

DEMERSAL FISH COMMITTEE

by
vaughn Anthony

1986

BELGIUM

(R. De Clerck)



Recording of densities and growth rates of the 1985 and 1986 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.

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.

<https://doi.org/10.17895/ices.pub.9339>

Year : 1986

Species Area	Season	No of samples		No of samples	
		Research	Market	Measured	Aged
Sole IV	1	-	13	1 782	280
	2	-	8	825	140
	3	1	-	125	66
	4	-	12	1 166	210
VII f,g	1	-	7	707	210
	2	-	5	438	199
	3	-	6	536	210
	4	-	6	582	140
VII a	1	-	1	70	70
	2	-	6	562	210
	3	-	3	259	140
	4	-	3	294	70
VII d,e	1	-	2	234	140
	2	-	5	391	280
	3	1	-	17	13
	4	-	1	70	70
Plaice IV	1	-	12	800	140
	2	-	11	1 040	269
	3	1	9	595	90
	4	-	12	777	150
VII f,g	1	-	2	114	40
	2	-	1	50	50
	3	-	5	282	140
	4	-	6	386	90
VII a	1	-	1	40	40
	2	-	6	331	140
	3	-	3	163	90
	4	-	3	194	50
VII d,e	1	-	1	40	40
	2	-	1	50	50
	3	1	-	15	13
	4	-	1	50	50
Cod IV	1	-	5	266	235
	2	-	6	379	180
	3	-	3	140	140
	4	-	9	875	210
Whiting IV	1	-	6	352	236
	2	-	6	204	150
	3	-	5	180	140
	4	-	12	942	110
Haddock IV	1-4	-	3	288	75

CANADA

(R. Wells)

Canada had no fisheries and no research activity in the ICES area in 1986. Activities in the Northwest Atlantic in 1986 have been reported to NAFO.

DENMARK

(H. GISLASON)

The market sampling programme was continued in 1986. The number of market samples taken from the fishery for human consumption is given in the tables as the number of boxes each containing approximately 35 kg of fish.

The number of market samples reported for sandeel, Norway pout and whiting is given as the total number of samples obtained from the industrial fishery. Due to the continued refusal of the Danish fishermen to allow biological samples to be taken from the industrial landings the number of samples obtained from this fishery is very low.

SAMPLING DATA FOR WHITING

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IV	I	33	10	2279	1421	
	II		40	4	4	
	III	+	19	1812	0	
	IV		29	717	706	
IIIa	I		-			
	II		5	0	0	
	III	+	5	797	15	
	IV		2	13	13	

SAMPLING DATA FOR HADDOCK

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IV	I	21	10	1585	1348	
	II		17	683	674	
	III	+	42	2278	2231	
	IV		23	1587	1539	
IIIa	I		11	299	299	
	II		10	715	712	
	III	+	14	1747	1496	
	IV		10	1099	1099	

SAMPLING DATA FOR COD

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IV	I	29	84	1392	915	
	II		77	1231	1229	
	III	+	56	1301	1044	
	IV		41	1126	1123	
IIIa	I		85	772	770	
	II		49	1136	1135	
	III	+	40	1155	898	
	IV		47	1559	1558	

SAMPLING DATA FOR SAITHE

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IV	I	2	28	551	402	
	II		19	620	617	
	III	+	21	591	551	
	IV		10	144	144	
IIIa	I					
	II		+	550	550	
	III		+	701	699	
	IV		+	175	175	

SAMPLING DATA FOR NORWAY POUT

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IV	I	12	10	708	574	
	II		40	0	0	
	III	+	19	397	369	
	IV		29	6701	6701	
IIIa	I					
	II		5	0	0	
	III	+	5	1	0	
	IV		2	252	252	

SAMPLING DATA FOR SANDEEL

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market- samples	Measured	Aged	Racial Invest.
IV	I	7	10	892	562	
	II		40	6153	6153	
	III		19	2686	2464	
	IV		29	0	0	
IIIa	I	+	5	997	997	
	II		5	90	0	
	III		2	0	0	
	IV		2	0	0	

SAMPLING DATA FOR PLAICE

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IV	I	25	15	2199	1338	
	II		18	4687	3443	
	III		18	1538	1526	
	IV		15	1172	1163	
IIIa	I	38	19	2077	1981	
	II		32	6311	5230	
	III		38	4930	3914	
	IV		35	3775	3600	

SAMPLING DATA FOR SOLE

Area	Season (quarter)	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IV	I					
	II					
	III					
	IV					
IIIa	I		2	78	77	
	II		2	257	256	
	III		2	281	280	
	IV		2	237	237	

FINLAND

(E. Aro & V. Sjöblom)

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

FRANCE

(A. Forest & A. Souplet)

I. CAMPAGNES SCIENTIFIQUES A LA MER

Le N/O "THALASSA" a participé, du 11 janvier au 7 février 1986, au programme International Young Fish Survey. Il a été effectué 20 stations dans la division IV A, 39 en IV B et 13 en IV C.

II. MENSURATIONS ET AGEAGE

Les opérations d'échantillonnage à terre et à la mer sont résumées dans les tableaux joints.

SPECIES	AREA	SEASON	NB. OF SAMPLES		NB. OF FISH			
			RESEARCH VESSEL	MARKET SAMPLES	MESURED	AGED	OTHER	
SAITHE	IV A	1st Q	8	+	+	378		
		2nd Q		+	+	965		
		3rd Q		+	+	922		
		4th Q		+	+	335		
	VI A	1st Q		+	959	98		
		2nd Q		+	1370	200		
		3rd Q		+	1478	314		
		4th Q		+	810	198		
	COD	IV	1st Q	74	+	+	501	
			2nd Q		+	+	487	
			3rd Q		+	+	520	
			4th Q		+	+	417	
		VI A	1st Q		+	412		
			2nd Q		+	178		
			3rd Q		+	377		
			4th Q		+	573		
VII A		1st Q						
		2nd Q						
		3rd Q						
		4th Q		1	97			
VII FG	1st Q		5	489	87			
	2nd Q							
	3rd Q		5	610	181			
	4th Q		3	374	147			
VII D	1st Q		+	+	451			
	2nd Q		+	+	502			
	3rd Q		+	+	158			
	4th Q		+	+	363			

SPECIES	AREA	SEASON	NB. OF SAMPLES		NB. OF FISH		
			RESEARCH VESSEL	MARKET SAMPLES	MESURED	AGED	OTHER
HADDOCK	IV	1st Q	54	+	+	1194	
		2nd Q		+	+	2650	
		3rd Q		+	+	1770	
		4th Q		+	+	342	
	VI A	1st Q		+	546		
		2nd Q		+	557		
		3rd Q		+	1301		
		4th Q		+	888		
WHITING	IV	1st Q	73	+	+	3225	
		2nd Q		+	+	3452	
		3rd Q		+	+	4097	
		4th Q		+	+	452	
	VII A	1st Q					
		2nd Q					
		3rd Q	1	1	219		
		4th Q		1	150		
	VII D	1st Q		+	+	3875	
		2nd Q		+	+	2113	
		3rd Q		+	+	568	
		4th Q		+	+	451	
	VII FG	1st Q		5	1118		
		2nd Q					
		3rd Q		4	1002	283	
		4th Q		3	549	261	
HAKE	VI-VII	1st Q		29	955		
		2nd Q		31	952		
		3rd Q		25	737		
		4th Q		29	1056		
	VIII AB	1st Q	33	60	7164		
		2nd Q	37	45	7325		
		3rd Q	43	67	9135		
		4th Q	27	62	5285		
NORWAY POUT	IV A	1st Q	16		666	113	

