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PELAGIC FISH COMMITTEE

by

R. S. Bailey

1985

BELGIUM

(R. De Clerck)

No market sampling of pelagic fish was carried out in 1985. Research vessel surveys for juvenile herring and sprat were continued, using bottom trawl, as given in the table below. (The research was limited to density and length measurements).

Research vessel catches

Area	Season	Objectives
IV c Belgian coast	April and September	Recording densities of immature herring and sprat

CANADA

No report received.

DENMARK

No report received.

FINLAND

(R. Parmanne & V. Sjöblom)

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

FRANCE

(A. Maucorps)

ESPECE: CHINCHARD

Trachurus trachurus

échantillonnage:

secteur	periode	type de poisson	No d'échantillons		No de poissons mesurés	No de poissons agés	No de poissons aux critères raciaux examinés
			bateau de recherche	marché			
IVc Sud Mer du Nord	4	Adultes	3	-	409	-	-
VII d Manche est	4	Adultes	5	-	590	-	-
VIII Golfe de Gascogne	2	Juveniles	32	-	12908	-	-
		Adultes	21	-	2704	-	-

campagnes de bateau de recherche:

Secteur	Date	Objectifs
VIII - Golfe de Gascogne	19 avril - 20 mai	- Evaluation acoustique des stocks de petits pelagiques - Méthodologie de l'évaluation
IV c et VII d Manche est et sud de la Mer du Nord	5 au 26 novembre	- Evaluation acoustique du stock de hareng des Downs - Méthodologie de l'évaluation - Etude du comportement

ESPECE: SPRAT
Sprattus sprattus

échantillonnage:

secteur	periode	type de poisson	No d'échantillons		No de poissons mesurés	No de poissons agés	No de poissons aux critères raciaux examinés
			bateau de recherche	marché			
IVc Sud Mer du Nord	4	Adultes	2	-	194	-	-
VII d Manche est	4	Adultes	1	-	95	-	-
VIII Golfe de Gascogne	2	Adultes	2	-	120	-	-

campagnes de bateau de recherche:

Secteur	Date	Objectifs
VIII - Golfe de Gascogne	19 avril - 20 mai	- Evaluation acoustique des stocks de petits pelagiques - Méthodologie de l'évaluation
IV c et VII d Manche est et sud de la Mer du Nord	5 au 26 novembre	- Evaluation acoustique du stock de hareng des Downs - Méthodologie de l'évaluation - Etude du comportement

ESPECE: HARENG
Clupea harengus

échantillonnage:

secteur	periode	type de poisson	No d'échantillons		No de poissons mesurés	No de poissons âgés	No de poissons aux critères raciaux examinés
			bateau de recherche	marché			
IV a ouest Nord-ouest Mer du Nord	1	Juveniles	1	-	139	118	-
	2	Adultes	-	2	537	127	-
	4	Adultes	-	1	257	75	-
IV b Sud Buchan	1	Juveniles	1	-	158	-	-
IV b Centre Mer du Nord	1	Juveniles	3	-	517	120	-
	2	Adultes	-	1	251	82	-
	3	Adultes	-	3	779	182	-
	4	Adultes	-	1	239	61	-
IV c sud Mer du Nord	1	Adultes	2	-	331	95	-
	1	Adultes	-	1	209	79	-
	3	Adultes	-	2	326	118	-
	4	Géniteurs	2	-	577	143	-
	4	Géniteurs	-	2	498	137	-
VII d ouest Manche	4	Géniteurs	8	-	2056	280	-
	4	Géniteurs	-	4	1363	272	-

ESPECE: HARENG
Clupea harengus

campagnes de bateau de recherche:

Secteur	Date	Objectifs
IV a,b,c - Mer du Nord	28 janvier - 22 février	- Evaluation de l'abondance des juveniles
IV c et VII d Manche est et sud de la Mer du Nord	5 au 26 novembre	- Evaluation acoustique du stock de hareng des Downs - Méthodologie de l'évaluation - Etude du comportement

ESPECE: MAQUEREAU COMMUN
Scomber scombrus

échantillonnage:

secteur	periode	type de poisson	No d'échantillons		No de poissons mesurés	No de poissons agés	No de poissons aux critères raciaux examinés
			bateau de recherche	marché			
IVc Sud Mer du Nord	4	Adultes	3	-	308	-	-
VIIId Manche est	4	Adultes	6	-	1080	-	-
VIII Golfe de Gascogne	2	Adultes	22	-	5123	-	-

campagnes de bateau de recherche:

Secteur	Date	Objectifs
VIII - Golfe de Gascogne	19 avril - 20 mai	- Evaluation acoustique des stocks de petits pelagiques - Méthodologie de l'évaluation
IV c et VII d Manche est et sud de la Mer du Nord	5 au 26 novembre	- Evaluation acoustique du stock de hareng des Downs - Méthodologie de l'évaluation - Etude du comportement

ESPECE: ANCHOIS
Engraulis encrasicolus

échantillonnage:

secteur	periode	type de poisson	No d'échantillons		No de poissons mesurés	No de poissons agés	No de poissons aux critères raciaux examinés
			bateau de recherche	marché			
VIII Golfe de Gascogne	2	Adultes	3	-	701	-	-

campagne de bateau de recherche:

Secteur	Date	Objectifs
VIII - Golfe de Gascogne	19 avril - 20 mai	- Evaluation acoustique des stocks de petits pelagiques - Méthodologie de l'évaluation

ESPECE: SARDINE
Sardina pilchardus

échantillonnage:

secteur	periode	type de poisson	No d'échantillons		No de poissons mesurés	No de poissons agés	No de poissons aux critères raciaux examinés
			bateau de recherche	marché			
VIII Golfe de Gascogne	2	Adultes	13	-	1551	-	-

campagne de bateau de recherche:

Secteur	Date	Objectifs
VIII - Golfe de Gascogne	19 avril - 20 mai	- Evaluation acoustique des stocks de petits pelagiques - Méthodologie de l'évaluation

ESPECE: MERLAN BLEU
Micromesistius poutassou

échantillonnage:

secteur	periode	type de poisson	No d'échantillons		No de poissons mesurés	No de poissons agés	No de poissons aux critères raciaux examinés
			bateau de recherche	marché			
VIII Golfe de Gascogne	2	Adultes	24	-	6570	-	-

campagne de bateau de recherche:

Secteur	Date	Objectifs
VIII - Golfe de Gascogne	19 avril - 20 mai	- Evaluation acoustique des stocks de petits pelagiques - Méthodologie de l'évaluation

GERMAN DEMOCRATIC REPUBLIC

(L. Danke)

Species Blue whiting

Sampling

Area	Quarter	No. of samples		No. of fish	
		Research vessel	Commercial vessel	Measured	Aged
Vb ₁	I	-	4	1034	282
VIib,c	I	-	5	2278	154
VIIg,h,j,k	I	-	5	1000	-
XII	I	-	11	2979	421
Vb ₁	II	-	7	1914	220
Vb ₂	II	-	1	313	100
IVa _w	II	-	5	1301	91
IIa _w	II	-	3	710	-
IIa	III	-	18	7975	442

FEDERAL REPUBLIC OF GERMANY

(D. SAHRHAGE/H. DORNHEIM)

