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Report of Activities



**DEMERSAL FISH COMMITTEE**

by

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**1990**

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# BELGIUM

(R. de Clerck)

Densities and growth rates of the 1989 and 1990 year classes of sole, plaice, dab, flounder, cod and whiting were recorded. Two cruises were undertaken for this purpose according to the criteria of the International Demersal Young Fish Survey. The beam trawl survey was continued in order to estimate the stock size of adult flatfish in the southern North Sea in August. This was part of an international survey in collaboration with the Dutch and English Institutes.

The market sampling programme 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 tables).

## SAMPLING DATA FOR : SOLE 1990 BELGIUM

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IV	1	-	6	560	140
	2	-	4	350	140
	3	1	10	1 896	331
	4	-	8	770	140
VIIf,g	1	-	7	630	210
	2	-	9	825	210
	3	-	2	160	160
	4	-	2	150	150
VIIa	1	-	3	240	230
	2	-	8	730	60
	3	-	4	422	70
	4	-	2	150	150
VIId	1	-	3	230	230
	2	-	1	60	60
	3	-	2	175	70
	4	-	1	80	80
VIII	1	-	1	280	70
	4	-	2	140	140

**SAMPLING DATA FOR : PLAICE** **1990** **BELGIUM**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IV	1	-	6	388	100
	2	-	6	454	100
	3	1	10	1 679	357
	4	-	8	532	100
VIII f,g	1	-	7	438	150
	2	-	9	576	140
	3	-	2	80	80
	4	-	2	90	90
VII a	1	-	3	116	116
	2	-	4	202	130
	3	-	4	209	40
	4	-	2	90	90
VII d	1	-	3	120	120
	2	-	1	50	50
	3	-	2	122	50
	4	-	1	40	40

**SAMPLING DATA FOR : COD** **1990** **BELGIUM**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IV	1	-	7	350	350
	2	-	2	100	100
	3	1	2	376	100
	4	-	6	300	300

**SAMPLING DATA FOR : WHITING** **1990** **BELGIUM**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IV	1	-	10	400	400
	2	-	3	135	135
	3	1	3	145	120
	4	-	6	270	270

## **CANADA**

(R.O'Boyle)

Canada had no fisheries and no research vessel activity on demersal fish in the ICES area in 1990. Activities in the Northwest Atlantic have been reported to NAFO.

## DENMARK

(H.Gislason)

The R/V "Dana" made 12 cruises in 1990. Apart from the internationally coordinated standard surveys (1A, 2, 7), these were aimed at investigating the effect of eutrophication and oxygen deficiency (3, 4, 11), sprat recruitment (1B), sandeel biology (5), catchability of trawls (9) and plankton productivity (6,10).

The programme for collecting samples from the human consumption fishery was continued in 1990 at the same level as in previous years. The number of market samples is given in the tables as the number of boxes collected, each of which contains app. 35 kg of fish.

Very few samples were collected from the industrial fishery in 1990 due to a reorganization of the sampling scheme. The few samples obtained from this fishery weigh between 5 and 10 kg each.

### R.V "Dana" Cruises 1990

Cruise no	Period	Purpose	Area
1A)	29 Jan. - 16 February	Int. Young Fish Survey	North Sea
1B)	16 - 20 February	Sprat Investigations	North Sea
2)	7 - 23 March	Baltic Young Fish Survey	The Baltic
3)	24 - 27 March	Environmental investigations	Kattegat
4)	28 April - 7 May	Flatfish diseases	North Sea, Skagerak, Kattegat
5)	12 - 21 May	Sandeel Investigations	North Sea
6)	25 May - 4 June	Frontal studies	North Sea
7)	9 - 18 June	Mackerel Egg survey	North Sea
8)	24 July - 12 August	Int. Herring Acoustic survey	North Sea, Skagerak
9)	23 - 30 August	Catchability	Skagerak
10)	15 - 28 October	Plankton Investigations	Skagerak
11)	2 - 7 November	Environmental investigations	Kattegat
12)	14 -27 November	Pandalus Survey	North Sea

SAMPLING DATA FOR : WHITING				1990		DENMARK
		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
2 2	4	-	1	1	-	Industrial
	4	-	1	1	-	Mixed fishery
IIIa (N)	1	-	8	282	280	Industrial
	2	-	9	198	198	Industrial
	4	-	1	323	10	Industrial
IIIa (S)	1	-	13	907	881	Industrial
	2	-	5	137	137	Industrial
	3	-	1	327	327	Industrial
	4	-	1	236	236	Industrial
IV	1	-	4	10	10	Industrial
	2	-	1	5	5	Industrial
IVa (W)	3	-	1	3	-	Industrial
IVb	1	-	2	20	20	Industrial
	3	-	2	6	-	Industrial

SAMPLING DATA FOR : HADDOCK				1990		DENMARK
		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (N)	1	-	5	1 078	1 076	Human cons.
	2	-	5	779	779	Human cons.
	3	-	4	1 193	1 191	Human cons.
	4	-	4	949	949	Human cons.
	1	-	5	22	22	Industrial
	2	-	6	36	36	Industrial
	4	-	1	18	-	Industrial
IIIa (S)	3	-	1	5	5	Industrial
	4	-	1	5	5	Industrial
IVa (E)	1	-	1	1	1	Industrial
	2	-	1	16	16	Industrial
	3	-	2	7	7	Industrial
IVb	1	-	1	107	107	Human cons.
IV	1	-	3	175	175	Human cons.
	2	-	2	342	341	Human cons.
	3	-	4	533	533	Human cons.
	4	-	2	309	308	Human cons.
	3	-	1	2	2	Industrial

SAMPLING DATA FOR : COD

1990

DENMARK

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
2 2	1	-	12	777	774	Human cons.
	2	-	9	713	712	Human cons.
	3	-	5	298	292	Human cons.
	4	-	10	655	653	Human cons.
2 4	1	-	3	666	660	Human cons.
	2	-	3	298	297	Human cons.
	3	-	1	241	241	Human cons.
	4	-	3	513	513	Human cons.
2 5	1	-	8	1 371	1 369	Human cons.
	2	-	5	1 079	1 077	Human cons.
	3	-	1	294	294	Human cons.
	4	-	1	336	335	Human cons.
IIIa (N)	1	-	6	739	739	Human cons.
	2	-	5	498	497	Human cons.
	3	-	6	558	557	Human cons.
	4	-	5	704	702	Human cons.
	1	-	7	45	45	Industrial
	2	-	5	16	16	Industrial
	4	-	1	37	-	Industrial
IIIa (S)	1	-	10	643	642	Human cons.
	2	-	5	259	258	Human cons.
	3	-	4	237	237	Human cons.
	4	-	7	418	418	Human cons.
	1	-	9	12	12	Industrial
	4	-	1	1	1	Industrial
IVb	1	-	3	264	261	Human cons.
	2	-	3	284	284	Human cons.
	3	-	2	186	186	Human cons.
	4	-	1	69	69	Human cons.
IV	1	-	10	608	601	Human cons.
	2	-	5	361	361	Human cons.
	3	-	8	542	542	Human cons.
	4	-	6	422	422	Human cons.

SAMPLING DATA FOR : SAITHE

1990

DENMARK

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (N)	1	-	2	173	173	Human cons.
	2	-	2	225	225	Human cons.
	3	-	2	204	204	Human cons.
	4	-	2	126	126	Human cons.
	2	-	1	1	-	Industrial
IVa (E)	3	-	1	1	-	Industrial
IV	1	-	3	284	284	Human cons.
	2	-	2	141	141	Human cons.
	3	-	2	245	245	Human cons.
	4	-	2	68	68	Human cons.



**SAMPLING DATA FOR : SILVERY POUT 1990 DENMARK**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IVa (E)	1	-	1	5	-	Industrial

**SAMPLING DATA FOR : NORWAY POUT 1990 DENMARK**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (N)	1	-	3	12	12	Industrial
	2	-	9	1 458	1 458	Industrial
	4	-	1	117	-	Industrial
IIIa (S)	1	-	1	1	1	Industrial
	4	-	1	42	42	Industrial
IVa (E)	1	-	5	750	750	Industrial
	2	-	1	102	102	Industrial
	3	-	2	362	362	Industrial
IVa (W)	3	-	1	96	96	Industrial
IVb	1	-	1	1	-	Industrial

**SAMPLING DATA FOR : BLUE WHITING 1990 DENMARK**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (N)	1	-	1	1	-	Industrial
IVa (E)	1	-	1	11	-	Industrial
	2	-	1	10	10	Industrial
	3	-	1	55	55	Industrial

**SAMPLING DATA FOR : ARGENTINE 1990 DENMARK**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IVa (E)	1	-	2	2	-	Industrial

**SAMPLING DATA FOR : SPOTTED DRAGONET 1990 DENMARK**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (S)	1	-	1	3	-	Industrial

**SAMPLING DATA FOR : GREY GURNARD 1990 DENMARK**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IVb	1	-	1	1	-	Industrial

SAMPLING DATA FOR : SANDEEL				1990		DENMARK
		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (N)	2	-	1	194	194	Industrial
IIIa (S)	2	-	2	464	104	Industrial
IVa (E)	1	-	1	121	-	Industrial
	2	-	1	108	108	Industrial
IVb	2	1	1	130	118	Mixed fishery
	2	-	2	233	233	Industrial
IV	3	-	1	113	113	Industrial

SAMPLING DATA FOR : PLAICE				1990		DENMARK
		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (N)	1	-	5	1 129	1 057	Human cons.
	2	-	5	1 621	1 497	Human cons.
	3	-	5	1 655	1 546	Human cons.
	4	-	4	1 363	1 278	Human cons.
	1	-	2	4	1	Industrial
	2	-	1	1	-	Industrial
	4	-	1	1	-	Industrial
IIIa (S)	1	-	10	2 153	2 071	Human cons.
	2	-	9	1 829	1 754	Human cons.
	3	-	6	1 018	995	Human cons.
	4	-	7	1 739	1 675	Human cons.
	1	-	3	3	-	Industrial
IVb	1	-	4	835	825	Human cons.
	2	-	1	977	971	Human cons.
	3	-	2	697	692	Human cons.
	4	-	2	1 152	1 143	Human cons.
	1	-	1	1	-	Industrial
IV	1	-	4	935	919	Human cons.
	2	-	6	2 394	2 360	Human cons.
	3	-	10	2 608	2 574	Human cons.
	4	-	5	1 164	1 144	Human cons.

