



THÜNEN

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Report of Activities

DEMERSAL FISH COMMITTEE

by

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1987

BELGIUM

(R. De Clerck)



Recording of densities and growth rates of the 1986 and 1987 year-classes of sole, plaice, dab, flounder, cod and whiting was carried out.

Two cruises were also undertaken for the international demersal young fish survey.

The groundfish survey continued in order to estimate the stock size of adult flatfishes in the Southern North Sea by means of a beamtrawl fishery in August. This was part of an international survey.

The market sampling was continued covering cod-North Sea, whiting-North Sea, haddock-North Sea, plaice and sole-North-Sea-English Channel-Celtic Sea and Irish Sea (see table).

Year : 1987 (Belgium)

Species Area	Season	No of samples		No of samples	
		Research	Market	Measured	Aged
Sole IV	1	-	10	945	210
	2	-	10	922	210
	3	1	12	1 298	287
	4	-	12	1 139	210
VII f, g	1	-	9	820	210
	2	-	7	615	210
	3	-	1	105	210
	4	-	4	350	140
VII a	1	-	3	210	210
	2	-	7	630	210
	3	-	1	70	70
	4	-	3	315	210
VII d, e	1	-	5	421	210
	2	-	4	350	140
	3	-	2	130	130
	4	-	2	140	140
Plaice IV	1	-	10	654	150
	2	-	10	602	140
	3	1	12	1 568	322
	4	-	12	764	150
VII f, g	1	-	9	566	200
	2	-	7	422	134
	3	-	1	72	-
	4	-	4	232	100
VII a	1	-	3	120	120
	2	-	7	408	120
	3	-	1	40	40
	4	-	-	-	-
VII d, e	1	-	5	264	120
	2	-	4	240	100
	3	-	2	100	100
	4	-	2	100	100
Cod IV	1	-	7	285	185
	2	-	4	206	150
	3	-	2	70	70
	4	-	3	160	90
Whiting IV	1	-	11	618	230
	2	-	5	194	130
	3	-	4	230	175
	4	-	7	431	100
Haddock IV	1	-	1	55	55
	2	-	-	-	-
	3	-	-	-	-
	4	-	-	-	-

CANADA

(R. Wells)

Canada had no fisheries and no research activity in the ICES area in 1987. Activities in the Northwest Atlantic in 1987 have been reported to NAFO.

FINLAND

(V. Sjöblom & E. Aro)

No work was carried out on demersal fish other than that reported to the Baltic Fish Committee.

FEDERAL REPUBLIC OF GERMANY

(G. Rauck)

The biological sampling programme of demersal species on board research vessels, commercial trawlers and on fish markets has been continued.

This sampling scheme, including length frequency measurements, otolith samplings, single weights of fish, tagging of fish, stomach sampling, as well as studies on fish density and distribution of demersal fish species were carried out during ground fish surveys.

The monthly bycatch analysis of the shrimp fishery as well as the joint investigations in the Wadden Sea area of Niedersachsen and Schleswig-Holstein (young fish and brown shrimp survey) have been continued in spring and autumn together with vessels from the Netherlands and Belgium.

Investigations on cod discards in the commercial fisheries and cod selectivity studies using mesh sizes of 90 and 100 mm mesh openings were carried out in the German Bight.

The cod sampling scheme off Greenland has been continued aiming at a stock separation by means of different otolith structures.

A North Sea groundfish survey with special emphasis on the gadoid and pelagic species covering the area IVa and b has been repeated.

Research vessel cruises related to the national sampling scheme of the demersal species were as follows:

R. V. "Walther Herwig"

Months	ICES area	Objectives
January	IVb	Groundfish survey (fish disease)
Febr./March	IVabc	IYFS
March	IVab	Groundfish and pelagic survey
June	IVb	Groundfish survey (fish disease)
June-April	IVabc	Groundfish survey
August-October	XIVb	Groundfish survey
December	IVb	Groundfish survey (fish disease)

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investigatienn		No. Of Fish	
			Measured	Aged			Measured	Aged
Cod		Groundfish surveys						
IIa	I					2		
	II					1	791	409
IIb	II	78 ¹⁾	36467 ¹⁾	932 ¹⁾			358	191
	III	47 ¹⁾	18159 ¹⁾	657 ¹⁾				
IVa	I	51	343	343				
	III	77	592	400				
IVb	I	171	5857	1097	754 ²⁾			
	II	121	2055					
	III	138	6982	1327				
	IV	41	11924	329	975 ²⁾			
IVb	IV	32	4588 ¹⁾			1	568	
		1) sample taken on board commercial trawler						
		2) tagged						
IVb		shrimp bycatch investigation						
	II	20	63					
	III	13	31					
	IV	10	57					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationnn		No. Of Fish	
			Measured	Aged			Measured	Aged
IVc	I	4	1608	398				
VIa	I	29	86					
VIIb, c	I	6	33					
VIIg-k	I	6	4					
VIIe	I	1	5					
XIVb	I				3	1162	605	
	II				4	1534	765	
	I/II	37 ¹⁾	9830 ¹⁾	685 ¹⁾				
		1) samples taken on board freezer trawler						
	III/IV	113	8600	1806	1806 ²⁾			
		2) otolith typing for stock discrimination						

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investigat ionnn		No. Of Fish	
			Measured	Aged			Measured	Aged
Haddock		Groundfish surveys						
IIa	I					1	363	190
	II					1	295	150
IIb	III	3 ¹⁾	621 ¹⁾	120 ¹⁾				
IVa	I	54	13701	1365				
	III	45	12016	169	3	1312	588	
IVb	I	103	5320	637				
	II	72	4409					
	III	52	6291	652				
	IV	7	35 ¹⁾					
VIa	I	37	2433					
VIIb, c	I	6	192					
VIIg-k	I	6	11					
XIVb	III	11	336	336				
1) samples taken on a commercial trawler								

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish				No. Of Fish	
			Measured	Aged	Racial Investigat- ationnn		Measured	Aged
Whiting		Groundfish surveys						
IVa	I	51	6918	679				
	III	45	6775	183				
IVb	I	141	17133	105				
	II	120	11844					
	III	59	9945	573				
IVb	IV	6	626					
	IV	16 ¹⁾	568 ¹⁾					
		Youngfish and brown shrimp surveys						
IVb	II	66	1191					
	III	71	965					
		Groundfish surveys						
Vfa	I	24	2594					
VIIb, c	I	6	305					
VIIg-k	I	9	82					
		1) Samples taken on board commercial trawler						
IVc	I	2	361					
		Shrimp bycatch investigation						
IVb	II	53	664					
	III	78	589					
	IV	36	52					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investigat- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Blue Ling								
Via	I					1	247	133
Vlb/XII	I					1	1819	198
Vb	I					1	255	135
	IV					4	1162	606
XIV	III	1	141	141		5	1300	685
Saithe								
Ila	I					3	1296	650
	II					4	19426	740
	IV					4	1801	935
IVa	I	1	662	255		5	5343	976
	II					9	3851	1929
	III	1	42	42		6	2894	1368
	IV					7	2921	1643
VIa	I	1	752	211		6	5354	1160
	II					1	408	213
VII	I	1	181					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish				No. Of Fish	
			Measured	Aged	Racial Investigat- ationn		Measured	Aged
Plaice		Groundfish surveys						
IVb	I	122	10606			2	4229	511
	II	134	6892					
	III	70	6232					
	IV	6	491					
IVc	I	1	85			2	1346	342
IVb		Youngfish and brown shrimp surveys						
	II	101	7715					
	III	129	8348					
IVb		Shrimp bycatch investigation						
	II	136	12406					
	III	158	12291					
	IV	65	3570					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investigationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Sole		Groundfish surveys				4	1459	1402
IVb	II	74	1684	898				
	IV	19 ¹⁾	719 ¹⁾					
IVb		Youngfish and brown shrimp surveys						
	II	84	628					
	III	99	2587					
IVb		Shrimp bycatch investigation						
	II	94	1567					
	III	122	1482					
	IV	55	556					
1) Samples taken on board commercial trawler								