Sampling

Species HERRING

Area		Type Quarter of Fish	No of Samples		No of Fish	
			Research Vessel	Commercial	measured	aged
Hebrides	(01)	II adult	14	37	19850	494
		III adult	22	-	4505	389
W of Shetland	(02)	III <u>ad.+juv.</u>	12	-	2083	200
NW-North Sea	(03)	I ad.+juv.	33	-	4214	470
		III <u>ad.+juv.</u>	25	-	3642	299
NE-North Sea	(04)	I <u>ad.+juv.</u>	5	-	372	200
		III ad.+juv.	3	-	14	-
NW of Ireland	(06)	II ad.+juv.	9	-	9529	199
		III adult	22	-	6150	690
South Buchan	(08)	I juv.	13	-	2236	200
		III <u>ad.+juv.</u>	21	-	1071	184
Central North		I <u>ad.+juv.</u>	50	-	5822	700
Sea	(09)	II <u>ad.+juv.</u>	-	22	493	-
		III <u>ad.+juv.</u>	33	19	3156	288
		IV <u>ad.+juv.</u>	11	37	4443	-
W of Ireland	(10)	II adult	3	-	381	98
		III adult	3	-	4	-
S of Ireland	(13)	II adult	2	-	19	-
Bristol Channel	(14)	II ad.+juv.	3	-	888	100
West Channel	(15)	II <u>ad.+juv.</u>	2	-	108	84
Western Approaches	II	adults	1	-	15	-
	(16)					

Remark: No herring examined racially

Research Vessel Surveys

Area		Date	Objectives
Central North Sea	(09)	03.01. - 16.01.86	Groundfish survey
		22.01. - 27.01.86	" "
		22.02. - 01.03.86	" "
NW-North Sea	(03)	04.02. - 07.03.86	ICES young fish survey
NE-North Sea	(04)		
South Buchan	(08)		
Central North Sea	(09)		
Hebrides	(01)	22.03. - 13.04.86	Groundfish survey
Hebrides	(01)	16.04. - 11.05.86	Mackerel and other pelagic
NW of Ireland	(06)		fish survey
W of Ireland	(10)		
S of Ireland	(13)		
Bristol Channel	(14)		
West Channel	(15)		
Western Approaches	(16)		
W of Shetland	(02)	10.07. - 08.08.86	Groundfish survey
NW- North Sea	(03)		
NE-North Sea	(04)		
South Buchan	(08)		
Central North Sea	(09)		
Hebrides	(01)	13.09. - 29.09.86	Pelagic fish survey
W of Shetland	(02)		
NW of Ireland	(06)		
South Buchan	(08)		
W of Ireland	(10)		
Central North Sea	(09)	18.11. - 29.11.86	Groundfish survey

Sampling

Species SPRAT

Area	Quarter	<u>No of samples</u>		<u>No of fish</u>
		Research	Commercial	measured
N- North Sea	IVa I	12	-	886
	III	6	-	67
Central North Sea	IVb I	45	-	3249
	II	22	33	1509
	III	17	15	1010
	IV	15	3	1037
NW of Scotland	VIa III	1	-	7
English Channel	VIIId,e II	2	-	143
Bristol Channel	VIIIf II	3	-	429
S of Ireland	VIIIg-k II	2	-	23

Research Vessel Surveys

Area		Date	Objectives
Central North Sea	IVb	03.01. - 16.01.85	Groundfish survey
		22.01. - 27.01.85	Groundfish survey
N- North Sea	IVa	04.02. - 07.03.85	ICES young fish survey
Central North Sea	IVb		
Central North Sea	IVb	22.02. - 01.03.85	Groundfish survey
Central North Sea	IVb	16.04. - 18.04.85	Wadden Sea survey
NW of Scotland	VIa	16.04. - 11.05.85	Mackerel and other pelagic
W of Ireland	VIIb,c		fish survey
English Channel	VIIId,e		
Bristol Channel	VIIIf		
S of Ireland	VIIIg-k		
Bay of Biscay	VIII		
Central North Sea	IVb	08.05. - 09.05.85	Wadden Sea survey
N- North Sea	IVa	10.07. - 08.08.85	Groundfish survey
Central North Sea	IVb		

N- North Sea	IVa	14.09. - 29.09.85	Pelagic fish survey
Central North Sea	IVb		
NW of Scotland	VIa		
W of Ireland	VIIb,c		
S of Ireland	VIIg-k		
Central North Sea	IVb	01.10. - 02.10.85	Wadden sea survey
		15.10. - 18.10.85	Wadden sea survey
		18.11. - 29.11.85	Groundfish survey

<u>Sampling</u>			Species <u>MACKEREL</u>			
Area	Quarter	Type of fish	<u>No of samples</u>		<u>No of fish</u>	
			Research	Commercial	measured	aged
N-North Sea	IVa I	adult	1	-	117	97
	III	adult	21	-	310	98
Central North Sea	IVb III	ad.+juv.	37	-	1210	349
NW of Scotland	VIa II	ad.+juv.	26	4	5371	224
	III	juv.	41	-	1637	50
W of Ireland	VIIb,c II	<u>ad.+juv.</u>	19	-	18848	221
	III	<u>ad.+juv.</u>	3	-	50	-
English Channel	VIIId,e II	adult	6	-	6644	98
Bristol Channel	VIIIf II	<u>ad.+juv.</u>	3	-	1125	99
S of Ireland	VIIIg-k II	adult	22	-	13371	389
	III	<u>ad.+juv.</u>	10	-	147	-
Bay of Biscay	VIII II	adult	20	-	7215	583

Research Vessel Surveys

Area		Date	Objectives
N-North Sea	IVa	22.03. - 13.04.85	Groundfish survey
NW of Scotland	VIa		
NW of Scotland	VIa	16.04. - 11.05.85	Mackerel and other pelagic fish survey
W of Ireland	VIIb,c		
English Channel	VIIId,e		
Bristol Channel	VIIIf		
S of Ireland	VIIIg-k		
Bay of Biscay	VIII		
N-North Sea	IVa	10.07. - 08.08.85	Groundfish survey
Central North Sea	IVb		
N-North Sea	IVa	13.09. - 29.09.85	Pelagic fish survey
Central North Sea	IVb		
NW of Scotland	VIa		
W of Ireland	VIIb.c		
S of Ireland	VIIg-k		

Sampling

Species BLUE WHITING

Area	Quarter	Type of fish	<u>No of samples</u> Research vessel	<u>No of fish</u> examined measured aged racially		
Norwegian Sea IIa	III	mixed	2	100	100	100
Spitzbergen, Bear	III	adult	11	1902	100	100
Ireland IIb						
N-North Sea IVa	III	mixed	9	483	150	150
NW of Scotland VIa	II	mixed,spawners	14	5595	50	50
	III	mixed	16	1321	-	-
Rockall Bank VIb	II	mixed,spawners	8	1354	50	50
W of Ireland VIIb,c	II	mixed,spawners	3	1773	50	50
	III	mixed	2	6	-	-
S of Ireland VIIg-k	II	mixed	1	50	50	50
	III	mixed	8	1022	-	-
Bay of Biscay VIIa,b	II	mixed	4	200	200	200
SE-Greenland XIVb	IV	mixed	55	2257	100	100