SPECIES	AREA	SEASON	NB. OF SAMPLES		NB. OF FISH		
			RESEARCH VESSEL	MARKET SAMPLES	MESURED	AGED	OTHER
MONKS (various)	VII EF	1st Q		+	255		
		2nd Q		+	248		
		3rd Q		+	388		
		4th Q		+	353		
	VII AG	1st Q		+	271		
		2nd Q		+	514		
		3rd Q		+	1266		
		4th Q		+	1171		
	VII H+	1st Q		+	860		
		2nd Q		+	1892		
	VIII A2	3rd Q		+	1620		
		4th Q		+	1246		
	VIII A1	1st Q		+	759		
		2nd Q		+	1653		
		3rd Q		+	1463		
		4th Q		+	1217		
	VIII AB	1st Q	23	31	867		
		2nd Q	29	11	391		
		3rd Q	38	19	1012		
		4th Q	21	20	718		
SOLE	VII D	1st Q		+	+		+
		2nd Q		+	+		+
		3rd Q		+	+		+
		4th Q		+	+		+
	VII E	1st Q		4	+		
		2nd Q		3	+		
		3rd Q		3	+		
		4th Q					
	VIII AB	1st Q	33	30	2248		377
		2nd Q	34	32	2152		148
		3rd Q	37	30	1961		288
		4th Q	24	35	2717		344

SPECIES	AREA	SEASON	NB. OF SAMPLES		NB. OF FISH		
			RESEARCH VESSEL	MARKET SAMPLES	MESURED	AGED	OTHER
PLAICE	VII D	1st Q		+	+		
		2nd Q		+	+		
		3rd Q		+	+		
	VII E	1st Q		2	+		
MEGRIM	VII GH	1st Q					
		2nd Q					
		3rd Q		5	1155		
		4th Q		39	7176		
RED MULLET	VIII AB	1st Q		5	314		
		2nd Q	35	31	2669		
		3rd Q		9	623		
		4th Q	14	6	914		
NEPHROPS	VIII AB	1st Q	11	5	1157		
		2nd Q	28	5	2072		
		3rd Q	26	6	4619		
		4th Q	22	4	1693		

GERMAN DEMOCRATIC REPUBLIC

(B. Vaske)

Species	Area	Month	No. of Research vessel	Samples Commercial vessel	No. of fish Measured	Aged
Redfish (S.mentella)	II a	May	-	11	2413	-
		June	-	5	936	-
	II b	June	-	2	309	104
		July	-	6	836	144
		June	25	-	2064	700
		July	11	-	1432	245
	XII	June	-	1	58	28
		July	-	6	109	-
	XIV a	March	-	1	264	100
		April	-	5	1466	200
		June	-	43	17748	1432
		July	-	8	4296	200
Greenland halibut	II b	June	11	-	1741	367
		July	6	-	1127	247
		June	-	10	1001	242
		September	-	2	253	50
		October	-	6	1329	87

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
February	IVa, VIa	Groundfish survey
Febr./March	VIa	Groundfish survey
June	IVa	Comparative fishing with R.V. "Anton Dohrn"
June	VIa	Groundfish and pelagic survey
Aug./Nov.	XIV	Groundfish survey

R.V. "Anton Dohrn"

Months	ICES area	Objectives
January	IVb	Groundfish survey
Feb./March	IVa, b	IYFS
March/May	IVa, VI-VIII	Pelagic and groundfish survey
May/June	IVb	Groundfish survey
June/July	IVa, b	Groundfish survey

R.V. "Solea"

January	IVb	Groundfish survey
February	IVb, c	Groundfish survey
May	IVb	Sole beamtrawl survey
July	IVb	Groundfish survey
September	IVb	Groundfish survey
November	IVb	Groundfish survey

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Cod		Groundfish surveys						
IIa	I					3	1180	610
	II	22	9306					
IIb	III	5	942	493				
IVa	I	44	465	465				
	II	168	1515	} 535				
	III	62	936					
IVb	I	135	4744	446	2	757		
	II	56	744	} 697				
	III	117	4047		.2	553		
	IV	43	17439	544	4	2151		

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
Cod		Youngfish and brown shrimp surveys						
IVb	II	79	248					
	III	72	899					
		Groundfish surveys						
IVc	I	2	142					
Vla	II	25	143					
	III	33	471					
VIIb, c	II	6	17					
	III	5	22					
VIIg-k	II	6	9					
	III	10	80					
XIVb	I							
	III	51	1239	1239	1239	9	429	429
	IV	4	180	180	180			

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Haddock?		Groundfish surveys						
IIa	II	6	1774					
IVa	I	49	15736	478		1	364	188
	II	122	23652	} 376		-	-	-
	III	60	8451			2	839	418
	IV					2	843	439
IVb	I	36	3703	360				
	II,III	52	5328	403				
VIa	II	32	4958					
	III	37	5094					
VIIb, c	II	6	96					
	III	13	511					
VIIg - k	II	11	39					
	III	5	10					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Whiting			Groundfish surveys					
IVa	I	48	6631	447				
	II	73	7016					
	III	54	1942	230				
IVb	I	145	15223	396				
	II,III	135	14659	343				
			Youngfish and brown shrimp surveys					
IVb	II	8	211					
	III	24	1017					
			Groundfish surveys					
VIa	II	24	1787					
	III	29	1087					
VIIb, c	II	2	15					
	III	4	15					
VIIg-k	II	11	74					
	III	4	207					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Blue Ling								
VIa	I	1	443	443				
VIIb+XII	I	1	644	644				
XIV	III	1	182	182	3	836	448	
Vb	I	1	541	541				
	II				1	235	128	
	III				1	258	134	
	IV				2	506	278	

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Saithe								
IVa	I	1	2140	849	2	905	180	
	II	2	2628	477	8	3655	1642	
	III				10	4619	1799	
	IV				7	3337	1736	
IIa	I				2	937	495	
	II				1	413	227	
	IV				2	937	496	
VIa/b	I	2	1398	614	4	1787	1261	
	II+III	1	2460	-				
Pollack								
IVa/b	II+III	1	64	58				
VIa/b		1	214	10				

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
Plaice		Groundfish surveys						
IVa	I	1	14					
IVb	I	63	6242	2574	3	2481	2655	
	II	74	2615	2076	4	6553	437	
	III				4	2180	578	
	IV	17	927		3	3094	523	
IVb		Youngfish and brown shrimp surveys						
	II	119	6521	286				
	III	102	16099	305				
IVb		Shrimp bycatch investigation						
	I	4	1124	980				
	II	79	22101					
	III	145	9131					
	IV	67	5302					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Sole		Groundfish surveys						
IVb	II	74	1200	896	2	65	65	
	III	2	47		8	1317	759	
	IV	2	16					
IVb		Youngfish and brown shrimp surveys						
	II	79	662	-				
	III	89	1484	-				
IVb		Shrimp bycatch investigation						
	I	11	27					
	II	225	1449					
	III	121	524					
	IV	116	484					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investigation		No. Of Fish	
			Measured	Aged			Measured	Aged
Dab		Groundfish surveys						
IVb	I	85	15795					
	II	144	19610					
	III	60	7449					
	IV	9	1397					
		Youngfish and brown shrimp surveys						
IVb	II	98	3815					
	III	113	16476					
		Shrimp bycatch investigation						
IVb	I	2	12					
	II	8	459					
	III	208	1506					
	IV	285	14635					