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish				No. Of Fish	
			Measured	Aged	Racial Investigat- ationn		Measured	Aged
Dab		Groundfish surveys						
IVb	I	71	14922					
	II	122	19331					
	III	70	4315					
	IV	5	406					
	IV	20 ¹⁾	853 ¹⁾					
		Youngfish and brown shrimp surveys						
IVb	II	97	2752					
	III	114	2900					
		Shrimp bycatch investigation						
IVb	II	96	1189					
	III	79	1634					
	IV	65	8641					
1) Samples taken on board commercial trawler								

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationnn		No. Of Fish	
			Measured	Aged			Measured	Aged
Flounder		Groundfish surveys						
IVb	I	3	136					
	IV	6 ¹⁾	20 ¹⁾					
		Youngfish and brown shrimp survey						
IVb	II	84	458					
	III	12	13					
		Shrimp bycatch investigation						
	II	119	1170					
	III	94	497					
	IV	49	463					
Greenland Halibut								
XIVb	II					5	423	
	IV	18	249	249				
		1) Samples taken on board commercial trawler						

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples		
		No. of Samples	No. of Fish		No. Of Fish		Aged		
			Measured	Aged				Racial Investig- ationnn	
S.marinus XIV	II	98	26054	1126		3	1132		
	III					1	574		
S.mentella XIV	II	55	10303	1048		4	2840		
	III					2	1172		
Vb	I					3	1434		372
	II					1	378		
	IV	4	2632	722					
IIa	I	1	584	181					
S.marinus IIa	I					5	2370	380	
	II					2	985		
	IV					2	1061	359	
Macrourus berglax XIV	III	29	906	443					

R. V. "Solea"

Months	ICES area	Objectives
January	IVbc	Groundfish survey
Febr./March	IVbc	Groundfish survey
May	IVb	Groundfish survey
June	IVb	Sole beamtrawl survey
August	IVb	Groundfish survey
November	IVbc	Groundfish survey

ICELAND

(J. Magnusson)

In general the research work and the biological sampling programme on demersal fish was carried out along the same lines as in previous years and the research thus based both on research vessel data and market sampling.

The greatest part of the research vessels data was collected during the annual groundfish survey which is carried out simultaneously with five commercial stern trawlers of same type covering some 600 stations.

Two research cruises were directed towards deep sea species, in particular blue ling grenadier and silver smelt.

The witch became a subject for aimed fishery and a sampling programme on that fishery was implemented.

Market sampling was carried out from the main office of the Marine Research Institut in Reykjavik and from the five branches of MRI.

Fishery inspectors collected also a considerable amount of data on demersal fish on board commercial fishing vessels and at the market.

The number of sampled demersal fish is shown in the attached tables.

Sampling data 1987

Cod

Area	Season	No of samples		No of fish		
		Research Vessels	Market Samples	Measured	Aged	Tagged
Va	Jan-Mar	1046		143268	3944	-
-	-		65	9040	1876	-
-	Apr-Jun	225		44492	1100	-
-	-		48	6075	2002	-
-	Jul-Sep	368		66819	1607	-
-	-		13	1875	500	-
-	Oct-Dec	173		35728	946	-
-	-		66	12348	1003	-
Total		1812	192	319645	12978	-

Haddock

Area	Season	No of samples		No of fish		
		Research Vessels	Market Samples	Measured	Aged	Tagged
Va	Jan-Mar	633		98271	2162	-
-	-		19	1628	898	-
-	Apr-Jun	66		7800	598	-
-	-		9	962	363	-
-	Jun-Sep	24		5172	-	-
-	-		7	1700	100	-
-	Oct-Dec	27		5169	386	-
-	-		15	1964	401	-
Total		750	50	122666	4908	-

Saithe

Area	Season	No of samples		No of fish		
		Research Vessels	Market Samples	Measured	Aged	Tagged
Va	Jan-Mar	339		5547	1325	-
-	-		19	2323	700	-
-	Apr-Jun	38		4767	300	-
-	-		13	913	633	-
-	Jul-Sep	17		2578	404	-
-	-		10	825	400	-
-	Oct-Dec	4		846	-	-
-	-		1	116	100	-
Total		398	43	17915	3862	-

Redfish

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
S. marinus					
Va	Jan-Mar	566		71519	
	-		7	1879	578
	Apr-Jun	59		4062	
	-		4	1326	600
	Jul-Sep	2		443	
	-		5	1561	165
	Oct-Dec	1		104	
	-		10	2336	147
Total		628	26	83230	1490

S. mentella

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
Va			3	664	
	Jan-Mar	84		4862	
	-		2	333	170
	Apr-Jun	54		4831	
	-		2	587	
	Jul-Sep	4		836	
	Oct-Dec		3	651	
Total		142	10	12764	170

S. viviparus

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
Va	Jan-Mar	204		8433	
	Apr-Jun	55		4429	
Total		259		12862	

Ling

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
Va			4	260	
	Jan-Mar	116		372	291
	Apr-Jun	16		65	65
	Oct-Dec		1	32	
Total		132	5	729	356

Blueling

Va			5	943	210
	Jan-Mar	80		813	482
			2	484	
	Apr-Jun	46		626	626
	Oct-Dec		1	210	
Total		126	8	3076	1318

Whiting

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
Va	Jan-Mar	101		1895	
	Apr-Jun	3		390	105
Total		104		2285	105

Rough head

Va	Jan-Mar	26		167	115
	Apr-Jun	4		7	6
Total		30		174	121

Roundnose

Va	Jan-Mar	34		4453	514
	Apr-Jun	10		486	140
Total		44		4939	654

Brosme

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
Va			5	346	
	Jan-Mar				
	-	319	1	1674 101	786
	Apr-Jun	43		146	146
	-				
	Jul-Sep	45		134	134
	-				
	Oct-Dec		3	484	100
	-				
Total		407	9	2885	1166

Silver smelt

Va	Jan-Mar	84		4237	633
	-				
	Apr-Jun	54		3025	1687
	-				
	Jul-Sep	26		215	215
	-				
Total		164		7477	2535

Catfish

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
	Jan-Mar	512	-	17473	1589
	-		2	435	100
	Apr-Jun	-	-	-	-
	-		6	1236	500
	Jul-Sep	-	-	-	-
	-		2	351	100
	Oct-Dec	-	-	-	-
Total		512	10	19495	2289

Halibut

	Jan-Mar	217	-	1322	290
	-				
	Apr-Jun				
	-				
	Jul-Sep				
	-				
	Oct-Dec				
Total		217	-	1322	290

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
Va+XIV	Jan-Mar	14	4	1345	
Va+XIV	Apr-Jun	6	13	4229	1187
Va+XIV	Jul-Sep	90	1	1945	96
Va+XIV	Oct-Dec		6	1096	104
Total		110	24	8615	1387

Witch

Area	Season	No of samples		No of fish	
		Research Vessels	Market Samples	Measured	Aged
	Jan-Mar	203	-	1753	515
	-	-	5	1155	100
	Apr-Jun				
	-				
	Jul-Sep				
	-				
	Oct-Dec				
	-		2	649	200
Total		203	7	3557	815

Starry ray Raja radiata

	Jan-Mar	523		8108	
	-				
	Apr-Jun				
	-				
	Jul-Sep				
	-				
	Oct-Dec				
	-				
Total		523	-	8108	-

NETHERLANDS

(F.A. van Beek)

In 1987 the market sampling of landings of the Dutch fleet in The Netherlands was continued for the following species: brill (*Scophthalmus rhombus*), cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), plaice (*Pleuronectes platessa*), sole (*Solea solea*), turbot (*Scophthalmus maximus*) and whiting (*Merlangius merlangus*). For roundfish the market sampling was stratified on an area basis. For the other species samples were stratified by harbour. All samples were also stratified by market category. The tables below indicate the level of sampling.