Research Vessel Surveys

Area		Date	Objectives
N-North Sea	IVa	22.03. - 13.04.86	Groundfish survey
W of Scotland	VIa		
Rockall Bank	VIIb		
W of Ireland	VIIb,c	16.04. - 11.05.86	Mackerel and other pelagic fish survey
NW of Scotland	VIa		
W of Ireland	VIIb,c		
English Channel	VIIc,e		
Bristol Channel	VIIe		
S of Ireland	VIIg-k		
Bay of Biscay	VIII	10.07. - 08.08.86	Groundfish survey
N-North Sea	IVa		
Central North Sea	IVb	13.09. - 29.09.86	Pelagic fish survey
NW of Scotland	VIa		
W of Ireland	VIIb,c		
S of Ireland	VIIg-k		
SE-Greenland	XIVb	25.09. - 03.11.86	Cod and redfish survey

Sampling

Species HORSE MACKEREL

Area	Quarter	Type of fish	<u>No of samples</u>	<u>No of fish</u>			
			Research vessel	measured	aged	investigated racially	
Sound and Belt Sea	IIIb,c	IV	all	4	719	250	50
N-North Sea	IVa	I	"	7	8	-	-
		III	"	11	158	50	50
Central North Sea	IVb	III	"	38	1665	250	150
NW of Scotland	VIa	II	"	13	2401	50	50
		III	"	47	8815	550	550
W of Ireland	VIIb,c	II	"	21	3992	200	200
		III	"	4	635	50	50
English Channel	VIIId,e	II	"	6	2937	150	150
Bristol Channel	VIIIf	II	"	2	3	-	-
S of Ireland	VIIg-k	II	"	36	21636	600	600
		III	"	8	2253	200	200
Bay of Biscay	VIII	II	"	25	12542	550	550

Research Vessel Surveys

Area		Date	Objectives
N-North Sea	IVa	04.02. - 07.03.85	ICES young fish survey
Central North Sea	IVb		
NW of Scotland	VIa	16.04. - 11.05.85	Mackerel and other pelagic fish survey
W of Ireland	VIIb,c		
English Channel	VIIId,e		
Bristol Channel	VIIIf		
S of Ireland	VIIg-k		
Bay of Biscay	VIII		
N-North Sea	IVa	10.07. - 08.08.85	Groundfish survey
Central North Sea	IVb		
NW of Scotland	VIa	13.09. - 29.09.85	Pelagic fish survey
W of Ireland	VIIb,c		
S of Ireland	VIIg-k		
Sound and Belt Sea	IIIb,c	11./12.85	Groundfish survey

ICELAND

(Jakob Jakobsson)

Sampling BLUE WHITING

Area	Season	Type of fish	No. of samples		No. of fish		
			Res. vessels	Fish. vessels	Measured	Aged	Exam. racially
SW, SE Iceland	Feb.-Mar.	Mixed	89		3026		
SE Iceland	Jun.	Immature	2		129	129	
Icelandic waters, Dohrn Bank	Aug.	Immature	7		409	409	
Reykjanes Ridge	Sep.-Oct.	Mixed	17		2656		

Research vessel surveys

Area	Date	Objective
SE Iceland, SW Norwegian Sea	3.6. - 13.6.	Abundance estimates, environmental conditions.
W, NW, N Iceland		
E-Greenland, Dohrn Bank	6.8. - 23.8.	Abundance estimates
S, SE, E, NE Iceland	7.8. - 27.8.	Abundance estimates

Sampling CAPELIN

Area	Season	Type of fish	No. of samples		No. of fish		
			Res. vessels	Fish.vessels	Measured	Aged	Exam. racially
W, N, NE Iceland	Jan.-Apr.	Mixed	12	11	2565	2195	
E, S, SW Iceland	Jan.-Apr.	Adult	7	16	2373	2300	
Iceland, Greenland, Jan Mayen	Aug.	Mixed	31		2668	2668	
- " -	Aug.-Dec.	Mixed	24	39	6009	6009	

Research vessel surveys

Area	Date	Objective
W, NW, N, NE, E, SE Iceland	13.1. - 8.2.	Abundance estimates
E, N, NW Iceland	28.1. - 8.2.	Abundance estimates
SE Iceland	14.2. - 28.2.	Abundance estimates
W, NW, N Iceland	6.8. - 28.8.	0-group capelin and other sp. 1-group capelin abundance estimates.
S, SE, E, NE, N Iceland	7.8. - 27.8.	0-group capelin and other sp. 1-group capelin abundance estimates.
NW, N, NE, E Iceland	8.10. - 1.11.	Abundance estimates
NW, N, NE Iceland, E-Greenland	15.10. - 1.11.	Abundance estimates
NW, N, NE, E Iceland	11.11. - 26.11.	Capelin survey

Sampling HERRING

Area	Season	Type of fish	No. of samples		No. of fish		
			Res. vessels	Fish.vessels	Measured	Aged	Exam. racially
NE, E, SE, SW, NW Iceland	Jan.-Aug.	Mixed	10	5	1282	1282	1282
N, NE, E, NW Iceland	Sep.-Dec. ¹⁾	Mixed		25	2289	2189	2189
NW, N, E Iceland	Nov.-Dec.	Juvenile/mixed	8		2836	2836	2836

1) Fishing season

Research vessel surveys

Area	Date	Objective
S, E Iceland	7.1.-22.1.	Abundance estimates
E, N, NW Iceland	18.11.-9.12.	Abundance estimates T.S. measurements.

IRELAND

(J. Molloy)

Area	Type of fish	No. of samples	No. of fish measured	No. of fish aged	No. of fish examined racially
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Species: Herring

Div. VIa I IV Northwest V, VI, XII	Adult	12	2765	496	496
Div. VII II, IV, b-c West V, IX, X, XI, XII	Adult	20	5220	974	974
Div. VII VII, IX, j South X, XI, West 1	Adult	6	833	300	300
Div. VIIg VII, IX, Celtic X, XII, Sea 1,11	Adult	26	4654	1123	1123
Div. VIIa II, VII,VIII Irish Sea IX, XI	Adult	14	3987	450	450

Species: Mackerel

Div. VIa 1,11, North 11,IV, West X,XI,XII	Adult	22	3760	868	-
Div. VIIb 11,IX West	Adult	4	731	69	-
Div. VIIj 11,111, South West	Adult	10	1925	717	-

Species: Sprat

Div. VIIg X,XI,XII Celtic Sea	Adult	30	5744	-	-
Div VIIj X1	Adult	2	619		

Research Vessel Surveys, 1985

Area	Time	Objective
VIa, VIIb North west and West	October to November	Larval surveys to obtain estimate of abundance of herring population.
VIIa Irish Sea	January to February	Young herring surveys
VIa, VIIb	November	Young mackerel survey
VIIb	June, July, August	Sandeel Survey

NETHERLANDS

(A. Corten)

Sampling data for Herring.

