	1980	1981	1982	1983	1984	1985
Belgium	1,092	980	980	532	201	224	269	158
Faroe Islands	4,250	5,457	4,930	3,545	3,582	2,138	2,044	1,778
France	-	-	-	-	23	-	-	-
Iceland	44,327	57,066	52,436	54,921	65,124	55,904	60,406	55,135
Norway	3	1	1	3	1	+	-	1
UK (Engl. & Wales)	-	-	-	-	-	-	-	29
Total	49,672	63,504	58,347	59,001	68,933	58,266	62,719	57,101

Country	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	218	217	268	369		190 236	195
Faroe Islands	783	2,139	2,596	2,246	2,905	2,690	1,570
France	-	-	-	-	-	-	-
Iceland	63,867	78,175	74,383	79,796	95,032	99,390	74,846
Norway	-	-	-	-	-	-	-
UK (Engl. & Wales)	-	-	-	-	-	-	-
Total	64,868	80,531	77,247	82,411	98,127	102,316	76,611
Total used in the assessment	66,376 ²	-	-	82,425 ³	-	102,737 ⁴	79,426 ⁵

¹Preliminary.²Additional catch by Faroe Islands of 1,508 t included.³Additional catch by Iceland of 14 t included.⁴Additional catch by Iceland of 451 t included.⁵Additional catch by Iceland of 2,815 t included.

Table 2.6.5 GREENLAND HALIBUT. Nominal catches (tonnes) in Sub-areas V and XIV, 1980-1991, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986
Denmark	-	-	-	-	-	-	-
Faroe Islands	1,042	767	1,532	1,146	2,502	1,052	853
France	51	8	27	236	489	845	52
Germany, Fed. Rep.	2,318	3,007	2,581	1,142	936	863	858
Greenland	-	+	1	5	15	81	177
Iceland	27,838	15,455	28,300	28,360	30,080	29,231	31,044
Norway	3	-	+	2	2	3	+
UK (Engl. & Wales)	-	-	-	-	-	-	-
Total	31,252	19,239	32,441	30,888	34,024	32,075	32,984
Working Group estimate	-	-	-	-	-	-	-

Country	1987	1988	1989	1990	1991	1992 ¹
Denmark	6	+	-	-	-	-
Faroe islands	1,096	1,378	2,319	1,803	1,566	2,092
France	19	25	-	-	-	-
Germany, Fed. Rep.	565	637	493	336	303	396
Greenland	154	37	11	40	66	437
Iceland	44,780	49,040	58,330	36,557	34,883	30,371
Norway	2	1	3	50	28	267
UK (Engl. & Wales)	-	-	-	27	38	127
Total	46,622	51,118	61,396	38,813	36,884	33,690
Working Group estimate	-	-	61,936	39,326	38,006	35,460

¹Preliminary data.

Table 2.6.6 GREENLAND HALIBUT. Nominal catches (tonnes) in Division Vb, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986
Denmark	-	-	-	-	-	-	-
Faroe Islands	951	442	863	1,112	2,456	1,052	775
France	51	8	27	236	489	845	52
Germany, Fed. Rep.	172	114	142	86	118	227	113
Norway	3	2	+	2	2	2	+
UK (Engl. & Wales)	-	-	-	-	-	-	-
Uk (Scotland)	-	-	-	-	-	-	-
Total	1,177	566	1,032	1,436	3,065	2,126	940
Working Group estimate	-	-	-	-	-	-	-

Country	1987	1988	1989	1990	1991	1992 ¹
Denmark	6	+	-	-	-	-
Faroe Islands	907	901	1,513	1,064	1,293	2,069
France	19	25	-	-	-	-
Germany, Fed. Rep.	109	42	73	43	24	73
Norway	2	1	3	42	16 ¹	25
UK (Engl. & Wales)	-	-	-	-	-	1
UK (Scotland)	-	-	-	-	-	1
Total	1,043	969	1,589	1,149	1,333	2,169
Working Group estimate	-	-	1,606 ²	1,282 ³	1,733 ⁴	2,235 ⁵

¹Preliminary.

²Includes 17 t taken by France.

³Includes 133 t taken in Division IIa (Faroes waters)

⁴Includes 317 t taken in Division IIa (Faroes waters) + France 12 t.

⁵Includes 63 t taken in Division IIa (Faroes waters) and France 3 t.

Table 2.6.7 GREENLAND HALIBUT. Nominal catches (tonnes) in Division Va, 1980-1992, as reported officially to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	91	325	669	33	46	-	-	15	379	719	739	273	23
Iceland	27,836	15,455	28,300	28,359	30,078	29,195	31,027	44,644	49,000	58,330	36,557	34,883	30,371
Norway	-	+	-	+	+	2	-	-	-	-	-	-	-
Total	27,927	15,780	28,969	28,392	30,124	29,196	31,027	44,659	49,379	59,049	37,296	35,156	30,394
Working Group estimate	-	-	-	-	-	-	-	-	-	59,272 ²	37,308 ³	35,413 ⁴	31,882 ⁴

¹Preliminary.

²Includes 223 t by Norway.

³Includes 12 t by Norway.

⁴Includes additional catches by Iceland. 257 t in 1991 and 1,588 t in 1992.

Table 2.6.8 GREENLAND HALIBUT. Nominal catches (tonnes) in Sub-area XIV, 1980-1992, as reported officially to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	-	-	-	-	-	-	78	74	98	87	-	-	-
Germany, Fed. Rep.	2,146	2,893	2,439	1,054	818	636	745	456	595	420	293	279	323
Greenland	-	+	1	5	15	81	177	154	37	11	40	66	437
Iceland	2	-	-	1	2	36	17	136	40	+	-	-	-
Norway	-	-	-	-	+	-	-	-	-	-	8	12 ¹	242
UK (Engl. & Wales)	-	-	-	-	-	-	-	-	-	+	27	38	107
	-	-	-	-	-	-	-	-	-	-	-	-	18
Total	2,148	2,893	2,440	1,060	835	753	1,017	820	770	518	368	395	1,127
Working Group estimate	-	-	-	-	-	-	-	-	-	-	736 ²	860 ³	1,243 ⁴

¹Preliminary.

²Includes 370 t catches by Japan.

³Includes 315 t catch by Japan and 159 t by other countries as reported to Greenland.

⁴Indicates additional catches taken by Germany (96 t) and UK (17 t) as reported to Greenland.

Table 2.7.1 Nominal catch of REDFISH (in tonnes) by countries in Division Va (Iceland) as reported officially to ICES.

Country	1978	1979	1980	1981	1982	1983	1984
Belgium	1,549	1,385	1,381	924	283	389	291
Faroe Islands	242	629	1,055	1,212	1,046	1,357	686
Iceland	33,318	62,253	69,780	93,349	115,051	122,749	108,270
Norway	93	43	33	32	11	32	12
Total	35,202	64,310	72,249	95,517	116,391	124,527	109,259

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	400	423	398	372	190	70	146	107
Faroe Islands	291	144	332	372	394	624	412	389
Iceland	91,381	85,992	87,768	93,995	91,536	90,891	96,770	87,897
Norway	8	2	7	7	1	-	-	-
Total	92,080	86,561	88,505	94,746	92,121	91,585	97,328	88,393

¹Provisional data.

Table 2.7.2 Landings of REDFISH in Va (in tonnes) by countries in Division Va as used by the working group.

Year	Belgium	Faroese	Iceland	Norway	Total
1978	1,549	242	33,318	93	35,202
1979	1,385	629	62,253	43	64,310
1980	1,381	1,055	69,780	33	72,249
1981	924	1,212	93,349	32	95,517
1982	283	1,046	115,051	11	116,391
1983	389	1,357	122,749	32	124,527
1984	291	686	108,270	12	109,259
1985	400	291	91,381	8	92,080
1986	423	253	85,992	2	86,670
1987	398	332	87,768	7	88,505
1988	372	372	94,011	7	94,762
1989	190	394	91,488	1	92,073
1990	70	624	90,891	0	91,585
1991	146	412	96,193	0	96,751
1992	107	389	93,378	0	93,874

Table 2.7.3 Nominal catch of REDFISH (in tonnes) by countries in Division Vb (Faroe Islands) as reported officially to ICES.

Country	1978	1979	1980	1981	1982	1983	1984
Denmark	-	-	-	-	-	-	-
Faroe Islands	1,525	5,693	5,509	3,232	3,999	4,642	8,770
France	448	862	627	59	204	439	559
Germany, Fed. Rep.	7,767	6,108	3,891	3,841	4,660	4,300	4,460
Iceland	-	-	-	-	1	-	-
Netherlands	+	-	-	-	-	-	-
Norway	9	11	12	13	7	3	1
UK	57	+	-	-	-	-	-
USSR	-	-	-	-	-	-	142
Total	9,806	12,674	10,039	7,145	8,871	9,384	13,932

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Denmark	-	36	176	8	-	+	-	-
Faroe Islands	12,634	15,224	13,477	12,966	12,636	10,014	14,090	13,985
France	1,157	752	819	582	-	-	473 ¹	-
Germany, Fed. Rep. ²	5,091	5,142	3,060	1,595	1,191	441	447	451
Iceland	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-
Norway	4	2	5	5	21	21	20 ¹	35
UK	-	-	-	-	-	+	3	29
USSR	-	-	-	-	-	-	-	-
Total	18,886	21,156	17,537	15,156	13,848	10,476	15,033	14,500

¹Provisional data.

²Includes former GDR.

Table 2.7.4 Landings of Redfish (in tonnes) by countries in Division Vb as used by the Working Group.

Year	Denmark	Faroes	France	Germany	Iceland	Lithuania	Norway	UK	Russia	USSR	Total
1978	0	1,525	448	7,767	0	0	9	57	0	0	9,806
1979	0	5,693	862	6,108	0	0	11	0	0	0	12,674
1980	0	5,509	627	3,891	0	0	12	0	0	0	10,039
1981	0	3,232	59	3,841	0	0	13	0	0	0	7,145
1982	0	3,999	204	5,230	1	0	7	0	0	0	9,441
1983	0	4,642	439	4,300	0	0	3	0	0	0	9,384
1984	0	8,770	559	4,460	0	0	1	0	0	142	13,932
1985	0	12,634	1,157	5,091	0	0	4	0	0	868	19,754
1986	36	15,224	752	5,142	0	0	2	0	0	320	21,476
1987	176	13,478	819	3,060	0	0	5	0	0	0	17,538
1988	8	13,318	582	1,595	0	0	5	0	0	0	15,508
1989	0	12,860	928	1,191	0	0	21	0	0	0	15,000
1990	0	10,364	1,410	441	0	0	21	0	0	2	12,238
1991	0	14,055	585	447	0	0	20	3	0	4	15,114
1992	0	14,213	173	451	0	4	35	39	47	0	14,962

Table 2.7.5 Nominal catch of REDFISH (in tonnes) by countries in Sub-area VI as reported officially to ICES.

Country	1978	1979	1980	1981	1982	1983	1984
Faroe Islands	-	1	-	-	-	-	19
France	307	215	202	24	44	93	102
Germany, Fed. Rep.	18	604	907	983	604	359	563
Norway	4	4	2	3	4	2	9
Spain	-	-	-	1	-	2	-
UK (Engl. & Wales)	1	-	-	-	2	-	1
UK (Scotland)	1	1	-	-	-	-	1
Total	331	825	1,111	1,011	654	456	695

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	18	-	-	1	61	-	22	9
France	397	480	1,032	1,024	726	684 ¹	483 ¹	-
Germany, Fed. Rep.	76	24	-	16	1	6	5	8
Norway	-	14	2	1	2	-	+ ¹	4
Spain	-	-	-	-	-	29	-	-
UK (Engl. & Wales)	1	2	3	75	4	6	11	4
UK (Scotland)	-	10	17	6	4	-	39	31
Total	492	530	1,054	1,123	798	730	563	48

¹Preliminary.

Table 2.7.6 Landings of REDFISH (in tonnes) by countries in Sub-area VI as used by the Working Group.

Year	Faroes	France	Germany, F.R.	Norway	Spain	UK	Total
1978	0	307	18	4	0	2	331
1979	1	215	604	4	0	1	825
1980	0	202	907	2	0	0	1,111
1981	0	24	983	3	1	0	1,011
1982	0	44	604	4	0	2	654
1983	0	93	359	2	2	0	456
1984	19	102	563	9	0	2	695
1985	18	397	76	0	0	1	492
1986	0	480	24	14	0	12	530
1987	0	1,032	0	2	0	20	1,054
1988	1	1,024	16	1	0	81	1,123
1989	61	726	1	2	0	8	798
1990	0	684	6	5	0	35	730
1991	22	664	8	+	0	50	745
1992	9	211	0	4	0	35	259

Table 2.7.7 Nominal catch of REDFISH (in tonnes) by country in Sub-area XII as reported officially to ICES.

Country	1982	1983	1984	1985	1986	1987
Bulgaria	-	-	-	-	-	-
Estonia	-	-	-	-	-	-
German Dem. Rep.	-	-	-	-	-	-
Germany, Fed. Rep.	5,696	2,209	-	-	-	-
Greenland	-	-	-	-	-	-
Iceland	-	-	-	-	-	-
Norway	-	-	-	-	-	-
Poland	-	-	-	-	-	-
USSR	39,783	60,079	60,643	17,300	24,131	2,948
Total	45,479	62,288	60,643	17,300	24,131	2,948

Country	1988	1989	1990	1991	1992 ¹
Bulgaria	-	-	1,617	-	-
Estonia	-	-	-	-	1,452
German Dem. Rep.	-	352	-	62	-
Germany, Fed. Rep.	-	1	7	-	-
Greenland	-	-	-	-	9
Iceland	-	567	185	95	-
Norway	-	-	249	4,122	7,427
Poland	-	112	-	-	-
USSR	9,772	15,543	4,274	6,624	-
Total	9,772	16,575	6,332	10,903	8,888

¹Provisional.

Table 2.7.8 Landings of REDFISH (in tonnes) by countries in Sub-area XII as used by the Working Group.

Year	Bulgaria	Estonia	Iceland	France	Norway	Greenland	GDR	FRG	Poland	Russia	USSR	Total
1978												0
1979												0
1980												0
1981												0
1982											39,783	39,783
1983											60,079	60,079
1984											60,643	60,643
1985											17,300	17,300
1986											24,131	24,131
1987											2,948	2,948
1988											9,772	9,772
1989			658 ¹				352	1	112		15,543	16,666
1990	1,617		215 ¹		926 ²		0	7	0		4,274	7,039
1991	-		110 ¹		473 ²		0	0	0		6,624	7,207
1992	-	1,452	46	2	196	9		0	0	8,555		10,260

¹Raised by 16% to account for discarding.

²Raised by 5% to account for discarding.

Table 2.7.9 Nominal catch of REDFISH (in tonnes) by countries in Sub-area XIV (East Greenland) as reported officially to ICES.

Country	1982	1983	1984	1985	1986	1987
Bulgaria	-	-	2,961	5,825	11,385	12,270
Denmark	11	-	-	-	-	-
Faroe Islands	-	27	-	-	5	382
German Dem. Rep.	-	155	989	5,438	8,574	7,023
Germany, Fed. Rep.	37,119	28,878	14,141	5,974	5,584	4,691
Greenland	+	1	10	5,519 ²	9,542 ²	670
Iceland	17	-	-	+	-	-
Norway	-	-	17	-	-	-
Poland	581	-	239	135	149	25
UK (Engl. & Wales)	-	-	-	-	-	-
UK (Scotland)	-	-	-	-	-	-
USSR	20,217	-	-	42,973	60,863	68,521
Total	57,945	29,061	18,357	65,864	96,102	93,582

Country	1988	1989	1990	1991	1992 ¹
Bulgaria	8,455	4,546	1,073	-	-
Denmark	-	-	-	-	-
Faroe Islands	1,634	226	-	115	-
German Dem. Rep.	16,848	6,444	7,950	-	-
Germany, Fed. Rep.	5,734	2,372	3,268	9,122	8,400
Greenland	42	3	24	42	962
Iceland	-	814	3,726	7,477	13,845
Norway	-	-	6,070	1 ¹	2,839
Poland	-	-	-	-	-
UK (Engl. & Wales)	-	5	39	219	177
UK (Scotland)	-	-	3	+	28
USSR	55,254	7,177	3,040	2,665	-
Total	87,967	21,587	25,193	19,641	26,251

¹Provisional.

²Fished mainly by the Japanese fleet.

Table 2.7.10 Landings of REDFISH (in tonnes) by country in Sub-area XIV, as used by the Working Group.

Year	Bulgaria	Greenland	Faroes	France	GDR	FRG	Iceland	Japan	Norway	Poland	Russia	UK	USSR	Total
1978	0	3	0	0	0	20,711	151	0	2	0	0	13	0	20,880
1979	0	0	0	490	0	20,428	0	0	0	0	0	0	0	20,918
1980	0	0	0	0	0	32,520	89	0	0	0	0	0	0	32,609
1981	0	1	18	0	0	42,980	0	0	0	0	0	0	0	42,999
1982	0	0	0	0	0	42,815	17	0	0	581	0	0	20,217	63,630
1983	0	1	27	0	155	30,815	0	0	0	0	0	0	0	30,998
1984	2,961	10	0	0	989	14,141	0	0	15	239	0	0	0	18,355
1985	5,825	5,519	0	0	5,438	5,974	0	0	0	135	0	0	42,973	65,864
1986	11,385	9,542	5	0	8,574	5,584	0	0	0	149	0	0	60,683	96,102
1987	12,270	2,912	382	0	7,023	4,691	0	0	0	25	0	0	68,521	95,824
1988	8,455	3,751	1,634	0	16,848	5,734	0	0	0	0	0	0	55,254	91,676
1989	4,546	285	226	0	6,444	2,372	3158 ¹	307	0	0	0	5	7,177	24,520
1990	1,073	24	0	0	7,950	3,268	4,322 ¹	3,450	6,159 ²	0	0	42	4,973	31,261
1991	-	42	115	0	0	9,122	8,781 ¹	1,224	3,856 ²	0	0	219	2,665	26,024
1992	-	3,769	0	0	0	8,400	15,137 ¹	-	15,380 ²	0	4,278	231	-	48,762

¹Raised by 16% to account for discarding.

²Raised by 5% for discarding.

Table 2.7.11 *S. marinus* landings by area as used by the Working Group.

Year	Va	Vb	VI	XII	XIV	Total
1978	31,300	2,039	313	0	15,477	49,129
1979	56,616	4,805	6	0	15,787	77,213
1980	62,052	4,920	2	0	22,203	89,177
1981	75,828	2,538	3	0	23,608	101,977
1982	97,899	1,810	28	0	30,692	130,429
1983	87,412	3,394	60	0	15,636	106,502
1984	84,766	6,228	86	0	5,040	96,120
1985	67,312	9,194	245	0	2,117	78,868
1986	67,772	6,300	288	0	2,988	77,348
1987	69,212	6,143	576	0	1,196	77,127
1988	80,472	5,020	533	0	3,964	89,989
1989	59,961	4,140	530	0	685	65,316
1990	67,953	2,428	540	0	727	71,648
1991 ¹	565	2,132	548	0	3,910	7,155

¹Excluding landings from Iceland for Sub-area V.

Table 2.7.12 *S. mentella* landings by area as used by the Working Group.

Year	Va	Vb	VI	XII	XIV	Total
1978	3,902	7,767	18	0	5,403	17,090
1979	7,694	7,869	819	0	5,131	21,513
1980	10,197	5,119	1,109	0	10,406	26,831
1981	19,689	4,607	1,008	0	19,391	44,695
1982	18,492	7,631	626	0	12,140	38,889
1983	37,115	5,990	395	0	15,207	58,707
1984	24,493	7,704	609	0	9,126	41,932
1985	24,768	10,560	248	0	9,376	44,952
1986	18,898	15,176	242	0	12,138	46,454
1987	19,293	11,395	478	0	6,407	37,573
1988	14,290	10,488	590	0	6,065	31,433
1989	32,112	10,860	542	0	2,284	46,798
1990	23,631	9,810	506	0	6,090	40,037
1991 ¹	0	13,059	506	0	6,526	20,091

¹Excluding landings from Iceland for Sub-area V.

Table 2.7.13 *S. mentella*, oceanic type. Landings (in tonnes) by area as used by the Working Group.

Year	Va	Vb	VI	XII	XIV	Total
1978	0	0	0	0	0	0
1979	0	0	0	0	0	0
1980	0	0	0	0	0	0
1981	0	0	0	0	0	0
1982	0	0	0	39,783	20,798	60,581
1983	0	0	0	60,079	155	60,234
1984	0	0	0	60,643	4,189	64,832
1985	0	0	0	17,300	54,371	71,671
1986	0	0	0	24,131	80,976	105,107
1987	0	0	0	2,948	88,221	91,169
1988	0	0	0	9,772	81,647	91,419
1989	0	0	0	16,892	21,325	38,217
1990	0	0	0	7,039	24,477	31,516
1991	0	0	0	7,207	15,597	22,804
1992	877	0	0	10,258	45,412	56,547

Table 2.7.14 *S. mentella*, oceanic type. Landings (in tonnes) by countries as used by the Working Group.

Year	Bulgaria	Estonia	German Dem.Rep.	Germany, Fed.Rep.	Green- land	Faroes	Iceland	Norway	Poland	Russia	USSR	Total
1980	0	0	0	0	0	0	0	0	0	0	-	-
1981	0	0	0	0	0	0	0	0	0	0	-	-
1982	0	0	0	0	0	0	0	0	581	0	60,000	60,581
1983	0	0	155	0	0	0	0	0	0	0	60,079	60,234
1984	2,961	0	989	0	0	0	0	0	239	0	60,643	64,832
1985	5,825	0	5,438	0	0	0	0	0	135	0	60,273	71,671
1986	11,385	0	8,574	0	0	5	0	0	149	0	84,994	105,107
1987	12,270	0	7,023	0	0	382	0	0	25	0	71,469	91,169
1988	8,455	0	16,848	0	0	1,090	0	0	0	0	65,026	91,419
1989	4,546	0	6,796	1	0	226	3,816	0	112	0	22,720	38,217
1990	2,690	0	7,950	7	0	0	4,537	7,085	0	0	9,247	31,516
1991	-	0		180	0	115	8,891	4,328	0	0	9,289	22,803
1992 ¹	-	1,452		6,251	606	3,769	16,060	15,576	0	12,833		56,547

¹Provisional.

Table 2.8.1 Nominal catch (t) of SAITHE in Division Vb, 1979-1992 as officially reported to ICES.

Country	1979	1980	1981	1982	1983	1984	1985
Denmark	-	-	-	-	-	-	-
Faroe Islands	22003	23810	29682	30808	38963	54344	42874
France	2974	1110	258	130	180	243	839
German Dem.Rep.	-	-	-	-	-	-	31
Germany Fed.Rep	581	197	20	19	28	73	227
Netherlands	-	-	-	-	-	-	-
Norway	1137	62	134	15	5	5	-
UK (Eng. & W.)	190	13	-	-	-	-	4
UK (Scotland)	361	38	9	1	-	-	630
USSR	-	-	-	-	-	-	-
Total	27246	25230	30103	30973	39176	54665	44605

Country	1986	1987	1988	1989	1990	1991	1992 ¹
Denmark	21	255	94	-	2	-	-
Faroe Islands	40139	39301	44402	43624	59821	53321	35980
France	87	153	313	-	-	-	-
German Dem.Rep.	-	-	-	9	-	-	-
Germany Fed.Rep	105	49	74	20	15	32	3
Netherlands	-	-	-	22	-	65 ¹	-
Norway	24	14	52	51	46	101 ¹	34
UK (Eng. & W.)	-	108	-	-	-	5	74
UK (Scotland)	1340	140	92	9	33	79	98
USSR/Russia ²	-	-	-	-	30	-	-
Total	41716	40020	45027	43735	59947	53603	36189

¹ Provisional data.

² As of 1991.

Table 2.8.2

Faroe Plateau COD (Subdivision Vb1). Nominal catches (t) 1983-1992, as officially reported to ICES.										
Nation/Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	37,916	36,914	39,422	34,492	21,303	22,272	20,535	12,232	8,203	6,460
France ²⁾	13	34	29	4	17	17				
Germany	128	9	5	8	12	5	7	24	16	2
Norway	76	22	28	83	21	163	285	124 ³⁾	80 ¹⁾	41
UK England					8				1	75
UK Scotland ³⁾										
Denmark				8	30	10				
Total	38,133	36,979	39,484	34,595	21,391	22,467	20,827	12,380	8,300	6,578

1) Preliminary

2) Sub-division Vb2 included

3) Included in Sub-division Vb2

Table 2.8.3

Faroe Bank COD in Subdivision Vb2. Nominal catches (t) by countries 1983-1992, as officially reported to ICES.										
Nation/Year	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Faroe Islands	2,284	2,189	2,913	1,836	3,409	2,960	1,270	289	297	129
France 2)										
Norway	17	11	23	6	23	94	128	72 ¹⁾	38 ¹⁾	32
UK (Engl. & Wales)										5
UK Scotland ³⁾	66	16	25	63	47	37	14	207	90	176
Total	2,367	2,216	2,961	1,905	3,479	3,091	1,412	568	425	342

1) Preliminary

2) Catches included in Sub-division Vb1

3) Sub-division Vb1 included

Table 2.8.4 Faroe Plateau (Sub-Division Vb1) HADDOCK. Nominal catches (tonnes) by countries, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986
Denmark	-	-	-	-	-	-	1
Faroe Islands	13,633	10,891	10,319	11,898	11,418	13,597	13,359
France ¹	31	113	2	2	20	23	8
Germany	4	+	1	+	+	+	1
Norway	9	20	12	12	10	21	22
UK (Engl. & Wales)	6	-	-	-	-	-	-
UK (Scotland)	434	85	1	³	³	³	³
Others	6	-	-	-	-	-	-
Total	14,123	11,109	10,335	11,912	11,448	13,641	13,391
Total used in the assessment^{4,5}	15,016	12,233	11,937	12,894	12,378	15,143	14,477

Country	1987	1988	1989	1990	1991	1992 ²
Denmark	8	4	-	-	-	-
Faroe Islands	13,954	10,867	13,506	11,106	8,074	4,629
France ¹	22	14	-	-	-	-
Germany	1	-	-	-	+	-
Norway	13	54	111	94 ²	125 ²	71
UK (Engl. & Wales)	2	-	-	7	-	54
UK (Scotland)	³	³	³	³	³	³
Total	14,000	10,939	13,617	11,207	8,199	4,754
Total used in the assessment^{4,5}	14,882	12,178	14,325	12,448	8,715	6,005

¹Including catches from Sub-division Vb2.

²Preliminary.

³Catches included in Sub-division Vb2.

⁴Includes catches from Sub-division Vb2 and Division IIa in Faroese waters.

⁵Includes French catches from Division Vb.

Table 2.8.5 Faroe Bank (Sub-Division Vb2) HADDOCK. Nominal catches (tonnes) by countries, 1980-1992 as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986
Faroe Islands	690	1,103	1,553	967	925	1,474	1,050
France ¹	-	-	-	-	-	-	-
Germany	-	-	-	-	-	-	-
Norway	8	7	1	2	5	3	10
UK (Engl. & Wales)	152	-	-	-	-	-	-
UK (Scotland)	43	14	48	13 ³	+ ³	25 ³	26 ³
Total	893	1,124	1,602	982	930	1,502	1,086

Country	1987	1988	1989	1990	1991	1992 ²
Faroe Islands	832	1,160	659	325	217	325
France ¹	-	-	-	-	-	-
Germany	-	-	-	-	-	-
Norway	5	43	16	97 ²	4 ¹	23
UK (Engl. & Wales)	-	-	-	-	-	17
UK (Scotland)	45 ³	15 ³	30 ³	725 ³	287	869
Total	882	1,218	705	1,147	508	1,234

¹Catches included in Sub-division Vb1.

²Preliminary.

³Includes catches taken in Sub-division Vb1.

Table 2.9.1 Icelandic summer-spawning herring. Catch in weight (including discards since 1989) as used by the Working Group.

Year	Catch (tonnes)
1972	310
1973	255
1974	1,274
1975	13,280
1976	17,168
1977	28,924
1978	37,333
1979	45,072
1980	53,269
1981	39,544
1982	56,528
1983	58,665
1984	50,293
1985	49,092
1986	65,413
1987	75,439
1988	91,760
1989	100,733
1990/1991	105,593 ¹
1991/1992	109,499 ¹
1992/1993	106,825 ¹

¹Seasonal catches.

Table 2.9.2 Catches of Norwegian spring-spawning herring (tonnes) since 1972.

Year	A	B ¹	C	D	Nominal catches	Total catch as used by the Working Group
1972	-	9,895	3,266 ²	-	13,161	13,161
1973	139	6,602	276	-	7,017	7,017
1974	906	6,093	620	-	7,619	7,619
1975	53	3,372	288	-	3,713	13,713
1976	-	247	189	-	436	10,436
1977	374	11,834	498	-	12,706	22,706
1978	484	9,151	189	-	9,824	19,824
1979	691	1,866	307	-	2,864	12,864
1980	878	7,634	65	-	8,557	18,577
1981	844	7,814	78	-	8,736	13,736
1982	983	10,447	225	-	11,655	16,655
1983	3,857	13,290	907	-	18,054	23,054
1984	18,730	29,463	339	-	48,532	53,532
1985	29,363	37,187	197	4,300	71,047	169,872 ³
1986	71,122 ⁴	55,507	156	-	126,785	225,256 ³
1987	62,910	49,798	181	-	112,899	127,306 ³
1988	78,592	46,582	127	-	125,301	135,301
1989	52,003	41,770	57	-	93,830	103,830
1990	48,633	29,770	8	-	78,411	86,411
1991	48,353	31,280	50	-	79,683	84,683
1992	43,688	55,737	23	-	99,448	104,448
1993	120,959 ⁵	19,023 ⁵				

A = catches of adult herring in winter

B = mixed herring fishery in autumn

C = by-catches of 0- and 1-group herring in the sprat fishery

D = USSR-Norway by-catch in the capelin fishery (2-group)

¹ Includes also by-catches of adult herring in other fisheries² In 1972, there was also a directed herring 0-group fishery³ Includes mortality caused by fishing operations in addition to unreported catches⁴ Includes 26,000 t of immature herring (1983 year-class) fished by USSR in the Barents Sea⁵ Preliminary Norwegian catch per 19 September 1993

Table 2.9.3 Total catch of Norwegian spring-spawning herring (tonnes) since 1972.

Year	Norway	USSR	Total
1972	13,161	-	13,161
1973	7,017	-	7,017
1974	7,619	-	7,619
1975	13,713	-	13,713
1976	10,436	-	10,436
1977	22,706	-	22,706
1978	19,824	-	19,824
1979	12,864	-	12,864
1980	18,577	-	18,577
1981	13,736	-	13,736
1982	16,655	-	16,655
1983	23,054	-	23,054
1984	53,532	-	53,532
1985	167,272	2,600	169,872
1986	199,256	26,000	225,256
1987	108,417	18,889	127,306
1988	115,076	20,225	135,301
1989	88,707	15,123	103,830
1990	74,604	11,807	86,411
1991	73,683	11,000	84,683
1992	91,111	13,337	104,448
1993	107,337 ¹	32,645	

¹Preliminary.

Table 2.10.1 International catch of Barents Sea CAPELIN ('000 t) in the years 1965 to 1993 as used by the Working Group.

Year	Winter				Summer-autumn			Total
	Norway	Russia	Other	Total	Norway	Russia	Total	
1965	217	7	0	224	0	0	0	224
1966	380	9	0	389	0	+	+	389
1967	403	6	0	408	0	+	+	408
1968	460	15	0	476	62	+	62	538
1969	436	1	0	436	243	+	243	680
1970	955	8	0	963	346	5	351	1314
1971	1300	14	0	1314	71	7	78	1392
1972	1208	25	0	1234	347	12	359	1593
1973	1078	34	0	1112	213	11	223	1336
1974	749	80	0	829	237	82	319	1148
1975	549	301	43	893	394	131	524	1417
1976	1230	230	0	1460	719	366	1085	2545
1977	1412	345	2	1758	704	477	1181	2940
1978	772	436	25	1233	350	311	661	1894
1979	539	342	5	886	569	327	896	1782
1980	539	253	9	801	459	388	847	1648
1981	784	429	28	1240	454	284	738	1978
1982	568	260	5	833	591	336	927	1760
1983	735	373	36	1145	758	439	1197	2342
1984	330	257	42	629	482	368	849	1478
1985	340	234	17	590	113	164	278	868
1986	72	51	0	123	0	0	0	123
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	505	156	20	681	31	194	226	906
1992	620	247	24	887	73	159	232	1119
1993 ¹	402	170	14	586	0	0	0	586

¹Preliminary.

Table 2.10.2 Catches of CAPELIN in the Iceland-East Greenland-Jan Mayen area, 1964-1993
(thousand tonnes).

Year	Winter season			Summer & autumn season			Others	Total
	Iceland	Norway	Faroese	Iceland	Norway	Faroese		
1964	8.6	-	-	-	-	-	-	8.6
1965	49.7	-	-	-	-	-	-	49.7
1966	124.5	-	-	-	-	-	-	124.5
1967	97.2	-	-	-	-	-	-	97.2
1968	78.1	-	-	-	-	-	-	78.1
1969	170.6	-	-	-	-	-	-	170.6
1970	190.8	-	-	-	-	-	-	190.8
1971	182.9	-	-	-	-	-	-	182.9
1972	276.5	-	-	-	-	-	-	276.5
1973	440.9	-	-	-	-	-	-	440.9
1974	461.9	-	-	-	-	-	-	461.9
1975	457.1	-	-	3.1	-	-	-	460.2
1976	338.7	-	-	114.4	-	-	-	453.1
1977	549.2	-	24.3	259.7	-	-	-	833.2
1978	468.4	-	36.2	497.5	154.1	3.4	-	1,159.60
1979	521.7	-	18.2	442	124	22	-	1,127.90
1980	392.1	-	-	367.4	118.7	24.2	17.3	919.6
1981	156	-	-	484.6	91.4	16.2	20.8	769
1982	13.2	-	-	-	-	-	-	13.2
1983	-	-	-	133.4	-	-	-	133.4
1984	439.6	-	-	425.2	104.6	10.2	8.5	988.1
1985	348.5	-	-	644.8	193	65.9	16	1,268.20
1986	341.8	50	-	552.5	149.7	65.4	5.3	1,164.70
1987	500.6	59.9	-	311.3	82.1	65.2	-	1,019.10
1988	600.6	56.6	-	311.4	11.5	48.5	-	1,028.60
1989	609.1	56	-	53.9	14.4	52.7	-	786.1
1990	612	62.5	12.3	83.7	21.9	5.6	-	798
1991	258.4	-	-	56	-	-	-	314.4
1992	573.5	47.6	-	213.4	65.3	18.9	-	918.7
1993	489.1	-	-	376.7 ¹	127.5 ¹	23.8 ¹	9.3 ²	

¹Preliminary July-September.

²Greenlandic vessel July-September.

Table 3.1.1 North Sea HERRING (Sub-area IV and Division VIId). Catch in tonnes by country, 1981-1992. These figures do not in all cases correspond to the official statistics and cannot be used for management purposes.

Country	1981	1982	1983	1984	1985	1986
Belgium	-	9,700	5,969	5,080	3,482	414
Denmark	21,146	67,851	10,467	38,777	129,305	121,631
Faroe Islands	-	-	-	-	-	623
France	15,099	15,310	16,353	20,320	14,400	9,729
Germany, Fed.Rep.	2,300	349	1,837	11,609	8,930	3,934
Netherlands	7,700	22,300	40,045	44,308	79,335	85,998
Norway ⁴	-	-	32,512	98,706	159,947	223,058
Sweden	-	-	284	886	2,442	1,872
UK (England)	303	3,703	111	1,689	5,564	1,404
UK (Scotland)	45	1,780	17,260	31,393	55,795	77,459
UK (N.Ireland)	-	-	-	-	-	-
Unallocated landings	94,309	114,252	181,116	64,487	74,220	21,089
Total landings	140,902	235,245	305,954	317,255	533,420	547,211
Discards ³	-	-	-	-	-	-
Total catch	140,902	235,245	305,954	317,255	533,420	547,211
Catches of spring spawners (included above)						
IIIa type	-	-	-	6,958	17,386	19,654
Coastal type	-	-	-	520	905	490

Country	1987	1988	1989	1990	1991	1992 ¹
Belgium	39	4	434	180	163	242
Denmark	138,596	263,006	210,315 ²	159,280 ²	194,358 ²	193,968 ²
Faroe Islands	2,228	810	1,916	633	334	-
France	7,266	8,384	29,085	23,480	24,625	16,587
Germany, Fed.Rep.	5,552	13,824	38,707	43,191	41,791	42,665
Netherlands	91,478	82,267	84,178	69,828	75,135	75,683
Norway ⁴	241,765	222,719	221,891 ²	157,850 ²	124,991 ²	116,863
Sweden	1,725	1,819	4,774	3,754	5,866	4,939
UK (England)	873	8,097	7,980	8,333	11,548	11,314
UK (Scotland)	76,413	64,108	68,106	56,812	57,572	56,171
UK (N.Ireland)	-	-	-	-	92	-
Unallocated landings	58,972	33,411	26,749 ²	21,081	24,435	25,867
Total landings	624,907	698,449	694,135 ²	544,422	560,910	544,299
Discards ³	-	-	4,000	8,660	4,617	4,950
Total catch	624,907	698,449	698,135	553,082	565,527	549,249
Catches of spring spawners (included above)						
IIIa type	14,207	23,306	19,869	8,357	7,894	7,854
Coastal type	250	250	2,283	1,136	252 ⁵	202 ⁵

¹Preliminary.

²Working Group estimates.

³Any discards prior to 1989 estimates were included in unallocated landings.

⁴Catches of Norwegian spring spawners removed (taken under a separate TAC).

⁵Landings from the Thames estuary area.

Table 3.1.2 HERRING, catch in tonnes in Division IVa West. These figures do not in all cases correspond to the official statistics and cannot be used for management purposes.

Country	1983	1984	1985	1986	1987
Denmark	4,282	26,786	77,788	48,590	50,184
Faroe Islands	-	-	-	275	102
France	680	1,408	2,075	462	285
Germany, Fed.Rep.	1,542	12,092	4,790	2,510	3,250
Netherlands	15,745	19,143	49,965	42,900	44,358
Norway	16,971	21,305	10,507	63,848	55,311
Sweden	213	¹	¹	¹	768
UK (N.Ireland)	-	-	-	-	-
UK (England)	-	-	-	-	4,820
UK (Scotland)	16,136	24,634	52,100	71,285	66,774
Unallocated landings	3,955	24,030	4,249	-	16,092
Total Landings	61,738	129,398	197,225	229,870	221,032
Discards ²	-	-	-	-	-
Total catch	61,738	129,298	201,474	229,870	237,124

Country	1988	1989	1990	1991	1992 ³
Denmark	25,268	29,298	9,037	5,980	10,751
Faroe Islands	810	1,916	633	334	-
France	266	¹	2,581	3,393	4,714 ⁴
Germany, Fed.Rep.	9,308	26,528	20,422	20,608	21,836
Netherlands	32,639	24,600	29,729	29,563	29,845
Norway	30,657	41,768	24,239	37,674	39,244
Sweden	1,197	742	-	1,130	985
UK (N.Ireland)	-	-	-	92	-
UK (England)	4,820	5,104	3,337	4,873	4,916
UK (Scotland)	48,791	58,455	46,431	42,745	39,269
Unallocated landings	-	3,173	4,621	5,492	4,855
Total Landings	153,751	191,584	141,030	151,884	156,415
Discards ²	-	900	750	883	850
Total catch	153,751	192,484	141,780	152,767	157,265

¹Included in Division IVb.

²Any discards prior to 1989 were included in unallocated.

³Preliminary.

⁴Including IVa East.

Table 3.1.3 HERRING, catch in tonnes in Division IVa East. These figures do not in all cases correspond to the official statistics and cannot be used for management purposes.

Country	1983	1984	1985	1986	1987
Denmark	-	126	-	4,540	7,101
Faroe Islands	-	-	-	-	2,126
France	-	-	-	-	159
Netherlands	-	-	-	-	-
Norway ¹	-	51,581	109,975	118,408	145,843
Sweden	-	-	-	-	957
UK (Scotland)	257	74	-	-	-
Germany, Fed.Rep.	-	-	-	-	-
Unallocated landings	431	-	-	-	-
Total landings	688	51,781	109,975	122,348	156,186
Discards ²	-	-	-	-	-
Total catch	688	51,781	109,975	122,948	156,186

Country	1988	1989	1990	1991	1992 ³
Denmark	47,183	44,269	44,364	48,875	53,692
Faroe Islands	-	-	-	-	-
France	45	-	892	-	- ⁴
Netherlands	200	-	-	-	-
Norway ¹	153,496	168,365	121,405	77,465	61,379
Sweden	622	612	2,482	114	508
UK (Scotland)	-	-	-	173	196
Germany, Fed.Rep.	-	-	5,604	- ⁴	- ⁴
Unallocated landings	-	-	-	-	-
Total landings	201,546	213,246	174,747	126,627	115,775
Discards ²	-	-	-	-	-
Total catch	201,546	213,246	174,747	126,627	115,775

¹Catches of Norwegian spring spawners herring removed (taken under a separate TAC).

²Any discards prior to 1989 would have been included in unallocated.

³Preliminary.

⁴Included in IVa West.

Table 3.1.4 HERRING, catch in tonnes in Division IVb. These figures do not in all cases correspond to the official statistics and cannot be used for management purposes.

Country	1983	1984	1985	1986	1987
Denmark	6,050	13,808	51,517	67,966	81,280
France	705	2,299	1,037	605	387
Faroe Islands	-	-	-	348	-
Germany, Fed.Rep.	-	2	4,139	1,424	2,302
Netherlands ⁴	300	4,600	- ³	21,101	31,371
Norway	14,156	25,820	39,465	40,682	40,111
Sweden	71	884	2,442 ²	1,872 ²	-
UK (England)	40	1,956	5,214	1,101 ¹	329
UK (Scotland)	867	2,477	2,894	6,057	9,639
Unallocated landings	159,124	41,294	47,799	1,594	20,829
Total landings	181,313	93,140	154,507	142,750	186,248
Discards ⁴	-	-	-	-	-
Total catch	181,313	93,140	154,507	142,750	186,248

Country	1988	1989	1990	1991	1992 ⁶
Denmark	190,555	136,239	105,614	138,555	125,229
Belgium	-	-	-	3	13
France	617	14,415 ⁵	10,289	4,120	2,313
Faroe Islands	-	-	-	-	-
Germany, Fed.Rep.	4,516	11,880	17,165	20,479	20,005
Netherlands ⁴	37,192	47,388	28,402	26,266	26,987
Norway	38,566	11,758	12,207	9,852	16,240
Sweden	-	3,420	1,276	4,622	3,446
UK (England)	2,011	957	3,200	2,715	3,026
UK (Scotland)	15,317	9,651	10,381	14,587	16,707
Unallocated landings	1,969	-23,947 ⁷	-15,616 ⁷	3,180	-13,637 ⁷
Total landings	290,743	211,711	172,914	224,376	200,329
Discards ⁴	-	1,900	2,560	1,072	1,900
Total catch	290,743	213,611	175,474	225,448	202,229

¹Includes catches misreported from Division IVc.

²Includes Division IVa catches.

³Included in Division IVa.

⁴Any discards prior to 1989 were included in unallocated.

⁵Includes catch in Division IVa.

⁶Preliminary.

⁷Negative unallocated catches due to misreporting from other areas.

Table 3.1.5 HERRING, catch in tonnes in Divisions IVc and VIId. These figures do not in all cases correspond to the official statistics and cannot be used for management purposes.

Country	1983	1984	1985	1986	1987
Belgium	5,969	5,080	3,482	414	39
Denmark	135	53	-	535	31
France	14,968	16,613	11,288	8,662	6,435
Germany, Fed.Rep.	295	-	-	-	-
Netherlands	24,000	21,922	32,370	21,997	15,749
Norway	1,385	-	-	-	-
UK (England)	71	571	350	303	544
UK (Scotland)	-	-	799	117	-
Unallocated landings	17,606	1,788	21,595	19,495	22,051
Total landings	-	-	69,884	51,523	44,849
Discards ¹	-	-	-	-	-
Total catch	64,430	46,027	69,884	51,523	44,849
Coastal spring spawners included above	-	-	905	496	250

Country	1988	1989	1990 ²	1991	1992 ²
Belgium	4	434	180	163	229
Denmark	-	509	265	948	4,296
France	7,456	14,670	9,718	17,112	9,560
Germany, Fed.Rep.	-	299	-	704	824
Netherlands	12,236	12,240	11,697	19,306	18,851
Norway	-	-	-	-	-
UK (England)	1,266	1,919	1,796	3,960	3,372
UK (Scotland)	-	-	-	67	-
Unallocated landings	31,442	47,523	32,076	15,763	34,649
Total landings	52,404	77,594	55,732	58,023	71,781
Discards ¹	-	1,200	5,350	2,662	2,200
Total catch	52,404	78,794	61,082	60,685	73,981
Coastal spring spawners included above	250	2,283	1,136	252	202

¹Any discards prior to 1989 would have been included in unallocated.

²Preliminary.

Table 3.1.6 Landings of HERRING in '000 t by country in Sub-divisions 22 and 24.

Data provided by working Group members

Year	Denmark	Germany	Poland	Sweden	Total
1978	12.4	47.5	6.3	6.6	72.8
1979	9.7	53.4	10.3	10.2	83.5
1980	7.2	67.8	13.6	12.0	100.7
1981	8.1	62.8	13.4	7.7	91.9
1982	26.3	58.0	14.9	8.4	107.5
1983	26.6	58.6	16.7	6.5	108.5
1984	23.8	56.1	14.3	7.7	101.8
1985	15.9	54.6	16.7	11.4	98.7
1986	14.0	60.0	12.3	5.9	92.4
1987	32.5	53.1	8.0	7.8	101.3
1988	33.1	54.7	6.6	4.6	98.9
1989	21.7	56.4	8.5	6.3	93.0
1990	13.6	45.5	9.7	8.1	76.8
1991	25.2	15.8	5.6	19.3	65.9
1992	26.9	15.6	15.5	22.3	80.3

Table 3.1.7 Landings of HERRING in '000 t by country in Sub-division 23.

Data provided by working Group members

Year	Denmark	Sweden	Total
1978	4.1	1.0	5.1
1979	8.8	1.9	10.7
1980	6.3	2.4	8.7
1981	8.1	2.0	10.1
1982	7.1	2.5	9.6
1983	4.6	2.4	7.0
1984	6.9	0.8	7.7
1985	6.8	1.1	8.0
1986	1.5	1.4	2.9
1987	0.8	0.2	0.9
1988	0.1	0.1	0.2
1989	1.5	0.1	1.6
1990	1.1	0.1	1.2
1991	1.7	2.3	4.0
1992	2.9	1.7	4.5

Table 3.1.8

HERRING in Division IIIa, 1985 – 1992.
Landings in thousands of tonnes.
(Data provided by Working Group members 1992).

Year	1985	1986	1987	1988	1989	1990	1991	1992*
Skagerrak								
Country								
Denmark	88.2	94.0	105.0	144.4	47.4	62.3	58.7	64.7
Faroe Islands	0.5	0.5						
Germany								
Norway (Open Sea)	2.8	0.7		3.0	0.2	4.1	6.5	12.3
Norway (Fjords)	1.7	0.9	1.2	2.7	1.4	1.5	1.6	1.6
Sweden	40.3	43.0	51.2	57.2	47.9	56.5	54.7	88.0
TOTAL	133.4	139.1	157.4	207.3	96.9	124.5	121.5	166.6
Kattegat								
Country								
Denmark	69.2	37.4	46.6	76.2	57.1	32.2	29.7	33.5
Sweden	39.8	35.9	29.8	49.7	37.9	45.2	36.7	26.4
TOTAL	109.1	73.3	76.4	125.8	95.0	77.5	66.4	59.9
TOTAL Div. IIIa	242.5	212.3	233.9	333.1	191.9	201.9	187.8	226.5

* Preliminary

Table 3.1.9 Celtic Sea and Division VIIj HERRING landings by calendar year (t), 1977-1992. (Data provided by Working Group members.)

Year	France	Germany	Ireland	Netherlands	U.K.	Unallocated	Discards	Total
1977	100	100	5,500	1,500	-	-	+	7,200
1978	+	200	6,200	1,000	-	900	+	8,300
1979	600	+	7,000	900	-	3,700	+	12,200
1980	+	+	8,800	400	-	-	+	9,200
1981	100	-	15,600	1,200	-	-	+	16,900
1982	+	-	9,500	-	-	-	-	9,500
1983	500	-	10,000	1,500	-	10,200	4,000	26,200
1984	700	-	7,000	900	-	11,100	3,600	23,300
1985	600	-	11,000	-	-	4,600	3,100	19,300
1986	-	-	13,300	+	-	6,100	3,900	23,300
1987	800	-	15,500	1,500	-	5,300	4,200	27,300
1988	-	-	16,800	-	-	-	2,400	19,200
1989	+	-	16,000	1,900	-	1,300	3,500	22,700
1990	+	-	15,800	1,000	200	700	2,500	20,200
1991	+	100	19,400	1,800	-	400	1,900	23,600
1992	500	-	18,000	100	+	2,300	2,100	23,000

Table 3.1.10 Celtic Sea and Division VIIj HERRING landings (t) by season (1 April - 31 March). (Data provided by Working Group members.)

Year	France	Germany	Ireland	Netherlands	U.K.	Unallocated	Discards	Total
1977/1978	100	100	6,300	1,400	-	-	+	7,900
1978/1979	+	200	8,200	1,000	-	-	+	9,400
1979/1980	600	+	7,900	900	-	900	+	10,300
1980/1981	+	+	8,000	300	-	3,800	+	-
1981/1982	100	-	15,800	1,200	-	-	+	17,100
1982/1983	+	-	13,000	-	-	-	+	13,000
1983/1984	500	-	10,000	1,500	-	9,200	3,800	25,000
1984/1985	700	-	7,000	900	-	14,000	4,200	26,800
1985/1986	600	-	12,000	-	-	4,500	3,300	20,400
1986/1987	-	-	14,700	+	-	6,100	4,200	25,000
1987/1988	800	-	15,500	1,500	-	4,400	4,000	26,200
1988/1989	-	-	17,000	-	-	-	3,400	20,400
1989/1990	+	-	15,000	1,900	-	2,600	3,600	23,100
1990/1991	+	-	15,000	1,000	200	700	1,700	18,600
1991/1992	+	100	21,400	1,800	-	-300	2,100	25,100
1992/1993	-	-	18,000	100	-	1,100	2,000	21,200

Table 3.1.11 Nominal catch (t), Division VIa (North) HERRING, 1983-1992, as reported to the Working Group.

Country	1983	1984	1985	1986	1987
Denmark	-	96	-	-	-
Faroes	834	954	104	400	-
France	1,313	-	20	18	136
Germany, Fed. Rep	6,283	5,564	5,937	2,188	1,711
Ireland	-	-	-	6,000	6,800
Netherlands	20,200	7,729	5,500	5,160 ²	5,212 ²
Norway	7,336	6,669	4,690	4,799	4,300
UK (England)	-	-	-	-	-
UK (Scotland)	31,616	37,554	28,065	25,294	26,810
Unallocated	-4,059	16,588	502	37,840 ²	18,038 ²
Discards	-	-	-	-	-
Total	63,523	75,154	43,814	81,699	63,007

Country	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	-	7
Faroes	-	-	326	482	-
France	44	1,342	1,287	1,168	119
Germany, Fed. Rep	1,860	4,290	7,096	6,450	5,640
Ireland	6,740	8,000	10,000	8,000	7,985
Netherlands	6,131	5,860	7,693	7,979	8,000
Norway	456	-	1,607	3,318	2,389
UK (England)	1,892	1,977	2,376	2,998	3,327
UK (Scotland)	25,002	27,897	35,877	29,630	29,403
Unallocated	5,229 ²	2,123	2,397	-10,597	-5,485
Discards	-	1,550	1,300	1,180	200
Total	47,354	53,039	69,959	50,606	51,585

¹Preliminary.

²Including discards.

Table 3.1.12 Catches of HERRING from the Firth of Clyde. Spring and autumn-spawners combined. Tonnes.

Year	Scotland	Other UK	Unallocated	Discards	Total used by WG	Agreed TAC
1955					4,050	
1956					4,848	
1957					5,915	
1958					4,926	
1959					10,530	
1960					15,680	
1961					10,848	
1962					3,989	
1963					7,073	
1964					14,509	
1965					15,096	
1966					9,807	
1967					7,929	
1968					9,433	
1969					10,594	
1970					7,763	
1971					4,088	
1972					4,226	
1973					4,715	
1974					4,061	
1975					3,664	
1976					4,139	
1977					4,847	
1978					3,862	
1979					1,951	
1980					2,081	
1981					2,135	
1982	2,506	-	262	1,253	4,021	
1983	2,530	273	293	1,265	4,361	
1984	2,991	247	224	2,308	5,770	3,000
1985	3,001	22	433	1,344 ¹	4,800	3,000
1986	3,395	-	576	679 ¹	4,650	3,100
1987	2,895	-	278	439 ²	3,612	3,500
1988	1,568	-	110	245 ²	1,923	3,200
1989	2,135	-	208	- ³	2,343	3,200
1990	2,184	-	75	- ³	2,259	2,600
1991	713	-	18	- ³	731	2,900
1992	926	-	-	-	926	2,300
1993	-	-	-	-	-	1,000

¹Based on sampling.

²Estimated assuming same discarding rate as in 1986.

³Reported to be at a low level; assumed to be zero.

Table 3.1.13 Estimated HERRING catches in tonnes in Divisions VIa (South) and VIIb,c, 1983-1992.

Country	1983	1984	1985	1986	1987
France	19	-	-	-	-
Germany, Fed.Rep.	-	-	-	-	-
Ireland	15,000	10,000	13,900	15,540	15,000
Netherlands	5,000	6,400	1,270	1,550	1,550
UK (N.Ireland)	-	-	-	-	5
UK (England + Wales)	-	-	-	-	51
UK Scotland	-	-	-	-	-
Unallocated	13,000	11,000	8,204	11,785	31,994
Total landings	33,019	27,400	23,374	28,785	48,600
Discards	-	-	-	-	-
Total catch	33,019	27,400	23,374	28,785	48,600

Country	1988	1989	1990	1991	1992 ¹
France	-	-	+	-	-
Germany, Fed.Rep.	-	-	-	-	250
Ireland	15,000	18,200	25,000	22,500	26,000
Netherlands	300	2,900	2,533	600	900
UK (N.Ireland)	-	-	80	-	-
UK (England + Wales)	-	-	-	-	-
UK (Scotland)	-	+	-	+	-
Unallocated	13,800	7,100	13,826	11,200	4,600
Total landings	29,100	28,200	41,439	34,300	31,750
Discards	-	1,000	2,530	3,400	100
Total catch	29,100	29,200	43,969	37,700	31,850

¹Provisional

Table 3.1.14 HERRING. Total catches (t) in North Irish Sea (Division VIIa, North), 1980-1992 as reported to the Working Group.

Country	1980	1981	1982	1983	1984	1985	1986
France	1	-	-	48	-	-	-
Ireland	1,340	283	300	860	1,084	1,000	1,640
UK	9,272	4,094	3,375	3,025	2,982	4,077	4,376
Unallocated	-	-	1,180	-	-	4,110	1,424
Total	10,613	4,377	4,855	3,933	4,066	9,187	7,440

Country	1987	1988	1989	1990	1991	1992
France	-	-	-	-	-	-
Ireland	1,200	2,579	1,430	1,699	80	406
UK	3,290	7,593	3,532	4,613	4,318	4,864
Unallocated	1,333	-	-	-	-	-
Total	5,823	10,172	4,962	6,312	4,398	5,270

Table 3.2.1 Species composition in the industrial fisheries in Division IIIa ('000 t), 1974-1992¹.

Year	Sandeel	Sprat ²	Herring ³	Norway pout	Blue whiting	Total
1974	8	71	76	13	-	168
1975	17	101	57	19	-	194
1976	22	59	38	42	-	161
1977	7	67	32	21	-	127
1978	23	78	16	25	-	142
1979	34	96	13	25	6	174
1980	39	84	25	26	14	188
1981	59	76	63	30	+	228
1982	25	40	54	44	5	168
1983	29	26	89	30	16	190
1984	26	36	112	46	15	235
1985	6	20	116	9	19	170
1986	73	11	65	6	9	164
1987	5	14	72	3	25	119
1988	23	9	97	8	15	152
1989	18	10	52	6	9	93
1990	16	10	51	27	10	114
1991	23	14	22	32	11	97
1992 ⁴	39	2	47	42	18	148
Mean 1974-1991	25	46	58	23	12 ⁵	160

¹Data from 1974-1984 from Anon. (1986), 1985-1992 provided by Working Group members.

²Total landings from all fisheries.

³For years 1974-1985, human consumption landings used for reduction are included in these data.

⁴Preliminary.

⁵Mean 1979-1991.

Table 3.2.2 Species composition in the industrial fisheries in the North Sea ('000 t), 1974-1992.

Year	Sandeel	Sprat	Herring	Norway pout	Blue whiting	Haddock	Whiting	Saithe	Other	Total
1974	525	314	-	736	62	48	130	42		1,857
1975	428	641	-	560	42	41	86	38		1,799
1976	488	622	12	435	36	48	150	67		1,791
1977	786	304	10	390	38	35	106	6		1,675
1978	787	378	8	270	100	11	55	3		1,612
1979	578	380	15	320	64	16	59	2		1,434
1980	729	323	7	471	76	22	46	-		1,675
1981	569	209	84	236	62	17	67	1		1,245
1982	611	153	153	360	118	19	33	5	24	1,476
1983	537	88	155	423	118	13	24	1	42	1,401
1984	669	77	35	355	79	10	19	6	48	1,298
1985	622	50	63	197	73	6	15	8	66	1,100
1986	848	16	40	174	37	3	18	1	33	1,170
1987	825	33	47	147	30	4	16	4	73	1,179
1988	893	87	179	102	28	4	49	1	45	1,388
1989	1,039	63	146	162	28	2	36	1	59	1,537
1990	591	71	115	140	22	3	50	8	40	1,033
1991	843	110	131	155	28	5	38	1	38	1,350
1992	854	214	128	252	45	11	27	-	30	1,561
1st qtr.	26.8	5.7	18.6	59.8	2.9	2.3	3.8	0.1	7.8	127.8
2nd qtr.	753.8	4.8	6.3	19.8	16.9	1.8	5.9	-	4.9	814.2
3rd qtr.	73.8	165.5	81.4	85.2	19.4	1.7	7.5	-	11.9	446.4
4th qtr.	+	37.8	21.7	87.6	5.6	5.0	9.7	-	5.0	172.4
Mean 1974-1991	687	218	67	313	58	17	55	11	47	1,472

Table 3.2.3 Landings (t) from the fisheries for sandeel and Norway pout in Division VIa. (Data as officially reported to ICES.)

Year	Sandeel	Norway pout	Total
1974	+	6,721	6,721
1975	+	8,655	8,655
1976	17	19,933	19,950
1977	67	5,206	5,273
1978	+	23,250	23,250
1979	-	20,502	20,502
1980	211	17,870	18,081
1981	5,972	7,757	13,729
1982	10,873	4,911	15,784
1983	13,051	8,325	21,376
1984	14,166	7,794	21,960
1985	18,586	9,697	28,283
1986	24,469	5,832	30,301
1987	14,479	38,267	52,746
1988	24,465	6,742	31,207
1989	18,785	28,196	46,981
1990	16,515	3,316	19,831
1991	8,532	4,348	12,880
1992 ¹	4,137	5,158	9,295
Mean 1974-1991	9,455	12,629	22,084

¹Preliminary.

Table 3.2.4 Landings of SPRAT in Division IIIa (tonnes 10^3). (Data provided by Working Group members).

Year	Skagerrak				Kattegat			Div. IIIa total
	Denmark	Sweden	Norway	Total	Denmark	Sweden	Total	
1974	17.9	2.0	1.2	21.1	31.6	18.6	50.2	71.3
1975	15.0	2.1	1.9	19.0	60.7	20.9	81.6	100.6
1976	12.8	2.6	2.0	17.4	27.9	13.5	41.4	58.8
1977	7.1	2.2	1.2	10.5	47.1	9.8	56.9	67.4
1978	26.6	2.2	2.7	31.5	37.0	9.4	46.4	77.9
1979	33.5	8.1	1.8	43.4	45.8	6.4	52.2	95.6
1980	31.7	4.0	3.4	39.1	35.8	9.0	44.8	83.9
1981	26.4	6.3	4.6	37.3	23.0	16.0	39.0	76.3

Year	Skagerrak		Kattegat		Division IIIa Total
	Denmark	Norway	Denmark	Sweden	
1982	10.5	1.9	21.4	5.9	39.7
1983	3.4	1.9	9.1	13.0	26.4
1984	13.2	1.8	10.9	10.2	36.1
1985	1.3	2.5	4.6	11.3	19.7
1986	0.4	1.1	0.9	8.4	10.8
1987	1.4	0.4	1.4	11.2	14.4
1988	1.7	0.3	1.3	5.4	8.7
1989	0.9	1.1	3.0	4.8	9.8
1990	1.3	1.3	1.1	6.0	9.7
1991	4.2	1.0	2.2	6.6	14.0
1992 ¹	1.1	0.4	2.2	6.6	10.3

¹Preliminary.

Table 3.2.5 Sprat catches in the North Sea ('000 t), 1982-1992. Catches in fjords of western Norway excluded. (Data provided by Working Group members except where indicated.)

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 ¹	1992
Division IVa West											
Denmark	-	-	-	0.9	0.6	0.2	0.1	+	-		0.3 ¹
Germany	-	-	-	-	-	-	-	-	-		-
Netherlands	-	-	-	6.7	-	-	-	-	-		-
Norway	-	-	-	-	-	-	-	-	-	0.1	-
UK (Scotland)	+	-	+	6.1	+	+	-	-	+	-	-
Total	+	-	+	13.7	0.6	0.2	0.1	+	+	0.1	0.3
Division IVa East (North Sea) stock											
Denmark	+	-	-	+	0.2	+	+	+	-	-	-
Norway	0.3	-	-	-	-	-	-	-	-	-	0.64 ¹
Sweden	-	-	-	-	-	-	-	-	+ ⁵	2.5	-
Total	0.3	-	-	+	0.2	+	+	+	+	2.5	0.64
Division IVb West											
Denmark	23.1	32.6	5.6	1.8	0.4	3.4	1.4	2.0	10.0	9.4	19.9 ¹
Faroe Islands	-	-	-	-	-	-	-	-	-	-	-
Norway	10.2	0.9	0.5	-	-	-	3.5	0.1	1.2	4.4 ¹	17.9 ¹
UK (England)	-	-	+	-	-	-	-	-	-	-	0.5 ¹
UK (Scotland)	0.2	+	+	-	-	0.1	-	-	-	-	-
Total	33.5	33.5	6.1	1.8	0.4	3.5	4.9	2.1	11.2	13.8	38.3
Division IVb East											
Denmark	91.2	39.2	62.1	36.6	10.3	28.0	80.7	59.2	59.2	67.0	66.5 ¹
Germany	1.5	-	0.6	0.6	0.6 ³	-	-	-	-	-	-
Norway	7.6	10.8	3.1	-	-	-	0.6	-	0.6	25.1 ¹	10.0 ¹
Sweden	-	-	-	-	-	-	-	-	+ ²	+ ²	-
Total	100.3	50.0	65.8	37.2	10.9	28.0	81.3	59.2	59.8	92.1	76.5
Division IVc											
Belgium	-	-	-	+	+	+	-	+ ²	+ ²	+ ²	-
Denmark	2.4	1.0	0.5	+	0.1	+	0.1	0.5	1.5	1.7	2.5 ¹
France	-	-	-	-	+	-	-	+ ²	-	+ ²	-
Netherlands	-	-	0.1	-	-	-	0.4	0.4 ^{2,3}	-	+ ^{2,3}	-
Norway	2.2	0.5	3.4	-	-	-	-	-	-	-	-
UK (England)	14.9	3.6	0.9	3.4	4.1	0.7	0.6	0.9	0.2	1.8	6.1 ¹
Total	20.1	5.1	4.9	3.4	4.3	0.7	1.1	1.8	1.7	3.5	8.6
Total North Sea											
Belgium	-	-	-	+	+	+	-	+	+ ²	+ ²	-
Denmark	116.6	72.6	68.1	39.5	11.7	31.7	82.3	61.9	69.2	78.1	89.1 ¹
Faroe Islands	-	-	-	-	-	-	-	-	-	-	-
France	-	-	-	-	+	-	-	+	-	+ ^{2,3}	-
Germany	1.5	-	0.6	-	0.6	-	-	-	-	-	-
Netherlands	-	-	0.1	0.6	-	0.5	0.4	0.4	-	+ ^{2,3}	-
Norway	20.6	12.0	7.0	6.1	-	-	4.1	0.1	1.8	29.6	28.5
Sweden	-	-	-	-	-	-	-	-	+ ²	+ ²	-
UK (England)	14.9	3.6	0.9	3.4	4.1	0.7	0.6	0.9	0.2	1.8	6.6 ¹
UK (Scotland)	0.2	+	+	-	+	0.2	-	-	+	-	-
Total	153.8	88.4	76.7	49.6	16.4	33.1	87.4	63.3	71.2	109.5	124.2

¹Preliminary. ²Official statistics. ³Includes Divisions IVa-c. ⁵Includes Division IVb East.
+ = less than 0.1. - = magnitude known to be nil.

Table 3.2.6 Sprat in Division VIa 1983-1992. Landings in tonnes as officially reported to ICES.

Country	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	-	269	364	-	-	-	28
Ireland	-	192	51	348	-	150	147	n/a	n/a	n/a
Netherlands	1,863	-	-	-	-	-	-	n/a	- ¹	-
Norway	-	-	557	-	-	-	-	-	- ¹	-
UK (Engl. & Wales)	-	-	-	2	-	-	-	+	+	-
UK (Scotland)	1,971	2,456	2,946	520	582	3,864	1,146	813	1,526	1,555
Total	3,834	2,648	3,554	870	851	4,378	1,293	813	1,526	1,583

¹Preliminary.

Table 3.2.7 Nominal catch of sprat in Divisions VII d,e, 1982-1992.

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	-	3	-	-	-	-	-	-	-	-	-
Denmark	286	638	1,417	-	15	250	2,529	2,092	608	-	-
France	44	60	47	14	-	23	2	10	-	-	35
Germany	-	-	-	-	-	-	-	-	-	-	-
Netherlands	1,533	1,454	589	-	-	-	-	-	-	-	-
Norway	-	-	-	-	-	-	-	-	-	-	-
UK (Engl. & Wales)	4,749	4,756	2,402	3,771	1,163	2,441	2,944	1,319	1,508	2,567	1,790
Total	6,612	6,011	4,455	33,785	1,178	2,714	5,475	3,421	2,116	2,567	1,825

¹Preliminary

Table 3.2.8 Norway pout. Annual landings (tonnes) in Division IIIa. (Data as officially reported to ICES.)

Country	1976	1977	1978	1979	1980	1981	1982	1983	1984
Denmark	40,144	20,694	23,922	23,951	26,235	29,273	51,317	36,124	67,007
Norway	50 ²	104	362	1,182	141	752	1,265	990	947
Sweden	2,255	318	591 ³	32	39	60	60	52	+
Total	42,449	21,116	24,875	25,165	26,415	30,085	52,685	37,166	67,954

Country	1985	1986	1987	1988	1989	1990	1991 ¹	1992 ¹
Denmark	85,082	32,056	47,527	45,034	16,873	41,215	49,341	83,866
Norway	831	400	1,680	1,178	309	40	23	221
Sweden	-	+	-	-	+	+	3	5
Total	85,913	32,456	49,207	46,212	17,182	41,255	49,326	84,092

¹Preliminary.

²Including by-catch.

³Includes North Sea.

Table 3.2.9 Norway pout annual landings ('000 t) in Sub-area IV, the North Sea, by countries in 1958-1992. (Data provided by Working Group members.)

Year	Denmark	Faroes	Norway	Sweden	UK (Scotland)	Others	Total
1958	-	-	-	-	-	-	-
1959	-	-	7.8	-	-	-	69.3
1960	17.2	-	13.5	-	-	-	30.7
1961	20.5	-	8.1	-	-	-	28.6
1962	121.8	-	27.9	-	-	-	14.7
1963	67.4	-	70.4	-	-	-	137.8
1964	10.4	-	51.0	-	-	-	61.4
1965	8.2	-	35.0	-	-	-	43.2
1966	35.2	-	17.8	-	-	+	53.0
1967	169.6	-	12.9	-	-	+	182.6
1968	410.8	-	40.9	-	-	+	451.8
1969	52.5	19.6	41.4	-	-	+	113.5
1970	142.1	32.0	63.5	-	0.2	0.2	238.0
1971	178.5	47.2	79.3	-	0.1	0.2	305.3
1972	259.6	56.8	120.5	6.8	0.9	0.2	444.8
1973	215.2	51.2	63.0	2.9	13.0	0.6	345.9
1974	464.5	85.0	154.2	2.1	26.7	3.3	735.8
1975	251.2	63.6	218.9	2.3	22.7	1.0	559.7
1976	244.9	64.6	108.9	+	17.3	1.7	435.4
1977	232.2	50.9	98.3	2.9	4.6	1.0	389.9
1978	163.4	19.7	80.8	0.7	5.5	-	270.1
1979	219.9	21.9	75.4	-	3.0	-	320.2
1980	366.2	34.1	70.2	-	0.6	-	471.1
1981	167.5	16.6	51.6	-	+	-	235.7
1982	256.3	15.4	88.0	-	-	-	359.7
1983	301.1	24.5	97.3	-	+	-	422.9
1984	251.9	19.1 ¹	83.8	-	0.1	-	354.9
1985	163.7	9.9	22.8	-	0.1	-	196.5
1986	146.3	6.6	21.5	-	-	-	174.4
1987	108.3	4.8	34.1	-	-	-	147.2
1988	79.0	1.5	21.1	-	-	-	101.6
1989	95.6	0.8	65.3	-	0.1	0.3	162.7
1990	61.5	0.9	77.1	-	-	-	139.5
1991	85.0	1.3	68.3	-	-	+	154.6
1992	146.9	2.6	105.5	-	0	0.1	255.1

Table 3.2.10 Norway Pout. Annual landings (t) in Division VIa. (Data officially reported to ICES).

Country	1974	1975	1976	1977	1978	1979	1980	1981
Denmark	-	193	-	-	4,443	15,609	13,070	2,877
Faroes	1,581	1,524	6,203	2,177	18,484	4,772	3,530	3,540
Germany	179	-	8	-	-	-	-	-
Netherlands	-	322	147	230	21	98	68	182
Norway	144 ³	-	82 ³	-	-	-	-	-
Poland	75	-	-	-	-	-	-	-
UK (Scotland) ²	4,702	6,614	6,346	2,799	302	23	1,202	1,158
Russia	40	2	7,147	-	-	-	-	-
Total	6,721	8,655	19,933	5,206	23,250	20,502	17,870	7,757

Country	1982	1983	1984	1985	1986	1987	1988	1989
Denmark	751	530	4,301	8,547	5,832 ⁴	37,714 ⁵	5,849 ⁵	28,180 ⁵
Faroes	3,026	6,261	3,400	998	-	-	376	11
Germany	-	-	70	-	-	-	-	-
Netherlands	548	1,534	-	139	-	-	-	-
Norway	-	-	-	-	-	-	-	-
Poland	-	-	-	-	-	-	-	-
UK (Scotland) ²	586	-	23	13	-	553	517	5
Russia	-	-	-	-	-	-	-	-
Total	4,911	8,325	7,794	9,697	5,832	38,267	6,742	28,196

Country	1990	1991	1992 ¹
Denmark	3,316 ⁵	4,348	5,147
Faroes	-	-	-
Germany	-	-	-
Netherlands	-	-	10
Norway	-	-	-
Poland	-	-	-
UK (Engl. & Wales)	-	-	1
UK (Scotland)	+	-	-
Russia	-	-	-
Total	3,316	4,348	5,148

¹Preliminary.²Amended using national data.³Including by-catch.⁴Includes Division VIb.⁵Included in Division IVa.

Table 3.2.11 SANDEEL. Division IIIa. Landings in tones. Official figures 1982-1985, estimates provided by Working Group members 1986-1992.

Year	Denmark	Norway	Sweden
1982	25,364	-	5
1983	29,169	178	31
1984	26,436	-	-
1985	5,610	-	-
1986	73,133	-	-
1987	5,410	-	-
1988	23,159	-	-
1989	18,170	-	-
1990 ¹	15,831	-	-
1991 ¹	22,989	-	-
1992 ¹	38,830		

¹Preliminary

Table 3.2.12 Landings ('000 t) of sandeel from the North Sea, 1952-1992. (Data provided by Working Group members.)