In addition samples of flounder (*Platichthys flesus*) and dab (*Limanda limanda*) were obtained for otolith studies.

In the period January-March R.V. "Tridens" (4 weeks), R.V. "Isis" (5 weeks) and a charter vessel (2 weeks) carried out egg-surveys on cod and plaice in the North Sea. These surveys will be continued in 1988. The aim of these surveys is to estimate the egg production and stock of these species in this area.

In February R.V. "Tridens" (4 weeks) and R.V. "Isis" (3 weeks) participated in the International Young Fish Survey (IYFS). These surveys, carried out since 1965, estimate the relative abundance of 1 and 2 year old herring and roundfish.

In May the distribution of 0-group cod was investigated in the southern North Sea with R.V. "Tridens" (2 weeks). The larvae were probably too small by then for the gear used (GOV trawl with small meshed cod-end) and only a few specimens were collected.

In summer three coastal surveys directed on juvenile brown shrimps (*Crangon crangon*) and 0-group sole were carried out with R.V. "Isis" (3 weeks) in order to investigate the settlement of these species in the beach zone.

In August a survey was carried out on R.V. "Tridens" (3 weeks) and R.V. "Isis" (2 weeks) in the southern and central North Sea with the standard GOV trawl in the framework of the ICES multispecies program.

In August a beam trawl survey was carried out by R.V. Isis (4 weeks) in the southern North Sea in collaboration with Belgium in order to investigate the abundance and distribution of adult plaice and sole in these areas. A similar survey on a reduced station grid was carried out by R.V. "Tridens" in April in combination with the DYFS survey.

In September-October R.V. "Tridens" (3 weeks), R.V. "Isis" (4 weeks), R.V. "Stern" (4 weeks) and R.V. "Schollebaar" (2 weeks) participated in the Demersal Young Fish Surveys (DYFS). These surveys estimate relative abundance of brown shrip and juvenile plaice and sole in the continental nursery areas. The surveys are carried out since 1969 in collaboration with Belgium and the Federal Republic of Germany. In April a DYFS survey was carried out on a reduced station grid by R.V. "Tridens" (4 weeks) and R.V. "Schollebaar" (2 weeks).

On board of R.V. "Isis" 2042 young soles (range 15-24 cm) were tagged in the German Bight near Heligoland with the Peterson mini tag in October (2 weeks). In the

same period also 700 young plaice were tagged north of Terschelling. Also for plaice the Peterson mini tag was used. Besides they were injected with tetra-cycline.

In October-November R.V. "Tridens" (3 weeks) and R.V. "Isis" (3 weeks) carried out a survey in the southern North Sea with the GOV trawl directed to roundfish. This survey is held since 1980 (Dutch Groundfish Survey).

SAMPLING DATA FOR : **COD**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
1 Northern North Sea	1st quarter	162	40	133
	2nd quarter	122	-	-
	3rd quarter	-	-	-
	4th quarter	-	-	-
2 Central North Sea	1st quarter	-	-	85
	2nd quarter	-	-	-
	3th quarter	-	-	170
	4th quarter	-	-	-
3 North Western North Sea	1st quarter	-	-	32
	2nd quarter	-	-	-
	3th quarter	-	-	147
	4th quarter	-	-	-
4 Western North Sea	1st quarter	470	200	-
	2nd quarter	-	-	-
	3th quarter	-	-	222
	4th quarter	85	-	-
5 South Western North Sea	1st quarter	-	-	42
	2nd quarter	164	50	-
	3rd quarter	478	-	17
	4th quarter	87	-	8
6 Southern North Sea	1st quarter	3650	195	237
	2nd quarter	1548	150	-
	3rd quarter	1305	346	202
	4th quarter	160	50	827
7 Eastern North Sea	1st quarter	-	-	-
	2nd quarter	-	-	-
	3th quarter	-	-	281
	4th quarter	-	-	34
Total Annually		8231	1031	2437

SAMPLING DATA FOR : **HADDOCK**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
1 Northern North Sea	1st quarter	175	-	230
	2nd quarter	170	30	-
	3rd quarter	-	-	-
	4th quarter	-	-	-
2 Central North Sea	1st quarter	-	-	120
	2nd quarter	53	-	-
	3th quarter	37	-	243
	4th quarter	-	-	-
3 North Western North Sea	1st quarter	-	-	205
	2nd quarter	-	-	-
	3th quarter	-	-	200
	4th quarter	-	-	-
4 Western North Sea	1st quarter	129	50	-
	2nd quarter	62	-	-
	3th quarter	157	50	175
	4th quarter	-	-	-
5 South Western North Sea	1st quarter	-	-	-
	2nd quarter	-	50	-
	3rd quarter	-	-	-
	4th quarter	-	-	-
6 Southern North Sea	1st quarter	173	50	-
	2nd quarter	431	30	-
	3rd quarter	722	150	95
	4th quarter	199	-	58
7 Eastern North Sea	1st quarter	-	-	-
	2nd quarter	-	-	-
	3th quarter	-	-	212
	4th quarter	-	-	-
Total Annually		2308	410	1538

SAMPLING DATA FOR : WHITING

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
1 Northern North Sea	1st quarter	62	-	152
	2nd quarter	105	-	-
	3rd quarter	-	-	-
	4th quarter	-	-	-
2 Central North Sea	1st quarter	-	-	95
	2nd quarter	-	-	-
	3th quarter	-	-	146
	4th quarter	-	-	-
3 North Western North Sea	1st quarter	-	-	149
	2nd quarter	-	-	-
	3th quarter	-	-	104
	4th quarter	-	-	-
4 Western North Sea	1st quarter	41	-	-
	2nd quarter	261	50	-
	3th quarter	143	-	156
	4th quarter	126	50	-
5 South Western North Sea	1st quarter	116	50	96
	2nd quarter	171	50	-
	3rd quarter	297	-	41
	4th quarter	140	-	93
6 Southern North Sea	1st quarter	3626	250	130
	2nd quarter	1954	200	-
	3rd quarter	1758	150	231
	4th quarter	694	-	825
7 Eastern North Sea	1st quarter	-	-	-
	2nd quarter	-	-	-
	3th quarter	-	-	142
	4th quarter	-	-	94
Total Annually		9494	800	2454

SAMPLING DATA FOR : **PLAICE**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
North Sea	1st quarter	-	2720	-
	2nd quarter	-	1360	1242
	3rd quarter	-	1360	1239
	4th quarter	-	720	1402
Wadden Sea estuarium	1st quarter	-	-	-
	2nd quarter	-	-	226
	3th quarter	-	-	146
	4th quarter	-	-	-
Zeeland estuarium	1st quarter	-	-	-
	2nd quarter	-	-	176
	3th quarter	-	-	-
	4th quarter	-	-	200
Total Annually		-	6160	4631

SAMPLING DATA FOR : **BRILL**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
North Sea	1st quarter	932	102	-
	2nd quarter	732	107	5
	3rd quarter	641	89	58
	4th quarter	232	83	11
Zeeland estuarium	1st quarter	-	-	-
	2nd quarter	-	-	1
	3th quarter	-	-	-
	4th quarter	-	-	-
Total Annually		2537	381	75