Area	Quarter of year	Type of fish	No. of Samples		No. of fish		
			research vessel	market	measured	aged	examined racially
NW North Sea	2	adult	-	6	760	150	-
" " "	3	"	-	25	3,594	625	-
South Buchan	2	"	-	4	697	100	-
" " "	3	"	-	4	741	100	-
Central North Sea	2	"	-	1	373	25	-
" " "	3	"	-	23	2,990	575	-
Southern North Sea	1	"	-	34	6,191	850	-
" " "	2	"	-	2	338	50	-
" " "	3	"	-	1	153	25	-
" " "	4	"	-	23	4,250	575	-
VIa North	2	"	-	3	414	75	-
" " "	3	"	-	8	1,026	200	-
" " "	4	"	-	3	498	75	-
VIa South + VIIb,c	2	"	-	2	335	50	-
" " + " "	3	"	-	10	1,183	250	-
" " + " "	4	"	-	5	752	125	-
West Channel	1	"	-	1	137	25	-
Total				155	24,432	3,875	-

Sampling data for Mackerel

Area	Quarter of year	Type of fish	No. of Samples		No. of fish		
			research vessel	market	measured	aged	examined racially
IVa Northern North Sea	3	juv.	-	1	234	25	-
" " " "	4	adults	-	1	40	25	-
IVb Central North Sea	2	"	-	1	96	25	-
" " " "	3	"	-	4	300	25	-
" " " "	4	"	1	-	54	25	-
IVc Southern North Sea	2	"	-	2	189	50	-
" " " "	3	"	-	5	488	125	-
" " " "	4	"	-	2	152	50	-
IVa NW Ireland	1	"	-	5	237	125	-
" " " "	2	"	-	7	473	175	-
" " " "	3	"	-	6	930	150	-
" " " "	4	"	-	26	1,874	650	-
VII South of Ireland	1	"	-	15	1,063	375	-
" " " "	2	"	2	23	1,480	625	-
" " " "	4	"	2	1	244	75	-
East coast USA	2	"	-	10	747	250	-
Total			5	99	8,601	2,775	-

Sampling data for Horse-mackerel

Area	Quarter of year	Type of fish	No. of samples		No. of fish			
			research vessel	market	measured	aged	examined racially	
IVb Central North Sea	2	adult	-	1	58	25	-	
" " " "	3	"	-	2	259	50	-	
" " " "	4	"	-	1	47	25	-	
IVc Southern North Sea	3	"	-	2	162	50	-	
" " " "	4	"	-	1	74	25	-	
VIa NW Ireland	1	"	-	2	111	50	-	
" " " "	2	"	-	1	154	25	-	
" " " "	3	"	-	7	1,001	175	-	
" " " "	4	"	-	8	1,386	200	-	
VII South of Ireland	1	"	-	6	819	150	-	
" " " "	2	"	1	14	2,256	375	-	
" " " "	3	"	-	2	274	50	-	
" " " "	4	"	-	11	2,557	275	-	
Total			1	58	9,158	1,475	-	

Herring/Research vessel surveys

Area	Dates	Objectives
IVa,b,c North Sea	4 feb - 2 march	ICES Young Fish Survey
IVa Northern North Sea	22 june- 19 july	Tagging + recapture
IVa Northern North Sea	2 sep - 28 sep	ICES Herring larval survey
IVb Central North Sea	3 sep - 12 sep	ICES Herring larval survey
IVc+VIId Southern Sea	9 dec - 21 dec	ICES Herring larval survey
IVc Dutch Waddensea	18 feb - 20 apr	Herring larval survey

Mackerel/Research vessel surveys

Area	Dates	Objectives
VII Celtic Sea	6 may - 25 may	environmental egg studies
VII Celtic Sea	11 nov - 30 nov	0 group survey

NORWAY

(O. Dahl & I. Røttingen)

Herring (Clupea Harengus)
Sampling

Area	Quarter	Type of fish	Research vessel	Market	No. of fish measured	No. of fish aged	No. of fish exam. racially
Skagerrak	I	Mixed	1	1	195	195	100
IIa	II	Adult	-	5	500	500	500
	III	Adult	-	11	1002	800	800
	IV	Mixed	12	3	1475	1375	1375
Northern	I	Mixed	11	94	8388	1387	1259
North Sea	II	Adult	-	394	32109	1381	981
IVa	III	Mixed	17	33	4746	1536	-
	IV	Mixed	5	9	1241	446	446
Norwegian coast	II	Adult	-	3	300	300	300
IVa	IV	Immat.	5	-	299	299	299
Central	I	Immat.	3	21	1899	300	300
North Sea	II	Adult	-	27	2255	90	-
IVb	III	Mixed	1	142	14329	985	900
	IV	Immat.	12	57	6574	1354	1354
NW North Sea	III	Adult	-	6	560	297	297
Vla	IV	Adult	-	5	503	100	100

Research vessel survey

Area	Season	Objectives
North Sea	Jan/Feb	Int. Young Fish survey, herring
North Sea	March	Herring acoustic survey
NW North Sea	July	North Sea herring acoustic survey
Skagerrak, along the Norw. coast north to Varanger-fjord	Oct/Nov/Dec	Fish survey, 0-group sprat/herring

Mackerel (*Scomber scombrus*)
Sampling

Area	Quarter	Type of fish	No. of samples Research vessel	Market	No. of fish measured	No. of fish aged
Norwegian Sea. IIa	III	Mixed	-	7	700	700
Skagerrak IIIa	II	Mixed	-	1	100	100
	III	Immat.	1	-	50	50
	IV	Immat.	2	-	68	68
Northern North Sea IVa	I	Immat.	1	-	68	68
	II	Mixed	-	3	287	240
	III	Mixed	5	9	1187	1187
	IV	Mixed	14	1	1054	1054
Central North Sea IVb	II	Mixed.	5	-	375	375
	III	Mixed	-	1	100	100
NW North Sea. VIa	IV	Mixed	-	4	400	400
SW Ireland VIIg-k	II	Mixed	6	-	596	596

Research vessel survey

Area	Season	Objectives
North Sea	Jun-Jul	Egg and larval survey, mackerel
North Sea/Skagerrak	Oct	Fish survey. I-group mackerel

Tagging

Area	Season	Type of tag	No. tagged	Type of fish
SW Ireland, VIIg-k	May	Int. steel	25 069	Mackerel
North Sea - Skagerrak. IVa, b. IIIa	Jul/Aug	Int. steel	20 273	Mackerel

Sprat (Sprattus sprattus)
Sampling

Area	Quarter	Type of fish	No. of samples Research vessel	Market	No. of fish measured	No. of fish aged
Norwegian coast IVa	IV	Mixed	12	-	976	300
Northern North Sea IVa	IV	Adult	-	30	3000	100
Central North Sea IVb	I	Adult	3	-	182	180

Research vessel surveys

Area	Season	Objectives
North Sea	Jan/Feb	Int. Young Fish Survey, sprat
Skagerrak - along the Norw. coast north to Varanger- fjord	Oct/Nov/Dec	Fish survey, 0-group, sprat/herring

Herring (*Clupea harengus*) North of 62°N

Sampling

Area	Quarter	Type of fish	No. of samples Research vessels	Market	No. of fish measured	No. of fish aged	No. of fish exam.rac.
Barents Sea	I	Juv.	20	0	1137	169	
Finnm.coast I	II	-	52	0	4656	1222	
	III	-	10	0	878	169	
	IV	-	44	0	2896	1036	
Norw. coast	I	Mixed	28	54	6571	2916	
IIa	II	-	16	73	6635	1695	
	III	-	20	2	1183	131	
	IV	-	46	24	5833	2980	
Northern Norw. Sea IIb	III	Juv.	4	0	304	0	
	IV	-	1	0	30	0	
Total			241	153	30123	10318	