Year	Denmark	Germany	Faroes	Netherlands	Norway	Sweden	UK	Total
1952	1.6	-	-	-	-	-	-	1.6
1953	4.5	+	-	-	-	-	-	4.5
1954	10.8	+	-	-	-	-	-	10.8
1955	37.6	+	-	-	-	-	-	37.6
1956	81.9	5.3	-	+	1.5	-	-	88.7
1957	73.3	25.5	-	3.7	3.2	-	-	105.7
1958	74.4	20.2	-	1.5	4.8	-	-	100.9
1959	77.1	17.4	-	5.1	8.0	-	-	107.6
1960	100.8	7.7	-	+	12.1	-	-	120.6
1961	73.6	4.5	-	+	5.1	-	-	83.2
1962	97.4	1.4	-	-	10.5	-	-	109.3
1963	134.4	16.4	-	-	11.5	-	-	162.3
1964	104.7	12.9	-	-	10.4	-	-	128.0
1965	123.6	2.1	-	-	4.9	-	-	130.6
1966	138.5	4.4	-	-	0.2	-	-	143.1
1967	187.4	0.3	-	-	1.0	-	-	188.7
1968	193.6	+	-	-	0.1	-	-	193.7
1969	112.8	+	-	-	-	-	0.5	113.3
1970	187.8	+	-	-	+	-	3.6	191.4
1971	371.6	0.1	-	-	2.1	-	8.3	382.1
1972	329.0	+	-	-	18.6	8.8	2.1	358.5
1973	273.0	-	1.4	-	17.2	1.1	4.2	296.9
1974	424.1	-	6.4	-	78.6	0.2	15.5	524.8
1975	355.6	-	4.9	-	54.0	0.1	13.6	428.2
1976	424.7	-	-	-	44.2	-	18.7	487.6
1977	664.3	-	11.4	-	78.7	5.7	25.5	785.6
1978	647.5	-	12.1	-	93.5	1.2	32.5	786.8
1979	449.8	-	13.2	-	101.4	-	13.4	577.8
1980	542.2	-	7.2	-	144.8	-	34.3	728.5
1981	464.4	-	4.9	-	52.6	-	46.7	568.6
1982	506.9	-	4.9	-	46.5	0.4	52.2	610.9
1983	485.1	-	2.0	-	12.2	0.2	37.0	536.5
1984	596.3	-	11.3	-	28.3	-	32.6	668.6
1985	587.6	-	3.9	-	13.1	-	17.2	621.8
1986	752.5	-	1.2	-	82.1	-	12.0	847.8
1987	605.4	-	18.6	-	193.4	-	7.2	824.6
1988	686.4	-	15.5	-	185.1	-	5.8	892.8
1989	824.4	-	16.6	-	186.8	-	11.5	1039.1
1990	496.0	-	2.2	0.3	88.9	-	3.9	591.3
1991 ¹	701.4	-	11.2	-	128.8	-	1.2	842.6
1992	751.1	-	9.1	-	89.3	0.5	4.9	855.0

¹Preliminary.

+ = less than half unit.

- = no information or no catch.

Table 3.2.13 Annual landings ('000 t) of Sandeels by area of the North Sea [Denmark, Norway and UK (Scotland)].
(Data provided by Working Group members.)

Year	Area											Assessment areas ¹	
	1A	1B	1C	2A	2B	2C	3	4	5	6	Shetland	Northern	Southern
1972	98.8	28.1	3.9	24.5	85.1	0.0	13.5	58.3	6.7	28.0	0.0	130.6	216.3
1973	59.3	37.1	1.2	16.4	60.6	0.0	8.7	37.4	9.6	59.7	0.0	107.6	182.4
1974	50.4	178.0	1.7	2.2	177.9	0.0	29.0	27.4	11.7	25.4	7.4	386.6	117.1
1975	70.0	38.2	17.8	12.2	154.7	4.8	38.2	42.8	12.3	19.2	12.9	253.7	156.5
1976	154.0	3.5	39.7	71.8	38.5	3.1	50.2	59.2	8.9	36.7	20.2	135.0	330.6
1977	171.9	34.0	62.0	154.1	179.7	1.3	71.4	28.0	13.0	25.3	21.5	348.4	392.3
1978	159.7	50.2		346.5	70.3		42.5	37.4	6.4	27.2	28.1	163.0	577.2
1979	194.5	0.9	61.0	32.3	27.0	72.3	34.1	79.4	5.4	44.3	13.4	195.3	355.9
1980	215.1	3.3	119.3	89.5	52.4	27.0	90.0	30.8	8.7	57.1	25.4	292.0	401.2
1981	105.2	0.1	42.8	151.9	11.7	23.9	59.6	63.4	13.3	45.1	46.7	138.1	378.9
1982	189.8	5.4	4.4	132.1	24.9	2.3	37.4	75.7	6.9	74.7	52.0	74.4	479.2
1983	197.4	-	2.8	59.4	17.7	-	57.7	87.6	8.0	66.0	37.0	78.2	419.0
1984	337.8	4.1	5.9	74.9	30.4	0.1	51.3	56.0	3.9	60.2	32.6	91.8	532.8
1985	281.4	46.9	2.8	82.3	7.1	0.1	29.9	46.6	18.7	84.5	17.2	79.7	513.5
1986	295.2	35.7	8.5	55.3	244.1	2.0	84.8	22.5	4.0	80.3	14.0	375.1	457.4
1987	275.1	63.6	1.1	53.5	325.2	0.4	5.6	21.4	7.7	45.1	7.2	395.9	402.8
1988	291.1	58.4	2.0	47.0	256.5	0.3	37.6	35.3	12.0	102.2	4.7	384.8	487.6
1989	228.3	31.0	0.5	167.9	334.1	1.5	125.3	30.5	4.5	95.1	3.5	492.4	526.3
1990	141.4	1.4	0.1	80.4	156.4	0.6	61.0	45.5	13.8	85.5	2.3	219.5	366.7
1991	228.2	7.1	0.7	114.0	252.8	1.8	110.5	22.6	1.0	93.1	+	372.9	458.9
1992	422.4	3.9	4.2	168.9	67.1	0.3	101.2	20.1	2.8	54.4	0	176.7	668.6

¹Assessment areas: Northern - Areas 1B, 1C, 2B, 2C, 3.
Southern - Areas 1A, 2A, 4, 5, 6.

Table 3.2.14 Sandeel, Division VIa. Landings in tonnes, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 ¹	1992
UK (Scotland)	211	5,972	10,873	13,051	14,166	18,586	24,469	14,479	24,465	18,785	16,515	8,532	4,909

¹Preliminary.

Table 3.3.1 Cod landings (in tonnes) from the Kattegat, 1971-1992.

Year	Kattegat			Total
	Denmark	Sweden	Germany ²	
1971	11,748	3,962	22	15,732
1972	13,451	3,957	34	17,442
1973	14,913	3,850	74	18,837
1974	17,043	4,717	120	21,880
1975	11,749	3,642	94	15,485
1976	12,986	3,242	47	16,725
1977	16,668	3,400	51	20,119
1978	10,293	2,893	204	13,390
1979	11,045	3,763	22	14,830
1980	9,265	4,206	38	13,509
1981	10,673	4,380	284	15,337
1982	9,320	3,087	58	12,465
1983	9,149	3,625	54	12,828
1984	7,590	4,091	205	11,886
1985	9,052	3,640	14	12,706
1986	6,930	2,054	112	9,096
1987	9,396	2,006	89	11,491
1988	4,054	1,359	114	5,527
1989	7,056	1,483	51	8,590
1990	4,715	1,186	35	5,936
1991	4,664	2,066	104	6,834
1992 ¹	3,406	2,771	141	6,318

¹Preliminary.

²Landings statistics incomplete split on the Kattegat and the Skagerrak.
The figures are estimated by the Study Group members.

Table 3.3.2 PLAICE landings from the Kattegat and Skagerrak (in tonnes). Official figures, excluding misreported landings in the period 1983-1988. (See Anon., 1992.)

Year	Denmark		Sweden		Germany		Belgium	Norway	Total IIIa
	Kattegat	Skagerrak	Kattegat	Skagerrak	Kat.	Skag.			
1972	15504	5095	348	70					21017
1973	10021	3871	231	80					14203
1974	11401	3429	255	70					15155
1975	10158	4888	369	77					15492
1976	9487	9251	271	81					19090
1977	11611	12855	300	142					24908
1978	12685	13383	368	94					26530
1979	9721	11045	281	105					21152
1980	5582	9514	289	92					15477
1981	3803	8115	232	123					12273
1982	2717	7789	201	140					10847
1983	3280	6828	291	170			133	14	10716
1984	3252	7560	323	356	32		27	22	11572
1985	2979	9646	403	296	4		136	18	13482
1986	2468	10653	170	215			505	24	14035
1987	2868	11370	283	222	104		907	25	15779
1988	1818	9781	210	281	2.8		716	41	12850
1989	1596	5387	135	320	4	0.1	230	33	7705
1990	1831	8726	201	777	2	0.7	471	69	12078
1991	1756	5849	267	472	5.6	3.9	315	68	8737
1992 ¹	2071	8522	208	381			507	107	11796

¹Preliminary.

Table 3.3.3 Catch (in tonnes) of Sole from Division IIIa. Data provided by Working Group.

Year	Denmark		Netherlands	Sweden	Germany	Belgium ²	WG corrections	Total
	Skagerrak	Kattegat	Skagerrak	Kattegat + Skagerrak	Kattegat	Skagerrak		
1970	25	158	-	-	-	-	-	183
1971	32	242	-	-	9	-	-	283
1972	31	327	-	-	12	-	-	370
1973	52	260	-	-	12	-	-	325
1974	39	388	-	-	9	-	-	436
1975	55	381	9	16	16	-	-9	468
1976	34	367	155	11	21	2	-155	435
1977	91	400	276	13	8	1	-276	513
1978	141	336	141	9	9	-	-141	495
1979	57	301	84	8	6	1	-84	373
1980	73	228	5	9	12	2	-5	324
1981	59	199	-	7	16	1	-	282
1982	52	147	1	4	8	1	-1	212
1983	70	180	31	11	15	-	-31	276
1984	76	235	54	13	13	-	-54	337
1985	102	275	132	19	1	+	-132	397
1986	158	456	109	26	1	2	-109	643
1987	137	564	70	19	-	2	-70	722
1988	138	540	-	24	-	4	-	706
1989	217	578	-	21	7	1	-	824
1990	128 ²	464 ²	-	29	8	2	-	629
1991	216	746	-	38	11 ³	-	-	1,011
1992 ¹	730	833 ⁴	-	54	12	-	-	1,629

¹Preliminary.

²Data as officially reported to ICES.

³1 tonnes in the Skagerrak.

Table 3.3.4 COD in the Skagerrak (part of Division IIIa). Landings in tonnes as estimated by the Working Group (same as official landings, preliminary for 1992).

Year	Open Skagerrak					Total	Norwegian coast
	Denmark	Sweden	Norway	Germany	Others		Norway
1971	5,914	2,040	1,355	-	13	9,322	-
1972	6,959	1,925	1,201	-	22	10,107	-
1973	6,673	1,690	1,253	-	27	9,643	-
1974	6,694	1,380	1,197	-	92	9,363	-
1975	14,171	917	1,190	-	52	16,330	-
1976	18,847	873	1,241	-	466	21,427	-
1977	18,618	560	-	-	675	19,853	-
1978	23,614	592	-	-	260	24,466	1,305
1979	14,007	1,279	-	-	213	15,499	1,752
1980	21,551	1,712	402	-	341	24,006	1,580
1981	25,498	2,835	286	-	294	28,913	1,792
1982	23,377	2,378	314	-	41	26,110	1,466
1983	18,467	2,803	346	-	163	21,779	1,520
1984	17,443	1,981	311	-	156	19,891	1,187
1985	14,521	1,914	193	-	-	16,628	990
1986	18,424	1,505	174	-	-	20,103	917
1987	17,824	1,924	152	-	-	19,900	838
1988	14,806	1,648	392	-	106	16,952	769
1989	16,634	1,902	256	12	34	18,838	888
1990	15,788	1,694	143	110	65	17,800	846
1991	10,396	1,579	72	12	12	12,071	854
1992	11,194	2,436	270	-	102	14,002	923

Table 3.3.5 Landings of HADDOCK in Division IIIa (in tonnes) as supplied by Working Group members.

Year	Denmark		Total	Norway	Sweden	Others	Total consumption	Total reduction and consumption
	Human consumption	Reduction		Human consumption				
1975	-	-	5,015	122	921	57	-	6,115
1976	-	-	7,488	191	1,075	301	-	9,055
1977	-	-	6,907	156	2,485	215	-	9,763
1978	-	-	4,978	168	1,435 ²	56	-	6,637
1979	-	-	4,120	248	361	56	-	4,785
1980	-	-	7,172	288	373	57	-	7,890
1981	-	-	9,568	271	391	120	-	10,350
1982	-	-	11,151	196	396	329	-	12,072
1983	6,425	7,225	13,650	756	608	221	8,010	15,235
1984	5,516	2,707	8,223	321	499	30	6,366	9,073
1985	6,522	954	7,476	279	351	15	7,167	8,121
1986	3,265	1,682	4,947	226	151	5	3,647	5,329
1987	3,584	1,449	5,033	148	71	36	3,803	5,288
1988	2,543	1,480	4,023	245	64	48	2,852	4,380
1989	3,889	360	4,249	138	66	5	4,098	4,458
1990	3,887	1,968	5,855	84	102	27	4,100	6,068
1991	3,894	2,593	6,487	111 ¹	80	1	4,086 ¹	6,679 ¹
1992	3,811	4,254	8,065	177 ¹	744 ²	14	4,746 ¹	9,000 ¹

¹Preliminary.

²Includes ~ 350 tonnes landed for reduction.

Table 3.3.6 Nominal landings (in tonnes) of WHITING from Division IIIa as supplied by the Study Group on Division IIIa Demersal Stocks and updated by the Working Group.

Year	Denmark			Norway	Sweden	Others	Total
1975	19,018			57	611	4	19,690
1976	17,870			48	1,002	48	18,968
1977	18,116			46	975	41	19,178
1978	48,102			58	899	32	49,091
1979	16,971			63	1,033	16	18,083
1980	21,070			65	1,516	3	22,654
	Total consumption	Total industrial	Total				
1981	1,027	23,915	24,942	70	1,054	7	26,073
1982	1,183	39,758	40,941	40	670	13	41,664
1983	1,311	23,505	24,816	48	1,061	8	25,933
1984	1,036	12,102	13,138	51	1,168	60	14,417
1985	557	11,967	12,524	45	654	2	13,225
1986	484	11,979	12,463	64	477	1	13,005
1987	443	15,880	16,323	29	262	43	16,657
1988	391	10,872	11,263	42	435	24	11,764
1989	777	11,662	12,439	29	675	-	13,215
1990	1,016	17,829	18,845	46	435	73	19,333
1991	881	12,463	13,344	56	557	97	14,054
1992 ¹	538	10,675	11,213	67	959	1	12,240

¹Preliminary.

Table 3.4.1 Nominal landings (tonnes) of *Pandalus borealis* in ICES Division IIIa and Sub-area IV as officially reported to ICES.

Year	Division IIIa				Sub-area IV					
	Denmark	Norway	Sweden	Total	Denmark	Norway	Sweden	UK(Engl) ¹	UK(Scot) ²	Total
1970	757	982	2,740 ³	4,479	3,460	1,107	-	14	100	4,681
1971	834	1,392	2,906 ³	5,132	3,572	1,265	-	-	438	5,275
1972	773	1,123	2,524 ³	4,420	2,448	1,216	-	692	187	4,543
1973	716	1,415	2,130 ³	4,261	196	931	-	1,021	163	2,311
1974	475	1,186	2,003 ³	3,664	337	767	-	50	432	1,586
1975	743	1,463	1,740	3,946	1,392	604	261	-	525	2,782
1976	865	2,541	2,212	5,618	1,861	1,051	136	186	2,006	5,240
1977	763	2,167	1,895	4,825	782	960	124	265	1,723	3,854
1978	757	1,841	1,529	4,127	1,592	692	78	98	2,044	4,504
1979	973	2,489	1,752	5,214	962	594	34	238	309	2,137
1980	1,679	3,498	2,121	7,298	1,273	1,140	38	203	406	3,060
1981	2,593	3,753	2,210	8,556	719	1,435	31	1	341	2,527
1982	2,920	3,877	1,421	8,218	1,069	1,545	92	-	354	3,060
1983	1,571	3,722	988	6,281	5,725	1,657	112	65	1,836	9,395
1984	1,717	3,509	933	6,159	4,638	1,274	120	277	25	6,334
1985	4,105	4,772	1,474	10,351	4,582	1,785	128	415	1,347	8,257
1986	4,686	4,811	1,357	10,854	3,896	1,681	157	458	358	6,550
1987	4,140	5,198	1,085	10,423	9,223	3,145	252	526	774	13,920
1988	2,278	3,047 ⁴	1,075	6,400	2,647	4,614 ⁴	220	489	109	8,098 ⁵
1989	2,527	3,156	1,304	6,987	3,298	3,418	122	353	590	7,802 ⁵
1990	2,277	3,006	1,471	6,754	2,079	3,146	137	304	365	6,031
1991	3,256	3,809	1,747	8,812	750	2,310	161	64	54	3,339
1992 ⁶	3,294	4,567	2,019	9,880	1,881	2,561	135	31	116	4,724

¹Includes other Pandalid shrimp.

²Includes small amounts of other Pandalid shrimp.

³Includes Sub-area IV.

⁴Working Group figure.

⁵Includes respectively for 1988 and 1989, 19 and 21 tonnes by the Netherlands.

⁶Preliminary.

Table 3.4.2 *Pandalus borealis* landing and discards from divisions IIIa (Skagerrak) and IVa (eastern part) (Norwegian Deep) as estimated by the Working Group.

Year	Denmark	Norway	Sweden	Total Landings	Estimated discards
1970	1,102	1,729	2,742	5,573	-
1971	1,190	2,486	2,906	6,582	-
1972	1,017	2,477	2,524	6,018	-
1973	755	2,333	2,130	5,218	-
1974	530	1,809	2,003	4,342	-
1975	817	2,339	2,003	5,159	-
1976	1,204	3,348	2,529	7,081	-
1977	1,120	3,004	2,019	6,143	-
1978	1,459	2,440	1,609	5,508	-
1979	1,062	3,040	1,787	5,889	-
1980	1,678	4,562	2,159	8,399	-
1981	2,593	5,183	2,241	10,017	-
1982	3,766	5,042	1,450	10,258	-
1983	1,567	5,361	1,136	8,064	-
1984	1,747	4,783	1,022	7,552	-
1985	3,827	6,646	1,571	12,044	584
1986	4,834	6,490	1,463	12,787	477
1987	4,599	8,343	1,321	14,263	808
1988	3,068	7,661	1,278	12,007	830
1989	3,150	6,411	1,433	10,994	1,548
1990	2,479	6,139	1,540	10,158	1,723
1991	3,583	6,119	1,917	11,619	765
1992	3,725	7,148	2,154	13,027	727

Table 3.4.3 Landings (t) of *Pandalus borealis* from the Fladen Ground (Division IVa) as estimated by the Working Group.

Year	Denmark	Sweden	Norway	UK (Scotland)	Total
1972	2,204	-	-	187	2,391
1973	157	-	-	163	320
1974	282	-	-	434	716
1975	1,308	-	-	525	1,833
1976	1,552	-	-	1,937	3,489
1977	425	-	112	1,692	2,229
1978	890	-	81	2,027	2,998
1979	565	-	44	268	877
1980	1,122	-	76	377	1,575
1981	685	-	1	347	1,033
1982	283	-	-	352	635
1983	5,729	-	8	1,827	7,564
1984	4,553	-	13	25	4,591
1985	3,649	-	-	1,341	4,990
1986	3,416	-	-	301	3,717
1987	7,326	-	-	686	8,012
1988	1,077	-	2	84	1,163
1989	2,438	-	25	547	3,010
1990	1,681	4	3	365	2,053
1991	422	-	31	53	506
1992 ¹	1,448	-	-	116	1,564

¹Provisional

Table 3.4.4 Landings (t) of *Pandalus borealis* from Division IVb, the Farn Deeps as estimated by the Working Group.

Year	UK (England)	UK (Scotland)	Denmark	Total	CPUE kg/hr (Scotland)
1977	227	-	No data	-	-
1978	91	2	-	-	No data
1979	235	34	-	-	No data
1980	203	17	-	-	60
1981	1	-	-	-	-
1982	-	-	-	-	-
1983	65	-	-	-	-
1984	30	-	-	-	-
1985	2	6	-	-	70
1986	137	57	106	300	127
1987	212	86	92	390	101
1988	91	25	384	500	67
1989	168	8	72	248	44
1990	144	+	1	145	-
1991	3	-	-	3	-
1992	1	-	-	1	-

Table 3.5.1 ' Nominal catch (in tonnes) of COD in Sub-area IV, 1982-1992, as officially reported to ICES.

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	6,604	6,704	5,804	4,815	6,604	6,693	5,508	3,398	2,934	2,331	3,356
Denmark	61,454	48,828	46,751	42,547	32,892	36,948	34,905	25,782	21,601	18,997	18,479
Faroe Islands	65	361	-	71	15	57	46	35	96	23	166
France	8,399	7,159	8,129	4,834	8,402	8,199	8,323	2,578 ^{1,3}	1,641 ^{1,3}	975 ^{1,3}	1,947 ³
Germany	18,525	20,333	13,453	7,675	7,667	8,230	7,707	11,430	11,725	7,278	8,446
Netherlands	36,490	34,111	25,460	30,844	25,082	21,347	16,968 ⁴	12,028	8,445 ¹	6,830 ¹	11,133
Norway ²	12,163	6,625	7,005	5,766	4,864	5,000	3,585	4,813	5,168	5,425	10,053
Poland	62	75	7	-	10	13	19	24	53	15	-
Sweden	453	422	575	748	839	688	367	501	620	784	823
UK (Engl. & Wales)	54,277	53,860	35,605	29,692	25,361	29,960	23,496	18,250	15,596	14,481	14,790
UK (Isle of Man)	-	-	-	-	-	-	-	1	-	-	-
UK (N. Ireland)	-	-	-	-	-	-	-	124	26	70	37
UK (Scotland)	57,308	58,581	54,359	60,931	45,748	49,671	41,382	31,480	31,120	28,748	28,367
Russia	-	-	-	-	-	-	-	-	-	-	-
Total	255,800	237,059	197,148	187,923	157,484	166,806	142,306	110,444	99,025	85,957	97,597
Unreported landings	17,360	-3,397	7,723	5,043	5,745	8,671	7,815	5,180	5,483	559	333
vLandings as used by Working Group	273,160	233,662	204,871	192,966	163,229	175,477	150,121	115,624	q104,508	86,516	97,930

¹Preliminary.

²Figures do not include cod caught as industrial by-catch.

³Includes Division IIa (EC).

Table 3.5.2 Nominal catch (in tonnes) of HADDOCK in Sub-area IV, 1982-1992, as officially reported to ICES.

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 ¹	1992 ¹
Belgium	966	985	494	719	317	165	220	145	192	168	415
Denmark	22,704	25,653	16,368	23,821	16,397	7,767	9,174	2,789	1,993	1,330	1,467
Faroe Islands	6	51	-	5	4	23	35	16	6	15	20
France	15,988	11,250	8,103	5,389	4,802	3,889	2,193	1,702 ^{1,3}	1,115 ^{1,3}	631 ^{1,3}	546 ³
Germany, Fed. Rep.	4,510	3,654	2,571	2,796	1,984	1,231	802	447	714	535	764
Netherlands	1,021	1,722	1,052	3,875	1,627	1,093	894	328	n/a	103	148
Norway ²	2,888	3,862	3,959	3,498	5,190	2,610	1,590	1,697 ¹	1,572	1,946	3,133
Poland	317	150	17	-	1	-	-	-	-	-	-
Sweden	1,874	1,360	1,518	1,942	1,550	937	614	1,051	900	957	1,289
UK (Engl. & Wales)	16,403	15,476	12,340	13,614	8,137	7,491	5,537	2,704	2,093	2,154	3,223
UK (N. Ireland)	-	-	-	-	-	-	-	137	11	46	4
UK (Scotland)	107,773	100,390	87,479	112,549	126,650	84,063	84,104	53,252	34,459	36,443	39,734
Total	174,450	164,553	133,901	168,208	166,659	109,269	105,163	64,235	n/a	44,330	50,743
WG estimates human consumption landings	166,000	159,000	128,000	159,000	166,000	108,000	105,000	76,000	51,000	45,000	70,000
Inallocated landings	-8,450	-5,553	-5,901	-9,208	-659	-1,269	-163	11,732	n/a	670	19,257

¹Preliminary.

²Figures do not include haddock caught as industrial by-catch.

³Includes Division IIa (EC).

n/a = Not available.

Table 3.5.3 Nominal catch (in tonnes) of WHITING in Sub-area IV, 1981-1992, as officially reported ICES.

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	2,623	2,272	2,864	2,798	2,177	2,275	1,404	1,984	1,271	1,040	913	1,030
Denmark	16,430	27,043	18,054	19,771	16,152	9,076	2,047	12,112	803	1,207	1,529	1,377
Faroe Islands	12	57	18	-	6	-	12	222	1	26	-	24
France	24,744	23,780	21,263	19,209	10,853	8,250	10,493	10,569	5,277 ^{1,2}	4,951 ¹	5,188 ^{1,2}	4,728
Germany, Fed. Rep.	601	223	317	286	226	313	274	454	415	692	865	511
Netherlands	14,600	12,218	10,935	8,767	6,973	13,741	8,542	5,087 ³	3,860	3,272 ¹	4,029 ¹	5,390
Norway	27	17	39	88	103	103	74	52	32	55	98 ¹	223
Poland	-	-	1	2	-	-	-	-	-	-	-	-
Sweden	9	11	44	53	22	33	17	5	17	16	48	22
UK (Engl. & Wales)	5,964	4,743	4,366	5,017	5,024	3,805	4,485	4,007	1,896	2,124	2,423	2,663
UK (N. Ireland)	-	-	-	-	-	-	-	1	61	30	47	1
UK (Scotland)	31,399	29,640	41,248	42,967	30,398	29,113	37,630	31,804	26,491	27,632	30,452	30,674
Total	96,409	100,004	99,149	99,958	71,934	66,709	64,978	66,294	40,124	n/a	45,828	46,643
Total h.c. catch used by Working Group	79,000	71,000	79,000	77,000	54,000	58,000	62,000	51,000	40,000	42,000	46,000	45,000

¹Preliminary.

²Includes Division IIa (EC).

n/a = Not available.

Table 3.5.4 Nominal catch (in tonnes) of SAITHE in Sub-area IV and Division IIIa, 1982-1992, as officially reported to ICES.

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	4	7	32	31	16	4	60	13	23	29	70
Denmark	10,114	10,530	8,526	9,033	10,343	7,928	6,868	6,550	5,800	6,314	4,669
Faroe Islands	746	806	-	895	224	691	276	739	1,650	671 ¹	2,430
France	47,064	38,782	43,592	42,200	43,958	38,356	28,913	30,761 ^{1,2}	29,892 ^{1,2}	14,795 ^{1,2}	8,869 ²
Germany	13,517	13,649	25,262	22,551	22,277	22,400	18,528	14,339	15,006	19,574	13,177
Netherlands	36	89	181	233	134	334	345	257	207 ¹	190 ¹	180
Norway	72,669	81,330	88,420	101,808	67,341	66,400	40,021	24,737	19,122	34,938 ¹	50,065
Poland	793	415	413	-	495	832	1,016	809	1,244	1,336	1,238
Sweden	372	548	522	1,764	1,987	1,732	2,064	797	838	1,514	3,302
UK (Engl. & Wales)	5,627	6,845	8,183	5,455	4,480	3,233	3,790	4,441	3,654	4,709 ¹	3,158
UK (N. Ireland)	-	-	-	-	-	-	-	24	-	-	-
UK (Scotland)	8,136	6,321	6,970	9,932	15,520	11,911	10,850	8,26	7,383	3,471 ¹	6,763
USSR	-	-	-	-	-	-	-	-	-	116	-
Total reported to ICES	159,078	159,322	182,101	193,902	166,775	153,821	112,731	92,193	84,819	92,148	93,921
Unreported landings	6,899	9,562	15,900	5,839	-2,459	-4,627	-7,630	-200	3,256	6,659	-1,829
Landings as used by W G	165,977	168,884	198,001	199,741	164,297	149,194	105,101	91,993	88,075	98,807	92,092

¹Preliminary.

²Includes IIa(EEC), IIIa-d(EEC).

n/a = not available.

Table 3.5.5 North Sea PLAICE. Nominal landings (tonnes) in Sub-area IV as officially reported to ICES, 1982-1992.

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	7,103	8,916	10,220	9,965	7,232	8,554	11,527	10,939	13,940	14,328	12,066
Denmark	24,532	19,114	23,361	28,236	26,332	21,597	20,259	23,481	26,474	24,355	20,891
Faroe Islands	-	-	-	-	-	-	43	-	-	-	-
France	1,046	1,185	1,145	1,010	751	1,580	1,773	2,037 ¹	1,339	508 ¹	512
Germany	3,628	2,397	2,485	2,197	1,809	1,794	2,566	5,341	8,747	7,926	6,818
Netherlands	55,715	53,608	61,478	90,950	74,447	76,612	77,724	84,173	n/a	68,266 ¹	51,064
Norway	16	17	17	23	21	12	21	321	1,756	554 ¹	843
Sweden	6	22	14	18	16	7	2	12	169	103	53
UK (Engl. & Wales)	16,534	13,248	12,988	11,335	12,428	14,891	17,613	19,735	17,563	17,672	20,095
UK (N.Ireland)	-	-	-	-	-	-	-	540	176	992	1,163
UK (Scotland)	4,355	4,159	4,195	4,577	4,866	5,747	6,884	5,516	6,789	9,047	6,510
Total reported	112,935	102,666	115,903	148,311	127,902	130,794	138,412	152,095	76,953	143,751	119,955
Unreported landings ²	41,614	41,369	40,244	11,526	37,445	29,700	24,059	17,547	90,753	13,721	1,356
Landings as used by WG	154,549	144,035	156,147	159,837	165,347	160,494	162,471	169,642	167,706	157,472	121,311

¹Provisional.

²Estimated by the Working Group.

Table 3.5.6 Nominal catch (tonnes) of SOLE in Sub-area IV and landings as estimated by the Working Group, 1982-1992.

Year	Belgium	Denmark	France	Germany Fed. Rep.	Netherlands	UK (Engl. & Wales)	Other countries	Total reported	Unreported landings	Grand Total
1982	1,927	522	686	290	17,749	403		21,577	2	21,579
1983	1,740	730	332	619	16,101	435		19,957	4,970	24,927
1984	1,771	818	400	1,034	14,330	586	1	18,940	7,899	26,839
1985	2,390	692	875	303	14,897	774	3	19,934	4,313	24,247
1986	1,833	443	296	155	9,558	647	2	12,934	5,267	18,201
1987	1,644	342	318	210	10,635	676	4	13,829	3,539	17,368
1988	1,199	616	487	452	9,841	740	28	13,363	8,227	21,590
1989	1,596	1,020	312	864	9,620	966	65	14,443	7,378	21,821
1990	2,389	1,428	352	2,296		1,484	276	8,225	26,908	35,133
1991	2,977	1,307	465	2,107	18,771	1,605	361	27,593	10,749	38,342
1992	2,058	1,358	538	1,880	18,601	1,221	88	25,744	3,372	29,116

all landings reported to ICES
 unreported landings estimated by the Working Group
 1992 data are provisional
 No data on discards available

Table 3.6.1 Nominal catch and Working Group data (in tonnes) of COD in Division VIId 1982-1992, as officially reported to ICES.

Year	Belgium	France	Denmark	Netherlands	UK (England & Wales)	UK (Scotland)	Total	Unreported landings	Working Group data
1982	251	2696	-	1	306	-	3254	726	3980
1983	368	2802	-	4	358	-	3532	308	3840
1984	331	2492	-	-	282	-	3105	415	3520
1985	501	2589	-	-	326	-	3416	- 86	3330
1986	650	9938	4	-	830	-	11422	1398	12820
1987	815	7541	-	-	1044	-	9400	4820	14220
1988	486	8795	+	1	867	-	10149	- 789	9360
1989	173	n/a	+	1	562	-	n/a	-	5540
1990	237	n/a	-	-	420	7	n/a	-	2730
1991	182	n/a	-	-*	340	2	n/a	-	1920
1992*	187	n/a	-	2	427	21	n/a	-	2680

* Preliminary

Table 3.6.2 Nominal catch and Working Group data (in tonnes) of WHITING in Division VIId 1982-1992, as officially reported to ICES.

Year	Belgium	France	Netherlands	UK (England & Wales)	UK (Scotland)	Total	unreported landings	Working Group data
1982	93	7012	2	170	-	7277	633	7910
1983	84	5057	1	198	-	5340	1600	6940
1984	79	6914	-	88	-	7081	289	7370
1985	82	7563	-	186	-	7831	- 491	7340
1986	65	4551	-	180	-	4796	704	5500
1987	136	6730	-	287	-	7153	- 2463	4690
1988	69	7501	-	251	-	7821	- 3391	4430
1989	38	n/a	-	231	-	n/a	-	4160
1990	83	n/a	-	237	1	n/a	-	3480
1991	83	n/a	-*	292	1	n/a	-	5780
1992*	66	n/a	-	414	23	n/a	-	5760

* Preliminary

Table 3.6.3 SOLE in Division VIId. Nominal landings (tonnes) as officially reported to ICES, 1974-1992.

Year	Belgium	France	UK (E+W)	Others	Total reported	Unreported ¹	Total as used by WG
1974	159	469	309	3	940	-	940
1975	132	464	244	1	841	52	893
1976	203	599	404	-	1,206	90	1,296
1977	225	737	315	-	1,277	69	1,346
1978	241	782	366	-	1,389	75	1,464
1979	311	1,129	402	-	1,842	83	1,925
1980	302	1,075	159	-	1,536	183	1,719
1981	464	1,513	160	-	2,137	120	2,257
1982	525	1,828	317	4	2,674	145	2,819
1983	502	1,120	419	-	2,041	1,131	3,172
1984	592	1,309	505	-	2,406	880	3,286
1985	568	2,545	520	-	3,633	237	3,870
1986	858	1,528	551	-	2,937	991	3,928
1987	1,100	2,086	655	-	3,841	1,026	4,867
1988	667	2,057	578	-	3,302	644	3,946
1989	646	1,610	689	-	2,945	1,212	4,157
1990	996	1,255	742	-	2,993	964	3,957
1991	904	2,054	825	-	3,783	513	4,296
1992 ²	891	1,961	704	1	3,557	504	4,061

¹Estimated by the Working Group.

²Provisional.

Table 3.6.4

PLAICE in Division VIIId. Nominal landings (tonnes) as officially reported to ICES, 1976-1992.

Year	Belgium	Denmark	France	UK (E+W)	Others	Total reported	Un- reported ¹	Total as used by WG
1976	147	1 ¹	1,439	376	-	1,963	-	1,963
1977	149	81 ²	1,714	302	-	2,246	-	2,246
1978	161	156 ²	1,810	349	-	2,476	-	2,476
1979	217	28 ²	2,094	278	-	2,617	-	2,617
1980	435	112 ²	2,905	304	-	3,756	-458	3,298
1981	815	-	3,431	489	-	4,735	34	4,769
1982	738	-	3,504	541	22	4,805	60	4,865
1983	1,013	-	3,119	548	-	4,680	363	5,043
1984	947	-	2,844	640	-	4,431	581	5,012
1985	1,148	-	3,943	866	-	5,957	54	6,011
1986	1,158	-	3,288	828	488 ²	5,762	1,056	6,818
1987	1,807	-	4,768	1,292	-	7,867	441	8,308
1988	2,165	-	5,688 ²	1,250	-	9,103	1,297	10,400
1989	2,019	-	3,265 ¹	1,382	-	6,666	2,091	8,757
1990	2,149	-	4,170	1,404	-	7,725	1,243	8,968
1991	2,265	-	3,606 ¹	1,565	-	7,436	377	7,813
1992 ³	1,560	1	2,762 ¹	1,541	1	5,865	472	6,337

¹Estimated by the Working Group.²Includes Division VIIe.³Provisional.

Table 3.7.1 Nominal catch (in tonnes) of COD in Division VIa, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 ⁵	1990 ⁵	1991 ⁵	1992 ^{1,5}
Belgium	57	30	35	21	22	48	88	33	44	28	-	6	1
Denmark	27 ²	-	3	-	-	-	-	4	1	3	2	2	3
Faroe Islands	3	-	2	-	-	-	-	-	11	26	-	-	-
France	5,495	7,601	7,160	8,140	7,637	7,411	5,096	5,044	7,669	3,640 ^{1,4}	2,220 ^{1,4}	2,503 ^{1,4}	2,943 ⁴
Germany, Fed. Rep.	1	21	8	205	75	66	53	12	25	281	586	60 ²	16 ²
Ireland	2,331	2,725	3,527	2,695	2,316	2,564	1,704	2,442	2,551	1,642	n/a	n/a	n/a
Netherlands	1	-	-	-	-	1	-	-	-	-	n/a	n/a	n/a
Norway	48	40	238	267	231	204	174	77	186	207	150	40 ¹	166
Spain	-	-	41	52	64	28	-	-	-	n/a	n/a	n/a	n/a
Sweden	-	-	1	-	-	-	-	-	-	-	-	-	-
UK (Engl. & Wales)	2,302	3,187 ³	2,948	1,141	692	243	106	306	184	439	379	388	281
UK (Isle of Man)	-	-	-	-	-	-	-	-	-	3	-	6	n/a
UK (N. Ireland)	2	7	33	37	32	17	54	138	46	129	93	384	426
UK (Scotland)	7,603	10,339	7,969	8,933	9,483	8,032	4,251	11,143	8,465	8,942	7,151	6,480	5,533
Total	17,870	23,950	21,965	21,491	20,552	18,614	11,526	19,199	19,182	n/a	n/a	n/a	n/a
Unallocated	+9	-85	-455	-186	+719	+444	+294	-224	+1,447	n/a	n/a	n/a	n/a
WG Estimate	17,879	23,865	21,510	21,305	21,271	18,608	11,820	18,975	20,413	17,171	12,176	10,926 ⁶	9,086

¹Preliminary.²Includes Division VIb.³Including 37 t caught in Sub-area VI.⁴Includes Divisions Vb(EC) and VIb.⁵Incomplete official statistics.⁶Revised.

n/a = Not available.

Table 3.7.2 Nominal catch (in tonnes) of COD in Division VIb, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	75	2	77	112	18	-	1	-	31	-	-	-	1
France	1	4	27	97	9	17	5	7	2	... ²	... ²	... ²	... ²
Germany, Fed.Rep.	136	443	+	195	-	3	-	-	3	+	-	126	... ²
Norway	80	134	51	462	373	202	95	130	195	148	119	303 ¹	199
Spain	-	70	58	42	241	1,200	1,219	808	1,345	n/a	n/a	n/a	n/a
UK (England & Wales)	1	67	3	163	161	114	93	69	56	130	25	40	75
UK (Isle of Man)	-	-	-	-	-	-	-	-	-	1	-	-	n/a
UK (N. Ireland)	-	-	-	-	-	-	1	-	-	3	2	2	3
UK (Scotland)	370	143	157	35	221	437	187	284	254	262	739	809	714
Total	696	863	373	1,106	1,023	1,973	1,601	1,298	1,886	n/a	n/a	n/a	n/a

¹Preliminary.

²Included in Division VIa.

n/a = Not available.

Table 3.7.3 Nominal catch (tonnes) of HADDOCK in Division VIa, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	3	1	2	1	6	7	-	29	8	9	-	9	1
Denmark	-	-	+	-	-	-	-	4	+	+	+	+	+
Faroe Islands	-	-	-	-	-	-	1	-	-	13	-	1	-
France	2,808	3,403	3,760	4,520	4,240	5,930	4,956	5,456	3,001	1,335 ^{1,2}	863 ^{1,2}	761 ^{1,2}	860 ^{1,2}
Germany, Fed. Rep.	3	7	71	65	83	38	25	21	4	4	15	15	4 ³
Ireland	726	1,891	4,402	3,450	3,932	3,512	2,026	2,628	2,731	2,171	n/a	n/a	n/a
Netherlands	2	3	391	25	-	-	-	-	n/a	-	n/a	n/a	n/a
Norway	16	29	37	68	33	76	45	13	54	74	46 ¹	12 ¹	71
Spain	-	-	97	201	129	166	-	-	-	n/a	n/a	n/a	n/a
UK (England & Wales)	1,279	1,052	2,035	1,376	1,042	348	222	425	114	476	271	151	142
UK (N. Ireland)	-	-	-	-	-	-	-	-	-	4	-	-	n/a
UK (Scotland)	+	-	1	4	5	-	155	1	35	73	56	78	45
Total	8,198	12,051	19,249	21,593	18,472	15,036	12,955	18,503	15,151	19,651	10,803	8,341	5,261
Discards	13,935	18,437	30,045	31,302	27,942	25,114	20,385	27,080	21,098	23,810	4	4	4
Unallocated landings	4,715	15,088	10,068	6,840	16,435	17,452	7,532	16,218	8,960	3,178	5,406	9,192	5,648
Total as used by WG	-1,172	-219	-432	-1,906	2,077	-730	-991	-76	-2,010	-7,117	15,542	19,752	12,581

¹Preliminary.²Includes Divisions Vb(EC) and VIb.³Includes Division VIb.⁴Incomplete official figures.

n/a = Not available.

Table 3.7.4 Nominal catch (tonnes) of HADDOCK in Divisions VIb, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	5	1	21	3	3	1	-	-	5	-	-	-	-
France	1	10	32	48	12	116	103	99	5	... ²	... ²	... ²	... ²
Germany, Fed. Rep.	17	-	4	1	-	4	-	-	4	1	-	-	... ²
Norway	2	10	3	20	45	31	83	33	20	47	38	65	47
Spain	6	88	121	79	128	892	756	371	245	n/a	n/a	n/a	n/a
UK (England & Wales)	6,261	9,005	3,736	113	788	1,876	703	1,271	753	1,007	568	368	271
UK (Isle of Man)	-	-	-	-	-	-	-	-	-	+	-	-	n/a
UK (N. Ireland)	-	-	-	-	-	-	157	-	-	8	6	11	14
UK (Scotland)	1,051	27	5	136	1,654	6,397	2,961	6,221	6,542	5,210	6,797	4,578	3,777
Total	7,343	9,141	3,992	400	2,630	9,317	4,763	7,995	7,574	n/a	n/a	n/a	n/a
Working Group estimate	-	-	-	-	-	9,829	5,068	8,442	7,944	6,744	3,893	5,671	5,872
Unallocated catch	-	-	-	-	-	512	305	447	370	n/a	n/a	n/a	n/a

¹Preliminary.²Included in Division VIa.

n/a = Not available.

Table 3.7.5 Nominal catch (tonnes) of WHITING in Division VIa, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	+	-	2	-	-	3	-	4	3	1	-	+	-
Denmark	32	-	+	-	-	-	-	5	-	1	+	3	1
France	2,609	1,637	1,798	2,029	1,887	1,502	829	1,644	1,249	199 ^{1,2}	180 ^{1,2}	352 ^{1,2}	211 ²
Germany, Fed.Rep.	1	49	53	43	6	9	1	+	4	+	-	+	-
Ireland	4,407	8,148	3,406	3,578	3,454	1,917	1,683	2,868	2,640	1,315	n/a	n/a	n/a
Netherlands	2	6	285	811	-	14	-	-	-	-	n/a	n/a	n/a
Spain	-	-	99	76	40	61	-	-	-	n/a	n/a	n/a	n/a
UK (Engl. & Wales)	227	145	166	157	162	63	26	62	30	83	82	140	137
UK (Isle of Man)	-	-	-	-	-	-	-	-	-	2	-	n/a	n/a
UK (N. Ireland)	-	-	-	52	40	17	5	13	89	18	73	203	110
UK (Scotland)	7,386	8,519	8,419	10,019	11,270	9,051	5,848	7,803	7,864	6,047	4,718	4,999	4,323
Total	14,664	18,504	14,235	16,765	16,859	12,637	8,392	12,399	11,879	7,666	n/a	n/a	n/a
Unallocated	-1,848	-6,301	-364	-795	-401	+256	-62	-855	-527	-135	n/a	n/a	n/a
Working Group estimate	12,816	12,203	13,871	15,970	16,458	12,893	8,454	11,544	11,352	7,531	5,643	6,660	6,009

¹Preliminary.²Includes Divisions Vb (EC) and VIb.

n/a = Not available.

Table 3.7.6

Nominal catch (tonnes) of WHITING in Division VIb, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 ¹	1992 ¹
France	3	-	-	-	3	2	-	-	-	... ^{1,2}	... ²	... ²	... ²
Spain	-	196	112	88	16	123	-	-	-	n/a	n/a	n/a	n/a
UK (Engl. & Wales)	+	-	-	+	2	+	5	4	-	2	5	1	5
UK (N. Ireland)	-	-	-	-	-	-	-	-	-	15	+	+	+
UK (Scotland)	59	+	-	5	25	6	13	108	23	18	482	458	283
Total	62	196	112	93	46	131	18	112	23	35			

¹Preliminary.²Included in Division VIa.

n/a = Not available.

Table 3.7.7 Nominal catch (tonnes) of SAITHE in Sub-area VI, 1980-1992, as officially reported to ICES.

Country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	2	2	-	-	-	2	-	12	14	15	-	6	2
Denmark	-	-	4	-	-	-	-	7	+	2	-	+	+
Faroe Islands	4	3	5	-	-	-	-	-	8	-	-	24	1
France	15,427	16,654	17,102	13,470	19,706	19,120	26,521	24,581	24,656	17,106 ^{1,2}	12,961 ^{1,2}	12,423 ^{1,2}	9,448 ²
Germany, Fed. Rep.	49	581	441	179	713	838	2,345	1,486	1,584	1,116	275	590	1,003
Ireland	295	250	322	698	599	670	660	704	544	593	n/a	n/a	n/a
Netherlands	91	-	-	32	-	-	-	-	-	-	n/a	n/a	n/a
Norway	62	25	19	55	66	51	72	38	50	72	64	31 ¹	67
Spain	-	120	243	330	882	624	824	533	857	n/a	n/a	n/a	n/a
UK (Engl. & Wales)	1,594	1,364	1,966	2,760	1,800	1,349	1,259	1,708	1,193	555	1,027	799	575
UK (Isle of Man)	-	-	-	-	-	-	-	-	-	+	-	-	n/a
UK (N. Ireland)	9	10	7	12	49	15	21	26	13	21	53	129	133
UK (Scotland)	2,902	3,117	2,141	2,642	3,170	3,118	3,697	3,442	3,925	2,851	3,035	3,554	2,583
Total	20,435	22,126	22,250	26,178	26,985	25,787	35,399	32,537	32,844	n/a	n/a	n/a	n/a
Unallocated	1,448	1,634	1,634	2,712	-5,344	808	4,487	-1,168	1,334				
Total figures used by WG	23,574	23,884	23,884	28,890	21,641	26,595	39,886	31,369	34,178	25,577	19,865	16,995	11,803

¹Preliminary.

²Includes Division Vb (EC).

n/a = Not available.

Table 3.7.8

MEGRIM in Sub-area VI. Nominal landings (tonnes) as officially reported to ICES, 1981-1992.

A. Division VIa												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	-	1	-	-	-	-	1	1	1	-	1	6
Denmark	-	-	-	-	-	-	-	-	1	-	-	+
France	1,373	1,337	1,530	1,398	1,411	777	997	1,295	457 ^{1,2}	398 ^{1,2}	455 ^{2,1}	467 ²
Germany, Fed.Rep.	-	-	-	1	+	-	-	2	+	+	-	n/a
Ireland	73	112	113	134	151	243	403	685	474	n/a	n/a	n/a
Spain	-	510	601	310	422	137	102	121	n/a	n/a	n/a	n/a
UK (Engl.& Wales)	78	28	9	14	84	55	369	284	115	29	157	395
UK (N. Ireland)	-	-	+	-	-	+	11	70	1	8	40	32
UK (Scotland)	694	436	424	862	919	660	991	1,068	1,165	1,083	1,192	886
Total	2,218	2,424	2,677	2,719	2,987	1,872	2,874	3,525	n/a	n/a	n/a	n/a
As used by Working Group										2,924	2,672	2,321

¹Preliminary.²Includes Divisions Vb (EC) and VIb.

n/a = Not available.

B. Division VIb												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
France	-	9	2	9	6	11	2	1	... ^{1,2}	... ^{1,2}	... ^{1,2}	... ²
Spain	491	816	784	640	646	730	583	751	n/a	n/a	n/a	n/a
UK (Engl.& Wales)	+	-	6	6	32	88	261	77	49	46	27	68
UK (N. Ireland)	-	-	-	-	-	-	-	-	1	1	2	3
UK (Scotland)	+	-	-	10	82	79	174	185	145	198	189	198
Total	491	825	792	665	766	908	1,020	1,014	n/a	n/a	n/a	n/a

¹Preliminary.²Included in Division VIa.

n/a = Not available.

C. Total for Sub-area VI											
1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
2,709	3,249	3,469	3,384	3,753	2,780	3,894	4,539				

Table 3.7.9

ANGLERFISH in Sub-area VI. Nominal landings (tonnes) as officially reported to ICES, 1981-1992.

A. Division VIa

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	-	-	-	-	4	2	15	2	8	-	3	2
Denmark	-	+	-	-	-	-	4	+	34	+	1	3
Faroe Islands	-	-	-	-	-	-	-	-	1	-	-	-
France	13	1,421	1,543	1,723	2,036	1,505	1,601	2,329	1,901 ^{1,2}	2,182 ^{1,2}	1,910 ^{2,1}	2,189 ²
Germany, Fed. Rep.	2	5	+	4	24	3	4	9	10	+	1	n/a
Ireland	62	113	110	172	119	295	187	324	556	n/a	n/a	n/a
Norway	4	6	9	6	5	6	3	8	27	8	6 ¹	14
Spain	-	358	405	355	281	142	130	269	n/a	n/a	n/a	n/a
UK (Engl. & Wales)	93	74	36	56	52	36	241	403	176	130	272	371
UK (N. Ireland)	-	-	2	2	-	2	2	30	15	21	47	92
UK (Scotland)	1,213	1,177	1,312	1,617	1,522	1,099	1,768	2,629	2,975	2,841	2,562	2,370
Total	1,387	3,154	3,417	3,935	4,043	3,090	3,955	6,003	n/a	n/a	n/a	n/a
As used by Working Group										5,799	5,357	4,632

¹Preliminary.²Includes Divisions Vb(EC) and VIb.

n/a = Not available.

B. Division VIb

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	1	3	-	5	4	-	-	6	1	-	-	3
France	7	24	24	35	13	19	4	4	... ^{1,2}	... ^{1,2}	... ^{1,2}	... ²
Norway	2	1	8	14	7	9	11	7	13	16	18 ¹	10
Spain	315	423	377	598	642	990	730	1,340	n/a	n/a	n/a	n/a
UK (Engl. & Wales)	2	-	22	20	85	112	253	123	48	41	122	140
UK (N. Ireland)	-	-	-	-	-	-	-	-	2	1	1	2
UK (Scotland)	3	2	2	35	262	196	296	250	167	225	177	190
Total	331	454	433	707	1,013	1,326	1,294	1,730	n/a	n/a	n/a	n/a

¹Preliminary.²Included in Division VIa.

n/a = Not available.

C. Total for Sub-area VI

1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
1,718	3,608	3,850	4,642	5,056	4,416	5,249	7,733				

Table 3.7.10 Nominal catch (tonnes) of BLUE LING in Division Va, 1981-1992, as officially reported to ICES.

BLUE LING Va												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	220	224	1,195	353	59	69	75	271	403	1,029	241	321
Iceland	7,952	5,945	5,117	3,122	1,407	1,774	1,693	1,093	2,124	1,992	1,582	2,500
Norway	229	64	402	31	7	8	8	7	5	-	- ¹	-
Total	8,401	6,233	6,714	3,506	1,473	1,851	1,776	1,371	2,532	3,021	1,823	2,821

¹Preliminary.**Table 3.7.11** Nominal catch (tonnes) of BLUE LING in Division Vb, 1981-1992, as officially reported to ICES.

BLUE LING Vb												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	1,529	2,889	4,396	7,210	4,434	4,880	3,071	6,275	3,090	1,014	1,644	3,664
France	371	843	668	515	1,193	2,578	3,246	3,036	1,599 ¹	1,595 ¹	347 ¹	n/a
Germany, Fed.Rep.	2,867	2,538	223	214	217	197	152	49	51	71	36	n/a
Norway	260	187	438	155	210	126	171	166	323	641	247 ¹	646
UK	-	-	-	-	-	-	-	-	-	-	3	4
Total	5,027	6,457	5,725	8,094	6,054	7,781	6,640	9,526	5,063	3,321	2,277	n/a
Unallocated	-	-	-	-	-	-	-	75 ²	126 ²	228 ²	114 ²	360 ^{2,3,4}
Total figures as used by Working Group	5,027	6,457	5,725	8,094	6,054	7,781	6,640	9,601 ²	5,189 ²	3,549 ²	2,391 ²	4,674 ^{2,3,4}

¹Preliminary.²Includes Faroese catches in Sub-Division IIa4.³Includes French catches, reported by IFREMER.⁴Includes German catches, reported by the Faroese Coastal Guard Service.

Table 3.7.12 Nominal catch (tonnes) of BLUE LING in Sub-area VI, 1981-1992, as officially reported to ICES.

BLUE LING Division VIa												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	-	-	-	-	56	-	-	14	6	-	8	4
France	3,338	3,430	5,233	3,653	5,670	7,628	9,389	6,335	7,010 ¹	3,730 ¹	3,157 ¹	n/a
Germany, Fed.Rep.	335	79	11	183	5	7	44	2	2	44	18	n/a
Norway	11	16	118	45	75	50	51	29	143	54	63 ¹	127
UK	1	99	13	5	2	3	13	3	+	1	37	51
Total	3,685	3,624	5,375	3,886	5,808	7,688	9,497	6,383	7,161	3,829	3,283	n/a
Unallocated	-	-	-	-	-	-	-	-	-	-	169 ²	3,330 ²
Total as used by Working Group	3,685	3,624	5,375	3,886	5,808	7,688	9,497	6,383	7,161	3,829	3,452 ²	3,512 ²

¹Preliminary.

²Includes French catches reported by IFREMER.

BLUE LING Division VIb												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	-	-	-	133	11	1,845	-	2,000	1,292	360	111	229
France	534	263	243	3,281	7,263	2,141	10	499	60 ¹	695 ¹	2,259 ¹	n/a
Germany, Fed.Rep.	3,944	554	38	-	31	39	333	37	22	-	6	n/a
Norway	5	13	50	43	38	66	76	42	217	127	102 ¹	50
UK	-	1	2	-	-	8	72	23	16	3	20	16
Total	4,483	831	333	3,457	7,343	4,099	491	2,601	1,607	1,185	2,498	n/a
Unallocated	-	-	-	-	-	-	-	-	-	-	-	1,291 ²
Total as used by Working Group	4,483	831	333	3,457	7,343	4,099	491	2,601	1,607	1,185	2,498	1,586

¹Preliminary.

²Includes French catches reported by IFREMER.

Table 3.7.13 Nominal catch (tonnes) of BLUE LING in Sub-area XIV, 1981-1992, as officially reported to ICES.

BLUE LING XIV												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	-	-	-	-	-	-	-	21	13	-	-	-
Germany, Fed.Rep.	1,206	1,946	621	537	314	150	199	218	58	64	105	n/a
Greenland	-	-	-	-	-	-	-	3	-	5	5	2
Norway	-	-	-	-	-	-	-	-	-	-	+ ¹	50
UK (England & Wales)	-	-	-	-	-	-	-	-	-	11	45	32
Total	1,206	1,946	621	537	314	150	199	242	71	80	155	n/a

¹Preliminary.

Table 3.7.14 Blue ling, landings (tonnes) in Divisions Va, Vb, VIa and VIb and Sub-area XIV, as used by the Working Group.

Year	Va	Vb	VIa	VIb	XIV	Total
1980	8,399	10,020	2,907	9,361	746	31,433
1981	8,401	5,027	3,685	4,483	1,206	22,802
1982	6,233	6,457	3,624	831	1,946	19,091
1983	6,714	5,725	5,375	333	621	18,768
1984	3,506	8,094	3,886	3,457	537	19,480
1985	1,473	6,054	5,808	7,343	314	20,992
1986	1,851	7,781	7,688	4,099	150	21,569
1987	1,776	6,640	9,497	491	199	18,603
1988	1,371	9,601 ¹	6,383	2,601	242	20,198
1989	2,532	5,189 ¹	7,161	1,607	71	16,560
1990	3,021	3,549 ¹	3,829	1,185	80	11,664
1991	1,823	2,391 ¹	3,452	2,498	155	10,319
1992	2,821	4,674 ^{1,2,3}	3,512	1,586	84	12,677
Avg 80-92	3,840	6,246	5,139	3,067	489	18,781

¹Includes Faroese catches in Sub-Division IIa4.

²Includes French catches, reported by IFREMER.

³Includes German catches, reported by the Faroese Coastal Guard Service.

Table 3.7.15 Nominal catch (tonnes) of LING in Division Va, 1981-1992, as officially reported to ICES.

LING Va												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	196	116	128	103	59	88	157	134	95	42	69	34
Faroe Islands	489	524	644	450	384	556	657	619	614	399	530	525
Iceland	3,348	3,733	4,256	3,304	2,980	2,946	4,161	5,098	4,896	5,153	5,206	4,750
Norway	415	612	115	21	17	4	6	10	5	-	- ¹	-
Total	4,448	4,985	5,143	3,878	3,440	3,594	4,981	5,861	5,610	5,594	5,805	5,309

¹Preliminary.

Table 3.7.16 Nominal catch (tonnes) of LING in Division Vb, 1981-1992, as officially reported to ICES.

LING Vb												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	-	-	4	16	4	-	-	-	-
Faroe Islands	1,400	2,370	2,505	2,821	3,190	2,583	3,958	2,215	1,860	1,737	2,320	1,792
France	13	16	155	11	40	123	384	53	40 ¹	34 ¹	9 ¹	n/a
Germany, Fed.Rep.	1	3	5	6	3	6	8	4	2	1	2	n/a
Norway	2,776	3,614	2,746	1,566	1,955	2,240	1,999	2,168	2,743	2,074	2,149 ¹	1,790
UK	28	94	48	4	2	1	2	6	3	9	4	32
Total	4,218	6,097	5,459	4,408	5,190	4,957	6,367	4,450	4,648	3,855	4,484	n/a
Unallocated	-	-	-	-	-	-	-	3 ²	2 ²	14 ²	17 ²	10 ^{2,3}
Total Figures as used by Working Group	4,218	6,097	5,459	4,408	5,190	4,957	6,367	4,453 ²	4,650 ²	3,869 ²	4,501 ²	3,624 ^{2,3}

¹Preliminary.

²Includes Faroese catches in Sub-Division IIa4.

³Includes French and German catches reported by the Faroese Coastal Guard service.

Table 3.7.17 Nominal catch (tonnes) of LING in Sub-area VI, 1981-1992, as officially reported to ICES.

LING Division VIa												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	-	4	-	1	4	-	4	4	6	-	3	-
Denmark	-	1	-	-	-	-	1	+	1	+	+	+
Faroe Islands	-	20	-	-	-	-	-	-	6	8	3	-
France	3,820	5,049	5,362	5,757	6,061	4,620	4,338	5,118	3,170 ¹	2,456 ¹	1,685 ¹	n/a
Germany, Fed.Rep.	-	-	-	14	8	6	2	6	11	1	2	n/a
Ireland	44	34	62	49	81	255	287	196	138	n/a	n/a	n/a
Norway	2,150	4,499	5,943	4,667	4,779	5,426	3,842	3,392	3,858	3,263	2,053 ¹	2,292
Spain	-	461	604	720	388	620	975	580	n/a	n/a	n/a	n/a
UK	502	389	314	442	640	435	1,087	2,002	1,252	911	982	968
Total	6,516	10,457	12,285	11,650	11,961	11,362	10,536	11,298	n/a	n/a	n/a	n/a
Unallocated	-	-	-	-	-	-	-	-	-	-	-	1,265
Total figures as used by Working Group	6,516	10,457	12,285	11,650	11,961	11,362	10,536	11,298	8,442	6,639	4,728	4,525

¹Preliminary.

²Includes catches reported by IFREMER.

LING Division VIb												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	4	123	204	153	24	6	-	196	17	3	-	18
France	5	13	8	34	140	24	4	8	2 ¹	- ¹	2 ¹	n/a
Germany, Fed.Rep.	+	-	-	-	-	-	2	-	-	-	n/a	n/a
Norway	1,083	1,711	2,315	2,345	1,973	2,157	1,933	1,253	3,616	1,315	2,454 ¹	1,713
Spain	590	1,911	1,889	986	2,381	2,762	4,036	2,995	n/a	n/a	n/a	n/a
UK	192	84	30	57	202	236	315	317	125	174	147	142
Total	1,874	3,842	4,446	3,575	4,720	5,185	6,290	4,769	n/a	n/a	n/a	n/a

¹Preliminary.

²Includes catches reported by IFREMER.

Table 3.7.18 Nominal catch (tonnes) of LING in Sub-area XIV, 1981-1992, as officially reported to ICES.

LING XIV												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	13	-	-	-	-	17	-	-	-	-	-	n/a
Germany, Fed.Rep.	298	8	1	6	1	2	1	3	1	1	+	n/a
Norway	-	-	-	-	-	-	-	-	-	2	+ ¹	7
UK (England & Wales)	-	-	-	-	-	-	-	-	-	6	1	-
Total	311	8	1	6	1	19	1	3	1	9	1	7

¹Preliminary.

Table 3.7.19 Ling, landings (tonnes) in Divisions Va, Vb, VIa and VIb and Sub-area XIV, as used by the Working Group.

Year	Va	Vb	VIa	VIb	XIV	Total
1980	4,624	4,510	6,395	2,190	208	17,927
1981	4,448	4,218	6,516	1,874	311	17,367
1982	4,985	6,097	10,457	3,842	8	25,389
1983	5,143	5,459	12,285	4,446	1	27,334
1984	3,878	4,408	11,650	3,575	6	23,517
1985	3,440	5,190	11,961	4,720	1	25,312
1986	3,594	4,957	11,362	5,185	19	25,117
1987	4,981	6,367	10,536	6,290	1	28,175
1988	5,861	4,453 ¹	11,298	4,769	3	26,384
1989	5,610	4,650 ¹	8,442	3,760	1	22,463
1990	5,594	3,869 ¹	6,639	3,757	9	19,868
1991	5,805	4,501 ¹	4,728	2,603	1	17,638
1992	5,309	3,624 ^{1,3}	4,525 ²	1,873	7	15,338
Avg 80-92	4,867	4,793	8,984	3,760	44	22,448

¹Includes Faroese catches in Sub-Division IIa4.

²Includes French catches, reported by IFREMER.

³Includes German catches, reported by the Faroese Coastal Guard Service.

Table 3.7.20 Nominal catch (tonnes) of TUSK (Cusk) in Division Va, 1981-1992, as officially reported to ICES.

TUSK Va												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	2,624	2,410	4,046	2,008	1,885	2,811	2,638	3,757	3,908	2,475	2,286	1,567
Iceland	2,827	2,804	3,469	3,430	3,068	2,549	2,984	3,078	3,131	4,813	6,439	6,338
Norway	1,025	666	772	254	111	21	19	20	10	-	- ¹	-
Total	6,476	5,880	8,287	5,692	5,064	5,381	5,641	6,855	7,049	7,288	8,725	7,905

¹Preliminary.**Table 3.7.21** Nominal catch (tonnes) of TUSK (Cusk) in Division Vb, 1981-1992, as officially reported to ICES.

TUSK Vb												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	-	-	+	2	+	-	-	-	-
Faroe Islands	2,066	4,148	3,450	4,394	5,288	3,625	4,262	3,372	1,991	3,193	4,204	3,346
France	14	14	15	25	34	24	54	81	52 ¹	63 ¹	16 ¹	n/a
Germany, Fed.Rep.	7	12	11	16	10	15	13	8	2	26	1	n/a
Norway	2,748	2,092	1,935	1,537	1,975	1,566	2,198	2,204	3,065	2,896	2,042 ¹	2,040
UK	15	125	73	2	+	+	+	+	+	+	+	2
Total	4,850	6,391	5,484	5,974	7,307	5,220	6,529	5,665	5,110	6,178	6,263	n/a
unallocated	-	-	-	-	-	-	-	67 ²	75 ²	153 ²	38 ²	35 ^{2,3}
Total Figures as used by Working Group	4,850	6,391	5,484	5,974	7,307	5,220	6,529	5,732 ²	5,185 ²	6,331 ²	6,301 ²	5,423 ^{2,3}

¹Preliminary.²Includes Faroese catches in Sub-Division IIa4.³Includes French catches, reported by the Faroese Coastal Guard Service.

Table 3.7.22a Nominal catch (tonnes) of TUSK (Cusk) in Sub-area VI, 1981-1992, as officially reported to ICES.

TUSK Division VIa												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Denmark	-	-	-	-	-	-	-	-	+	-	-	-
Faroe Islands	-	-	-	-	-	-	-	-	6	9	5	-
France	322	355	418	514	767	608	627	724	661 ¹	705 ¹	483 ¹	n/a
Germany, Fed.Rep.	1	-	-	1	1	+	+	1	3	+	+	n/a
Ireland	-	-	-	-	-	-	1	-	2	n/a	n/a	n/a
Norway	802	1,052	1,733	1,305	1,609	1,873	1,238	1,310	1,583	1,506	998 ¹	1,121
Spain	-	414	250	-	-	-	-	-	n/a	n/a	n/a	n/a
Sweden	-	2	-	-	-	-	-	-	-	-	-	-
UK	95	7	3	6	2	6	16	43	10	20	27	25
Total	1,220	1,830	2,404	1,826	2,379	2,487	1,882	2,078	2,265	2,240	1,513	1,146¹

¹Preliminary.

Table 3.7.22b

TUSK Division VIb												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	1	159	188	53	48	106	-	217	41	6	-	38
France	1	3	3	4	3	9	2	4	1 ¹	3 ¹	6 ¹	n/a
Germany, Fed.Rep.	1	+	-	-	-	-	-	-	-	-	+	n/a
Norway	568	468	1,080	960	944	952	1,385	601	1,537	738	1,051 ¹	763
Spain	-	2,098	1,902	-	-	-	-	-	n/a	n/a	n/a	n/a
UK (Scotland)	181	101	25	+	20	24	21	42	17	24	31	40
Total	752	2,829	3,198	1,017	1,015	1,091	1,408	864	1,596	771	1,088	n/a

¹Preliminary.

Table 3.7.23 Nominal catch (tonnes) of TUSK (Cusk) in Sub-area XIV, 1981-1992, as officially reported to ICES.

TUSK XIV												
Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	110	-	74	-	-	33	13	19	13	-	-	-
Germany, Fed.Rep.	10	10	11	5	4	2	2	2	1	2	2	n/a
Norway	-	-	-	-	-	-	-	-	-	7	68 ¹	120
UK (England & Wales)	-	-	-	-	-	-	-	-	-	-	1	-
Total	120	10	85	5	4	35	15	21	14	9	71	120

¹Preliminary.

Table 3.7.24 Tusk, landings (tonnes) in Divisions Va, Vb, VIa and VIb and Sub-area XIV, as used by the Working Group.

Year	Va	Vb	VIa	VIb	XIV	Total
1980	6,890	7,810	912	913	13	16,538
1981	6,476	4,850	1,220	752	120	13,418
1982	5,880	6,391	1,830	2,829	10	16,940
1983	8,287	5,484	2,404	3,198	85	19,458
1984	5,692	5,974	1,826	1,017	5	14,514
1985	5,064	7,307	2,379	1,015	4	15,769
1986	5,381	5,220	2,487	1,091	35	14,214
1987	5,641	6,529	1,882	1,408	15	15,475
1988	6,855	5,732 ¹	2,078	864	21	15,550
1989	7,049	5,185 ¹	2,265	1,596	14	16,109
1990	7,288	6,331 ¹	2,240	771	9	16,639
1991	8,725	6,301 ¹	1,513	1,088	71	17,698
1992	7,905	5,423 ^{1,2}	1,146	841	120	15,435
Avg 80-92	6,703	6,041	1,860	1,337	40	15,981

¹Includes Faroese catches in Sub-Division IIa4.

²Includes French catches, reported by the Faroese Coastal Guard Service.

Table 3.8.1 Nominal catch (tonnes) of COD in Division VIIa, 1981-1992, as officially reported to ICES.

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	395	269	139	135	185	222	344	269	467	310	78	174
Denmark	-	6	-	-	-	-	-	-	-	-	-	-
France	1,178	1,066	815	912	1,782	1,480	1,717	2,406	352 ¹	201 ¹	320 ¹	151
Ireland	6,552	4,758	4,032	2,885	4,121	3,991	5,017	5,821	3,656	n/a	n/a	n/a
Netherlands	94	48	34	38	104	-	-	-	-	n/a	n/a	n/a
UK (Engl. & Wales)	2,712	2,544	1,405	1,253	1,200	847	1,922	2,667	2,554	1,310	1,229	1,076
UK (Isle of Man)	221	161	103	98	119	80	44	118	39	48	175	n/a
UK (N. Ireland)	3,360	3,852	3,463	2,658	2,541	2,992	3,565	4,080	3,864	3,486	2,290	2,372
UK (Scotland)	376	583	336	669	1,038	446	574	472	351	1,700	485	390
Total	14,894	13,281	10,327	8,648	11,090	10,058	13,183	15,833	11,283	n/a	n/a	n/a
Unallocated	13	-	-312 ²	-265 ²	-607 ²	-206 ²	-289 ²	-1,715 ²	1,468	-324 ⁴	2,137 ⁴	3,010 ³
Total figures used by Working Group for stock assessment	14,907	13,381	10,015	8,383	10,483	9,852	12,894	14,168	12,751	7,379 ⁵	6,714	7,173

¹Preliminary.

²Overreporting.

³Incomplete official statistics.

⁴Incomplete official statistics and misreporting from Division VIa.

⁵Revised.

n/a = Not available.

Table 3.8.2 Nominal catch (tonnes) of WHITING in Division VIIa, 1981-1992, as officially reported to ICES and Working Group estimates of human consumption and discards.

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	85	45	78	99	100	70	109	90	92	142	53	78
France	1,283	1,333	1,021	930	956	770	826	1,063	533 ¹	528 ¹	611 ¹	135
Ireland	5,863	4,710	3,047	4,276	5,521	3,101	4,067	4,394	3,871	n/a	n/a	n/a
Netherlands	12	14	18	5	30	-	-	-	-	n/a	n/a	n/a
UK (Engl. & Wales)	816	1,195	1,200	1,224	1,379	1,004	1,529	1,202	946	1,106	934	839
UK (Isle of Man)	300	268	127	68	57	25	14	15	26	75	74	n/a
UK (N. Ireland)	9,049	9,927	5,218	5,660	8,382	4,940	4,858	4,621	5,651	4,029	3,260	3,075
UK (Scotland)	103	189	120	275	368	129	281	107	184	280	272	272
Total human consumption	17,511	17,681	10,829	12,537	16,793	10,039	11,684	11,492	11,303	n/a	n/a	n/a
Total human consumption figures used by the Working Group for stock assessment	17,029	17,219	10,508	11,561	15,952	10,086	10,697	9,955 ³	11,208 ³	7,973	6,932	6,942
Estimated discards from <i>Nephrops</i> fishery ⁴	3,577	893	1,837	3,674	2,284	2,329	3,721 ³	1,901 ³	2,014 ²	2,683	2,679	4,149

¹Preliminary.

²Overreporting.

³Revised.

⁴Based on UK (N. Ireland) data.

n/a = Not available.

Table 3.8.3 Nominal landings (t) of PLAICE in Division VIIa, 1981-1991, as officially reported to ICES.

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ⁴
Belgium	231	130	195	118	285	384	403	243	265	301	138	321
France	51	60	99	38	110	165	87	58	11 ⁴	105 ⁴	20 ⁴	6
Ireland	1,243	923	1,384	1,420	2,000	1,858	2,132	2,009	1,406	n/a	n/a	n/a
Netherlands	40	29	73 ¹	30 ¹	1,091	-	-	-	-	n/a	n/a	n/a
UK (Engl. & Wales)	2,117	1,868	1,666	2,301	2,295	1,774	2,366	1,630	2,017	1,644	1,234	1,142
UK (Isle of Man)	27	12	11	11	26	12	9	12	18	27	51	n/a
UK (N. Ireland)	132	159	183	203	198	272	332	286	370	325	334	173
UK (Scotland)	64	47	42	86	118	119	243	127	94	204	95	59
Others	1	0	0	0	0	0	0	0	0	0	0	0
Total	3,906	3,228	3,653	4,207	6,123	4,584	5,572	4,365	4,181	n/a	n/a	n/a
Discards ²	-	-	-	-	-	250	270	220	0	0	0	0
Unallocated	0	9	-14 ³	34	-1,048 ³	-28 ³	378	420	191	n/a	n/a	n/a
Total figures used by the Working Group for stock assessment	3,906	3,237	3,639	4,241	5,075	4,806	6,220	5,005	4,372	3,275	2,554	3,242

¹EC figures.²Estimated discards as a result of UK (England and Wales) by-catch restrictions.³Overreporting.⁴Preliminary.

n/a = Not available.

Table 3.8.4 Irish Sea SOLE. Nominal catches (t), 1981-1992, as officially reported to ICES.

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Belgium	884	669	544	425	589	930	987	915	1,010	786	371	531
Denmark	15	-	-	-	-	-	-	-	-	-	-	-
France	13	9	3	10	9	17	5	11	5 ¹	2 ¹	3 ¹	1
Ireland	167	161	203	187	180	235	312	366	155	n/a	n/a	n/a
Netherlands	186	138	224	113	546	-	-	-	-	n/a	n/a	n/a
UK (Engl. & Wales)	311	277	219	230	269	637	599	507	527	493	488	403
UK (Isle of Man)	7	10	10	6	12	1	3	1	2	10	44	n/a
UK (N. Ireland)	41	31	33	38	36	50	72	47	83	73	71	61
UK (Scotland)	45	44	29	17	28	46	63	38	40	41	27	27
Total	1,669	1,339	1,265	1,026	1,669	1,916	2,041	1,885	1,822	n/a	n/a	n/a
Unallocated	-2 ²	-1 ²	-96 ²	32	-523 ²	79	767 ³	103	11	0	0	0
Total figures used by Working Group for stock assessment	1,667	1,338	1,169	1,058	1,146	1,995	2,808	1,999 ⁴	1,833	1,583	1,214	1,259

¹Preliminary.

²Over-reporting.

³Excess catches.

⁴Revised.

n/a = Not available.