Species Area	Season	Research Vessel Samples				No. of Samples	Market Samples	
		No. of Samples	No. of Fish		Racial Investig- ationn		No. Of Fish	
			Measured	Aged			Measured	Aged
Flounder		Groundfish surveys						
IVb	II	2	43					
	IV	6	251					
		Youngfish and brown shrimp survey						
IVb	II	40	492					
	III	36	522					
		Shrimp bycatch investigation						
	I	4	96					
	II	110	607					
	III	104	174					
	IV	24	67					
Turbot		Groundfish surveys						
IVb	II	74	95	59				
Brill	II	74	43					
Greenland halibut								
XIV	II					4	820	820

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
S.marinus XIV	II	-	-	-		1	335	150
	III	146	15007	1162		1	304	200
	IV	-	-	-		2	510	50
S.mentella XIV	II	-	-	-		3	1812	548
	III	95	14942	968		5	2897	358
	IV	-	-	-		1	292	100
Vb	I	-	-	-		1	456	-
	II	-	-	-		5	1760	810
	IV	-	-	-		1	422	191
S.marinus IIa	I	-	-	-		4	1519	427
	II	-	-	-		1	305	164
	IV	-	-	-		2	812	197
Macrourus berglax XIV	III	42	1081	425				
Coryphae- noides rupestris VIa	I	21	3217	618				

ICELAND
(S.A. Schopka)

The biological sampling programme and research work carried out on demersal fish was following the same lines as in previous years i.e. based on research vessels data and market samples.

Most of the research vessels sampling was collected during the extension groundfish survey (600 stations) in March 1986. This survey was made simultaneously on board five stern trawlers of same type.

In July cod was tagged off the NW-coast during an experimental echo abundance survey on cod.

Market samples were collected at the headquarters of the Marine Research Institute in Reykjavik and the five branches of MRI located at other important fishing harbours.

Also fishery inspectors collected considerable amount of data on demersal fish both at the market and on board of commercial fishing vessels.

The number of fish sampled is shown in the following tables:

SAMPLING DATA FOR COD 1986

Area	Season	No of samples		Measured	No of fish	
		Research Vessels	Market Samples		Aged	Tagged
Va	Jan.-March	1098		130228	3840	
-	-		88	13501	2721	
-	Apr.-June	200		39421	1184	
-	-		51	6264	2098	
-	July-Sept.	412		77676	2309	774
-	-		30	3666	1092	
-	Oct.-Dec.	202		39546	800	
-	-		29	4030	800	
Total		1912	198	314332	14844	774

SAMPLING DATA FOR HADDOCK 1986

Area	Season	No of samples		Measured	No of fish	
		Research Vessels	Market Samples		Aged	Tagged
Va	Jan-March	699		102844	2287	
-	-		17	1540	831	
-	Apr.-June	19		2069	444	
-	-		25	3675	899	
-	July-Sept.	35		1050	190	
-	-		15	1768	511	
-	Oct.-Dec.	23		3385	99	
-	-		10	688	400	
Total		776	67	117019	5661	

SAMPLING DATA FOR SAI THE 1986.

Area	Season	No of samples		No of fish		
		Research Vessels	Market Samples	Measured	Aged	Tagged
Va	Jan.-March	311		2099	897	
-	-		20	2077	1088	
-	Apr.-June	21		715	193	
-	-		24	1865	788	
-	July-Sept.	37		1485	276	
-	-		10	797	500	
-	Oct.-Dec.	10		1117	100	
-	-		8	522	300	
Total		379	62	10677	4142	

SAMPLING DATA FOR WHITING 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	89		2150		

SAMPLING DATA FOR LUMPSUCKER 1986.

Area	Season	No of samples		Measured	No of fish	
		Research Vessels	Market Samples		Aged	Tagged
Va	Jan.-March	310	3	1840	100	
-	Apr.-June		53	5432	400	
-	July-Sept.		4	401	100	
-	Oct.Dec.					
-	Oct.-Dec.		0	0	0	
-	-					
Total		310	60	7673	600	

SAMPLING DATA FOR REDFISH (S. MARINUS) 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	620		74335		
-	-		9	2234	721	
-	Apr.-June	20		3654		
-	-		11	3118	446	
-	July-Sept.	33		7038		
-	-		9	2691	392	
-	Oct.-Dec.					
-	-		10	3206	502	
Va	Total	673	39	96276	2061	

SAMPLING DATA FOR REDFISH (S. MENTELLA) 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	56		1844		
-	-		7	1154	135	
-	Apr.-June					
-	-		7	1062		
-	July-Sept.	10		516		
-	-		3	534		
-	Oct.-Dec					
-	-		6	701	150	
Va	Total	66	23	5811	285	

SAMPLING DATA FOR REDFISH (S. VIVIPARUS) 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	177		6043		
-	Apr.-June	2		26		
-	July-Sept.	22		458		
Va	Total	201		6527		

SAMPLING DATA FOR BLUE LING 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	41		254	254	
-	Apr.-June	10		125		
-	July-Sept.		2	296		
-	Oct.-Dec.		1	24		
Total		51	3	699	254	

SAMPLING DATA FOR LING 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	90		454	454	
-	Apr.-June	15		25		
-	July-Sept.		2	98		
-	Oct.-Dec.		1	90	45	
Total		105	3	667	499	

SAMPLING DATA FOR TUSK 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	206		868	721	
-	-		1	247		
-	Apr.-June			42		
-	July-Sept.	33		127		
-	-		2	187		
-	Oct.-Dec.		3	479	370	
Total		244	6	1950	1091	

SAMPLING DATA FOR CATFISH (ANARHICHAS LUPUS) 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	544	-	20703	1779	
-	-	-	5	1149	300	
-	Apr.-June	30	-	1215	-	
-	-	-	5	884	-	
-	July-Sept.	19	-	131	-	
-	-	-	1	114	100	
-	Oct.-Dec.	-	-	-	-	
-	-	-	-	-	-	
Total		593	11	24196	2179	

SAMPLING DATA FOR SILVER SMELT 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	81		2554	361	
-	Jul.-Sept.	50		10106	755	
Total				12660	1106	

SAMPLING DATA FOR GREENLAND HALIBUT 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	5		1594		
-	-		1	245		
-	Apr.-June		21	4096		
-	Apr.-June		8		1486	
-	July-Sept.		7	1760		
-	Oct.-Dec.		7	976		
-	-		1		241	
Total		5	44	8671	1727	

SAMPLING DATA FOR PLAICE 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	6		5352		
-	-	4			530	
-	Apr.-June		3	385		
-	July-Sept.		5	1056		
-	-		2		187	
-	Oct.-Dec.		1	328		
Total		10	11	6821	717	

SAMPLING DATA FOR HALIBUT (HIPPOGLOSSUS HIPPOGLOSSUS) 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	242	-	1542	445	
-	-	-	-	-	-	
-	Apr.-June	4	-	33	-	
-	-	-	-	-	-	
-	July-Sept.	-	-	-	-	
-	-	-	1	135	-	
-	Oct.-Dec.	-	-	-	-	
-	-	-	-	-	-	
Total		246	1	1710	445	

SAMPLING DATA FOR WITCH (GLYPTOCEPHALUS CYNOGLOSSUS) 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	188	-	1481	-	
-	-	-	-	-	-	
-	Apr.-June	-	-	-	-	
-	-	-	-	-	-	
-	July-Sept.	-	-	-	-	
-	-	-	-	-	-	
-	Oct.-Dec.	-	5	3230	300	
-	-	-	-	-	-	
Total		188	5	4711	300	

SAMPLING DATA FOR STARRY RAY (RAJA RADIATA) 1986.