Research vessel surveys

Area	Date	Objectives
Norwegian coast IIa	February-March	Experimental fishing, acoustic survey of spawning stock
"	April-May	Tagging
Norwegian Sea IIa	June	Post larvae distribution
Norwegian Sea/ Barents Sea IIa/I	August	0-group distribution
Barents Sea IIa/I	September	Acoustic survey
"	November	"
Norwegian coast I/IIa	November-December	0-group survey

Tagging

Area	Quarter	Type of tags	No. tagg.	Type of fish	Recoveries
Norw. coast IIa	II	internal	38978	adult	

Capelin (Mallotus villosus)

Sampling

Area	Quarter	Type of fish	No. of samples Research vessels	Market	No. of fish measured	No. of fish aged	No. of fish exam.rac.
Barents Sea I - IIa - IIb	I - IV	Mixed	190	85	27 500	24 750	-
Jan Mayen IIa	III	"	16	7	2 300	2 070	-
Total	-	"	206	92	29 800	26 820	-

Research vessel surveys

Area	Date	Objectives
Barents Sea	04.01-31.01	Monitoring and samling in spawning migration.
Barents Sea	15.04-16.05	Studies of late spawners.
Barents Sea	18.05-22.06	Acoustic measurement of young capelin.
Barents Sea	26.05-21.06	Abundance and distribution of capelin larvae.
Norw. Sea	29.07-19.08	Abundance and distribution of capelin stock.
Barents Sea	06.09-09.10	Abundance and distribution of capelin stock.
Barents Sea	09.10-20.10	Improve methods of bioacoustic surveys.

Blue whiting (Micromesistius potassou)

Sampling

Area	Quarter	Type of fish	No. of samples		No. of fish measured	No. of fish aged	No. of fish exam. fac.
			Research	Market			
Barents Sea	IV	Mixed	1		100	100	
Norwegian	I	"	3	1	306	135	
Sea	II	"	20		2170	652	
IIa	III	"	57		3275	2512	
Northern							
North Sea	I	"		11	571	20	
IVa	II	"	3	132	8619	298	
	III	"	2	53	3396	410	
	IV	"		44	2398	129	
West of the	I	"		131	8938	924	
British Isles.	II	"		141	9677	388	
Faroes	III	"					
Vb, VIa, VIb.	IV	"		4	344	249	
VIIb, c, g, h.							
i, k							
Total			86	517	39794	5817	

Research vessel surveys

Area	Date	Objectives
Norwegian Sea IIa	15 Aug - 5 Sept	Acoustic assessment and
Northern North Sea IVa		structure of stock

Great silver smelt (Argentina silus)

Sampling

Area	Quarter	Type of fish	No. of samples Research vessels	Market	No. of fish measured	No. of fish aged	No. of fish exam.rac.
Norwegian Coast	I	Adults		3	438	253	
IIa	II	"	19	12	2274	1186	
	III	"	3	3	286	198	
Northern North Sea							
IVa	II	"	3		280	98	
Total			25	18	3278	1735	

Research vessel surveys

Area	Date	Objectives
Norwegian Coast IIa	9-28 April	Acoustic survey, structure
Northern North Sea IVa		of stock and catchability

Polar cod (Boreogadus Saida)

Sampling

Area	Quarter	Type of fish	No. of samples Research vessels	Market	No. of fish measured	No. of fish aged	No. of fish exam.rac.
Barents Sea I	II	Mixed	1		100		
	III	"	10		1049		
	III	0-group	9		420		
	IV	Mixed	1		92		
Northern Norwegian Sea							
IIb	III	0-group	37		894		
Total			58		2555		

PORTUGAL

(I. Barraca)

The most important pelagic species and, therefore, those that have been studied during 1985 by the Instituto Nacional de Investigação das Pescas, were the following: sardine, horse mackerel, mackerel, spanish mackerel and blue whiting.

The following tables include the data provided by the Biological Sampling Programme, those obtained from sampling in the laboratory and those obtained from research surveys.

SAMPLING

Species - Sardina pilchardus (Walb.)

Area	Season	Type of Fish	No of samples		No of Fish measured	No of Fish aged		No of Fish examined racially
			Research Vessel	Market		scales	otoliths	
IXa	1 st quarter	All	-	11	1 361	300	596	-
	2 nd quarter		-	12	1 425	102	363	-
	3 rd quarter		24	15	5 913	177	1 421	-
	4 th quarter		23	11	5 691	173	1 107	-
	TOTAL		47	49	14 390	752	3 487*	-

*The otoliths have not yet all been read .

RESEARCH VESSEL SURVEYS

Area	Date	Objective
IX a	6-19 August	To study the spatial distribution and to estimate the abundance in number and biomass by age and length groups of the Ibero-Atlantic sardine stock in the area adjacent to the Portuguese coast.
	20 August-3 September	Studies of planktonic cycles and sardine food available. Studies of the sardine spawning periods and areas.

RESEARCH VESSELS SURVEYS (cont.)

Species - Sardina pilchardus (Walb.)

Area	Date	Objective
IX a	22 November - 5 December	Studies of planktonic cycles and sardine food available. Studies of the sardine spawning periods and areas.
	6 - 20 December	To study the spatial distribution and to estimate the abundance in number and biomass by age and length groups of the Ibero-Atlantic sardine stock in the area adjacent to the Portuguese coast.

SAMPLING

Species - Trachurus trachurus L.

Area	Season	Type of Fish	No of samples		No of Fish measured	No of Fish aged (otoliths)	No of Fish examined racially
			Vessel	Market			
IXa	1 st quarter	All	-	256	22 198	229	-
	2 nd quarter		66	307	29 090	96	-
	3 rd quarter		-	299	29 952	95	-
	4 th quarter		68	245	22 121	260	-
	TOTAL		134	1 107	103 361	680	-

RESEARCH VESSEL SURVEYS

Area	Date	Objective
IXa (Portuguese coast)	1-29 June	Estimation of biomass indices by stratified bottom trawl surveys.
IXa (Portuguese coast)	22 Oct.-19 Nov.	Estimation of hake and horse-mackerel recruitment indices by bottom trawl surveys.

SAMPLING

Species - Scomber scombrus L.

Area	Season	Type of Fish	No of samples		No of Fish measured	No of Fish aged (otoliths)	No of Fish examined racially
			Vessel	Market			
IXa	1 st quarter	All	-	203	14 270	110	-
	2 nd quarter		26	204	14 269	50	-
	3 rd quarter		-	194	12 411	36	-
	4 th quarter		47	179	15 985	315	-
	TOTAL		73	780	53 429	511	-

SAMPLING

Species - Scomber japonicus Houttuyn

Area	Season	Type of Fish	No of samples		No of Fish measured	No of Fish aged (otoliths)	No of Fish examined racially
			Vessel	Market			
IXa	1 st quarter	All	-	44	2 121	64	-
	2 nd quarter		7	86	5 817	189	-
	3 rd quarter		-	70	3 793	20	-
	4 th quarter		4	43	2 480	134	-
	TOTAL		11	243	14 211	407	-

SAMPLING

Species - Micromesistius poutassou (Risso)

Area	Season	Type of Fish	No of samples		No of Fish measured	No of Fish aged (otoliths)	No of Fish examined racially
			Vessel	Market			
IXa	1 st quarter	All	-	138	10 547	218	-
	2 nd quarter		43	127	12 264	145	-
	3 rd quarter		52	116	11 113	222	-
	4 th quarter		38	102	11 203	145	-
	TOTAL		133	483	45 127	730 *	-

* The otoliths were not yet all observed

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
IX	23 - 31 July	Blue whiting distribution at the slope and the edge of the Continental Shelf on the Portuguese south coast.