Table 3.9.1 Nominal catches of COD in Divisions VIIf and VIIg as used by Working Group in 1993.

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	172	244	229	451	372	216	542	888	612	296	190
France	5,984	4,602	4,900	5,237	7,050	6,998	10,535	12,981	7,334	4,945	5,287
Ireland	142	274	204	198	226	380	612	1,003	177	246	340
UK (England and Wales)	302	188	287	307	302	355	351	379	554	507	565
Total	6,600	5,308	5,620	6,193	7,950	7,949	12,040	15,251	8,677	5,994	6,382

Table 3.9.2 Nominal catches of WHITING in Divisions VIIf and VIIg as used by the Working Group in 1993.

Year	Belgium	France	Ireland	UK (England and Wales)	Total
1982	70	7,172	62	187	7,491
1983	120	8,080	124	162	8,486
1984	154	6,552	299	224	7,229
1985	164	6,798	138	175	7,275
1986	104	6,149	138	117	6,845
1987	109	8,123	198	258	8,688
1988	155	9,013	189	322	9,679
1989	293	10,530	1,334	285	12,442
1990	303	9,265	174	322	10,132
1991	284	8,584	190	450	9,509
1992 ¹	105	8,075	236	282	8,698

¹Provisional.

Table 3.9.3 Nominal landings (t) of PLAICE in Divisions VIIIf,g, 1982-1992.

Country	Year										
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 ¹	1992 ¹
Belgium	341	314	283	357	544	576	635	835	777	479	326
France	568	532	558	493	598	708	687	649	642	533	455
Ireland	198	48	72	91	59	122	164	195	167	94	106
UK (Engl. + Wales)	196	279	366	466	324	495	630	472	496	395	301
UK (Others)	0	0	0	0	21	0	0	0	0	0	0
Total	1,303	1,173	1,279	1,407	1,546	1,901	2,116	2,151	2,082	1,501	1,188
Total figures used by Working Group for stock assessment	1,303	1,146	1,210	1,752	1,691	1,901	2,116	2,151	2,082	1,501	1,188

¹Provisional.

NB:ICES receives statistics from some countries only for Divisions VIIg-k combined and not for each division separately. The figures up to 1982 and 1987 onwards are provided by members of the Working Group; from 1983-1986, they are figures submitted to the EC by member states.

Table 3.9.4 Celtic Sea SOLE. Divisions VIIIf and VIIg. Nominal landings (tonnes), 1981-1992. Data used by the Working Group.

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	938	819	871	786	786	1,092	704	725	660	689	839	516
France	91	100	124	115	126	92	72	89	97	100	80	136
Ireland	8	3	48	4	13	12	9	15	32	41	N/A	4
UK (Engl. & Wales)	175	206	330	361	403	404	437	317	203	359	395	325
Others	-	-	-	-	-	-	-	-	-	-	10	-
Total	1,212	1,128	1,373	1,266	1,328	1,600	1,222	1,146	992	1,189	1,324	981
Unallocated	-	-	-	-	-	-	-	-	-	-	-217	-
Total used by Working Group in Assessment	1,212	1,128	1,373	1,266	1,328	1,600	1,222	1,146	992	1,189	1,107	981

¹Preliminary

Table 3.9.5 Western Channel Cod. Nominal catches (t) of cod in Division VIIe as used by the Working Group.

Country	1987	1988	1989	1990	1991	1992 ¹
Belgium	10	12	19	6	6	2
Denmark	-	-	-	5	-	-
France	1,119	1,899	1,453	654	341	331
UK (England and Wales)	497	832	724	605	402	364
UK (Scotland)	-	-	2	4	-	-
Total	1,626	2,743	2,198	1,274	749	697

¹Preliminary.

Table 3.9.6 Western Channel Whiting. Nominal catches (t) of whiting in Division VIIe as used by the Working Group.

Country	1987	1988	1989	1990	1991	1992 ¹
Belgium	2	4	3	4	2	1
France	1,510	1,485	915	479	667	543
UK (England and Wales)	746	1,167	911	1,352	1,431	931
UK (Scotland)	-	-	5	41	21	-
Total	2,258	2,656	1,834	1,876	2,121	1,475

¹Preliminary.

Table 3.9.7

English Channel PLAICE. Nominal landings (tonnes) in Division VIIe, 1976-1992, as officially reported to ICES, and as used by the Working Group.

Year	Belgium	Denmark	France	UK (Engl. & Wales)	Others	Total reported	Unallocated ²	Total as used by WG
1976	5	- ¹	323	312	-	640	-	640
1977	3	- ¹	336	363	-	702	-	702
1978	3	- ¹	314	467	-	78	-	784
1979	2	- ¹	458	515	-	975	2	977
1980	23	- ¹	325	609	9	966	113	1,079
1981	27	-	537	953	-	1,517	-16	1,501
1982	81	-	363	1,109	-	1,553	135	1,688
1983	20	-	371	1,195	-	1,586	-91	1,495
1984	24	-	278	1,144	-	1,446	101	1,547
1985	39	-	197	1,122	-	1,358	83	1,441
1986	26	-	276	1,389	- ¹	1,691	119	1,810
1987	68	-	435	1,419	-	1,922	36	1,958
1988	90	-	584	1,654	-	2,328	130	2,458
1989	89	-	448 ²	1,708	2	2,247	111	2,358
1990	82	2	N/A ³	1,873	18	1,975	618	2,593
1991	57	-	251 ²	1,314	16	1,638	210	1,848
1992	25	-	277 ²	1,107	1	1,410	214	1624

¹Included in Division VIId.

²Estimated by the Working Group.

³Divisions VIId,e = 14,739 t.

Table 3.9.8 Division VIIe SOLE. Nominal landings (tonnes), 1972-1992 as officially reported to ICES and as used by the Working Group.

Year	Belgium	France	UK (Engl. & Wales)	Other	Total Reported	Unreported ²	Total as used by WG
1972	6	230 ¹	201	-	437	-	437
1973	2	263 ¹	194	-	459	-	459
1974	6	237	181	-	424	3	427
1975	3	271	217	-	491	-	491
1976	4	352	260	-	616	-	616
1977	3	331	271	-	606	-	606
1978	4	384	453	20	861	-	861
1979	1	515	665	-	1,181	-	1,181
1980	45	447	764	13	1,269	-	1,269
1981	16	415	788	1	1,220	-5	1,215
1982	98	321	1,028	-	1,447	-1	1,446
1983	47	405	1,043	3	1,498	-	1,498
1984	48	421	901	-	1,370	-	1,370
1985	58	130	911	-	1,099	310	1,409
1986	62	467	840	127	1,496	-128	1,368
1987	48	432	632	-	1,112	47	1,159
1988	67	98	784	-	949	401	1,350
1989	69	112 ³	611	7	799	362	1,161
1990 ³	41	81 ³	634	1	757	325	1,082
1991 ³	35	111 ²	480	1	627	104	731
1992 ³	41	122 ²	456	1	620	149	769

¹Estimated from Division VIIId,e total by the Working Group.

²Estimated by the Working Group.

³Provisional

Table 3.9.9

ICES Divisions VIIb,c Landing statistics as used by the Working Group

COD Landings, Divisions VIIb,c, as used by the Working Group

Country	1988	1989	1990	1991	1992*
France	591	474*	206*	112*	36
Germany Fed. Rep.	-	1	-	-	-
Ireland	388	915	376*	443*	162
Norway	2	9	29	11*	39
UK (England and Wales)	23	9	12	35	61
UK (N. Ireland)	-	-	-	2	1
UK (Scotland)	5	33	300	173	146
TOTAL	1009	1441	923	776	445

*Preliminary

WHITING Landings, Divisions VIIb,c, as used by the Working Group

Country	1988	1989	1990	1991	1992*
France	113	56*	63*	40*	27
Germany, Fed. Rep.	+	-	-	-	-
Ireland	922	1199	632*	308*	381
UK (England and Wales)	12	1	-	15	13
UK (Isle of Man)	+	-	-	-	+
UK (Scotland)	+	32	38	79	154
TOTAL	1047	1288	733	442	575

*Preliminary

SOLE Landings, Divisions VIIb,c, as used by the Working Group

Country	1988	1989	1990	1991	1992*
France	2	+	-*	5*	1
Ireland	34	38	23*	25*	29
UK (England and Wales)	1	-	-	-	-
UK (Scotland)	-	-	+	-	+
TOTAL	37	38	23	30	30

*Preliminary

PLAICE Landings, Divisions VIIb,c, as used by the Working Group

Country	1988	1989	1990	1991	1992*
France	9	1*	11*	9*	3
Ireland	157	159	136*	199*	181
UK (England and Wales)	2	2	-	+	6
UK (Scotland)	+	13	91	3	3
TOTAL	168	175	238	211	193

*Preliminary

Table 3.9.10 ICES Divisions VIIh-k, Landing Statistics as used by the Working Group

COD Landings, Divisions VIIh-k, as used by the Working Group

Country	1988	1989	1990	1991	1992*
Belgium	102'	229'	86'	51'	81'
Denmark	+	-	-	+	-
France	1960*	2137*	1313*	603*	1056
Ireland	868	857*	1294*	1133*	1152
Norway	-	13'	20'	-	-
UK (England and Wales)	104	128	191	189	276
UK (Isle of Man)	-	-	-	-	-
UK (N. Ireland)	-	-	2	-	-
UK (Scotland)	2'	-	122	19	10
TOTAL	3036	3364	3028	1995	2575

*Preliminary

'Include VIIg

WHITING Landings, Divisions VIIh-k, as used by the Working Group

Country	1988	1989	1990	1991	1992*
Belgium	19'	39'	67'	43'	47'
Denmark	-	+	-	-	-
France	777	753*	529*	367*	306
Germany Fed. Rep.	-	-	+	-	14'
Ireland	1771	1483	1304*	1408*	2002
UK (England and Wales)	109	116	47	103	167
UK (Isle of Man)	-	-	-	-	-
UK (N. Ireland)	-	-	-	-	-
UK (Scotland)	1'	-	27	12	6
TOTAL	2677	2391	1974	1993	2542

*Preliminary

'Include VIIg

SOLE Landings, Divisions VIIh-k, as used by the Working Group

Country	1988	1989	1990	1991	1992*
Belgium	254'	252'	353'	358'	312'
France	53	84*	66*	55*	70
Ireland	182	206	143*	814*	144
UK (England and Wales)	166	177	144	232	214
UK (Isle of Man)	-	-	-	-	-
UK (N. Ireland)	-	-	-	-	-
UK (Scotland)	-	-	+	-	-
TOTAL	655	719	706	1459	740

*Preliminary

'Include VIIg

Continued...

Table 3.9.10 (Cont'd)

PLAICE Landings, Divisions VIIh-k, as used by the Working Group

Country	1988	1989	1990	1991	1992*
Belgium	245'	403'	301'	252'	246'
Denmark	+	+	-	+	-
France	135	229*	77*	173*	185
Ireland	369	454	677*'	322*	473
UK (England and Wales)	433	73	88	287	260
UK (Isle of Man)	-	-	-	-	-
UK (N. Ireland)	-	-	-	-	-
UK (Scotland)	1'	-	1	+	2'
TOTAL	1183	1159	1144	1034	1166

Table 4.1.1 Nominal landings (tonnes) of HAKE as reported to ICES**HAKE IIIa**

Country	1988	1989	1990	1991	1992*
Belgium	5	3	13	15	15
Denmark	576	952	1,584	1,623	1,547
Netherlands	1	-		-*	-
Norway	60	56	113	116*	152
Sweden	38	50	98	103	141
Total	680	1,061		1,857	1,855

*Preliminary.

HAKE IVa

Country	1988	1989	1990	1991	1992*
Belgium	+	+	+	+	1
Denmark	232	245	336	342	322
France	380	585 ^{2*}	748 ^{2*}	134 ^{2*}	125 ²
Germany	30	29	9	19	28
Netherlands	+	8		-*	18
Norway	202	269	420	510*	436
Sweden ¹	33	24	41	138	60
UK (England & Wales)	67	4	9	13	23
UK (N. Ireland)	3	+	-	-	-
UK (Scotland)	353	188	235	360	411
Total	1,300	1,352		1,516	1,557

*Preliminary. ¹Includes IVb. ²Includes IIa(EC) and IVb,c.

HAKE IVb

Country	1988	1989	1990	1991	1992*
Belgium	32	25	78	115	116
Denmark	790 ²	860 ³	934 ⁴	1,374 ⁵	1,500
France	1	... ^{1*}	... ^{1*}	... ^{1*}	... ¹
Germany	8	5	13	11	22
Netherlands	149	117		88 ^{6*}	162
Norway	2	2	2	1*	2
Sweden ¹
UK (England & Wales)	18	15	16	24	47
UK (N. Ireland)	-	-	-	+	+
UK (Scotland)	34	31	30	54	24
Total	1,034	1,055		1,667	1,867

*Preliminary. ¹Included in IVa. ²Includes 12 t reported as Sub-area IV. ³Includes 4 t reported as Sub-area IV.

⁴Includes 11 t reported as Sub-area IV. ⁵Includes 7 t reported as Sub-area IV. ⁶Includes 21 t reported as Sub-area IV.

HAKE IVc

Country	1988	1989	1990	1991	1992*
Belgium	6	5	1	2	1
Denmark	+	+	1	1	+
France	-	... ^{1*}	... ^{1*}	... ^{1*}	... ¹
Netherlands	4	-		1*	2
UK (England & Wales)	2	1	-	1	4
UK (Scotland)	-	-	+	+	-
Total	12	6		5	6

*Preliminary. ¹Included in IVa.

HAKE VIa

Country	1988	1989	1990	1991	1992*
Belgium	2	2	-	+	-
Denmark	+	+	+	+	+
France	1,909	9,417 ¹ *	6,539 ¹ *	3,162 ¹ *	3,715 ¹
Germany	2	2	+	+	+
Ireland	265	730			
Norway	5	1	+	+*	+
Spain	1,340				
UK (England & Wales)	1,169	506	279	497	451
UK (Isle of Man)	-	+	-	-	
UK (N. Ireland)	83	77	115	278	248
UK (Scotland)	1,329	1,380	1,399	1,692	1,443
Total	6,104				

*Preliminary. ¹Includes Vb(EC), VIb and VII.

HAKE VIb

Country	1988	1989	1990	1991	1992*
France	-	... ¹ *	... ¹ *	... ¹ *	... ¹
Norway	-	-	+	+*	-
Spain	1,336				
UK (England & Wales)	75	8	16	1	5
UK (N. Ireland)	-	+	+	3	-
UK (Scotland)	5	6	12	15	8
Total	1,416				

*Preliminary. ¹Included in VIa.

HAKE VIIa

Country	1988	1989	1990	1991	1992*
Belgium	17	19	16	6	10
France	187	... ¹ *	... ¹ *	... ¹ *	... ¹
Ireland	237	321			
UK (England & Wales)	186	284	139	77	96
UK (Isle of Man)	2	7	8	15	
UK (N. Ireland)	523	1,024	1,336	1,042	733
UK (Scotland)	202	117	84	68	54
Total	1,354	1,772			

*Preliminary. ¹Included in VIa.

HAKE VIIb,c

Country	1988	1989	1990	1991	1992*
France	478	... ^{1*}	... ^{1*}	... ^{1*}	... ¹
Ireland	128	89			
Netherlands	-	-		1*	-
Norway	-	-	+	+*	1
Spain	4,033				
UK (England & Wales)	859	207	157	223	586
UK (N. Ireland)	2	-	-	1	2
UK (Scotland)	8	3	10	38	34
Total	5,508				

*Preliminary. ¹Included in VIa.

HAKE VIIId

Country	1988	1989	1990	1991	1992*
Belgium	26	1	1	2	3
Denmark	-	-	-	-	+
France	4	... ^{1*}	... ^{1*}	... ^{1*}	... ¹
UK (England & Wales)	2	3	3	3	1
UK (Scotland)	-	-	-	-	+
Total	32	4	4	5	4

*Preliminary. ¹Included in VIa.

HAKE VIIe

Country	1988	1989	1990	1991	1992*
Belgium	3	3	1	+	+
France	1,185	... ^{1*}	... ^{1*}	... ^{1*}	... ¹
UK (England & Wales)	329	353	439	507	295
UK (Scotland)	-	1	9	-	-
Total	1,517	357	449	507	295

*Preliminary. ¹Included in VIa.

HAKE VIIf

Country	1988	1989	1990	1991	1992*
Belgium	30	35	28	10	12
France	551	... ^{1*}	... ^{1*}	... ^{1*}	... ¹
UK (England & Wales)	505	502	296	265	173
UK (Isle of Man)	-	-	-	3	-
UK (N. Ireland)	-	-	-	1	-
UK (Scotland)	-	16	9	6	-
Total	1,086	553	333	285	

*Preliminary. ¹Included in VIa.

HAKE VIIg-k

Country	1988	1989	1990	1991	1992*
Belgium	16	29	19	8	11
Denmark	+	-	+	+	-
France	3,332	... ^{1*}	... ^{1*}	... ^{1*}	... ¹
Ireland	1,331	965			
Netherlands	-	4		5*	-
Norway	-	-	+	-*	-
Spain	5,229				
UK (England & Wales)	2,539	1,189	1,499	2,274	2,724
UK (Isle of Man)	-	-	+	-	
UK (N. Ireland)	+	+	2	1	1
UK (Scotland)	1	9	17	214	15
Total	12,448				

*Preliminary. ¹Included in VIa.

HAKE VIII

Country	1988	1989	1990	1991	1992*
Belgium	2	15	8	12	13
Denmark	-	-	-	-	+
France	13,853	13,678 ^{1*}	12,979 ^{2*}	15,607 ^{3*}	10,941 ⁴
Ireland	-	2			
Portugal	23	21	20	23	37
Spain	13,630				
UK (England & Wales)	2	-	-	-	-
Total	27,510				

*Preliminary. ¹VIIIa,b,d,e 13,663 t; VIIIc, IX, X, COPACE(EC) 15 t. ²VIIIa,b,d,e 12,977 t; VIIIc, IX, X COPACE (EC) 2 t. ³VIIIa,b,d,e 15,591 t; VIIIc, IX, X, COPACE(EC) 16 t. ⁴VIIIa,b,d,e 10,907 t; VIIIc, IX, X, COPACE(EC) 34 t.

HAKE IX

Country	1988	1989	1990	1991	1992*
Portugal	5,469	3,111	3,074	3,564	4,582
Spain	6,060				
Total	11,529				

*Preliminary.

Table 4.1.2 HAKE - Southern stock. Landings estimates ('000 t) for the Southern Hake stock (Divisions VIIIc and IXa) by country and gear as determined by the Working Group, 1972-1992.

Southern Year	Spain						Portugal			France	
	Small			Total							
	Gill- net	gill- net	Long- line	artis- anal	Trawl	Total	Artis- anal	Trawl	Total	Total	stock total
1972	-	-	-	7.1	10.2	17.3	4.7	4.1	8.8	-	26.1
1973	-	-	-	8.5	12.3	20.8	6.5	7.3	13.8	0.2	34.8
1974	2.6	1.0	2.2	5.8	8.3	14.1	5.1	3.5	8.6	0.1	22.8
1975	3.5	1.3	3.0	7.8	11.2	19.0	6.1	4.3	10.4	0.1	29.5
1976	3.1	1.2	2.6	6.9	10.0	16.9	6.0	3.1	9.1	0.1	26.1
1977	1.5	0.6	1.3	3.4	5.8	9.2	4.5	1.6	6.1	0.2	15.5
1978	1.4	0.1	2.1	3.6	4.9	8.5	3.4	1.4	4.8	0.1	13.4
1979	1.7	0.2	2.1	4.0	7.2	11.2	3.9	1.9	5.8	-	17.0
1980	2.2	0.2	5.0	7.3	5.3	12.6	4.5	2.3	6.8	-	19.4
1981	1.5	0.3	4.6	6.4	4.1	10.5	4.1	1.9	6.0	-	16.5
1982	1.3	0.4	5.3	7.0	4.4	11.4	5.0	2.5	7.5	-	18.9
1983	1.5	0.9	7.2	9.6	7.0	16.6	5.2	2.9	8.1	-	24.6
1984	1.6	0.8	8.2	10.6	4.9	15.5	4.3	1.2	5.5	-	21.0
1985	1.8	0.8	4.4	7.0	5.3	12.3	3.8	2.0	5.8	-	18.1
1986	2.1	0.8	3.5	6.4	4.9	11.2	3.2	1.8	5.0	0.0	16.2
1987	2.0	0.5	4.4	6.9	3.5	10.4	3.5	1.3	4.8	0.0	15.2
1988	2.0	0.7	3.0	5.7	3.7	9.4	4.3	1.7	6.0	0.0	15.4
1989	1.9	0.6	1.9	4.4	3.9	8.3	2.7	1.8	4.6	0.0	12.9
1990	1.7	0.6	2.1	4.4	4.1	8.5	2.3	1.1	3.4	0.0	12.0
1991	1.4	0.4	2.2	4.0	3.6	7.6	2.7	1.2	4.0	0.0	11.6
1992	1.5	0.4	2.1	3.9	3.8	7.7	3.8	1.3	5.1	-	12.8

Table 4.2.1 Megrim (*L. whiffiagonis*) in Divisions VII and VIIIa,b.
Nominal landings and catches (t) provided by the Working Group.

	1984	1985	1986	1987	1988	1989	1990	1991	1992
France			3708	4975	5525	4815	4221	3387	3621
Spain			10242	8772	9247	9482	7126	7780	7349
U.K.			2048	1600	1956	1451	1285	1610	1909
Ireland			1563	1561	995	2548	1381	1936	2113
Tot landings	16659	17865	16682	16908	17723	18296	14013	14713	14992
Tot discards	2169	1732	2321	1705	1725	2582	3068	3222	3027
Tot catches	18828	19597	19003	18613	19448	20878	17081	17935	18019

Table 4.3.1**a) Landings of both species of anglerfish in Divisions VIIb-k and VIIIa,b (Working group estimate)**

Year	VIIb-k	VIIIa,b	Total
1985	23,132	6,250	29,382
1986	24,501	5,733	30,234
1987	20700	6,324	27,024
1988	21,331	6,025	27,356
1989	22,892	5,379	28,271
1990	21,692	5,560	27,252
1991	19,902	4,458	24,360
1992	17,132	3,009	20,141

b) Landings of *L. piscatorius* in Divisions VIIb-k and in VIIIa,b (Working Group estimate)

Year	VIIb-k	VIIIa,b	Total
1985	18,263	4,160	22,423
1986	16,549	3,811	20,360
1987	14,818	4,266	19,084
1988	13,774	3,958	17,732
1989	15,522	3,047	18,569
1990	15,154	3,199	18,353
1991	13,476	1,979	15,455
1992	11,011	1,151	12,162

c) Landings of *Lophius budegassa* in areas VIIb-k and VIIIa,b (Working Group estimate)

Year	VIIb-k	VIIIa,b	Total
1986	7,952	1,922	9,874
1987	5,882	2,058	7,940
1988	7,557	2,067	9,624
1989	7,370	2,332	9,702
1990	6,538	2,361	8,899
1991	6,426	2,479	8,905
1992	6,121	1,858	7,979

Table 4.3.2 *Lophius piscatorius* in Divisions VIIb-k and VIIIa,b. Nominal landings in tonnes.

Year	VIIb-k										VIIIa,b						TOTAL VII + VIII	
	IRELAND Trawl (Unit 4)	IRELAND Trawl (Unit 5)	IRELAND Beam Trawl (Unit 6)	UK Gill-Net (Unit 3)	UK Trawl (Unit 4)	UK Trawl (Unit 5)	UK Beam Trawl (Unit 6)	FRANCE Gill-Net (Unit 3)	FRANCE Trawl (Unit 4)	FRANCE Trawl (Unit 5)	FRANCE Neph. Trawl (Unit 8)	SPAIN Trawl (Unit 4)	SPAIN Trawl (Unit 7)	FRANCE Neph. Trawl (Unit 9)	FRANCE Trawl (Unit 10)	FRANCE Trawl (Unit 14)		SPAIN Trawl (Unit 14)
1986	369	344	326	429	1058	372	741		6031	708	1732	4439		1408	500	1168	735	20360
1987	333	345	81	560	778	262	1286		5626	478	1321	3748		1461	585	1572	648	19084
1988	84	227	144	643	684	305	1530		5482	332	1256	2800	287	1235	640	1272	811	17732
1989	123	1102	521	481	201	456	1793	300	4936	677	1173	3759		926	554	958	609	18569
1990	586	835	216	416	337	387	1521	600	4803	642	1319	3482		668	403	1329	799	18353
1991	203	809	51	428	687	211	1090	1300	3870	269	1025	3533		353	255	869	502	15455
1992*	197	788	108	533	997	181	903	1200	2441	171	975	2517		235	98	522	296	12162

* preliminary

Table 4.3.3 *Lophius budegassa* in Divisions VIIb-k and VIIIa,b. Landings in tonnes by fleet.

Year	VIIb-k								VIIIa,b								TOTAL VII + VIII
	IRELAND Trawl (Unit 4)	IRELAND Trawl (Unit 5)	BELGIUM Beam Trawl (Unit 6)	UK Gill-net (Unit 3)	UK Trawl (Unit 4)	UK Trawl (Unit 5)	UK Beam Trawl (Unit 6)	UK Gill-net (Unit 3)	FRANCE Trawl (Unit 4)	FRANCE Trawl (Unit 5)	FRANCE Neph. Trawl (Unit 8)	SPAIN Trawl (Unit 4)	FRANCE Neph. Trawl (Unit 9)	FRANCE Trawl (Unit 10)	FRANCE Trawl (Unit 14)	SPAIN Trawl (Unit 14)	
1986	431	68	277	23	798	41	632		1760	87	458	3377	784	90	633	415	9874
1987	333	98	37	30	401	74	578		1205	98	648	2380	675	119	616	648	7940
1988	409	122	77	34	404	161	814		1972	171	579	2814	608	132	661	666	9624
1989	47	520	280	25	118	235	965	15	2255	83	879	1948	611	204	940	577	9702
1990	231	323	104	22	161	28	729	30	2309	47	899	1655	706	153	950	552	8899
1991	174	687	18	22	408	23	381	85	1833	37	690	2088	575	196	935	773	8905
1992	170	669	15	28	689	38	289	80	1733	22	740	1668	428	102	810	518	7979

Table 5.1.1 Annual landings (t) of SARDINE in Divisions VIIIc and IXa by country.

Country	1975	1976	1977	1978	1979	1980
Portugal	95,877	79,649	79,819	83,553	91,294	106,302
Spain	62,496	62,041	45,931	56,437	62,147	85,380
Total	158,373	141,690	125,750	139,990	153,441	191,682

	1981	1982	1983	1984	1985	1986
Portugal	113,253	100,859	85,922	95,110	111,709	103,451
Spain	100,880	103,645	95,217	107,576	92,398	77,155
Total	214,133	204,504	181,139	202,686	204,107	180,606

	1987	1988	1989	1990	1991	1992
Portugal	90,214	93,591	91,091	92,404	92,638 ¹	83,315
Spain	78,611	64,949	46,035	46,753	35,118	42,739
Total	168,825	158,540	137,126	139,157	127,756	126,054

¹Discards included.

Table 5.2.1 Annual catches (in tonnes) of the Bay of Biscay ANCHOVY (Sub-area VIII).
As estimated by the Working Group.

YEAR/COUNTRY & DIVISION	FRANCE VIIIab	SPAIN VIIIbc	INTERNATIONAL SUBAREA VIII
1960	1085	57000	58085
1961	1494	74000	75494
1962	1123	58000	59123
1963	652	48000	48652
1964	1973	75000	76973
1965	2615	81000	83615
1966	839	47519	48358
1967	1812	39363	41175
1968	1190	38429	39619
1969	2991	33092	36083
1970	3665	19820	23485
1971	4825	23787	28612
1972	6150	26917	33067
1973	4395	23614	28009
1974	3835	27282	31117
1975	2913	23389	26302
1976	1095	36166	37261
1977	3807	44384	48191
1978	3683	41536	45219
1979	1349	25000	26349
1980	1564	20538	22102
1981	1021	9794	10815
1982	381	4610	4991
1983	1911	12242	14153
1984	1711	33468	35179
1985	3005	8481	11486
1986	2311	5612	7923
1987	5061	9863	14924
1988	6743	8266	15009
1989	2200	8174	10374
1990	10598	23258	33856
1991	9708	9573	19281
1992	15207	22468	37676
1993	4000	14650	18650 (*)
Average (1960-92)	3422	30898	34320

*Preliminary data for the first half of the year.

French fishery stopped 20 March.

Table 5.3.1 Portuguese and Spanish annual landings (t) of ANCHOVY in Division IXa. (From Pestana, 1989 and Working Group members.)

Year	Portugal	Spain	TOTAL
1943	9975	---	
1944	6651	---	
1945	992	---	
1946	6520	---	
1947	3392	---	
1948	4938	---	
1949	2684	---	
1950	3377	---	
1951	3594	---	
1952	4415	---	
1953	1033	---	
1954	3919	---	
1955	4523	---	
1956	7898	---	
1957	12610	---	
1958	3030	---	
1959	3788	---	
1960	9503	---	
1961	2492	---	
1962	4446	---	
1963	5714	---	
1964	4118	---	
1965	4460	---	
1966	4460	---	
1967	3818	---	
1968	970	---	
1969	1243	---	
1970	1172	---	
1971	326	---	
1972	207	---	
1973	126	---	
1974	238	---	
1975	372	---	
1976	88	---	
1977	3261	---	
1978	1011	---	
1979	655	---	
1980	980	---	
1981	978	---	
1982	656	---	
1983	673	---	
1984	392	---	
1985	2122	---	
1986	2153	---	
1987	1622	---	
1988	442	4263	4705
1989	823	5336	6159
1990	541	5911	6452
1991	210	5711	5921
1992	138	3028	3166

--- Not available.

Table 5.4.1 Total landings (in tonnes) of Megrim *L. boscii* in Divisions VIIIc and IXa.

Year	Spain			Portugal	Total
	Div. VIIIc	Div. IXa	Total	IXa	
1986	799	197	996	95	1,124
1987	995	586	1,581	62	1,688
1988	917	1,099	2,016	136	2,223
1989	805	1,548	2,353	188	2,629
1990	927	798	1,725	176	1,945
1991	841	634	1,475	208	1,683
1992	654	938	1,592	254	1,846

Table 5.4.2 Total landings (in tonnes) of *L. whiffiagonis* in Divisions VIIIc and IXa.

Year	Spain			Portugal	Total
	Div. VIIIc	Div. IXa	Total	IXa	
1986	508	98	606	53	659
1987	404	46	450	47	497
1988	657	59	716	101	817
1989	533	45	579	136	715
1990	841	25	866	111	977
1991	494	16	510	103	613
1992	474	5	478	29	507

Table 5.5.1 Divisions VIIIC and IXa. Tonnes of *L. piscatorius* and *L. budegassa* landed by the main fishing fleets.

YEAR	DIVISION VIIIC			DIVISION IXa				TOTAL VIIIC IXa
	Spain Trawl	Spain Gillnet	TOTAL	Spain Trawl	Portugal Trawl	Portugal Artisanal	TOTAL	
1984	3600	1866	5466	1136	409	950	2495	7961
1985	1576	2495	4071	977	466	1355	2798	6869
1986	3052	3209	6261	1049	367	1757	3172	9433
1987	2808	3442	6250	1133	426	1668	3227	9477
1988	3583	3263	6846	1254	345	1577	3176	10022
1989	2291	2498	4789	1111	531	1142	2784	7573
1990	1930	1127	3057	1124	713	1231	3068	6125
1991	1993	854	2847	878	533	1545	2956	5803
1992	1668	1068	2736	786	363	1610	2759	5495

Table 5.5.2 *Lophius piscatorius*

ANGLERFISH (PISC.) - Divisions VIIIC and IXa .Tonnes landed
by the main fishing fleets. 1984-1992.

YEAR	DIVISION VIIIC			DIVISION IXa				TOTAL VIIIC+IX
	Spain Trawl	Spain Gillnet	TOTAL	Spain Trawl	Portugal Trawl	Portugal Artisanal	TOTAL	
1984	3086	1690	4776	578	186	492	1256	6032
1985	1210	2372	3582	540	212	702	1454	5036
1986	2499	2624	5123	670	167	910	1747	6870
1987	1714	2670	4384	320	194	864	1378	5762
1988	2525	2253	4778	570	157	817	1544	6322
1989	1643	2147	3790	347	259	600	1206	4996
1990	1439	985	2424	435	326	606	1367	3791
1991	1490	778	2268	319	224	829	1372	3640
1992	1217	1011	2228	301	76	778	1155	3383

Table 5.5.3 *Lophius budegassa*

ANGLERFISH (BUDE) - Divisions VIIIc and IXa. Tonnes landed
by the main fishing fleets . 1984-1992

YEAR	DIVISION VIIIc			DIVISION IXa				TOTAL VIIIc+IXa
	Spain Trawl	Spain Gillnet	TOTAL	Spain Trawl	Portugal Trawl	Portugal Artisanal	TOTAL	
1984	514	176	690	558	223	458	1239	1929
1985	366	123	489	437	254	653	1344	1833
1986	553	585	1138	379	200	847	1425	2563
1987	1094	772	1866	813	232	804	1849	3715
1988	1058	1010	2068	684	188	760	1632	3700
1989	648	351	999	764	272	542	1578	2577
1990	491	142	633	689	387	625	1701	2334
1991	503	76	579	559	309	716	1584	2163
1992	451	57	508	485	287	832	1604	2112

Table 5.6.1 Sole VIIIab. International landings and discards as used by the Working Group (in tonnes).

Years	Official landings	Unreported landings	Used landings	Used catches	Discards
1979	2,443	176	2,619	2,866	247
1980	2,689	297	2,986	3,255	269
1981	2,694	242	2,936	3,352	416
1982	1,746	2,067	3,813	4,321	508
1983	2,669	959	3,628	4,073	445
1984	3,183	855	4,038	4,402	365
1985	3,925	326	4,251	4,556	305
1986	4,567	238	4,805	5,031	226
1987	4,379	707	5,086	5,676	590
1988	4,443	939	5,382	6,029	647
1989	5,782	63	5,845	6,524	679
1990	5,532	384	5,916	6,471	555
1991	4,704	865	5,569	6,047	478
1992	5,484	1,066	6,550	7,027	477
Mean	3,874	656	4,530	4.974	443

Table 6.1.1 Description of management areas together with their *Nephrops* Working Group labels and the functional units contained within them.

Working Group Label	Management Area Description	Functional Units
A	Va	1 Iceland
B	Vb (non EC)	2 Faroe Islands
C	VIa	11 North Minch 12 South Minch 13 Clyde
D	Vb (EC) + VIb	None
E	IIIa	3+4 Skagerrak and Kattegat
F	IVa: rect. 44-48 E6-E7 + 44E8	9 Moray Firth 10 Noup
G	IVa: remainder	7 Fladen
H	IVb,c E of 1° E	5 Botney Gut
I	IVb,c W of 1° E	6 Farn Deepes 8 Firth of Forth
J	VIIa: excluding rect. 33 E2-E5	14 Irish Sea East 15 Irish Sea West
K	VIIId,e	None
L	VIIb,c,j,k	16 Porcupine Bank 17 Aran Grounds 18+19 Irish coast
M	VIIIf,g,h and VIIa 33E2-E5	20+21+22 Celtic Sea
N	VIIIa,b	23+24 Bay of Biscay
O	VIIIc	25 North Galicia 31 Cantabrian Sea
P	VIIIId,e	None
Q	IXa	26 West Galicia 27 N Portugal 28+29 S and SW Portugal 30 Gulf of Cadiz
R	IXb + X	None

Table 6.1.2 Summary of precautionary TACs advised by ACFM for each Management Area for 1994.

Management Area		Catch options (t)
A	Va	Managed by national TAC
B	Vb (non-EC)	Managed by national TAC
C	VIa	11,300
D	Vb (EC) & VIb	Zero TAC
E	IIIa	<2,900
F	IVa: rect 44-48 E6-E7 & 44E8	2,400
G	IVa: remainder	5,000
H	IVb,c east of 1°East	875
I	IVb,c west of 1°East	4,170
J	VIIa: excl. rect 33E2-E5	9,395
K	VIIId,e	Zero TAC
L	VIIb,c,j,k	4,000
M	VIIIf,g,h & VIIa 33E2-E5	3,800
N	VIIIa,b	6,800
O	VIIIc	510
P	VIIId,e	Zero TAC
Q	IXa	1,300
R	IXb & X	Zero TAC

Table 6.2.1 Catches (t) of MACKEREL in the Norwegian Sea (Division IIa) and off the Faroes (Division Vb), 1982-1992. (Data submitted by Working Group members.)

Country	1982	1983	1984	1985	1986	1987 ¹
Denmark	1,008	10,427	11,787	7,610	1,653	3,133
Faroe Islands	180	-	137	-	-	-
France	8	-	-	16	-	-
Germany, Fed. Rep.	-	5	-	-	99	-
German Dem. Rep.	-	-	-	-	16	292
Ireland	-	-	-	-	-	-
Norway	34,540	38,453	82,005	61,065	85,400	25,000
Poland	231	-	-	-	-	-
UK (England & Wales)	-	-	-	-	-	-
UK (Scotland)	-	-	-	-	2,131	157
USSR	1,641	65	4,292	9,405	11,813	18,604
Discards	-	-	-	-	-	-
Total	37,608	48,950	98,222	78,096	101,112	47,186

Country	1988 ¹	1989	1990	1991	1992 ²
Denmark	4,265	6,433	6,800	1,098	251
Estonia					216
Faroe Islands	22	1,247	3,100	5,793	3,347
France	-	11	-	23	6
Germany, Fed. Rep.	380	-	-	-	-
German Dem. Rep.	-	2,409	-	-	-
Ireland	-	-	-	-	-
Latvia					100
Norway	86,400	68,300	77,200	76,760	91,900
Poland	-	-	-	-	-
Russia					42,440
UK (England & Wales)	-	-	+	-	1
UK (Scotland)	1,413	-	400	514	801
USSR	27,924	12,088	30,000	13,631 ³	-
Discards	-	-	2,300	-	-
Total	120,404	90,488	118,700	97,819	139,062

¹Includes catches probably taken in the northern part of Division IVa.

²Preliminary.

³Russia.

Table 6.2.2 Catch (t) of MACKEREL in the North Sea, Skagerrak, and Kattegat (Sub-area IV and Division IIIa), 1982-1992. (Data submitted by Working Group members.)

Country	1982	1983	1984	1985	1986	1987 ¹
Belgium	102	93	68	-	49	14
Denmark	2,034	11,285	10,088	12,424	23,368	28,217
Faroe Islands	720	-	-	1,356	-	-
France	3,041	2,248	-	322	1,200	2,146
Germany, Fed. Rep.	28	10	112	217	1,853	474
Ireland	-	-	-	-	-	-
Netherlands	390	866	340	726	1,949	2,761
Norway	27,966	24,464	27,311	30,835	50,600	108,250
Sweden	692	1,903	1,440	760	1,300	3,162
UK (Engl. & Wales)	16	16	2	143	18	94
UK (Scotland)	44	4	13	7	541	19,763
UK (N.Ireland)	-	-	-	-	-	-
USSR	-	-	-	-	-	-
Unallocated, discards and misreported	450	96	202	3,656	162,822	136,737
Total	35,483	40,985	39,576	50,466	243,700	301,618
Misreported³					148,000	117,000

Country	1988	1989	1990	1991 ²	1992 ²
Belgium	20	37	-	125	102
Denmark	32,588	26,831	29,000	38,834	41,719
Estonia					400
Faroe Islands	-	2,685	5,900	5,338	-
France	1,806	2,200	1,600	2,362	956
Germany, Fed. Rep.	177	6,312	3,500	4,173	4,610
Ireland	-	8,880	12,800	13,000	13,136
Latvia					211
Netherlands	2,564	7,343	13,700	4,591	6,547
Norway	59,750	81,400	74,500	102,350	115,700
Sweden	1,003	6,601	6,400	4,227	5,100
UK (Engl. & Wales)	160	5,618	1,300	2,671	2,258
UK (Scotland)	616	33,042	28,100	33,991	32,879
UK (N.Ireland)	100	-	1,400	255	-
USSR	-	-	-	-	-
Unallocated, discards, and misreported	233,532	100,651	126,900	153,958	143,546
Total	338,316	281,600	305,100	365,875	367,164
Misreported³	180,000	92,000	126,000	130,000	127,000

¹ May include catches taken in Division IIa.

² Preliminary.

³ Catches reported as taken in Division VIa.

Table 6.2.3 Catch (t) of MACKEREL in the Western area (Sub-areas VI and VII and Divisions VIIa,b,d,e). (Data submitted by Working Group members.)

Country	1982	1983	1984	1985	1986	1987
Belgium	-	+	+	-	+	-
Denmark	15,000	15,000	200	400	300	100
Faroe Islands	11,100	14,900	9,200	9,000	1,400	7,100
France	12,300	11,000	12,500	7,400	11,200	11,100
Germany, Fed. Rep.	11,200	23,000	11,200	11,800	7,700	13,300
Ireland	109,700	110,000	84,100	91,400	74,500	89,500
Netherlands	67,200	73,600	99,000	37,000	58,900	31,700
Norway	19,000	19,900	34,700	24,300	21,000	21,600
Poland	-	-	-	-	-	-
Spain	-	-	100	+	-	-
UK (Engl. & Wales)	82,900	62,000	30,000	9,600	9,100	25,200
UK (N.Ireland)	9,600	800	10,600	12,200	9,700	10,700
UK (Scotland)	147,400	120,100	157,700	184,100	137,500	164,800
USSR	-	+	200	+	-	-
Unallocated + misreported	97,300	105,500	18,000	75,100	-98,701	-91,000
Discard	24,900	11,300	12,100	4,500	-	-
Grand Total	607,700	567,100	479,600	467,700	232,599	284,000
Misreported ³					-148,000	-117,000

Country	1988	1989 ²	1990	1991	1992 ²
Belgium	-	-	-	-	-
Denmark	-	1,000?	-	1,573	194
Faroe Islands	2,600	1,100	1,000	4,095	-
France	8,900	12,700	17,400	10,364	9,109
Germany, Fed. Rep.	15,900	16,200	18,100	17,138	21,952
Ireland	85,800	61,100	61,500	64,827	76,313
Netherlands	26,100	24,000	24,500	29,156	32,365
Norway	17,300	700	-	-	-
Poland	-	-	-	-	-
Spain	1,500	1,400	400	4,020	2,764
UK (Engl. & Wales)	24,100	14,700	19,200	25,500	29,978
UK (N.Ireland)	8,900	11,000	12,800	2,995	2,238
UK (Scotland)	175,400	123,400	130,700	134,093	164,674
USSR	+	-	-	-	-
Unallocated + misreported	-175,300	-73,100	-114,500	-133,802	-125,528
Discard	5,800	4,900	11,300	23,550	22,020
Grand Total	377,000	288,900	302,900	183,509	236,079
Misreported ³	-180,000	-92,000	-126,000	-130,000	-127,000

²Preliminary.

³Catches taken in Division IVa but reported for Division VIa.

Table 6.2.4 Catches of mackerel by Division and Sub-area in 1992. (Data submitted by Working Group members.)

Division/ Sub-area	Quarter				Total
	1	2	3	4	
IIa + Vb	804	891	109,519	27,848	139,062
IVa	72,779	352	49,506	231,799	354,436
IVb	17	283	3,641	711	4,652
IVc	27	483	773	583	1,866
IIIa	8	326	5,146	735	6,215
VI	139,122	1,309	3,087	8,008	151,526
VII	36,561	25,251	6,318	10,368	78,498
VIIIa,b,d,e	2,260	1,932	348	1,515	6,055
Sub-total	251,578	30,827	178,338	281,567	742,310
VIIIc	4,174	6,973	657	244	12,048
IXa	880	1,174	3,076	871	6,001
Grand total	256,632	38,974	182,071	282,682	760,359

Table 6.2.5 Catches of MACKEREL by area. Discards not estimated prior to 1978. (Data submitted by Working Group members.)

Year	Sub-area VI			Sub-area VII and Divisions VIIIa,b,d,e			Sub-area IV and Division IIIa			Divs. IIa, Vb ¹		Divs. VIIIc, IXa		Total		
	Landings	Discards	Catch	Landings	Discards	Catch	Landings	Discards ²	Catch	Landings		Landings		Landings	Discards	Catch
1969	4,800	-	4,800	66,300	-	66,300	739,182	-	739,182	+				810,282	-	810,282
1970	3,900	-	3,900	100,300	-	100,300	322,451	-	322,451	163				426,814	-	426,814
1971	10,200	-	10,200	122,600	-	122,600	243,673	-	243,673	358				376,831	-	376,831
1972	10,000	-	10,000	157,800	-	157,800	188,599	-	188,599	88		Not available		356,487	-	356,487
1973	52,200	-	52,200	167,300	-	167,300	326,519	-	326,519	21,600				567,619	-	567,619
1974	64,100	-	64,100	234,100	-	234,100	298,391	-	298,391	6,800				603,391	-	603,391
1975	64,800	-	64,800	416,500	-	416,500	263,062	-	263,062	34,700				779,062	-	779,062
1976	67,800	-	67,800	439,400	-	439,400	303,842	-	303,842	10,500				821,542	-	821,542
1977	74,800	-	74,800	259,100	-	259,100	258,131	-	258,131	1,400				620,848	-	620,848
1978	151,700	15,100	166,900	355,500	35,500	391,000	148,817	-	148,817	4,200				686,725	50,700	737,425
1979	203,300	20,300	223,600	398,000	39,800	437,800	152,323	500	152,823	7,000				783,098	60,600	843,698
1980	218,700	6,000	224,700	386,100	15,600	401,700	87,391	-	87,391	8,300				716,455	21,600	738,055
1981	335,100	2,500	337,600	274,300	39,800	314,100	64,172	3,216	67,388	18,700				710,325	45,516	755,841
1982	340,400	4,100	344,500	257,800	20,800	278,600	35,033	450	35,483	37,600				691,009	25,350	716,359
1983	315,100	22,300	337,400	245,400	9,000	254,400	40,889	96	40,985	49,000				665,242	31,396	696,638
1984	306,100	1,600	307,700	176,100	10,500	186,600	39,374	202	39,576	93,900				635,782	12,302	648,084
1985	308,140	2,735	390,875	75,043	1,800	76,843	46,790	3,656	50,446	78,000				606,084	8,191	614,275
1986	104,100	+	104,100	128,499	+	128,499	236,309	7,431	243,740	101,000				594,697	7,431	602,128
1987	183,700	+	183,700	100,300	+	100,300	290,829	10,789	301,618	47,000				643,952	10,789	654,741
1988	115,600	3,100	118,700	75,600	2,700	78,300	308,550	29,766	338,316	116,200				640,484	35,566	676,050
1989	121,300	2,600	123,900	72,900	2,300	75,200	279,410	2,190	281,600	86,900				578,735	7,090	585,825
1990	114,800	5,800	120,600	56,300	5,500	61,800	300,800	4,300	305,100	116,800				609,701	15,600	625,301
1991	109,500	10,700	120,200	50,500	12,800	63,300	358,700	7,200	365,900	97,800				636,920	30,700	667,620
1992	141,906	9,620	151,526	72,153	12,400	84,553	364,184	2,980	367,164	139,062				735,351	25,000	760,351

¹For 1976-1985 only Division IIa.

²Discards estimated only for one fleet.

NB: Landings from 1969-1978 were taken from the 1978 Working Group report (Tables 2.1, 2.2 and 2.5).

Table 6.2.6 Landings (tonnes) of MACKEREL in Divisions VIIIc and IXa, 1977-1992. (Data submitted by Working Group members.)

Division VIIIc																	
Country	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
Spain	19,852	18,543	15,013	11,316	12,834	15,621	10,390	13,852	11,810	16,533	15,982	16,844	13,446	16,086	16,940	12,043	
Total	19,852	18,543	15,013	11,316	12,834	15,621	10,390	13,852	11,810	16,533	15,982	16,844	13,446	16,086	16,940	12,043	

		Division IXa															
Country		1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Portugal		1,743	1,555	1,071	1,929	3,108	3,018	2,239	2,250	4,178	6,419	5,650	4,150	3,016	3,509	2,789	3,576
Spain		2,935	6,221	6,280	2,719	2,111	2,437	2,224	4,206	2,123	1,837	491	3,540	1,763	1,406	1,051	2,427
Poland	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
USSR		2,879	189	111	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		7,565	7,965	7,462	4,648	5,219	5,455	4,463	6,456	6,301	8,256	6,141	7,690	4,779	4,915	3,840	6,003

		Divisions VIIIc + IXa															
		1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Total		27,417	26,508	22,475	15,964	18,053	21,076	14,853	20,308	18,111	24,789	22,123	24,534	18,225	21,001	20,780	18,046

Table 6.3.1 Landings (t) of HORSE MACKEREL by Sub-area. Data as submitted by Working Group members.)

Sub-area	1979	1980	1981	1982	1983	1984
II	2	-	+	-	412	23
IV + IIIa	1,412	2,151	7,245	2,788	4,420	25,987
VI	7,791	8,724	11,134	6,283	24,881	31,716
VII	43,525	45,697	34,749	33,478	40,526	42,952
VIII	47,155	37,495	40,073	22,683	28,223	25,629
IX	37,619	36,903	35,873	39,726	48,733	23,178
Total	137,504	130,970	129,074	104,958	147,195	149,485

Sub-area	1985	1986	1987	1988	1989	1990
II	79	214	3,311	6,818	4,809	11,414
IV + IIIa	24,238	20,746	20,895	62,892	112,047	145,062
VI	33,025	20,455	35,157	45,842	34,870	20,904
VII	39,034	77,628	100,734	90,253	138,890	192,196
VIII	27,740	43,405	37,703	34,177	38,686	46,302
IX	20,237	31,159	24,540	29,763	29,231	24,023
Total	144,353	193,607	222,340	269,745	358,533	439,901

Sub-area	1991	1992 ¹
II + Vb	4,487	13,457
IV + IIIa	77,994	113,141
VI	34,455	40,921
VII	201,326	188,135
VIII	49,426	54,186
IX	21,778	26,713
Total	389,466	436,553

¹Preliminary.

Table 6.3.2 Landings (t) of HORSE MACKEREL in Sub-area II. (Data as submitted by Working Group members.)

Country	1979	1980	1981	1982	1983	1984
Denmark	-	-	-	-	-	-
France	+	-	-	-	-	1
Germany, Fed.Rep.	2	-	+	-	-	-
Norway	-	-	-	-	412	22
USSR	-	-	-	-	-	-
Total	2	-	+	-	412	23

Country	1985	1986	1987	1988	1989	1990
Faroe Islands	-	-	-	-	-	964 ³
Denmark	-	-	39	-	-	-
France	1	- ²	- ²	- ²	-	-
Germany, Fed.Rep.	-	-	-	64	12	+
Norway	78	214	3,272	6,285	4,770	9,135
USSR	-	-	-	469	27	1,298
UK (England + Wales)	-	-	-	-	-	17
Total	79	214	3,311	6,818	4,809	11,414

Country	1991	1992 ¹
Faroe Islands	1,115 ³	9,157 ³
Denmark	-	-
France	-	-
Germany	-	-
Norway	3,200	4,300
Russia	172	-
UK (England + Wales)	-	-
Total	4,487	13,457

¹Preliminary.

²Included in Sub-area IV.

³Includes catches in Division Vb.

Table 6.3.3 Landings (t) of HORSE MACKEREL in Sub-area IV by country. (Data submitted by Working Group members.)

Country	1979	1980	1981	1982	1983	1984
Belgium	9	8	34	7	55	20
Denmark	496	199	3,576	1,612	1,590	23,730
Faroe Islands	-	260	-	-	-	-
France	221	292	421	567	366	827
Germany, Fed.Rep.	376	+	139	30	52	+
Ireland	-	1,161	412	-	-	-
Netherlands	88	101	355	559	2,029 ⁴	824 ⁴
Norway	199	119	2,292	7	322	94
Poland	-	-	-	-	2	-
Sweden	+	-	-	-	-	-
UK (Engl. + Wales)	23	11	15	6	4	-
UK (Scotland)	+	-	-	-	-	3
USSR	-	-	-	-	-	489
						-
Total	1,412	2,151	7,245	2,788	4,420	25,987

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Belgium	13	13	9	10	10	13	-	+
Denmark	22,495	18,652 ²	7,290 ²	20,323 ²	23,329 ²	20,605 ²	6,982 ²	7,755
Estonia	-	-	-	-	-	-	-	293
Faroe Islands	-	-	-	-	-	942	340	-
France	298	231 ³	189 ³	784 ³	248	220	174	162
Germany, Fed.Rep.	+	-	3	153	506	2,469 ⁶	5,995	2,801
Ireland	-	-	-	-	-	687	2,657	2,600
Netherlands	160 ⁴	600 ⁴	850 ⁴	1,060 ⁴	14,172	1,970	3,852	3,000
Norway ²	203	776	11,728 ⁵	34,425 ⁵	84,161	117,903 ²	50,000 ²	96,000
Poland	-	-	-	-	-	-	-	-
Sweden	-	2 ²	-	-	-	102	953 ²	800
UK (Engl. + Wales)	71	3	339	373	10	10	132	4
UK (N. Ireland)	-	-	-	-	-	-	350	-
UK (Scotland)	998	531	487	5,749	2,093	458	7,309	996
USSR	-	-	-	-	-	-	-	-
Unallocated + discards	-	-	-	-	-12,482 ⁵	-317 ⁵	-750 ⁵	-278
Total	24,238	20,746	20,895	62,892	112,047	145,062	77,994	113,141

¹Preliminary.

²Includes Division IIIa.

³Includes Division IIa.

⁴Estimated from biological sampling.

⁵Assumed to be misreported.

⁶Includes 13 t from the German Democratic Republic.

Table 6.3.4

Landings (t) of HORSE MACKEREL in Sub-area VI by country. (Data submitted by Working Group members.)

Country	1979	1980	1981	1982	1983	1984
Denmark	443	734	341	2,785	7	-
Faroe Islands	-	-	-	1,248	-	-
France	151	45	454	4	10	14
Germany, Fed. Rep.	155	5,550	10,212	2,113	4,146	130
Ireland	-	-	-	-	15,086	13,858
Netherlands	6,910	2,385	100	50	94	17,500
Norway	-	-	5	-	-	-
Spain	20	-	-	-	-	-
UK (Engl. + Wales)	73	9	5	+	38	+
UK (Scotland)	39	1	17	83	-	214
USSR	-	-	-	-	-	-
Total	7,791	8,724	11,134	6,283	24,881	31,716

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Denmark	-	-	769	1,655	973	615	-	42
Faroe Islands	4,014	1,992	4,450 ³	4,000 ³	3,059	628	255	-
France	13	12	20	10	2	17	4	3
Germany, Fed. Rep.	191	354	174	615	1,162	2,474	2,500	6,281
Ireland	27,102	28,125	29,743	27,872	19,493	15,911	24,766	32,994
Netherlands	18,450	3,450	5,750	3,340	1,907	660	3,369	2,150
Norway	-	83	75	41	-	-	-	-
Spain	-	²	²	²	²	²	1	3
UK (Engl. + Wales)	996	198	404	475	44	145	1,229	577
UK (N.Ireland)	-	-	-	-	-	-	1,970	723
UK (Scotland)	1,427	138	1,027	7,834	1,737	267	1,640	86
USSR	-	-	-	-	-	44	-	-
Unallocated + discards	-19,168	-13,897	-7,255	-	6,493	143	-1,278	-1,940
Total	33,025	20,455	35,157	45,842	34,870	20,904	34,455	40,919

¹Preliminary.²Included in Sub-area VII.³Includes Divisions IIIa, IVa,b and VIb.

Table 6.3.5

Landings (t) of HORSE MACKEREL in Sub-area VII by country. Data submitted by the Working Group members.)

Country	1979	1980	1981	1982	1983	1984
Belgium	3	-	1	1	-	-
Denmark	4,287	5,045	3,099	877	993	732
France	4,407	1,983	2,800	2,314	1,834	2,387
Germany, Fed. Rep.	5,333	2,289	1,079	12	1,977	228
Ireland	-	-	16	-	-	65
Netherlands	25,174	23,002	25,000	27,500 ²	34,350	38,700
Norway	959	394	-	-	-	-
Spain	676	50	234	104	142	560
UK (Engl. + Wales)	2,686	12,933	2,520	2,670	1,230	279
UK (Scotland)	-	1	-	-	-	1
USSR	-	-	-	-	-	-
Total	43,525	45,697	34,749	33,478	40,526	42,952

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Faroe Islands	-	-	-	-	-	28	-	-
Belgium	+	+	2	-	-	+	-	-
Denmark	1,477 ²	30,408 ²	27,368	33,202	34,474	30,594	28,888	18,984
France	1,881	3,801	2,197	1,523	4,576	2,538	1,230	1,198
Germany, Fed. Rep.	-	5	374	4,705	7,743	8,109	12,919	12,951
Ireland	100	703	15	481	12,645	17,887	19,074	15,568
Netherlands	33,550	40,750	69,400	43,560	43,582	111,900	104,107	109,197
Norway	-	-	-	-	-	-	-	-
Spain	275	137	148	150	14	16	113	106
UK (Engl. + Wales)	1,630	1,824	1,228	3,759	4,488	13,371	6,436	7,870
UK (N. Ireland)	-	-	-	-	-	-	2,026	1,690
UK (Scotland)	1	+	2	2,873	+	139	1,992	5,008
USSR	120	-	-	-	-	-	-	-
Unallocated + discards	-	-	-	-	28,368	7,614	24,541	15,563
Total	39,034	77,628	100,734	90,253	138,890	192,196	201,326	188,135

¹Provisional.²Includes Sub-area VI.

Table 6.3.6

Landings (t) of HORSE MACKEREL in Sub-area VIII by country. (Data submitted by Working Group members.)

Country	1979	1980	1981	1982	1983	1984
Denmark	127	-	-	-	-	-
France	4,240	3,361	3,711	3,073	2,643	2,489
Netherlands	-	-	-	-	-	²
Spain	42,766	34,134	36,362	19,610	25,580	23,119
UK (Engl. + Wales)	22	-	+	1	-	1
USSR	-	-	-	-	-	20
Total	47,155	37,495	40,073	22,683	28,223	25,629

Country	1985	1986	1987	1988	1989	1990	1991	1992 ¹
Danmark	-	446	3,283	2,793	6,729	5,726	1,349	5,778
France	4,305	3,534	3,983	4,502	4,719	5,082	6,164	6,220
Germany	-	-	-	-	-	-	80	62
Netherlands	²	²	²	-	-	6,000	12,437	9,339
Spain	23,292	40,334	30,098	26,629	27,170	25,182	23,733	27,688
UK (Engl. + Wales)	143	392	339	253	68	6	70	88
USSR	-	656	-	-	-	-	-	-
Unallocated + discards	-	-	-	-	-	1,500	2,563	5,011
Total	27,740	45,362	37,703	34,177	38,686	43,496	46,396	54,186

¹Preliminary.²Included in Sub-area VII.

Table 6.3.7

Annual catches (tonnes) of SOUTHERN HORSE MACKEREL by countries by gear in Divisions VIIIc and IXa. Data from 1984-1992 are Working Group estimates.

Year	Portugal (Division IXa)				Spain (Divisions IXa + VIIIc)					Total VIIIc + IXa
	Trawl	Seine	Artisanal	Total	Trawl	Seine	Hook	Gillnet	Total	
1962	7,231	46,345	3,400	56,976	-	-	-	-	53,202	110,778
1963	6,593	54,267	3,900	64,760	-	-	-	-	53,420	118,180
1964	8,983	55,693	4,100	68,776	-	-	-	-	57,365	126,141
1965	4,033	54,327	4,745	63,105	-	-	-	-	52,282	115,387
1966	5,582	44,725	7,118	57,425	-	-	-	-	47,000	104,425
1967	6,726	52,643	7,279	66,648	-	-	-	-	53,351	119,999
1968	11,427	61,985	7,252	80,664	-	-	-	-	62,326	142,990
1969	19,839	36,373	6,275	62,487	-	-	-	-	85,781	148,268
1970	32,475	29,392	7,079	59,946	-	-	-	-	98,418	158,364
1971	32,309	19,050	6,108	57,467	-	-	-	-	75,349	132,816
1972	45,452	28,515	7,066	81,033	-	-	-	-	82,247	163,280
1973	28,354	10,737	6,406	45,497	-	-	-	-	114,878	160,375
1974	29,916	14,962	3,227	48,105	-	-	-	-	78,105	126,210
1975	26,786	10,149	9,486	46,421	-	-	-	-	85,688	132,109
1976	26,850	16,833	7,805	51,488	89,197	26,291	376 ¹	-	115,864	167,352
1977	26,441	16,847	7,790	51,078	74,469	31,431	376 ¹	-	106,276	157,354
1978	23,411	4,561	4,071	32,043	80,121	14,945	376 ¹	-	95,442	127,485
1979	19,331	2,906	4,680	26,917	48,518	7,428	376 ¹	-	56,322	83,239
1980	14,646	4,575	6,003	25,224	36,489	8,948	376 ¹	-	45,813	71,037
1981	11,917	5,194	6,642	23,733	28,776	19,330	376 ¹	-	48,482	72,235
1982	12,676	9,906	8,304	30,886	²	²	²	-	28,450	59,336
1983	16,768	6,442	7,741	30,951	8,511	34,054	797	-	43,362	74,313
1984	8,603	3,732	4,972	17,307	12,772	15,334	884	-	28,990	46,297
1985	3,579	2,143	3,698	9,420	16,612	16,555	949	-	34,109	43,529
1986	²	²	²	28,526	9,464	32,878	481	143	42,967	71,493
1987	11,457	6,744	3,244	21,445	²	²	²	²	33,193	54,648
1988	11,621	9,067	4,941	25,629	²	²	²	²	30,763	56,392
1989	12,517	8,203	4,511	25,231	²	²	²	²	31,170	56,401
1990	10,060	5,985	3,913	19,958	10,876	17,951	262	158	29,247	49,205
1991	9,437	5,003	3,056	17,497	9,681	18,019	187	127	28,014	45,511
1992	12,189	7,027	3,438	22,654	11,146	16,972	81	103	28,302	50,956

¹Estimated value.

²Not available by gear.

Table 6.3.8 Landings and discards of HORSE MACKEREL (t) by year and division, for the North Sea, Western and Southern horse mackerel. (Data submitted by Working Group members.)

Year	North Sea horse mackerel				Western horse mackerel							Southern horse mackerel			Total
	IIIa	IVb,c	Discards	VIIId	Total	IIa	IVa	VIa	VIIa-c,e-k	VIIIa,b,d,e	Discards	Total	VIIIc	IXa	Total
1982	-	2,788 ³	-	1,247	4,035	-	-	6,283	32,231	3,073	-	41,587	19,610	39,726	59,336
1983	-	4,420 ³	-	3,600	8,020	412	-	24,881	36,926	2,643	-	64,862	25,580	48,733	74,313
1984	-	25,893 ³	-	3,585	29,478	23	94	31,716	38,782	2,510	500	73,625	23,119	23,178	46,297
1985	1,138	22,897	-	2,715	26,750	79	203	33,025	35,296	4,448	7,500	80,551	23,292	20,237	43,529
1986	396	19,496	-	4,756	24,648	214	776	20,343	72,761	3,071	8,500	105,665	40,334	31,159	71,493
1987	436	9,477	-	1,721	11,634	3,311	11,185	35,197	99,942	7,605	-	157,240	30,098	24,540	54,638
1988	2,261	18,290	-	3,120	23,671	6,818	42,174	45,842	81,978	7,548	3,740	188,100	26,629	29,763	56,392
1989	913	25,830	-	6,522	33,265	4,809	85,304 ²	34,870	131,218	11,516	1,150	268,867	27,170	29,231	56,401
1990	14,872 ¹	17,437	-	1,325	18,762	11,414	112,753 ²	20,794	182,580	21,120	9,930	373,463	25,182	24,023	49,205
1991	2,725 ¹	11,400	-	600	12,000	4,487	63,869 ²	34,415	196,926	25,693	5,440	333,555	23,733	21,778	45,511
1992	2,374 ¹	13,955	400	688	15,043	13,457	101,752	40,881	180,937	29,329	1,820	370,550	24,243	26,713	50,955
															436,548

¹Norwegian and Danish catches are included in the Western horse mackerel.

²Norwegian catches in Division IVb included in the Western horse mackerel.

³Divisions IIIa and IVb,c combined.

Table 6.3.9 Catches (t) and percentages (%) of *Trachurus mediterraneus* in relation to total landings of *Trachurus trachurus* in Divisions VIIla,b, VIIlc and IXa in 1992.

	<i>Trachurus mediterraneus</i>								<i>T. trachurus</i>		
	1Q		2Q		3Q		4Q		Total		Total
	(t)	%	(t)	(%)	(t)	(%)	(t)	(%)	(t)	(%)	(t)
Div. VIIlc	428	10.3	606	7.1	1,092	10.9	2,678	41.9	4,804	16.5	24,244
Sub-div. VIIlc East											
East of 3°W	320	47.1	491	24.3	677	66.4	1,232	95.7	2,720	54.2	2,293
West of 3°W	108	6.0	115	6.8	415	16.1	1,446	71.4	2,084	25.8	6,006
Sub-div. VIIlc West	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15,945
Sub-div. IXa north	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4,059
Sub-div. IXa central north											
central south	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	22,653
south											
Div. VIIla,b (Spain)	220	12.7	22	2.1	94	15.8	786	67.8	1,123	24.6	3,445

Table 6.3.10 Catches (t) of *Trachurus trachurus* and *Trachurus picturatus* in ICES Division IXa, Sub-area X, and in CECAF Division 34.1, in the period 1986-1992.

		1986	1987	1988	1989	1990	1991	1992
<i>Trachurus trachurus</i> (*)	Div. IXa	28,526	19,554	25,125	25,226	19,959	17,497	22,653
	Div. IXa	367	181	2,370	2,394	2,012	1,700	1,035
	Div. X	3,331	3,020	3,079	2,866	2,510	1,274	1,255
<i>Trachurus picturatus</i>	Azorean area							
	34.1.1	2,006	1,533	1,687	1,564	1,863	1,161	792
	Madeira's area							

(*) As estimated by the Working Group.

Table 6.4.1 Landings (tonnes) of BLUE WHITING from the main fisheries, 1983-1992, as estimated by the Working Group.

Area	1983	1984	1985	1986	1987
Norwegian Sea fishery (Sub-areas I + II and Divisions Va, XIVa + XIVb)	52,963	65,932	90,742	160,061	123,042
Fishery in the spawning area (Divisions Vb, VIa, VIb and VIIb + VIIc)	361,537	421,865 ²	464,265 ²	534,263 ²	445,863 ²
Icelandic industrial fishery (Division Va)	7,000		-	-	-
Industrial mixed fishery (Division IVa-c, Vb, IIIa)	117,737	122,806	97,769	99,580	62,689
Subtotal northern fishery	539,237	610,603	652,776	793,904	631,615
Southern fishery (Sub-areas VIII + IX, Divisions VIId,e + VIIg-k)	30,835	31,173 ³	42,820 ³	33,082 ³	32,819 ³
Total	570,072	641,776	695,596	826,986	664,434
Area	1988	1989	1990	1991	1992 ¹
Norwegian Sea fishery (Sub-areas I + II and Divisions Va, XIVa + XIVb)	55,829	37,638	2,106	78,703	62,312
Fishery in the spawning area (Divisions Vb, VIa, VIb and VIIb + VIIc)	421,636	473,165	463,495	218,946	317,237
Icelandic industrial fishery (Division Va)	-	4,977	-	-	-
Industrial mixed fishery (Division IVa-c, Vb, IIIa)	45,110	75,958	63,192	39,872	66,174
Subtotal northern fishery	522,575	591,738	528,793	337,521	445,723
Southern fishery (Sub-areas VIII + IX, Divisions VIId,e + VIIg-k)	30,838	33,695	32,817	32,003	28,722
Total	553,413	625,433	561,610	369,524	474,445

¹Preliminary.

²Including directed fishery also in Divisions VIIg-k, IVa and Sub-area XII.

³Excluding directed fishery also in Divisions VIIg-k.

Table 6.4.2 Landings (tonnes) of BLUE WHITING from the directed fishery in the Norwegian Sea (Sub-areas I and II, Divisions Va, XIVa and XIVb) fisheries, 1983-1992, as estimated by the Working Group.

Country	1983	1984	1985	1986	1987
Faroes	11,316	-	-	-	9,290
France	2,890	-	-	-	-
German Dem.Rep.	5,553	8,193	1,689	3,541	1,010
Germany, Fed.Rep.	2	35	75	106	-
Greenland	-	-	-	10	-
Iceland	-	105	-	-	-
Norway	5,061	689	-	-	-
Poland	-	-	-	-	56
UK (Engl. & Wales)	-	-	-	-	-
USSR	28,141	56,817	88,978	156,404	112,686
Total	52,963	65,932	90,742	160,061	123,042

Country	1988	1989	1990	1991	1992 ¹
Faroes	-	1,047	-	-	-
France	-	-	-	-	-
German Dem.Rep.	3	1,341	-	-	-
Germany, Fed.Rep.	-	-	-	-	-
Greenland	-	-	-	-	-
Iceland	-	-	-	-	-
Norway	-	-	566	100	912
Poland	10	-	-	-	-
UK (Engl. & Wales)	-	-	-	-	-
USSR/Russia ²	55,816	35,250	1,540	78,603	61,400
Total	55,829	37,638	2,106	78,703	62,312

¹Preliminary.

²In 1991.

Table 6.4.3 Landings (tonnes) of BLUE WHITING from directed fisheries in the spawning area (Divisions Vb, VIa,b, VIIb,c and since 1984 Divisions VIIg-k and Sub-area XII), 1983-1992, as estimated by the Working Group.

Country	1983	1984	1985	1986	1987
Denmark	28,680	26,445	21,104	11,364	2,655
Faroes	56,168	62,264	72,316	80,564	70,625
France	3,600	3,882	-	-	-
German Dem.Rep.	3,284	1,171	6,839	2,750	3,584
Germany, Fed.Rep.	825	994	626	-	266
Iceland	1,176	-	-	-	-
Ireland	-	-	668	16,440	3,300
Netherlands	150	1,000	1,801	8,888	5,627
Norway	185,646	211,773	234,137	283,162 ²	191,012
Poland	-	-	-	-	-
Spain	318	-	-	-	-
Sweden	-	-	-	-	-
UK (Engl. & Wales)	-	33	2	10	5
UK (Scotland)	-	-	-	3,472	3,310
USSR	81,690	114,303	126,772	127,613	165,497
Total	361,537	421,865	464,265	534,263	445,884

Country	1988	1989	1990	1991	1992 ¹
Denmark	797	25	-	-	3,167
Faroes	79,339	70,711	43,405	10,208 ²	12,731 ²
France	-	2,190	-	-	-
German Dem.Rep.	4,663	3,225	230	-	-
Germany, Fed.Rep.	600	848	1,469	349	1,307 ⁴
Iceland	-	-	-	-	-
Ireland	245	-	-	-	-
Netherlands	800	2,0787	7,280	17,359	11,034
Norway	208,416	258,386	281,036 ²	114,866 ²	148,733 ²
Poland	-	-	-	-	-
Spain	-	-	-	-	-
Sweden	-	-	-	-	-
UK (Engl. & Wales)	3	1,557	13	-	356
UK (Scotland)	5,068	6,463	5,993	3,541	6,493
USSR/Russia ³	121,705	127,682	124,069	72,623	115,600
Japan	-	-	-	-	918
Estonia	-	-	-	-	6,156
Latvia	-	-	-	-	10,742
Total	421,636	473,165	463,495	218,946	317,237

¹Preliminary.

²Including directed fishery also in Division IVa.

³In 1991.

⁴Germany

Table 6.4.4 Landings (tonnes) of BLUE WHITING from the mixed industrial fisheries and caught as by-catch in ordinary fisheries in Divisions IIIa, IVa-c, Vb and IIa, 1983-1992, as estimated by the Working Group.

Country	1983	1984	1985	1986	1987
Denmark	38,290	49,032	35,843	57,315	28,541
Faroes	12,757	9,740	3,606	5,678	7,051
France	249	-	-	-	-
German Dem.Rep. ²	-	-	-	-	53
Germany, Fed.Rep. ²	-	556	52	-	62
Ireland	-	-	-	-	-
Netherlands	-	122	130	1,114	-
Norway	62,591	58,038	54,522	26,941	24,969
Poland ²	-	-	-	-	-
Sweden	3,850	5,401	3,616	8,532	2,013
UK (Engl. & Wales) ²	-	-	-	-	-
UK (Scotland)	-	-	-	-	-
Total	117,737	122,806	97,769	99,580	62,689

Country	1988	1989	1990	1991	1992 ¹
Denmark	18,114	26,605	27,052	15,538	31,389
Faroes	492	3,325	5,281	355	705
France	-	-	-	-	-
German Dem.Rep. ²	-	-	-	-	-
Germany, Fed.Rep. ²	280	3	-	-	25 ⁴
Ireland	-	-	-	-	-
Netherlands	-	-	20	-	2
Norway	24,898	42,956	29,336 ³	22,644	31,977
Poland ²	-	-	-	-	-
Sweden	1,226	3,062	1,503	1,000	2,058
UK (Engl. & Wales) ²	-	7	-	-	17
UK (Scotland)	100	-	-	335	1
Total	45,110	75,958	63,192	39,872	66,174

¹Preliminary.

²Including directed fishery also in Division IVa.

³Including mixed industrial fishery in the Norwegian Sea.

⁴Germany

Table 6.4.5 Landings (tonnes) of BLUE WHITING from the Southern areas (Sub-areas VIII and IX and Divisions VIIg-k and VIId,e; from 1984, the Divisions VIIg-k are not included) 1983-1992 as estimated by the Working Group.