SAMPLING DATA FOR : EUROPEAN FLOUNDER				1990		DENMARK
		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
22	1	-	2	147	145	Human cons.

SAMPLING DATA FOR : WITCH FLOUNDER				1990		DENMARK
		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IVA (E)	3	-	1	1	-	Industrial

SAMPLING DATA FOR : **SOLE**

**1990**

**DENMARK**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Fishery
IIIa (S)	1	-	3	308	308	Human cons.
	2	-	3	301	300	Human cons.
	3	-	3	222	222	Human cons.
	4	-	2	267	266	Human cons.
IV	2	-	2	231	230	Human cons.
	3	-	1	208	207	Human cons.

## FAROES

(J.Reinert)

The sampling programme for commercial catches of saithe, cod, haddock, ling, blue ling, Greenland halibut and redfish was continued in 1990. In addition samples of the species mentioned were taken from research vessel catches. The tables provide more details.

The following research cruises with relevance to the Demersal Fish Committee were made in 1990:

In January *R/V "Magnus Heinason"* carried out exploratory fishery with bottom trawl S and SW of the Faroes for grenadier fish.

In January-February the commercial trawler *M/S "Phoenix"* was chartered to carry out exploratory fishery for grenadier and black scabbard fish to the S and SW of the Faroes.

In February *R/V "Magnus Heinason"* carried out an exploratory fishery with bottom trawl for redfish around the Faroes.

In February-March *R/V "Magnus Heinason"* continued the Faroese Groundfish Surveys specially designed to obtain information on the stock sizes of saithe, cod and haddock. In addition to the usual biological samples, stomachs of selected fish species were sampled as a part of the Faroese Stomach Sampling Programme.

In March-April *R/V "Magnus Heinason"* carried out exploratory fishery with bottom trawl for Norway pout around the Faroes.

In May *R/V "Magnus Heinason"* carried out O-Group Surveys in Faroese waters to get information on the year-class strength of saithe.

In May-June *R/V "Magnus Heinason"* carried out a combined acoustic and trawl survey to get information on the distribution of silver smelt in Faroese waters.

In May-July the commercial longliner *M/S "J.C.Svabo"* was chartered to carry out exploratory fishery with traps for tusk and ling in Faroese waters.

In June-July *R/V "Magnus Heinason"* continued the O-Group Surveys in Faroese Waters to get information on the year-class strength of cod, haddock, Norway pout and sandeel.

In June-July the commercial trawler *M/S "Skarðhamar"* was chartered to carry out an exploratory fishery with bottom trawl around the Faroes for flatfish, particularly lemon sole.

In July *R/V "Magnus Heinason"* carried out a Groundfish Survey around the Faroes as a part of the Faroese Stomach Sampling Programme. This Groundfish Survey was continued in September.

In October-December selection studies were carried out with *R/V "Magnus Heinason"* using different trawls and different designs of the codend.

On all cruises with *R/V "Magnus Heinason"* biological samples are taken as a routine for most fish species from almost every haul and the measurements are entered into the vessel computer automatically. Since all data have not been edited yet, the number of samples and measurements by species for 1990 can not be given at this stage except for selected species in the Faroese Groundfish Surveys in February-March.

SAMPLING DATA FOR : **COD** **1990** FAROES

Area	Season	Research vessel			Market		
		N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*	5 393	298	36	5 559	749
	2	*			23	4 007	348
	3	*			28	3 959	398
	4	*			53	8 515	649

SAMPLING DATA FOR : **HADDOCK** **1990** FAROES

Area	Season	Research vessel			Market		
		N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*	7 691	315	23	6 358	349
	2	*			11	4 003	202
	3	*			18	4 561	251
	4	*			35	10 175	350

SAMPLING DATA FOR : **SAITHE** **1990** FAROES

Area	Season	Research vessel			Market		
		N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*	4 245	307	35	7 179	350
	2	*			24	5 450	292
	3	*			17	4 210	250
	4	*			43	9 771	598

SAMPLING DATA FOR : **NORWAY POUT** **1990** FAROES

Area	Season	Research vessel			Market		
		N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*			4	236	200
	2	*			1	133	50
	3	*			4	409	200
	4	*			10	977	500

SAMPLING DATA FOR : ***Sebastes marinus*** **1990** FAROES

Area	Season	Research vessel			Market		
		N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*			2	487	-
	2	*			1	11	-
	3	*			2	317	-
	4	*			2	367	-

SAMPLING DATA FOR : ***Sebastes mentella*** **1990** FAROES

Area	Season	Research vessel			Market		
		N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*			3	880	-
	2	*			3	716	-
	3	*			3	659	-
	4	*			12	8 033	-

SAMPLING DATA FOR : TUSK				1990		FAROES	
		Research vessel			Market		
Area	Season	N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*			2	496	-
	2	*			1	185	-
	4	*			3	1 355	-

SAMPLING DATA FOR : LING				1990		FAROES	
		Research vessel			Market		
Area	Season	N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*			1	48	-
	2	*			2	311	-
	4	*			3	449	-

SAMPLING DATA FOR : BLUE LING				1990	FAROES		
		Research vessel			Market		
Area	Season	N Samples	N Measured	N Aged	N Samples	N Measured	N Aged
Vb	1	*			2	195	-
	2	*			3	435	-
	3	*			1	67	-
	4	*			6	650	-

SAMPLING DATA FOR : GREENLAND HALIBUT					1990		FAROES	
		Research vessel			Market			
Area	Season	N Samples	N Measured	N Aged	N Samples	N Measured	N Aged	
Vb	1	*			1	177	-	
	2	*			2	522	-	
	3	*			2	555	-	
	4	*			2	167	-	

\* Not possible to quantify at this stage (see text).

# FEDERAL REPUBLIC OF GERMANY\*

(G.Rauck)

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

A comprehensive sampling scheme, including length frequency measurements, otolith sampling, individual fish weights, tagging of fish, stomach sampling, as well as studies on fish density and distribution of demersal fish species was carried out during groundfish surveys.

The monthly by-catch analysis of the shrimp fishery has been continued, as well as the joint investigations in the Wadden Sea area of Niedersachsen and Schleswig-Holstein (Young Fish and Brown Shrimp Survey) 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 different mesh sizes were carried out in the German Bight.

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:

Months	ICES area	Objectives
<b>R.V. "Walther Herwig"</b>		
January	IVb	Groundfish survey (fish disease)
February	IVa,b,c	IYFS
Febr./March	VIa,b	Groundfish and pelagic survey
May/June	IV	Groundfish survey (fish disease)
June/July	IVa,b	Groundfish survey
Sept./October	XIVa	Groundfish survey
Oct./November	IIa,IVa,Vb XIV	Groundfish survey
<b>R.V."Solea"</b>		
January	IVb,c	Groundfish survey
Febr./March	IVb,c	Groundfish survey
June	IVb	Sole beam trawl survey
June/July	IVb,c	Groundfish survey
September	IVb	Groundfish survey
Nov./December	IVb,c	Groundfish survey
December	IVb,c VIIId	Groundfish survey
<b>R.V."Ernst Haeckel"</b>		
May/June	XII	Groundfish survey

\* The sampling programme of the former German Democratic Republic has been included in the tables.

SAMPLING DATA FOR : **COD** 1990 F.R.G.

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IIa	2	11)	2 491	363		4	1 265	600
	4	-	-	-		2	1 088	525
IVa	1	48 2)	753	497				
	2	23 2)	497	463				
	3	12 2)	106	99				
IVb	1	134 2)	1 932	914				
	2	137 2)	2 644	1 180				
	3	64 2)	1 421	722				
	3	21 3)	73	-				
	4	12)	31	-				
	4	43)	5	-				
IVc	1	62)	66	64				
	2	22 2)	73	69				
	4	9 2)	95	69				
IVb	1	94)	26					
	2	94)	11					
	3	34 4)	96					
	4	34)	7					
VIa	1	9 2)	85	77				
VIIe	1	12)	3	-				
VIIb,c	1	22)	3	1				
VIIg-k	1	22)	9	2				

SAMPLING DATA FOR : **HADDOCK** 1990 F.R.G.