Other Activities

The main changes in sardine stored in ice have been studied monthly using physical (Torrimeter, pH), chemical (non-protein nitrogen, extractable protein nitrogen, total volatile basic nitrogen, TBA number, peroxide value, hypoxanthine) microbiological (enumeration of bacteria using Plate Count Agar, Oxoid and Marine Agar Difco) and organoleptic methods.

The proximate composition was also followed for 1 year and there was a good correlation between the fat content and the qualitative evaluation made by biologists.

Skinned and boneless fillets from 12 batches totalling 195 fish were analysed during 1984/85.

SPAIN

No report received.

SWEDEN

(O. Hagström)

SAMPLING

Herring

Area	Quarter	Type of fish	No. of Samples		No. of Fish		No. of Fish examined racially
			Research	Vessel Market	Measured	Aged	
Kattegat	I, II, III		12	83	29 409	2 895	1 894
	IV, V, VI		-	33	9 337	866	633
	VII, VIII, IX		7	43	15 325	1 251	814
	X, XI, XII		-	73	25 656	1 598	1 136
Skagerrak	I, II, III		14	14	9 333	1 731	872
	IV, V, VI		-	4	1 069	297	234
	VII, VIII, IX		11	23	12 392	2 097	1 048
	X, XI, XII		-	31	9 501	1 083	602
The Sound	VII, VIII, IX		2	-	646	286	137
Baltic	VII, VIII, IX		9	-	4 002	1 521	643
Total			55	304	116 670	13 625	8 013

RESEARCH VESSEL SURVEYS

Area	Season	Objectives
Kattegat, Skagerrak	II	Investigation on young fish; herring larvae and stock separation
Kattegat, Skagerrak, Baltic	VIII, IX	Acoustic survey; herring, sprat

UNITED KINGDOM (England and Wales)

(P.O. Johnson)

Sampling Data

HERRING

Area	Quarter	Type of Fish	No. of Samples		No. of Fish		
			Res. Vessel	Market*	measured	aged	examined racially
Central	1	Immat.	49	-	8,727	1,836	1,836
North	3	Spawn.	8	-	1,976	835	835
Sea	3	Spawn.	-	1	182	112	112
IIVb	3	Immat.	1	-	280	160	160
Southern	1	Immat.	8	-	231	73	73
North	1	Adult	-	6	2,788	713	713
Sea	1	Spent	4	-	818	438	438
IVc	2	Spawn.	-	2	674	221	221
	3	Adult	-	1	159	112	112
	4	Adult	-	4	2,235	529	529
	4	Spent	5	-	1,386	481	481
VIId	4	Spawn.	3	-	544	213	213

*Most of the market samples derived from estuary fisheries in the Wash and Thames, and involved local spring spawning herring stocks.

SPRAT

Area	Quarter	No. of Samples		No. of Fish	
		Res. Vessel	Market	measured	aged
Central North Sea IVb	1	49	-	3,293	825
Southern N. Sea IVc	1	20	-	1,003	435
" " "	1	-	3	767	277
" " "	4	-	3	513	270
" " VIId	1	1	-	154	80
West Channel VIIe	1	-	9	2,055	606
	1	1	-	95	95
	4	-	9	1,737	347
Bristol Channel VIIIf	1	1	-	77	77

MACKEREL

Area	Quarter	No. of Samples		No. of Fish	
		Res. Vessel	Market	measured	aged
IVb	1	1	-	15	15
VIIe	1	1	2	202	0
	2	-	7	859	178
	3	1	2	392	411
	4	9	1	836	240
VIIf	1	1	-	8,343	0
	3	1	-	30	0
VIIg	1	2	-	17	0
	3	1	-	25	36
	4	1	-	8	0
VIIh	1	5	-	5,091	195
	4	2	-	40	0
VIIj	1	10	-	18,829	315
	3	3	-	82	46
	4	4	-	2,152	132
VIIa	3	1	-	6,099	273
VIII	1	10	-	2,431	699
	4	5	-	1,905	144

SCAD (HORSE MACKEREL)

Area	Quarter	No. of Samples		No. of Fish	
		Res. Vessel	Market	measured	aged
VIIe-j	1	2	-	3,175	282
	3	3	-	1,127	318
	4	2	-	2,443	362
VIIIa-c	1	2	-	2,736	368
VIIIa	3	1	-	221	118
	4	1	-	2,030	236

PILCHARD

Area	Quarter	No. of Samples		No. of Fish	
		Res. Vessel	Market	measured	aged
VIIe	1	-	1	90	0
	4	2	1	216	120
VIIIf	3	1	-	31	31
VIIh	1	1	-	101	101
VIII	1	2	-	136	136
	4	1	-	331	147

Research Vessel Surveys 1985

HERRING

Area	Dates	Objectives
S. North Sea/E.Channel IVc/VIIId	4-22 Jan	Herring larval survey
North Sea IVb-c	31 Jan-27 Feb	Int. Young Fish Survey (incl. herring/sprat distribution and abundance)
S. North Sea/E.Channel IVc/VIIId	1-15 Feb	Acoustic and fishing survey for spent herring
NE coast England IVb	14-29 Aug	Acoustic and fishing survey for spawning herring
" " IVb	20 Sep-11 Oct	Herring larval survey
" " IVb	18-31 Oct	" " "
S. North Sea/E.Channel IVc/VIIId	6-2- Dec	Acoustic fishing survey for spawning herring

Charter Vessel

English east coast IVb-c	8-28 Jul	Fishing survey for 0-group herring
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MACKEREL/SCAD (HORSE MACKEREL)

Area	Dates	Objectives
Celtic Sea/Western Approaches	8 Mar-3 Apr	Trawl survey
	8-25 Jul	Trawl survey
Western Area/Continental Slope	28 Nov-20 Dec	Trawl survey

OTHER RESEARCH ACTIVITIES

- 1) Daily growth ring studies on otoliths from larval and O-group herring.
- 2) Studies on "Index of Otolith Shape" (I.O.S) in O/1 group herring as an aid to stock separation.
- 3) Fecundity assessment on Bank herring using material collected off the north-east coast of England during the August survey.
- 4) Two Argos buoys were released and tracked in relation to the drift of herring larval patches off the north-east coast of England during September-October. The results of the larval surveys in this area showed increased larval production with an extension of spawning area to encompass former grounds such as the western edge of the Dogger Bank, Outer Dowsing and North-East Bank.