Area	Season	No. of samples		Measured	No. of fish	
		Research vessels	Market samples		Aged	Tagged
Va	Jan.-March	574	-	9047	-	
-	-	-	-	-	-	
-	Apr.-June	37	-	198	-	
-	-	-	-	-	-	
-	July-Sept.	-	-	-	-	
-	-	-	-	-	-	
-	Oct.-Dec.	-	-	-	-	
-	-	-	-	-	-	
Total		611		9245		

IRELAND

(R. Grainger)

Port sampling of commercial catches of cod, haddock and whiting continued in Divisions VIa and VIb and sampling of haddock landings from Division VIb was started. Landings of cod, whiting and plaice from Division VIIa and discards of whiting from the VIIa Nephrops fishery also continued to be sampled. A start was made on the sampling of hake, megrim and angler (L. piscatorius and L. budegassa) in Division VIa and Sub-area VII (except VIIa).

A beam trawl survey for juvenile plaice in shallow water off the east coast of Ireland was carried out as usual in May and September.

Groundfish surveys in the Irish Sea in June and September aimed at pre-recruit whiting and cod were conducted as they have been since 1984.

Species	Div	Quarter	No. samples	No. meas'd	No. aged
Cod	VIa	1	11	1234	165
		2	16	551	222
		3	51	7557	249
		4	12	529	192
	VIIa	1	10	996	337
		2	28	1617	347
		3	18	1829	226
		4	14	1317	299
	VIIb	1	2	147	131
		2	7	272	133
		3	9	412	0
		4	1	30	30
	Totals		179	16491	2331

Species	Div	Quarter	No. samples	No. meas'd	No. aged
Haddock	VIa	1	6	1187	159
		2	20	1788	243
		3	43	4635	343
		4	9	897	255
	VIb	2	3	802	131
		3	4	244	106
	VIIb	2	11	568	204
		3	9	504	0
		4	1	17	0
	Totals		106	10642	1441

Species	Div	Quarter	No. samples	No. meas'd	No. aged
Hake	VIa	4	2	34	0
	VIb	4	1	34	0
	VIIb	2	1	25	0
		3	8	379	0
	VIIg	2	12	537	0
		3	10	321	0
		4	4	650	0
	VIIj	1	2	255	0
		2	12	735	0
		3	29	1815	0
		4	4	94	0
	Totals		85	4879	

Species	Div	Quarter	No. samples	No. meas'd	No. aged
Megrim	VIb	4	1	97	0
	VIIb	2	4	805	0
		3	5	770	0
		4	1	25	0
	VIIg	2	3	737	0
		3	7	1363	0
	VIIj	1	2	886	0
		2	7	848	0
		3	24	4146	0
		4	5	1019	0
	Totals		59	10696	

Species	Div	Quarter	No. samples	No. meas'd	No. aged
Plaice	VIIa	1	7	1368	207
		2	26	3717	123
		3	17	2737	192
		4	12	1498	161
Plaice ground fish survey	VIIa	2	23	2520	177
		3	24	2979	181
Totals			109	14819	1041
			No. of hauls	No. caught	No. aged

Plaice beam trawl survey	2(may)	41	1238	292
	3(sep)	41	3048	292
Totals		82	4286	632

Species	Div	Quarter	No. samples	No. meas'd	No. aged
Whiting	VIa	1	4	1929	105
		2	11	2370	148
		3	54	11233	119
		4	7	1784	146
	VIIa	1	8	1601	165
		2	16	3046	173
		3	14	2978	87
		4	7	1923	180
	VIIb	1	4	868	48
		2	4	718	127
		3	11	3061	64
		4	2	973	54
	VIIa	1	3	234	57
		2	6	107	28
		3	6	159	0
		4	6	327	76
	Ground fish survey	2	29	2903	117
		TOTAL	192	36214	1694

Species	Div	Quarter	No. samples	No. meas'd
L. budegassa	VIg	3	1	1
	VIf	4	1	17
	VIIf	2	4	30
		3	4	153
	VIIg	2	4	7
		3	2	3
	VIIj	1	3	89
		2	5	310
		3	21	757
		4	5	167
	Totals		50	1534
L.piscatorius	VIa	2	1	3
		3	7	101
	VIb	4	1	17
	VIib	2	4	95
		3	11	493
		4	1	46
	VIIg	2	4	198
		3	5	290
		4	2	33
	VIIj	1	3	205
		2	8	242
		3	23	878
		4	5	264
	Totals		75	2865

NETHERLANDS

(F.A. van Beek)

In 1986 the market sampling of landings by the Dutch fleets in the Netherlands was continued for the following species: brill, cod, haddock, plaice, sole, turbot and whiting. 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 February R.V. "Tridens and R.V. "Isis" carried out a survey on spawning plaice in the S.W. North Sea in order to investigate the relation between age, length and maturity on the spawning grounds.

In February R.V. "Tridens" and R.V. "Isis" participated in the International Young Fish Surveys (IYFS). These surveys are carried out yearly since 1960 and estimate the relative abundance of 1 and 2 year old herring and roundfish.

In April/May a beam trawl survey was carried out in the South Eastern North Sea. The aim of this survey was to determine the abundance and age-distribution of sole and plaice in this area, and to determine the maturity stages of male soles.

In August a beam trawl survey was carried out in the Central and Southern North Sea by R.V. "Isis" and the charter "KW 34" in collaboration with Belgium in order to investigate the distribution and abundance of plaice and sole in these areas.

In August a survey was carried out on R.V. "Isis" and the charter "KW 36" in the Southern and Central North Sea with the standard GOV trawl in the framework of the ICES multi-species program.

In October R.V. "Tridens", R.V. "Stern", R.V. "Isis" and R.V. "Schollebaar" participated in the Demersal Young Fish Survey (DYFS). These surveys estimate relative abundance of brown shrimp and juvenile plaice and sole in the continental nurseries. The surveys are carried out 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" and R.V. "Schollebaar".

On board of R.V. "Isis" 1700 juvenile soles (range 15-24 cm) were tagged in the German Bight near Heligoland and Spiekeroog with the Peterson mini tag in October. Also 750 plaice were tagged near Heligoland and Amrum Bank with this tag and injected with tetra-cycline.