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IIa	1	11)	1 212	229		4	290	104
	4					2	1 109	431
IVa	1	53 2)	8 739	648				
	2	20 2)	2 137	248				
	3	7 2)	945	104				
IVb	1	26 2)	3 320	691				
	2	32 2)	2 917	522				
	3	10 2)	510	91				
VIIb,c	1	4 2)	65	44				
VIIg-k	1	22)	33	13				

- 1) Samples taken on board of commercial trawler
- 2) Groundfish surveys
- 3) Young Fish and Brown Shrimp Survey
- 4) Shrimp bycatch investigations



**SAMPLING DATA FOR : WHITING 1990 F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IVa	1	502)	11 949	490				
	2	202)	1 591	173				
	3	72)	1 237	134				
IVb	1	1172)	13 917	333				
	2	792)	14 388	757				
	2	663)	432					
	3	512)	8 930	307				
	3	213)	673					
	4	412)	8 145	126				
IVc	4	743)	2 224					
	1	22)	99	-				
	2	222)	73	-				
IVb	4	192)	1 953	-				
	1	94)	56					
	2	734)	1 581					
	3	944)	2 903					
VIa	4	144)	424					
	1	82)	1 554	104				
VIIb,c	1	32)	196	92				
VIIId	4	72)	636	-				
VIIe	1	12)	175	70				
VIIg-k	1	22)	258	55				

**SAMPLING DATA FOR : BLUE WHITING 1990 F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
VIa	1	1	162	-				
VIIg-k	1	5	673					

**SAMPLING DATA FOR : BLUE LING 1990 F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
Vb	4	-	-	-		1	235	116
XIV	3	1	78	78		2	581	298
	4	-	-	-		1	324	167

- 1) Samples taken on board of commercial trawler
- 2) Groundfish surveys
- 3) Young Fish and Brown Shrimp Survey
- 4) Shrimp bycatch investigations

SAMPLING DATA FOR : **SAITHE** **1990** **F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IIa	1	-	-	-		2	729	1 081
	3	-	-	-		1	421	220
	4	-	-	-		3	1 415	703
IVa	1	2	1 138	500		4	2 145	1 055
	2	-	-	-		6	2 747	1 504
	3	1	284	284		8	3 619	1 858
	4	-	-	-		7	4 108	2 067
VII	1	1	66	62				

SAMPLING DATA FOR : **SOLE** **1990** **F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IVb	2	90 2)	4 453	710		3	1 472	
IVc	4	1	20	-				
IVb	2	76 3)	787					
	3	31 3)	141					
	4	13 3)	23					
IVb	1	17 4)	146					
	2	101 4)	1 507					
	3	82 4)	583					
	4	3 4)	4					

SAMPLING DATA FOR : **DAB** **1990** **F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IVa	1	1 2)	40	-				
	2	15 2)	981	-				
	3	6 2)	673	-				
IVb	1	83 2)	5 622	-				
	2	90 2)	11 684	-				
	2	126 3)	3 119					
	3	37 2)	4 791	-				
	3	43 3)	1 010					
	4	36 2)	2 979	-				
	4	54 3)	1 515					
IVc	2	2 2)	137	-				
	4	5 2)	415	-				
VIIId	4	1 2)	42	-				
IVb	1	20 4)	258					
	2	83 4)	1 614					
	3	63 4)	1 155					
	4	13 4)	387					

**SAMPLING DATA FOR : PLAICE 1990 F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IVa	2	14	58	-				
	3	11	60	-				
IVb	1	73 2)	4 252	3 367				
	2	130 2)	3 906	-				
	2	143 3)	5 616	125				
	3	44 2)	1 225	-				
	3	42 3)	1 851	-				
	4	26 2)	803	-				
	4	82 3)	3 865	132				
IVc	1	6 2)	26					
	2	1 2)	1					
	4	4 2)	82					
IVb	1	23 4)	2 445					
	2	131 4)	10 891					
	3	123 4)	15 064					
	4	13 4)	738					

**SAMPLING DATA FOR : FLOUNDER 1990 F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IVb	1	2 2)	61					
	2	2 2)	198					
	4	3 2)	193					
IVb	2	92 3)	926					
	3	43 3)	303					
	4	41 3)	110					
IVb	1	21 4)	161					
	2	94 4)	567					
	3	103 4)	807					
	4	9 4)	80					

**SAMPLING DATA FOR : GREENLAND HALIBUT 1990 F.R.G.**

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
XIV	4	1	305	305				

- 1) Samples taken on board of commercial trawler
- 2) Groundfish surveys
- 3) Young Fish and Brown Shrimp Survey
- 4) Shrimp bycatch investigations

SAMPLING DATA FOR : **TURBOT** 1990 F.R.G.

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IVb	2	53	229	65				
	3					2	130	130

SAMPLING DATA FOR : *Sebastes marinus* 1990 F.R.G.

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
IIa	1	6 1)	881	223		1	413	200
XIV	3	14	3 139	225				
	4	74	10 253	590				

SAMPLING DATA FOR : *Sebastes mentella* 1990 F.R.G.

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
Vb	1					1	816	238
	2					1	655	
XII	3	13	4 262	600				
XIV	2	50	16 973	1 800	170			
	3	23	3 268	340		2	755	150
	4	35	3 835	350				
?	1	6	2 703	340		2	633	150
	4					3	2 205	

SAMPLING DATA FOR : *Coryph. rupestris* 1990 F.R.G.

		Research vessels				Market sampling		
		Nr of fish				Nr of fish		
Area	Season	Nr samp.	Meas.	Aged	Other	Nr samp.	Meas.	Aged
XII	2	3	807	200				

- 1) Samples taken on board of commercial trawler
- 2) Groundfish surveys
- 3) Young Fish and Brown Shrimp Survey
- 4) Shrimp bycatch investigations

**FINLAND**

(E. Aro)

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

# FRANCE

(A.Souplet)

SAMPLING DATA FOR : **WHITING** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	16	-	1 980	577
IVb	1	29	-	4 791	1 365
IVc	1	-	12	1 151	-
	1	13	-	925	570
	2	-	8	-	942
	3	-	7	-	1 173
	4	-	10	835	-
VIIa	1	-	1	433	
VIId	1	-	1	-	307
	4	25	-	955	905
	4	-	3	270	-
VIIf,g	1	-	3	896	609
	2	-	3	1 114	697
	3	-	3	646	641
	4	-	3	879	636
VIIg,j+ VIIIa,b	4	43	-	1 301	397
VIIh,g,j	4	16	-	263	-
VIII	1	-	4	215	-
	1	26	-	717	-
	2	-	4	235	-
	2	36	-	881	-
	3	-	12	502	-
	3	27	-	884	-
	4	-	6	292	-
	4	13	-	363	-
VIIIa	4	19	-	665	-
VIIIb	4	8	-	373	-

SAMPLING DATA FOR : **HADDOCK** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	16	-	1 960	746
IVb	1	10	-	572	340
VIa	1	-	29	1 908	-
	2	-	18	1 389	-
	3	-	20	1 257	-
	4	-	36	2 731	-
VIIg,h,j	4	13	-	54	-

SAMPLING DATA FOR : **COD** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	16	-	185	163
IVb	1	25	-	335	299
IVc	1	12	-	66	61
	4	-	3	-	225
VIa	1	-	7	1 136	315
	2	-	8	1 312	391
	3	-	4	1 032	315
	4	-	6	1 241	344
VIIa	1	-	1	117	-
VIIId	4	17	-	90	45
VIIf,g	1	-	4	431	307
	2	-	7	513	321
	3	-	5	718	440
	4	-	3	439	293
VIIg,h,j	4	25	-	52	-

SAMPLING DATA FOR : **SAITHE** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	5	-	14	14
VIa	1	-	60	1 815	373
	2	-	53	1 873	358
	3	-	60	2 077	401
	4	-	59	2 034	388
VIIg,h,j	4	11	-	26	-

SAMPLING DATA FOR : **POLLACK** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VII	1	-	-	338	163
	2	-	-	193	108
VIIe	1	-	8	692	226
	2	-	5	589	83
VIIIa	4	8	-	15	-

SAMPLING DATA FOR : **BIB** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVb	1	3	-	6	-
IVc	1	9	-	205	-
	1	-	4	331	158
	2	-	4	369	317
	3	-	6	474	229
VIId	1	-	6	736	234
	2	-	11	1 227	245
	3	-	12	1 404	301
	4	31	-	2 805	743
	4	-	7	802	332
VIIg,j+ VIIIa,b	4	55	-	2 472	515
VIIIa	4	29	-	740	-
VIIIb	4	21	-	1 723	-

SAMPLING DATA FOR : **NORWAY POUT** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	16	-	1 440	185
IVb	1	5	-	281	28

SAMPLING DATA FOR : **HAKE** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VI	1	-	13	619	-
VII	1	-	2	116	-
	2	-	12	335	-
	3	-	21	779	-
	4	-	15	398	-
VIIg,h,j	4	67	-	2 131	-
VIIIa	4	73	-	10 660	-
VIIIb	4	43	-	3 176	-
VIII	1	-	68	3 103	-
	1	30	-	2 592	-
	2	-	68	3 450	-
	2	42	-	5 396	-



**SAMPLING DATA FOR : LING 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIIe	1	-	8	764	69
	2	-	5	884	-
VIIe2+	1	-	3	701	310
VIIIf,j+	2	-	3	1 005	753
VIIIa2	3	-	2	445	213
	4	-	3	721	314
VIII	3	-	42	2 325	-
	3	47	-	7 579	-
	4	-	56	2 399	-
	4	35	-	3 607	-

**SAMPLING DATA FOR : BLUE LING 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIa	1	-	8	137	70
	2	-	29	513	240

**SAMPLING DATA FOR : MEGRIM 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIA	1	-	-	254	136
	2	-	-	217	101
	3	-	-	263	159
VII	1	-	-	4 482	389
	2	-	-	3 752	317
	3	-	-	3 749	386
	4	-	-	2 741	301
VIII	1	-	-	2 095	-
	2	-	-	3 343	-
	3	-	-	2 408	-
	4	-	-	2 388	-
VIIg,h,j	4	61	-	611	-
VIIIa	4	36	-	125	-
VIIIb	4	19	-	127	-