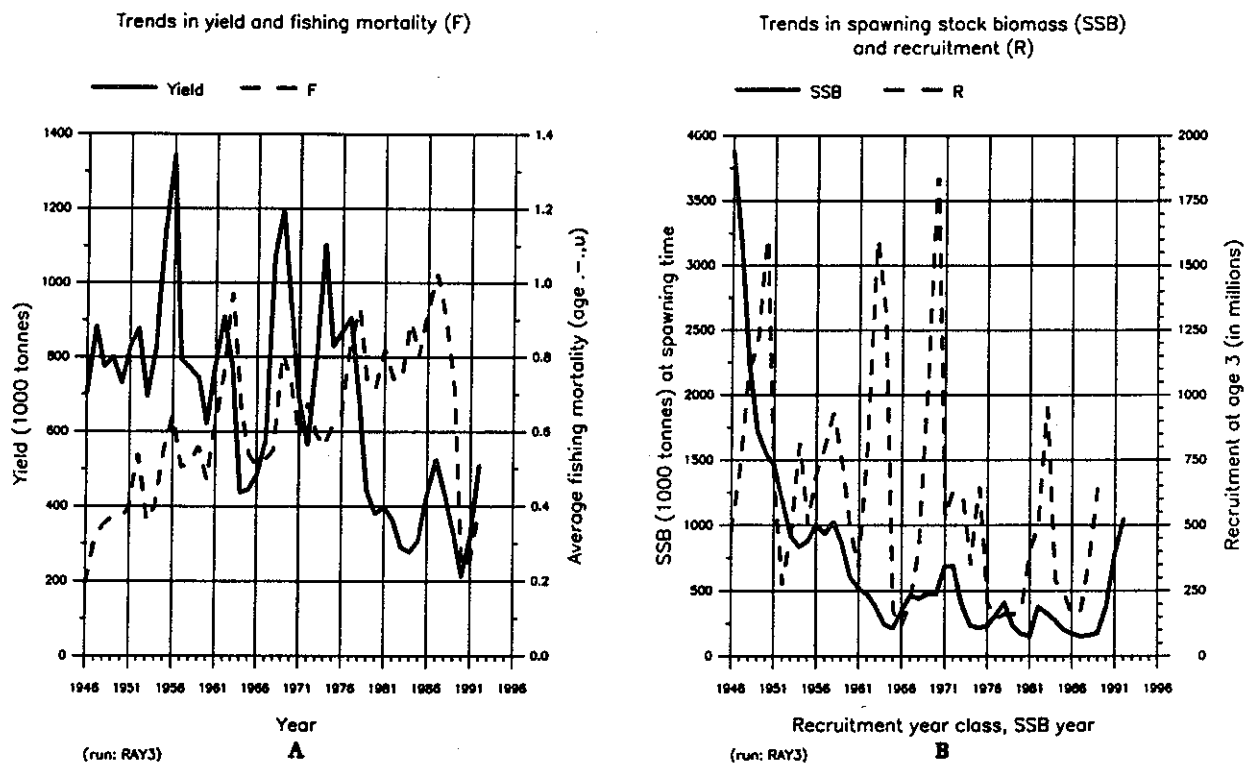
Country	1983	1984	1985	1986	1987
Germany, Fed. Rep	50	-	-	-	-
Netherlands	-	-	-	-	-
Norway	-	-	-	-	4
Portugal	4,748	5,252	6,989	8,116	9,148
Spain	26,037	25,921	35,828	24,965	23,644
UK (England & Wales)	-	-	3	1	23
France	-	-	-	-	-
Total	30,835	31,173	42,820	33,082	32,819

Country	1988	1989	1990	1991	1992 ¹
Germany, Fed. Rep.	-	-	-	-	-
Netherlands	-	-	450	10	-
Norway	-	-	-	-	-
Portugal	5,979	3,557	2,864	2,813	4,928
Spain	24,847	30,108	29,490	29,180	23,794
UK (England & Wales)	12	29	13	-	-
France	-	1	-	-	-
Total	30,838	33,695	32,817	32,003	28,722

¹Preliminary.

Figure 2.1.1

FISH STOCK SUMMARY
STOCK: Cod in the North-East Arctic (Fishing Areas I and II)
1-9-1993



FISH STOCK SUMMARY
STOCK: Cod in the North-East Arctic (Fishing Areas I and II)
12-10-1993

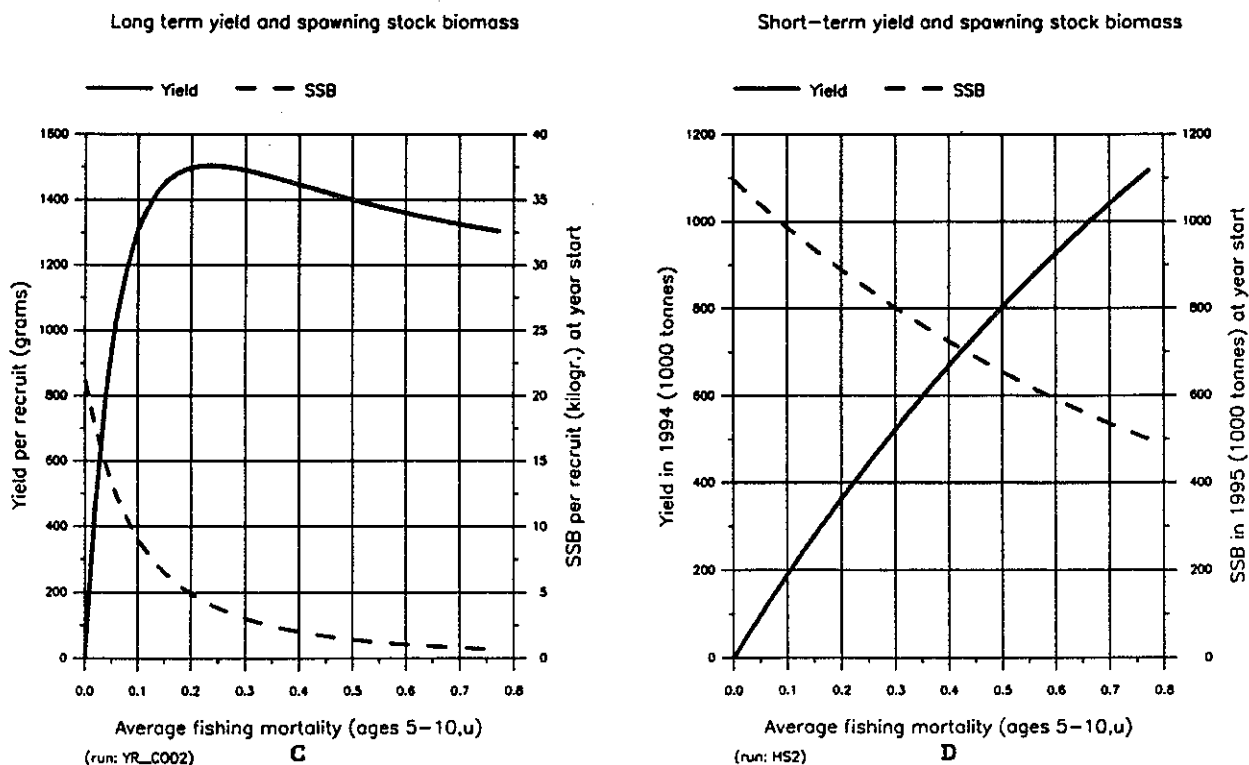
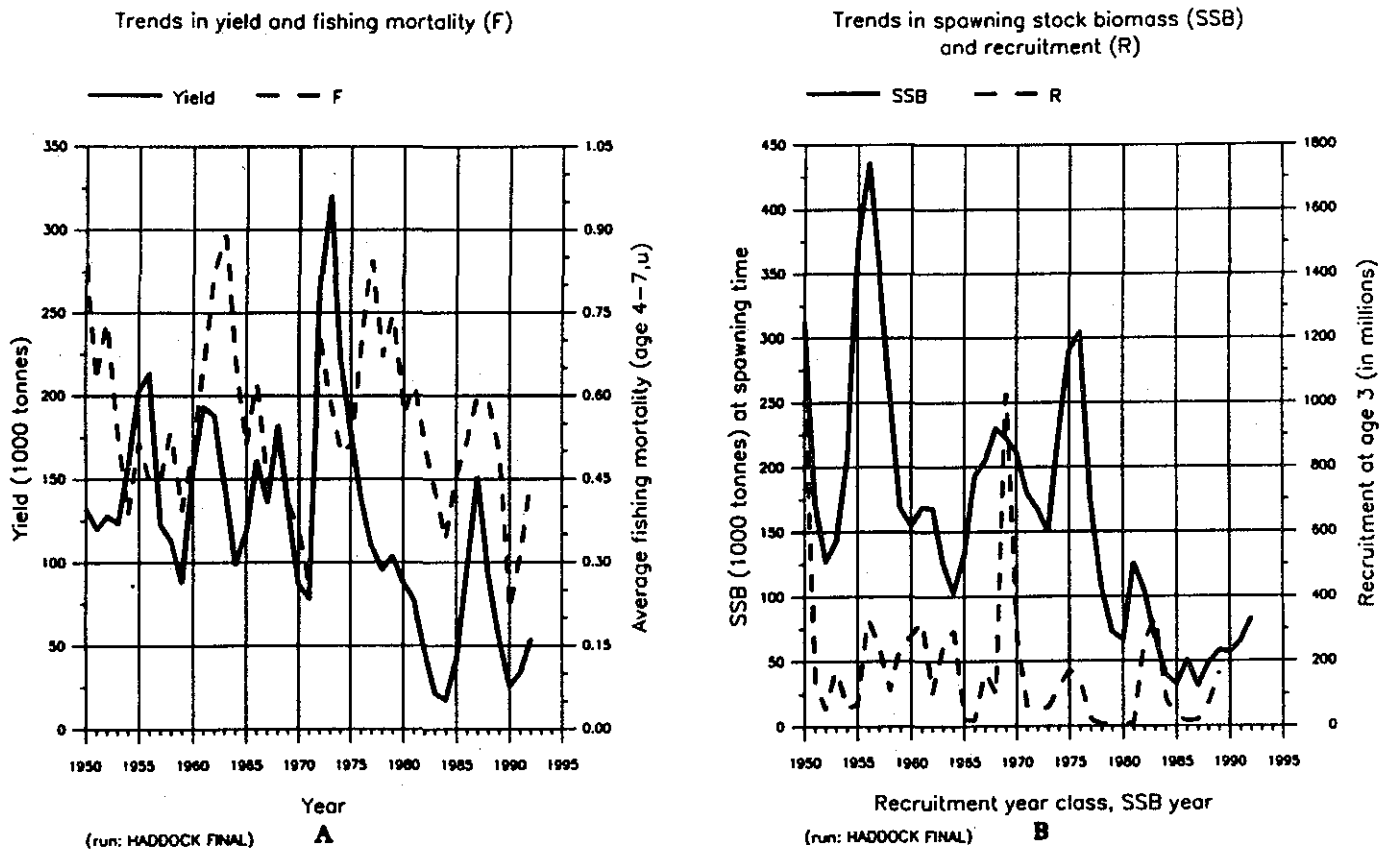


Figure 2.2.1

FISH STOCK SUMMARY
STOCK: Haddock in the North-East Arctic (Fishing Areas I and II)
31-8-1993



FISH STOCK SUMMARY
STOCK: Haddock in the North-East Arctic (Fishing Areas I and II)
1-8-1993

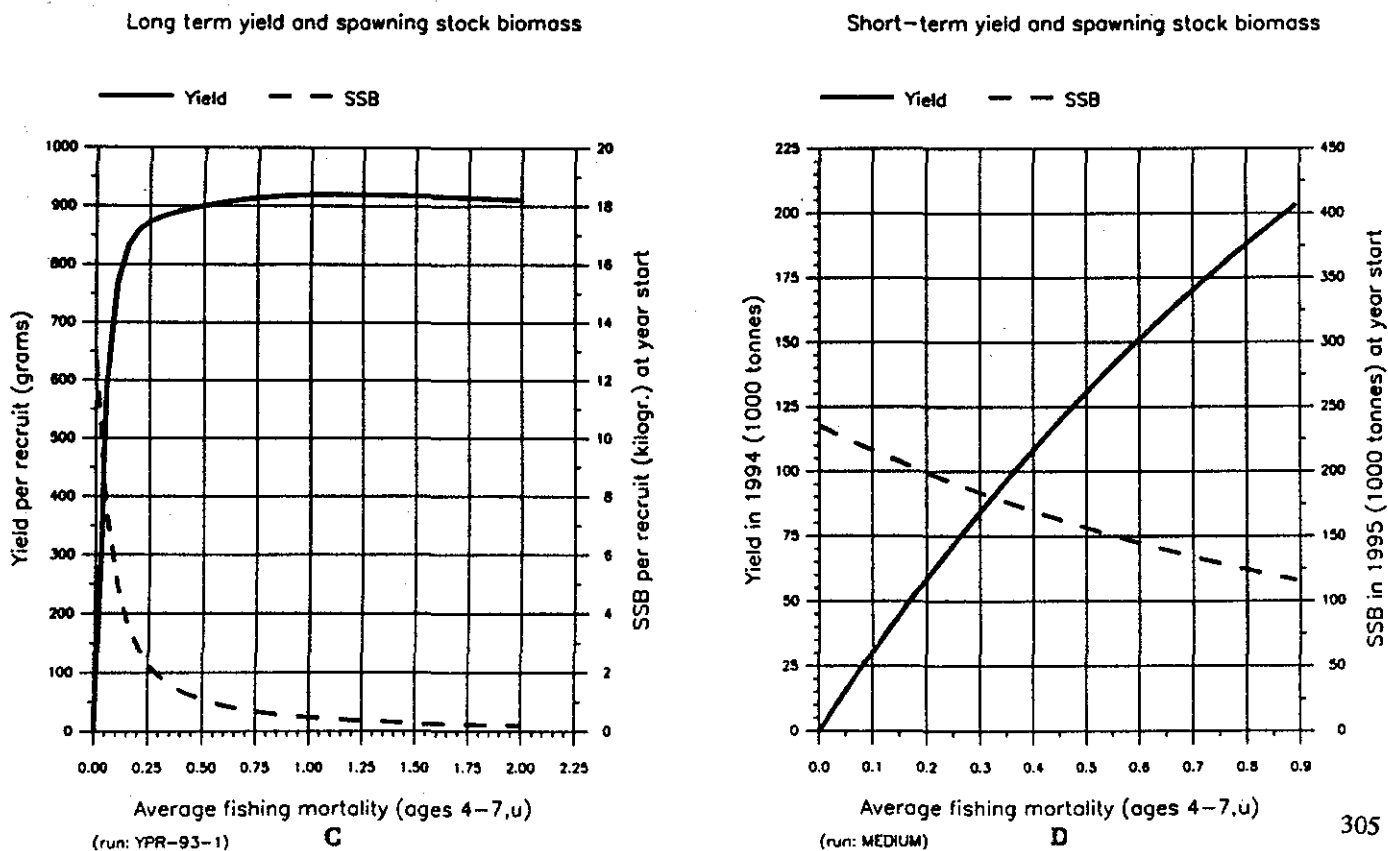
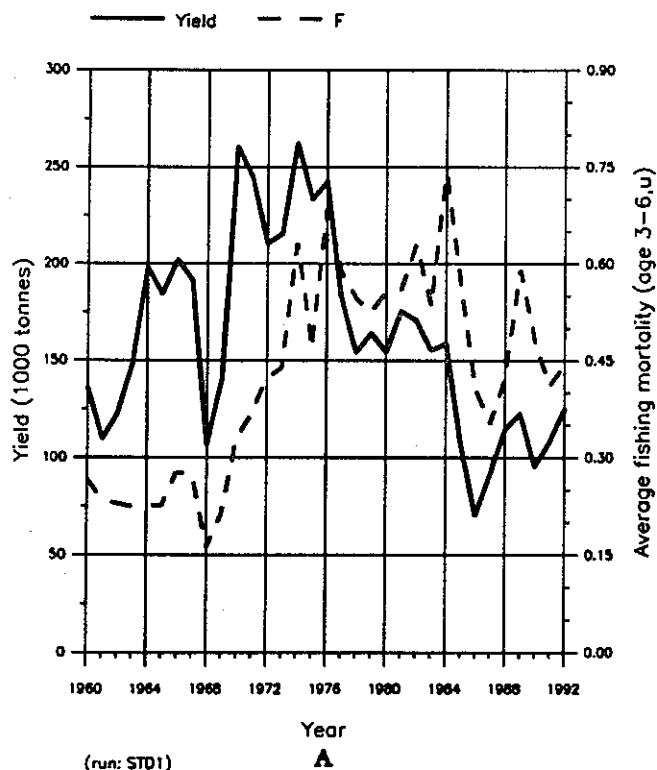


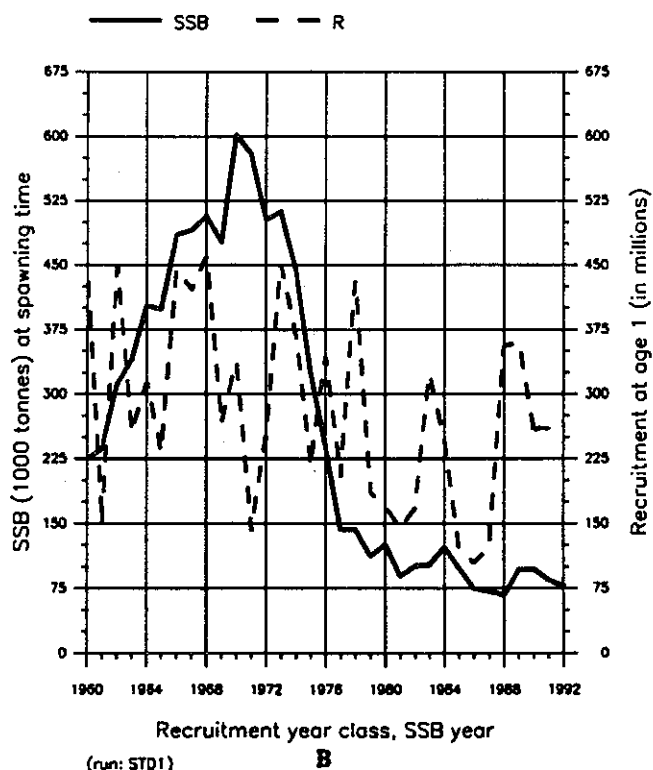
Figure 2.3.1

FISH STOCK SUMMARY
STOCK: Saithe in the North-East Arctic (Fishing Areas I and II)
1-9-1993

Trends in yield and fishing mortality (F)

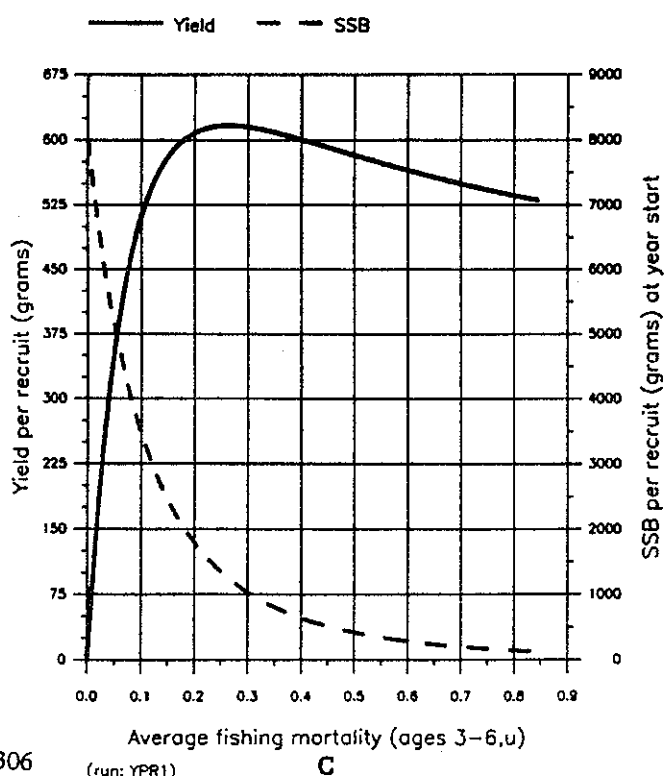


Trends in spawning stock biomass (SSB) and recruitment (R)



FISH STOCK SUMMARY
STOCK: Saithe in the North-East Arctic (Fishing Areas I and II)
1-9-1993

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

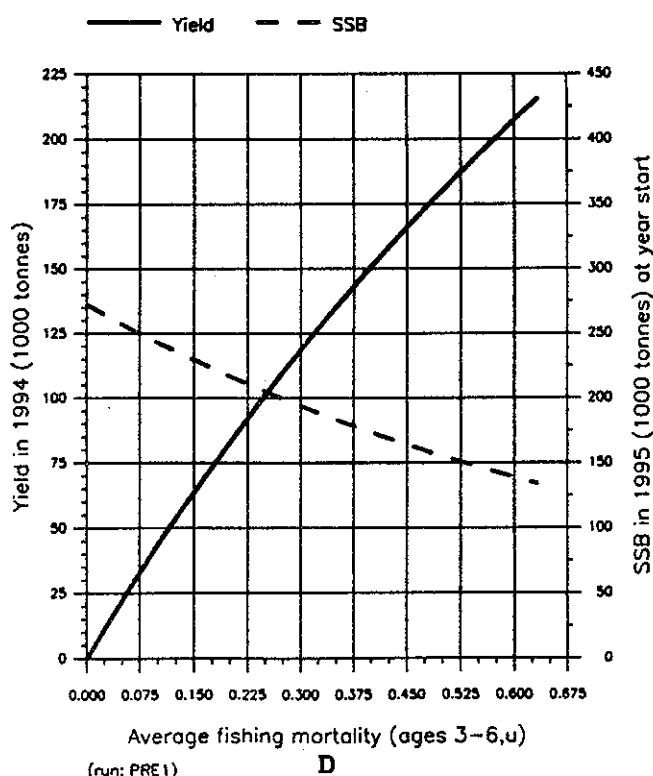
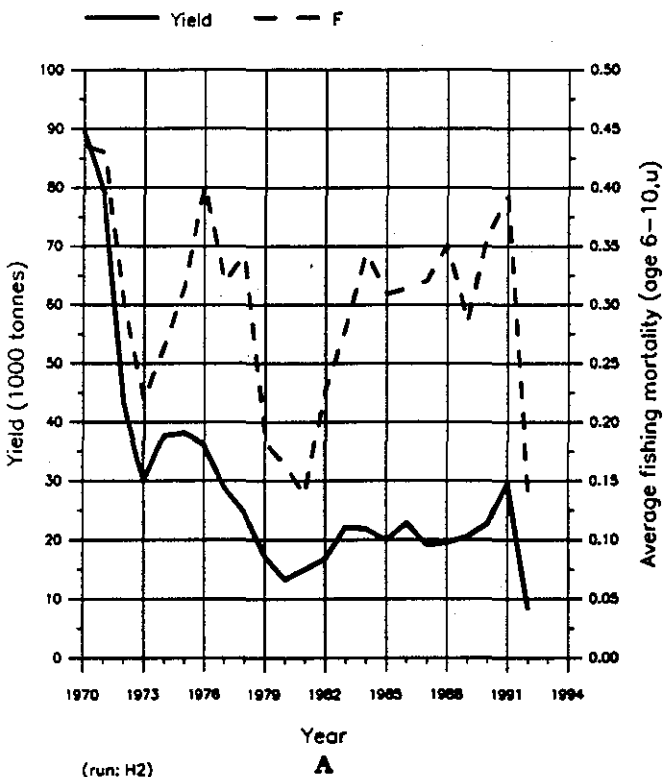


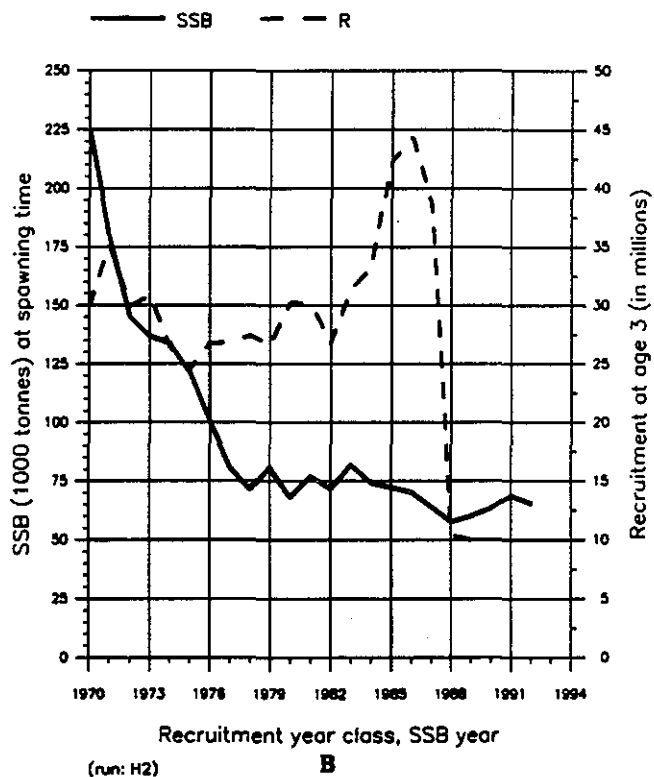
Figure 2.5.1

FISH STOCK SUMMARY
STOCK: Greenland Halibut in the North – East Arctic (Fishing Areas I and II
8 – 11 – 1993

Trends in yield and fishing mortality (F)

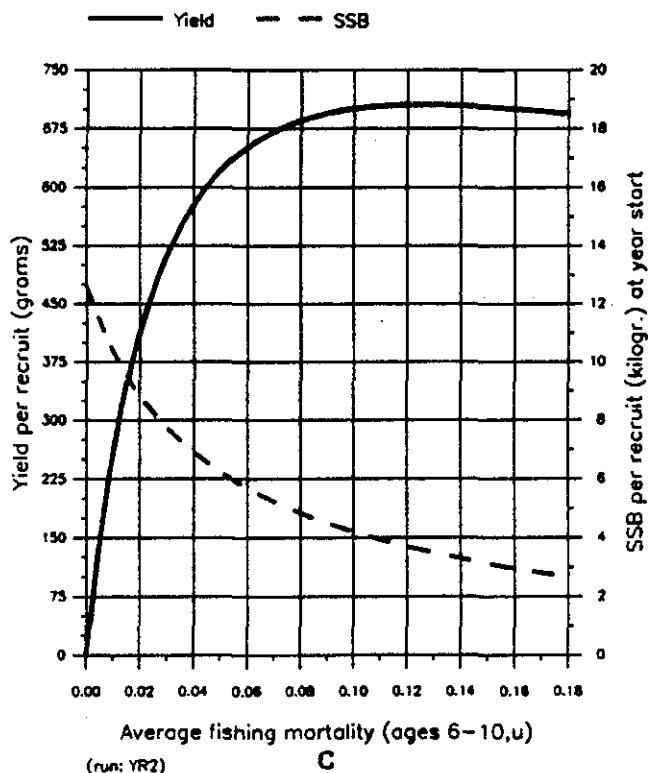


Trends in spawning stock biomass (SSB) and recruitment (R)



FISH STOCK SUMMARY
STOCK: Greenland Halibut in the North – East Arctic (Fishing Areas I and II
16 – 9 – 1993

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

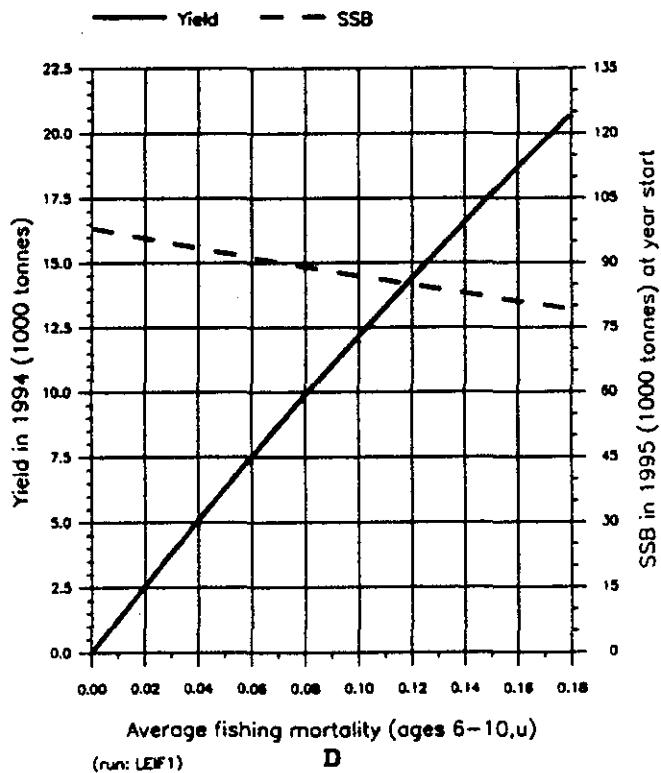
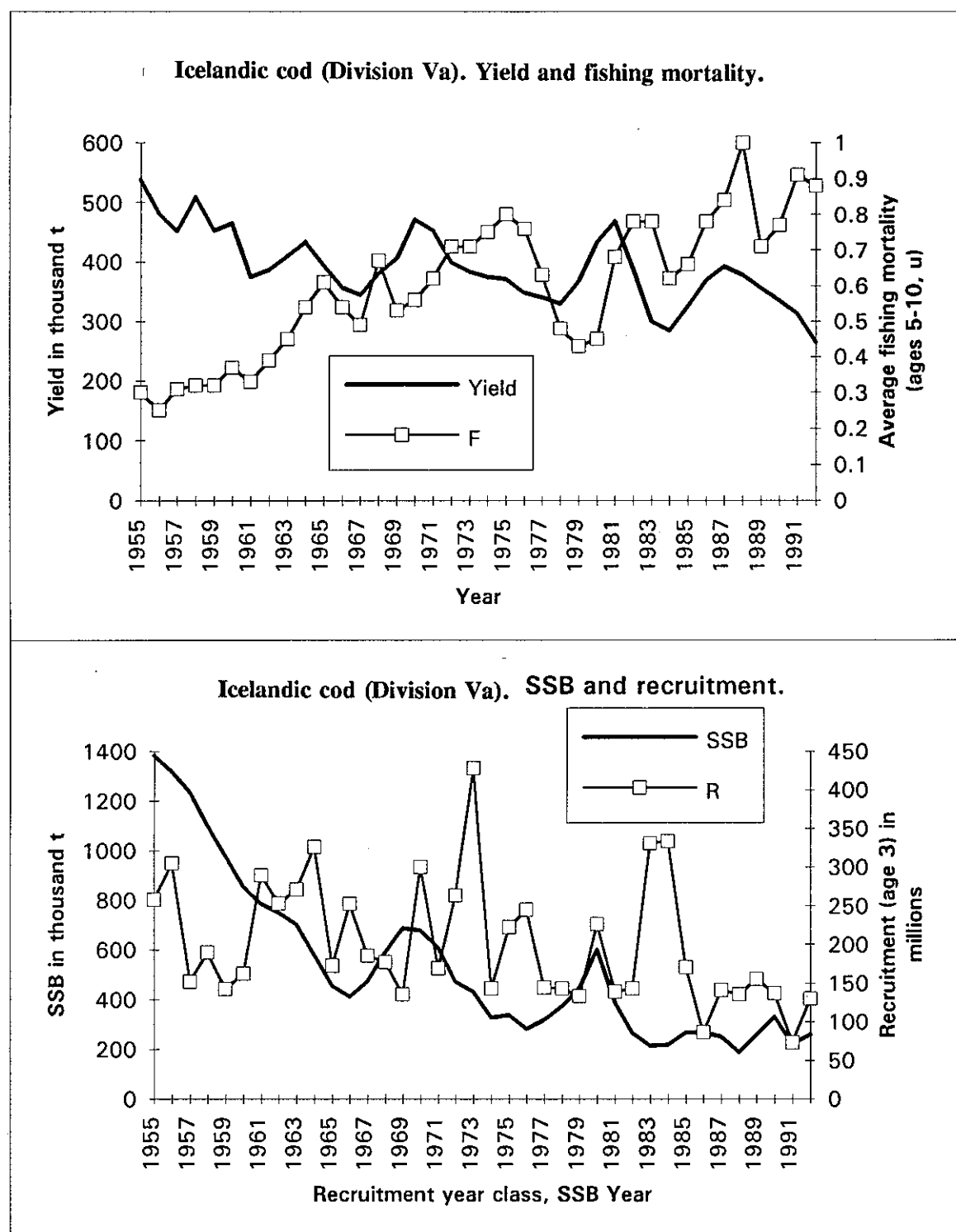


Figure 2.6.1

Fish Stock Summary.

Stock: Cod in the Iceland grounds (fishing area Division Va).

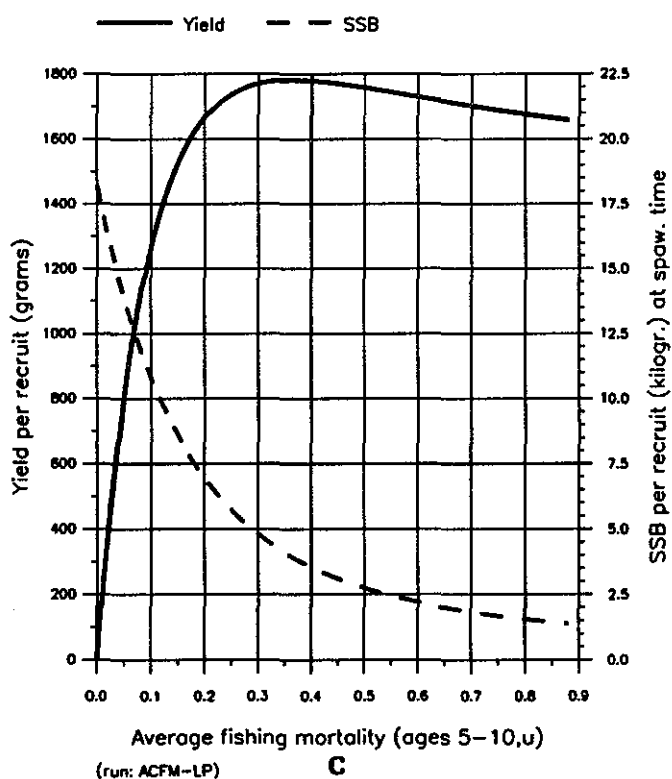


(cont'd)

Figure 2.6.1 (cont'd)

FISH STOCK SUMMARY
STOCK: Cod in the Iceland Grounds (Fishing Area Va)
2-6-1993

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

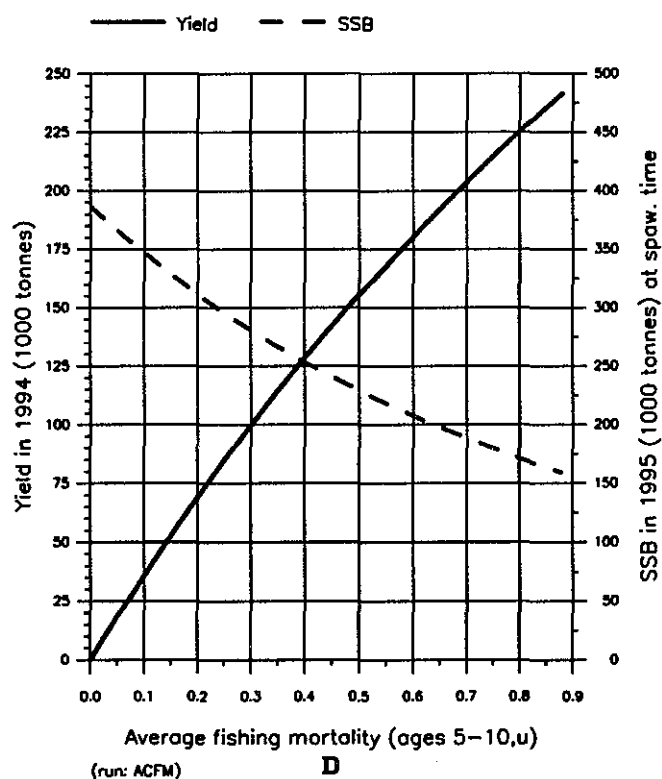
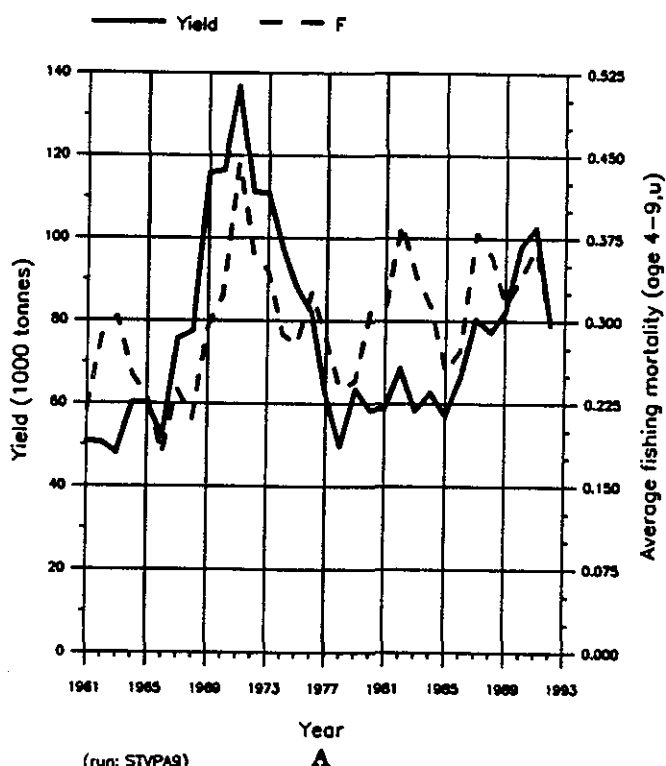


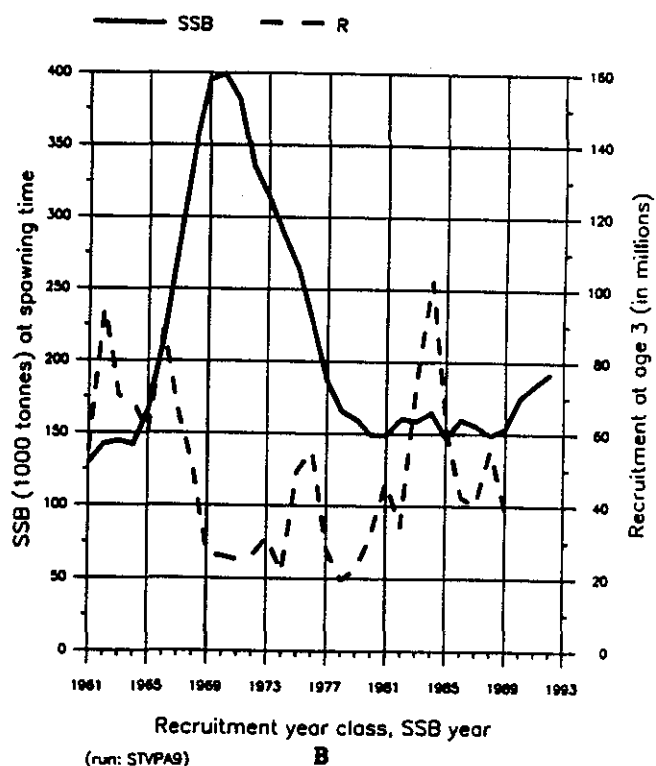
Figure 2.6.2

FISH STOCK SUMMARY **STOCK: Saithe in the Iceland Grounds (Fishing Area Va)** **5-5-1993**

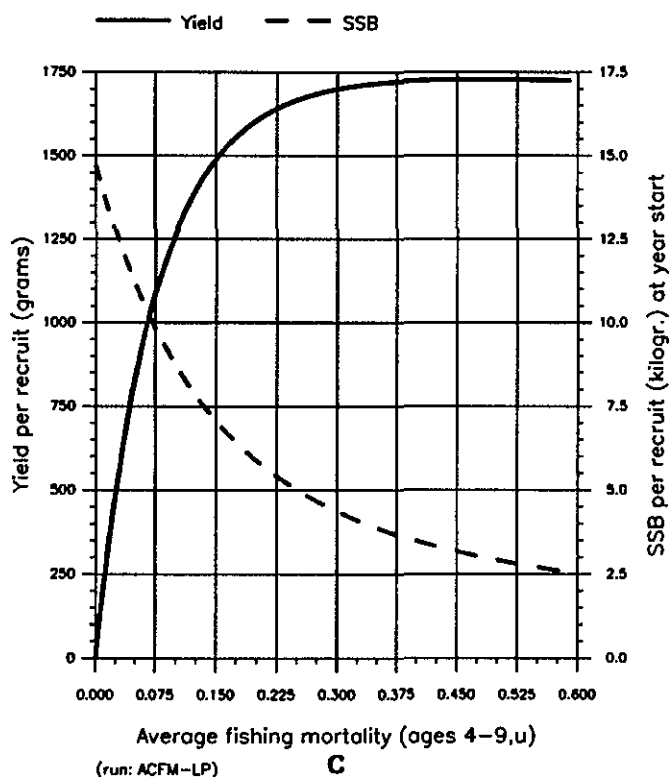
Trends in yield and fishing mortality (F)



Trends in spawning stock biomass (SSB) and recruitment (R)



Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

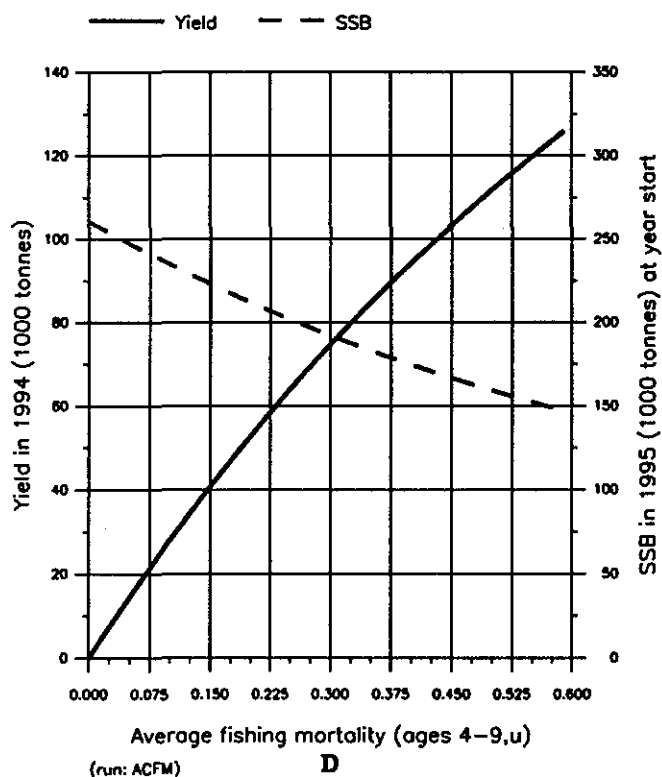
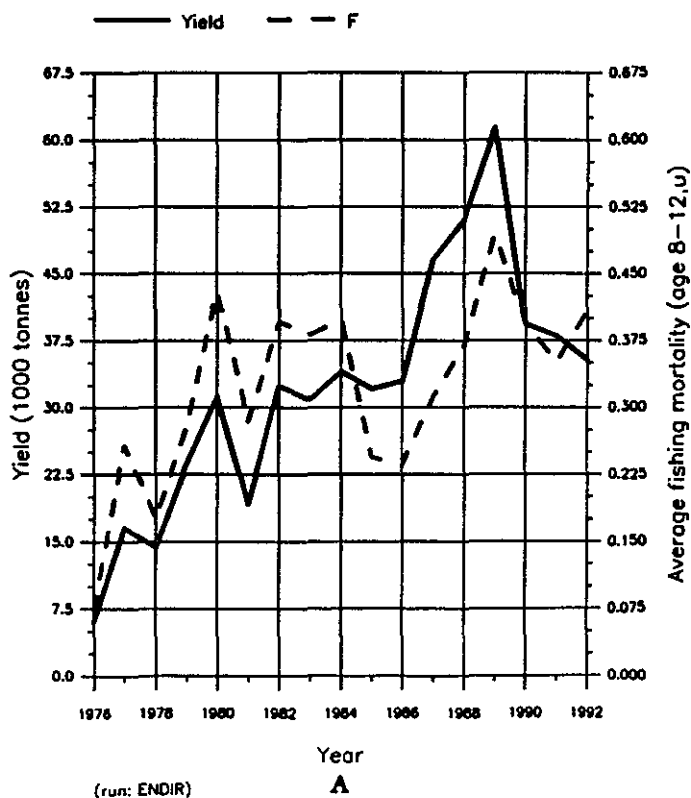


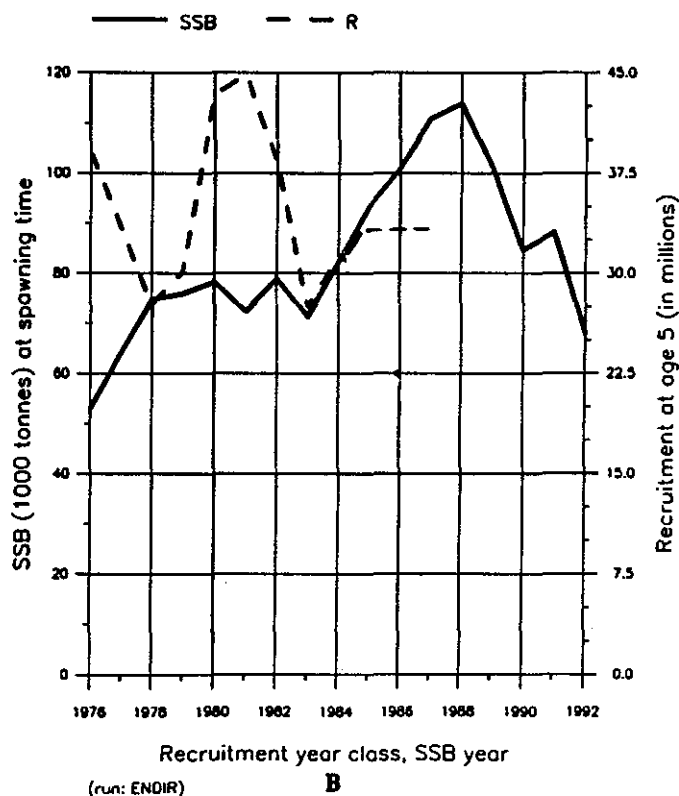
Figure 2.6.3

FISH STOCK SUMMARY **STOCK: Greenland halibut in the Iceland and Faroes Grounds and East Green** **9-5-1993**

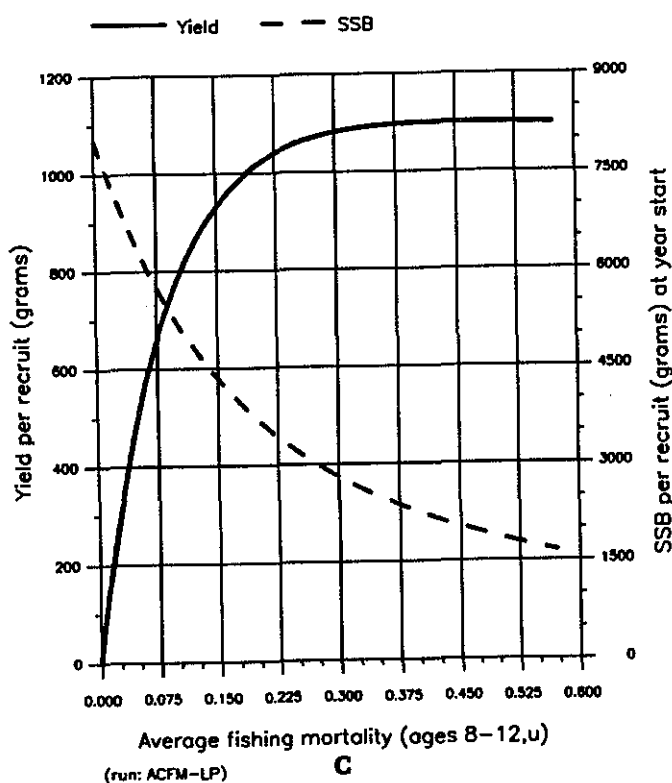
Trends in yield and fishing mortality (F)



Trends in spawning stock biomass (SSB) and recruitment (R)



Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

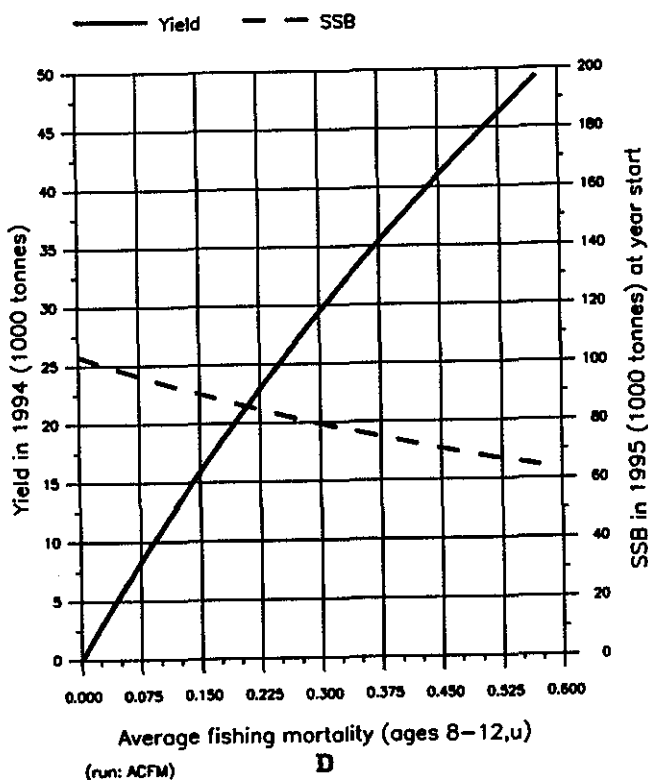
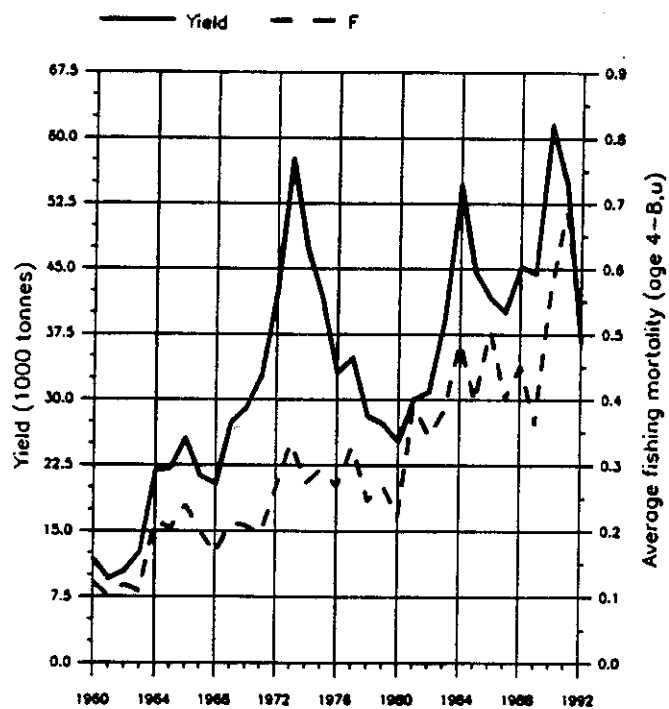


Figure 2.8.1

FISH STOCK SUMMARY **STOCK: Saithe in the Faroes Grounds (Fishing Area Vb)** **11-5-1993**

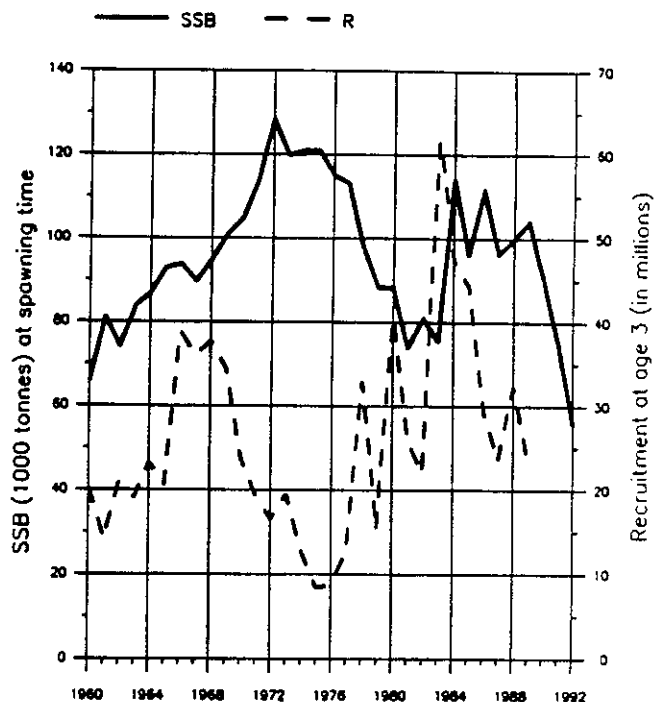
Trends in yield and fishing mortality (F)



(run: SAIFR813)
A

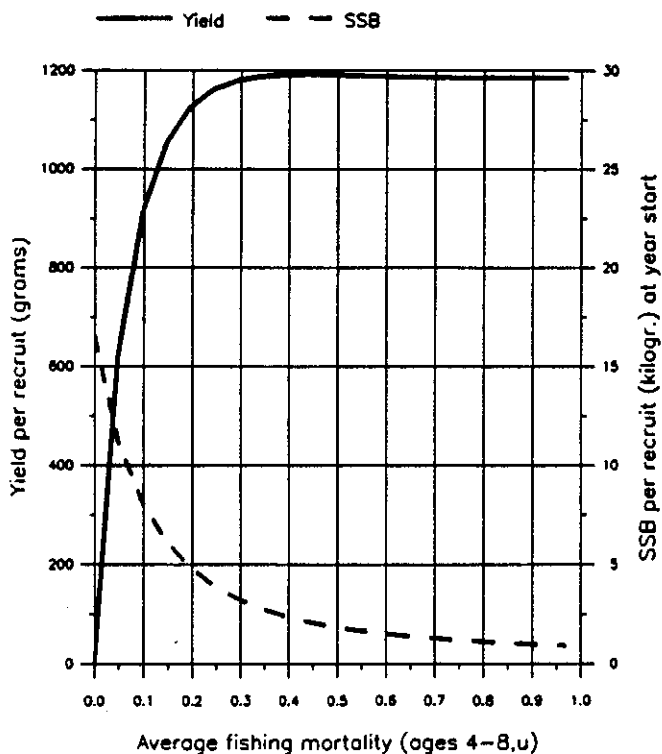
Long term yield and spawning stock biomass

Trends in spawning stock biomass (SSB) and recruitment (R)

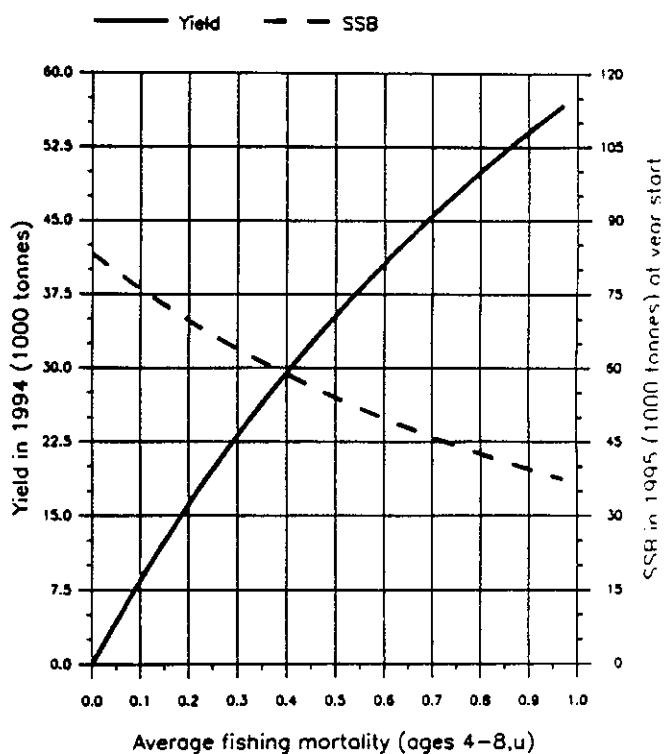


(run: SAIFR813)
B

Short-term yield and spawning stock biomass



(run: SAIFR816)
C



(run: SAIFR817)
D

Figure 2.8.2

FISH STOCK SUMMARY **STOCK: Cod in the Faroe Plateau (Fishing Area Vb1)** **7-5-1993**

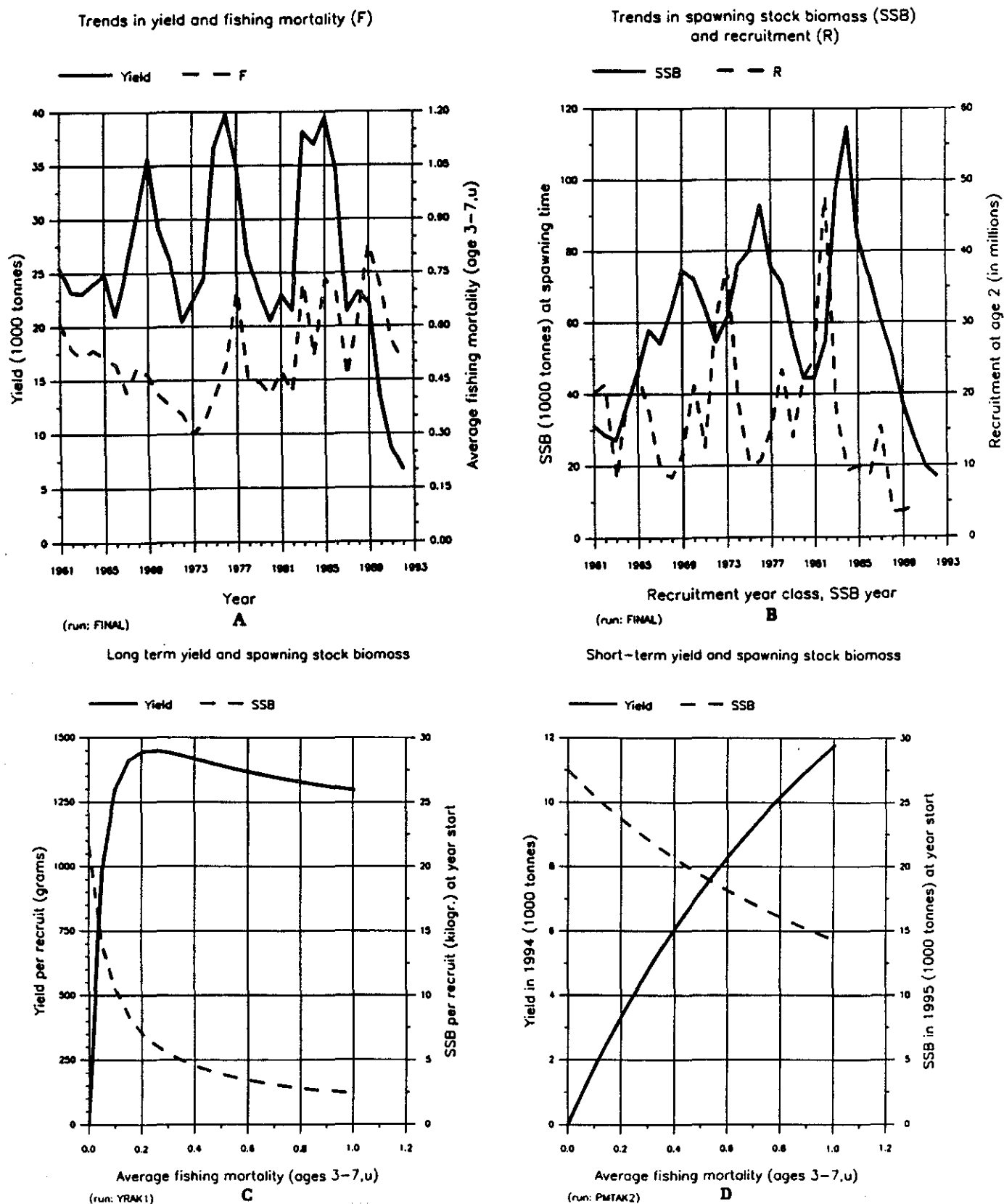


Figure 2.8.3

FISH STOCK SUMMARY
STOCK: Haddock in the Faroe Grounds (Fishing Area Vb)
7-5-1993

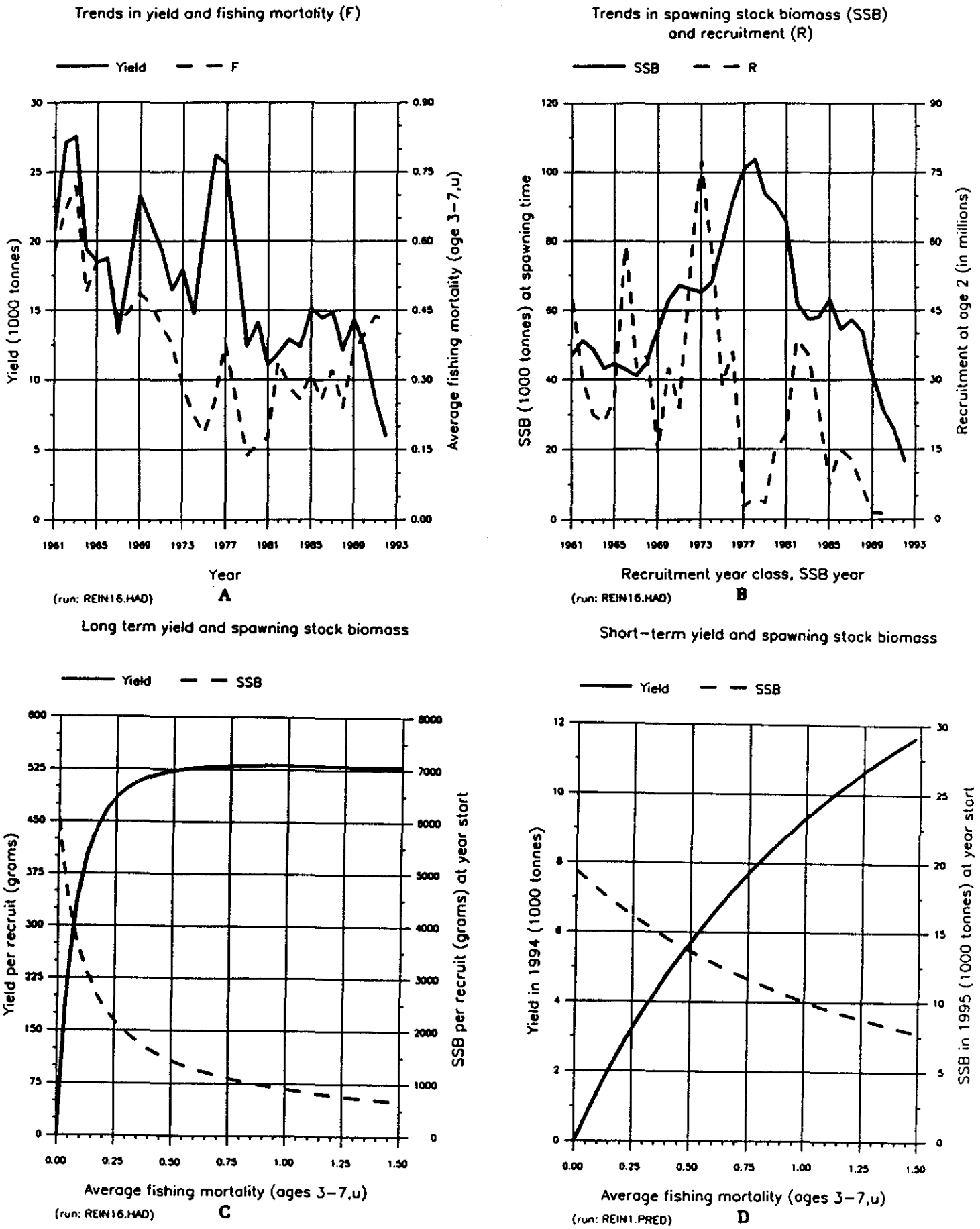
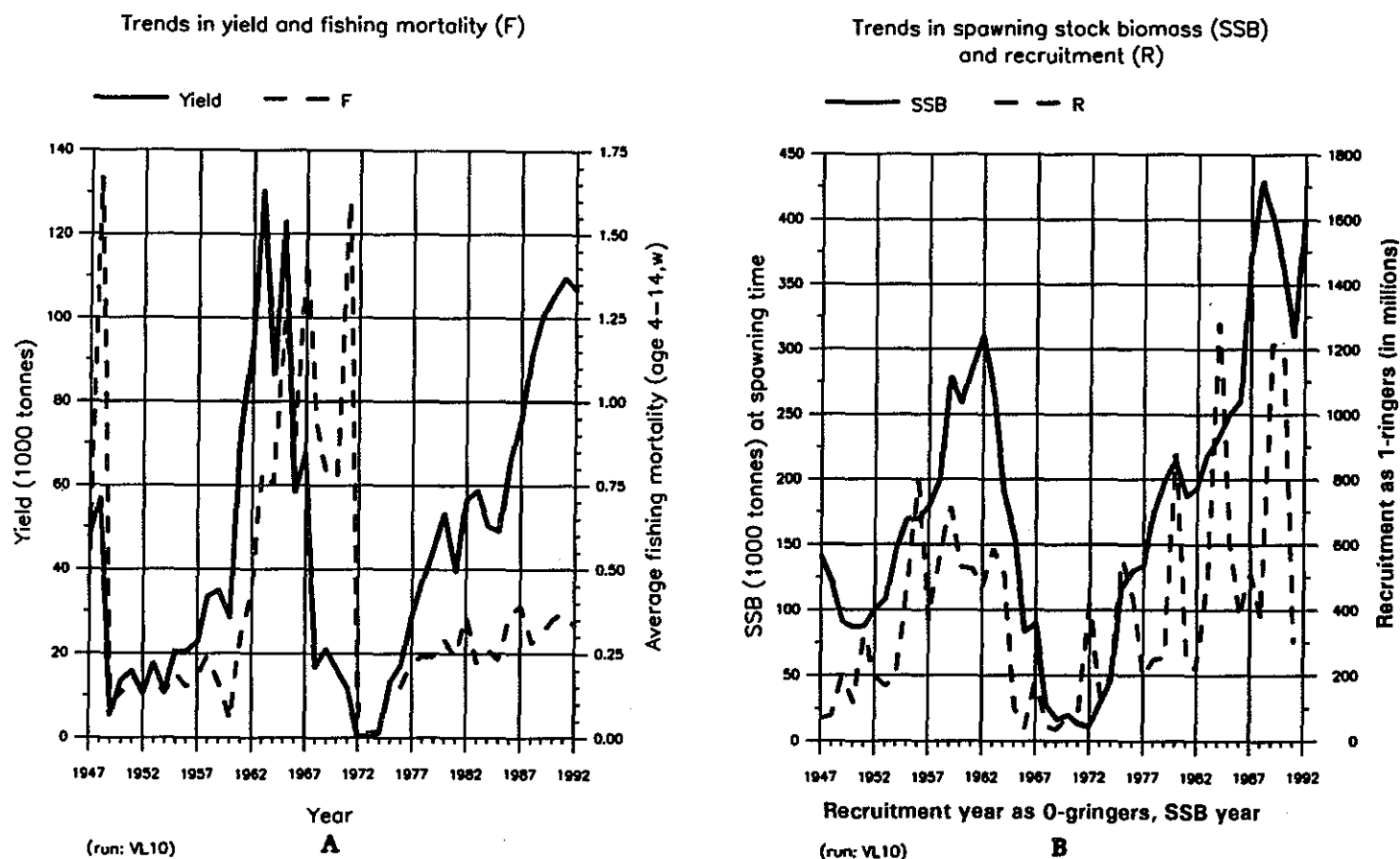


Figure 2.9.1

FISH STOCK SUMMARY
STOCK: Herring, Summer Spawning at Iceland (Fishing Area Va)
22-10-1993



FISH STOCK SUMMARY
STOCK: Herring, Summer Spawning at Iceland (Fishing Area Va)
21-10-1992

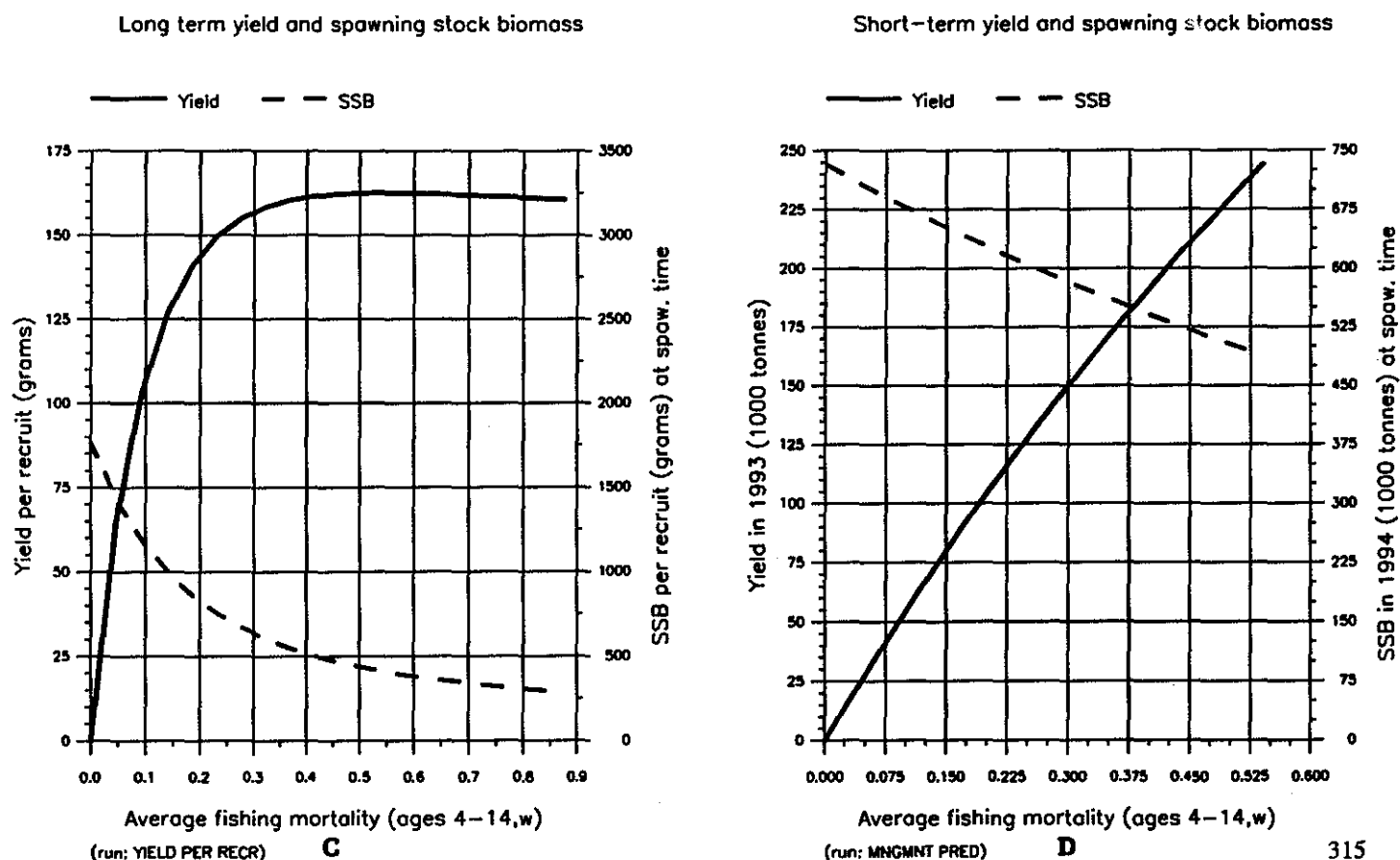
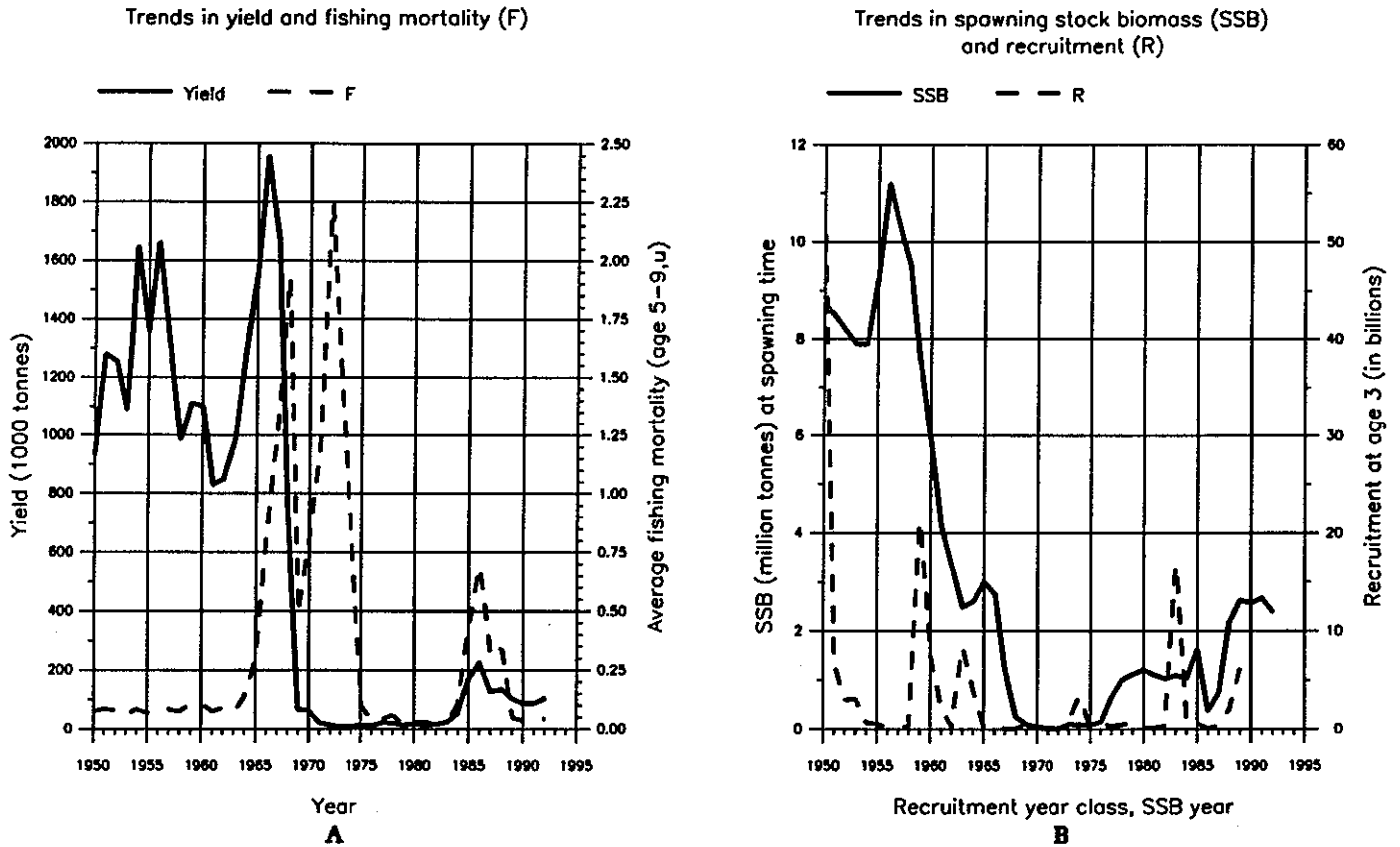


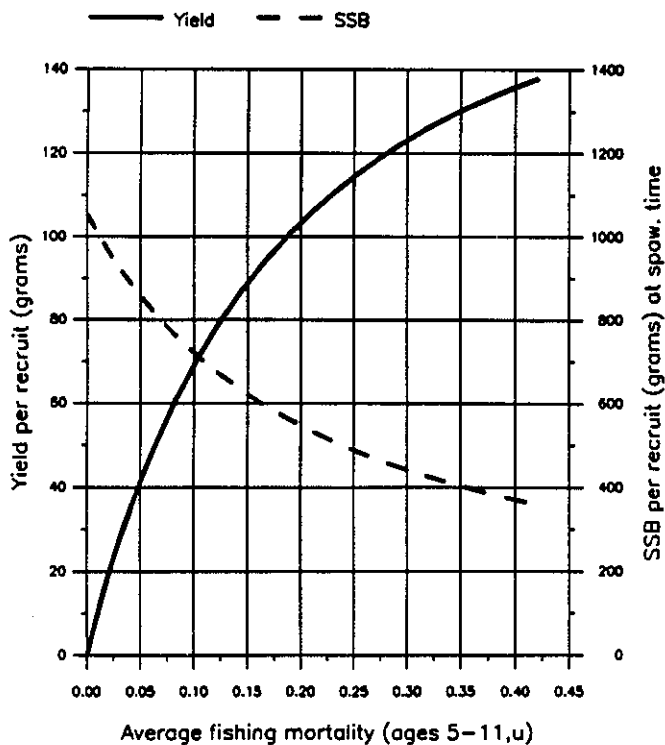
Figure 2.9.2

FISH STOCK SUMMARY **STOCK: Herring, Norwegian Spring Spawners**



FISH STOCK SUMMARY **STOCK: Herring, Norwegian Spring Spawners** **23-10-1993**

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

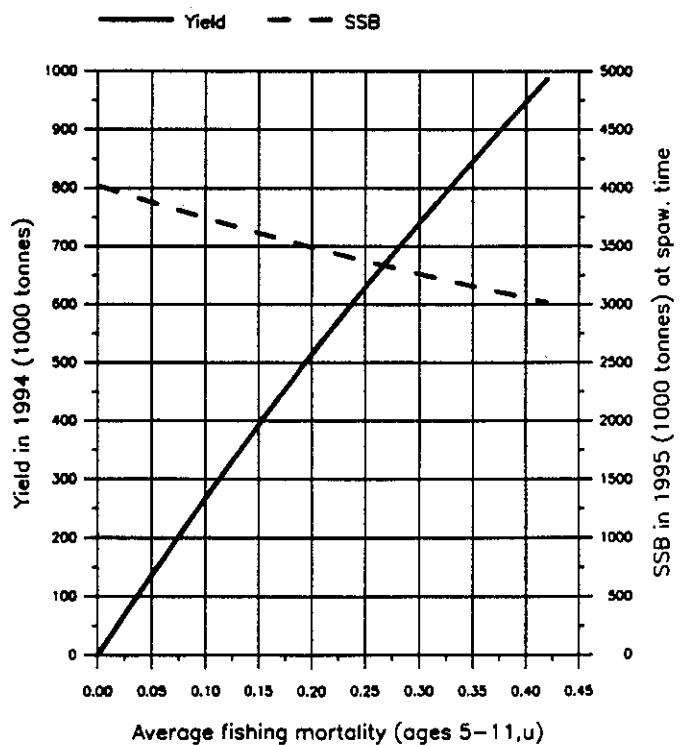


Figure 2.9.3

Distribution of Norwegian spring spawning herring. Spawning areas limited to Norwegian coastal waters.