In October/November R.V. "Tridens" and R.V. "Isis" 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 SOLE 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
North Sea	1st quarter		1034	74
	2nd quarter		1539	1228
	3rd quarter		876	386
	4th quarter		823	531
Wadden Sea Estuary	1st quarter			--
	2nd quarter			--
	3rd quarter			22
	4th quarter			--
Zeeland Estuary	1st quarter			--
	2nd quarter			39
	3rd quarter			37
	4th quarter			--

SAMPLING DATA FOR PLAICE 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
North Sea	1st quarter		2859	--
	2nd quarter		1280	2085
	3rd quarter		1200	1220
	4th quarter		1431	1920
Wadden Sea Estuary	1st quarter			--
	2nd quarter			--
	3rd quarter			--
	4th quarter			311
Zeeland Estuary	1st quarter			--
	2nd quarter			158
	3rd quarter			192
	4th quarter			--

SAMPLING DATA FOR DAB 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
North Sea	1st quarter			-
	2nd quarter			901
	3rd quarter			807
	4th quarter			1114
Wadden Sea Estuary	1st quarter			-
	2nd quarter			-
	3rd quarter			-
	4th quarter			110
Zeeland Estuary	1st quarter			-
	2nd quarter			54
	3rd quarter			27
	4th quarter			-

SAMPLING DATA FOR TURBOT 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
North Sea	1st quarter	1194	299	8
	2nd quarter	1324	321	68
	3rd quarter	1195	299	174
	4th quarter	1558	328	33

SAMPLING DATA FOR BRILL 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
North Sea	1st quarter	915	356	4
	2nd quarter	722	327	29
	3rd quarter	672	347	20
	4th quarter	1124	343	7

SAMPLING DATA FOR COD 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
Northern North Sea	1st quarter	-	-	100
	2nd quarter	-	-	-
	3rd quarter	-	-	55
	4th quarter	-	-	-
Central North Sea	1st quarter	-	-	43
	2nd quarter	77	50	-
	3rd quarter	-	-	170
	4th quarter	117	50	-
NW North Sea	1st quarter	-	-	37
	2nd quarter	-	-	-
	3rd quarter	-	-	29
	4th quarter	-	-	-
Western North Sea	1st quarter	478	100	-
	2nd quarter	166	-	-
	3rd quarter	111	50	75
	4th quarter	67	-	-
SW North Sea	1st quarter	240	50	7
	2nd quarter	386	100	-
	3rd quarter	488	40	45
	4th quarter	64	-	10
Southern North Sea	1st quarter	2162	201	97
	2nd quarter	1248	250	-
	3rd quarter	836	150	101
	4th quarter	2896	260	360
Eastern North Sea	1st quarter	64	-	-
	2nd quarter	-	-	-
	3rd quarter	-	-	10
	4th quarter	-	-	-
Total Annually		9400	1301	1149

SAMPLING DATA FOR HADDOCK 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
Northern North Sea	1st quarter	-	-	157
	2nd quarter	-	-	-
	3rd quarter	-	-	115
	4th quarter	-	-	-
Central North Sea	1st quarter	-	-	64
	2nd quarter	173	50	-
	3rd quarter	-	-	145
	4th quarter	103	45	-
NW North Sea	1st quarter	-	-	108
	2nd quarter	-	-	-
	3rd quarter	-	-	105
	4th quarter	-	-	-
Western North Sea	1st quarter	242	49	-
	2nd quarter	355	50	-
	3rd quarter	113	-	95
	4th quarter	36	-	-
SW North Sea	1st quarter	-	-	-
	2nd quarter	-	-	-
	3rd quarter	67	50	-
	4th quarter	-	-	-
Southern North Sea	1st quarter	294	-	6
	2nd quarter	283	50	-
	3rd quarter	530	100	10
	4th quarter	229	-	40
Eastern North Sea	1st quarter	64	-	-
	2nd quarter	-	-	-
	3rd quarter	-	-	-
	4th quarter	-	-	-
Total Annually		2489	394	845

SAMPLING DATA FOR WHITING 1986

AREA	PERIOD	number of fish sampled		
		fish market		research vessel
		measured	aged	aged
Northern North Sea	1st quarter	-	-	93
	2nd quarter	-	-	-
	3rd quarter	-	-	30
	4th quarter	-	-	-
Central North Sea	1st quarter	-	-	-
	2nd quarter	67	-	-
	3rd quarter	-	-	70
	4th quarter	49	-	-
NW North Sea	1st quarter	-	-	44
	2nd quarter	-	-	-
	3rd quarter	-	-	85
	4th quarter	-	-	-
Western North Sea	1st quarter	152	-	-
	2nd quarter	235	50	-
	3rd quarter	114	-	55
	4th quarter	38	-	-
SW North Sea	1st quarter	210	50	82
	2nd quarter	234	-	-
	3rd quarter	290	-	40
	4th quarter	-	-	-
Southern North Sea	1st quarter	2711	100	83
	2nd quarter	1850	200	-
	3rd quarter	1159	250	125
	4th quarter	2114	93	342
Eastern North Sea	1st quarter	-	-	-
	2nd quarter	-	-	-
	3rd quarter	-	-	-
	4th quarter	-	-	-
Total Annually		9223	743	1049

NORWAY

(T. Jakobsen)

Sub-areas I and II

The research activities at sea continued at approximately the same level as in 1985. 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. Spawning cod were tagged on the spawning grounds in Lofoten in March - April. 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, where 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 March - April and investigations on cod larvae and post-larvae were carried out in May - 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 saithe eggs were carried out in February. 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 Lofoten to North Cape 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, and 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 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	78	1946	255	30356	6	1023	65	3473
	2	2	86	131	15195	13	1561	210	10363
	3	7	352	171	8117	23	3404	9	3498
	4	9	520	49	6445	11	1727	8	6027
IIA	1	45	1917	137	19762	35	9170	13	9125
	2	1	100	46	8939	27	4864	11	1715
	3	2	16	68	1947	14	1512	12	540
	4	8	754	74	2268	9	1413	25	1938
IIB	1	-	-	1	112	-	-	40	4591
	2	-	-	52	4804	-	-	46	1709
	3	35	1677	416	31797	1	468	85	6785
	4	5	540	62	9178	2	276	44	1983
IVA	1	24	424	41	526	-	-	-	-
	2	-	-	2	2	-	-	-	-
	3	-	-	105	1821	-	-	-	-
	4	-	-	16	41	-	-	-	-
IVB	1	9	129	12	281	-	-	-	-
	3	-	-	3	90	-	-	-	-
	4	-	-	1	11	-	-	-	-

Tagged: Division IIA, 1st q.: 994, 2nd q.: 70

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	76	1784	231	23857	2	121	69	3740
	2	2	72	116	15361	12	711	200	9522
	3	4	247	106	5265	21	1555	70	2677
	4	5	250	43	2001	17	1260	59	1716
IIA	1	34	1210	116	11117	14	1666	3	6
	2	-	-	41	3022	15	991	3	195
	3	-	-	60	989	10	859	5	233
	4	10	482	54	3547	20	1875	9	144
IIB	1	-	-	1	10	-	-	25	197
	2	-	-	37	1054	-	-	12	29
	3	6	161	146	2256	-	-	23	240
	4	2	55	11	135	-	-	8	35
IVA	1	9	520	55	6748	-	-	-	-
	2	-	-	4	4	-	-	-	-
	3	-	-	120	7665	-	-	-	-
	4	-	-	9	378	-	-	-	-
IVB	1	7	307	13	1046	-	-	-	-
	3	-	-	3	483	-	-	-	-
	4	-	-	1	74	-	-	-	-

