

PELAGIC FISH COMMITTEE

by

R.S. Bailey

1986

BELGIUM

(R. De Clerck)

No market sampling of pelagic fish has been carried out in 1986.
Research vessel surveys with bottom trawl on the juvenile herring
and sprat were continued 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

Finland

(R. Parmanne & V. Sjöblom)

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

FRANCE

(A. Maucorps)

SPECIES : Herring

Sampling

Area	Season quarter	type of fish	No of Samples vessel	No of fish mesurated	No of fish aged	No of fish examined racially
4 A w	I	Adults	2	452	121	0
North-						
Western						
North						
Sea						
4 C	I	Adults	1	224	72	0
Southern						
North						
Sea						
	IV	Adults	1	74	58	0
7 D	IV	Adults	6	2 018	311	0
Southern						
North						
Sea						

Research vessel surveys

Area	Date	Objectives
4A - 4B - 4C North Sea	10 jan. - 8 febr	IYFS
4C - 7D Southern North Sea	13-29 november	Acoustic Survey

Federal Republic of Germany
(D. Sahrhage/H. Dornheim)

Sampling

Species HERRING

Area	Season	Type of Fish	<u>No. of Samples</u>		<u>No of Fish</u>	
			Research	Commercial Vessel	measured	aged
Hebrides (01)	I	adult	8	-	692	100
	II	<u>ad.+juv.</u>	12	-	1063	192
	III	adult	10	-	2133	99
W of Shetland (02)	I	adult	3	-	121	27
	II	<u>ad.+juv.</u>	6	-	784	96
	III	<u>ad.+juv.</u>	7	-	1257	197
NW-North Sea (03)	I	<u>ad.+juv.</u>	32	-	4583	735
	II	<u>ad.+juv.</u>	84	-	9005	245
	III	adult	9	-	390	100
NE-North Sea (04)	I	<u>ad.+juv.</u>	9	-	843	189
	III	<u>ad.+juv.</u>	7	-	150	-
NW of Ireland (06)	III	<u>ad.+juv.</u>	18	-	2379	283
South Buchan (08)	I	juvenile	12	-	1103	214
	II	adult	1	-	18	-
	III	<u>ad.+juv.</u>	7	-	4476	98
Central North Sea (09)	I	<u>ad.+juv.</u>	56	1	6852	98
	II	juvenile	31	24	2527	-
	III	<u>ad.+juv.</u>	88	41	25355	196
	IV	juvenile	2	30	1146	-
W of Ireland (10)	II	adult	1	-	2	-
	III	<u>ad.+juv.</u>	7	-	757	194
Southern North Sea (12)	I	juvenile	1	-	53	-

Research Vessel Surveys

Area	Date	Objectives
Hebrides (01)	03.02. - 22.02.86	Groundfish survey
W of Shetland (02)		
NW-North Sea (03)		
Central North Sea (09)	17.02. - 28.02.86	Groundfish survey
Southern North Sea (12)		
NW-North Sea (03)	10.02. - 17.03.86	ICES young fish survey
NE-North Sea (04)		
South Buchan (08)		
Central North Sea (09)		
Hebrides (01)	26.03. - 09.05.86	Mackerel and other pelagic fish survey
W of Shetland (02)		
NW of Ireland (06)		
W of Ireland (10)		
Western Approaches (16)	13.05. - 18.05.86	Young fish and brown shrimp survey
Central North Sea (09)		
NW-North Sea (03)	12.06. - 31.07.86	Groundfish survey
NE-North Sea (04)		
South Buchan (08)		
Central North Sea (09)		
NW-North Sea (03)	12.06. - 23.06.86	Groundfish survey
Central North Sea (09)		
	16.09. - 19.09.86	Young fish and brown shrimp survey
Hebrides (01)	14.07. - 08.08.86	Pelagic fish survey
W of Shetland (02)		
NW of Ireland (06)		
W of Ireland (10)		
Western Approaches (16)	03.11. - 17.11.86	Groundfish survey
Central North Sea (09)		
Central North Sea (09)		
	1. to 4. quarter	Shrimps by catch investigations

Sampling

Species SPRAT

Area	Season	No of Samples		No of fish measured
		Research	Commercial	
N-North Sea IVa	I	10	-	281
	II	10	-	463
Central North Sea IVb	I	44	1	1982
	II	-	12	675
	III	47	8	2525
	IV	2	24	1783
NW of Scotland VIa	II	7	-	25