**SAMPLING DATA FOR : RED GURNARD 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIId	1	-	4	578	280
	2	-	10	614	232
	3	-	5	303	257
	4	-	5	259	192

SAMPLING DATA FOR : **BASS** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIIe	1	-	8	286	108
	2	-	5	198	36

SAMPLING DATA FOR : **BLUE WHITING** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIIg,h,j	4	59	-	5 935	-
VIIIa	4	63	-	7 576	-
VIIIb	4	28	-	3 696	-

SAMPLING DATA FOR : **PLAICE** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	13	-	263	58
IVb	1	27	-	694	537
IVc	1	11	-	374	148
	1	-	1	935	-
	2	-	1	1 228	-
	3	-	1	936	-
	4	3	-	123	11
VIId	1	-	16	2 026	275
	2	-	23	1 082	-
	3	-	27	1 876	562
	4	23	-	329	300
	4	-	16	589	-
VIIg,h,j	4	7	-	27	-
VIIIa	4	6	-	16	-

SAMPLING DATA FOR : DAB

1990

FRANCE

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	15	-	923	235
IVb	1	28	-	3 887	521
IVc	1	13	-	1 270	236
	4	5	-	55	27
VIId	1	-	7	971	130
	2	-	12	1 174	164
	3	-	12	1 299	164
	4	21	-	601	543
	4	-	6	913	-
VIIg,h,j	4	6	-	30	-
VIIIa	4	6	-	26	-
VIIIb	4	2	-	17	-

SAMPLING DATA FOR : LEMON SOLE

1990

FRANCE

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVa	1	12	-	198	140
IVb	1	12	-	37	29
IVc	1	3	-	3	-
	4	2	-	47	33
VIId	4	14	-	96	62

SAMPLING DATA FOR : **SOLE** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IVb	1	7	-	14	-
IVc	1	6	-	16	-
	1	-	1	1 099	-
	2	-	3	970	-
	3	-	1	372	-
	4	4	-	34	29
VIId	1	-	23	2 462	241
	2	-	20	797	292
	3	-	35	3 001	320
	4	8	-	129	104
	4	-	32	1 597	136
VIIe	1	-	8	2 017	-
	2	-	5	358	-
VIII	1	-	33	1 885	-
	1	30	-	479	247
	2	-	32	2 027	-
	2	39	-	565	221
	3	-	41	2 394	-
	3	26	-	202	204
	4	-	34	2 114	-
	4	31	-	589	308
VIIIa	4	7	-	18	-
VIIIb	4	8	-	10	-

SAMPLING DATA FOR : **WHITE ANGLER\*** **1990** **FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIII	1	-	10	341	-
	1	23	-	112	-
	2	-	17	581	-
	2	30	-	97	-
	3	-	19	554	-
	3	16	-	30	-
	4	-	22	556	-
	4	21	-	48	-
VIIIa	4	9	-	11	-
VIIg,h,j	4	14	-	20	-
VII+VIII	1	-	x	4 230	250
	2	-	x	4 170	245
	3	-	x	4 200	240
	4	-	x	4 325	260

\**Lophius piscatorius*

**SAMPLING DATA FOR : BLACK ANGLER\* 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIIg,h,j	4	10	-	13	-
VII+VIII	1	-	x	4 220	160
	2	-	x	4 430	175
	3	-	x	4 400	170
	4	-	x	4 550	180

\**Lophius budegassa*

**SAMPLING DATA FOR : RED MULLET 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIIIa,b	1	-	8	494	-
	2	-	10	546	-
	2	37	-	573	-
	3	-	10	546	-
	4	-	12	681	-
	4	31	-	336	-

**SAMPLING DATA FOR : ROUNDNOSE GRENADE 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VI	2	-	x	81	81
	3	-	x	140	140
	4	-	x	132	132

**SAMPLING DATA FOR : NEPHROPS 1990 FRANCE**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VIIh,h,j	4	16	-	482	
VIIIa,b	1	-	6	896	-
	1	19	-	2 083	-
	2	-	5	450	-
	2	30	-	2 580	-
	3	-	4	506	-
	3	40	-	3 985	-
	4	-	4	372	-
	4	27	-	2 271	-
VIIIa	4	19	-	588	-
VIIIb	4	12	-	63	-

## ICELAND

(J. Magnússon)

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

The greatest part of the research vessel data was collected during the annual groundfish survey in March. The survey is carried out simultaneously with five commercial stern trawlers of the same type covering the whole shelf area around Iceland with some 600 trawling stations.

Market samples were collected at the headquarters of the Marine Research Institute in Reykjavík and the five branches of MRI located at other important fishing ports. Fishery inspectors collected a considerable amount of data both on board of commercial fishing vessels and at the landing places.

Emphasis was laid on assessment work, as usual, and steps were taken to increase studies on species interactions.

One short cruise was directed towards the oceanic-type *S. mentella* in the Irminger Sea. Some data from commercial catches from this stock were also collected. These data are not included in the following tables, which show the number of fish sampled by species.

SAMPLING DATA FOR : COD				1990	ICELAND
		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	1 426		109 587	5 939
			96	14 301	3 156
	2	118		18 444	1 111
			69	7 161	2 677
	3	346		45 291	2 618
			15	1 447	700
	4	247		23 879	1 334
			11	1 126	501
Total		2 137	191	221 236	18 036

SAMPLING DATA FOR : HADDOCK				1990	ICELAND
		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	866		74 264	2 229
			24	2 890	946
	2	92		16 475	327
			21	2 445	700
	3	124		15 612	715
			18	1 914	650
	4	111		12 602	888
			24	3 593	830
Total		1 193	87	129 795	7 285

SAMPLING DATA FOR : **SAITHE**

**1990**

**ICELAND**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	454		9 542	1 839
			33	4 064	1 344
	2	18		2 874	301
			12	978	500
	3	68		4 686	547
			10	1 195	400
	4	17		1 034	164
			5	422	200
Total		557	60	24 795	5 295

SAMPLING DATA FOR : **LING**

**1990**

**ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	121		328	135	
	3		8	11		
	4		3	5		
Total		121	11	344	135	

SAMPLING DATA FOR : **BLUE LING**

**1990**

**ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	48		223	76	
	3		2	3		
	4		3	3		
Total		48	5	229	76	

SAMPLING DATA FOR : **TUSK**

**1990**

**ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	290		1 446	1 911	
	3		10	19		
	4		2	5		
Total		290	12	1 470	1 911	

SAMPLING DATA FOR : *Sebastes marinus* 1990 ICELAND

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	543		50 726	382
			9	3 232	355
	2	11		1 662	
			4	1 623	389
	3	70		7 323	
4			8	3 174	161
		41	8	1 543	
Total		664	29	71 909	1 437

SAMPLING DATA FOR : *Sebastes mentella* 1990 ICELAND

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	41		1 231	
			2	217	
	2	4		783	
			2	419	
	3	3		248	
4		6		986	97
			4	393	
Total		54	8	4 277	97

SAMPLING DATA FOR : PLAICE 1990 ICELAND

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	182		3 688	238
	3		2	503	100
	4		2	340	198
Total		182	4	4 531	536

SAMPLING DATA FOR : DAB 1990 ICELAND

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	108		2 119	
Total		108		2 119	

SAMPLING DATA FOR : GREAT. SILVERSMELT 1990 ICELAND

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
Va	1	54		2 511	168
	3	9		968	
Total		63		3 479	168



**SAMPLING DATA FOR : CATFISH 1990 ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	454		16 123	1 664	
	2		2	158	200	
	3		2	149	100	
Total		520	8	16 429	1 964	

**SAMPLING DATA FOR : LUMPSUCKER 1990 ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	250		1 671		
	2		21	2 140		
Total		250	21	3 811		

**SAMPLING DATA FOR : WITCH 1990 ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	193		1 746		
	4		4	368	100	
Total		193	5	2 114	300	

**SAMPLING DATA FOR : GREENLAND HALIBUT 1990 ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	45		1 199		
			4	715		
	2	26		293	156	
			54	10 185	1 107	
	3	72		2 585	715	
	4		1	155		
Total		143	59	17 110	1 978	

**SAMPLING DATA FOR : HALIBUT 1990 ICELAND**

		Nr of samples		Nr of fish		
Area	Season	Res. vessels	Market	Measured	Aged	Counted
Va	1	119		248	143	
Total		119		248	143	

# IRELAND

(E. Fahy)

The demersal section carried out the following young fish surveys in 1990:

1) Irish Sea Juvenile Plaice Survey, May. This survey is carried out annually along the east coast of Ireland (Division VIIa) from Carnsore Point to Dundalk Bay. The survey has been carried out since 1980 at 43 pre-determined stations using a 3 m beam trawl with 1 cm mesh, operated from a chartered fishing vessel. The results are used to construct recruitment indices and are presented annually to the ICES Irish Sea - Bristol Channel Working Group.

2) Irish Sea Young Fish Survey, June and September. This survey is carried out biannually on the gadoid nursery grounds in the north-west Irish Sea (Division VIIa). The survey has been carried out since 1982 at 34 pre-determined stations using a standard otter trawl with cod end liner, operated from the state research vessel RV "Lough Beltra". The results of these surveys are used to construct recruitment indices and are presented annually to the ICES Irish Sea - Bristol Channel Working Group.

3) Iris West Coast Young Fish Survey, November. This survey is carried out annually along the west coast of Ireland from the mouth of the Shannon to Tory Island (Divisions VIIb and VIa). The survey has been carried out since 1983 on young pelagic species (herring and mackerel), but was broadened in 1990 to include the important demersal species (cod, haddock, whiting, and plaice). A standard otter trawl with cod end liner is operated from a commercial fishing vessel at 28 pre-determined stations. The results will be presented to ICES when a suitable time series has been generated.