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	2	56	59	761	3	249	1	1
	2	-	-	5	10	3	95	3	13
	3	3	58	11	746	9	1169	9	1609
	4	2	34	6	341	3	156	2	141
IIA	1	18	808	52	1202	3	415	16	4532
	2	-	-	115	3973	4	482	7	1009
	3	3	60	11	901	11	1002	10	463
	4	10	437	51	1919	12	1768	3	721
IIB	1	-	-	-	-	-	-	4	13
	3	3	30	15	120	-	-	2	3
	4	-	-	1	1	-	-	-	-
IVA	1	15	703	28	768	9	1079	28	5041
	2	-	-	22	265	4	261	35	4932
	3	25	1005	96	5397	3	181	16	2256
	4	-	-	24	535	3	50	10	1252
IVB	1	-	-	2	4	-	-	-	-
	4	-	-	1	48	-	-	-	-

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	-	-	60	385	-	-	-	-
	2	-	-	44	553	-	-	-	-
	3	-	-	25	137	-	-	-	-
	4	-	-	4	4	3	237	-	-
IIA	1	-	-	16	55	-	-	-	-
	2	-	-	14	148	-	-	-	-
	3	-	-	16	243	3	198	-	-
	4	1	3	12	187	2	200	-	-
IIB	1	-	-	1	2	-	-	-	-
	2	-	-	18	676	-	-	-	-
	3	5	132	226	5168	-	-	-	-
	4	3	97	21	358	1	8	-	-

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
I	1	-	-	2	2	-	-	1	1
	2	-	-	2	4	-	-	-	-
	3	-	-	1	1	-	-	1	70
	4	-	-	1	3	-	-	-	-
IIA	1	-	-	27	103	-	-	-	-
	3	-	-	3	8	-	-	1	8
	4	-	-	31	128	-	-	-	-
IIB	3	-	-	2	2	-	-	-	-
IVA	1	-	-	9	17	-	-	-	-
	3	-	-	18	30	-	-	-	-
	4	-	-	10	15	-	-	-	-

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
IIA	1	-	-	7	47	-	-	-	-
	3	-	-	1	5	-	-	-	-
	4	-	-	9	23	-	-	-	-
IVA	1	8	239	42	2255	-	-	-	-
	2	-	-	1	4	-	-	-	-
	3	-	-	90	4029	-	-	-	-
	4	-	-	6	15	-	-	-	-
IVB	1	7	199	12	1585	-	-	-	-
	3	-	-	6	327	-	-	-	-
	4	-	-	1	15	-	-	-	-

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	-	-	41	1023	-	-	-	-
	2	-	-	4	173	-	-	-	-
	3	-	-	3	100	-	-	-	-
	4	-	-	3	179	-	-	-	-
IIA	1	-	-	36	2548	-	-	-	-
	2	-	-	9	10	-	-	-	-
	4	-	-	30	1459	-	-	-	-
IIB	3	-	-	1	1	-	-	-	-
IVA	1	3	110	42	4389	2	204	11	1101
	2	-	-	5	8	1	78	8	330
	3	-	-	111	8478	-	-	6	593
	4	-	-	29	1740	-	-	-	-
IVB	1	1	38	10	298	-	-	-	-
	3	-	-	6	216	-	-	-	-
	4	-	-	1	61	-	-	-	-

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	-	-	43	856	-	-	-	-
	2	-	-	8	140	-	-	-	-
	3	-	-	2	96	-	-	-	-
	4	-	-	3	55	-	-	-	-
IIA	1	-	-	36	1153	-	-	-	-
	2	-	-	3	3	-	-	-	-
	3	-	-	14	260	-	-	-	-
	4	-	-	37	1402	-	-	-	-
IIB	3	-	-	23	662	-	-	-	-
	4	-	-	7	92	-	-	-	-
	2	-	-	1	2	-	-	-	-
	3	-	-	36	3057	-	-	-	-
	4	-	-	25	2024	-	-	-	-

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	-	-	182	9331	-	-	-	-
	2	-	-	59	2765	-	-	-	-
	3	-	-	134	5270	-	-	-	-
	4	-	-	11	830	-	-	-	-
IIA	1	-	-	80	3316	-	-	-	-
	2	-	-	17	687	-	-	-	-
	3	-	-	41	2105	-	-	-	-
	4	-	-	36	1142	-	-	-	-
IIB	1	-	-	1	103	-	-	-	-
	2	-	-	20	898	-	-	-	-
	3	-	-	296	12755	-	-	-	-
	4	-	-	52	3338	-	-	-	-
IVA	1	-	-	39	829	-	-	-	-
	3	-	-	57	1518	-	-	-	-
	4	-	-	20	114	-	-	-	-
IVB	1	-	-	12	186	-	-	-	-
	4	-	-	1	37	-	-	-	-

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	-	-	10	16	-	-	-	-
	4	-	-	9	15	-	-	-	-
IIB	3	-	-	2	2	-	-	-	-
IVA	1	-	-	15	45	-	-	-	-
	3	-	-	21	51	-	-	-	-
	4	-	-	5	5	-	-	-	-

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
I	1	-	-	2	2	-	-	-	-
	4	-	-	1	1	-	-	-	-F
IIA	1	-	-	20	519	-	-	-	-
	2	-	-	9	32	-	-	-	-
	3	-	-	2	11	-	-	-	-
	4	-	-	31	1066	-	-	-	-
IIB	3	-	-	1	1	-	-	-	-
IVA	1	-	-	4	14	-	-	-	-
	2	-	-	4	6	-	-	-	-
	3	-	-	24	834	-	-	-	-
	4	-	-	23	512	-	-	-	-

SANDEEL

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	3	-	-	39	1133	-	-	-	-
IIA	2	-	-	10	10	-	-	-	-
	3	-	-	6	9	-	-	-	-
IIB	3	-	-	16	42	-	-	-	-
IVA	1	-	-	-	-	-	-	2	200
	2	-	-	5	239	4	241	227	23049
	3	-	-	-	-	-	-	63	6433
	4	-	-	-	-	1	57	5	534
IVB	2	-	-	-	-	-	-	139	14232
	3	-	-	-	-	-	-	33	3346
	4	-	-	-	-	-	-	62	6420

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	-	-	263	13389	-	-	-	-
	2	-	-	62	3056	-	-	-	-
	3	-	-	68	1843	-	-	1	449
	4	-	-	11	313	-	-	-	-
IIA	1	-	-	128	7112	-	-	-	-
	2	-	-	28	1098	-	-	-	-
	3	-	-	57	4124	-	-	1	87
	4	-	-	57	2472	-	-	-	-
IIB	1	-	-	1	122	-	-	-	-
	2	-	-	21	1190	-	-	-	-
	3	-	-	301	13718	-	-	-	-
	4	-	-	39	1886	-	-	-	-
IVA	1	-	-	4	38	-	-	-	-
	3	-	-	3	3	-	-	-	-

POLAND

No report received.

PORTUGAL

(F. Cardador)

During 1986, three groundfish surveys were conducted by INIP (Instituto Nacional de Investigação das Pescas) on board of the R/V "NORUEGA". The first cruise took place in January, in some areas of the Portuguese waters, in order to realize some trawl selectivity experiments, mainly for hake and horse-mackerel, and using three different cod-end mesh sizes (40, 60 and 80mm). The other two cruises (June and October) were carried out along the Portuguese coast, to estimate indices of abundance of the main commercial species, using a stratified sampling design.

Besides that objective, the survey that took place in October, was also to estimate indices of recruitment for hake and horse-mackerel.