UNITED KINGDOM

(Scotland)

(R.S. BAILEY)

Sampling Data for Herring 1985

Area	Season	Number of samples		Number of fish		
		Research Vessel (lower figures)	Market (upper figures)	Measured	Aged	Racial
North Western North Sea (03)	Jan-Mar		0	0	0	0
		23		4981	367	0
	April-June		10	2663	243	0
		10		4981	287	0
	July-Sept		108	15435	1437	0
		106		12805	2688	690
	Oct-Dec		6	1334	419	0
		1		374	84	0
North Eastern North Sea (04)	Jan-Mar		0	0	0	0
		2		459	67	0
	April-June		0	0	0	0
		0		0	0	0
	July-Sept		0	0	0	0
		8		156	60	
	Oct-Dec		0	0	0	0
		0		0	0	0
Vla South (06)	Jan-Mar		0	0	0	0
		6		114	56	
	April-June		0	0	0	0
		0		0	0	0
	July-Sept		0	0	0	0
		0		0	0	0
	Oct-Dec		0	0	0	0
		6		148	39	0

Sampling Data for Herring 1985 (continued)

Area	Season	Number of samples		Number of fish		
		Research Vessel (lower figures)	Market (upper figures)	Measured	Aged	Racial
Vla North (07)	Jan-Mar		25	6285	110	0
		40		3775	1178	0
	April-June	0	0	0	0	0
	July-Sept		4	468	0	0
		3		434	228	50
	Oct-Dec		31	8491	983	0
		28		3783	926	0
Clyde (07)	Jan-Mar		2	649	150	0
		11		1547	546	0
	April-June		46	9835	565	0
		9		1055	338	0
	July-Sept		77	7576	685	0
		0		0	0	0
	Oct-Dec		3	413	285	0
		1		1		
South Buchan (08)	Jan-Mar		0	0	0	0
		9		1234	88	0
	April-June	0	0	0	0	0
	July-Sept		9	2123	402	0
		23		2118	195	0
	Oct-Dec		0	0	0	0
		0		0	0	0

Sampling Data for Herring 1985 (continued)

Area	Season	Number of samples		Number of fish		
		Research Vessel (lower figures)	Market (upper figures)	Measured	Aged	Racial
Central North Sea (09)	Jan-Mar	23	0	0 4510	0 188	0 0
	April-June	0	0	0	0	0
	July-Sept	29	0	0 2805	0 227	0 0
	Oct-Dec	0	0	0	0	0
VIIIB (10)	Oct-Dec	10	0	690	192	0

HERRING

<u>Research Vessel Surveys</u>	<u>Season</u>	<u>Objectives</u>
North and West of Scotland	January	Recruit Trawling survey
North western North Sea to German Bight	February	International Young Fish Survey
Firth of Clyde (Ballantrae Bank)	February-March	Larval Survey, Trawling and Acoustic Survey
Firth of Clyde	May-June	Trawling and Acoustic Survey
North western North Sea	June-July	Microtagging and Tag Recovery
North western North Sea	July	Acoustic and Trawling Survey
North of Scotland	August-September	Larval Patch Survey
Moray Firth to Firth of Forth	September	Larval Survey
Northern North Sea and West of Scotland	September	Larval Survey
West of Scotland and North West Ireland	October	Larval Survey
West of Scotland and North western North Sea	November	Trawling and Acoustic Survey

Tagging

Area	Season	Type of Tags	No Tagged	Type of Fish	Recoveries
North Western North Sea	June-July	Magnetic Microtags	13,000	Mature	32

Other Research Activities

- a. Continuation of herring parasitological work with a view to determining stock mixing
- b. Herring fecundity work in association with work on herring energetics
- c. Studies on the dynamics of larval patches in conjunction with hydrographic studies.

MACKEREL

Sampling

Area	Season	Type of Fish	No of samples		No of fish	
			Research Vessel	Market	Measured	Aged
IVa Northern North Sea	Jan-Mar	Immature	6		22	21
	Apr-Jun	Adult		1	135	24
	Jul-Sep	Imm/Adult	37	1	758	227
IVb Central North Sea	Jan-Mar	Immature	1		3	3
	Apr-Jun	Adult				
	Jul-Sep	Imm/Adult	13		829	130
VIa West of Scotland	Jan-Mar	Imm/Adult	24	22	3351	505
	Apr-Jun	Adult		6	501	168
	Jul-Sep	Adult		16	1468	582
	Oct-Dec	Imm/Adult	17	73	10182	1554
VIIa Irish Sea	Jul-Sep	Adult		1	174	
VIIb West of Ireland	Oct-Dec	Imm/Adult	8		213	175
VIII Great Sole Bank	Oct-Dec	Imm/Adult	2		9	4

Research Vessel Surveys

<u>Area</u>	<u>Date</u>	<u>Objectives</u>
West United Kingdom	December	Recruit Survey

Other Research Activities

Investigation of mackerel otolith morphometrics with a view to stock discrimination.

SPRAT

Area	Season	No. of Samples		No. of Fish	
		Res. Vessel	Commer- cial	measured	aged
Northern North Sea IVa	Jan-Mar	17		2,082	556
	Jul-Sep	12		1,275	310
	Oct-Dec	2		40	
Central North Sea IVb	Jan-Mar	19		1,896	238
	Jul-Sep			636	269
West of Scot- land VIa	Jan-Mar	34	11	4,887	674
	Apr-Jun	10		2,330	371
	Jul-Sep	2		138	99
	Oct-Dec	15	22	6,074	400
West of Ire- land VIIb	Oct-Dec	1		251	120

SPURDOG (*Squalus acanthias*)

Area	Season	No. of Samples		No. of Fish	
		Res. Vessel	Commer- cial	measured	aged
North. N. Sea IVa	Jan-Mar	11		211	
	Jul-Sep	7		12	
	Oct-Dec	1		7	
Central N. Sea IVb	Jan-Mar	6		39	
	Jul-Sep	14		88	
W. Scotland VIa	Jan-Mar	46		1,578	
	Apr-Jun		6	624	
	Jul-Sep		17	2,284	
	Oct-Dec	25		1,463	
W. Ireland VIIb	Oct-Dec	8		167	
Grt Sole Bank VIIj	Oct-Dec	2		101	

U.S.A.

(R.C. Hennemuth)

In lieu of a detailed report of activities, the United States has essentially continued with the activities reported last year. There was an increase in effort to assess the fisheries for large sharks and swordfish.

U.S.S.R.

(S.A. Studenetsky)

Research vessels expeditions in 1985

Survey area	Period	Investigations
West Ireland shelf, areas off the Hebrides Faroe and Shetland Islands	Feb-Apr	Acoustic survey of blue whiting on spawning grounds
Norwegian Shallows	Feb-Apr	Studying of spawning efficiency in Atlanto-Scandinavian herring
SW Barents Sea	Apr-Jun	Survey on bottom and pelagic fish larvae
Faroe Islands and off-shore Norwegian Sea areas	Aug	International acoustic survey of blue whiting on feeding grounds
Barents Sea and adjacent waters	Aug-Sep	International O-group fish survey
Barents Sea	Sep-Oct	International acoustic survey on stock assessment of the Barents Sea capelin and young Atlanto-Scandian herring

Materials on pelagic fishes collected in 1985

ICES area	Quarter	Month	Type of fish	No. of age samples collected*	No. of fish** measured	aged
1	2	3	4	5	6	7

Blue whiting

I	I	Jan	Prespawning		227	
IIa	I	Jan	Prespawning		1199	
		Feb	Spawning	1	1106	100
		Mar	Postspawning		717	
		Sum		1	3022	100
	II	Apr	Postspawning	4	6291	400
		May	Feeding	7	19026	700
		Jun	Feeding	6	20449	600
		Sum		17	45766	1700