SAMPLING DATA FOR : **SOLE**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
North Sea	1st quarter	-	990	-
	2nd quarter	-	1637	518
	3rd quarter	-	870	406
	4th quarter	-	691	270
Wadden Sea estuarium	1st quarter	-	-	-
	2nd quarter	-	-	63
	3th quarter	-	-	12
	4th quarter	-	-	-
Zeeland estuarium	1st quarter	-	-	-
	2nd quarter	-	-	42
	3th quarter	-	-	-
	4th quarter	-	-	39
Total Annually		-	4188	1350

SAMPLING DATA FOR : **TURBOT**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
North Sea	1st quarter	1342	102	4
	2nd quarter	1317	112	22
	3rd quarter	1208	109	90
	4th quarter	515	100	32
Zeeland estuarium	1st quarter	-	-	-
	2nd quarter	-	-	1
	3th quarter	-	-	-
	4th quarter	-	-	-
Total Annually		4382	423	149

SAMPLING DATA FOR : **DAB**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
North Sea	1st quarter	-	-	-
	2nd quarter	-	-	768
	3rd quarter	-	+/- 500	544
	4th quarter	-	-	898
Wadden Sea estuary	1st quarter	-	-	-
	2nd quarter	-	-	-
	3th quarter	-	-	69
	4th quarter	-	-	59
Zeeland estuary	1st quarter	-	-	-
	2nd quarter	-	-	69
	3th quarter	-	-	-
	4th quarter	-	-	50
Total Annually		-	-	2457

SAMPLING DATA FOR : **FLOUNDER**

1987

NETHERLANDS

AREA	PERIOD	NUMBERS OF FISH SAMPLED		
		MARKET		Res. Vessel
		measured	aged	aged
North Sea	1st quarter	-	-	-
	2nd quarter	-	-	-
	3rd quarter	-	+/- 500	-
	4th quarter	-	-	-

NORWAY

(T. Jakobsen)

Sub-areas I and II

The research activities at sea were slightly reduced compared to 1986 because of reduced funds for hiring commercial vessels. The research vessels, however, carried out the same programme as in 1986. The distribution and abundance of young cod and haddock and of redfishes in the Barents Sea were investigated during a combined acoustic and stratified bottom trawl survey in January - March. The distribution and abundance of spawning cod was investigated during an acoustic survey of the Lofoten area in March. Combined with shrimp investigations, the distribution of young cod and haddock was studied in the central Barents Sea in April - May and in the Svalbard area in July - August. The distribution and abundance of cod, haddock, redfishes, catfishes, and Greenland halibut were investigated in the Svalbard area in September - October. Part of this survey was included in a multi-species acoustic survey carried out during the same period, when the distribution and abundance of cod, haddock and redfishes were investigated also in the Barents Sea.

Investigations on distribution and drift of cod eggs were carried out in February and investigations on cod larvae and post-larvae were carried out in April - July. In August - September the annual international O-group survey, aimed primarily at cod, was carried out in the Barents Sea and adjacent waters.

Investigations on distribution and drift of haddock eggs were carried out in April-May, and the distribution of O-group haddock was charted in August - September during the international O-group survey.

Investigations on distribution and drift of saithe eggs were carried out in February - March. An O-group (post-larvae) survey for saithe in the area from Stad (62°N) to north of Lofoten (69°N) was carried out in May, and an acoustic survey for saithe on the coastal banks from North Cape to 62°N was carried out in October-November.

The distribution of silver smelt was studied on the coastal banks during a survey in March - April.

The sampling programme for commercial catches of cod, haddock, and saithe was continued. Samples of redfish and Greenland halibut were also taken.

Sub-area IV

The distribution and abundance of I- and II-group gadoids were studied in February as part of the International Young Fish Survey. In April an investigation on post-larvae of saithe was undertaken in Norwegian waters, while the distribution and abundance of O-group of other gadoids were studied in July in the northern North Sea. In February and July, the distribution and abundance of saithe were investigated during acoustic surveys in the northern North Sea. The distribution and abundance of sandeel in the Norwegian economic zone were investigated during an acoustic survey in May. The sampling of commercial catches of sandeel, Norway pout, and saithe was continued.

COD

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	35	1072	202	17466	8	1008	82	3883
	2	8	348	227	24741	16	1893	110	8879
	3	6	379	217	20836	9	990	22	1958
	4	15	833	68	8254	5	570	60	4755
IIA	1	46	2067	125	15382	38	7638	276	14480
	2	4	172	89	18442	27	3821	200	16481
	3	-	-	119	3264	9	1000	56	2838
	4	1	61	65	2619	9	1596	79	4042
IIB	1	1	26	4	536	-	-	4	236
	2	3	93	54	8016	4	503	39	5288
	3	42	2339	288	25290	4	435	120	13793
	4	26	1149	79	5315	5	617	91	14669
IVA	1	40	570	52	580	-	-	-	-
	2	-	-	2	5	-	-	-	-
	3	-	-	24	162	-	-	-	-
	4	-	-	40	200	-	-	-	-
IVB	1	12	168	9	90	-	-	-	-
	4	-	-	2	58	-	-	-	-

HADDOCK

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	24	558	156	17976	5	293	81	4270
	2	-	-	183	18503	14	827	115	12126
	3	-	-	150	20806	16	1328	26	2682
	4	10	524	47	3178	10	776	42	1250
IIA	1	21	635	96	8969	16	1603	228	21615
	2	1	70	62	4230	16	1183	147	9158
	3	1	52	90	2589	2	155	25	176
	4	2	85	48	1268	11	962	30	1104
IIB	1	-	-	2	126	-	-	-	-
	2	-	-	3	20	-	-	11	480
	3	1	71	46	298	-	-	12	32
	4	-	-	9	20	-	-	5	9
IVA	1	22	1014	71	7132	-	-	-	-
	3	-	-	47	1846	-	-	-	-
	4	-	-	20	249	-	-	-	-
IVB	1	8	498	12	1338	-	-	-	-
	3	-	-	3	10	-	-	-	-
	4	-	-	4	94	-	-	-	-

SAITHE

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	1	60	38	706	1	123	1	1
	2	-	-	22	2477	1	16	7	83
	3	-	-	22	2957	5	349	7	1723
	4	1	18	3	20	2	291	1	246
IIA	1	1	17	51	693	6	520	10	2394
	2	-	-	113	4692	7	799	6	442
	3	-	-	38	3172	6	3591	1	646
	4	12	444	33	2757	8	1223	2	318
IIB	1	-	-	1	10	-	-	-	-
	3	-	-	7	17	-	-	1	295
IVA	1	21	1459	42	1916	3	208	-	-
	2	-	-	23	729	4	243	-	-
	3	29	1525	18	723	1	68	-	-
	4	-	-	43	512	5	234	-	-
IVB	1	-	194	1	194	-	-	-	-
	4	-	-	4	84	-	-	-	-

Tagged: Sub-area I, 3rd quarter: 600

GREENLAND HALIBUT

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	-	-	55	200	-	-	-	-
	2	-	-	36	240	-	-	2	322
	3	-	-	47	154	-	-	-	-
	4	-	-	8	34	-	-	-	-
IIA	1	-	-	20	124	-	-	-	-
	2	-	-	8	141	-	-	-	-
	3	-	-	32	1522	-	-	-	-
	4	-	-	9	113	-	-	-	-
IIB	1	-	-	4	127	-	-	-	-
	2	-	-	20	492	-	-	-	-
	3	-	-	172	5266	-	-	-	-
	4	-	-	38	638	-	-	10	581

TUSK

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
IIA	1	-	-	10	12	-	-	-	-
	2	-	-	1	1	-	-	2	52
	3	-	-	5	11	-	-	-	-
	4	-	-	9	12	-	-	-	-
IIB	4	-	-	1	2	-	-	-	-
IVA	1	-	-	11	16	-	-	-	-
	3	-	-	4	8	-	-	-	-
	4	-	-	11	13	-	-	-	-
IVB	4	-	-	1	1	-	-	-	-