SAMPLING DATA FOR : COD			1990			IRELAND
			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIa-N	1/4	34	230	316	1 588	1 904
VIa-S	1/4	80	137	251	3 095	2 346
VIIa-N	1/4	57	319	564	1 227	1 791
VIIa-S	1/4	20	187	340	994	1 334
VIIb	1/4	90	140	241	1 854	2 095
VIIg	1/4	3	-	-	78	78

SAMPLING DATA FOR : HADDOCK			1990			IRELAND
			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIa-N	1/4	19	85	238	1 400	1 638
VIa-S	1/4	22	-	120	1 906	2 026
VIb	1/4	7	-	-	650	650
VIIb	1/4	48	-	190	1 491	1 678

**SAMPLING DATA FOR : WHITING 1990 IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIIa-N	1/4	9	-	354	1 415	1 488
VIIa-S	1/4	25	-	215	4 575	4 790
VIIa-N	1/4	60	24	335	8 001	8 436
VIIa-S	1/4	26	-	253	5 128	5 381
VIIb	1/4	35	-	156	5 882	6 038

**SAMPLING DATA FOR : HAKE 1990 IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIIa-N	1/4	4	-	-	202	202
VIIa-S	1/4	20	-	-	1 869	1 869
VIIa-N	1/4	15	-	14	228	242
VIIa-S	1/4	1	-	-	9	9
VIIb	1/4	48	-	95	1 351	1 446
VIIc	1/4	1	-	-	52	52
VIIe	1/4	25	-	349	1 009	1 358
VIIg	1/4	48	-	424	3 993	4 417
VIIj	1/4	1	-	56	54	110

**SAMPLING DATA FOR : SOLE 1990 IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIIa-N	1/4	4	-	231	1 235	1 466

**SAMPLING DATA FOR : PLAICE 1990 IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIIa-N	1/4	15	-	275	1 756	2 031
VIIa-S	1/4	17	-	317	2 048	2 365

SAMPLING DATA FOR : **MEGRIM** **1990** **IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIa-N	1/4	4	-	-	607	607
VIa-S	1/4	34	-	-	4 162	4 162
VIb	1/4	1	-	-	116	116
VIIb	1/4	28	-	-	4 330	4 330
VIIe	1/4	18	-	-	4 532	4 532
VIIj	1/4	157	432	792	15 931	16 723

SAMPLING DATA FOR : **FOUR SPOT MEGRIM** **1990** **IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIIj	1/4	10	88	99	32	131

SAMPLING DATA FOR : *Lophius budegassa* **1990** **IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIa-N	1/4	8	-	-	94	94
VIa-S	1/4	35	-	-	548	548
VIb	1/4	3	-	-	15	15
VIIb	1/4	43	-	15	460	475
VIIg	1/4	3	-	2	47	49
VIIj	1/4	44	-	155	2 130	2 285

SAMPLING DATA FOR : *Lophius piscatorius* **1990** **IRELAND**

			Nr of fish			
Area	Season	Nr samples	Aged	Weighed	Meas. only	Total nr
VIa-N	1/4	17	-	-	273	273
VIa-S	1/4	128	-	-	3513	3513
VIb	1/4	5	-	-	126	126
VIIb	1/4	78	-	-	1411	1411
VIIg	1/4	38	-	38	1494	1532

## THE NETHERLANDS

(F. van Beek)

In 1990 the market sampling of landings of the Dutch fleet from the North Sea in The Netherlands was continued for the following species: brill (*Scophthalmus rhombus*), cod (*Gadus morhua*), plaice (*Pleuronectes platessa*), sole (*Solea solea*), turbot (*Scophthalmus maximus*) and whiting (*Merlangius merlangus*). A new species, the greater silversmelt (*Argentina silus*), was added to this list. For all species samples were stratified by harbour. All samples were also stratified by market category. The tables below indicate the level of sampling.

In February the 22 year old research vessel "TRIDENS" was replaced by a new vessel with the same name. The new "TRIDENS" is 73.54 m long and has a width of 13.86 m. It offers accommodation to 12 scientists and a crew of 21 heads. It can handle commercial fishing gears as bottom trawls, large pelagic trawls and twin beam trawls. Beside it is equipped to obtain hydrografical data and to carry out plankton surveys, echo surveys and surveys with a Remote Operated Vehicle.

In January, June and August surveys were carried out with R.V. "Tridens" (5 weeks) and R.V. "Isis" (2 weeks) in the southern and central North Sea with the standard GOV trawl and the IYGPT in the framework of the ICES multispecies program. The trips in June and August on the "Tridens" were combined with an 0-group roundfish survey.

In February the old and new Tridens carried out a trip (2 weeks) for comparative fishing with various gears.

In February R.V. "Isis" (2 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.

On board of R.V. "Stern" 2559 flounders (*Platichthys flesus*) were tagged in Dutch coastal waters with the Peterson tag in the period March-May (3 weeks).

A combined egg survey in the period April-July on sole and horse mackerel was carried out by R.V. "Isis" (7 weeks) and R.V. "Tridens" (3 weeks) in the southern North Sea. The aim of these surveys is to estimate the egg production and stock size of these species in this area.

In April a SNS survey (Sole Net Survey) was carried out by R.V. "Isis" (4 weeks). In September-October this survey was carried out by R.V. "Tridens" (3 weeks). These surveys provide recruitment indices for 1- and 2-year old plaice and sole.

In June 2213 plaice were tagged along the Danish coast by R.V. "Isis" (2 weeks). In August another 157 plaice were tagged in the Central North Sea by R.V. "Tridens" during multispecies trips.

In August-September a Beam Trawl Survey (BTS) was carried out by R.V. "Isis" (5 weeks) in the southern North Sea in collaboration with Belgium in order to investigate the abundance and distribution of adult plaice and sole in this area.

In September-October R.V. "Isis" (4 weeks), R.V. "Stern" (3 weeks) and R.V. "Schollebaar" (2 weeks) participated in the Demersal Young Fish Surveys (DYFS). These surveys estimate the relative abundance of brown shrimp (*Crangon crangon*) 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 October-November R.V. "Tridens" (3 weeks) and R.V. "Isis" (4 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 1990 THE NETHERLANDS**

		Market		Research vessels
Area*	Season	Measured	Aged	Aged
NRFA 2	2	98	100	-
	3	104	55	-
	4	125	-	-
NRFA 4	4	91	-	-
NRFA 5	1	50	50	-
	2	447	40	-
	3	283	50	-
NRFA 6	1	1 695	480	174
	2	943	207	-
	3	926	155	100
	4	1 172	283	268
NRFA 7	3	-	-	205
	4	-	-	23
Total	1/4	5 934	1 420	770

**SAMPLING DATA FOR : HADDOCK 1990 THE NETHERLANDS**

		Market		Research vessels
Area*	Season	Measured	Aged	Aged
NRFA 7	3	-	-	140
Total	1/4	-	-	140

\* North Sea Roundfish Sampling Areas

**SAMPLING DATA FOR : WHITING 1990 THE NETHERLANDS**

		Market		Research vessels
Area*	Season	Measured	Aged	Aged
NRFA 1	1	76	50	-
NRFA 2	2	269	51	-
NRFA 4	4	97	-	-
NRFA 5	1	56	-	-
	2	331	-	-
	3	573	100	-
NRFA 6	1	1 402	250	321
	2	1 111	200	-
	3	1 250	250	75
	4	1 914	300	1 111
NRFA 7	3	-	-	88
	4	-	-	114
Total	1/4	7 079	1 201	1 709

**SAMPLING DATA FOR : SAITHE 1990 THE NETHERLANDS**

		Market		Research vessels
Area*	Season	Measured	Aged	Aged
NRFA 7	3	-	-	26
Total	1/4	-	-	26

\* North Sea Roundfish Sampling Areas

**SAMPLING DATA FOR : SILVER SMELT 1990 THE NETHERLANDS**

		Market		Research vessels
Area*	Season	Measured	Aged	Aged
IVa	2	146	75	-
VIa	2	885	606	-
VIIc	2	307	75	-
Vb	2	47	25	-
Total	1/4	1385	781	-

**SAMPLING DATA FOR : PLAICE 1990 THE NETHERLANDS**

		Market		Research vessels
Area	Season	Measured	Aged	Aged
IV	1	-	1 318	-
	2	-	1 019	765
	3	-	1 030	546
	4	-	961	1 607
Waddensea	4	-	-	238
Zeeland estuary	4	-	-	141
Total	1/4	-	4 328	3 295

**SAMPLING DATA FOR : SOLE 1990 THE NETHERLANDS**

		Market		Research vessels
Area	Season	Measured	Aged	Aged
IV	1	-	893	-
	2	-	1 287	522
	3	-	817	376
	4	-	500	932
Waddensea	4	-	-	6
Zeeland estuary	4	-	-	78
Total	1/4	-	3 497	1 914

**SAMPLING DATA FOR : TURBOT**

**1990 THE NETHERLANDS**

		Market		Research vessels
Area	Season	Measured	Aged	Aged
IV	1	848	169	-
	2	1269	141	45
	3	789	156	194
	4	805	140	221
Waddensea	4	-	-	2
Zeeland estuary	4	-	-	1
Total	1/4	3 711	606	463