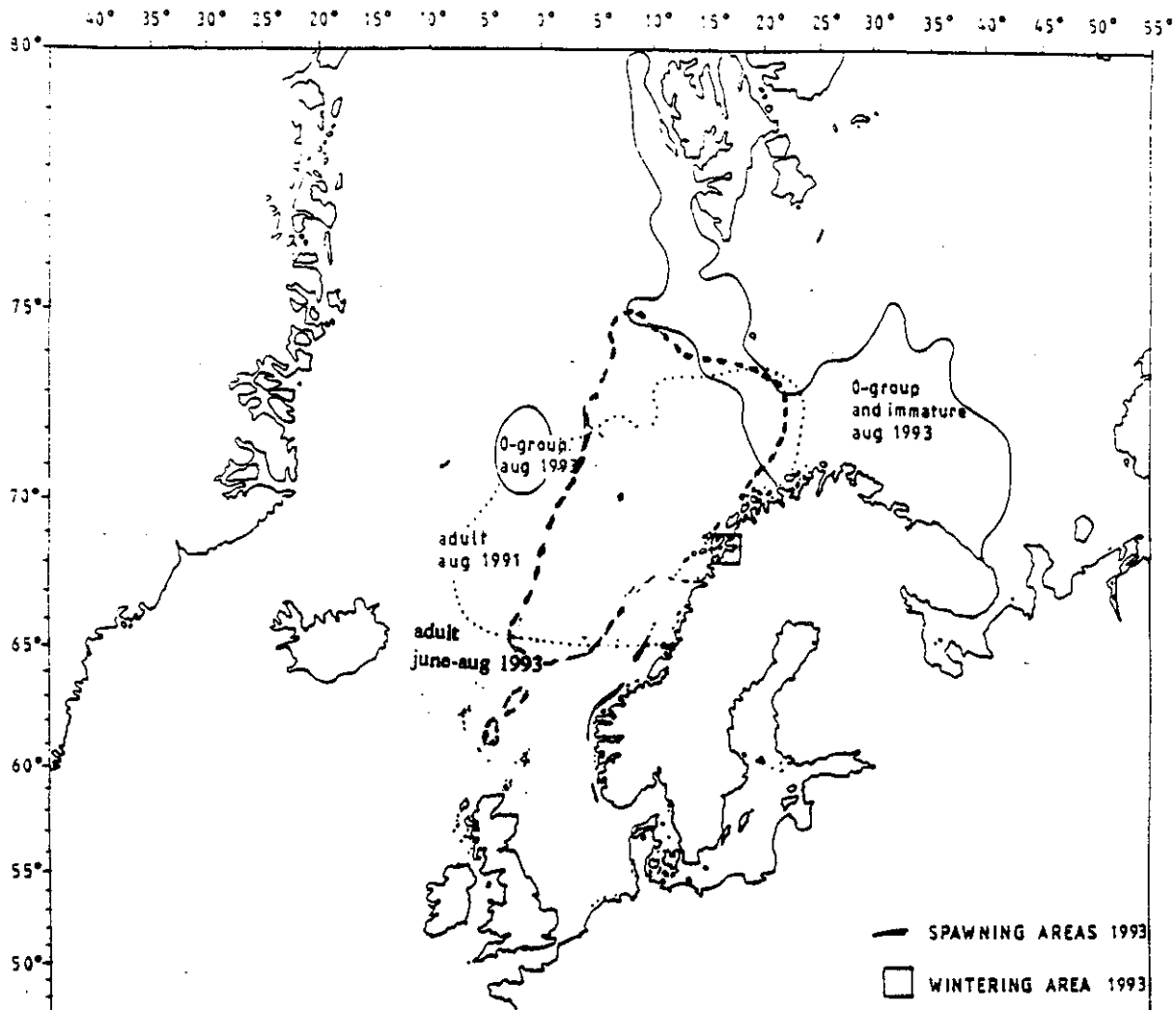
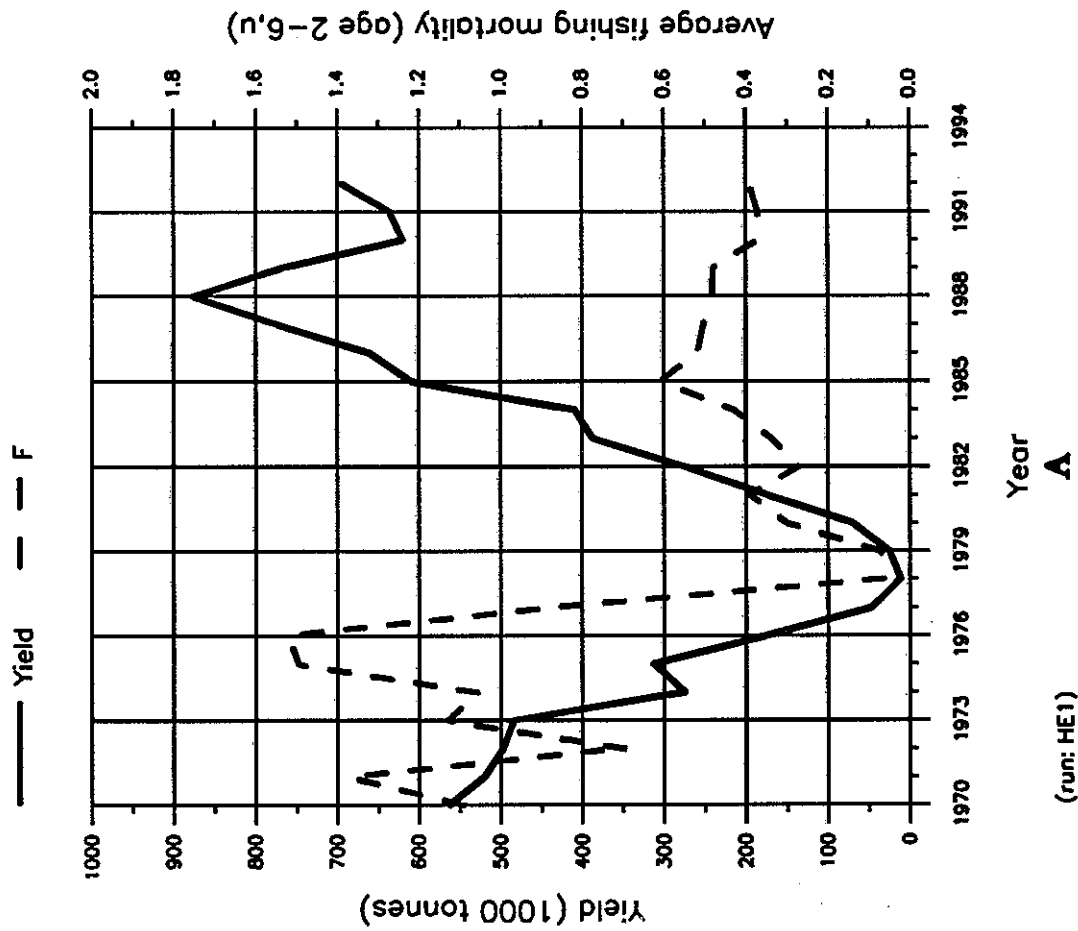


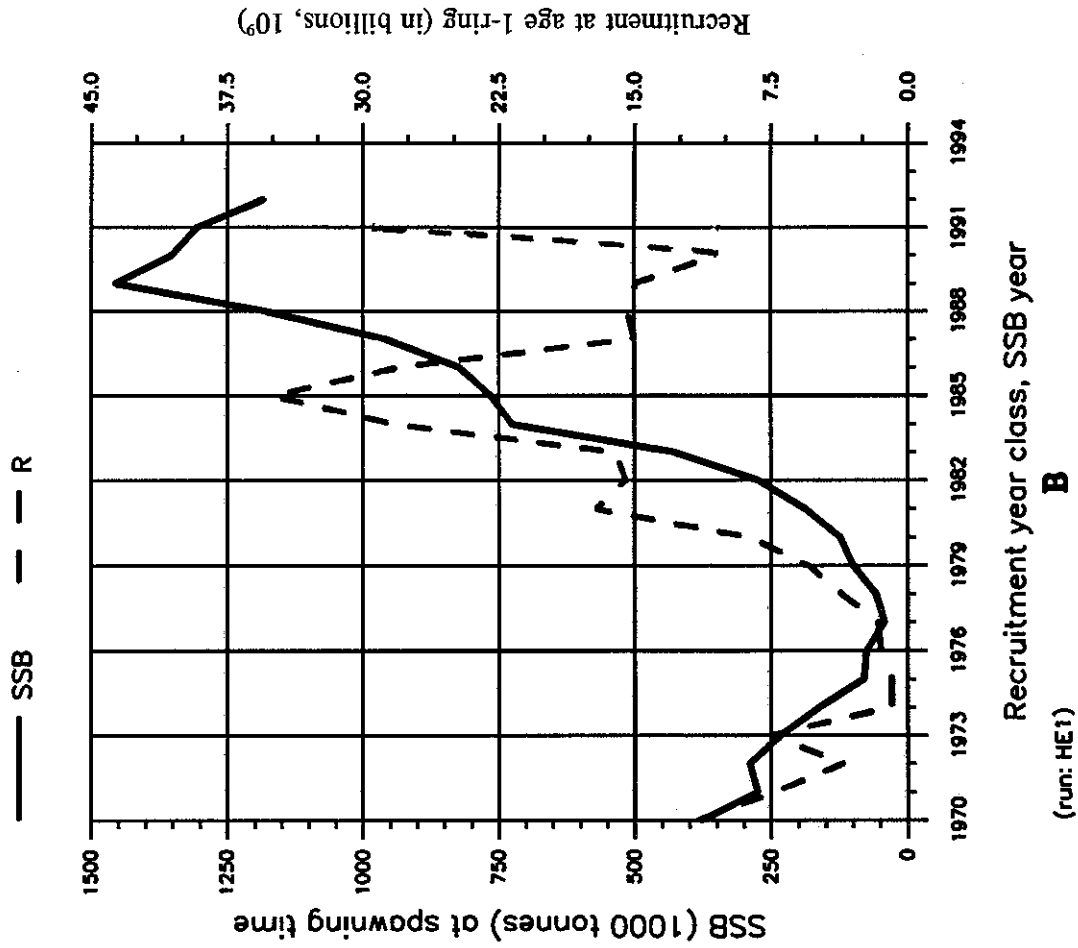
Figure 3.1.1

FISH STOCK SUMMARY **STOCK: Herring in the North Sea Area (Fishing Areas IV and IIIA)** **10-5-1993**

Trends in yield and fishing mortality (F)



Trends in spawning stock biomass (SSB) and recruitment (R)



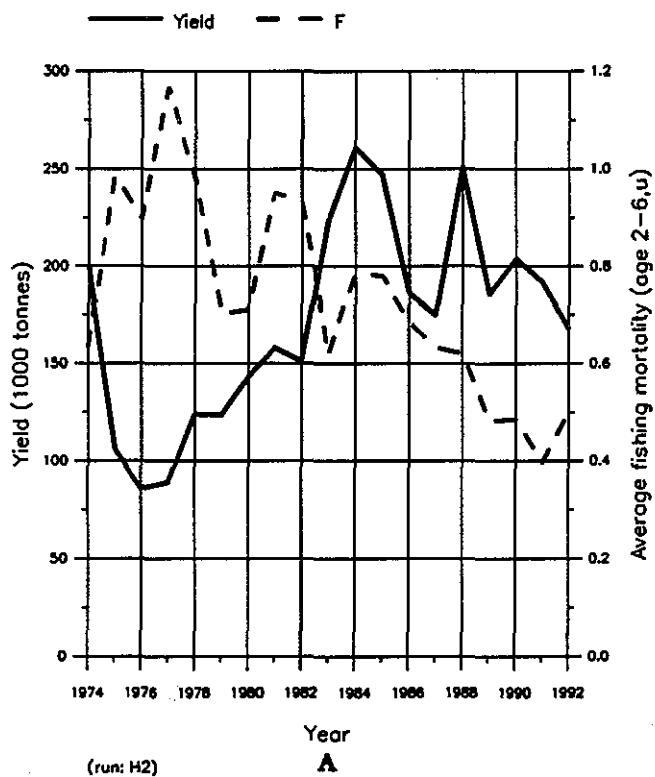
Recruitment year class, SSB year
 (run: HE1) **B**

Year **A**
 (run: HE1)

Figure 3.1.2

FISH STOCK SUMMARY
STOCK: Herring in the Western Baltic and Kattegat
28-4-1993

Trends in yield and fishing mortality (F)



Trends in spawning stock biomass (SSB) and recruitment (R)

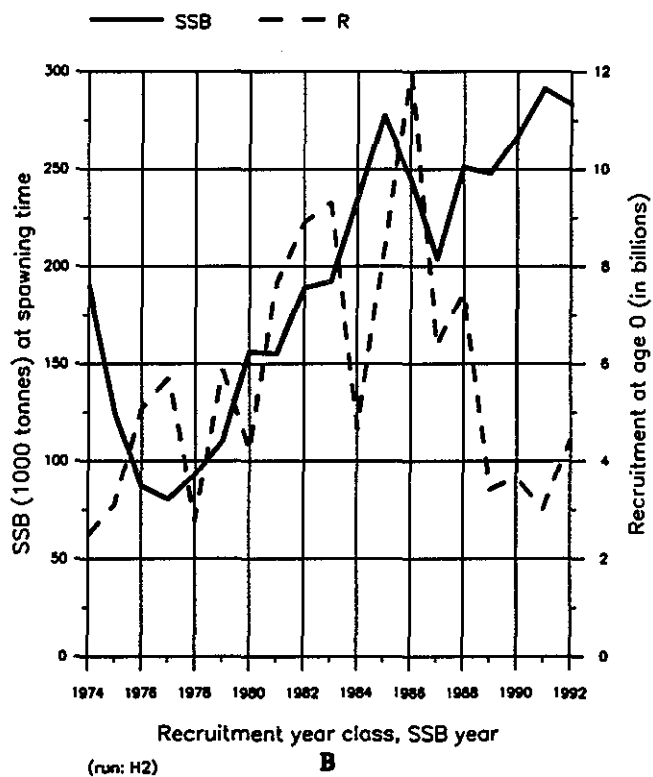


Figure 3.1.3

FISH STOCK SUMMARY
STOCK: Herring in the Northern part of V1a
28-3-1993

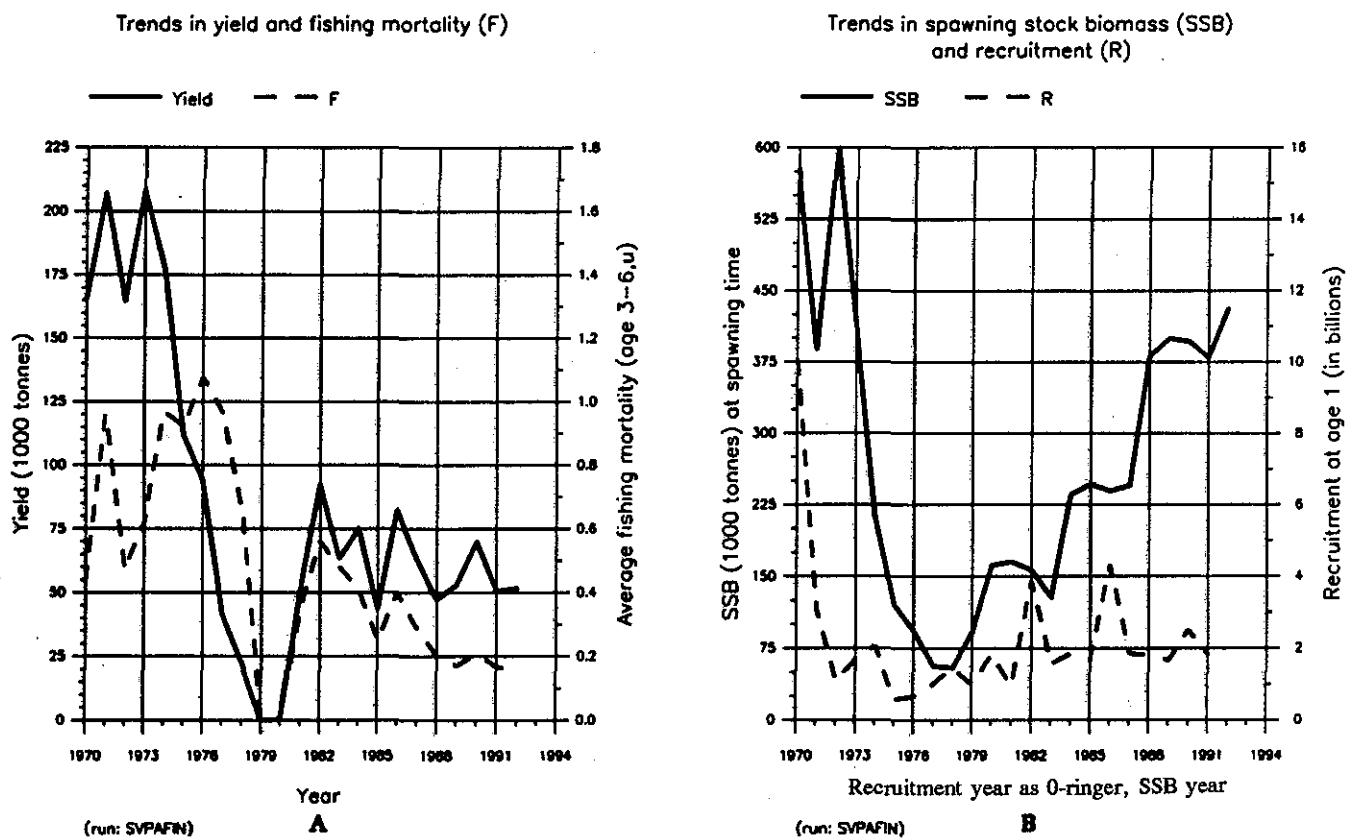


Figure 3.2.1 Danish sandeel areas and assessment areas used by ACFM.

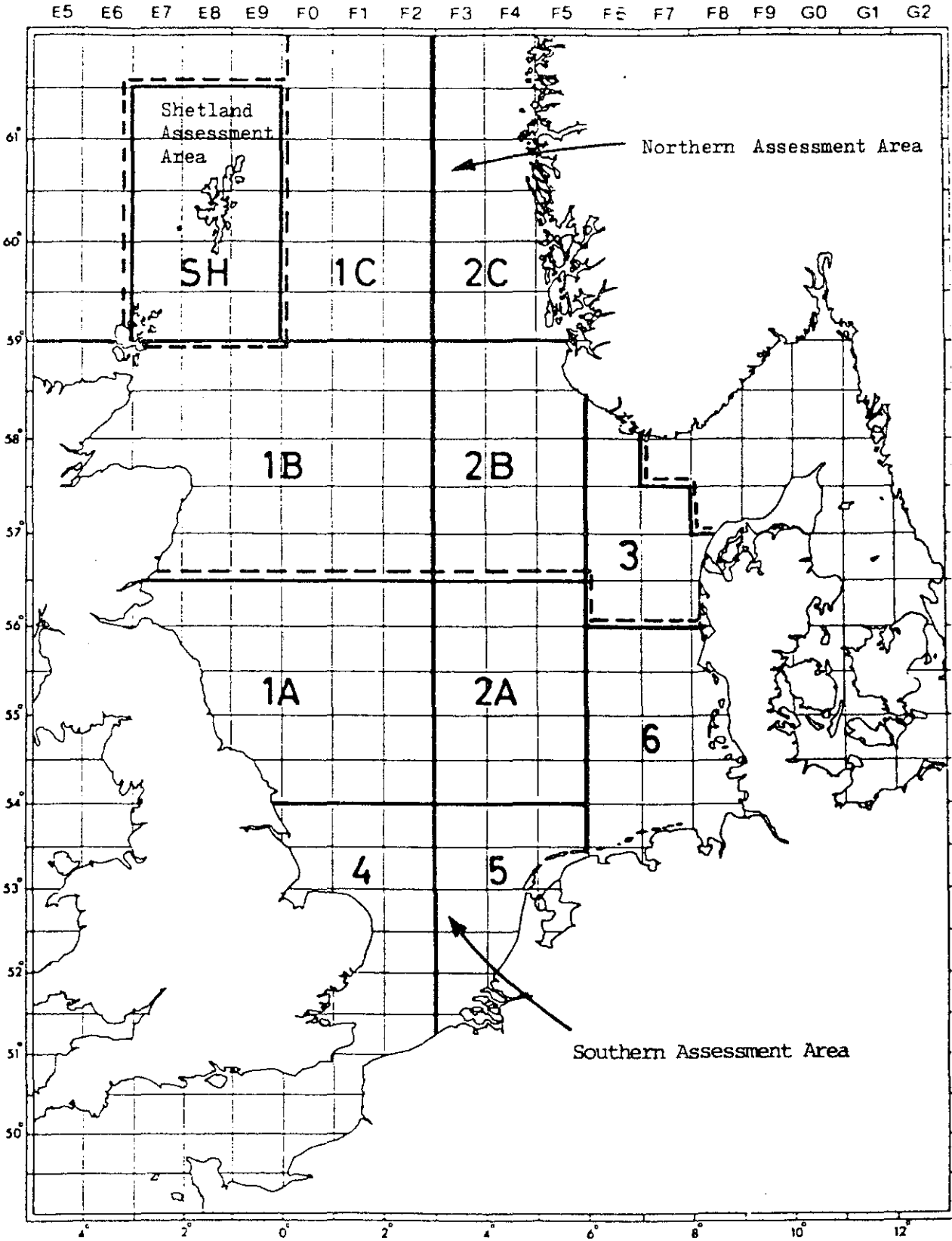


Figure 3.2.2 Fish Stock Summary. Sandeels at Shetland. Trends in recruitment and spawning stock biomass.

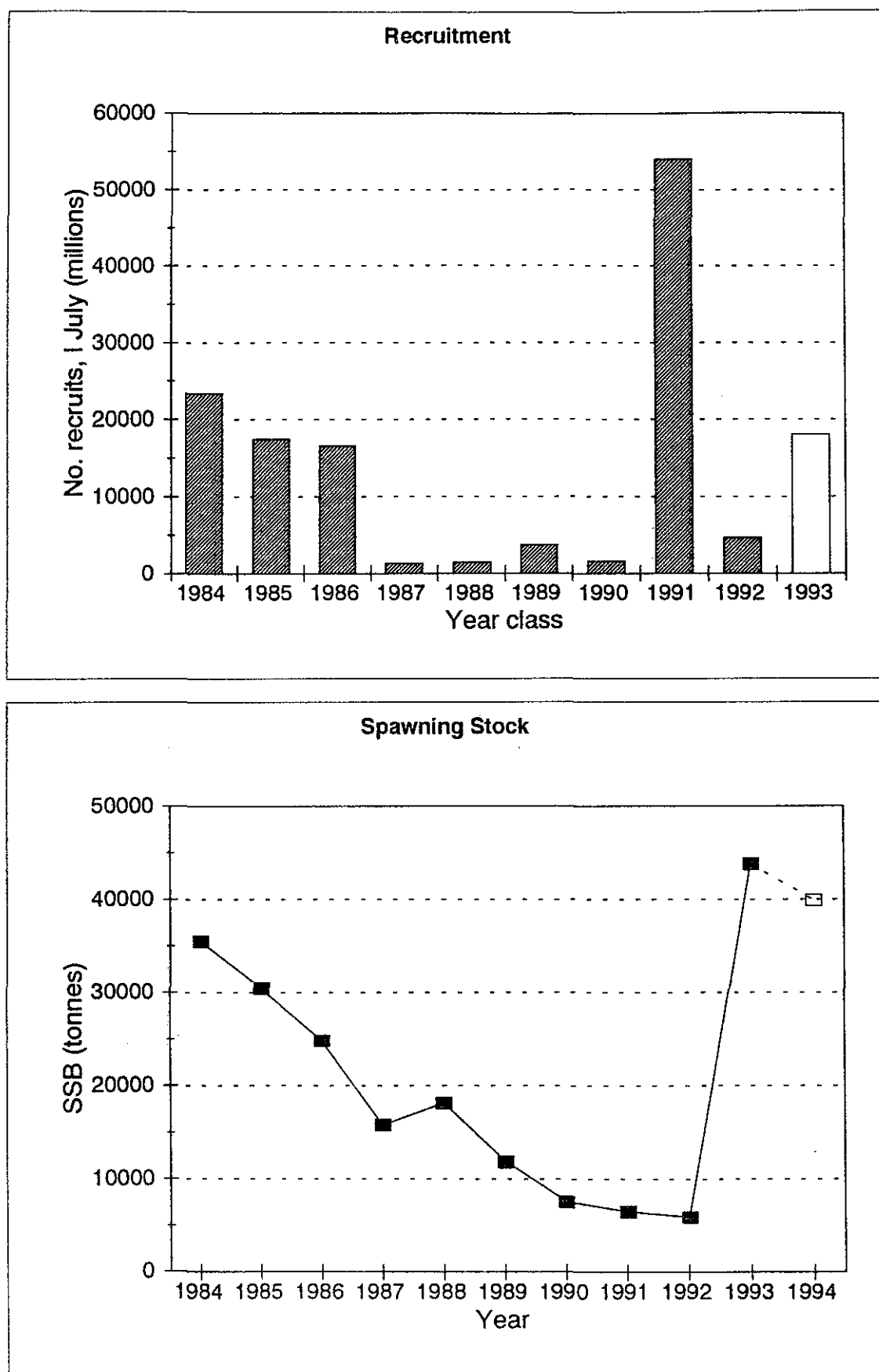


Figure 3.2.3 Fish Stock Summary. Sandeel in Division VIa.

Stock Summary

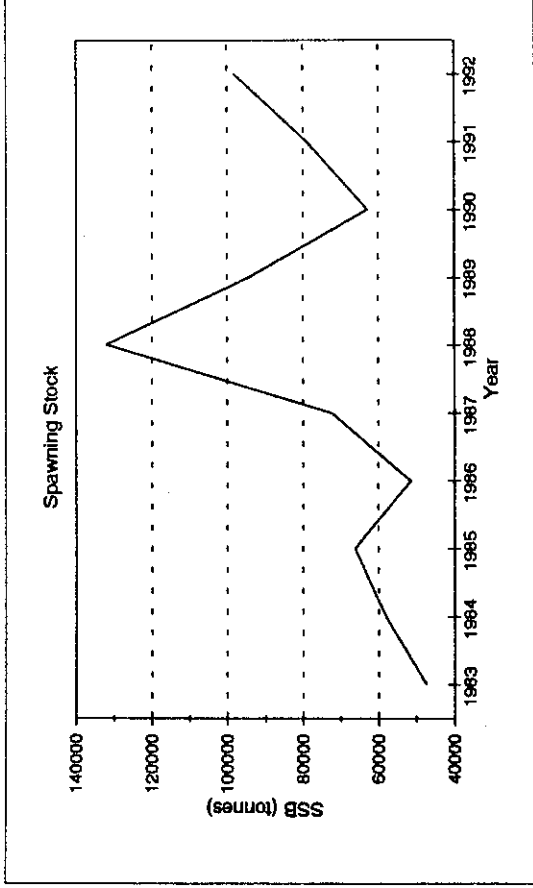
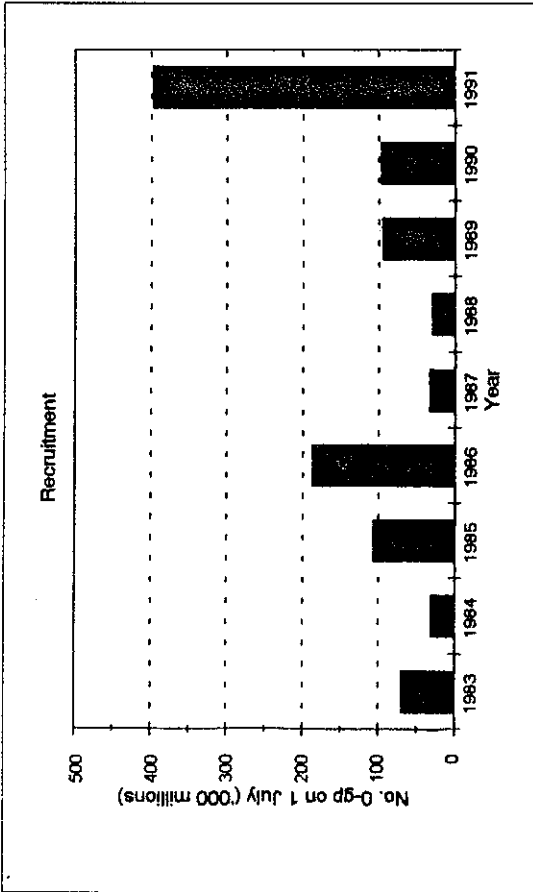
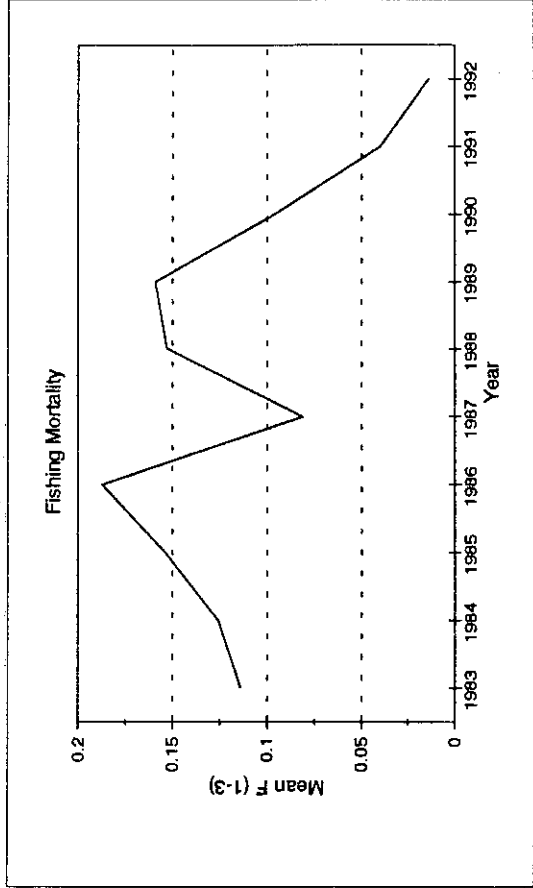
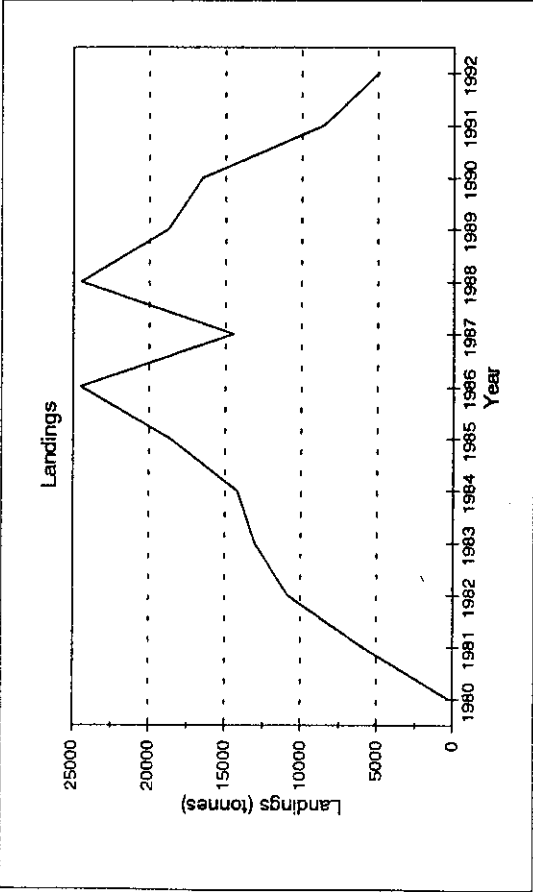
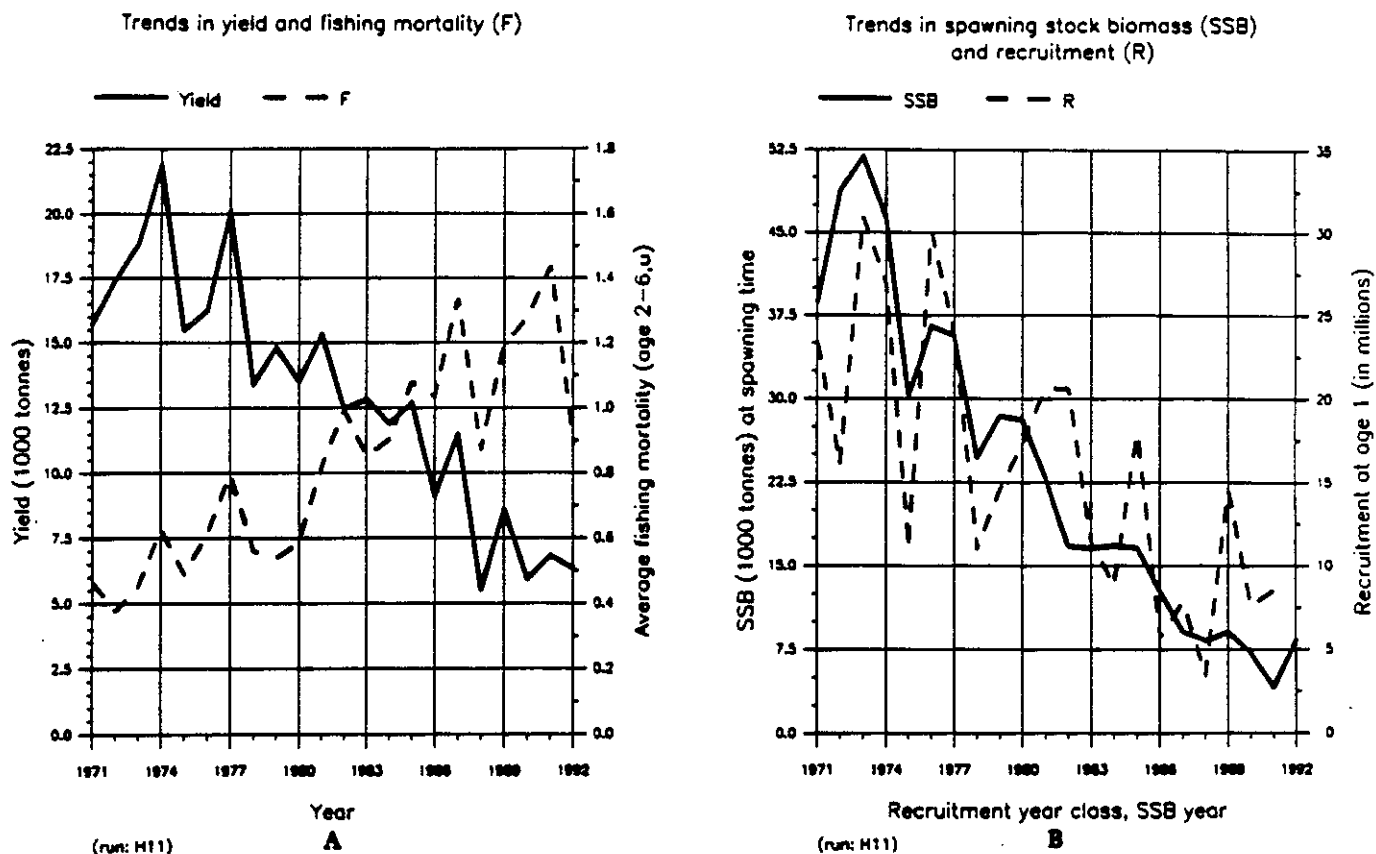


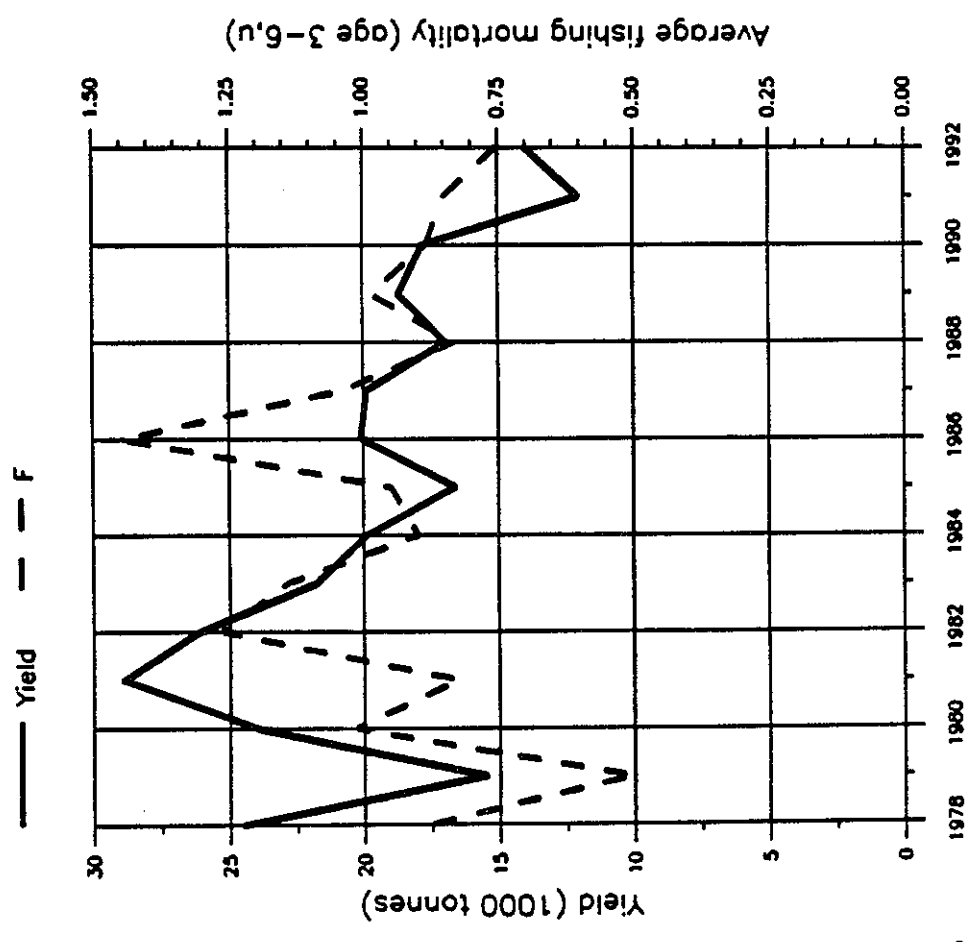
Figure 3.3.1

FISH STOCK SUMMARY
STOCK: Cod in the Kattegat (part of Fishing Area IIIa)
3-5-1983



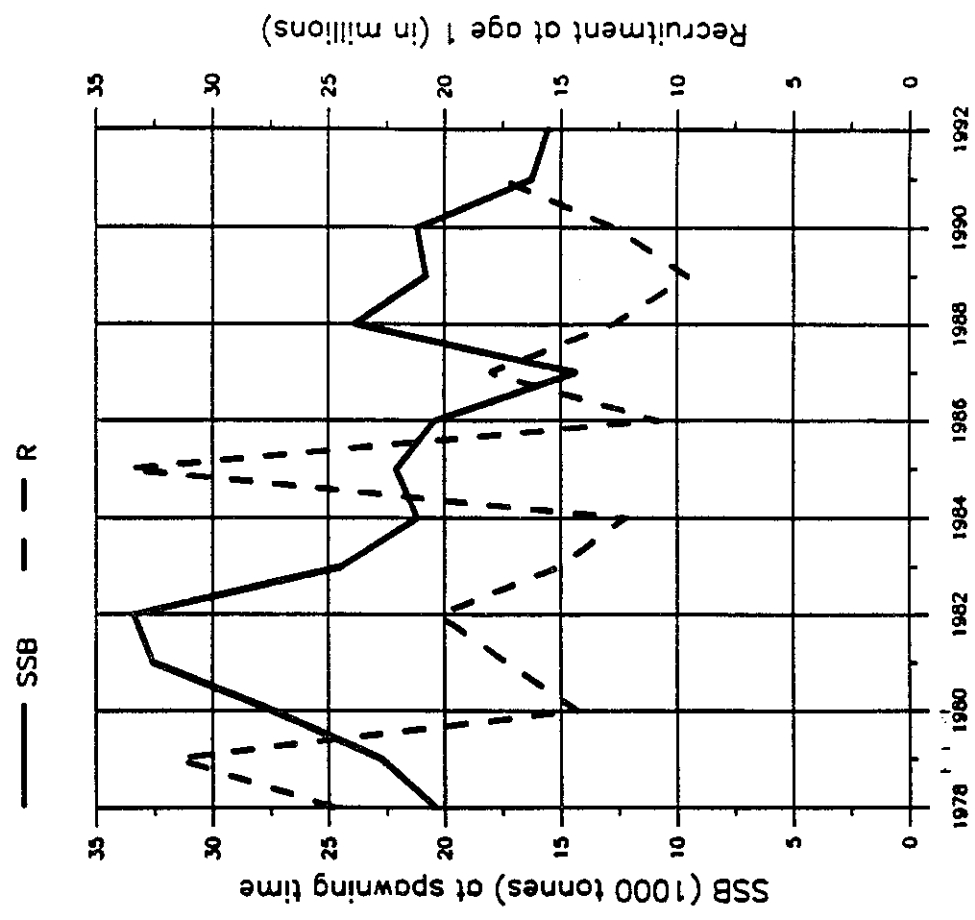
FISH STOCK SUMMARY **STOCK: Cod in the Skagerrak (part of Fishing Area IIIa)** **20-10-1993**

Trends in yield and fishing mortality (F)



(run: HS1)
A

Trends in spawning stock biomass (SSB) and recruitment (R)



(run: HS1)
B

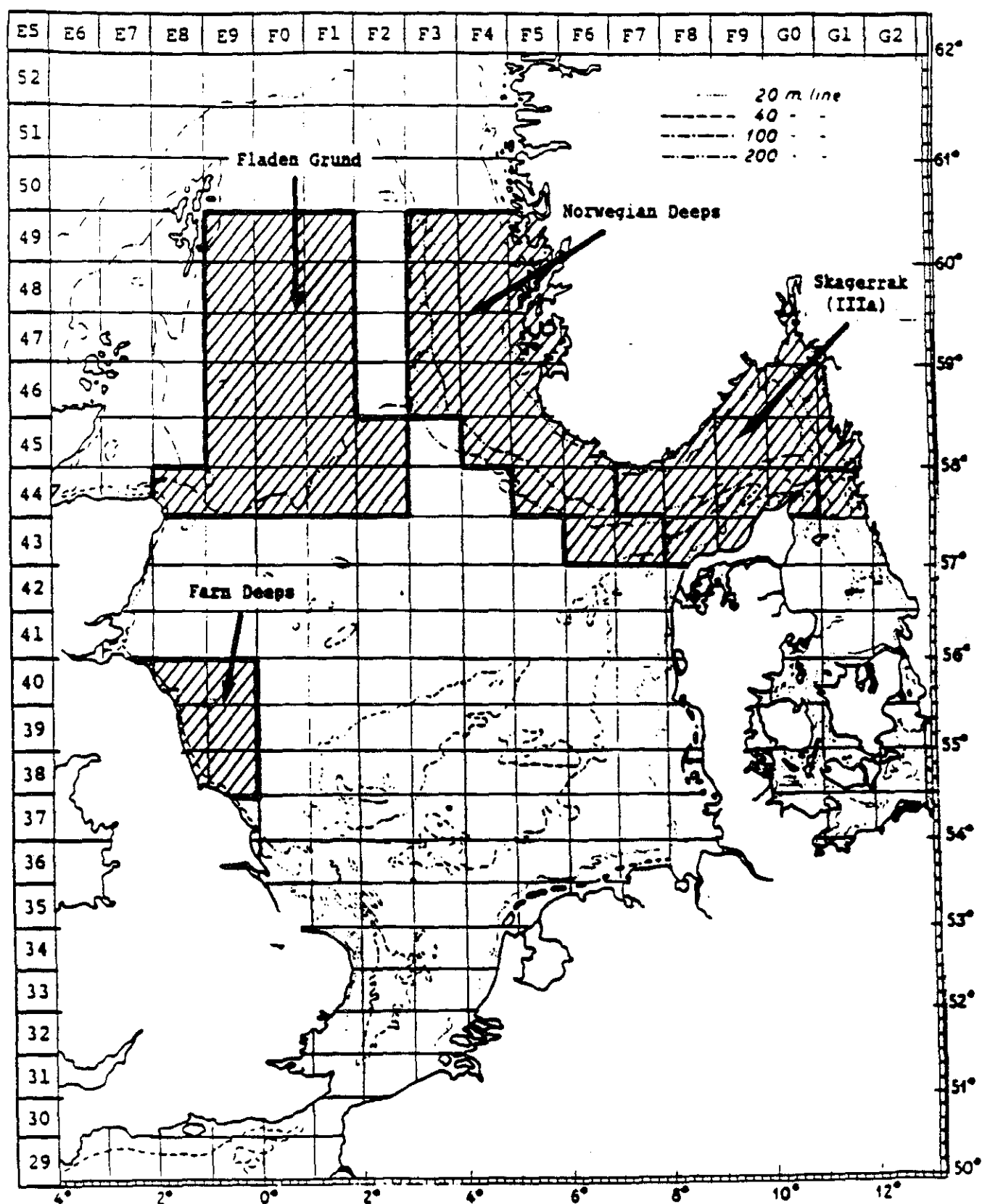


Figure 3.4.1 The management units of *Pandalus* in ICES Sub-area IV and Division IIIa as defined by statistical squares according to the Working Group.

Figure 3.5.1 Fish Stock Summary. North Sea Cod.

North Sea Cod

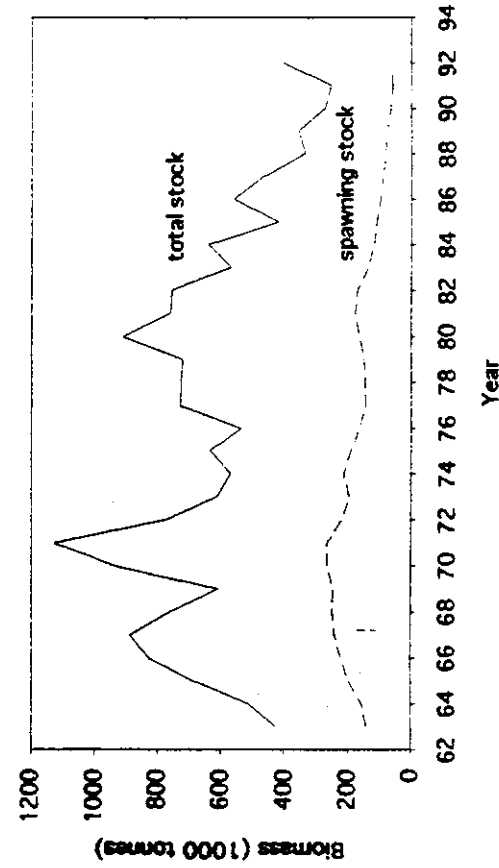
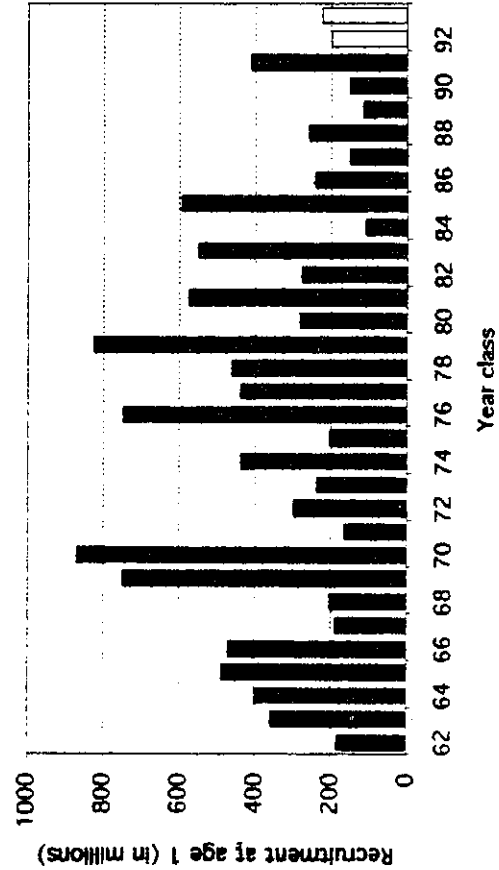
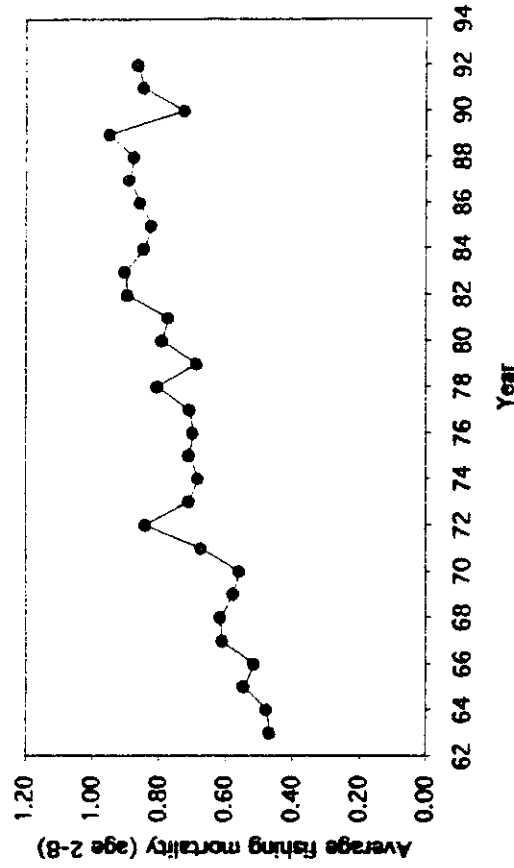
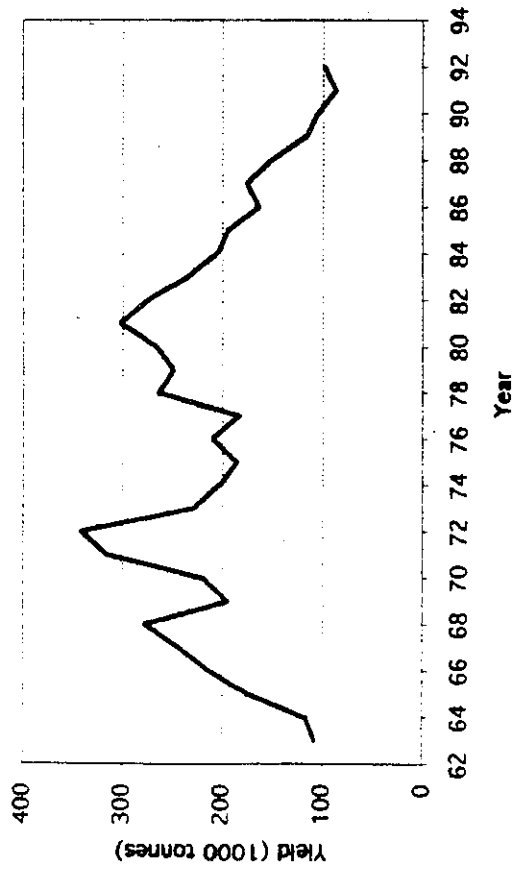


Figure 3.5.2 Yield-per-recruit, spawning stock biomass per recruit and short-term prediction. North Sea Cod.

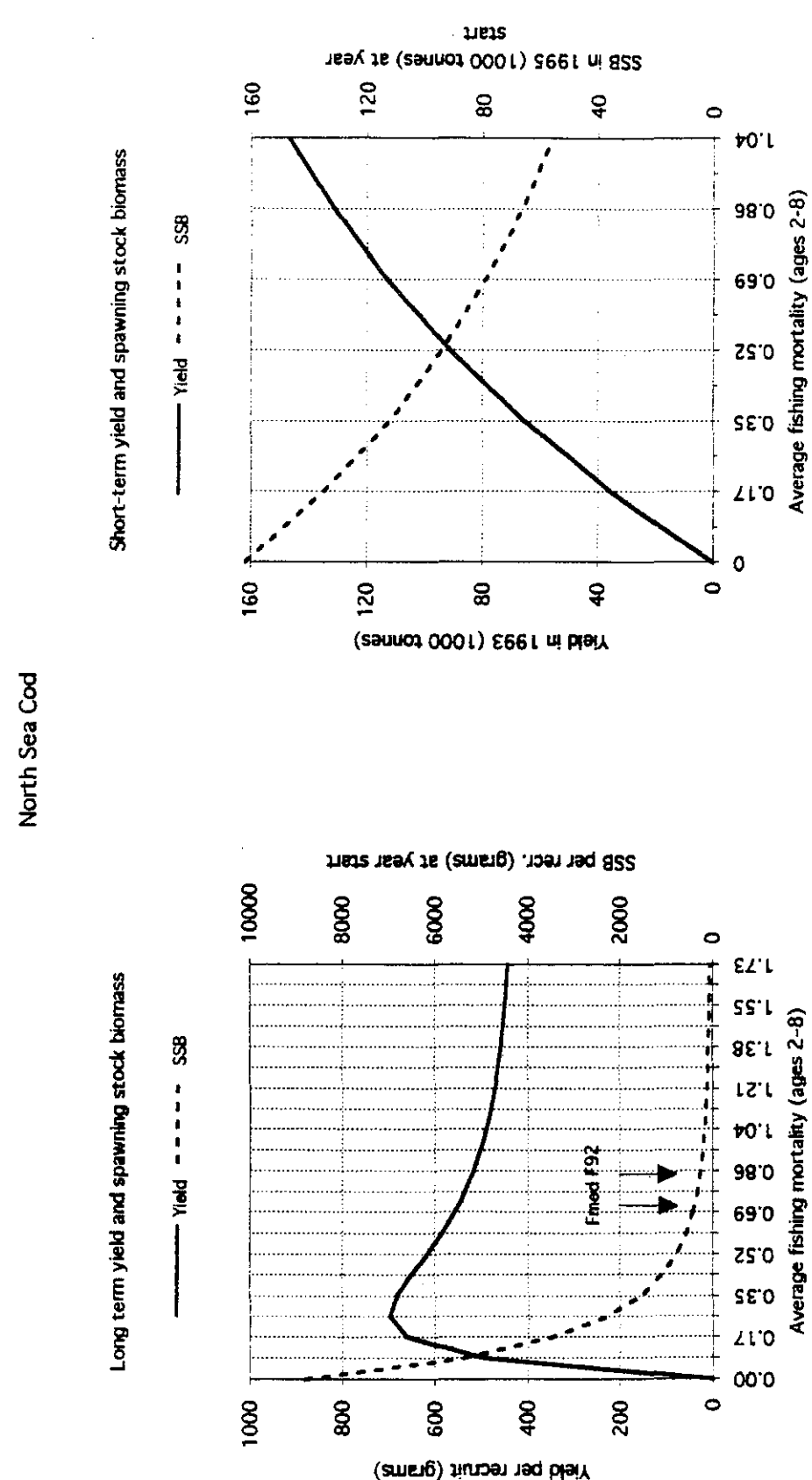
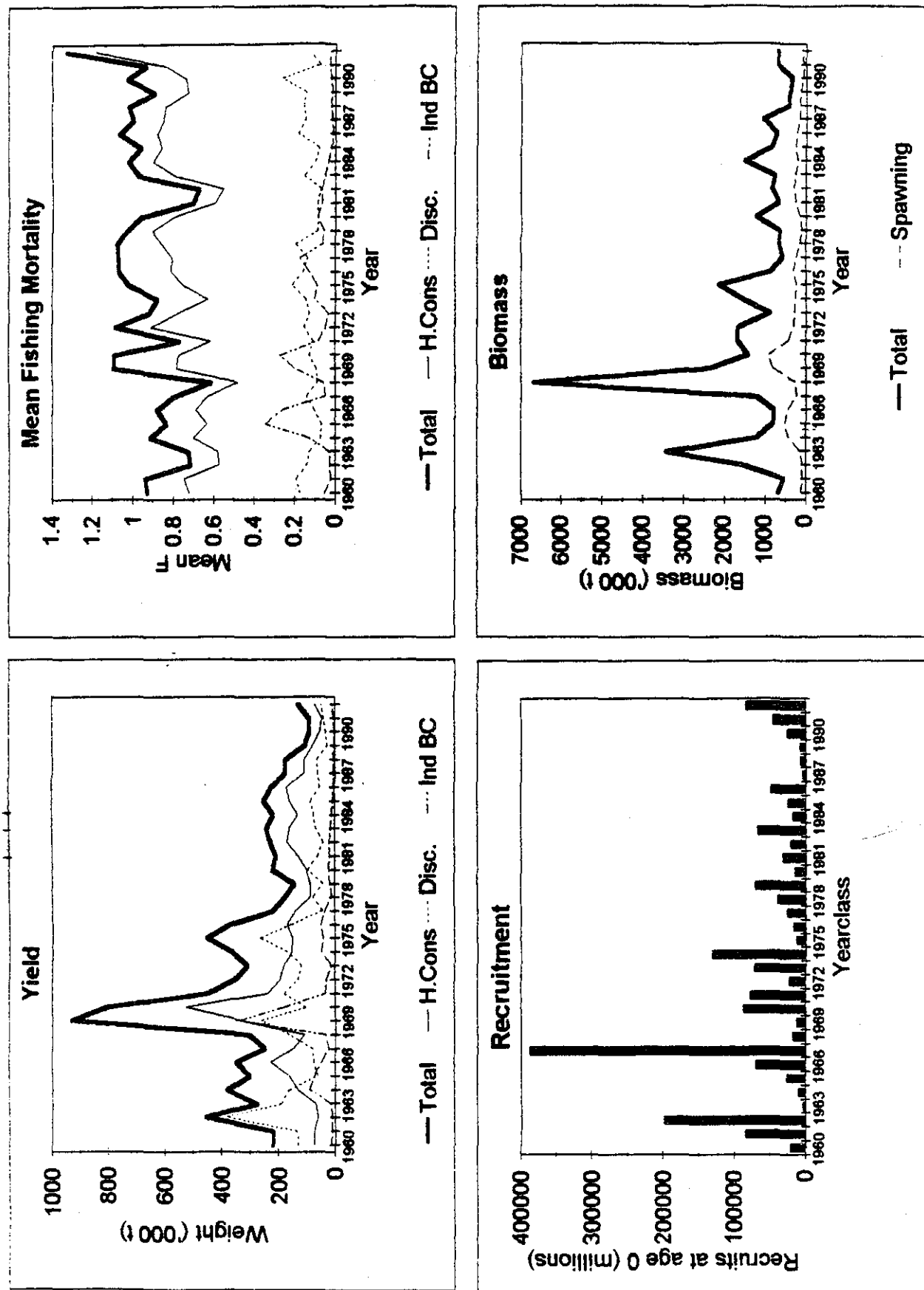


Figure 3.5.3 Fish Stock Summary.

Haddock, North Sea

Long-term trends in yield, fishing mortality, recruitment and biomass



Haddock, North Sea Yield and SSB per recruit

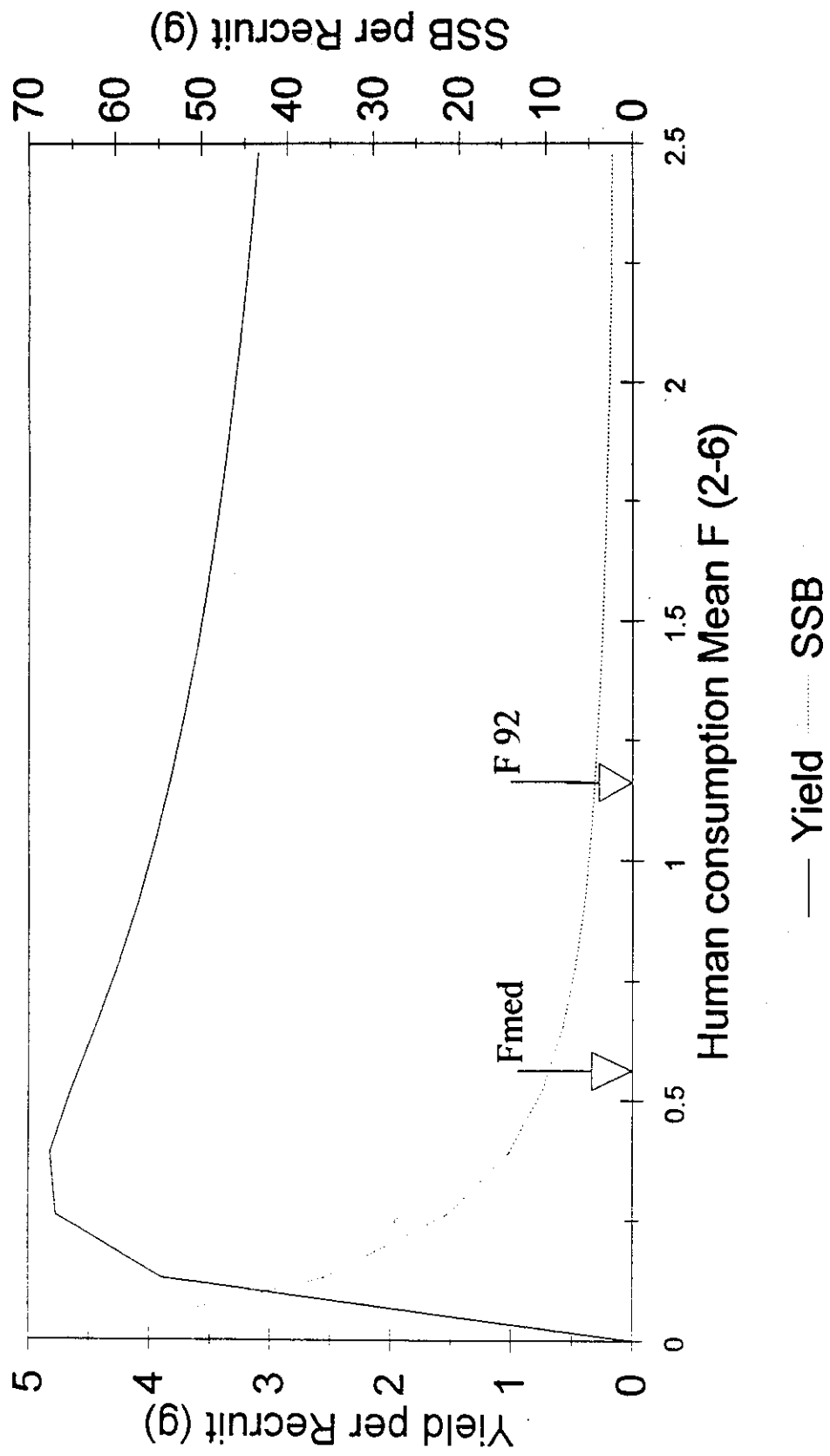
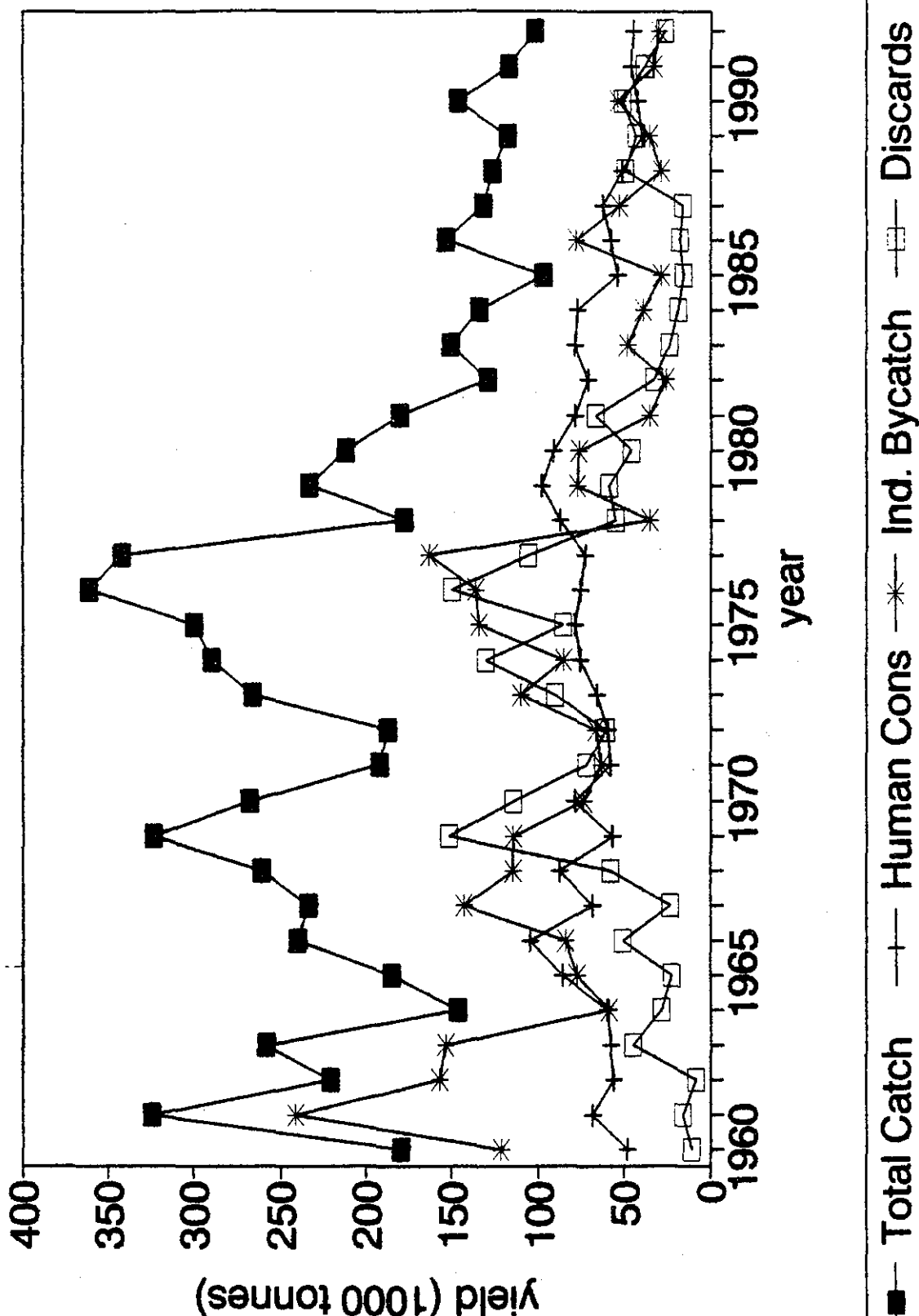


Figure 3.5.4

Figure 3.5.5 Fish Stock Summary. North Sea Whiting.

North Sea Whiting Yield



etd.