WHITING

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
IVA	1	18	774	56	3055	-	-	-	-
	2	-	-	4	26	-	-	-	-
	3	-	-	54	1245	-	-	-	-
	4	-	-	28	650	-	-	-	-
IVB	1	12	342	13	681	-	-	-	-
	3	-	-	2	8	-	-	-	-

NORWAY POUT

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	-	-	52	629	-	-	-	-
	2	-	-	4	32	-	-	-	-
	4	-	-	2	80	-	-	-	-
IIA	1	-	-	41	1117	-	-	-	-
	2	-	-	3	13	-	-	-	-
	3	-	-	9	458	-	-	-	-
	4	-	-	22	1210	-	-	-	-
IIB	3	-	-	1	1	-	-	-	-
	4	-	-	3	6	-	-	-	-
IVA	1	12	200	55	5451	4	399	2	200
	2	-	-	10	274	3	301	-	-
	3	-	-	30	1603	4	345	3	237
	4	-	-	52	3580	-	-	2	173
IVB	1	4	102	10	608	-	-	-	-
	4	-	-	2	127	-	-	-	-

BLUE WHITING

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	-	-	52	984	-	-	-	-
	2	-	-	10	173	-	-	-	-
	4	-	-	2	13	-	-	-	-
IIA	1	-	-	45	611	-	-	-	-
	2	-	-	13	527	-	-	-	-
	3	-	-	23	652	-	-	-	-
	4	-	-	23	298	-	-	-	-
IIB	1	-	-	1	13	-	-	-	-
	3	-	-	8	45	-	-	-	-
	4	-	-	4	34	-	-	-	-
IVA	1	-	-	5	80	-	-	-	-
	2	-	-	2	19	-	-	-	-
	3	-	-	9	500	-	-	-	-
	4	-	-	33	2707	-	-	-	-
IVB	4	-	-	1	19	-	-	-	-

LONG ROUGH DAB

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	-	-	160	5413	-	-	-	-
	2	-	-	33	1117	-	-	-	-
	3	-	-	163	5435	-	-	-	-
	4	-	-	40	1600	-	-	-	-
IIA	1	-	-	63	2437	-	-	-	-
	2	-	-	14	637	-	-	-	-
	3	-	-	61	2306	-	-	-	-
	4	-	-	34	1164	-	-	-	-
IIB	1	-	-	5	244	-	-	-	-
	2	-	-	20	607	-	-	-	-
	3	-	-	245	20595	-	-	-	-
	4	-	-	58	2831	-	-	-	-
IVA	1	-	-	44	1265	-	-	-	-
	3	-	-	15	420	-	-	-	-
	4	-	-	35	440	-	-	-	-
IVB	1	-	-	9	82	-	-	-	-
	4	-	-	2	32	-	-	-	-

LING

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
IIA	1	-	-	3	3	-	-	-	-
	3	-	-	1	2	-	-	-	-
	4	-	-	4	10	-	-	-	-
IIB	1	-	-	1	1	-	-	-	-
IVA	1	-	-	13	32	-	-	-	-
	2	-	-	1	2	-	-	-	-
	3	-	-	6	19	-	-	-	-
	4	-	-	15	33	-	-	-	-

SILVER SMELT

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
IIA	1	-	-	19	333	-	-	-	-
	2	-	-	10	44	-	-	-	-
	3	-	-	13	412	-	-	-	-
	4	-	-	19	369	-	-	-	-
IIB	1	-	-	1	2	-	-	-	-
	4	-	-	1	1	-	-	-	-
IVA	1	-	-	8	63	-	-	-	-
	2	-	-	2	4	-	-	-	-
	3	-	-	15	428	-	-	-	-
	4	-	-	38	403	-	-	-	-
IVB	4	-	-	1	1	-	-	-	-

SANDEEL

[illegible]

REDFISH

AREA	SEASON	RESEARCH VESSEL				MARKET			
		Aged		Measured		Aged		Measured	
		No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish	No. of samples	No. of fish
I	1	-	-	172	5455	-	-	-	-
	2	-	-	41	2720	-	-	-	-
	3	-	-	32	681	-	-	-	-
	4	-	-	14	411	-	-	-	-
IIA	1	-	-	124	5852	-	-	2	186
	2	-	-	50	1242	-	-	2	36
	3	-	-	34	2779	-	-	-	-
	4	-	-	39	2172	-	-	-	67
IIB	1	-	-	7	629	-	-	-	-
	2	-	-	17	569	-	-	-	-
	3	-	-	135	6212	-	-	-	-
	4	-	-	67	3199	-	-	-	-
IVA	1	-	-	7	18	-	-	-	-
	3	-	-	2	21	-	-	-	-

PORTUGAL

(Fátima Cardador)

During 1987 the National Institute of Fisheries Research (INIP) has continued with the National Sampling Programme at the main fishing ports concerning length frequency distribution of the landings for the most important species.

The Portuguese Institute (INIP) had also conducted some groundfish surveys mainly to estimate distribution and indices of abundance and recruitment of the most commercial species.

The following tables present the sampling data collected for hake (Merluccius merluccius), black-scabbard (Aphanopus carbo), some species of seabreams (Boops boops, Pagellus acarne and Spondyliosoma cantharus) and monkfish (Lophius budegassa and L. piscatorius)

SAMPLING DATA FOR Merluccius merluccius

AREA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
	1 st	41	198	30 694
	2 nd	9	206	19 675
IXa	3 rd	37	191	14 144
	4 th	89	123	18 399
	year	176	718	82 912

SAMPLING DATA FOR Aphanopus carbo

AREA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
	1 st			
	2 nd			
IXa	3 rd	9		107
	4 th			
	year	9		107

SAMPLING DATA FOR Boops boops

AREA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
	1 st		58	3 760
	2 nd		47	3 079
IXa	3 rd		47	2 863
	4 th	12	44	2 943
	year	12	196	12 645

SAMPLING DATA FOR Pagellus acarne

AREA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
	1 st		56	3 021
	2 nd		59	3 780
IXa	3 rd		46	3 038
	4 th	12	45	3 683
	year	12	206	13 522

SAMPLING DATA FOR Spondyllosoma cantharus

AREA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
	1 st		20	394
	2 nd		24	297
IXa	3 rd		18	241
	4 th	5	20	295
	year	5	82	1 227

SAMPLING DATA FOR Lophius budegassa

AREA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
	1 st	25		150
	2 nd			
IXa	3 rd	17		53
	4 th	11		67
	year	53		270

SAMPLING DATA FOR Lophius piscatorius

AREA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
	1 st	3		3
	2 nd			
IXa	3 rd	3		3
	4 th	12		26
	year	18		32

SPECIES: trachurus trachurus (L.)

SAMPLING

Area	Season	Type of fish	Nr. of samples		Nr. of fish Measured	Nr. of fish aged (Otoliths)
			R/V	Market		
IXa	1st quarter	All	22	257	28 839	605
	2nd "			277	29 778	342
	3rd "			214	17 262	212
	4th "		37	106	17 262	1 325
	TOTAL		59	854	93 141	2 484

RESEARCH VESSEL SURVEYS

Area	Data	Objective
Div IXa (partial)	24-2-87 a 2-3-87	Collection of fecundity data and prospection on spawning grounds
Div IXa	3-24 Oct	Estimation of abundance and biomass indices by stratified bottom trawl survey
Div IXa (south)	30-11-6-12 Dez	Collection of further biological data

Scomber scombrus (L.)