1	2	3	4	5	6	7
IIa	III	Jul	Feeding	5	14078	500
		Aug	Feeding	5	12086	500
		Sep	Feeding	2	815	200
		Sum		12	26979	1200
	IV	Nov	Feeding		477	
	Total			30	76244	3000
IVa	II	Jun	Feeding		326	
Vb ₁	I	Jan	Feeding	1	1987	100
		Feb	Feeding		1151	
		Mar	Feeding	1	2683	100
		Sum		2	5821	200
	II	Apr	Feeding	2	4018	200
		May	Feeding	3	3552	300
		Sum		5	7570	500
	III	Aug	Feeding	5	2013	500
	Total			12	15404	1200
VIa	I	Mar	Spawning	2	760	138
	II	Apr	Postspawning	5	1926	500
		May	Feeding	1	328	100
		Sum		6	2254	600
	Total			8	3014	738
VIb	I	Mar	Spawning	1	1866	100
VIIb,c	I	Feb	Prespawning		1438	
		Mar	Spawning	3	2363	300
	Total			3	3801	300
VIIg,h,i,k						
	I	Feb	Prespawning	2	7235	200
		Mar	Spawning	1	3593	100
	Total			3	10828	300
XIV	II	Apr	Postspawning		152	
		May	Feeding	1	1437	100
	Total			1	1589	100

Polar cod

I	I	Jan	Prespawning		317	
		Feb	Prespawning	2	1470	200
		Sum		2	1787	200

1	2	3	4	5	6	7
I	II	Apr	Feeding	1	316	100
	III	Sep	Feeding	3	3771	300
	IV	Oct	Feeding	4	15077	100
		Nov	Prespawning		870	
		Sum		4	15947	100
	Total			10	21821	700
IIb	IV	Oct	Prespawning	1	89	100

Mackerel

IIa	II	May	Postspawning	1	473	100
		Jun	Postspawning	2	7511	200
		Sum		3	7984	300
	III	Jul	Postspawning	7	22386	700
		Aug	Feeding	7	21326	700
		Sep	Feeding	1	1845	100
		Sum		15	45557	1500
	Total			18	53541	1800
IVa	II	Apr	Prespawning		237	
		May	Prespawning		458	
		Jun	Prespawning		66	
	Total				761	
Vb ₁	II	May	Prespawning		645	
		Jun	Prespawning	1	2038	100
		Sum		1	2683	100
	III	Aug	Postspawning		176	
	Total			1	2859	100
VIa	II	Apr	Prespawning	1	996	100
VIIg,h,i,k						
	II	Apr	Prespawning	1	326	100
		Jun	Prespawning	1	306	100
	Total			2	632	200
VIIb,c	I	Mar	Prespawning		356	

1	2	3	4	5	6	7
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Capelin

I	I	Jan	Prespawning	5	23927	500
		Feb	Prespawning	12	24633	1200
		Mar	Spawning	6	29675	600
		Sum		23	78235	2300
	II	Apr	Spawning	2	7294	200
	III	Aug	Feeding		3804	
		Sep	Feeding	19	26787	1310
		Sum		19	30591	1310
	IV	Oct	Feeding	6	19170	600
		Nov	Feeding	6	15350	600
		Dec	Feeding	12	12349	680
		Sum		24	46869	1880
	Total			68	162989	5690
	IIa	Feb	Prespawning	3	5907	300
		Mar	Spawning	3	4477	300
	Total			6	10384	600
	IIb	I	Mar	Spawning	643	
		III	Aug	Feeding	1	647
			Sep	Feeding	18	10980
			Sum	19	11627	1540
		IV	Oct	Feeding	3	5453
			Nov	Feeding		608
			Dec	Feeding	2	335
		Sum		5	6396	430
	Total			24	18666	1970

Herring

I	I	Jan	Immature	3	3358	138
		Feb	Immature	8	9485	900
		Mar	Immature	4	4373	300
		Sum		15	17216	1338
	II	Apr	Immature	1	8272	100
		May	Immature	1	511	100
		Sum		2	8783	200

1	2	3	4	5	6	7
I	III	Sep	Immature	1	687	50
	IV	Oct	Immature	12	8944	812
		Nov	Immature	2	12793	200
		Dec	Immature	1	9687	100
		Sum		15	31424	1112
	Total			33	58110	2700
IIa	I	Feb	Prespawning	1	186	100
		Mar	Spawning, postspawn.	6	3321	412
		Sum		7	3507	512
	II	Apr	Spawning, postspawn.	2	471	200
	IV	Oct	Immature		144	
	Total			9	4122	712
IVa	II	May	Prespawning		629	
Vb ₁	II	May	Prespawning		975	
VIa	II	Apr	Prespawning		205	

* Age samples were collected by research vessels only

** No racial analyses were made

ADDENDUM 1

PELAGIC FISH COMMITTEE

Denmark

Species: Herring

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
North Sea	1	Mixed		144	3870	3863	1643
	2	"		172	474	472	328
	3	"		48	669	666	0
	4	"		44	2228	2224	1755
Skagerak	1	Mixed		32	2060	2060	0
	2	"		22	1473	1473	326
	3	"		24	2034	1938	743
	4	"		7	251	251	0
Katte-gat	1	Mixed		34	4373	4249	125
	2	"		30	1573	1573	0
	3	"		36	8854	8853	547
	4	"		27	5919	5919	160
The Sound	1	Mixed		0	0	0	0
	2	"		0	0	0	0
	3	"		0	0	0	0
	4	"		2	248	246	248
Belt Sea	1	Mixed		2	0	0	0
	2	"		5	813	213	213
	3	"		6	986	986	0
	4	"		10	2316	2316	0
The Fiords	1	Mixed		0	0	0	0
	2	"		7	1038	1038	572
	3	"		0	0	0	0
	4	"		0	0	0	0
Baltic	1	Mixed		18	303	303	0
	2	"		17	797	797	0
	3	"		25	3245	2601	0
	4	"		25	1900	1900	0

Species: Sprat

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
North Sea	1	Mixed		144	2033	2032	
	2	"		172	319	307	
	3	"		48	0	0	
	4	"		44	14	14	
Skager-rak	1	Mixed		32	123	123	
	2	"		22	16	16	
	3	"		24	10	10	
	4	"		7	4	4	
Katte-gat	1	Mixed		34	1057	1057	
	2	"		30	570	570	
	3	"		36	190	190	
	4	"		27	217	217	
The Belt Sea	1	Mixed		2	0	0	
	2	"		5	170	170	
	3	"		6	328	328	
	4	"		10	509	509	
Baltic	1	Mixed		18	0	0	
	2	"		17	450	450	
	3	"		25	350	224	
	4	"		25	724	724	

Species: Blue Whiting

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
North Sea	1	Mixed		144	1675	1669	
	2	"		172	298	298	
	3	"		48	13	13	
	4	"		44	4	0	
Skager-rak	1	Mixed		32	1	1	
	2	"		22	0	0	
	3	"		24	66	66	
	4	"		7	0	0	

Species: Mackerel

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
North Sea	1	Mixed		144	2	0	
	2	"		172	0	0	
	3	"		48	228	224	
	4	"		44	58	57	
Skager-rak	1	Mixed		32	0	0	
	2	"		22	0	0	
	3	"		24	3	0	
	4	"		7	0	0	