Figure 3.5.5 (cont'd)

North Sea Whiting

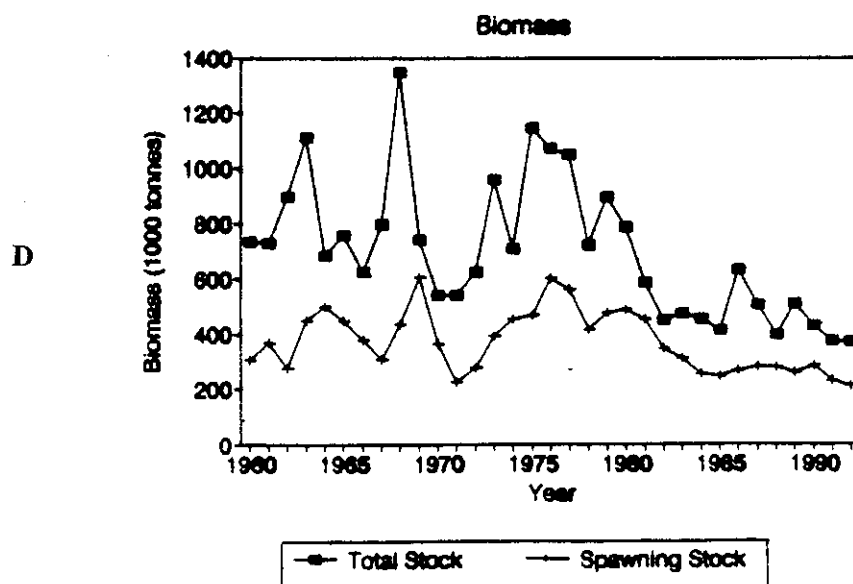
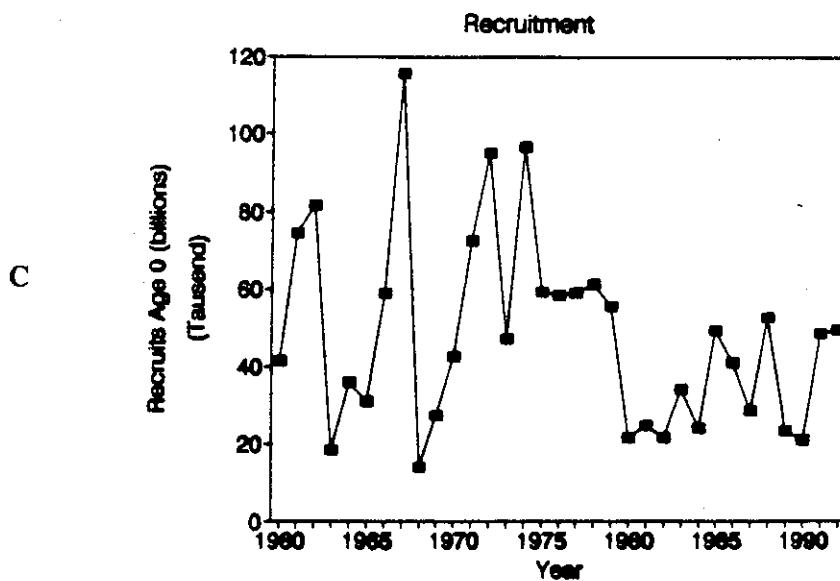
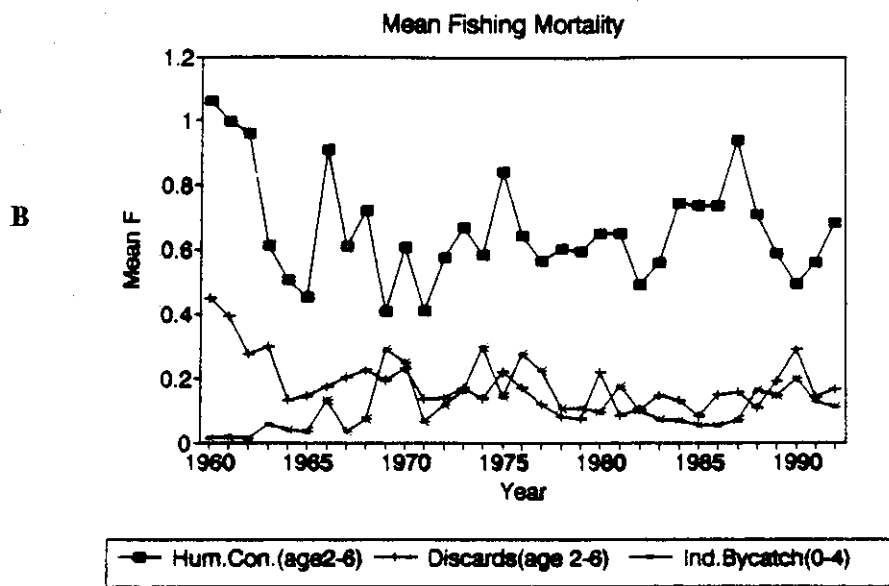


Figure 3.5.6

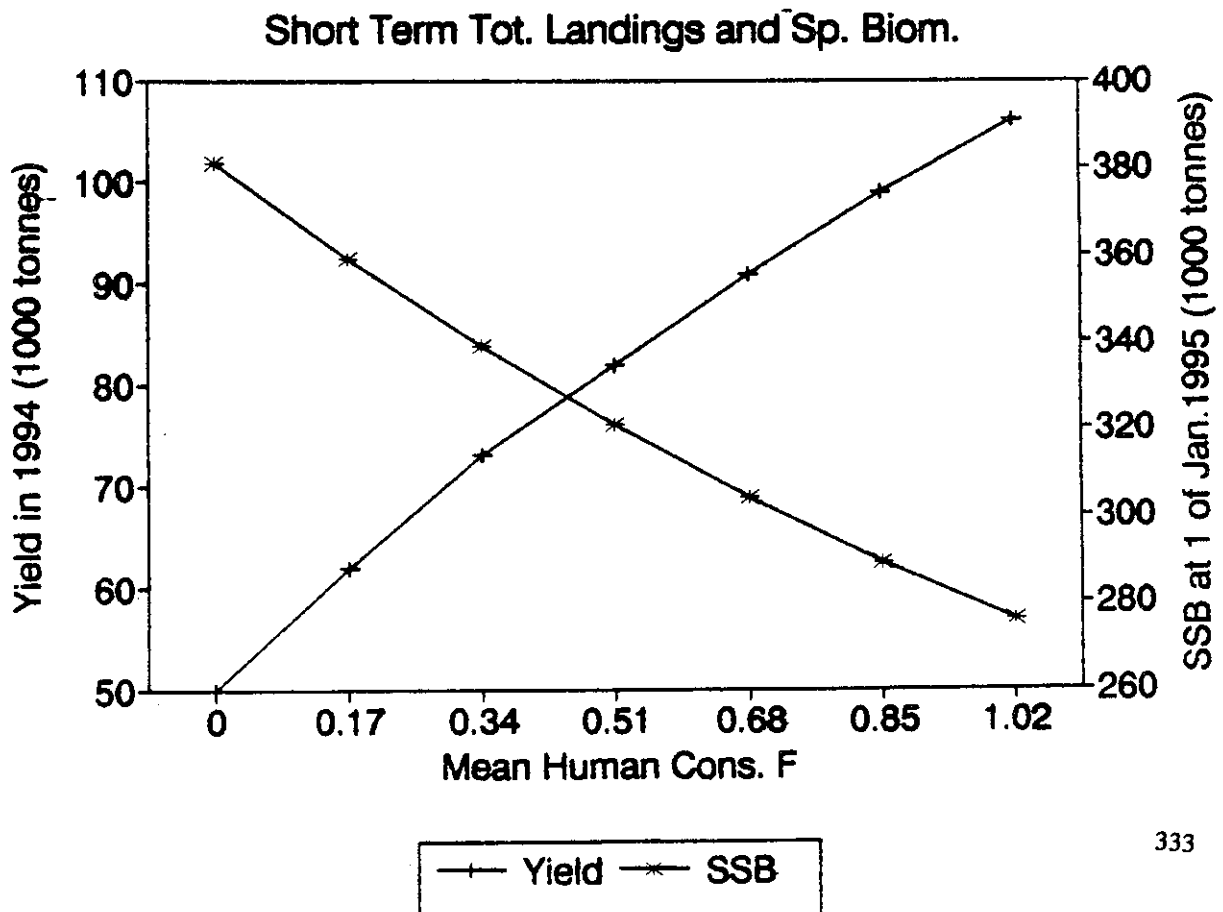
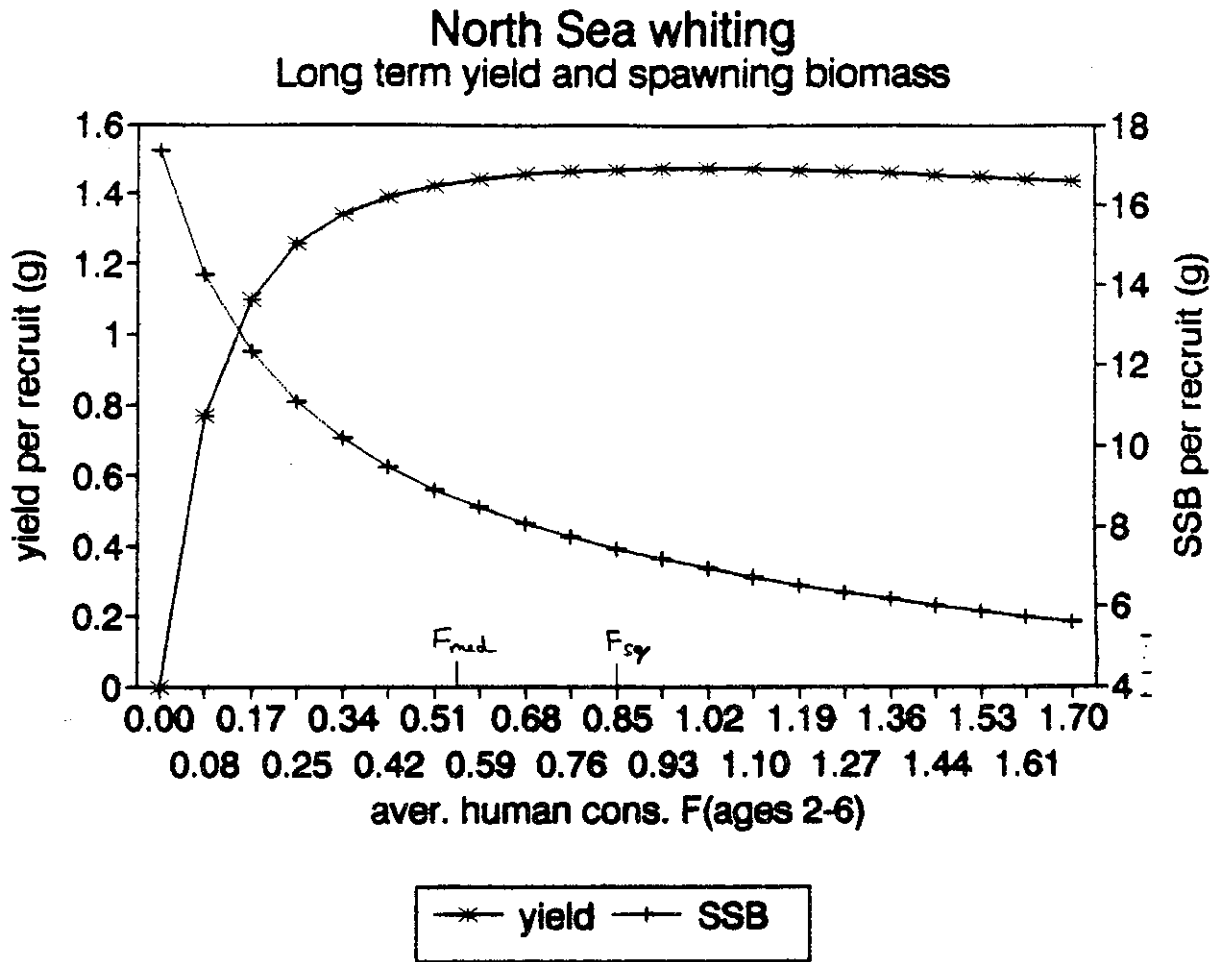


Figure 3.5.7 Fish Stock Summary. Saithe in Sub-area IV and Division IIIa.

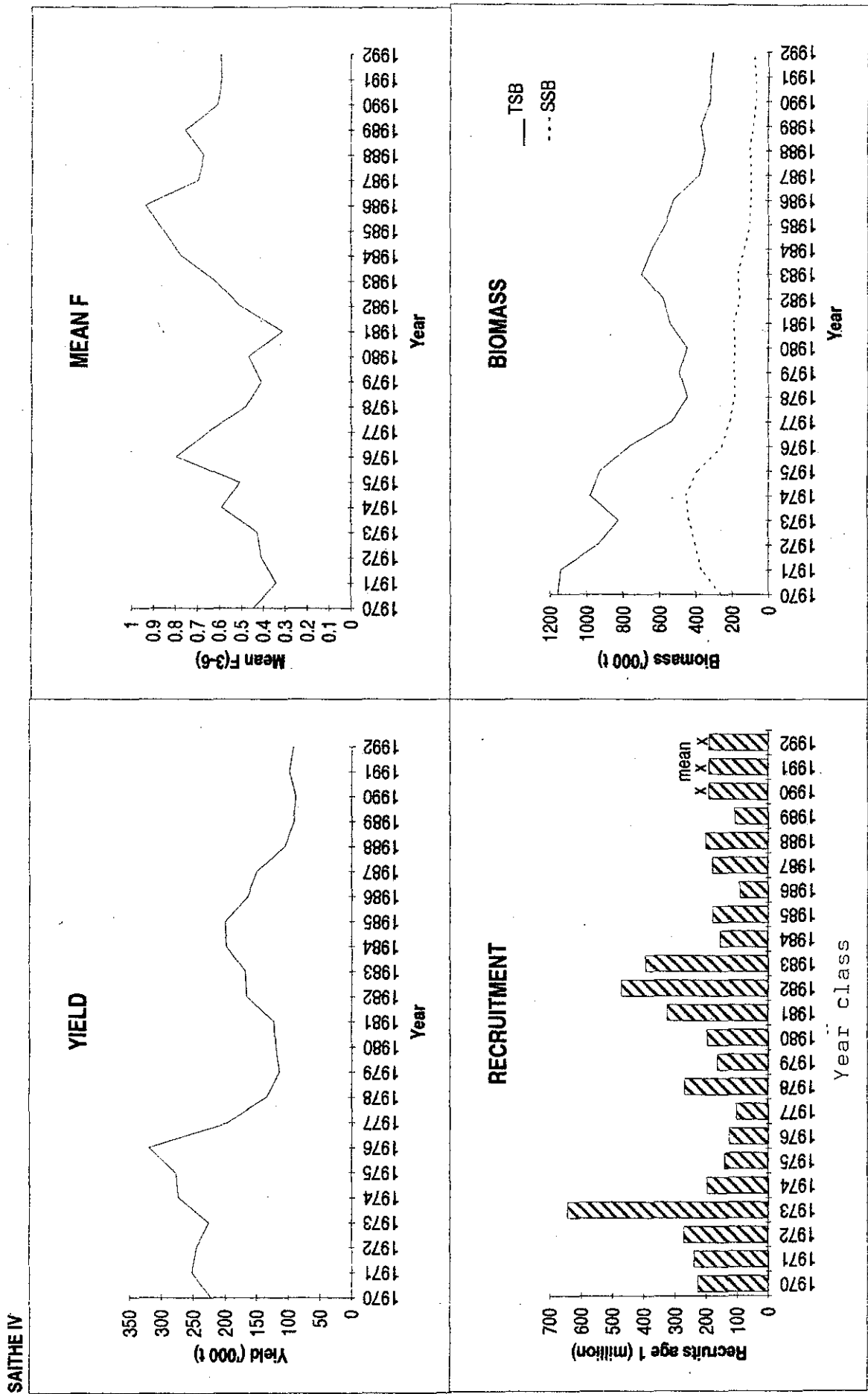


Figure 3.5.8

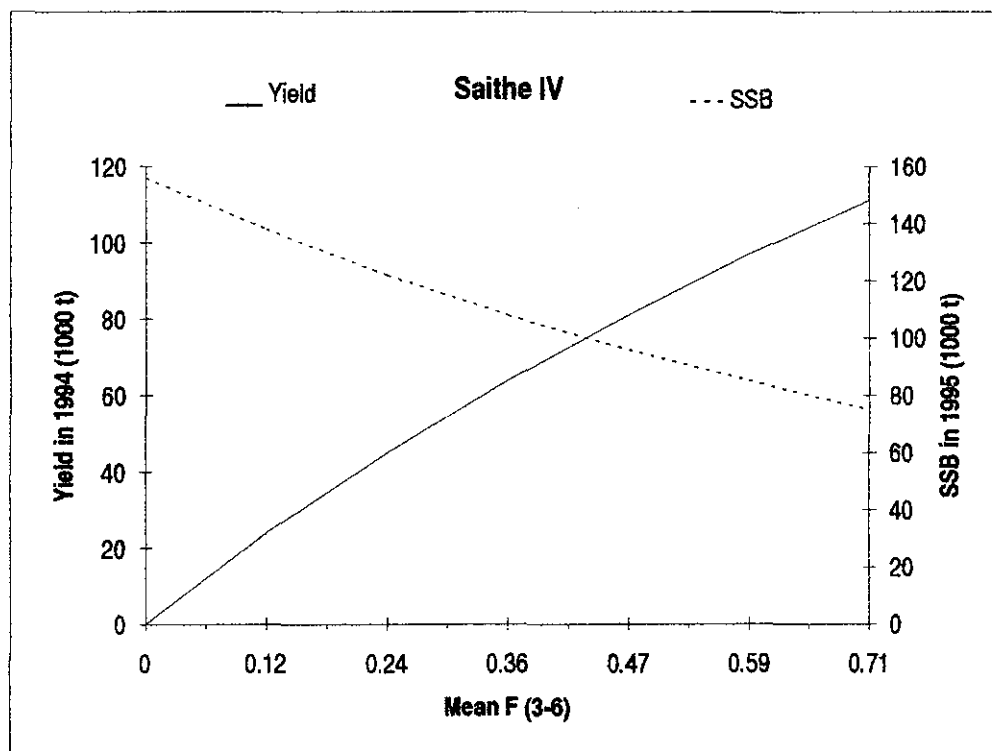
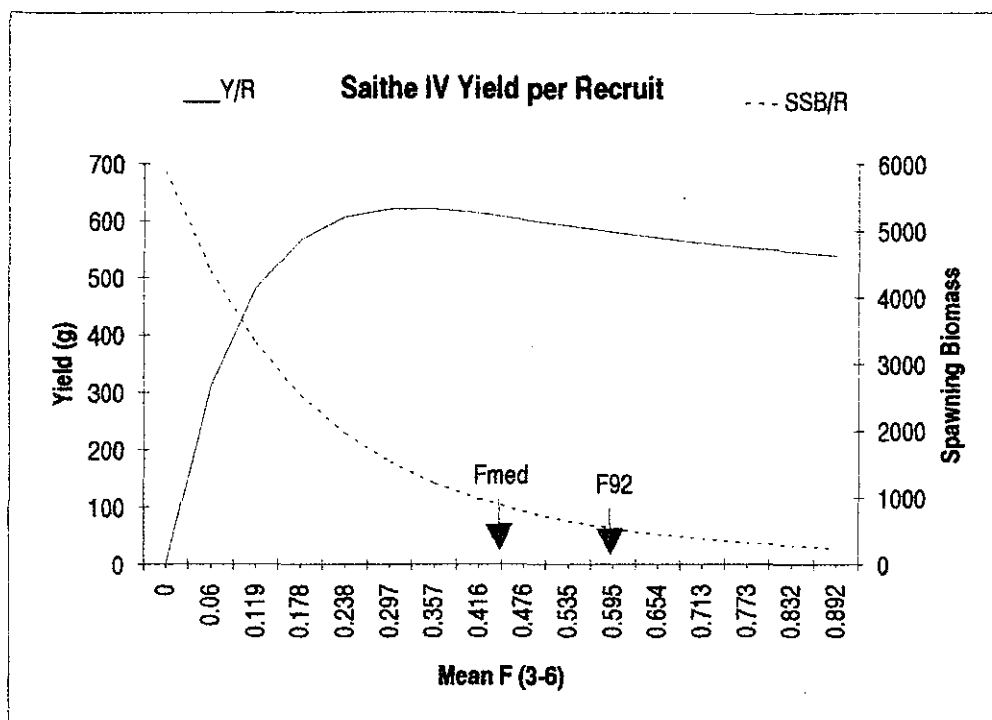


Figure 3.5.9 Fish Stock Summary. North Sea Plaice.

North Sea Plaice

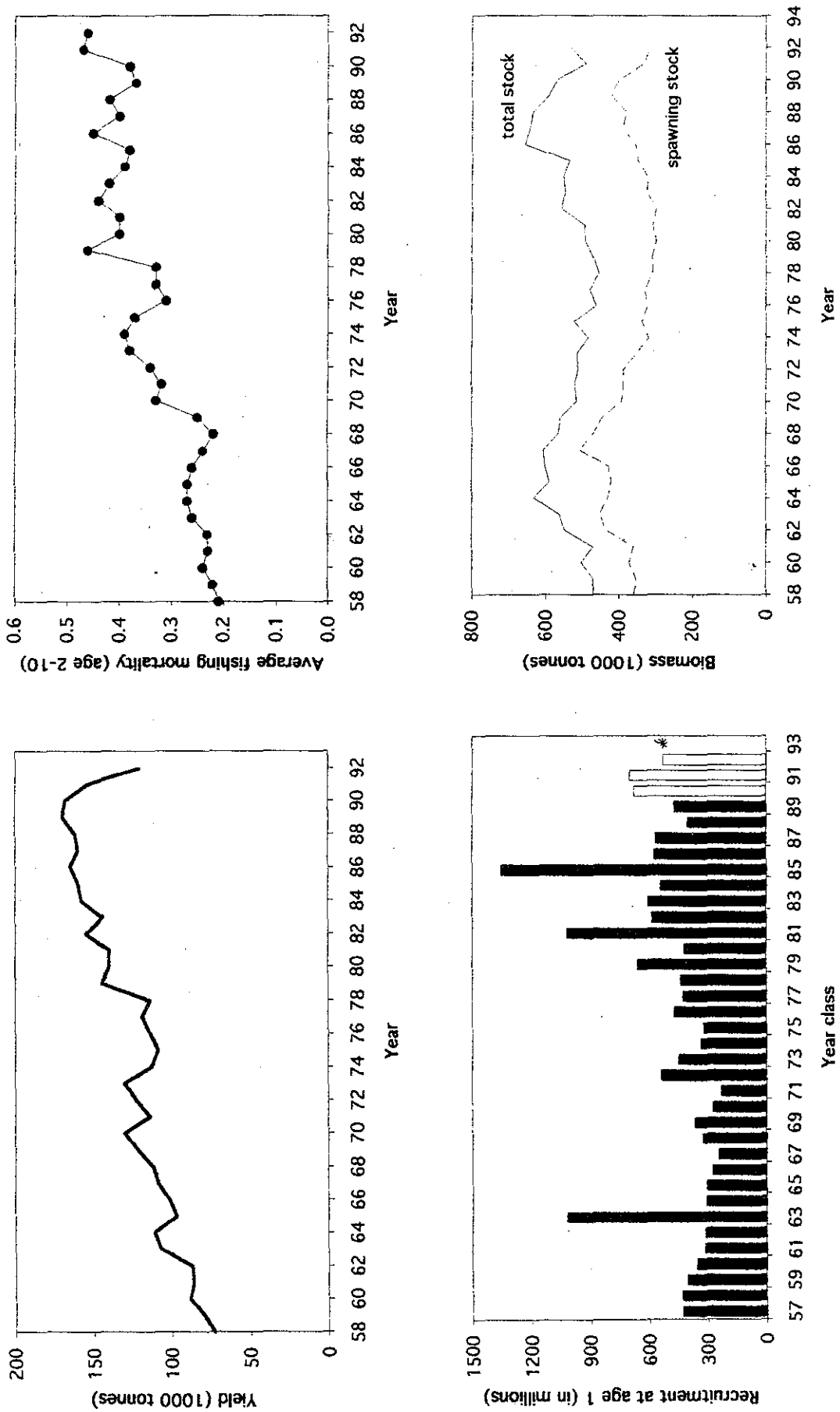


Figure 3.5.10

FISH STOCK SUMMARY **STOCK: Plaice in the North Sea (Fishing Area IV)** **10-10-1993**

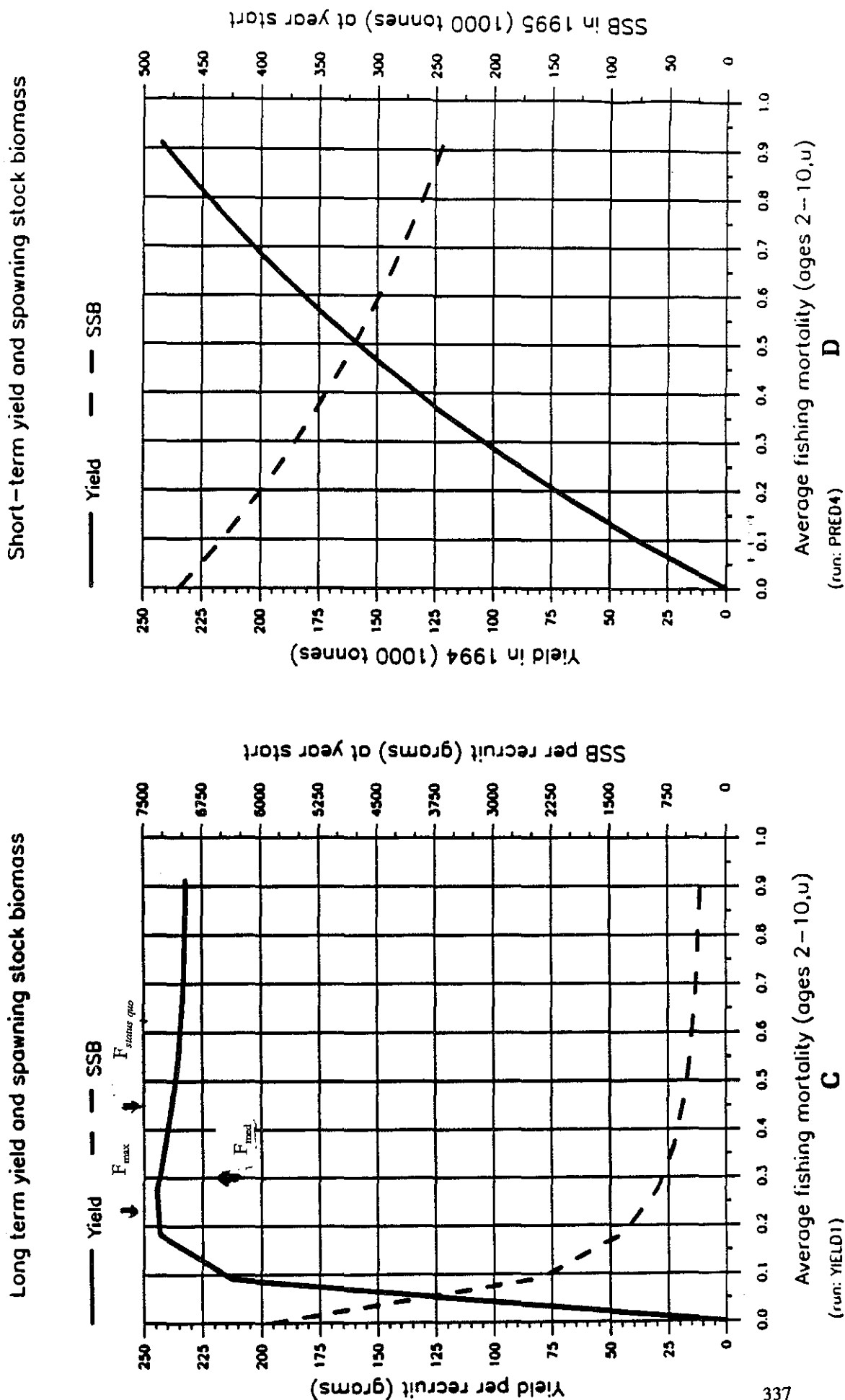


Figure 3.5.11 Fish Stock Summary. North Sea Sole.

North Sea Sole

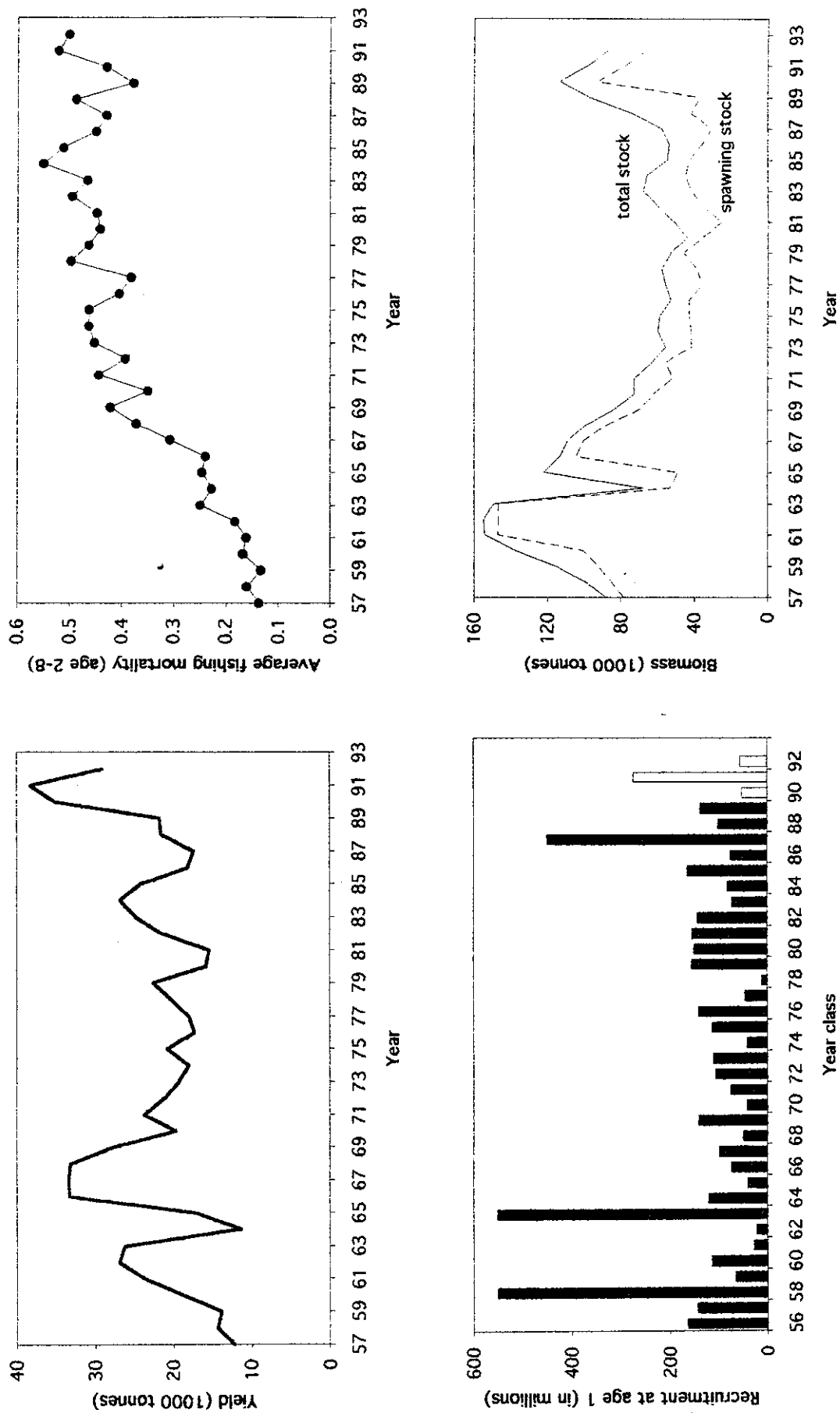


Figure 3.5.12

FISH STOCK SUMMARY STOCK : North Sea sole

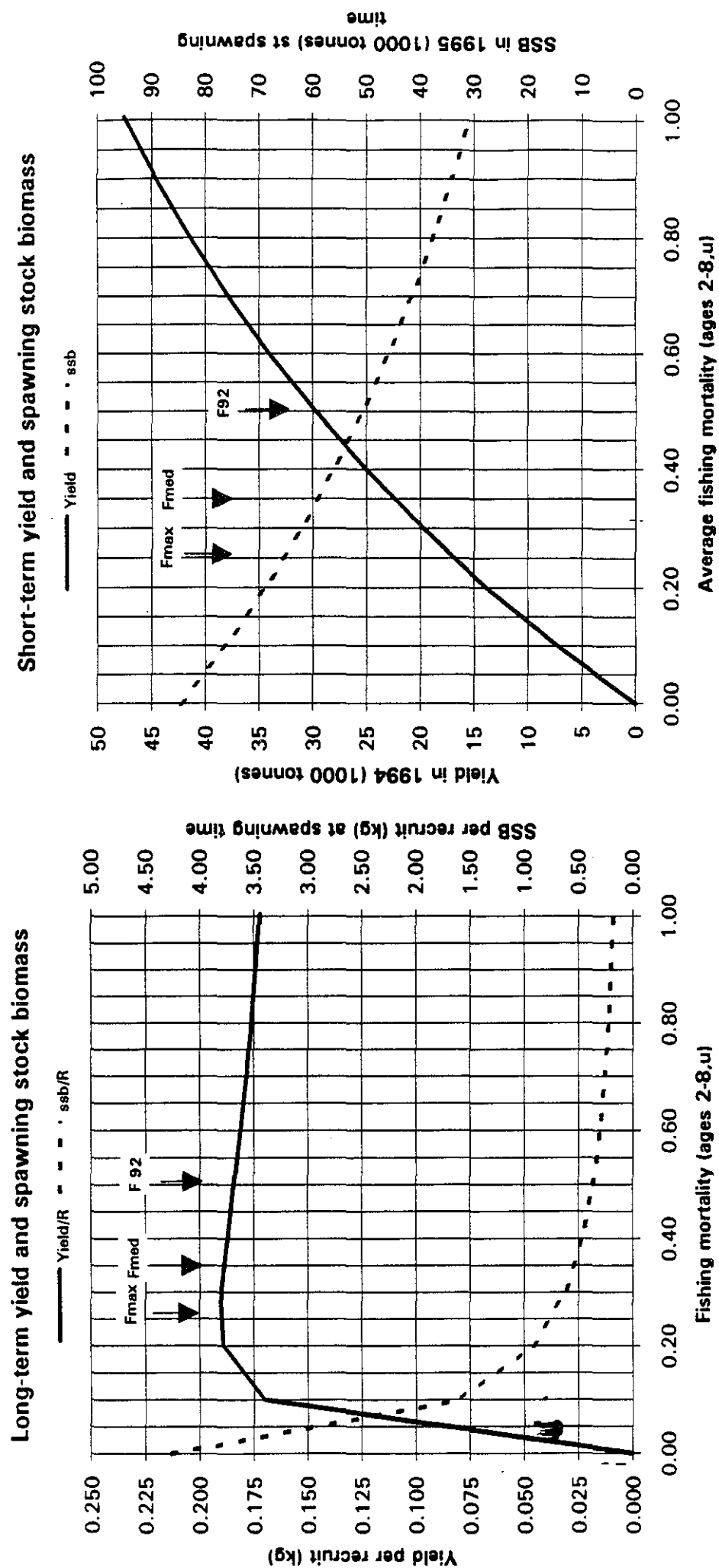


Figure 3.6.1 Historical trends in estimated landings, fishing mortality (F_{2+}), SSB and recruitment. Cod in Division VII.

Cod in 7d

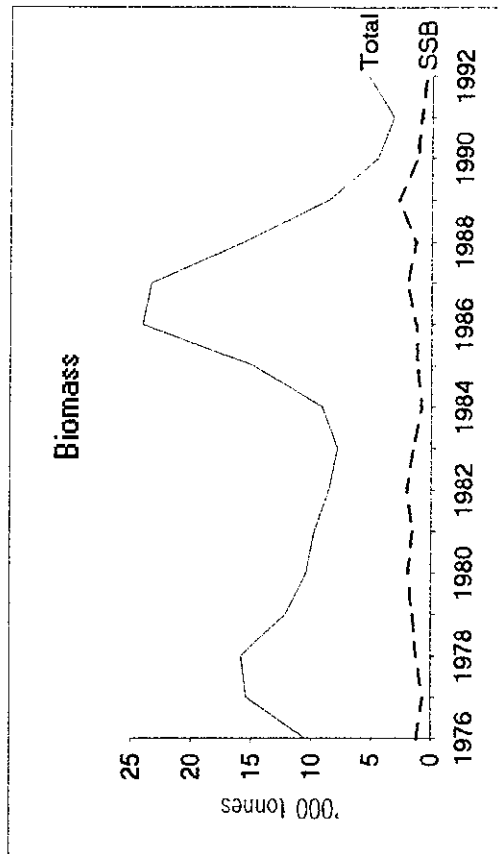
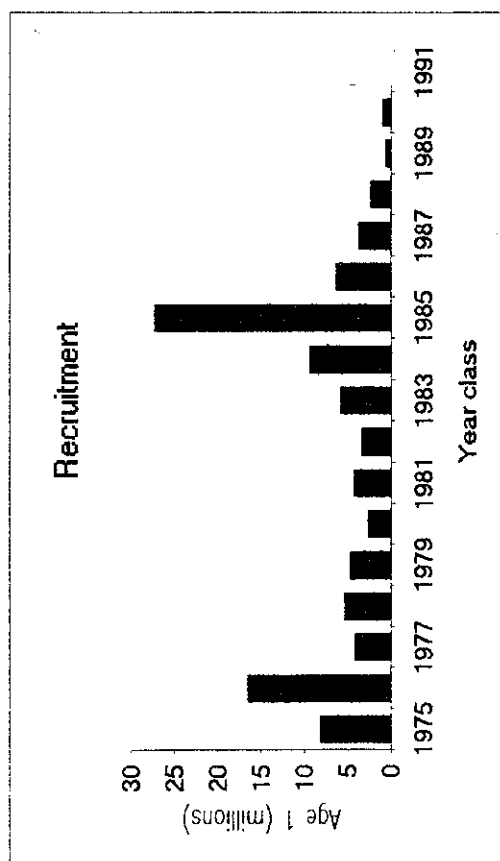
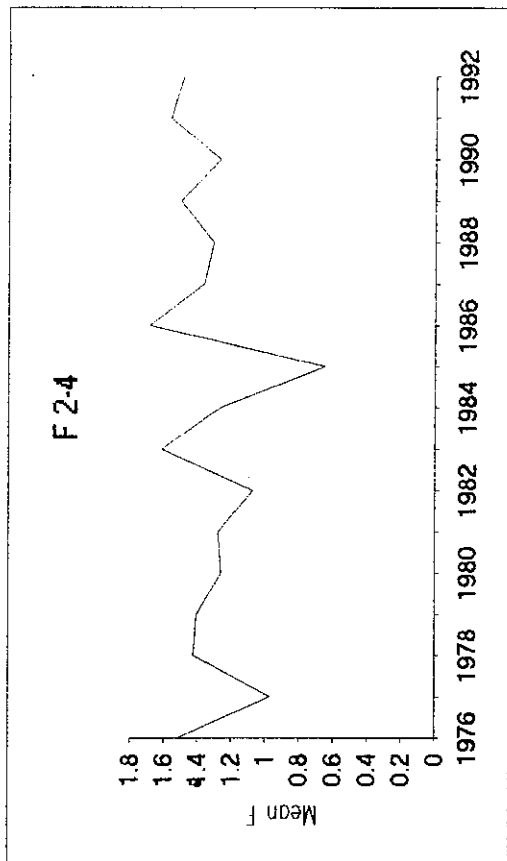
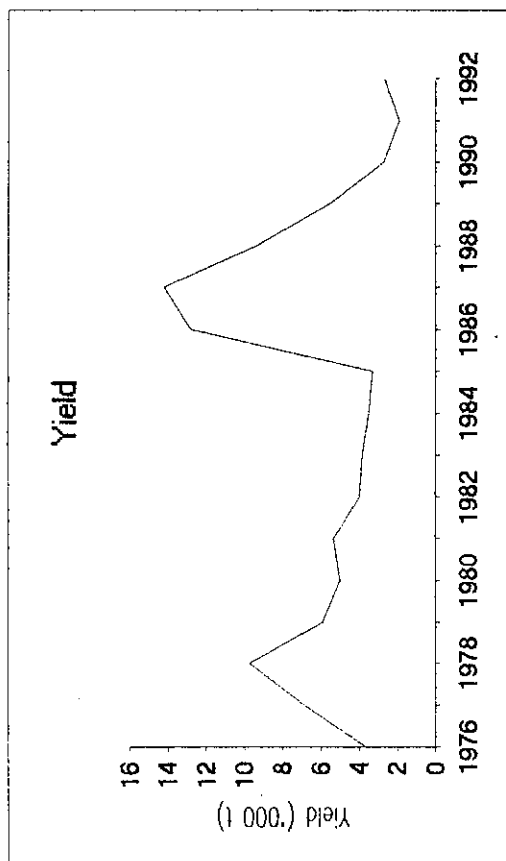


Figure 3.6.2 Historical trends in estimated landings, fishing mortality (F_{2+}), SSB and recruitment. Whiting in Division VIIId.

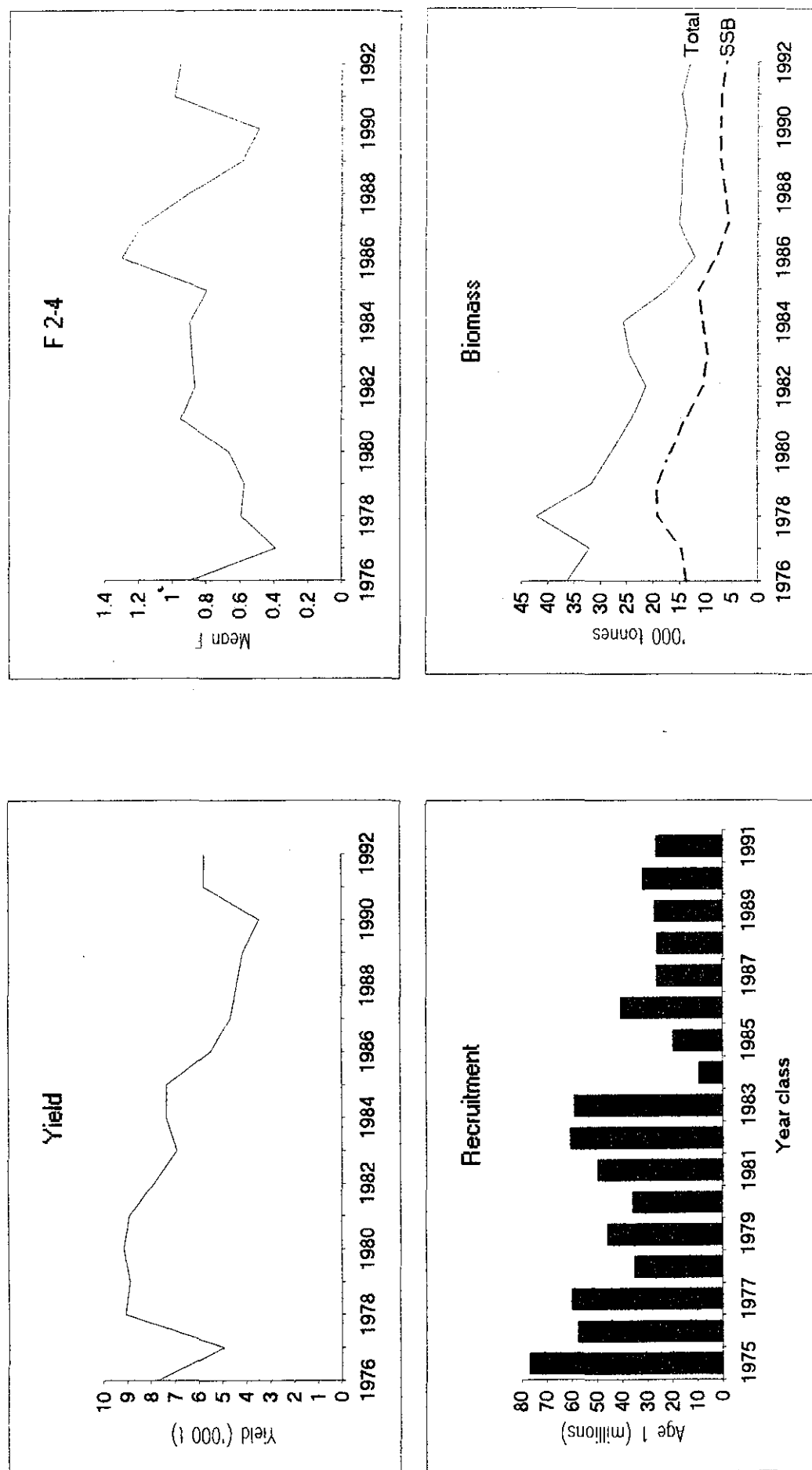


Figure 3.6.3 Yield per recruit - Short and long term yield - SSB. Whiting in Division VIIId.

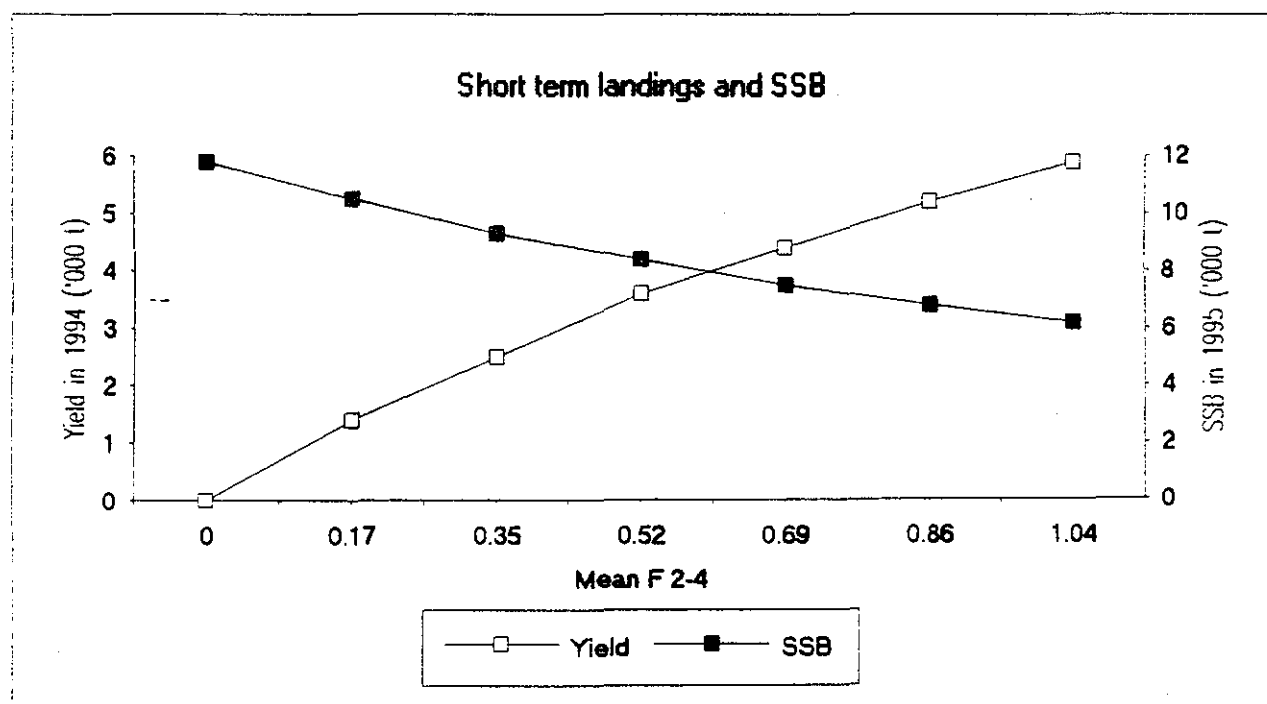
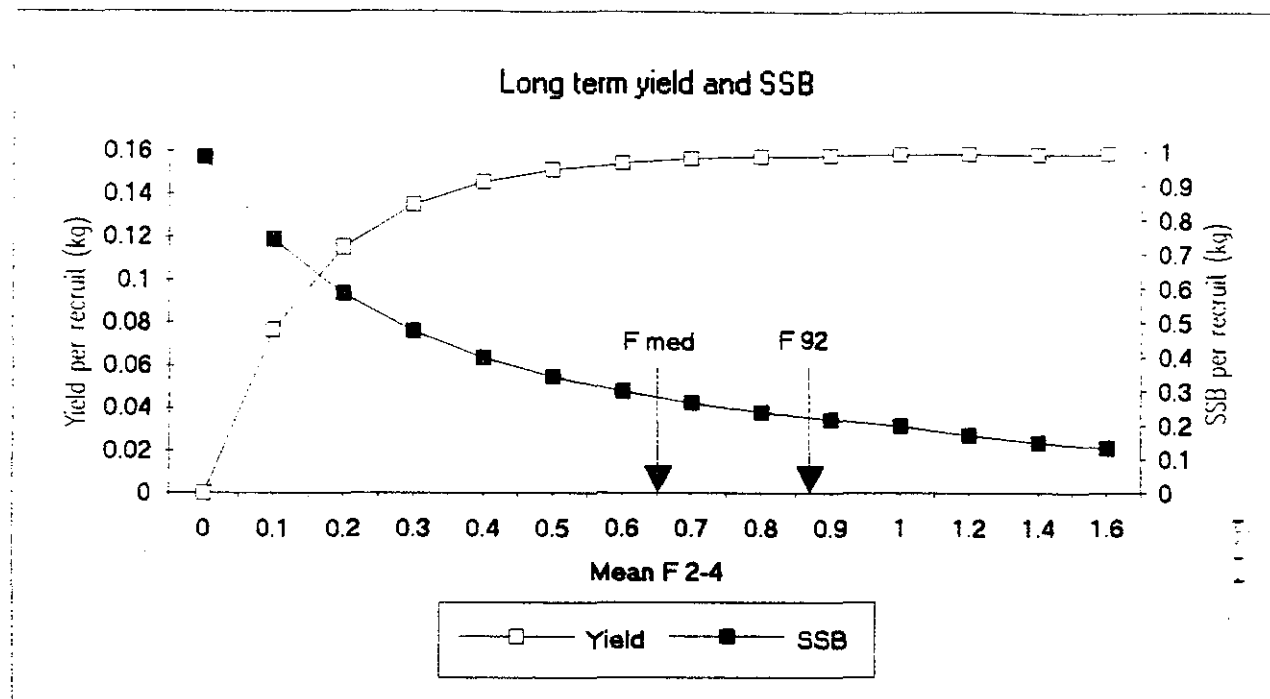


Figure 3.6.4 Sole in Division VIId. Fish stock summary.

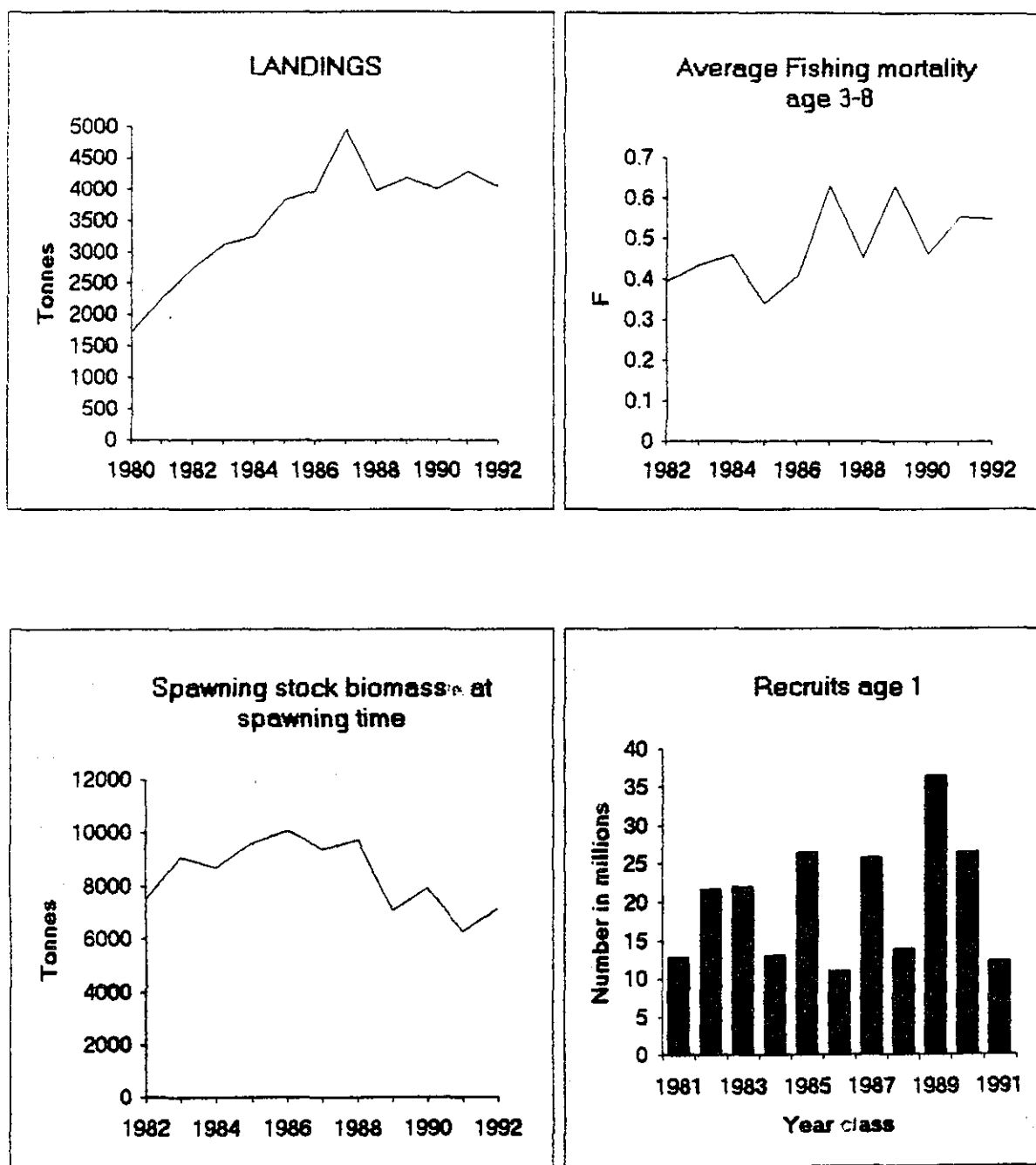
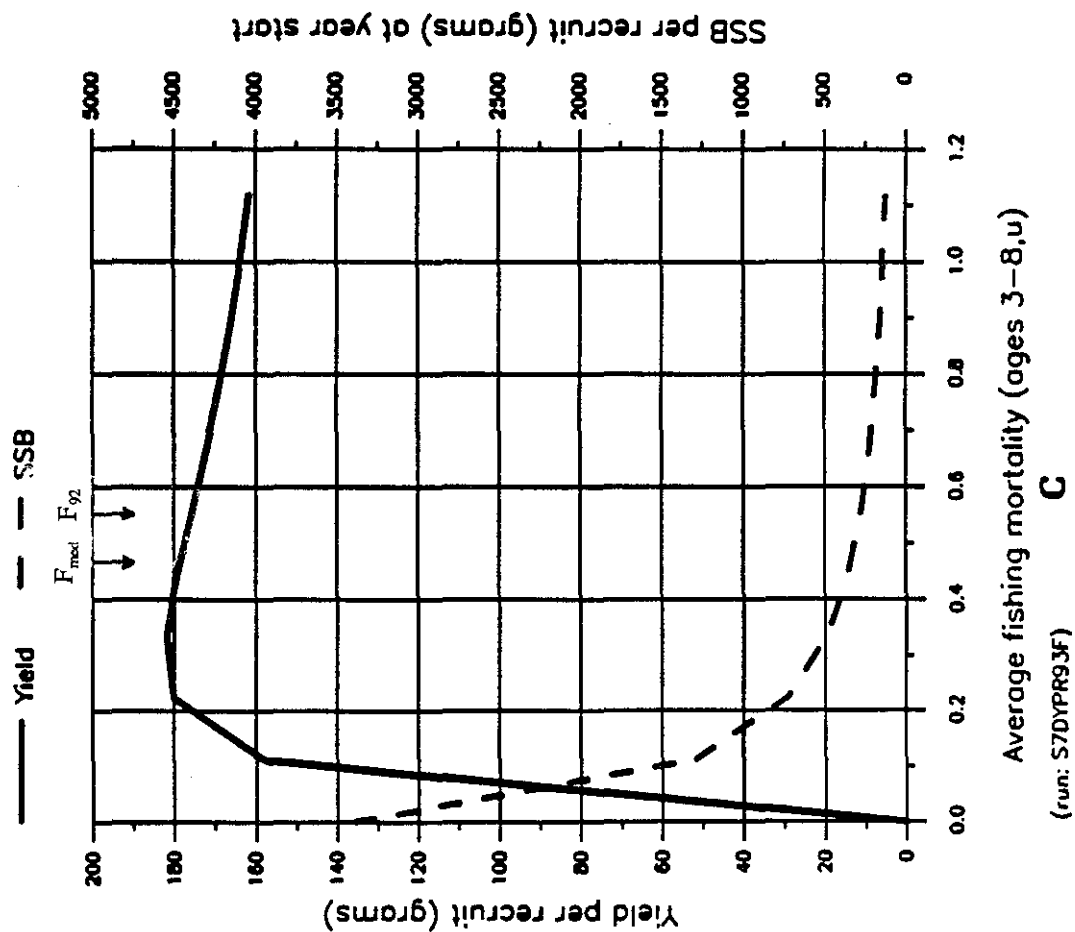


Figure 3.6.5

FISH STOCK SUMMARY **STOCK: Sole in the Eastern English Channel (Fishing Area VIId)** **11-10-1993**

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

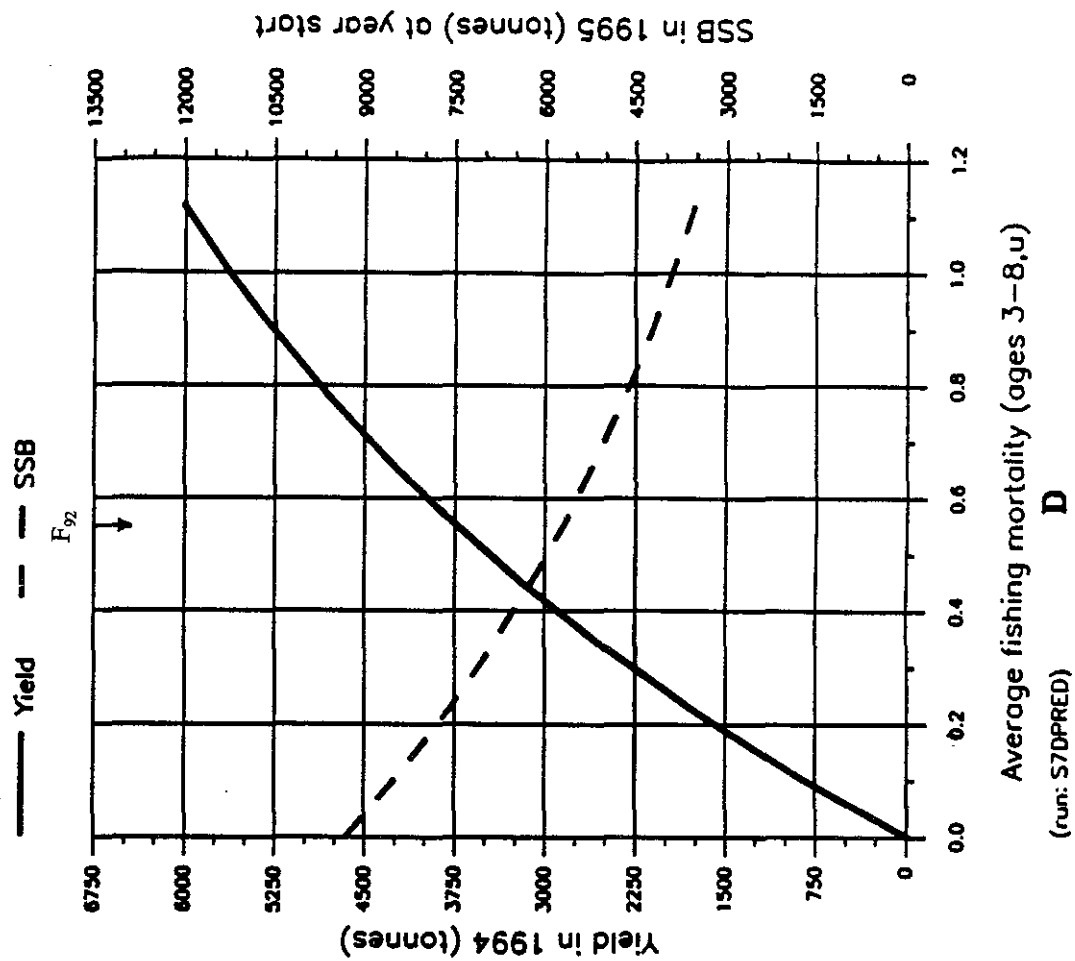


Figure 3.6.6 PLAICE in Division VIId. Fish stock summary.

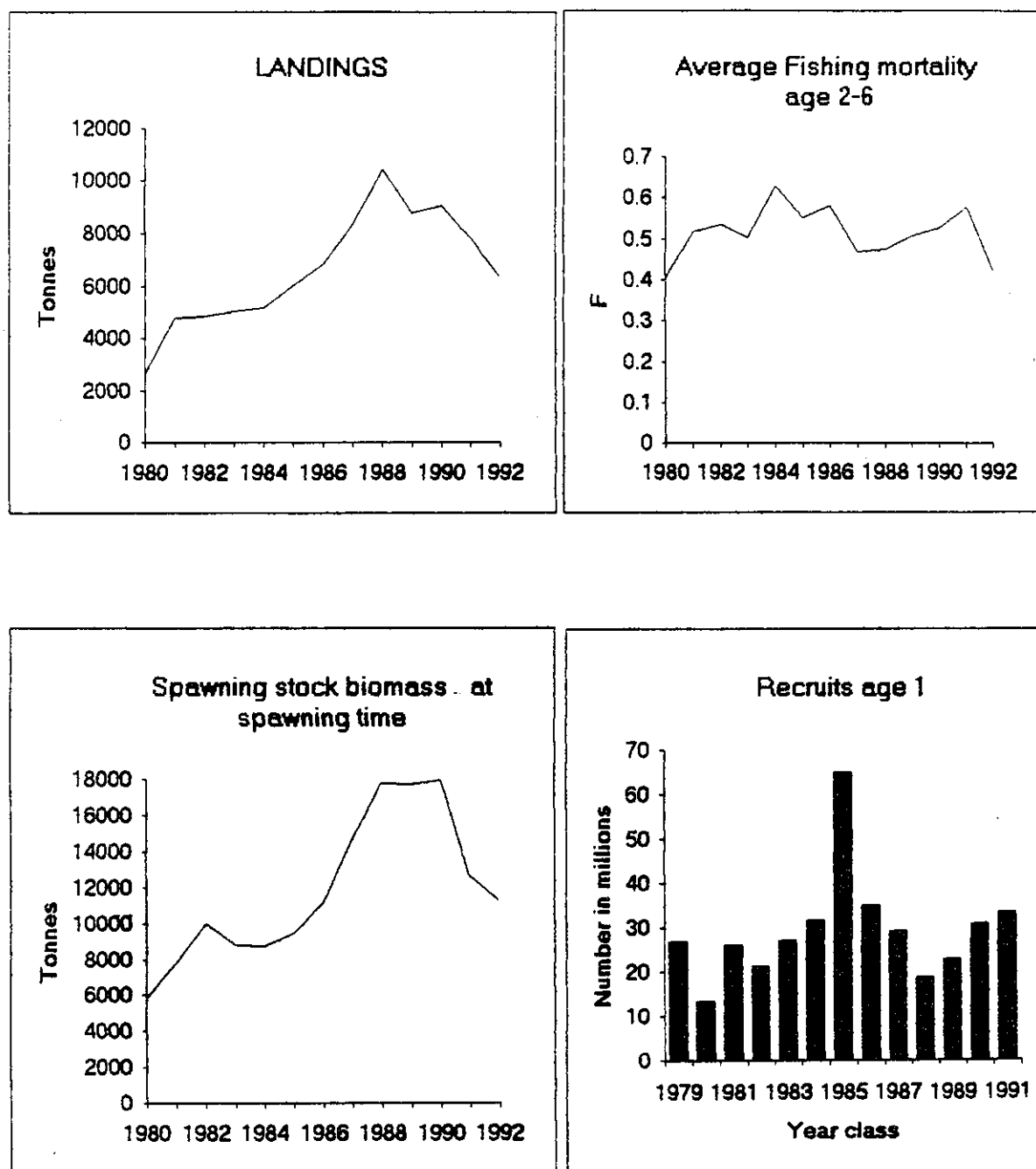
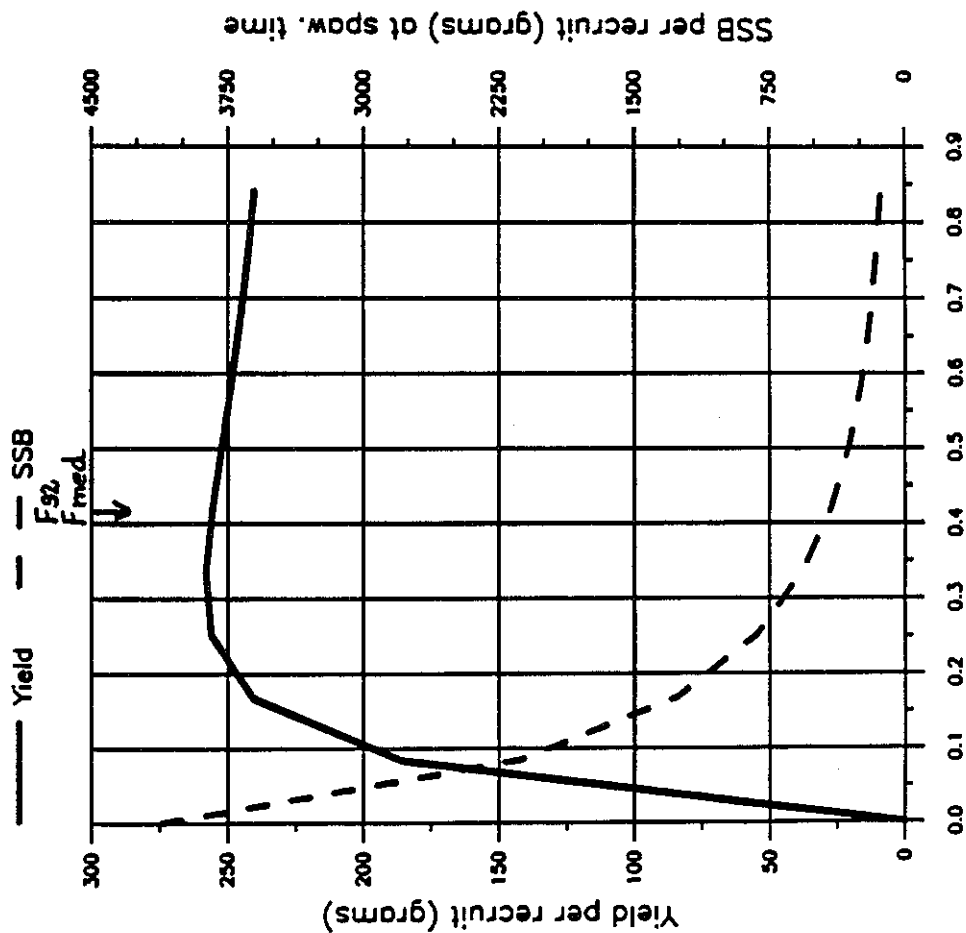


Figure 3.6.7

FISH STOCK SUMMARY **STOCK: Plaice in the English Channel, Eastern (Fishing Area VIIId)** **12-10-1993**

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

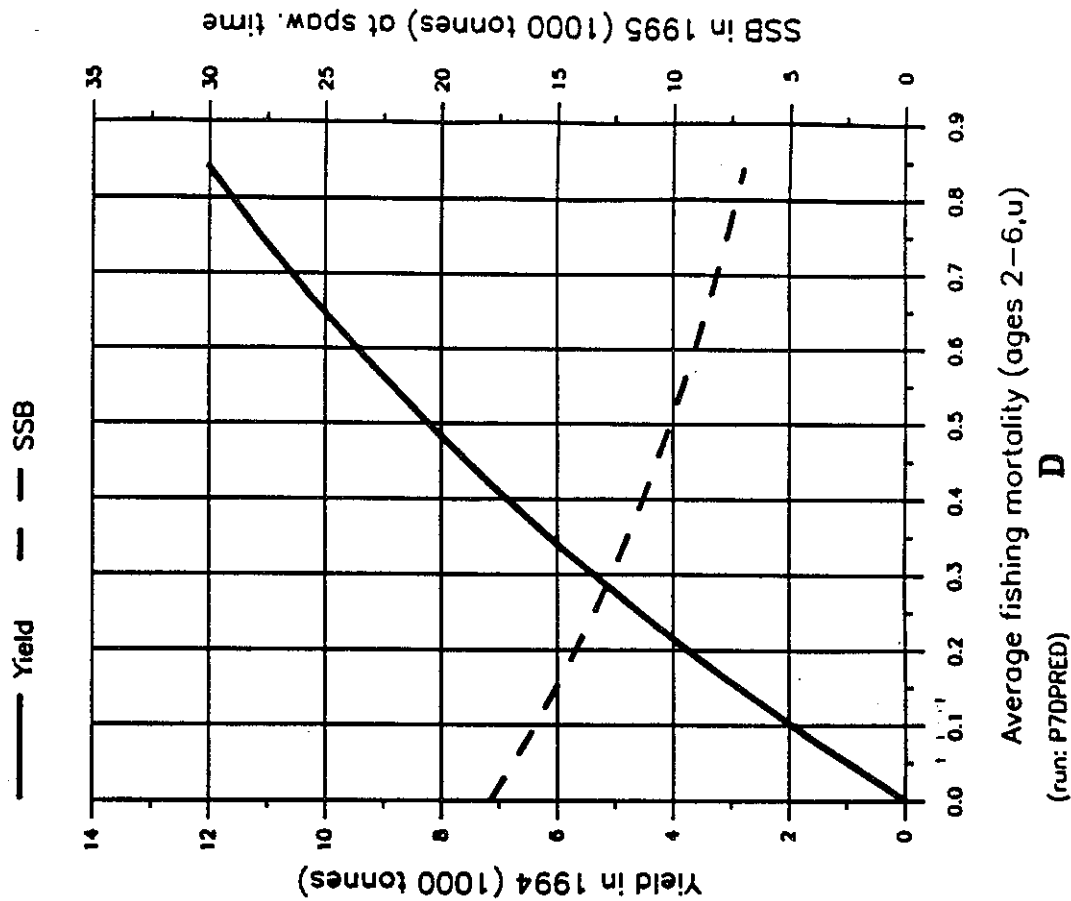
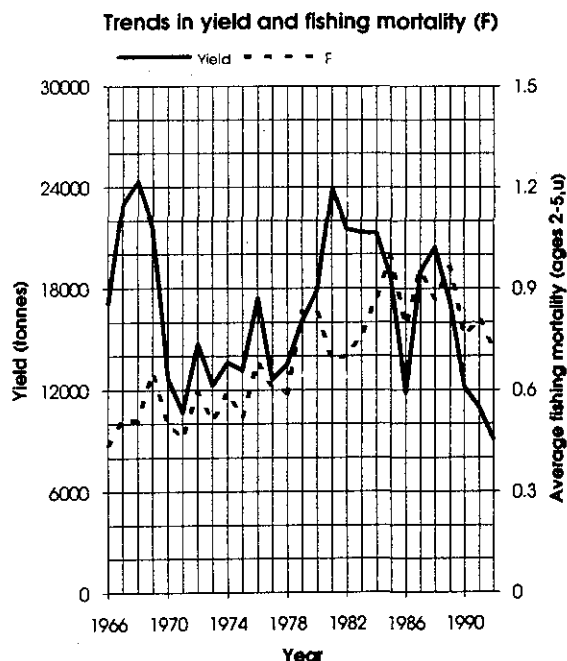
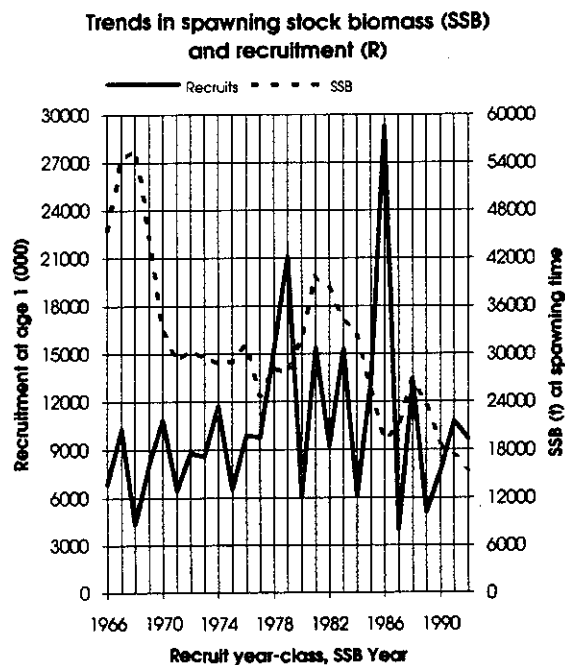