1987

SAMPLING

Area	Season	Type of fish	Nr. of samples		Nr. of fish measured	Nr. of fish aged (otoliths)	Nr. of fish examined racially
			research vessel	market			
IX a	1st quarter	all	-	149	10 527	70	-
	2nd quarter		-	180	12 606	187	-
	3rd quarter		-	161	11 545	168	-
	4th quarter		-	98	7 124	123	-
	TOTAL		-	588	41 802	548	-

Scomber japonicus (Houttuyn)

1987

SAMPLING

Area	Season	Type of fish	Nr. of samples		Nr. of fish measured	Nr. of fish aged (otoliths)	Nr. of fish examined racially
			research vessel	market			
IX a	1st quarter	all	-	35	1 593	136	-
	2nd quarter		-	53	2 989	226	-
	3rd quarter		-	33	2 291	169	-
	4th quarter		5	28	1 884	43	-
	TOTAL		5	149	8 757	574	-

Sampling on blue whiting Micromesistius poutassou (Risso)

1987

Region	Quarter	Type of fishes	N. Samples		N. fishes measured		N. fishes aged	N. fishes examined racially
			vessel	harbour	vessel	harbour		
IX a	1 st	All	-	82	-	6786		
	2 nd		-	88	-	7324		
	3 rd		-	50	-	4172		
	4 th		55	29	3411	2581		
	TOTAL		55	248	3411	20805		

LEPIDORHOMBUS WIFF IAGONIS 1987

AREA	SEASON	No. OF SAMPLES		No. OF FISH MEASURED
		RESEARCH VESSELS	MARKET SAMPLES	
VI	1	--	0	---
	2	--	0	---
	3	--	1	36
	4	--	0	---
VII	1	--	15	3049
	2	--	17	3176
	3	--	16	2716
	4	--	14	2545
VIIIab	1	--	7	504
	2	--	16	890
	3	--	15	673
	4	--	22	1586
VIIIc	1	39	12	654
	2	44	8	3723
	3	--	6	72
	4	--	7	188
IXa	1	19	5	27
	2	--	2	--
	3	--	4	--
	4	--	4	--

(F.J. Peretiro)

SPAIN

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LEPIDORHOMBUS BOSCHII 1987

AREA	SEASON	No. OF SAMPLES		No. OF FISH MEASURED
		RESEARCH VESSELS	MARKET SAMPLES	
VI	--	--	--	--
VII	1	--	13	293
	2	--	15	484
	3	--	14	615
	4	--	12	498
VIIIab	1	--	7	19
	2	--	12	23
	3	--	5	14
	4	--	16	406
VIIIc	1	39	12	2661
	2	40	8	3040
	3	--	6	321
	4	--	7	319
IXa	1	19	5	1733
	2	--	6	515
	3	--	6	524
	4	--	4	319

LOPHIUS PISCATORIUS 1987

AREA	SEASON	No. OF SAMPLES		No. OF FISH MEASURED
		RESEARCH VESSELS	MARKET SAMPLES	
VI	1	--	--	--
	2	--	--	--
	3	--	--	--
	4	--	--	--
VII	1	--	11	1212
	2	--	11	992
	3	--	15	1253
	4	--	15	1354
VIIIab	1	--	7	564
	2	--	11	498
	3	--	8	279
	4	--	26	1288
VIIIc	1	39	11	259
	2	31	7	196
	3	--	8	66
	4	--	8	77
IXa	1	19	--	19
	2	--	--	--
	3	--	--	--
	4	--	--	--

LOPHIUS BUDEGASSA 1987

AREA	SEASON	No. OF SAMPLES		No. OF FISH MEASURED
		RESEARCH VESSELS	MARKET SAMPLES	
VI	--	--	--	--
VII	1	--	10	486
	2	--	11	414
	3	--	15	518
	4	--	15	509
VIIIab	1	--	7	464
	2	--	3	381
	3	--	10	288
	4	--	26	1605
VIIIc	1	39	11	512
	2	42	7	530
	3	--	8	183
	4	--	9	212
IXa	1	19	--	53
	2	--	--	--
	3	--	--	--
	4	--	--	--

Merluccius merluccius 1987

AREA	SEASON	No. OF SAMPLES		No. OF FISH MEASURED
		RESEARCH VESSELS	MARKET SAMPLES	
VI	1	--	1	116
	2	--	2	274
	3	--	2	303
	4	--	--	--
VII	1	--	16	3503
	2	--	18	3829
	3	--	16	3877
	4	--	16	3366
VIIIab	1	--	16	2587
	2	--	15	4314
	3	--	18	3183
	4	--	39	5032
VIIIc	1	39	32	7608
	2	49	27	8689
	3	--	20	1702
	4	--	41	2840
IXa	1	19	22	4199
	2	--	25	2489
	3	--	25	2588
	4	--	17	1652

SWEDEN

(B. Sjöstrand)

Sweden took part in the International Young Herring Survey in the North Sea and Skagerrak. It has no other activities on which to report.

UNITED KINGDOM (England and Wales)

(W. G. Parnell & C. T. Macer)

The market sampling programme was continued in 1987. The number of fish measured and aged from the market samples is shown in the tables.

The following research cruises took place in 1987.

In January a collection of Stage IV female plaice gonads from the Hinder grounds was made on CLIONE for a study of year-by-year fecundity variation. In February CIROLANA participated in the International Young Fish Survey. Studies on the migration of plaice moving to and from their spawning grounds in the eastern Channel in relation to the larvae cycle were carried out on CLIONE in March. In the same month, CIROLANA made a trawl survey of the western English Channel, Celtic Sea and Bay of Biscay as part of a continuing programme of stock monitoring in the area, and a charter vessel carried out a groundfish survey along the Welsh coast.

In April a charter vessel carried out a 2-metre beam trawl survey along the East Anglian coast to estimate the post-winter population of juvenile sole. Charter vessels were used to carry out a pre-recruit bass survey in the Solent and Southampton Water in May, a groundfish survey off the Welsh coast in June, and 2 m beam trawl surveys to sample juvenile fish and identify sole nursery grounds in the Irish Sea between July and October.

CLIONE carried out a trawl survey of plaice and sole in ICES areas VIIId and the western edge of IVc in August while CIROLANA made the 11th English Groundfish survey in the North Sea in August/September.

In September CLIONE carried out a survey for 0- and 1-group gadoids in the northwestern Irish Sea using a granton trawl, and pre-recruit flatfish surveys in the eastern Irish Sea and Bristol Channel using a 3 m beam trawl.

A young demersal fish survey using 2 m beam trawls and push nets was carried out along the English east and south coasts between the Wash and Swanage in September. A double beam trawler was chartered to carry out a survey for sole in the western Channel, and a pre-recruit bass survey was undertaken in the Solent and Southampton Water also in September. In the western English Channel, Celtic Sea and Cardigan Bay in October/November, plaice ovaries were collected and sole samples taken on CIROLANA.

CIROLANA carried out a trawl survey of the western Celtic Sea in November/December. A study of the migration of plaice moving to and from their spawning grounds in the eastern English Channel in relation to maturity stage, day/night and tide took place on CLIONE in December. A charter to estimate the population of 0-group/juvenile bass was carried out in the River Medway also in December.