The National sampling Programme continued in 1986, at the main fishing ports, concerning length frequency distribution of the landings for the most important species.

The following tables present the sampling data collected for hake (Merluccius merluccius), black scabbard - fish (Aphanopus carbo) and some species of seabreams: Pagellus acarne, P. bogaraveo, Boops boops and Spondyllosoma cantharus.

SAMPLING DATA FOR Merluccius merluccius

APEA	Quarter	No of samples		No of fish measured
		Research vessels	Market samples	
IX a	1 st	26	396	25805
	2 nd	116	398	29410
	3 rd		269	12529
	4 th	99	281	25054
	Year	241	1344	92798

SAMPLING DATA FOR Aphanopus carbo

Area	Season (quarter)	Nº of sample		Nº of Fish		
		Research vessels	Market samples	Measured	Aged	Racial invest.
IXa	1 st	-	6	177		
	2 nd	-	10	836		
	3 rd	-	8	598		
	4 th	46	4	1034		
	Year	46	28	2645		

SAMPLING DATA FOR Pagellus acarne

Area	Season (quarter)	N° of sample		N° of Fish		
		Research Vessels	Market samples	Measured	Aged	Racial invest.
IXa	1 st	-	53	2479	51	
	2 nd	23	57	3296	122	
	3 rd	-	40	2081	74	
	4 th	24	67	5573	112	
	Year	47	217	13429	359	

SAMPLING DATA FOR Pagellus bogaraveo

Area	Season (quarter)	Nº of sample		Nº of Fish		
		Research vessels	Market samples	Measured	Aged	Racial invest.
IXa	1 st	-	9	213		
	2 nd	9	12	366		
	3 rd	-	7	230		
	4 th	6	5	78		
	Year	15	33	887		

SAMPLING DATA FOR Boops boops

Area	Season (quarter)	N° of sample		N° of fish		
		Research Vessels	Market samples	Measured	Aged	Racial invest.
IXa	1 st	-	55	3440		
	2 nd	30	60	6558		
	3 rd	-	29	1429		
	4 th	30	63	4256		
	Year	60	207	15683		

SAMPLING DATA FOR Spondyliosoma cantharus

Area	Season (quarter)	Nº of sample		Nº of Fish		
		Research Vessels	Market samples	Measured	Aged	Racial invest.
IXa	1 st	-	25	349		
	2 nd	18	25	853		
	3 rd	-	21	284		
	4 th	19	21	576		
	Year	37	92	2062		

SPAIN

(E. de Cardenas)

Gadus morrhua

AREA	SEASON	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
IIb	1	11	-	1.853	212	
	2					
	3					
	4					

Merluccius merluccius

AREA	SEASON	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
VI	1	-	2	268		
	2	-	4	756		
	3	-	3	483		
	4	-	4	585		
VII	1	-	19	4.943		
	2	-	14	4.149		
	3	-	22	5.552		
	4	-	17	3.716		
VIIIab	1	-	44	7.439		
	2	-	34	6.611		
	3	-	42	7.513		
	4	-	17	5.148		
VIIIc	1	-	35	4.355		
	2	74	30	10.767	308	
	3	29	49	15.001	389	
	4	42	50	6.025		
IXa	1	-	35	3.724	294	
	2	19	29	3.726	239	
	3	21	30	7.444	150	
	4	-	22	1.666	-	

Lepidorhombus whiffiagonis

AREA	SEASON	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
VI	1		1	100		
	2		1	74		
	3		3	159		
	4		3	126		
VII	1		18	4.219	200	
	2		12	3.604	74	
	3		18	4.493	164	
	4		20	3.674	108	
VIIIab	1		25	1.296		
	2		17	1.009		
	3		16	833		
	4		24	1.382		
VIIIc	1	-	12	906		
	2	55	12	1.869	237	
	3	19	16	1.309	-	
	4	25	23	2.809	120	
XIa	1	-	7	148		
	2	4	13	55		
	3	1	14	61		
	4	-	27	27		

Lepidorhombus boscii

AREA	SEASON	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
VI	1					
	2		1	1		
	3		2	10		
	4					
VII	1		8	129		
	2		8	164		
	3		9	106		
	4		10	225		
VIIIab	1		25	114		
	2		17	16		
	3		16	122		
	4		24	114		
VIIIc	1	-	12	806	-	
	2	55	14	3.045	211	
	3	30	16	2.044	-	
	4	25	23	2.653	320	
XIa	1	-	7	832		
	2	15	13	1.431		
	3	18	14	2.717		
	4	-	7	631		

Lophius piscatorius

AREA	SEASON	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
VI	1		1	98		
	2		1	85		
	3		1	88		
	4		1	54		
VII	1		19	1.559		
	2		14	1.111		
	3		19	1.544		
	4		13	729		
VIIIab	1		25	1.703		
	2		13	1.007		
	3		20	1.220		
	4		25	1.853		
VIIIc	1	-	14	652	-	
	2	42	11	792	132	
	3	24	21	2.006	70	
	4	30	24	980	110	
XIa	1	1	8	144	-	
	2	9	7	90	14	
	3	9	7	163	13	
	4	-	6	127	-	

Lophius budegassa

AREA	SEASON	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
VI	1					
	2					
	3		1	2		
	4					
VII	1		19	2089		
	2		14	1413		
	3		17	1601		
	4		13	1111		
VIIIab	1		25	1.312		
	2		13	884		
	3		20	1.009		
	4		25	1.531		
VIIIc	1		14	244	-	
	2	40	11	408	77	
	3	20	16	412	52	
	4	20	23	777	70	
XIa	1	-	8	219	-	
	2	5	8	346	6	
	3	8	4	118	9	
	4	-	6	178	-	

Nephrops norvegicus

AREA	SEASON	No. of samples		No. of fish		
		Research vessels	Market samples	Measured	Aged	Racial Invest.
VII	1		1	71		
	2		4	726		
	3		2	336		
	4		2	561		
VIIIc	1	-	3	744		
	2	37	2	957		
	3	24	1	766		
	4	30	1	320		
XIa	1	-	8	1.231		
	2	9	11	1.668		
	3	14	9	1.787		
	4	-	11	1.487		

SWEDEN

(B. Sjöstrand)

Sweden took part in the International Young Herring Survey in the North Sea and the Skagerrak. However, it has no other activities on which to report owing to reduced opportunities.