Research Vessel Survey

Area	Date	Objectives
Central North Sea IVb	03.01. - 16.01.86	Groundfish survey
N-North Sea IVa	10.02. - 17.03.86	ICES young fish survey
Central North Sea IVb		
NW of Scotland VIa	26.03. - 09.05.86	Mackerel and other
W of Ireland VII b,c		pelagic fish survey
S of Ireland VII g-k		
Bay of Biscay VIII		
N-North Sea IVa		
N-North Sea IVa	12.06. - 31.07.86	Groundfish survey
Central North Sea IVb		
Central North Sea IVb	16.09. - 19.09.86	Young fish and brown
		shrimp survey
Central North Sea IVb	03.11. - 17.11.86	Groundfish survey
Central North Sea IVb	1. to 4. quarter	Shrimp by catch investigation

Sampling

Species MACKEREL

Area	Season	Type of fish	No of samples Research vessel	<u>No of fish</u>	
				measured	aged
N-North Sea IVa	I	ad.+juv.	14	44	-
	II	adult	3	4	-
	III	<u>ad.</u> +juv.	7	665	157
Central North SeaIVb	I	ad.+juv.	8	23	-
	III	ad.+juv.	39	1437	98
NW of Scotland VIa	I	<u>ad.</u> +juv.	11	938	149
	II	<u>ad.</u> +juv.	22	2835	100
	III	<u>ad.</u> +juv.	29	1927	195
W of Ireland VIIb,c	II	adult	8	2041	295
	III	<u>ad</u> +juv.	6	936	195
S of Ireland VIIg-k	II	<u>ad.</u> +juv.	46	10040	846
	III	<u>ad.</u> +juv.	12	458	100
Bay of Biscay VIII	II	adult	28	4674	489
	III	adult	2	5	-

Research Vessel Surveys

Area	Date	Objectives
N-North Sea IVa	03.02. - 22.02.86	Groundfish survey
NW of Scotland VIa		
N-North Sea IVa	10.02. - 17.03.86	ICES young fish survey
Central North Sea IVb		
N-North Sea IVa	26.03. - 09.05.86	Mackerel and other
NW of Scotland VIa		pelagic fish survey
W of Ireland VII b,c		
S of Ireland VII g-k		
Bay of Biscaya VIII		
N-North Sea IVa	12.06. - 31.07.86	Groundfish survey
Central North Sea IVb		
N-North Sea IVa	14.07. - 08.08.86	Pelagic fish survey
NW of Scotland VIa		
W of Ireland VII b,c		
S of Ireland VII g-k		
Bay of Biscay VIII		

Sampling

Species BLUE WHITING

Area	Season	<u>No of samples</u>	<u>No of fish</u>
		Research vessel	measured
N-North Sea IVa	II	2	179
	III	6	695

Research Vessel Surveys

Area	Date	Objectives
N-North Sea IVa	12.06. - 31.07.86	Groundfish survey
Central North Sea IVb		

Sampling

Species HORSE MACKEREL

Area	Season	<u>No of samples</u> Research vessel	<u>No of fish</u> measured
N-North Sea IVa	II	4	5
	III	3	679
Central North Sea IVb	III	25	2297
NW of Scotland VIa	II	16	1662
	III	43	10596
W of Ireland VIIb,c	II	8	3632
	III	15	4201
S of Ireland VII g-k	II	46	20861
	III	29	9253
Bay of Biscay VIII	II	32	25422
	III	10	2213

Research Vessel Surveys

Area	Date	Objectives
N-North Sea IVa	26.03. - 09.05.86	Mackerel and other pelagic fish survey
NW of Scotland VIa		
W of Ireland VIIb,c		
S of Ireland VII g-k		
Bay of Biscay VIII		
N-North Sea IVa	12.06. - 31.07.86	Groundfish survey
Central North Sea IVb		
N-North Sea IVa	14.07. - 08.08.86	Pelagic fish survey
NW of Scotland VIa		
W of Ireland VII b,c		
S of Ireland VII g-k		
Bay of Biscay VIII		

GERMAN DEMOCRATIC REPUBLIC

(L. Danke)

Blue Whiting

Sampling

Area	Season Quarter	No of samples		No of fish	
		Research vessel	commercial vessel	measured	aged
VII b,c	I		1	722	50
VII g-k	I		5	2743	150
VII g-k	I	3		5141	349
II b	II	19		635	
II a	III	24		2627	589
II b	III	9		49	
III a	III	1		109	26
IV a 1	III	1		268	100
V b1/2	III	5		629	119
II a	III		26	5074	300
V v1	III		1	200	
II a	IV		10	2935	

Research vessel survey

Area	Date	Objectives
Norwegian Sea	3.8.-5.9.1985	Acoustic survey
Spitsbergen/Bear Island		midwater trawling
Kattegat/Skagerrak		hydrography
North Sea		
Faroes Grounds		

IRELAND
(J. Molloy)