**SAMPLING DATA FOR : BRILL**

**1990 THE NETHERLANDS**

		Market		Research vessels
Area	Season	Measured	Aged	Aged
IV	1	668	111	-
	2	677	101	25
	3	331	123	85
	4	620	108	82
Waddensea	4	-	-	5
Zeeland estuary	4	-	-	3
Total	1/4	2 296	443	200

**SAMPLING DATA FOR : DAB**

**1990 THE NETHERLANDS**

		Market		Research vessels
Area	Season	Measured	Aged	Aged
IV	2	-	-	515
	3	-	-	373
	4	-	-	1 303
Waddensea	4	-	-	254
Zeeland estuary	4	-	-	50
Total	1/4	-	-	2 495



SAMPLING DATA FOR : **FLOUNDER** **1990** **THE NETHERLANDS**

		Market		Research vessels
Area	Season	Measured	Aged	Aged
<b>IV</b>	1	-	376	-
	2	-	130	-
	3	-	-	131
	4	-	114	202
<b>Zeeland estuary</b>	4	-	-	26
<b>Lake IJsselmeer</b>	2	-	144	-
<b>Total</b>	<b>1/4</b>	-	764	359

## NORWAY

(T.Jakobsen & O.M.Smedstad)

### Sub-areas I and II.

Routine research surveys were carried out as in previous years, accounting for most of the activity at sea. The experim

t to use commercial trawlers for a bottom trawl survey in the Barents Sea/Svalbard area was continued, but the number of trawlers was reduced from fifteen to five and the duration was extended from one to two weeks. Stomach sampling for multispecies research was carried out on routine surveys throughout most of the year. Investigations on cod and haddock spawning (eggs, larvae) were combined with other surveys.

The abundance of cod, haddock and redfish in the Barents Sea was investigated during a combined acoustic and stratified bottom trawl survey in January-February. The distribution and abundance of spawning cod was investigated by acoustic surveys in the Lofoten area in February-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, redfish, and Greenland halibut was investigated in the Svalbard area in September-October. Part of this survey was included in a multispecies acoustic survey carried out together with U.S.S.R. vessels during the same period, when the distribution of cod, haddock, redfish and pelagic species was investigated in the Barents Sea. Stomach samples from cod and haddock were collected on all the routine surveys for cod/haddock in the Barents Sea and at Svalbard, and in addition on shrimp and pelagic fish surveys.

In November, a bottom trawl survey with five commercial trawlers was carried out during two weeks in the Barents Sea under the supervision of the Institute of Marine Research. The intention is to repeat the survey for at least three more years. In addition to the abundance estimation, emphasis was put on comparisons between commercial trawls and the standard sampling trawl used by research vessels.

The post-larvae were studied in July. In August-September the International O-group survey, aimed primarily at cod, was carried out in the Barents Sea and adjacent waters in cooperation with U.S.S.R. vessels.

An O-group (post-larvae) survey for saithe was carried out north of 62°N up to the Lofoten Islands in May, and an acoustic survey for saithe and redfish was carried out on the coastal banks from North Cape to 62°N in October.

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

### Sub-area IV

The distribution and abundance of I-and II-group Gadoids were studied in January-February as part of the International Young Fish Survey. During the annual acoustic survey for saithe in the North Sea in February, weather conditions prevented the programme from being carried out. In May the distribution of saithe post-larvae in the North Sea was studied. The sampling of commercial catches of saithe, sandeel and Norway pout was continued.

SAMPLING DATA FOR : COD

1990

NORWAY

Area	Season	Market				Research vessels			
		Measured		Aged		Measured		Aged	
		Samp	Fish	Samp	Fish	Samp	Fish	Samp	Fish
I	1	1	262	5	514	431	23 051	71	1 939
	2	6	920	16	1 536	149	8 324	34	1 960
	3	-	-	-	-	82	2 709	25	888
	4	-	-	-	-	221	16 093	29	1 146
IIa	1	88	8 301	112	10 102	216	15 399	55	2 141
	2	16	1 002	13	1 085	67	3 167	28	1 093
	3	-	-	-	-	68	1 364	10	351
	4	-	-	-	-	200	15 908	20	914
IIb	1	-	-	-	-	9	174	4	150
	2	-	-	-	-	30	401	6	136
	3	-	-	-	-	311	11 707	72	2 027
	4	-	-	-	-	122	14 256	5	224
IVa	1	-	-	-	-	42	491	21	340
	2	-	-	-	-	15	98	-	-
IVb	1	-	-	-	-	11	89	8	39

SAMPLING DATA FOR : HADDOCK

1990

NORWAY

Area	Season	Market				Research vessels			
		Measured		Aged		Measured		Aged	
		Samp	Fish	Samp	Fish	Samp	Fish	Samp	Fish
I	1	-	-	-	-	283	28 262	48	987
	2	5	1 478	9	961	172	11 205	3	80
	3	-	-	-	-	46	1 045	2	80
	4	-	-	-	-	155	11 001	14	478
IIa	1	27	997	21	1 886	225	8 693	41	1 163
	2	12	638	6	561	154	2 335	14	308
	3	-	-	-	-	88	1 537	2	38
	4	-	-	-	-	117	7 696	19	844
IIb	1	-	-	-	-	5	382	1	91
	2	-	-	-	-	14	137	-	-
	3	-	-	-	-	168	3 800	14	275
	4	-	-	-	-	53	1 064	3	59
IVa	1	-	-	-	-	48	2 909	13	491
	2	-	-	-	-	30	943	-	-
IVb	1	-	-	-	-	12	353	4	95

SAMPLING DATA FOR : SAITHE

1990

NORWAY

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
I	1	-	-	-	-	38	351	-	-
	2	1	90	1	67	4	4	-	-
	4	-	-	-	-	8	359	1	80
IIa	1	8	528	10	875	101	6 408	4	151
	2	9	957	6	1 286	92	2 349	1	37
	3	-	-	-	-	14	138	-	-
	4	-	-	-	-	98	3 058	18	911
IIb	3	-	-	-	-	2	2	-	-
	4	-	-	-	-	5	6	-	-
IVa	1	-	-	-	-	24	195	14	138
	2	-	-	-	-	36	560	-	-

SAMPLING DATA FOR : GREENLAND HALIBUT

1990

NORWAY

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
I	1	-	-	-	-	85	782	3	53
	2	-	-	-	-	67	1 581	8	181
	3	-	-	-	-	22	62	-	-
	4	-	-	-	-	80	873	1	33
IIa	1	1	274	1	112	17	131	2	47
	2	3	351	-	-	12	127	1	36
	3	-	-	-	-	21	252	2	28
	4	-	-	-	-	28	275	-	-
IIb	1	-	-	-	-	5	119	-	-
	2	-	-	-	-	30	1 382	4	118
	3	-	-	-	-	180	4 969	30	714
	4	-	-	-	-	86	2 310	-	-

SAMPLING DATA FOR : TUSK

1990

NORWAY

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
I	1	-	-	-	-	6	17	-	-
	2	-	7	-	-	-	-	-	-
	4	-	-	-	-	1	1	-	-
IIa	1	-	-	-	-	39	97	-	-
	2	-	-	-	-	16	25	-	-
	3	-	-	-	-	9	36	-	-
	4	-	-	-	-	47	256	-	-
IIb	3	-	-	-	-	15	44	-	-
IVa	1	-	-	-	-	10	44	-	-

SAMPLING DATA FOR : WHITING

1990

NORWAY

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
I	1	-	-	-	-	1	4	-	-
IIa	1	-	-	-	-	4	8	-	-
	2	-	-	-	-	5	22	-	-
	3	-	-	-	-	24	195	-	-
	4	-	-	-	-	44	396	-	-
IVa	1	-	-	-	-	49	3 346	10	269
	2	-	-	-	-	2	3	-	-
IVb	1	-	-	-	-	10	44	-	-

SAMPLING DATA FOR : NORWAY POUT

1990

NORWAY

Area	Season	Market				Research vessels			
		Measured		Aged		Measured		Aged	
		Samp	Fish	Samp	Fish	Samp	Fish	Samp	Fish
I	1	-	-	-	-	19	368	-	-
	2	-	-	-	-	8	283	-	-
	3	-	-	-	-	5	12	-	-
	4	-	-	-	-	6	31	-	-
IIa	1	-	-	-	-	43	1 832	-	-
	2	-	-	-	-	42	1 628	-	-
	3	-	-	-	-	15	269	-	-
	4	-	-	-	-	58	3 570	-	-
IIb	3	-	-	-	-	16	96	-	-
IVa	1	5	550	2	239	50	4 204	6	161
	2	42	4182	3	346	19	436	-	-
	3	4	438	1	103	-	-	-	-
IVb	1	-	-	-	-	9	423	2	66
Vb	2	-	-	-	-	1	75	-	-

SAMPLING DATA FOR : BLUE WHITING

1990

NORWAY

Area	Season	Market				Research vessels			
		Measured		Aged		Measured		Aged	
		Samp	Fish	Samp	Fish	Samp	Fish	Samp	Fish
I	1	-	-	-	-	11	351	-	-
	2	-	-	-	-	8	4	-	-
	3	-	-	-	-	10	363	-	-
	4	-	-	-	-	13	135	-	-
IIa	1	-	-	-	-	59	2 087	-	-
	2	-	-	-	-	38	1 574	14	1 011
	3	-	-	-	-	52	2 023	12	542
	4	-	-	-	-	58	1 862	2	100
IIb	3	-	-	-	-	64	1 203	-	-
	4	-	-	-	-	1	1	-	-
IVa	1	-	-	-	-	2	151	-	-
	2	-	-	-	-	3	127	1	100
Vb	1	1	102	1	50	-	-	-	-