Sampling data for BASS

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
IVc	Qtr 1	-	-	3
	Qtr 2	13	44	48
	Qtr 3	22	150	289
	Qtr 4	10	33	33
VIIa	Qtr 2	3	13	13
	Qtr 3	3	75	75
VIId	Qtr 2	9	250	336
	Qtr 3	9	79	59
VIIe	Qtr 1	6	448	14
	Qtr 2	15	265	52
	Qtr 3	7	172	58
	Qtr 4	6	167	130
VIIf	Qtr 2	1	3	16
	Qtr 3	9	209	95
VIIh	Qtr 1	1	21	27

Sampling data for COD

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
Ia	Qtr 1	1	162	25
Id	Qtr 2	1	214	17
IIa	Qtr 2	1	228	31
	Qtr 4	1	99	
IIIf	Qtr 1	5	860	103
	Qtr 2	4	583	81
	Qtr 3	2	317	24
IIg	Qtr 2	5	716	98
	Qtr 3	2	444	73
IVa	Qtr 1	6	862	40
	Qtr 2	18	2952	179
	Qtr 3	8	1020	89
	Qtr 4	2	232	152

Sampling data for COD (continued)

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
IVb	Qtr 1	151	23324	1608
	Qtr 2	171	27406	1583
	Qtr 3	122	21259	1426
	Qtr 4	126	20527	1044
IVc	Qtr 1	20	3840	252
	Qtr 2	22	3794	275
	Qtr 3	22	3082	291
	Qtr 4	19	2516	266
VIa	Qtr 1	8	1210	163
	Qtr 2	9	1504	149
	Qtr 3	1	140	58
VIb	Qtr 2	1	166	27
VIIa	Qtr 1	23	2931	497
	Qtr 2	14	2473	434
	Qtr 3	17	2681	335
	Qtr 4	19	2449	339
VIId	Qtr 1	1	120	34
	Qtr 4			13
VIIe	Qtr 3	1	36	2
	Qtr 4			51
VIIf	Qtr 1	6	517	44
	Qtr 2	3	400	26
	Qtr 3			2
	Qtr 4			67
VIIg	Qtr 1	4	482	112
	Qtr 2			54
	Qtr 3			56
VIIh	Qtr 3	1	26	
VIIj	Qtr 2	1	131	49
XIIIa	Qtr 3	11	1748	192
	Qtr 4	1	127	

Sampling data for DOGFISH

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
IVa	Qtr 2	1	75	
	Qtr 3	1	25	
	Qtr 4	1	134	
IVb	Qtr 1	6	96	
	Qtr 2	21	905	
	Qtr 3	25	1634	
	Qtr 4	16	1463	
IVc	Qtr 1	4	206	
	Qtr 2	9	421	
	Qtr 3	10	760	
	Qtr 4	9	724	
VIa	Qtr 1	6	709	
	Qtr 2	6	594	
	Qtr 3	1	140	
VIIa	Qtr 1	7	639	
	Qtr 2	8	832	
	Qtr 3	12	1313	
	Qtr 4	6	551	

Sampling data for HADDOCK

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
Ia	Qtr 3	2	145	30
IIa	Qtr 2	1	65	18
	Qtr 4	1	103	
IIIf	Qtr 1	4	487	46
	Qtr 2	4	512	43
	Qtr 3	1	141	22
IIg	Qtr 2	3	345	10
	Qtr 3	2	378	34
IVa	Qtr 1	6	1159	94
	Qtr 2	9	1164	125
	Qtr 3	6	1112	59
	Qtr 4	1	237	36

Sampling data for HADDOCK (continued)

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
IVb	Qtr 1	61	9692	593
	Qtr 2	66	10390	693
	Qtr 3	55	8029	567
	Qtr 4	63	10046	591
IVc	Qtr 1	1	83	
	Qtr 3	1	87	
	Qtr 4	1	143	
VIa	Qtr 1	9	1686	220
	Qtr 2	13	2187	243
	Qtr 3	1	140	94
	Qtr 4	5	937	147
VIb	Qtr 1	1	164	21
	Qtr 2	8	1521	182
	Qtr 4	1	234	52
XIIIa	Qtr 3	4	429	62

Sampling data for HAKE

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
VIa	Qtr 2	3	804	
	Qtr 3	1	230	
VIIa	Qtr 1	5	1094	
	Qtr 2	4	732	
	Qtr 3	4	1139	
	Qtr 4	2	399	
VIIe	Qtr 1	7	939	19
	Qtr 2	5	680	28
	Qtr 3	7	595	
	Qtr 4	5	550	33
VIIIf	Qtr 1	2	269	
	Qtr 2	2	271	34
	Qtr 4	2	201	33
VIIIg	Qtr 1			36
	Qtr 2	1	142	2
	Qtr 4	7	220	108
VIIh	Qtr 3	2	139	
VIIj	Qtr 2			36
	Qtr 4	1	178	59

Sampling data for LEMON SOLE

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
VIIe	Qtr 1	19	2826	27
	Qtr 2	15	2424	48
	Qtr 3	12	1713	11
	Qtr 4	13	1698	67
VIIf	Qtr 1	1	151	
	Qtr 3	2	305	

Sampling data for LING

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
VIIe	Qtr 1	1	44	55
	Qtr 2			8
	Qtr 4	2	154	59
VIIf	Qtr 1	1	116	
	Qtr 2	1	34	6
VIIg	Qtr 1	1	9	19
	Qtr 2	1	19	82
VIIh	Qtr 1	1	17	17
	Qtr 2	2	116	4
	Qtr 3	1	55	
	Qtr 4	1	80	71
VIIj	Qtr 1	1	12	13
	Qtr 2	1	49	27
VIIa	Qtr 1			2

Sampling data for MEGRIM

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
VIIe	Qtr 1	2	331	
	Qtr 2	1	126	
	Qtr 3	1	140	
	Qtr 4	5	937	
VIIf	Qtr 1	3	459	
	Qtr 2	3	502	
	Qtr 4	1	180	
VIIg	Qtr 1	137		
	Qtr 4		84	
VIIh	Qtr 2	3	692	
	Qtr 3	5	712	
	Qtr 4	1	137	

Sampling data for PLAICE

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
IVa	Qtr 2	4	912	96
	Qtr 3	7	1611	172
	Qtr 4	1	177	50
IVb	Qtr 1	41	8679	821
	Qtr 2	36	9160	855
	Qtr 3	31	6881	796
	Qtr 4	28	6887	622
IVc	Qtr 2	1	249	25
VIIa	Qtr 1	16	3103	376
	Qtr 2	14	2883	308
	Qtr 4	14	2702	383
	Qtr 4	12	2307	
VIId	Qtr 1	1	146	
	Qtr 2	32	3727	472
	Qtr 3	14	1389	123
VIIe	Qtr 1	24	3452	278
	Qtr 2	15	2374	168
	Qtr 3	14	2225	237
	Qtr 4	17	2221	144

Sampling data for PLAICE (continued)

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
VIIIf	Qtr 1	1	182	6
	Qtr 2	1	186	
	Qtr 4	1	163	
VIIIg	Qtr 1	5	733	65
VIIh	Qtr 3	1	72	
	Qtr 4	2	355	

Sampling data for SAITHE

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
Ia	Qtr 3	1	59	20
	Qtr 4	1	20	
IIIf	Qtr 1	1	94	18
	Qtr 2	2	94	36
IVa	Qtr 1	3	444	88
	Qtr 2	4	285	45
	Qtr 3	2	173	27
	Qtr 4	5	454	
IVb	Qtr 3	2	72	
	Qtr 4	2	123	
VIa	Qtr 1	2	257	41
	Qtr 2	6	696	68
	Qtr 3	2	209	12
VIIa	Qtr 1	1	82	

Sampling data for SOLE

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
IVa	Qtr 4	2	346	65
IVb	Qtr 1	19	3170	285
	Qtr 2	10	1133	136
	Qtr 3	10	839	114
	Qtr 4	12	1596	141
IVc	Qtr 1	2	83	12
	Qtr 2	21	3282	202
	Qtr 3	25	2904	302
	Qtr 4	10	1012	26
VIIa	Qtr 1	16	2701	150
	Qtr 2	19	2948	205
	Qtr 3	15	2567	223
	Qtr 4	16	2345	145
VIIId	Qtr 1			49
	Qtr 2	94	8175	676
	Qtr 3	80	6291	557
	Qtr 4	2	358	3
VIIe	Qtr 1	23	4034	76
	Qtr 2	9	1554	56
	Qtr 3	13	2392	189
	Qtr 4	20	3825	112
VIIf	Qtr 1	7	1304	
	Qtr 2	9	1581	77
	Qtr 3			22
	Qtr 4	1	368	16
VIIg	Qtr 1	6	1037	
	Qtr 3			3
	Qtr 4			54
VIIh	Qtr 3	3	434	
	Qtr 4	1	134	