UNITED KINGDOM (England and Wales)

(C.T. Macer)

SAMPLING DATA FOR HADDOCK

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
102F	3	215	0
104A	22	3657	221
104B	244	37547	2448
104C	1	87	0
106A	22	3792	497
106B	35	5810	455
107A	1	112	0

SAMPLING DATA FOR HAKE

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
106A	5	998	0
107A	21	4300	0
107E	24	2137	0
107F	5	592	0
107H	3	513	0
107J	1	195	0

SAMPLING DATA FOR LEMON SOLE

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
107E	55	7517	0
107H	1	159	0

SAMPLING DATA FOR MEGRIM

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
107E	11	1239	0
107F	3	480	0
107H	4	526	0

SAMPLING DATA FOR COD

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
101A	5	961	0
102F	9	1655	0
104A	42	5843	516
104B	558	87316	5566
104C	74	9604	894
106A	7	1085	133
106B	2	241	14
107A	83	12299	1620
107D	1	87	21
107F	3	331	26
107G	6	856	180
107J	1	172	37

SAMPLING DATA FOR SPURDOG

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
104A	5	374	0
104B	47	3533	0
104C	27	2265	0
106A	2	204	0
107A	31	3191	0
107E	1	110	0

SAMPLING DATA FOR MONKS AND ANGLERS

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
107E	1	145	0

SAMPLING DATA FOR PLAICE

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
104A	8	2129	198
104B	153	35318	3000
104C	3	537	49
106A	1	262	0
107A	59	12018	1257
107D	24	2819	367
107E	76	9127	917
107F	10	1694	85
107G	7	1126	177

SAMPLING DATA FOR SOLE

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
104A	1	147	0
104B	63	9189	765
104C	51	6845	610
107A	61	10484	349
107D	54	3970	366
107E	55	9063	295
107F	18	3021	80
107G	7	1195	0
107H	1	219	0

SAMPLING DATA FOR SAITHE

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
102F	1	45	0
104A	18	1963	233
104B	7	577	64
106A	9	1208	125

SAMPLING DATA FOR WHITING

AREA	NO. OF SAMPLES	NO. OF FISH MEASURED (MARKET)	NO. OF FISH AGED
104A	2	246	18
104B	187	16811	1558
104C	7	609	67
106A	4	436	49
107A	82	9256	853
107E	58	7298	428
107F	6	790	71
107G	2	262	54
107H	1	105	0

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	882	82886	19243
Haddock	837	195239	20917
Whiting	759	121488	12766
Saithe	478	25190	8630

Sampling of demersal fish discarded by the Scottish fleet was also carried out on a regular basis in 1986. Samples were obtained during the course of commercial trips from 936 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	70	11062	1602
Haddock	70	80698	4307
Whiting	70	44579	3629
Others	70	69862	Nil

2. Research and Commercial Vessel Activities

In February 1986 "Scotia" participated in the International Young Fish Survey in the North Sea.

In March 1986 "Scotia" carried out a survey of demersal fish and herring stocks off the west coast of Scotland (ICES Sub-area VIa).

In August 1986 "Scotia" carried out a survey of demersal fish stocks in the northern and middle North Sea (ICES Sub-areas IVa and IVb).

In July 1986 "Clupea" carried out a pelagic 0-group survey for gadoid species in the northern North Sea (ICES Sub-area IVa).

In August 1986 a commercial vessel, the "G A Reay", was chartered to carry out a survey of the haddock stock on Rockall Bank.

In May/June 1986 a commercial vessel, the "Helene", was chartered to carry out a series of mesh selection experiments using a seine net with alterations to codend diameter, mesh size and lengths of extension piece.

3. Tagging of Demersal Fish

During the summer of 1986 tagging of small saithe was recommenced at an inshore site close to Aberdeen.

The newly completed computer data base on tagged demersal fish was used to analyse whiting and cod tagged on the west coast of Scotland (ICES Sub-area VIa).

U.S.A.

(V. Anthony and B. Rothschild)

The U.S.A. had no fisheries and no research activity in the ICES area in 1986. Activities in the Northwest Atlantic in 1986 have been reported to NAFO.

U.S.S.R.

(S.A. Studenetsky)

In 1986, as in previous years, the trawl and echo surveys were carried out to assess the abundance of young and adult bottom commercial fishes. The year-class strength of cod, haddock, redfish and flounders was determined by the number of eggs, larvae and 0-group fish.

Ecological and physiological characteristics of commercial fishes were continued to be studied during the wintering, feeding and spawning. A special attention was paid to biological sampling for definition of quantitative ecosystem relations.

With the aid of underwater instruments the data were collected to calculate the catchability coefficient of research trawls separately by fish species and sizes. The experiments were set up to define the survival rate of cod and haddock which escaped through the trawl bag mesh.

Some elements of the trawl-echo surveying technique were improved.

The ichthyological data were collected on the age-size composition, feeding and maturity of cod, haddock, redfish, Greenland halibut, plaice, long rough dab, wolffishes in the ICES Subarea I and Divisions IIa and IIb.

The data obtained in 1986 on board the research and scouting vessels are listed in Tables 1-8.

Table 1 Biological data on cod collected in 1986.

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	I09587	I264I	4963
	II	49222	2635	400
	III	90282	9837	5I28
	IV	95I3	806	306
IIb	I	I32	25	-
	II	I0784	I60I	600
	III	39429	5040	2670
	IV	22705	2623	I599
IIa	I	25568	2730	I024
	II	I3953	2580	I500
	III	I5I29	I705	I37I
	IV	I938	330	-
Total		388242	42553	I956I

Table 2 Biological data on haddock collected in 1986.

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	3442I	2730	900
	II	37763	I842	500
	III	79I40	5049	4075
	IV	35203	2794	I600
IIb	I	I	-	-
	II	350	50	-
	III	49	-	-
	IV	2280	507	232
IIa	I	I0808	433	I00
	II	I226	425	300
	III	69	-	-
	IV	2557	375	400
Total		203867	I4205	8I07

Table 3 Biological data on redfish collected in 1986.

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	1053	250	200
	II	2252	-	-
	III	1129	-	-
	IV	500	100	100
IIb	I	42	-	-
	II	3143	50	-
	III	1662	200	200
	IV	9936	450	500
IIa	I	21173	3374	2146
	II	15006	3575	1200
	III	2851	600	600
	IV	8085	650	500
Total		66832	9249	5446

Table 4 Biological data on Greenland halibut collected in 1986

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	395	230	200
	II	-	-	-
	III	92	-	-
	IV	214	50	-
IIb	I	162	25	-
	II	1093	300	200
	III	3298	1002	600
	IV	5914	1216	238
IIa	I	5607	528	-
	II	-	-	-
	III	966	150	200
	IV	2541	300	77
Total		20282	3801	1515

Table 5 Biological data on saithe collected in 1986.

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	96	-	-
	II	6	-	-
	III	1442	125	-
	IV	13	-	-
IIb	I	-	-	-
	II	-	-	-
	III	1	-	-
	IV	338	-	-
IIa	I	471	100	100
	II	2	-	-
	III	1451	225	600
	IV	1658	152	-
Total		5478	602	700

Table 6 Biological data on wolffishes collected in 1986.

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	268	-	-
	II	56	-	-
	III	433	-	-
	IV	35	2	2
IIb	I	7	-	-
	II	-	-	-
	III	2268	239	317
	IV	1998	339	263
IIa	I	243	6	6
	II	14	-	-
	III	81	-	-
	IV	163	16	16
Total		5586	602	624

Table 7 Biological data on plaice collected in 1986.

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	1925	250	300
	II	398	252	200
	III	1718	200	200
	IV	1995	325	200
IIb	I	-	-	-
	II	-	-	-
	III	-	-	-
	IV	-	-	-
IIa	I	-	-	-
	II	-	-	-
	III	-	-	-
	IV	-	-	-
Total		6036	1027	900

Table 8 Biological data on long rough dab collected in 1986.

ICES areas	quarter	No. of fish, spec.		
		measured	examined for feeding	aged
I	I	543	200	200
	II	689	209	200
	III	936	103	-
	IV	637	-	-
IIb	I	19	-	-
	II	346	200	200
	III	3946	525	625
	IV	7810	700	-
IIa	I	488	-	-
	II	-	-	-
	III	-	-	-
	IV	990	25	-
Total		16404	1962	1225

Summed for all species	712727	74001	38078
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