Figure 3.7.1

FISH STOCK SUMMARY
STOCK : Vla cod

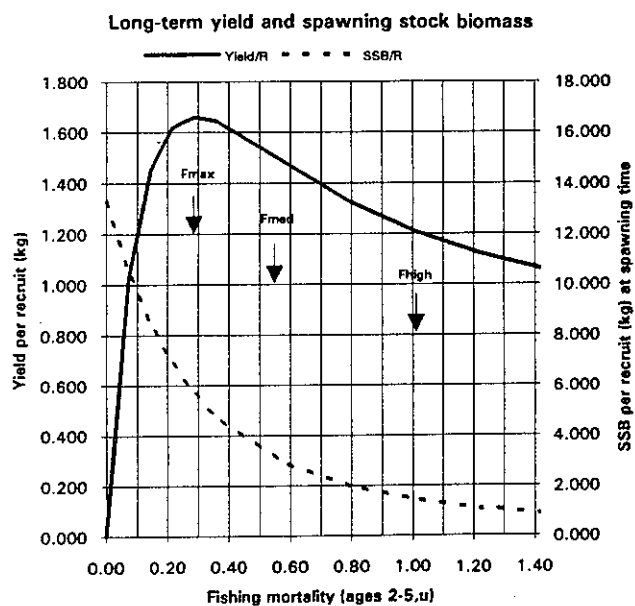


A

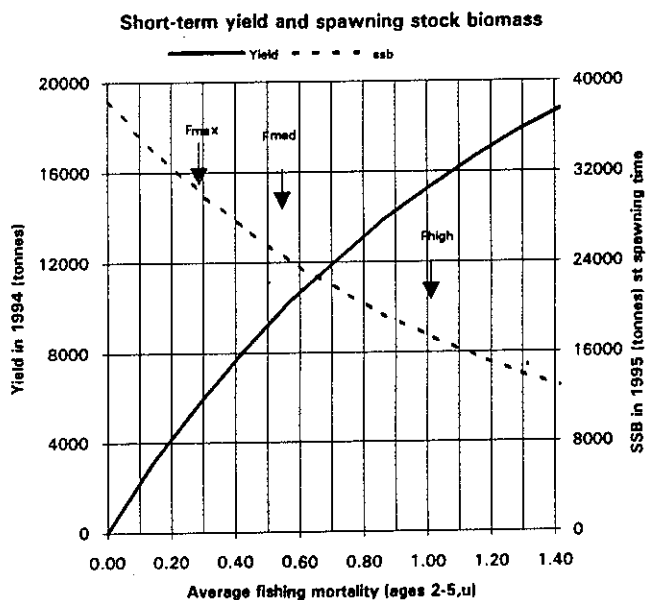


B

FISH STOCK SUMMARY
STOCK : Cod in Vla



C



D

Figure 3.7.2

FISH STOCK SUMMARY
Vla haddock

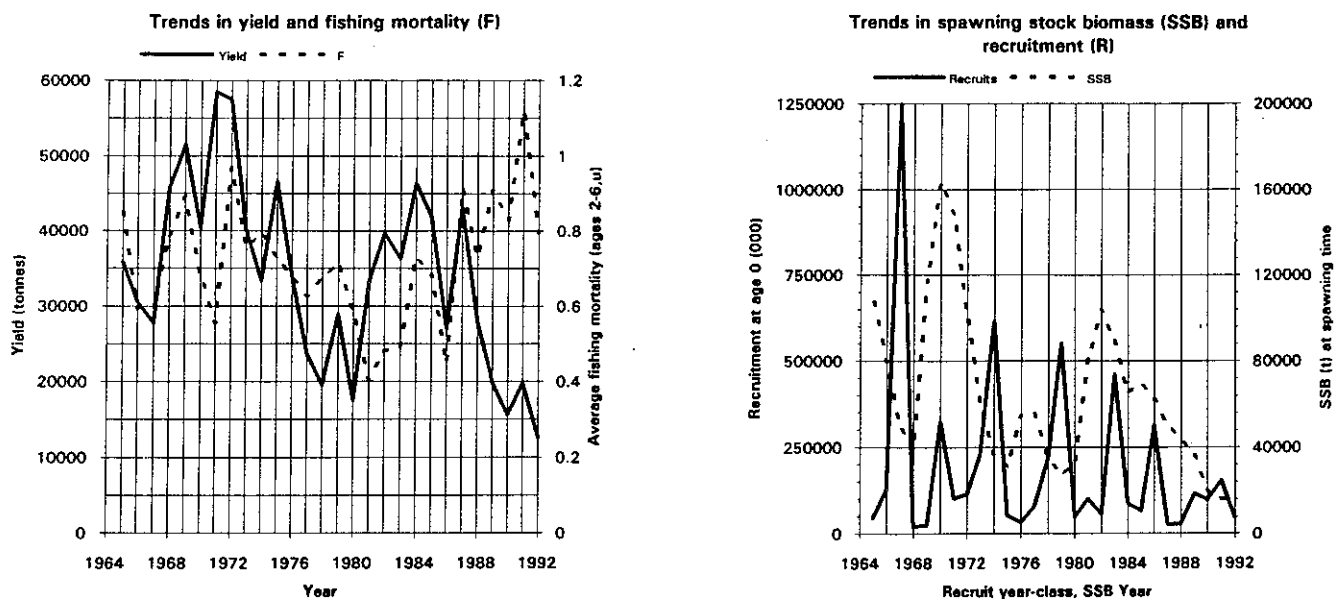


Figure 4.1.7

FISH STOCK SUMMARY
STOCK : Haddock in Vla

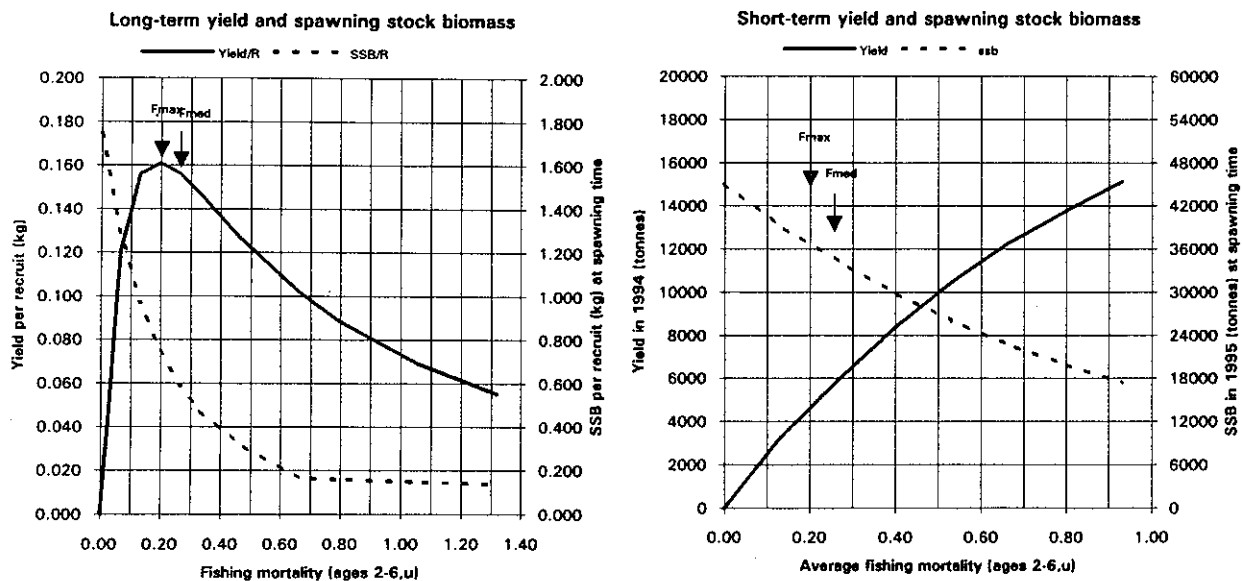


Figure 3.7.3

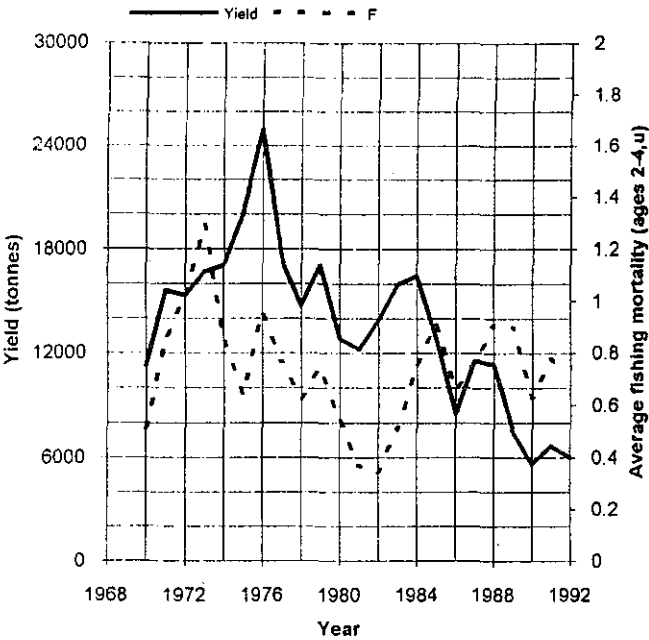
Whiting in ICES Division VIa

FISH STOCK SUMMARY

STOCK : VIa Whiting

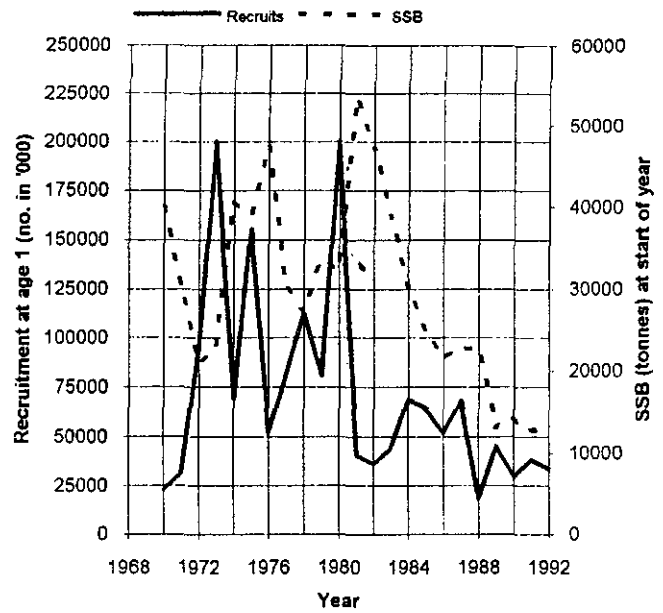
DATE 8/7/93

Trends in yield and fishing mortality (F)



A

Trends in spawning stock biomass (SSB) and recruitment (R)

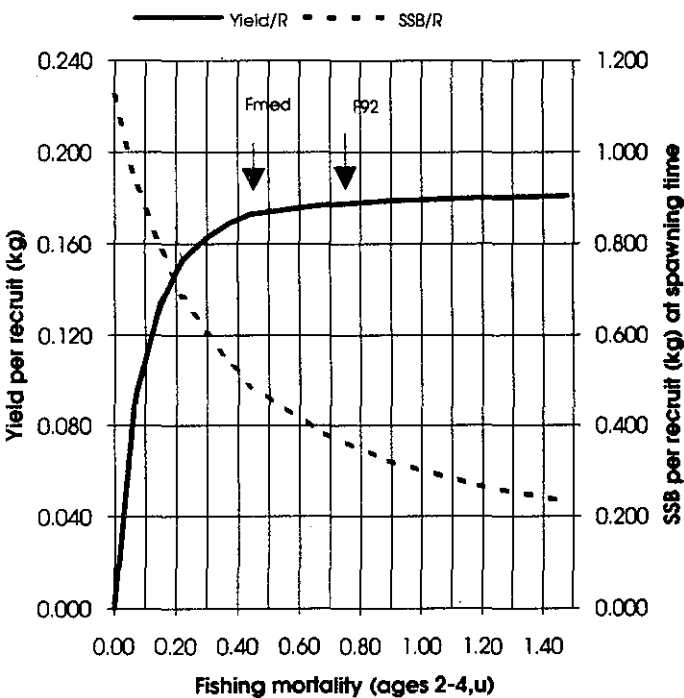


B

FISH STOCK SUMMARY

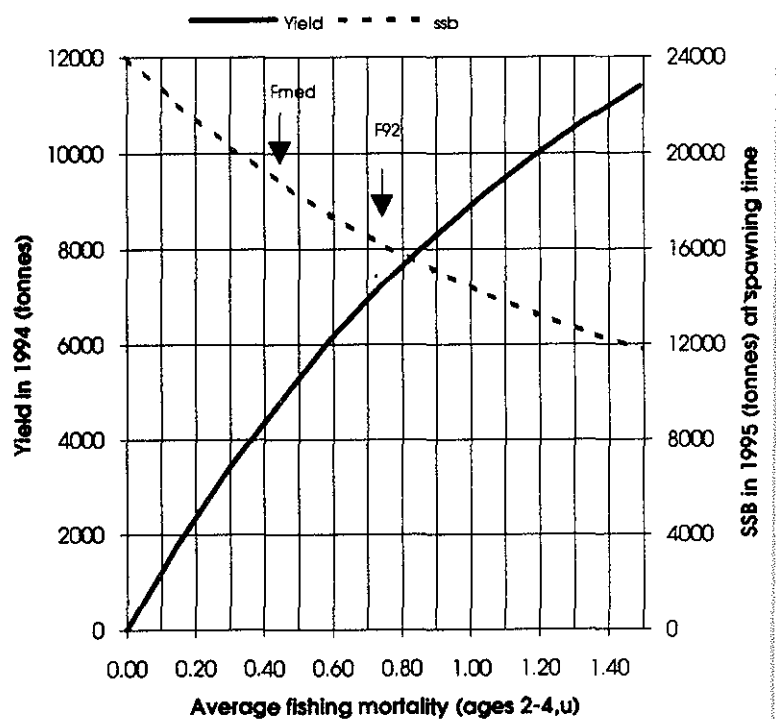
STOCK : VIa whiting

Long-term yield and spawning stock biomass



C

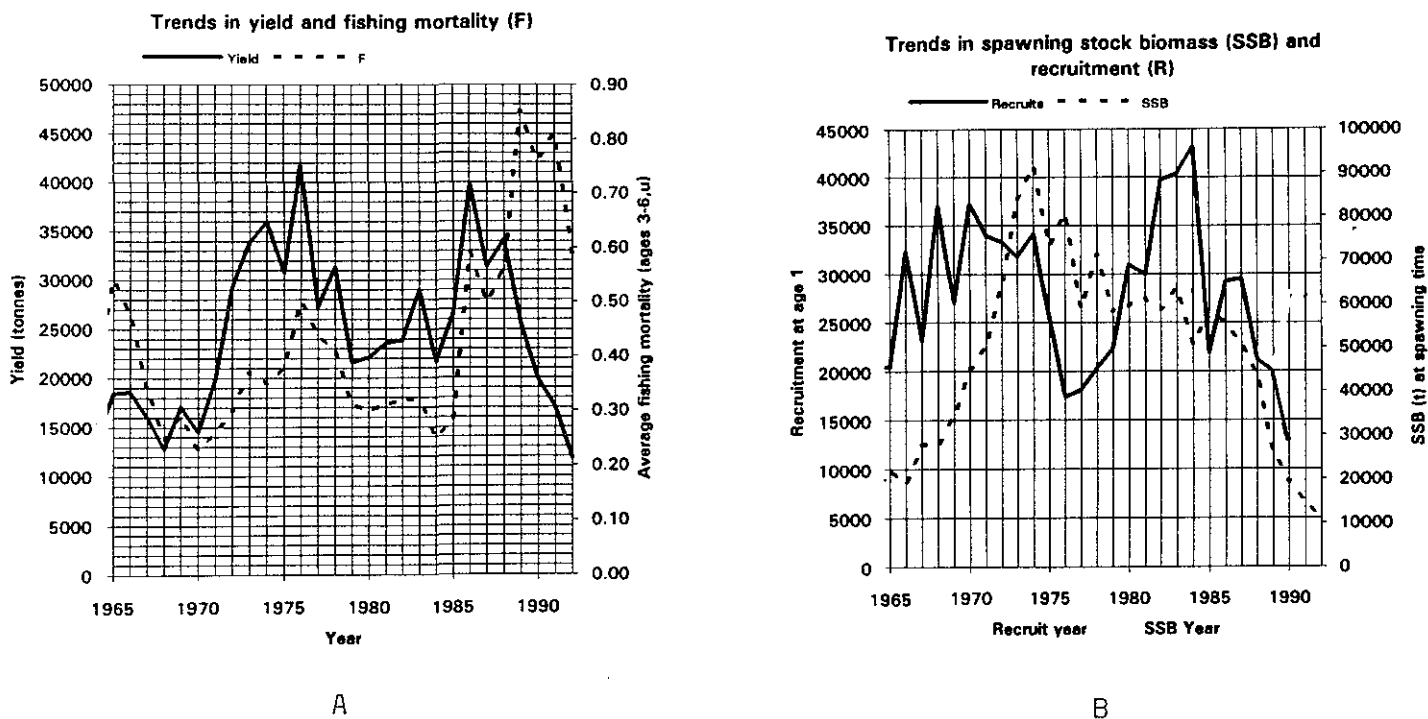
Short-term yield and spawning stock biomass



D

Figure 3.7.4

FISH STOCK SUMMARY
SAITHE IN AREA VI



FISH STOCK SUMMARY
STOCK : SAITHE IN AREA VI

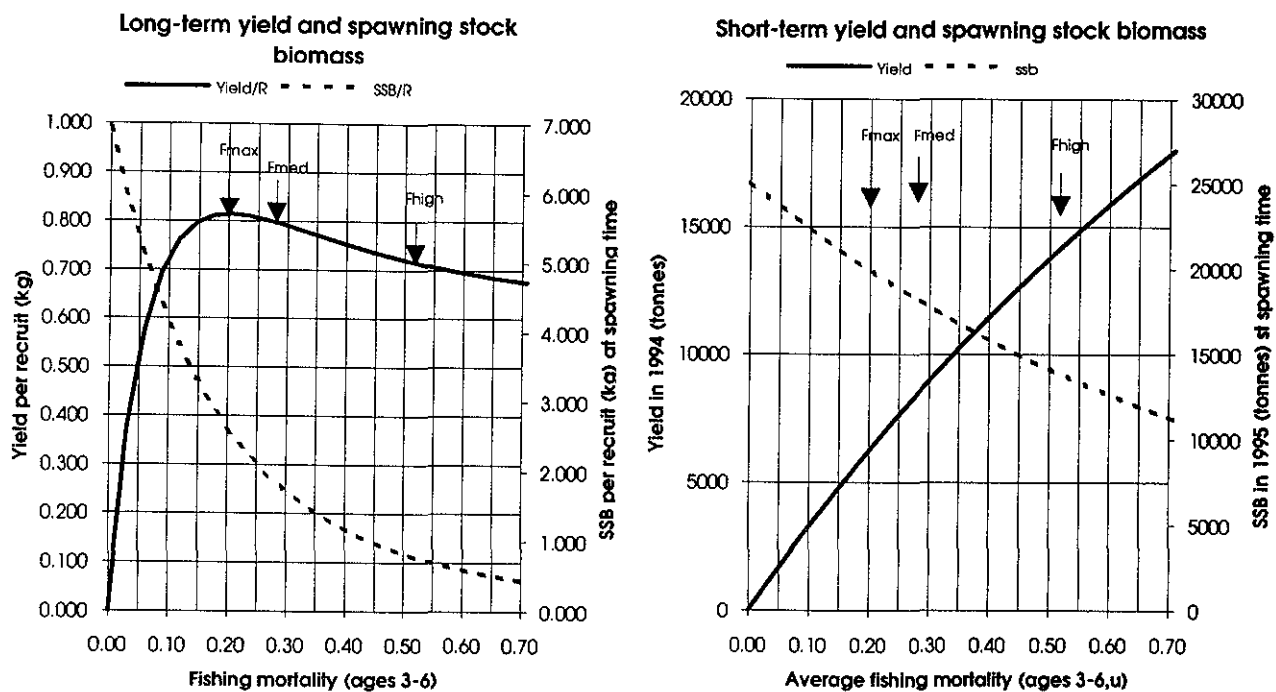
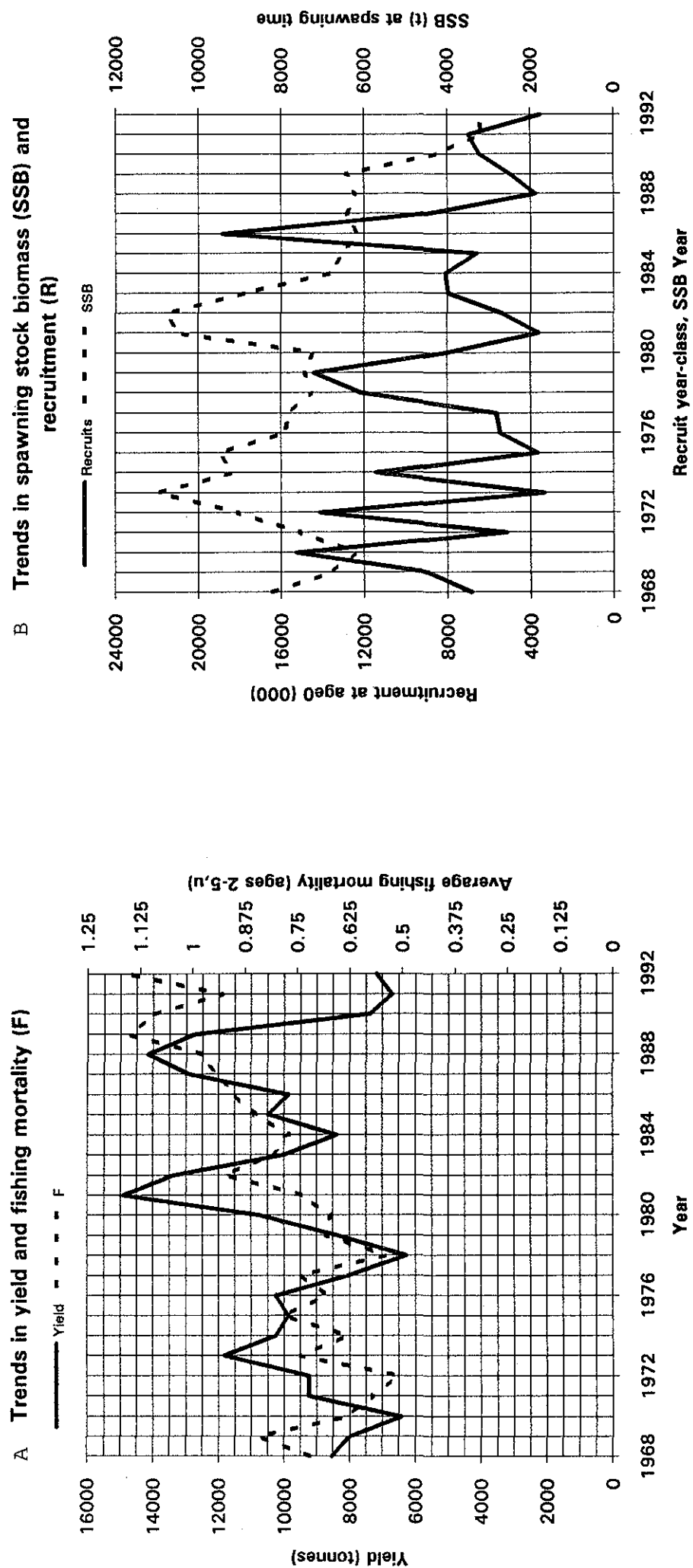


Figure 3.8.1A and B

FISH STOCK SUMMARY
STOCK : VIIa cod



FISH STOCK SUMMARY
STOCK : Irish Sea Cod

Figure 3.8.1C and D

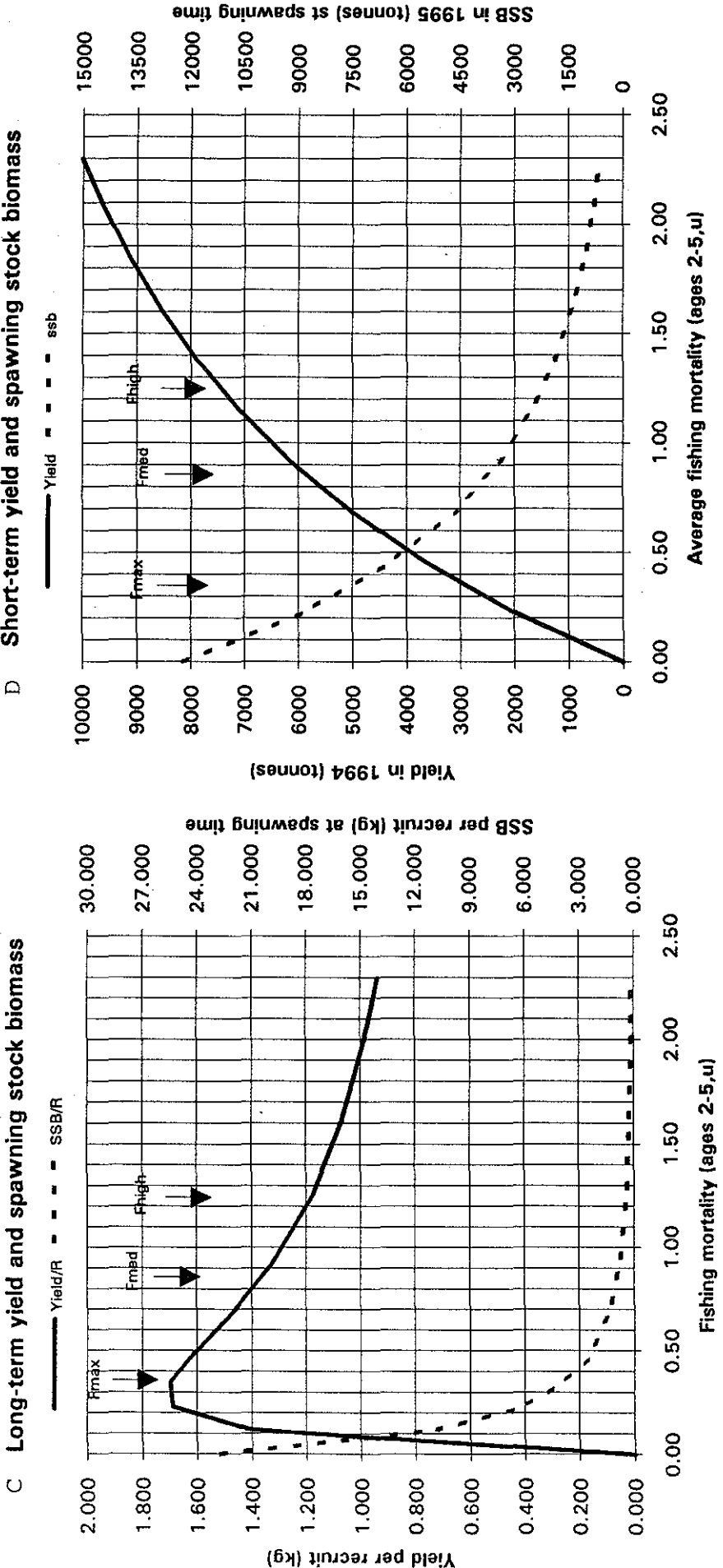
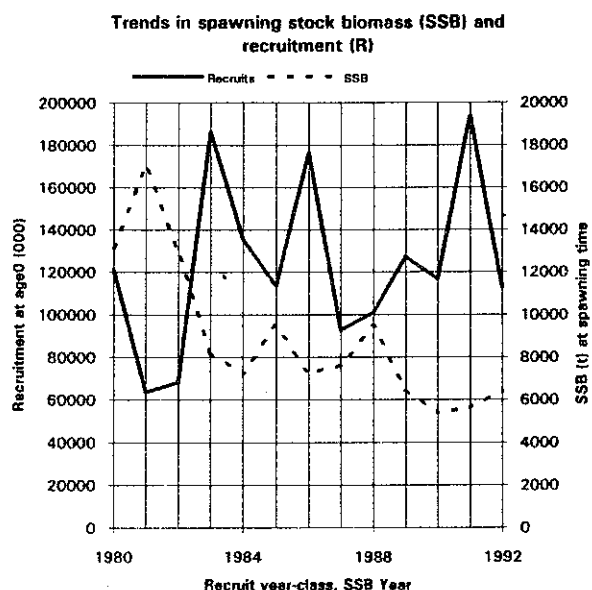
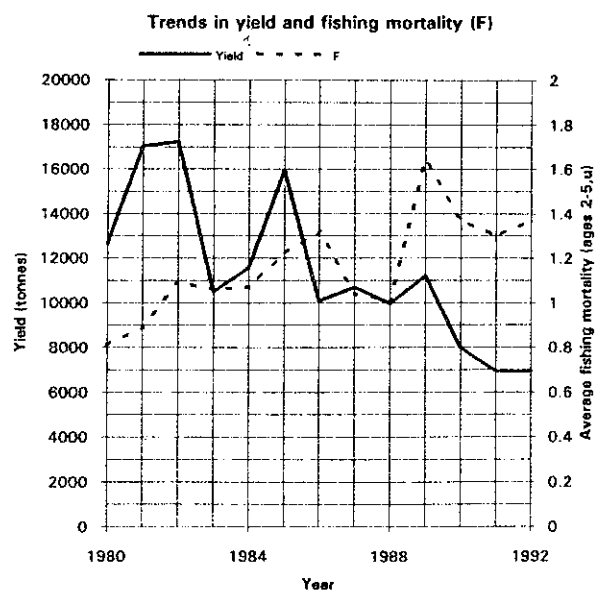


Figure 3.8.2

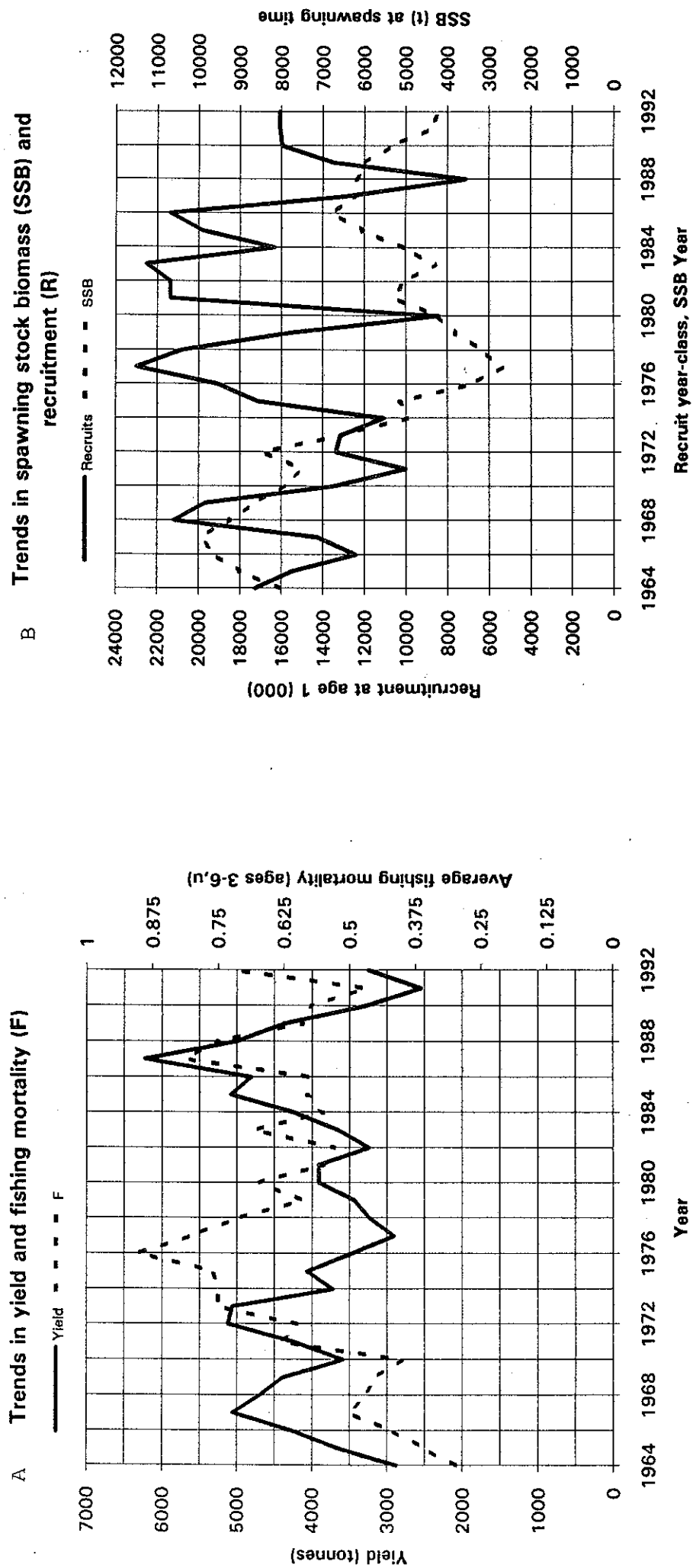
FISH STOCK SUMMARY
STOCK : *Vitula* whiting



¹Excluding discards
in *Nephrops* fishery.

Figure 3.8.3A and B

FISH STOCK SUMMARY
STOCK : Villa plaice



FISH STOCK SUMMARY STOCK : Irish Sea Plaice

Figure 3.8.3C and D

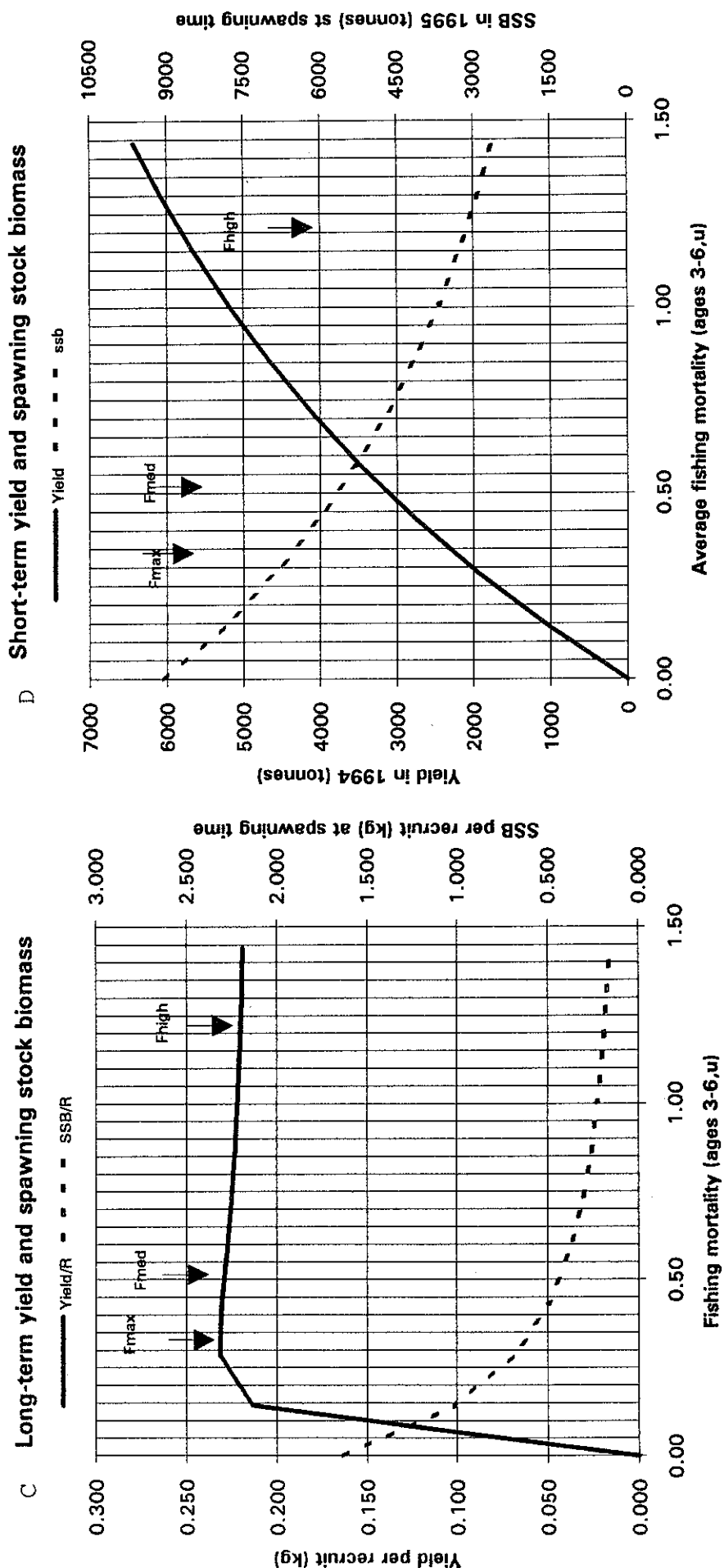
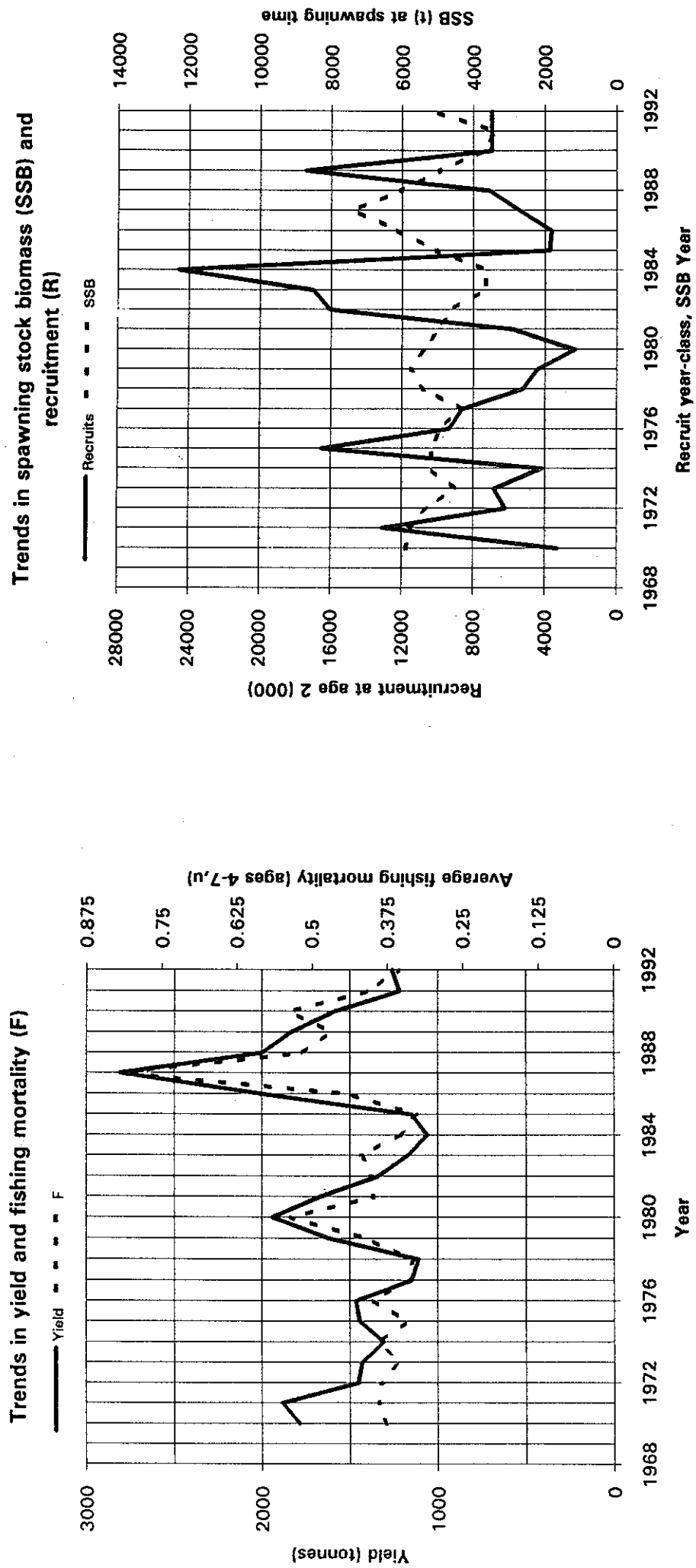


Figure 3.8.4

FISH STOCK SUMMARY
STOCK : Vila sole



FISH STOCK SUMMARY
STOCK : Irish Sea Sole

Figure 3.8.5

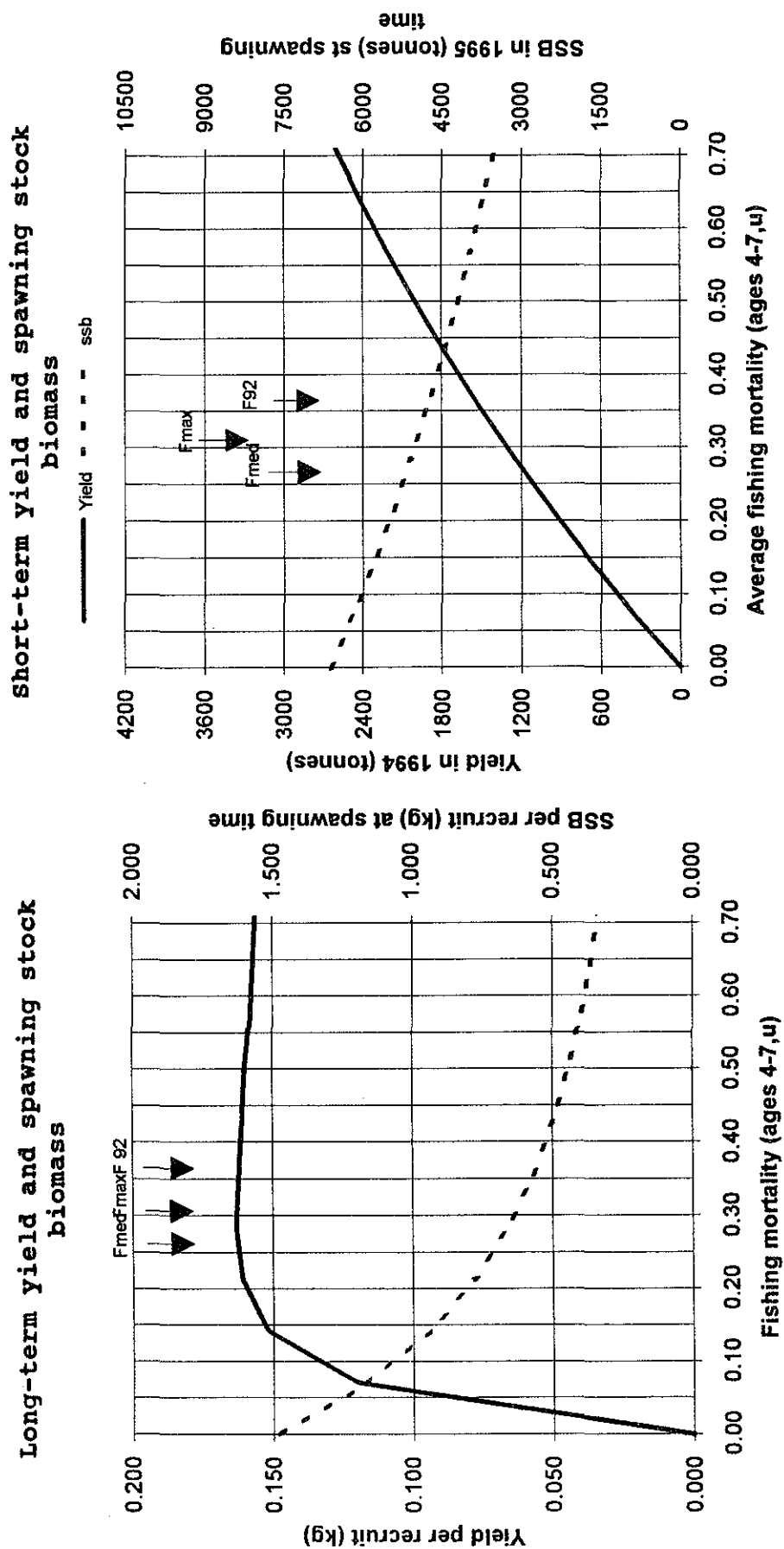
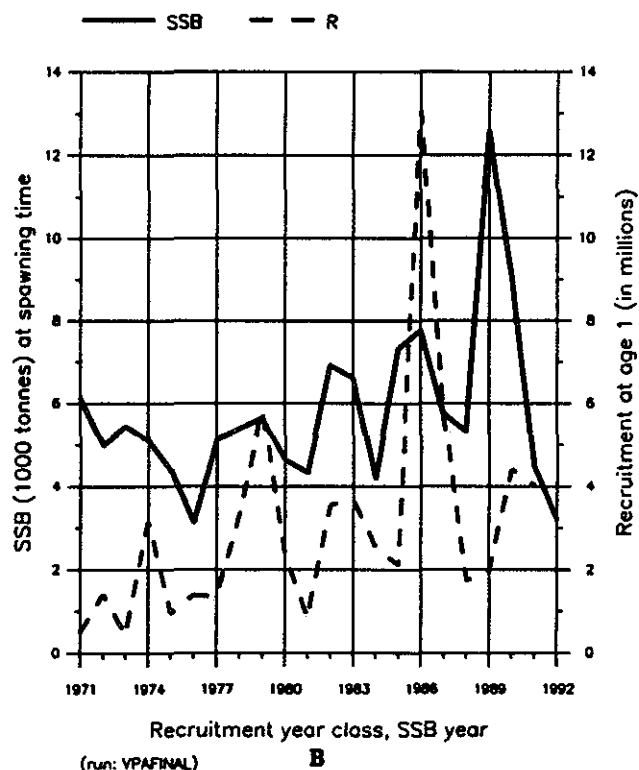
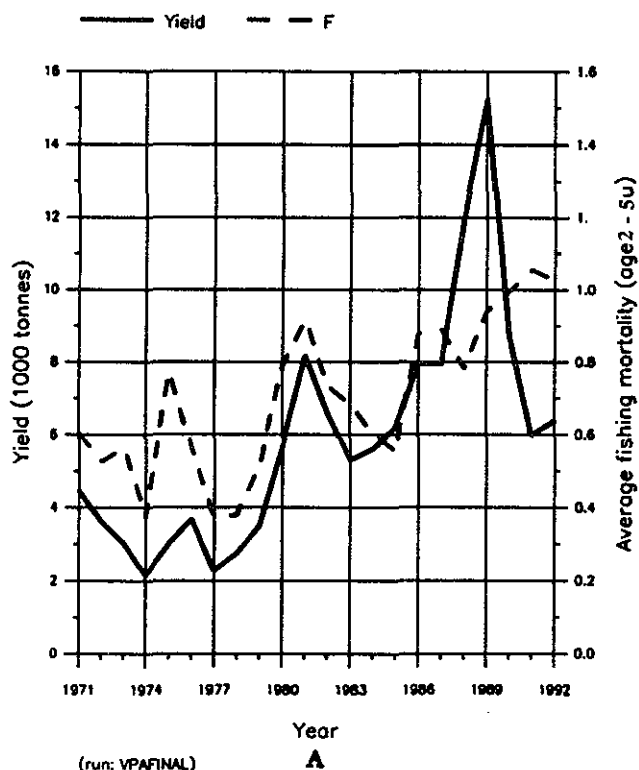


Figure 3.9.1

FISH STOCK SUMMARY
STOCK: Cod in the Celtic Sea (Fishing Areas VIIIf and VIIg)
10-9-1993

Trends in yield and fishing mortality (F)

Trends in spawning stock biomass (SSB) and recruitment (R)



FISH STOCK SUMMARY
STOCK: Cod in the Celtic Sea (Fishing Areas VIIIf and VIIg)
11-9-1993

Long term yield and spawning stock biomass

Short-term yield and spawning stock biomass

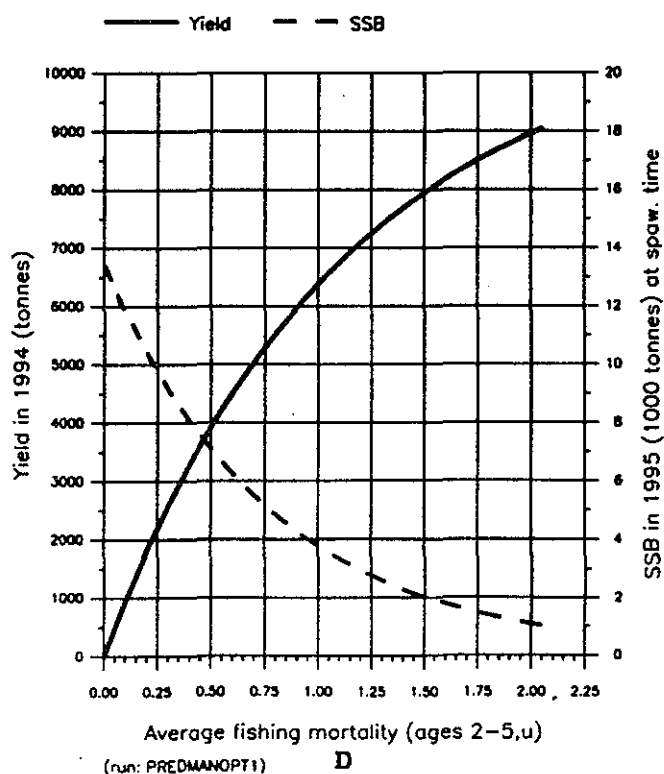
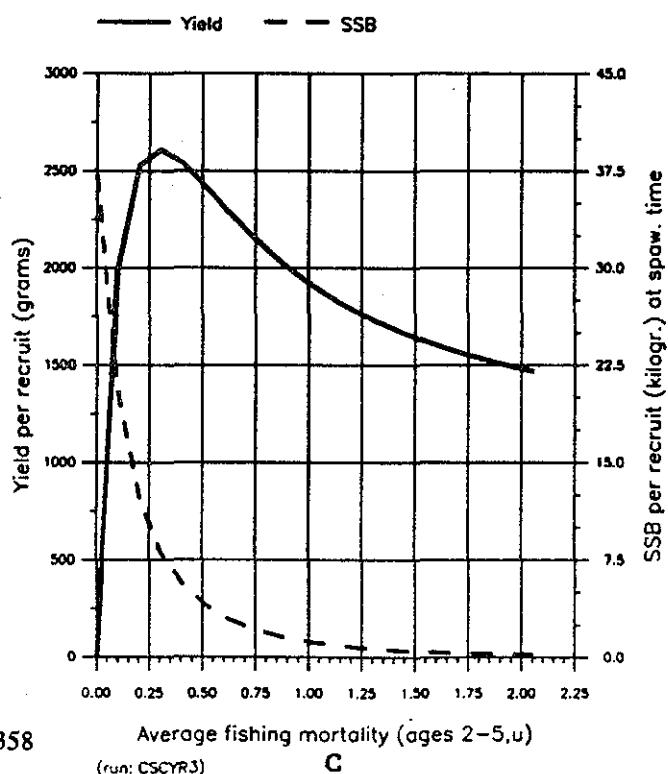
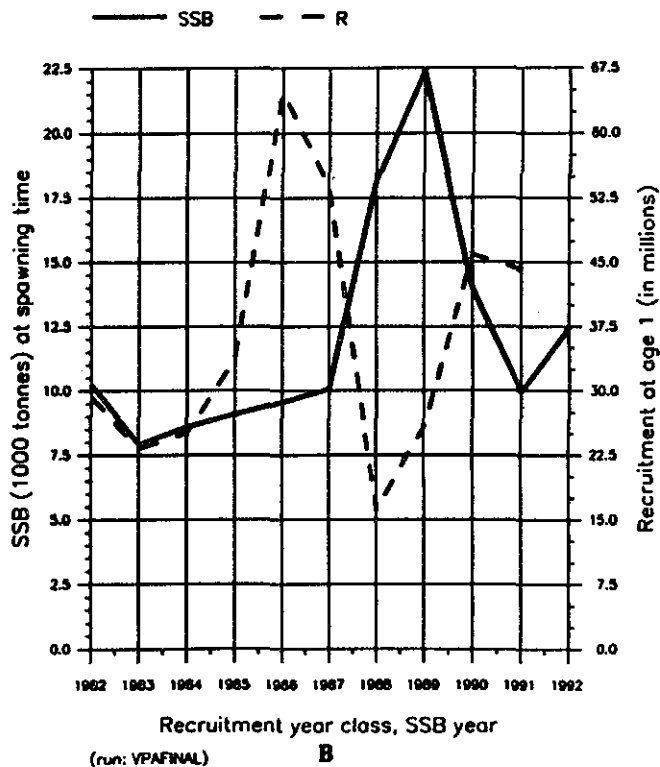
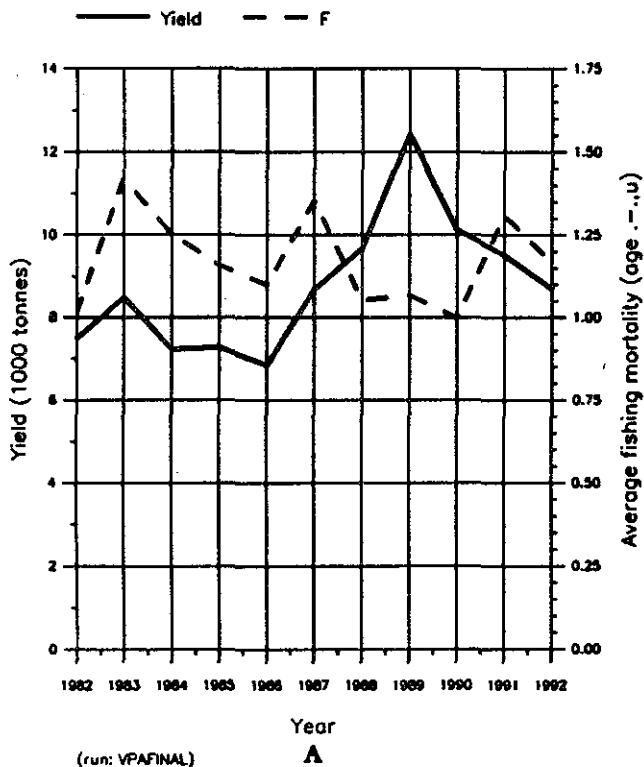


Figure 3.9.2

FISH STOCK SUMMARY
STOCK: Whiting in the Celtic Sea (Fishing Areas VIIc and VIIg)
10-9-1993

Trends in yield and fishing mortality (F)

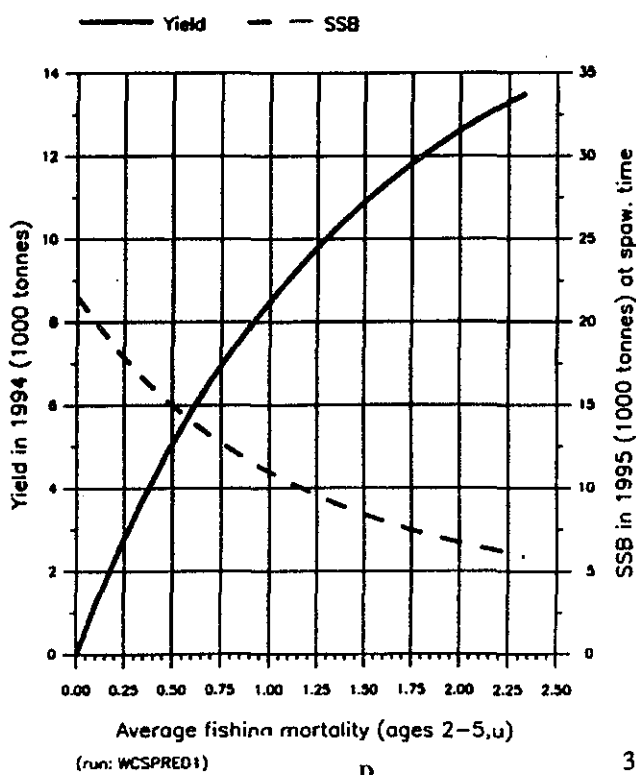
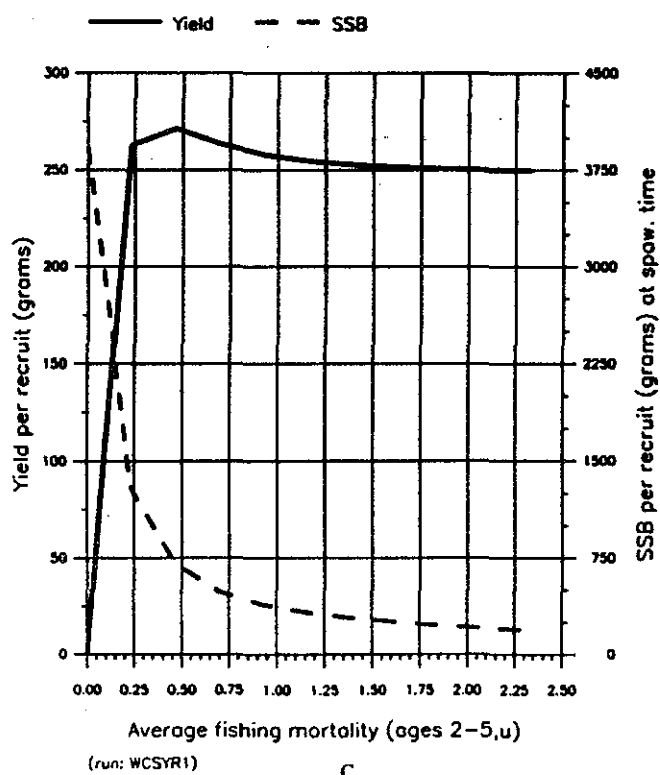
Trends in spawning stock biomass (SSB) and recruitment (R)



FISH STOCK SUMMARY
STOCK: Whiting in the Celtic Sea (Fishing Areas VIIc and VIIg)
10-9-1993

Long term yield and spawning stock biomass

Short-term yield and spawning stock biomass



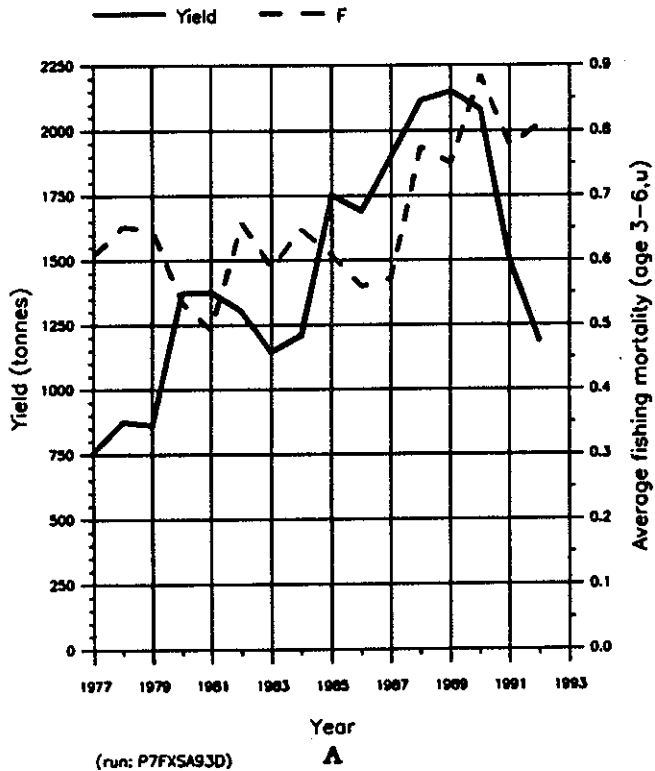
FISH STOCK SUMMARY

STOCK: Plaice in the Celtic Sea (Fishing Areas VIIc and VIIg)

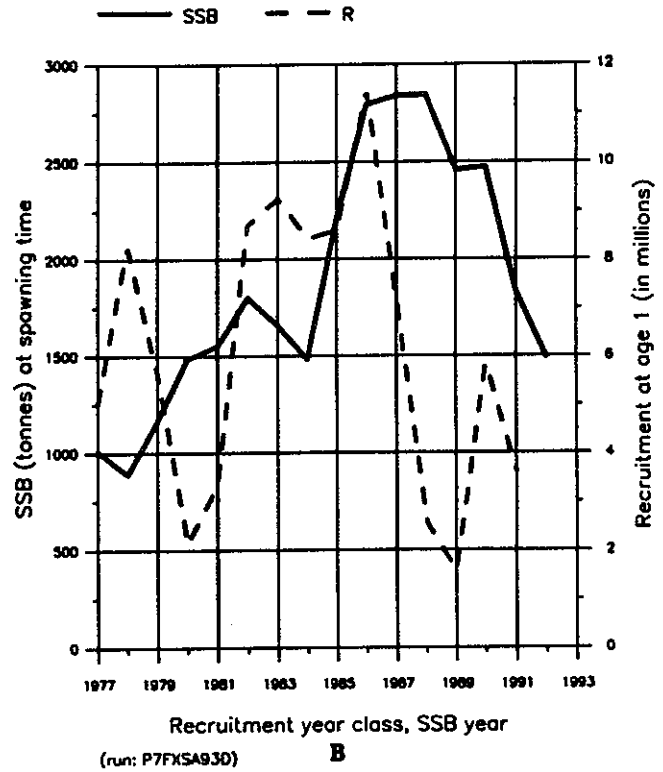
9-9-1993

Figure 3.9.3

Trends in yield and fishing mortality (F)



Trends in spawning stock biomass (SSB) and recruitment (R)

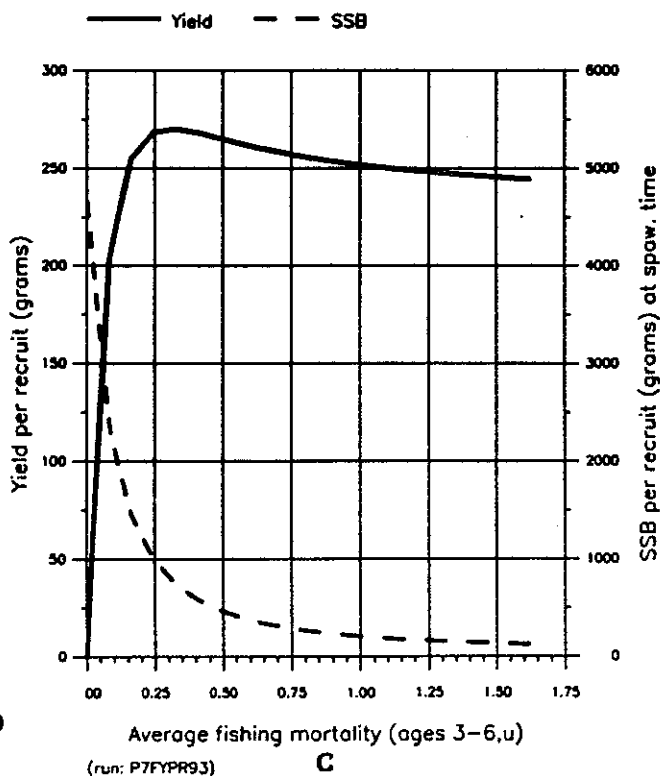


FISH STOCK SUMMARY

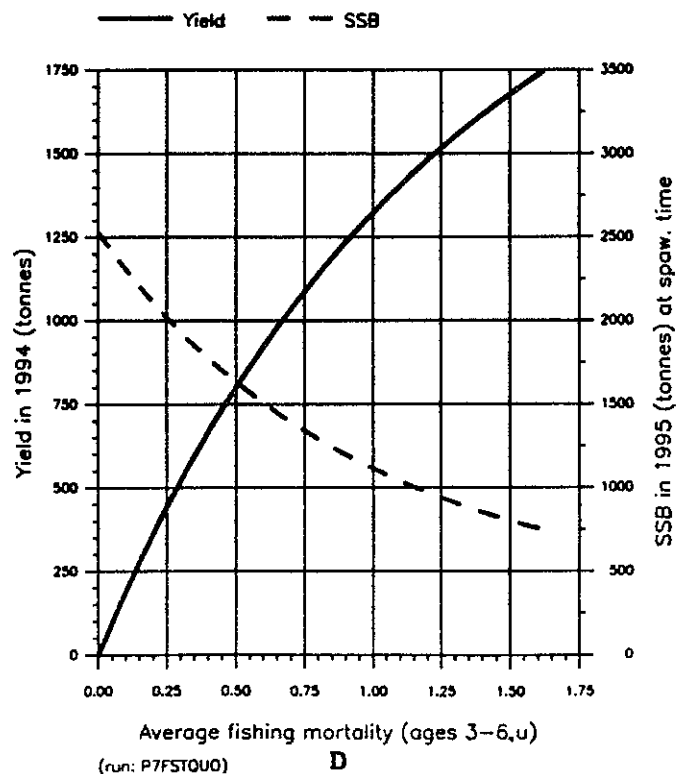
STOCK: Plaice in the Celtic Sea (Fishing Areas VIIc and VIIg)

10-9-1993

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass



FISH STOCK SUMMARY

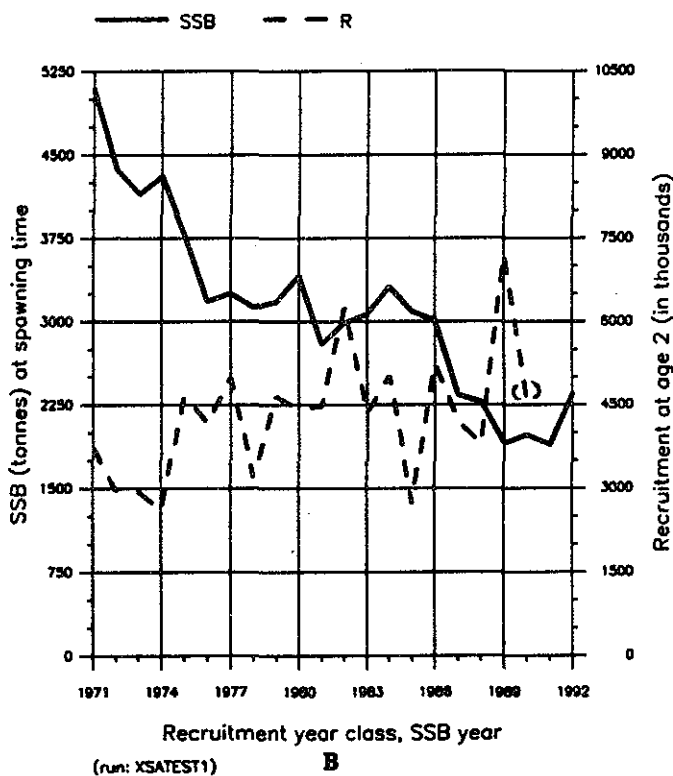
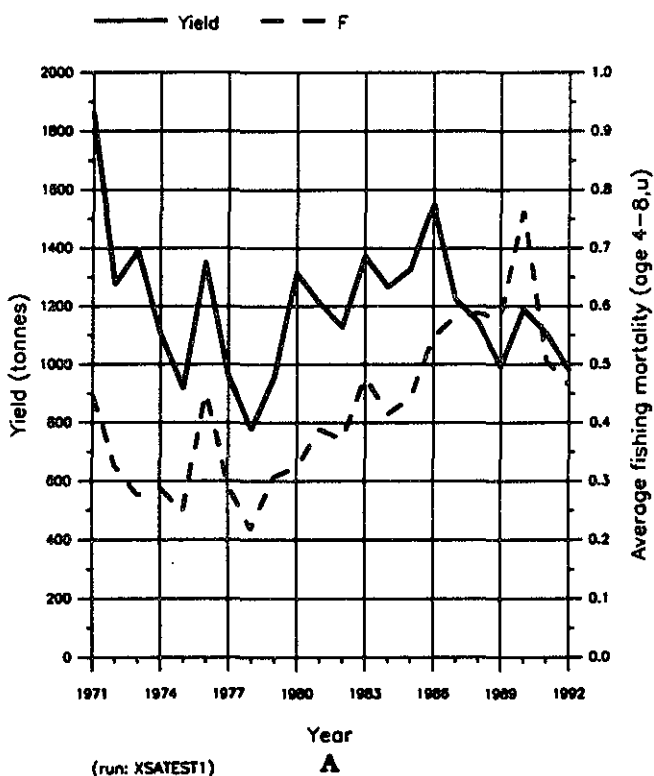
Figure 3.9.4

STOCK: Sole in the Celtic Sea (Fishing Areas VIIc and VIIg)

9-9-1993

Trends in yield and fishing mortality (F)

Trends in spawning stock biomass (SSB) and recruitment (R)



() Geometric mean

FISH STOCK SUMMARY

STOCK: Sole in the Celtic Sea (Fishing Areas VIIc and VIIg)

9-9-1993

Long term yield and spawning stock biomass

Short-term yield and spawning stock biomass

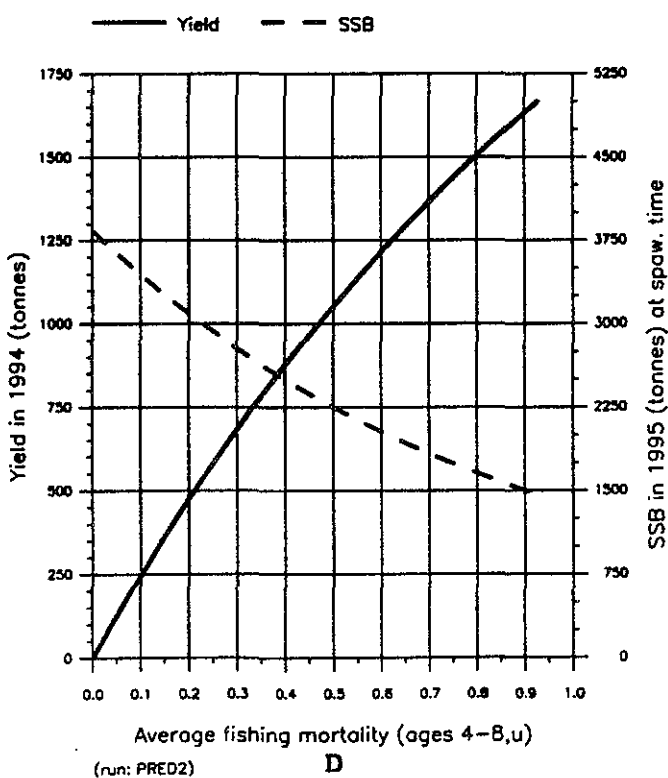
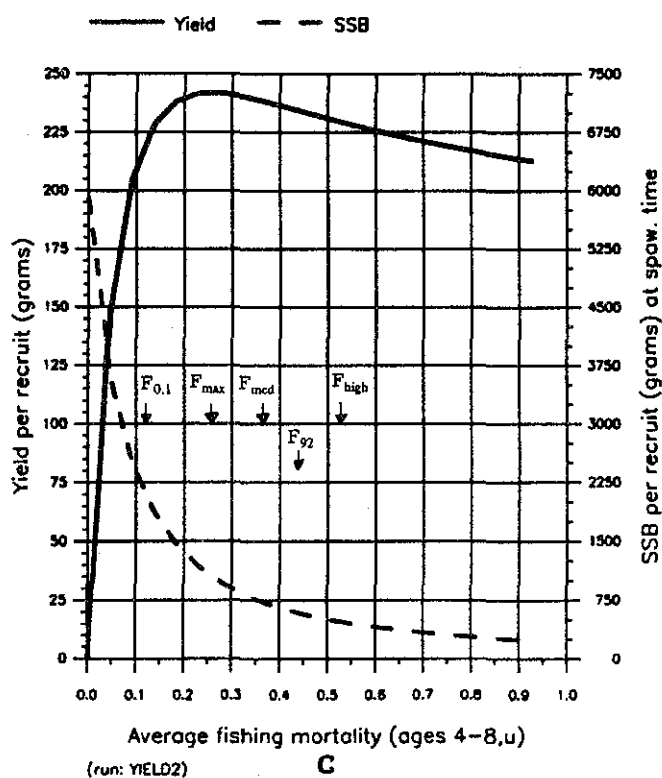
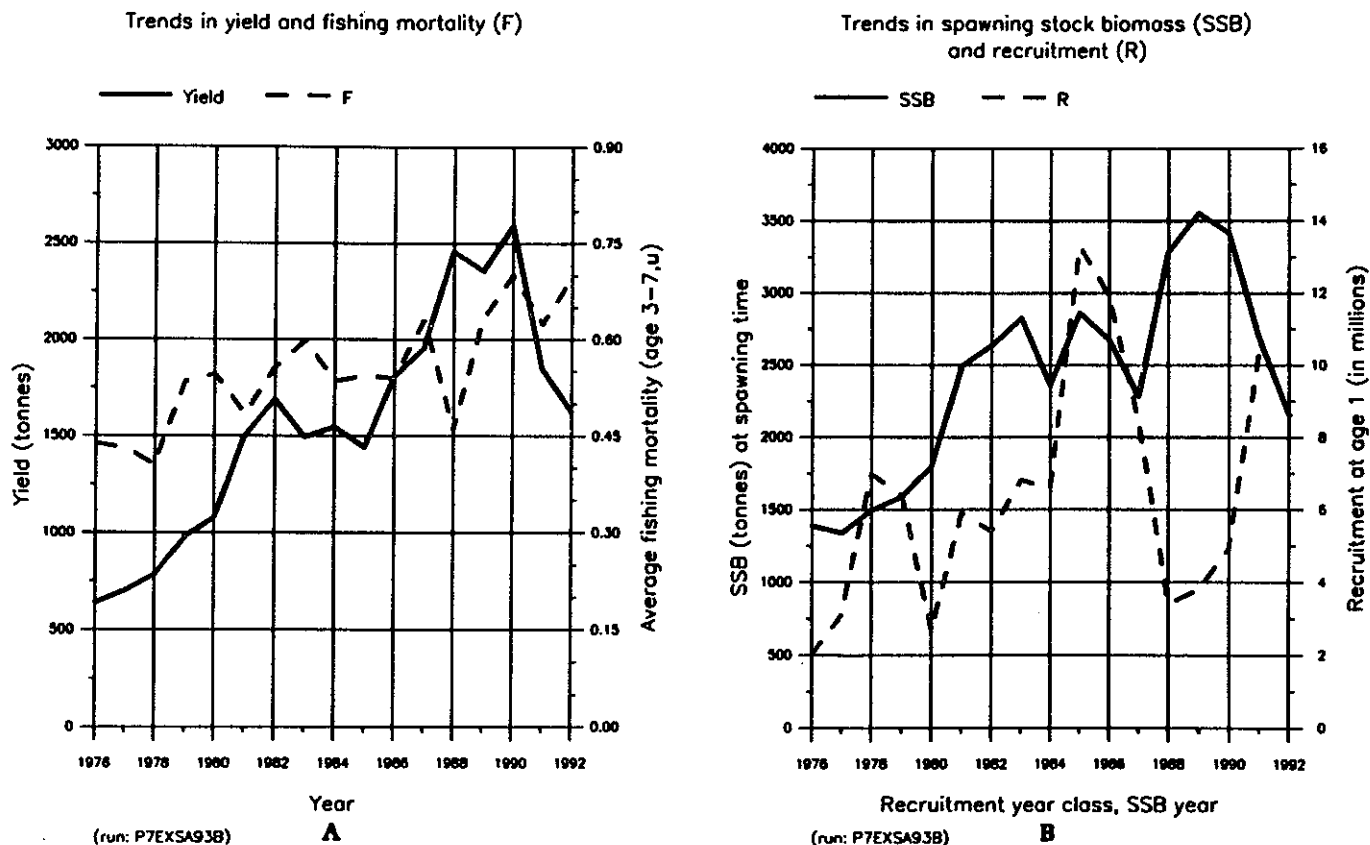


Figure 3.9.5

FISH STOCK SUMMARY
STOCK: Plaice in the English Channel, Western (Fishing Area VIIe)
9-9-1993



FISH STOCK SUMMARY
STOCK: Plaice in the English Channel, Western (Fishing Area VIIe)
11-9-1993