SAMPLING DATA FOR : LONG ROUGH DAB

1990

NORWAY

Area	Season	Market				Research vessels			
		Measured		Aged		Measured		Aged	
		Samp	Fish	Samp	Fish	Samp	Fish	Samp	Fish
I	1	-	-	-	-	157	6 785	-	-
	2	-	-	-	-	82	3 363	-	-
	3	-	-	-	-	64	3 736	-	-
	4	-	-	-	-	44	2 965	-	-
IIa	1	-	-	-	-	94	3 316	-	-
	2	-	-	-	-	27	927	-	-
	3	-	-	-	-	49	1 831	-	-
	4	-	-	-	-	47	1 069	-	-
IIb	1	-	-	-	-	6	200	-	-
	2	-	-	-	-	28	1 114	-	-
	3	-	-	-	-	271	12 386	-	-
	4	-	-	-	-	11	487	-	-
IVa	1	-	-	-	-	47	1 533	-	-
	2	-	-	-	-	2	11	-	-
IVB	1	-	-	-	-	14	317	-	-

**SAMPLING DATA FOR : LING 1990 NORWAY**

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
IIa	1	-	-	-	-	11	14	-	-
	2	-	-	-	-	6	11	-	-
	3	-	-	-	-	1	1	-	-
	4	-	-	-	-	26	39	-	-
IVa	1	-	-	-	-	10	11	-	-
IVb	1	-	-	-	-	1	1	-	-

**SAMPLING DATA FOR : SILVER SMELT 1990 NORWAY**

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
I	1	-	-	-	-	4	5	-	-
	3	-	-	-	-	1	1	-	-
	4	-	-	-	-	1	1	-	-
IIa	1	4	295	4	295	36	307	-	-
	2	5	369	5	369	27	915	10	457
	3	1	100	1	100	17	70	1	30
	4	-	-	-	-	41	1209	1	50
IIb	3	-	-	-	-	4	4	-	-
IVa	1	-	-	-	-	2	56	-	-
	2	-	-	-	-	6	82	1	71
Vb	2	-	-	-	-	1	6	1	6

**SAMPLING DATA FOR : SANDEEL 1990 NORWAY**

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
I	3	-	-	-	-	4	82	-	-
	4	-	-	-	-	1	1	-	-
IVa	1	2	241	28	3 011	-	-	-	-
	2	2	239	6	643	-	-	-	-
IVb	1	-	-	-	-	1	5	-	-
	2	40	4 233	4	447	-	-	-	-
	3	10	1 272	-	-	-	-	-	-
	4	1	124	-	-	-	-	-	-

**SAMPLING DATA FOR : REDFISH 1990 NORWAY**

Area	Season	Market				Research vessels			
		Samp	Measured Fish	Samp	Aged Fish	Samp	Measured Fish	Samp	Aged Fish
I	1	-	-	-	-	43	2 726	1	11
	2	-	-	-	-	72	3 894	1	20
	3	-	6	-	-	23	1 522	2	85
	4	-	-	-	-	25	1 087	1	40
IIa	1	3	373	1	4	102	7 194	10	366
	2	1	238	-	-	22	1 252	-	-
	3	-	-	-	-	56	4 033	4	155
	4	-	-	-	-	62	2 061	9	591
IIb	1	-	-	-	-	7	696	1	13
	2	-	-	-	-	27	1 494	-	-
	3	-	-	-	-	280	15 560	6	110
	4	-	-	-	-	47	781	-	-

**POLAND**

(J.Janusz and M.Liwoch)

No biological samples were collected in the northeast Atlantic area by Poland.

## PORTUGAL

(F.Cardador)

During 1990 the National Institute of Fisheries Research (INIP, Lisbon) has continued its National Sampling Programme at the main fishing ports. The main objective of this sampling programme is to provide length frequency distributions of the landings for the most important commercial species.

The Azores University has carried out a sampling programme at different Azorean islands, in order to provide catch per unit effort data, effort data and length distributions of the landings. This programme is mainly directed to Pagellus bogoraveo, Phycis phycis, Beryx decadactylus, Beryx splendens, Helicolenus dactylopterus, Pontinus kuhlii and Dalatias licha.

INIP has carried out two groundfish surveys on board of the R/V "NORUEGA". These surveys covered the entire Portuguese coast in depths ranging from 20 to 750 m. The main goal of these surveys was to provide abundance indices and to study the distribution pattern of the most important species. The second aim comprised the estimation of the abundance and distribution of eggs and larvae of the main species associated with basic environmental parameters. The surveys took place in summer (July) and in autumn (October/November). The methodology adopted is a fixed station scheme. Each survey had a duration of 30 fishing days, using a bottom trawl net (Norwegian Campell Trawl) with 20 mm cod-end mesh size. Trawl stations were fished during day light, with a tow duration of 60 minutes and a mean trawl speed of 3.5 knots. The distribution and abundance of eggs and larvae were evaluated based on a sampling scheme with fixed stations, which were fished at night using a Bongo net and CTD equipment.

Surveys on board of R/V "MESTRE COSTEIRO" were also carried out in June and September for gillnet selectivity experiments and in August to estimate abundance indices for cephalopods.

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

SAMPLING DATA FOR : HAKE				1990	PORTUGAL
		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IXa	1	36	191	19 908	
	2	24	210	23 925	
	3	150	158	27 037	
	4	132	224	33 216	
Total		342	783	104 086	



SAMPLING DATA FOR : **BLACK SCABBARD FISH 1990**

PORTUGAL

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IXa	1	-	34	2 930	
	2	-	37	3 446	
	3	-	37	4 075	
	4	-	22	2 267	
Total		-	130	12 718	

SAMPLING DATA FOR : *Boops boops*

1990

PORTUGAL

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IXa	1	-	30	1 935	
	2	-	37	2 119	
	3	28	22	1 781	
	4	38	35	3 967	
Total		66	124	9 802	

SAMPLING DATA FOR : *Pagellus acarne*

1990

PORTUGAL

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IX	1	-	41	3 980	
	2	-	42	4 245	
	3	14	27	2 652	
	4	31	45	4 503	
Total		45	155	15 380	

SAMPLING DATA FOR : *Spondyllosoma cantharus*

1990

PORTUGAL

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IX	1	-	16	413	
	2	-	29	803	
	3	16	22	621	
	4	19	27	730	
Total		35	94	2 568	

SAMPLING DATA FOR : **MONKFISH\***

1990

PORTUGAL

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IXa	1	-	64	606	
	2	-	80	1 149	
	3	7	56	394	
	4	19	83	861	
Total		26	283	3 010	

\* *Lophius budegassa* & *Lophius piscatorius*

## SPAIN

(F.J.Pereiro)

A groundfish survey has been conducted in 1990 along the continental shelf of Divisions VIIIc and IXa North (42° -43° N) to estimate recruitment indices of hake and abundance indices of the main demersal species (e.g. monk, megrim, hake). The time period was 10 September - 16 October.

During the first months of the year short bottom trawl surveys were conducted in the closed areas established in Spanish waters to protect juvenile hake. The main aim of these surveys was to follow the concentrations of recruits on the nursery grounds. The number of hauls per quarter sampled and the number of fish measured are given in the table below.

SPECIES	Season	Samples	Measured
<i>Prior Cape - Villano Cape</i>	1	10	4 185
43°34'N 43°09.7'N	2	22	5 325
8°19.5'W 9°12.8'N	3	11	1 550
<i>Corrubedo Cape - Silleiro Cape</i>	1	24	2 419
42°34.7'N 42°6.3'N	2	24	5 008
9°5.7'W 8°54.1'W	3	12	3 265

Numbers of samples and numbers of fish measured and aged on board of research vessels and in the market sampling programme are given in the next tables.

SAMPLING DATA FOR : HAKE				1990	SPAIN
		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VI	1		4	289	
	2		1	80	
	4		5	322	
VII	1		33	7 964	
	2		33	8 151	
	3		31	6 449	
	4		27	6 139	
VIIIa,b	1		54	5 926	
	2		56	6 397	
	3		45	5 662	
	4		34	3 772	
VIIIc	1		81	7 220	
	2		119	9 922	
	3	36	79	12 483	
	4	61	68	8 754	
IXa	1		30	3 083	
	2		33	3 332	
	3	18	29	4 283	
	4		30	2 853	
Total		115	792	103 081	

SAMPLING DATA FOR : *L. whiffiagonis*

1990

SPAIN

Area	Season	Nr of samples		Nr of fish	
		Res. vessels	Market	Measured	Aged
VI	2		2	161	
	3		2	156	
	4		4	349	
VII	1		24	4 706	
	2		28	5 464	
	3		25	3 821	
	4		21	4 070	
VIIIa,b	1		24	1 734	
	2		12	868	
	3		15	757	
	4		17	1 166	
VIIIc	1		28	1 776	
	2		36	2 341	
	3	33	32	1 588	
	4	56	33	3 719	
IXa	1		16	69	
	2		16	8	
	3	15	14	137	
	4		15	3	
Total		104	364	32 893	

SAMPLING DATA FOR : *Lepidorhombus boscii*

1990

SPAIN

Area	Season	Nr of samples		Nr of fish	
		Res. vessels	Market	Measured	Aged
VI	3		2	22	
	4		3	58	
VII	1		21	683	
	2		24	1087	
	3		23	1371	
	4		20	924	
VIIIa,b	1		18	248	
	2		9	71	
	3		11	50	
	4		13	148	
VIIIc	1		28	1 668	
	2		36	1 866	
	3	37	32	3 852	
	4	57	33	3 720	
IXa	1		16	1 066	
	2		16	1 435	
	3	18	14	2 489	
	4		15	1 496	
Total		112	334	22 256	