Sampling data for WHITING

Area	Season	Number of market samples	Number of fish	
			Measured (market)	Aged
IVa	Qtr 1	3	310	83
	Qtr 2	2	158	46
	Qtr 4	2	192	
IVb	Qtr 1	47	4139	406
	Qtr 2	50	4201	480
	Qtr 3	41	3905	343
	Qtr 4	52	4528	354
IVc	Qtr 1	7	584	98
	Qtr 2	7	623	83
	Qtr 3	11	973	168
	Qtr 4	10	836	134
Via	Qtr 1	2	138	
VIIa	Qtr 1	26	2762	352
	Qtr 2	17	1891	420
	Qtr 3	19	2045	120
	Qtr 4	19	1979	193
VIIId	Qtr 3			18
VIIe	Qtr 1	18	2999	156
	Qtr 2	13	2329	141
	Qtr 3	14	2329	112
	Qtr 4	16	2188	98
VIIIf	Qtr 1	2	280	50
	Qtr 2			36
	Qtr 3	1	192	51
	Qtr 4	2	46	
VIIIg	Qtr 1	3	414	26
	Qtr 3			14

UNITED KINGDOM

(Scotland)

(R. Jones)

1. Sampling Demersal Fish

Continuous monitoring was maintained on the catches caught by the five main gears (motor trawl, seine net, light trawl, Nephrops trawl and demersal pair trawl) used by Scottish fishermen. Landings were sampled at all the major fishing ports in Scotland and the intensity of sampling is indicated in the text table below.

Species	No of vessels sampled	No of fish measured	No of otoliths collected
Cod	391	60167	14236
Haddock	401	141899	17310
Whiting	355	84172	9543
Saithe	245	14748	7310

Sampling of demersal fish discarded by the Scottish fleet was also carried out on a regular basis in 1987. Samples were obtained during the course of commercial trips from hauls. The intensity of sampling is indicated in the text table below.

Species	No of vessels sampled	No of fish measured	No of otoliths collected
Cod	56	8557	1408
Haddock	56	65064	3273
Whiting	56	44269	3258
Saithe)	56	59869	-
Others)			

2. Research Vessel Activities

In February 1987 "Scotia" participated in the International Young Fish Survey in the North Sea.

In March 1987 "Scotia" carried out a survey of demersal fish and herring stocks off the west coast of Scotland (ICES Sub area VIa).

In August 1987 "Scotia" carried out a survey of demersal fish stocks in the northern and middle North Sea (ICES Sub area IVa and IVb).

In June 1987 "Clupea" carried out a pelagic 0-group survey for gadoid species in the northern North Sea (ICES Sub area IVa).

In August 1987 a commercial vessel, the "Dawn Sky", was chartered to carry out a survey of the haddock stock on Rockall Bank.

3. Tagging of Demersal Fish

During August 1987, 352 saithe were tagged at an inshore site close to Aberdeen.

U.S.A.

(V. Anthony & B. Rothschild)

The U.S.A. had no fisheries and no research activity in the ICES area in 1987. Activities in the Northwest Atlantic in 1987 have been reported to NAFO.

U.S.S.R.

(S. A. Studenetsky)

In 1987, as previously, a total trawl-acoustic survey was carried out to assess abundance and biomass of main commercial fishes, recruitment to cod, haddock, redfish and other fish stocks was evaluated during ichthyoplankton and young fish surveys in the Barents Sea and adjacent waters.

Investigations were continued to determine relationships between distribution of fish, their behaviour and hydrological conditions, food supply. Stock structure of major commercial fishes, their biological characteristics and migration patterns were studied.

Tables 1-8 present information collected during 1987.

Data on cod collected in 1987.

Area	Season	Number		
		Measured	Analysed for feeding	Aged
I	I	21438	2386	641
	II	23492	2284	1292
	III	29607	3039	1105
	IV	77557	10903	6854
IIa	I	17617	1445	900
	II	43586	4610	2600
	III	53806	7566	3429
	IV	3071	579	324
IIa	I	55604	4597	2520
	II	43432	5091	2226
	III	1582	604	258
	IV	1691	953	190
Total		372483	44057	22339

Data on haddock collected in 1987.

Area	Season	Number		
		Measured	Analysed for feeding	Aged
I	I	26001	2127	1751
	II	19146	1621	1003
	III	16276	890	300
	IV	97914	13996	6524
IIa	I	-	-	-
	II	523	98	48
	III	91	129	45
	IV	377	1	1
IIa	I	19526	1098	300
	II	26823	2921	1798
	III	1357	358	229
	IV	2017	768	369
Total		210051	24007	12368

Data on plaice collected in 1987.

Area	Season	Number		
		Measured	Analysed for feeding	Aged
I	I	4662	1271	572
	II	368	200	200
	III	611	125	200
	IV	5408	845	516
IIb	I	-	-	-
	II	-	-	-
	III	-	-	-
	IV	-	-	-
IIa	I	-	-	-
	II	10	9	-
	III	-	-	-
	IV	-	-	-
Total		11059	2450	1488

Data on long rough dab collected in 1987.

Area	Season	Number		
		Measured	Analysed for feeding	Aged
I	I	2711	150	25
	II	315	50	-
	III	392	136	-
	IV	9700	548	25
IIb	I	254	25	-
	II	-	-	-
	III	10536	1651	200
	IV	-	-	-
IIa	I	35	-	-
	II	133	-	-
	III	1279	150	-
	IV	912	240	-
Total		26267	2950	250

Data on catfish collected in 1987.

Area	Season	Number		
		Measured	Analysed for feeding	Aged
I	I	797	27	2
	II	136	48	48
	III	70	9	9
	IV	2019	733	480
IIb	I	470	25	-
	II	38	17	17
	III	2514	785	784
	IV	6	5	-
IIa	I	11	-	-
	II	110	20	20
	III	91	72	72
	IV	165	56	37
Total		6427	1797	1469

Data on redfish collected in 1987.

Area	Season	Number		
		Measured	Analysed for feeding	Aged
I	I	1632	172	300
	II	2186	38	-
	III	6	-	I
	IV	6273	680	680
IIb	I	-	-	-
	II	5051	750	500
	III	5300	837	625
	IV	670	165	100
IIa	I	9157	1163	600
	II	17903	3731	2134
	III	2278	184	159
	IV	5432	997	664
Total		55883	8717	5763

Data on Greenland halibut collected in 1987.

Area	Season	Number		
		Measured	Analysed for : feeding	Aged
I	I	203	-	-
	II	50	-	-
	III	65	45	-
	IV	264	I	I
IIb	I	2532	698	600
	II	858	100	-
	III	5277	1413	928
	IV	746	525	300
IIa	I	1064	125	-
	II	388	78	-
	III	133	26	I
	IV	2546	520	-
Total		14126	3531	1830

Data on saithe collected in 1987.

Area	Season	Number		
		Measured	Analysed for feeding	Aged
I	I	117	-	-
	II	317	25	-
	III	73	-	-
	IV	150	25	-
IIb	I	-	-	-
	II	I	-	-
	III	I	-	-
	IV	-	-	-
IIa	I	87	-	-
	II	1269	258	4
	III	14	-	-
	IV	340	93	-
Total		2369	401	4