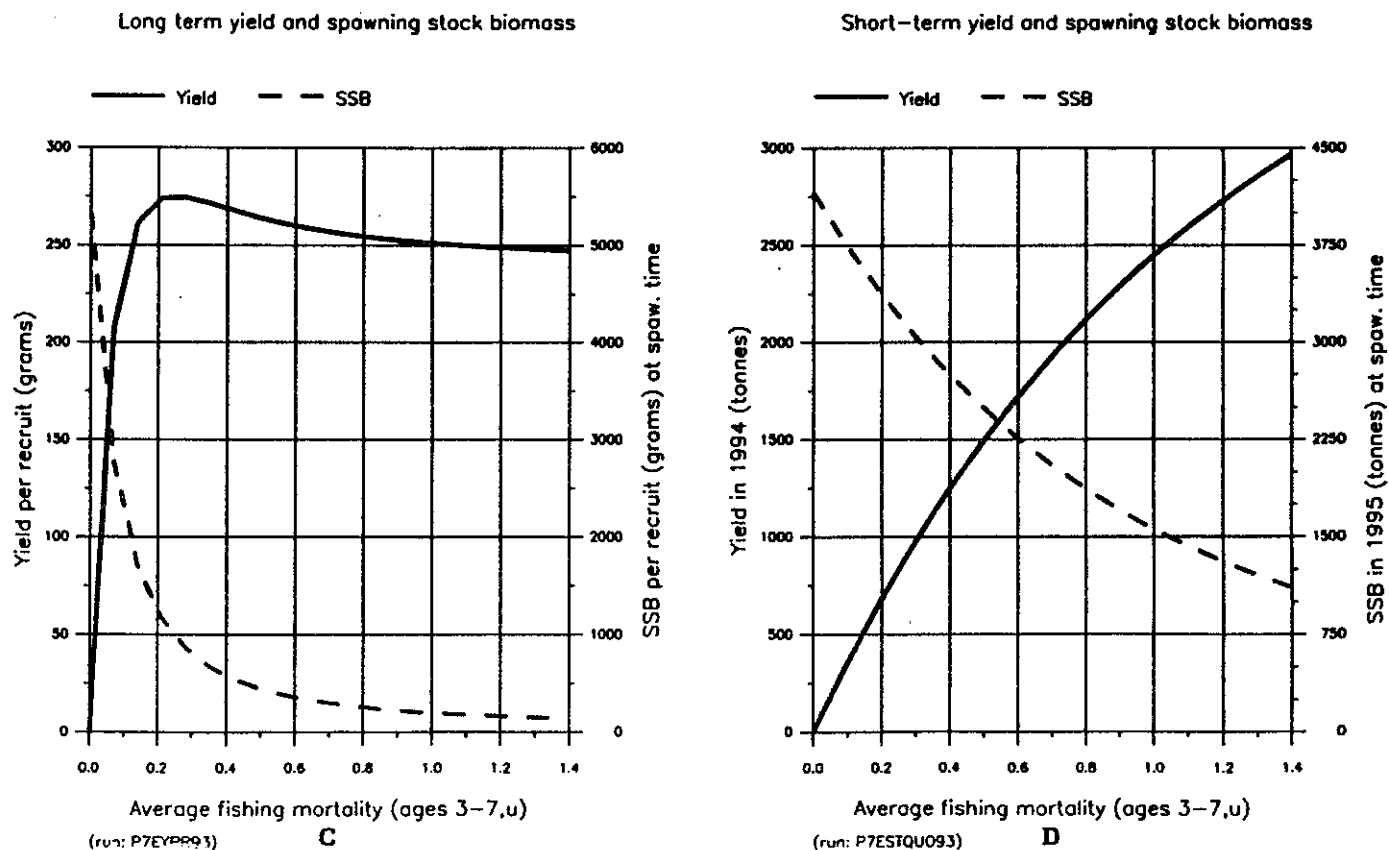
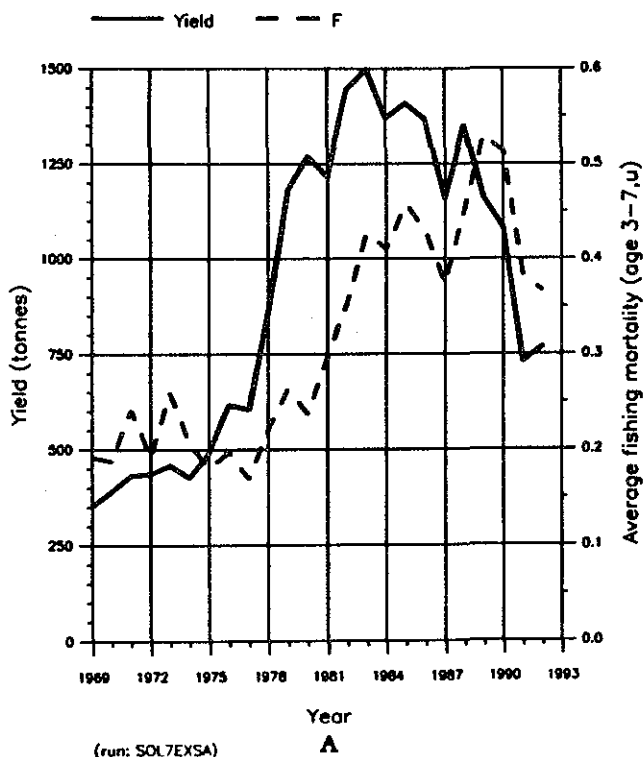


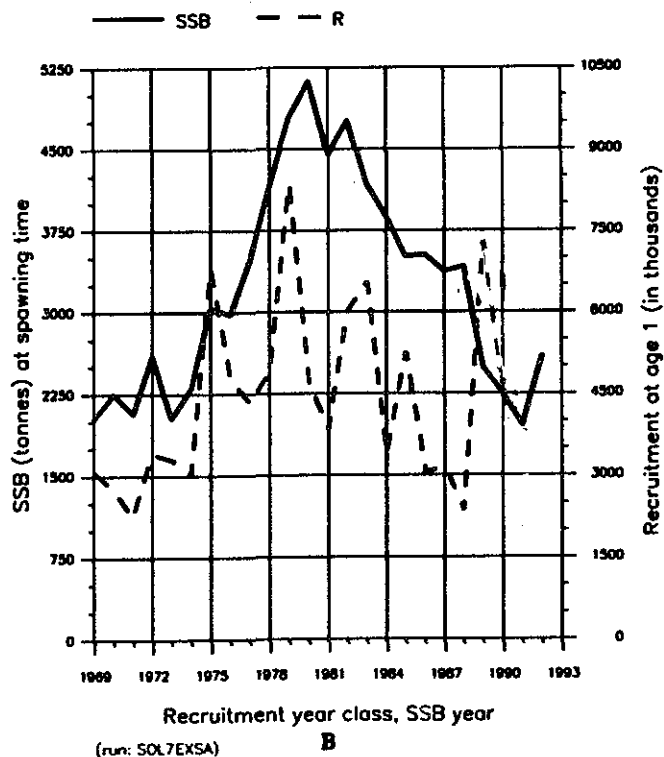
Figure 3.9.6

FISH STOCK SUMMARY
STOCK: Sole in the Western English Channel (Fishing Area VIIe)
9-9-1993

Trends in yield and fishing mortality (F)

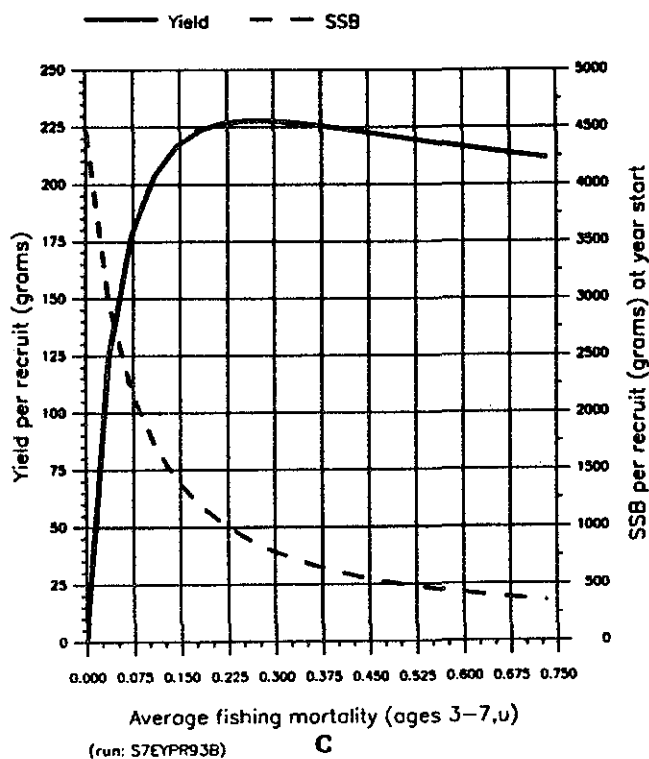


Trends in spawning stock biomass (SSB) and recruitment (R)



FISH STOCK SUMMARY
STOCK: Sole in the Western English Channel (Fishing Area VIIe)
11-9-1993

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

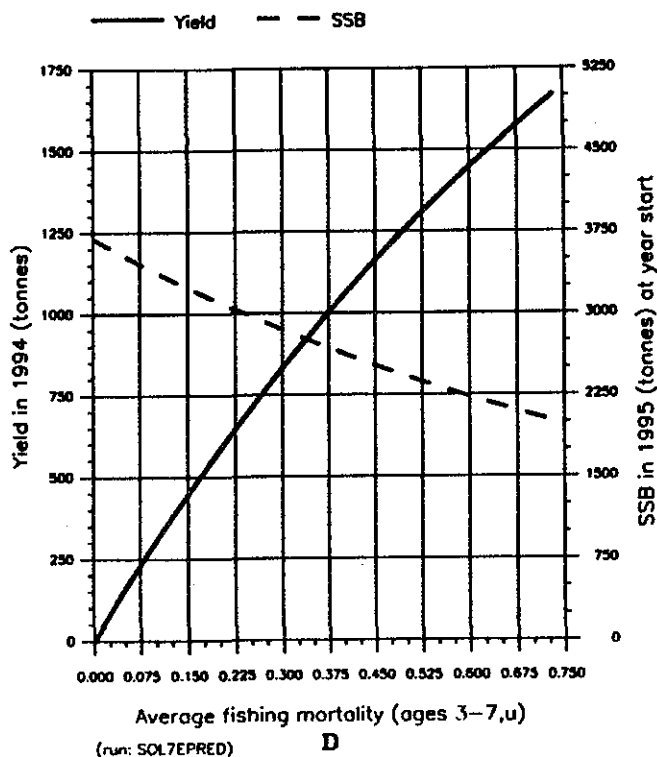
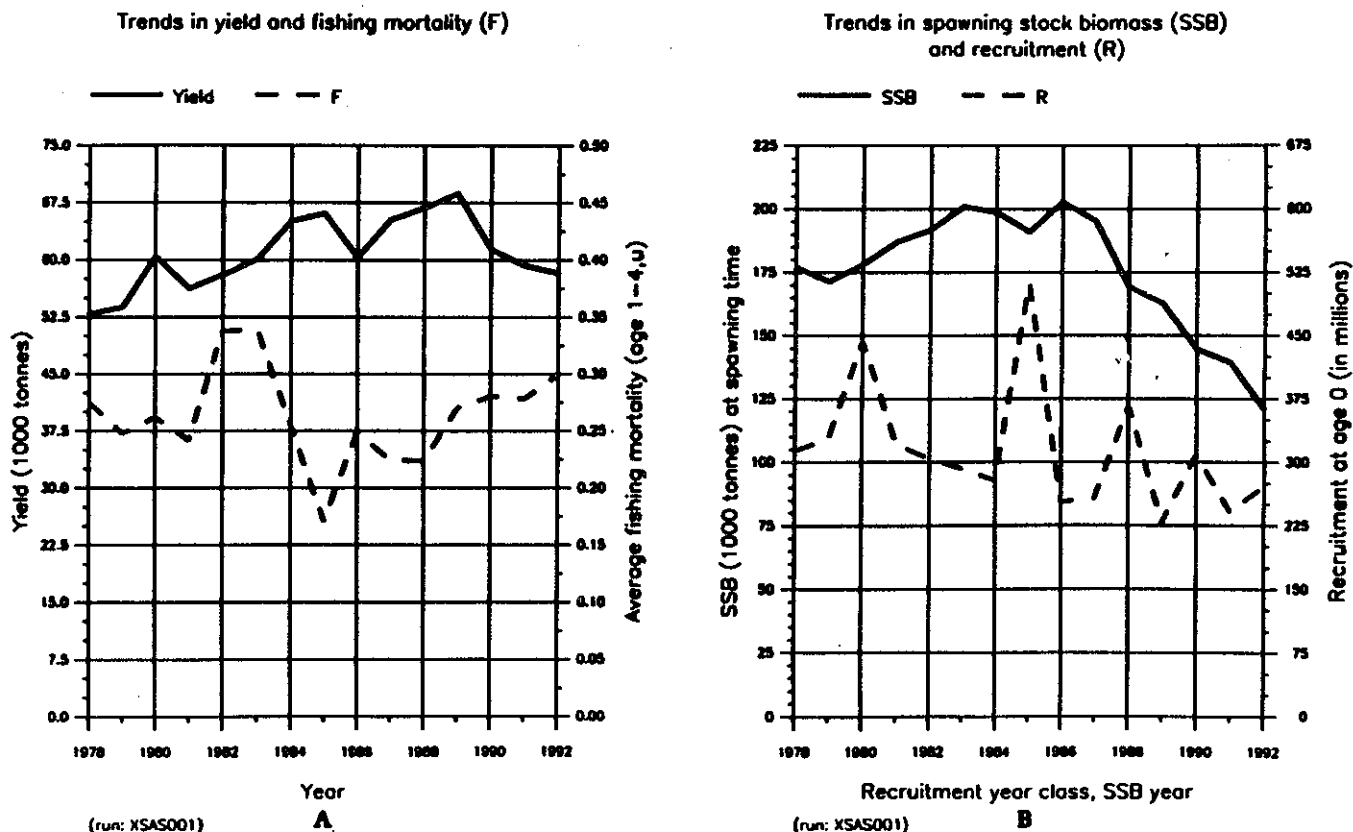


Figure 4.1.1

FISH STOCK SUMMARY
STOCK: Hake in the Northern Area (Fishing Areas IVa, VIa, VII, VIIIa and b)
9-9-1993



FISH STOCK SUMMARY
STOCK: Hake in the Northern Area (Fishing Areas IVa, VIa, VII, VIIIa and b)
10-9-1993

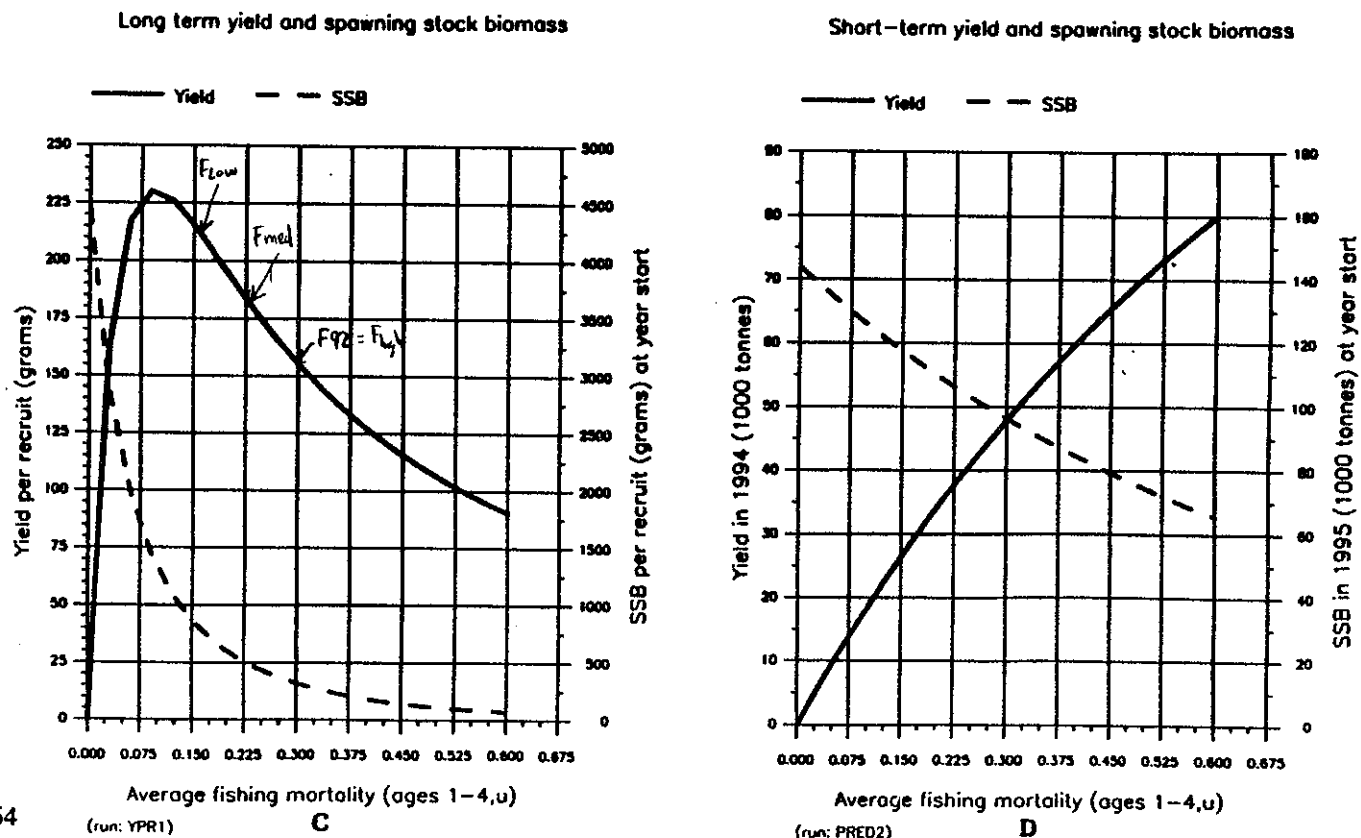


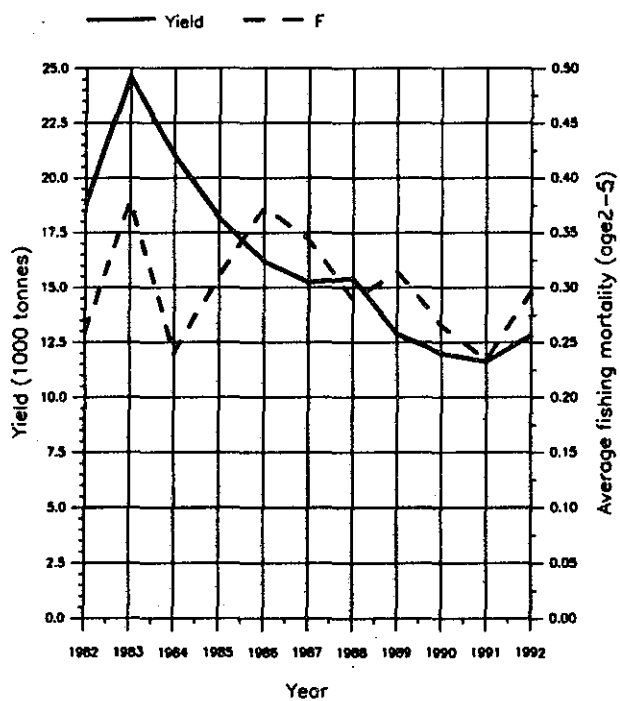
Figure 4.1.2

FISH STOCK SUMMARY

STOCK: Hake in the Southern Area (Fishing Areas VIIIc and IXa)

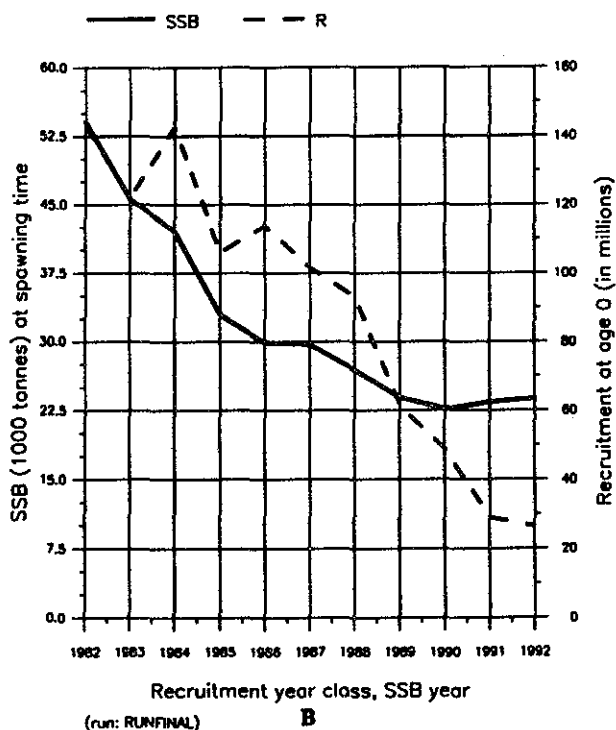
9-9-1993

Trends in yield and fishing mortality (F)



Spawning time considered as January 1.

Trends in spawning stock biomass (SSB) and recruitment (R)

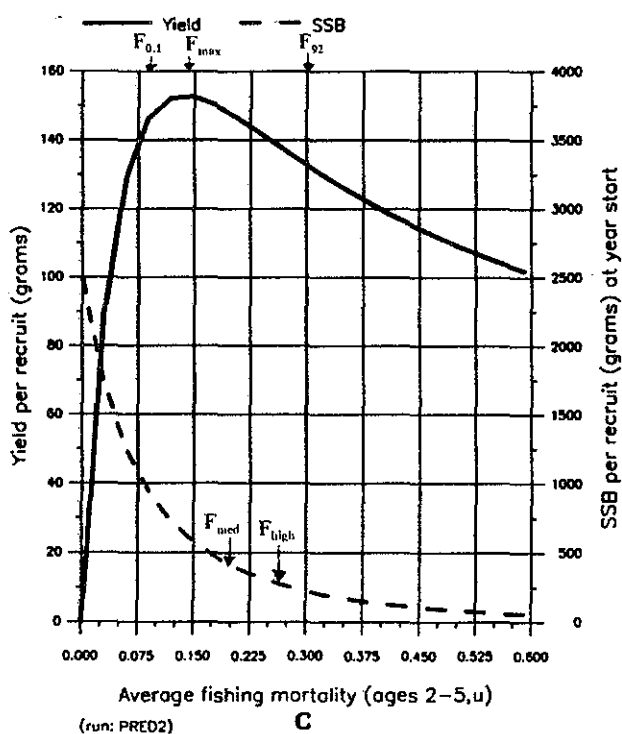


FISH STOCK SUMMARY

STOCK: Hake in the Southern Area (Fishing Areas VIIIc and IXa)

10-9-1993

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

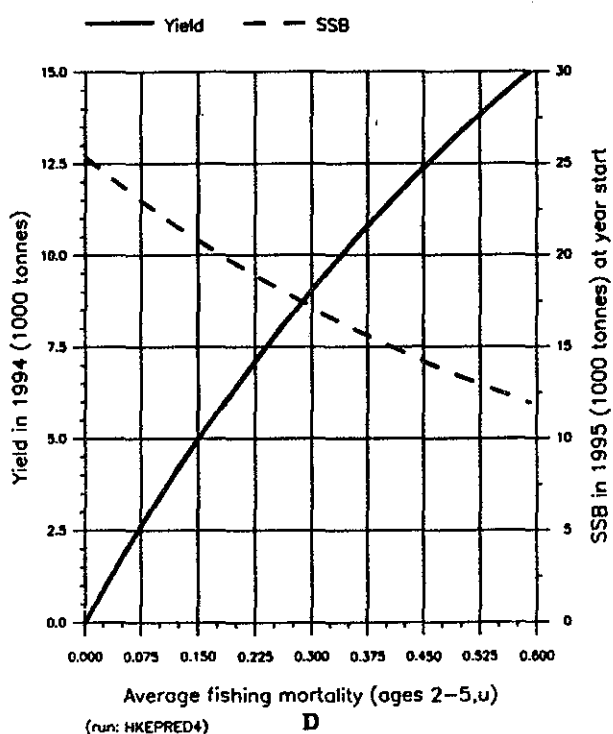
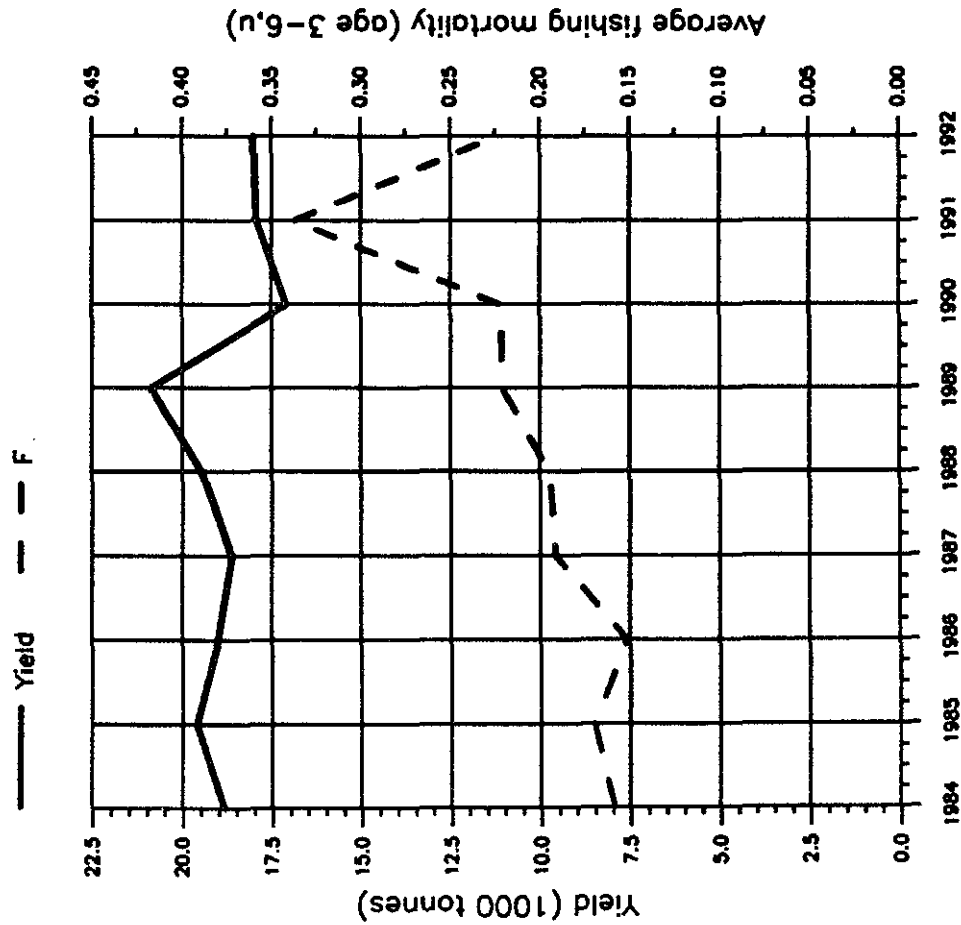


Figure 4.2.1

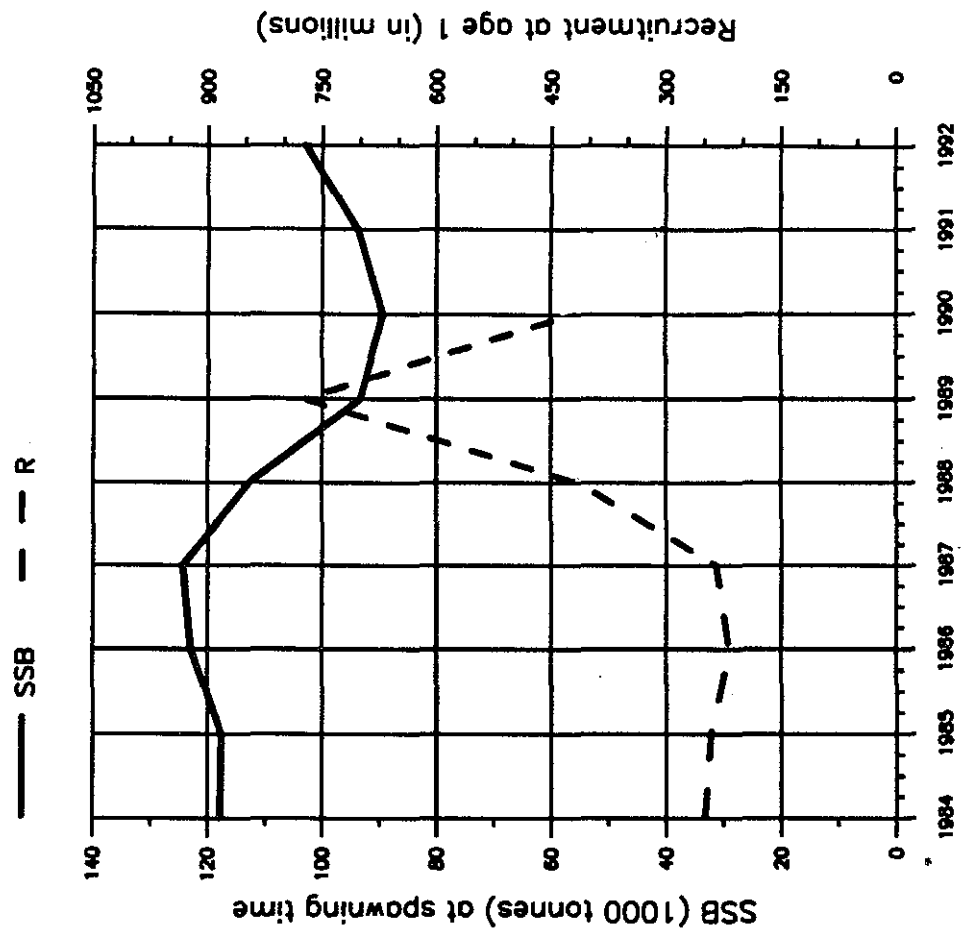
FISH STOCK SUMMARY **STOCK: Møgrim (Whiffiagonis) in Fishing Areas VII and VIII** **10-9-1993**

Trends in yield and fishing mortality (F)



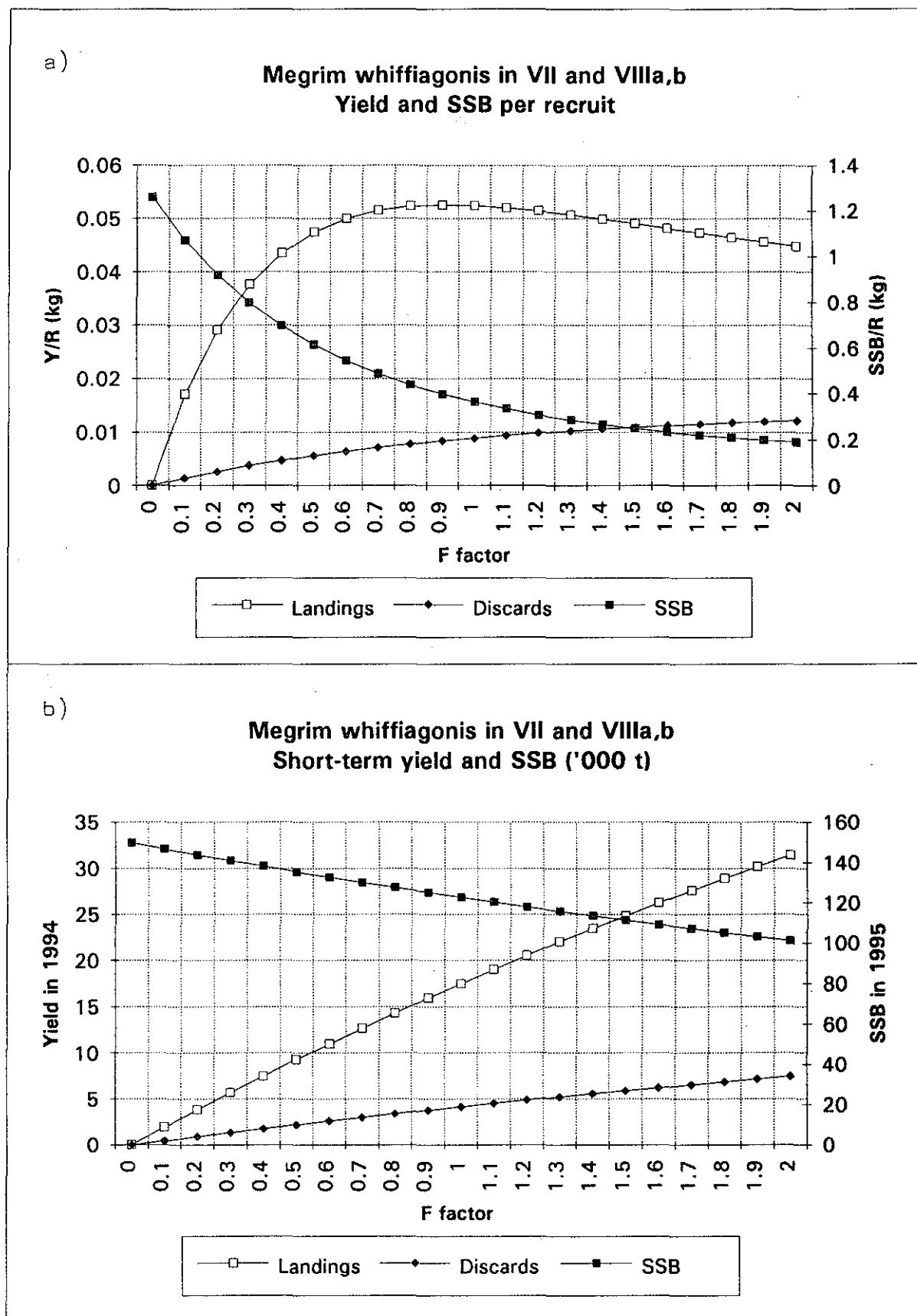
Year
 (run: FINVPA) **A**

Trends in spawning stock biomass (SSB) and recruitment (R)

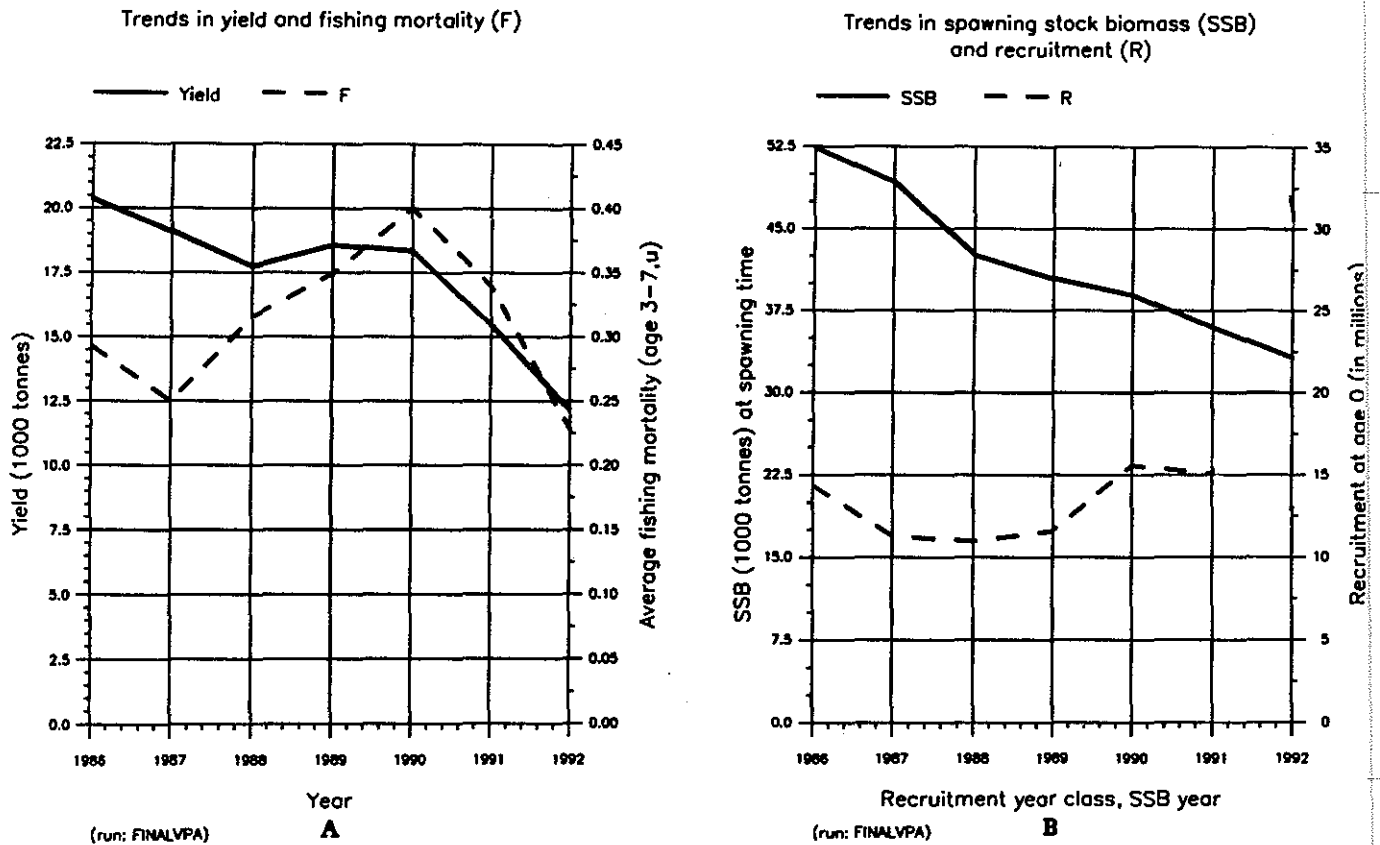


Recruitment year class, SSB year
 (run: FINVPA) **B**

Figure 4.2.2



FISH STOCK SUMMARY
STOCK: Monk (*Plecatorius*) in Fishing Areas VII and VIIIa,b
10-9-1993



FISH STOCK SUMMARY
STOCK: Monk (*Plecatorius*) in Fishing Areas VII and VIIIa,b
10-9-1993

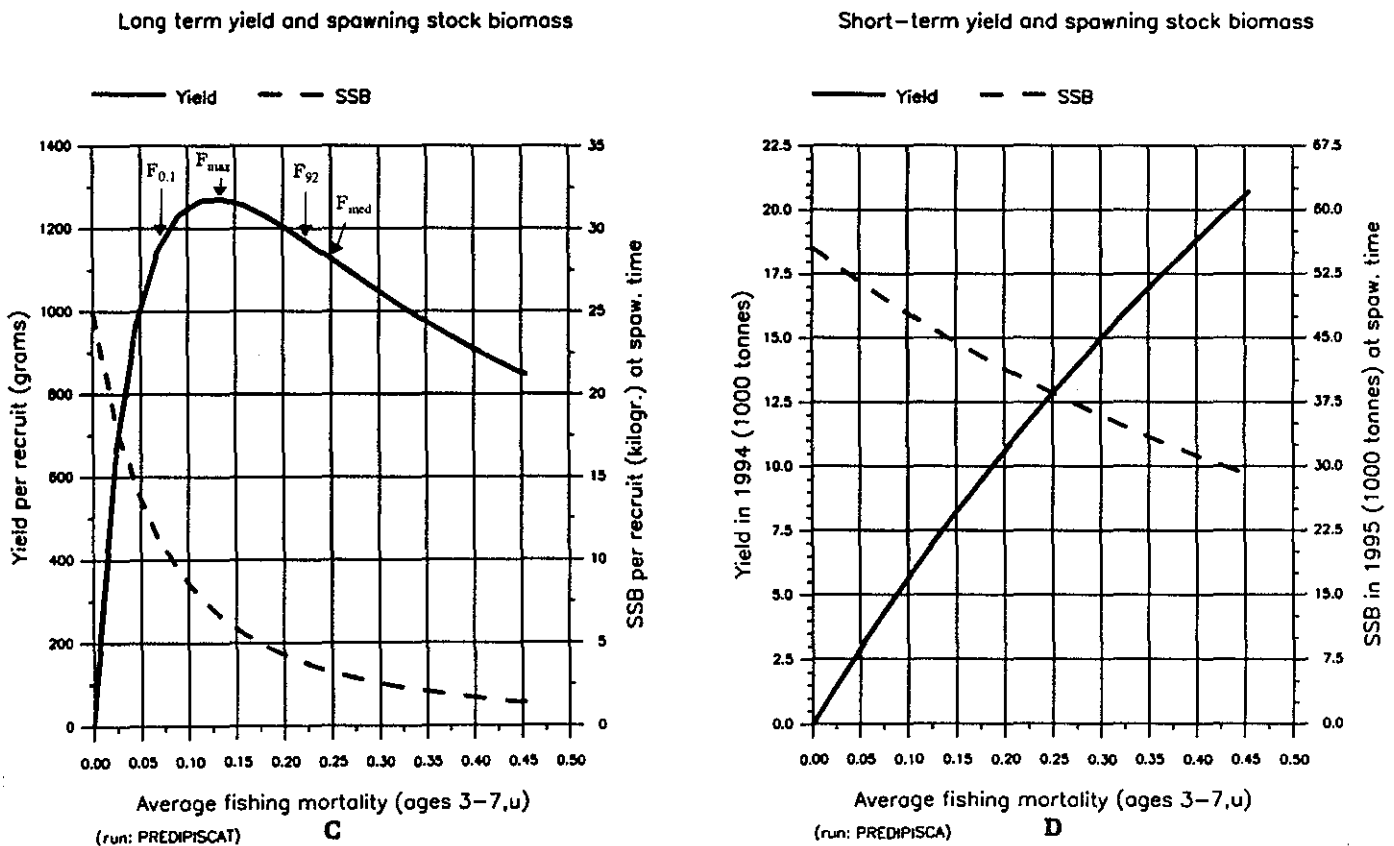
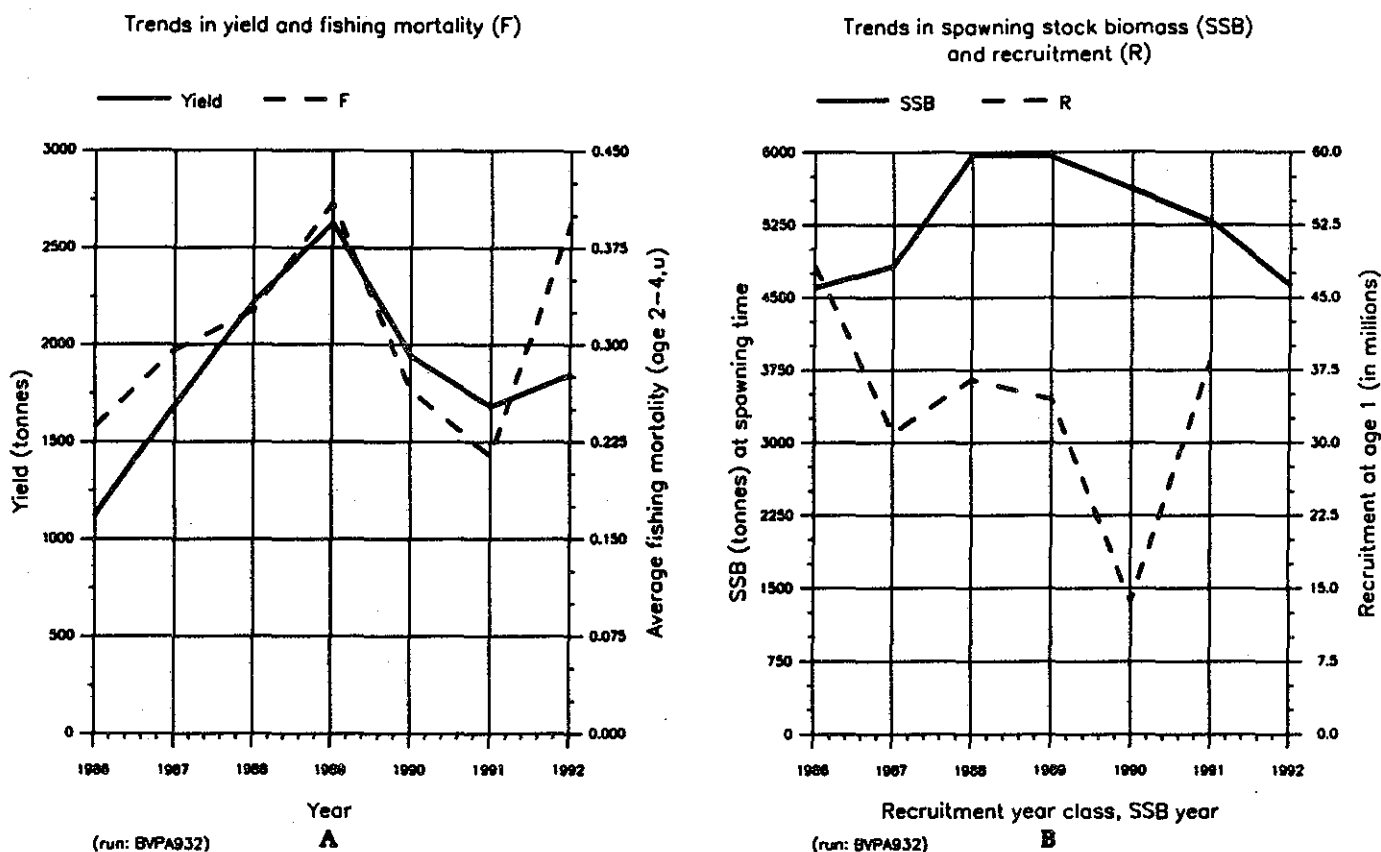
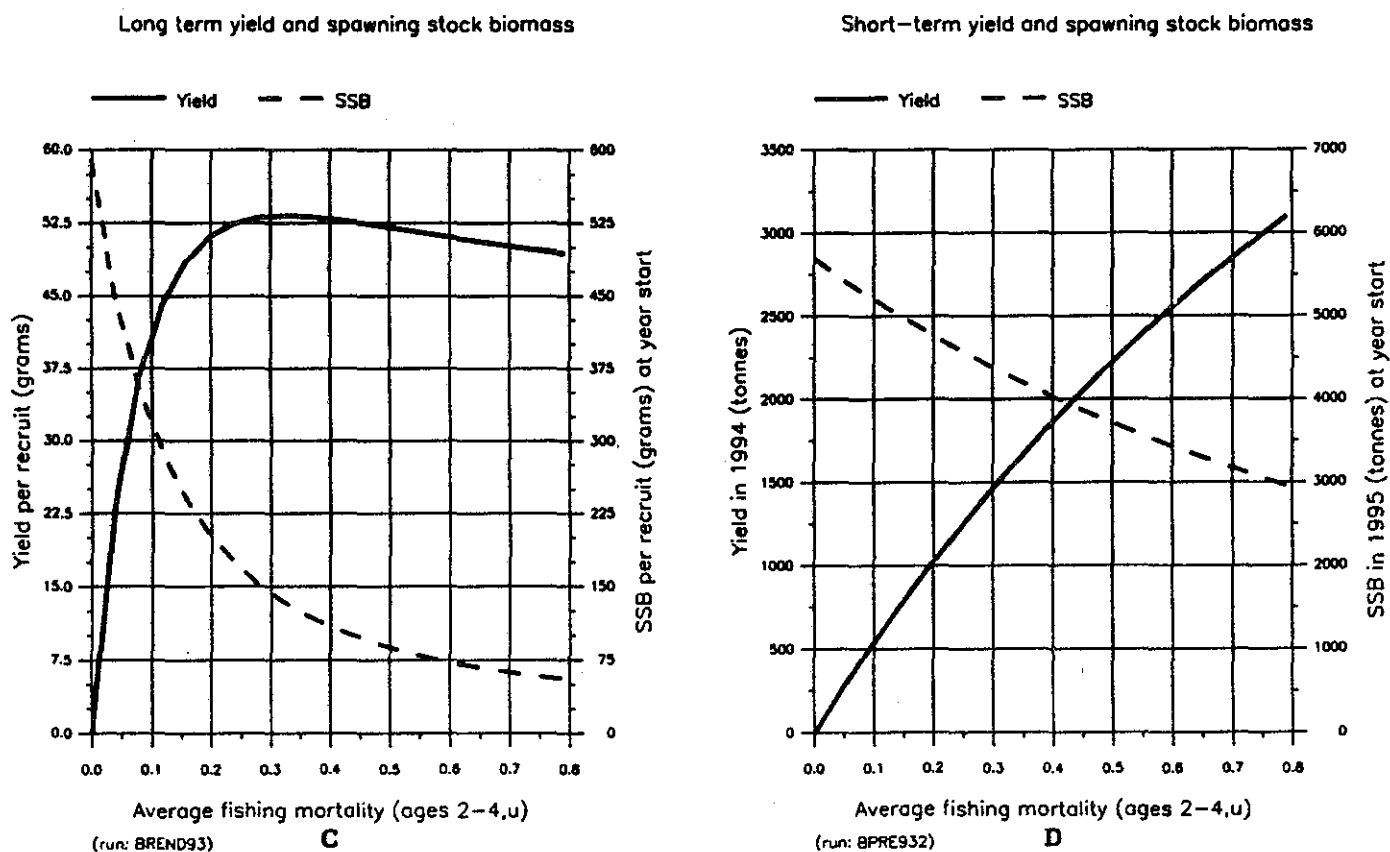


Figure 5.4.1

FISH STOCK SUMMARY
STOCK: Megrim (*Boscii*) in Fishing Areas VIIIc and IXa
9-9-1993



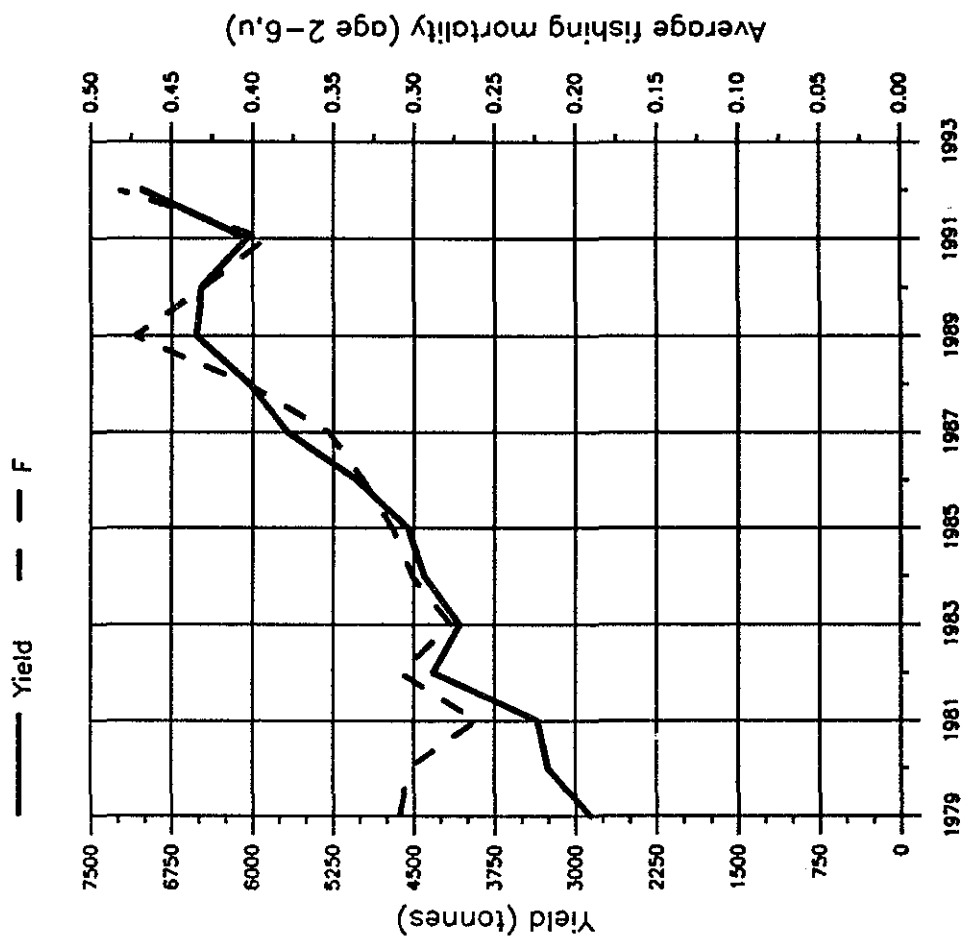
FISH STOCK SUMMARY
STOCK: Megrim (*Boscii*) in Fishing Areas VIIIc and IXa
11-9-1993



FISH STOCK SUMMARY **STOCK: Sole in the Bay of Biscay (Fishing Area VIII)** **10-9-1993**

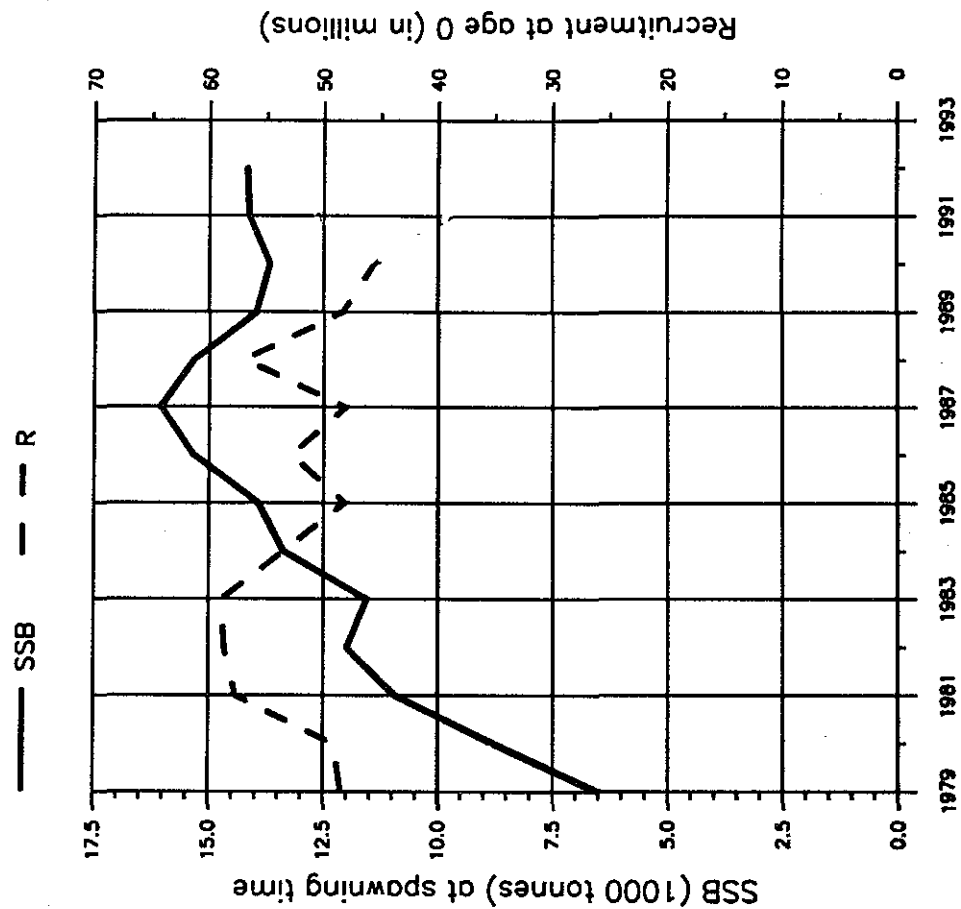
Figure 5.6.1

Trends in yield and fishing mortality (F)



Year
A
 (run: WG93FINAL)

Trends in spawning stock biomass (SSB) and recruitment (R)

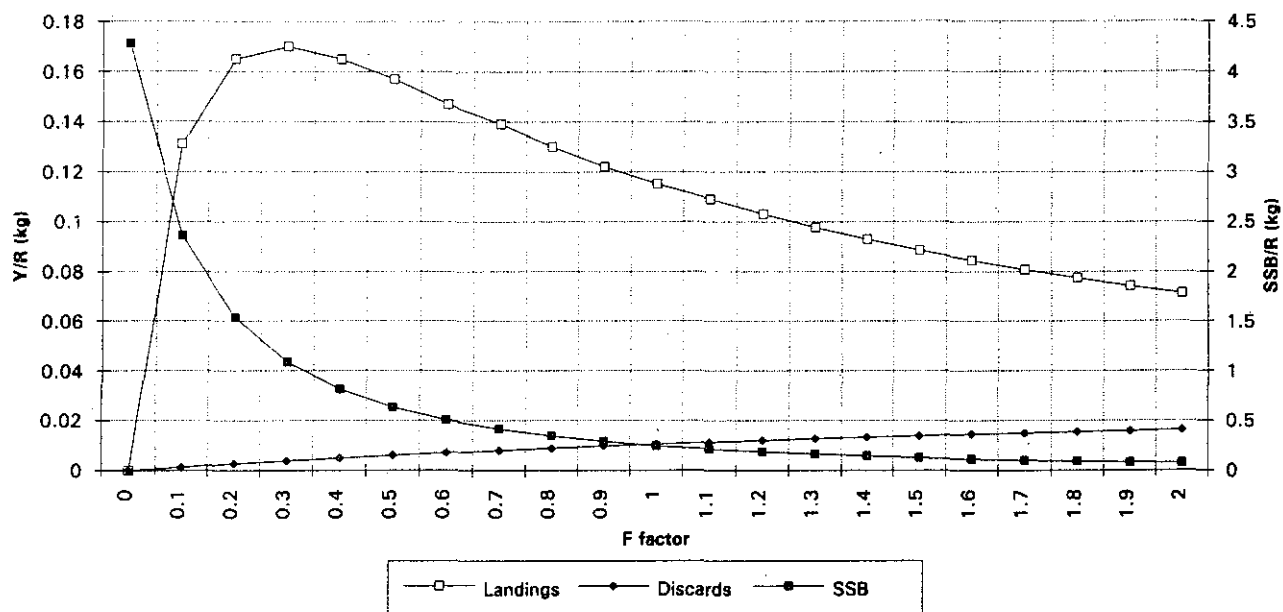


Recruitment year class, SSB year
B
 (run: WG93FINAL) continued...

Figure 5.6.1 (ctd.)

C

Bay of Biscay Sole : Long term yield and SSB



D

Bay of Biscay sole : Short-term yield and SSB

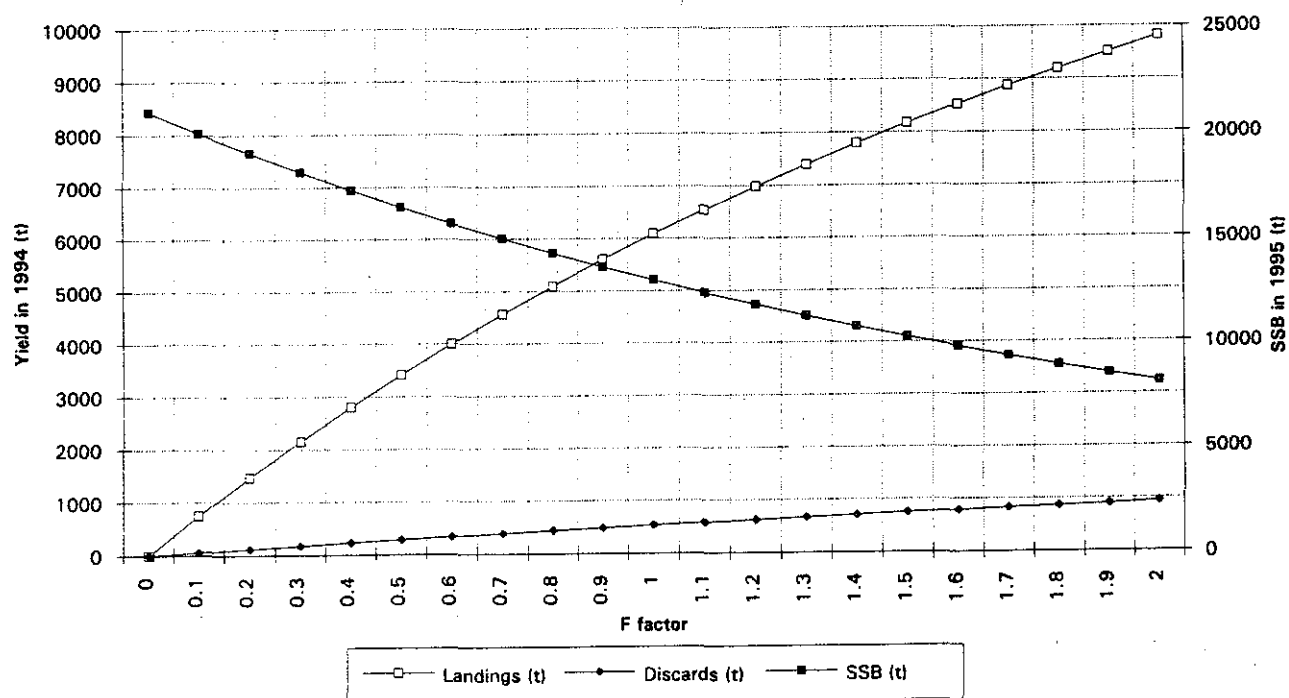


Figure 6.1.1 *Nephrops* functional units and Management Areas A and B.

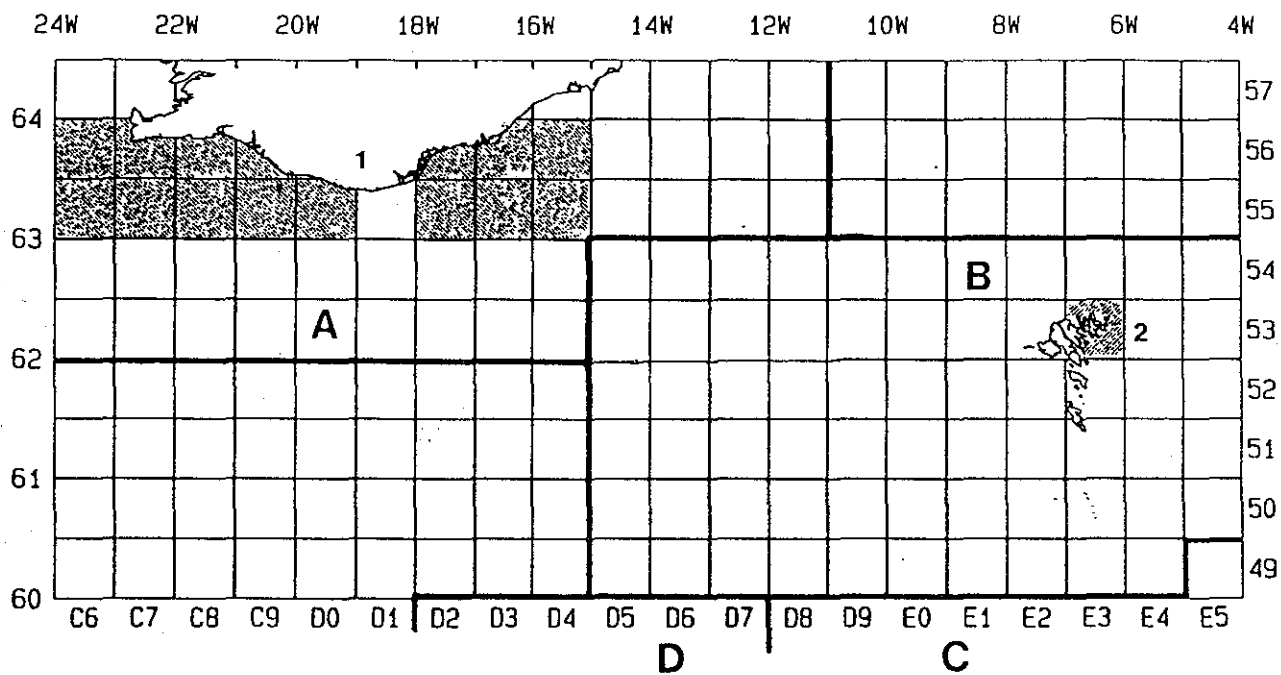


Figure 6.1.2 *Nephrops* functional units and Management Area E.

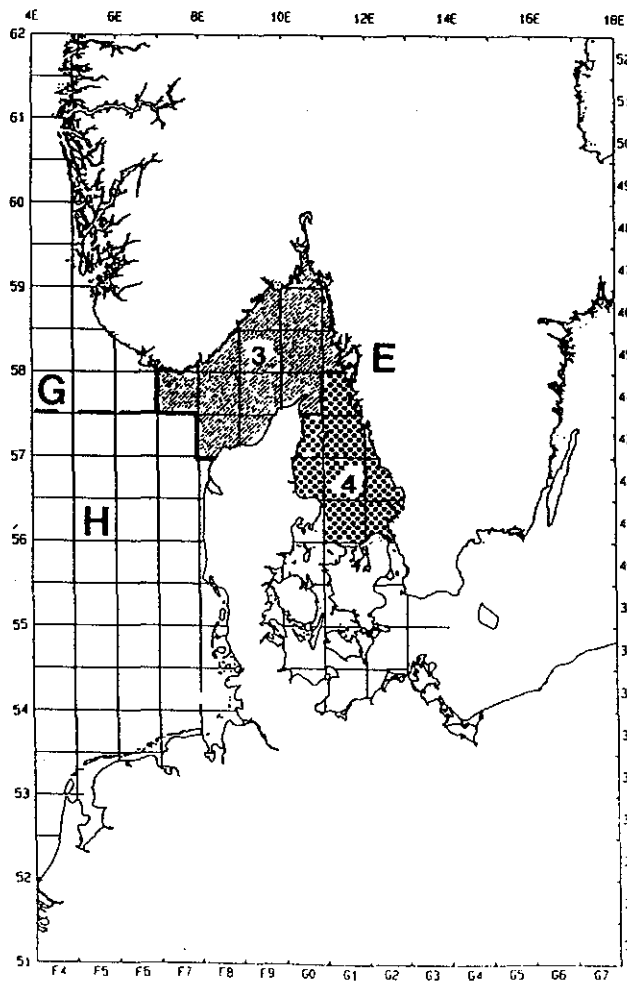
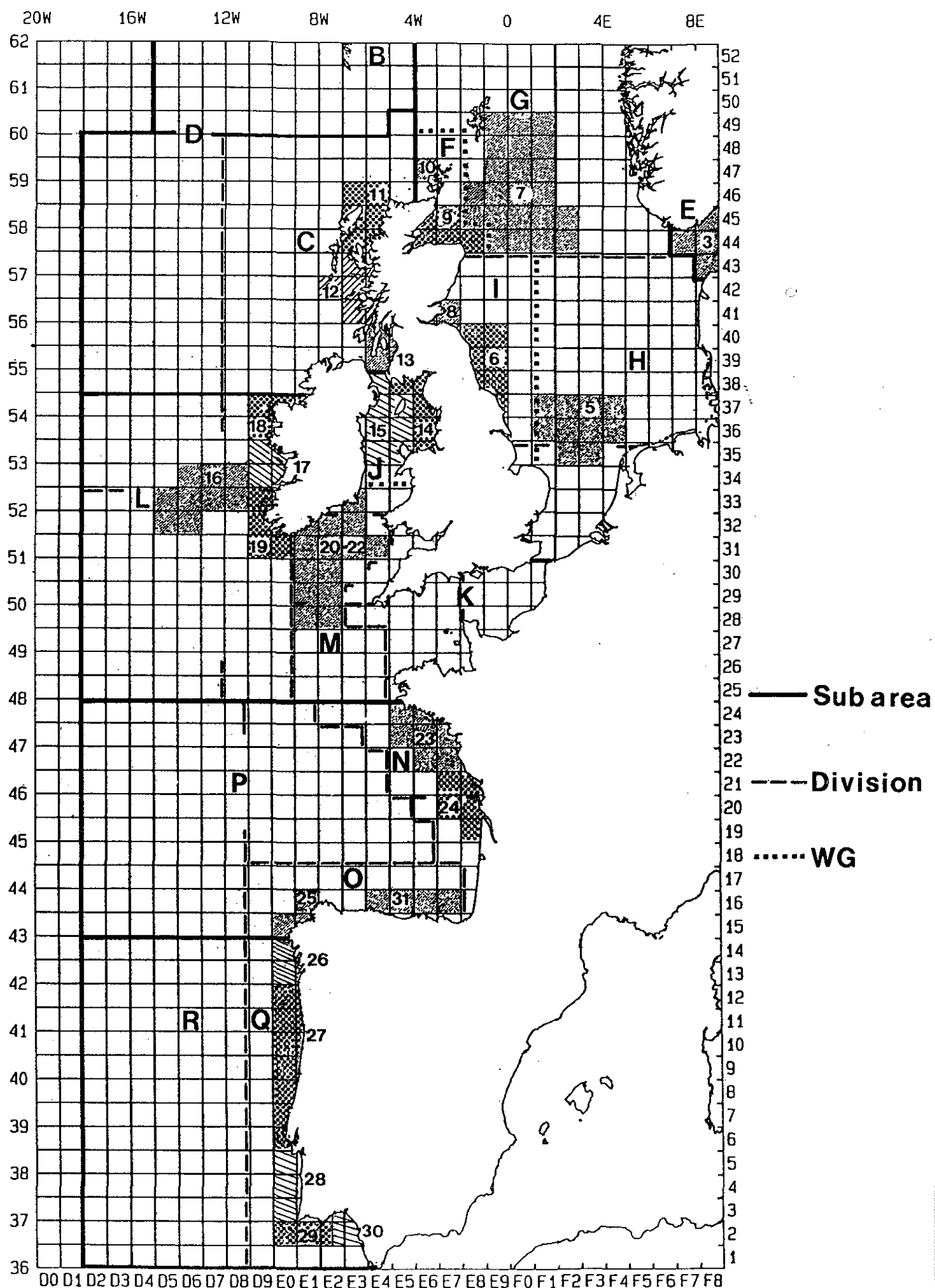
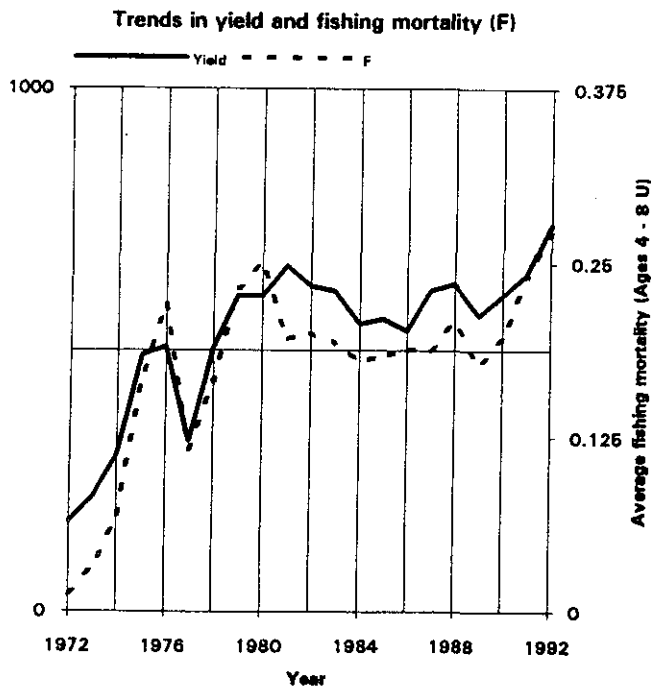


Figure 6.1.3 *Nephrops* functional units and Management Areas C to R.

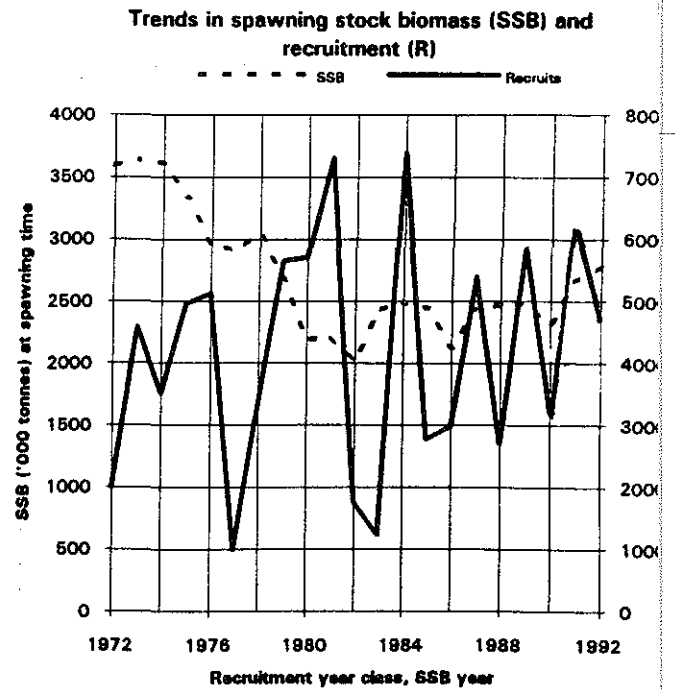


FISH STOCK SUMMARY
Mackerel in the Western Area

Figure 6.2.1



A

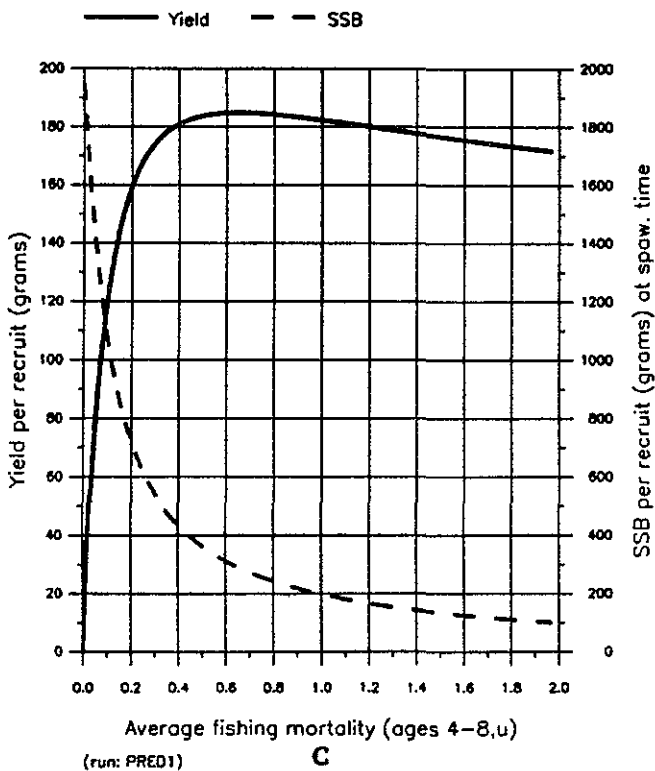


B

1991 and 1992 recruitment value based on survey estimates.

FISH STOCK SUMMARY
STOCK: Mackerel in the Western Area (Fishing Areas VI, VII and VIII)
1-7-1993

Long term yield and spawning stock biomass



Short-term yield and spawning stock biomass