SAMPLING DATA FOR : *Lophius piscatorius* 1990 SPAIN

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VI	1		1	131	
	2		2	144	
	3		2	91	
	4		3	162	
VII	1		21	1 626	
	2		25	1 797	
	3		23	1 581	
	4		18	1 214	
VIIIa,b	1		32	1 290	
	2		21	726	
	3		24	824	
	4		26	916	
VIIIc	1		33	602	
	2		51	1 323	
	3	12	37	1 159	
	4	45	40	1 204	
IXa	1		6	141	
	2		7	91	
	3	5	7	59	
	4		3	68	
Total		62	382	15 149	

SAMPLING DATA FOR : *Lophius budegassa* 1990 SPAIN

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VII	1		21	1 436	
	2		25	1 935	
	3		23	1 928	
	4		18	1 466	
VIIIa,b	1		31	1 698	
	2		19	786	
	3		21	782	
	4		27	1 026	
VIIIc	1		31	345	
	2		34	835	
	3	17	34	541	
	4	39	39	830	
IXa	1		6	482	
	2		6	225	
	3	7	7	249	
	4		6	213	
Total		63	358	14 777	

SAMPLING DATA FOR : *Pagellus bogaraveo* 1990 SPAIN

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
VII	1		1	6	
	3		1	52	
VIIIa,b	1		4	125	
	2		5	153	
	4		1	18	
VIIIc	1		34	1 675	
	2		27	950	
	3		9	227	
	4	3	6	108	
Total		3	88	3314	

## SWEDEN

(P-O.Larsson)

Sweden took part in the International Young Fish Survey in the North Sea and Division IIIa.

An evaluation of the results from the Swedish part of the IYFS regarding cod was reported to the ICES Statutory Meeting. The results strongly indicate a separate stock in the Kattegat having little exchange with the Baltic and the Skagerrak stocks. Cod in the Skagerrak seem to be recruited from the North Sea, with the exception of the so-called fjord stocks present in both Norwegian and Swedish fjords.

SAMPLING DATA FOR : **COD** **1990** **SWEDEN**

		Nr of samples		Nr of fish	
Area	Season	Res. vessels	Market	Measured	Aged
IIIa	1	1		2 440	610

## UNITED KINGDOM (England and Wales)

(C.T.Macer)

The market sampling programme was continued in 1990. Details of number of fish measured and otolithed are available on request.

The following research vessel cruises took place in 1990:

- R.V. "CIROLANA" participated in the North Sea International Young Fish Survey in February, and carried out groundfish surveys in the western Celtic Sea in March and in the North Sea in August-September. A new bottom trawl survey was conducted in the eastern and western Channel (VIId,e) during December.
- R.V. "CORYSTES" participated in the International Beam Trawl Survey for flatfish, covering the Southern Bight and eastern Channel (VIId) during August and made a survey of pre-recruit gadoids in the north-western Irish Sea in September. Sole egg production in the Bristol Channel was investigated during February, April, May and June.
- Chartered vessels carried out bottom trawl surveys during June and October along the north Wales coast and a year-long investigation into the spatial distribution of sole and plaice year-classes in the area was concluded by the end of August. A chartered vessel was also used to survey sole in the western Channel (VIId) in the period September-October.
- During September an inshore beam trawl and push net survey took place between Flamborough Head in the North Sea and Swanage Bay in the Channel (VIId) to collect data for juvenile flatfish year-class determination.
- The feeding ecology and size structure of 0-group gadoids was studied in different areas of the North Sea during June, and predation and prey selection in cod and whiting was investigated in the western North Sea in November.
- The incidence of fish diseases was investigated in the North Sea during May and August-September.

## UNITED KINGDOM (Scotland)

(R.Cook)

Monitoring of the main demersal species by Scotland is undertaken through three main sampling activities. These are market sampling of fish landed by the commercial fishery, sampling fish caught but discarded at sea and annual trawl surveys by the Department's research vessels. Most of the data collected are used by the ICES Roundfish Working Group (RFWG) and Industrial Fish Working Group.

During 1990 sampling continued at the same level as in previous years. Port samples are stratified by month, gear type and sea area. The numbers of fish sampled in ICES sub-area IV and Divisions VIa and VIb are given in the table below.

Species	All areas (IV, VIa, VIb)		
	Vessels sampled	measured	aged
Cod	563	74 603	17 206
Haddock	510	155 707	19 523
Whiting	511	126 610	11 742
Saithe	419	31 642	13 068
Lemon sole	233	36 933	4 344
Plaice	278	38508	5 634
Angler	124	7 819	658
Megrim	81	12 086	427
Sandeel	99	15 412	1 794
Spurdog	65	4 345	-

In 1990, approximately 50 commercial vessels were sampled for discards in the North Sea. No sampling was possible in Division VIa. Discard sampling, like port sampling is stratified by gear type and sea area but because of resource limitations sampling is undertaken on a quarterly basis. Aggregate numbers of fish sampled are given below:

Species	North Sea (IV)	
	measured	aged
Cod	8 175	1 605
Haddock	38 107	3 220
Whiting	47 159	3 341
Saithe	690	232

The following bottom trawl surveys were carried out for groundfish:

Vessel	Area	Period	Comment
Scotia	North Sea (IV)	February	IYFS Commitment
Scotia	West of Scotland (VIa)	March	Indices used by RFWG
Scotia	North Sea (IV)	August	SGFS, indices used by RFWG
Scotia	Rockall (VIb)	September	Indices used by RFWG
Clupea	Clyde (VIa)	November	New survey, results not yet available

In addition, a commercial vessel was chartered in August for a survey of recruiting sandeels at Shetland.



**U.S.A**

(F.Serchuk and B.Rothschild)

The U.S.A. had no fisheries and no research vessel activity on demersal fish in the ICES area in 1990. Activities in the Northwest Atlantic have been reported to NAFO.

# U.S.S.R

(A.A.Elizarov)

In 1990, as previously, trawl, trawl-acoustic and ichthyoplankton surveys were conducted to assess abundance and biomass of the main commercial fish species, and the potential recruitment of cod, haddock, redfish and other fish species in the Barents Sea and adjacent waters.

Investigations were continued to determine the influence of hydrological conditions and food supply on fish distribution and behaviour. Population structure, dynamics of their biological characteristics and migration patterns of major commercial fishes were studied. The investigations of the food web between fish stocks were in progress.

The tables present the information collected during 1990

SAMPLING DATA FOR : COD		1990	U.S.S.R.	
		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	5 326	975	207
	2	10 576	1 351	766
	3	23 876	4 192	2 183
	4	8 340	1 632	502
IIb	1	4 031	647	529
	2	19 851	931	286
	3	4 827	1 147	661
	4	5 631	1 180	626
IIa	1	15 416	1 703	440
	3	36	12	-
	4	588	145	-
Total	1/4	98 498	13 915	6 200

SAMPLING DATA FOR : HADDOCK		1990	U.S.S.R.	
		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	3 200	452	182
	2	3 096	325	325
	3	18 665	1 536	1 199
	4	1 601	261	56
IIb	1	82	-	-
	2	-	-	-
	3	1 402	-	-
	4	3 245	489	489
IIa	1	1 030	220	127
	4	125	25	-
Total	1/4	32 446	3 308	2 378

SAMPLING DATA FOR : **REDFISH** **1990** **U.S.S.R.**

		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	835	33	-
	2	1 378	-	-
	3	4 936	20	20
	4	920	-	-
IIb	1	10 379	1 260	400
	2	4 136	325	300
	3	9 154	100	100
	4	4 156	50	15
IIa	1	11 925	1 591	1 271
	3	189	-	-
	4	133	-	-
Total	1/4	48 141	3 379	2 106

SAMPLING DATA FOR : **GREENLAND HALIBUT** **1990** **U.S.S.R.**

		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	29	-	-
	2	8	-	-
	3	817	83	83
	4	766	1	1
IIb	1	3 264	610	610
	2	383	75	-
	3	3 784	806	431
	4	14 306	1 688	486
IIa	1	478	161	179
	3	43	-	-
	4	1 060	100	-
Total	1/4	24 938	3 524	1 790

SAMPLING DATA FOR : **SAITHE** **1990** **U.S.S.R.**

		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	159	-	-
	2	29	-	-
	3	13	-	-
	4	1	-	-
IIa	3	1	-	-
	4	5	-	-
Total	1/4	208	-	-

**SAMPLING DATA FOR : WOLFFISHES 1990 U.S.S.R.**

		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	148	115	115
	2	81	-	-
	3	817	187	34
	4	373	224	79
IIb	1	401	162	137
	2	211	121	121
	3	466	59	10
	4	1 471	269	269
IIa	1	140	9	5
	3	6	2	2
	4	6	-	-
Total	1/4	4 120	1 148	772

**SAMPLING DATA FOR : LONG ROUGH DAB 1990 U.S.S.R.**

		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	1 707	517	242
	2	162	50	-
	3	3 841	138	123
	4	6 198	677	364
IIb	1	1 084	100	100
	2	153	-	-
	3	1 625	202	152
	4	7 285	262	56
IIa	1	998	175	100
	3	52	-	-
	4	85	-	-
Total	1/4	23 190	2 121	1 137

**SAMPLING DATA FOR : PLAICE 1990 U.S.S.R.**

		Nr of fish		
Area	Season	Measured	Feeding investigations	Aged
I	1	2 125	844	584
	2	2 724	500	300
	3	3 567	833	688
	4	1	-	-
IIa	4	78	-	-
Total	1/4	8 495	2 177	1 572