<u>Sampling</u>		<u>Species: Herring</u>				
Area	Season	Type of fish	No. of samples (market)	No. of fish (measured)	No. of fish aged	No. of fish examined racially
Via South	I,IV,V VI,VII, VIII,IX X	Adult	29	4 705	1 217	1 217
VIIb,c	III,IV, VI,IX	Adult	14	2 406	567	567
VIIj + Celtic Sea	X,XI,	Adult	40	3 008	1 483	1 483
VIIa Irish Sea	VII,VIII, IX	Adult	21	4 404	1 003	1 003

<u>Species: Mackerel</u>						
Via South North West	I,V,VI, X,XI,XII	Adult	15	1 957	1 272	-
VIIb,c West	II,III, IV, XI	Adult	8	1 264	417	-
VIIj + Celtic Sea	II,III, IV,V, VI	Adult	8	542	441	-

<u>Species: Sprat</u>						
VIIj + Celtic Sea	I,XI, XII	Adult	18	2 623	None	None

Research Vessel Surveys

Area	Date	Objectives
VIIa	February	Young Herring Survey
Via	May	Mackerel egg survey for the Fishing Industry
Via + VII b,c	October	Young mackerel survey
Via + VIIb,c	Oct-Nov	Young herring survey

NETHERLANDS
(A. Corten & A. Eltink)

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	-	3	478	75	-
" " "	3	"	-	23	3,301	575	-
" " "	4	"	-	2	314	50	-
South Buchan	2	"	-	3	696	75	-
" " "	3	"	-	3	489	75	-
Central North Sea	2	"	-	1	167	25	-
" " "	3	"	-	16	2,584	400	-
Southern North Sea	1	"	-	8	1,489	200	-
" " "	3	"	-	1	48	25	-
" " "	4	"	-	16	2,544	400	-
Via North	3	"	-	14	1,512	350	-
" " "	4	"	-	5	746	125	-
Via South + VIIb, c	3	"	-	4	392	100	-
" " + "	4	"	-	2	281	50	-
Celtic Sea + VIIj	2	"	-	1	169	25	-
Total				102	15,210	2,550	

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	adult	-	1	96	25	-
" " " "	4	"	-	4	220	100	-
IVb Central North Sea	2	"	-	1	34	25	-
" " " "	3	"	-	4	365	100	-
" " " "	4	"	-	1	58	25	-
IVc Southern North Sea	2	"	-	2	343	50	-
" " " "	3	"	-	2	227	50	-
" " " "	4	"	-	3	328	75	-
Via NW Ireland	1	"	-	5	314	125	-
" " " "	3	"	-	2	144	50	-
" " " "	4	"	-	6	539	150	-
VII South of Ireland	1	"	-	27	1,875	675	-
" " " "	2	"	-	19	1,915	475	-
" " " "	3	"	-	2	215	50	-
" " " "	4	"	-	1	176	25	-
Total				80	6,849	2,000	-

Herring/Research vessel surveys

Area	Dates	Objectives
IVa,b,c North Sea	6 feb - 1 march	ICES Young Fish Survey
IVa Northern North Sea	3 sep - 23 sep	ICES Herring larval survey
IVb Central North Sea	3 sep - 25 sep	ICES Herring larval survey
IVc + VIId Southern North Sea	8 dec - 19 dec	ICES Herring larval survey
IVc Dutch Waddensea	26 march- 24 april	Herring larval survey

Mackerel + Horsemackerel/Research vessel surveys
(A. Eltink)

Area	Dates	Objectives
VII Celtic Sea	12 may - 19 july	ICES egg survey
VII Celtic Sea	10 nov - 29 nov	o-group survey

Sampling data for Horsemackerel

Area	Quarter of year	Type of fish	No. of samples		No. of fish		
			research vessel	market	measured	aged	examined racially
IVb Central North Sea	4	adult	-	1	38	25	-
IVc Southern North Sea	2	"	-	1	133	25	-
" " " "	3	"	-	3	284	75	-
" " " "	4	"	-	1	103	25	-
VIa NW Ireland	1	"	-	1	239	25	-
" " " "	3	"	-	3	260	75	-
" " " "	4	"	-	2	280	50	-
VII South of Ireland	1	"	-	4	530	100	-
" " " "	2	"	-	8	871	200	-
" " " "	3	"	-	8	1,527	200	-
" " " "	4	"	-	11	1,296	275	-
Total				43	5,561	1,075	-

NORWAY

(O. Dahl & I. Röttingen)

Herring (Clupea Harengus)
Sampling

Area	Season	Type of fish	Research vessel	Market	No. of fish measured	No. of fish aged	No. of fish exam. racially
Skagerrak	I	Mixed	2	1	220	220	100
IIIa	II	Adult	-	2	200	200	200
	IV	Immat	7	-	700	700	500
Northern	I	Mixed	7	140	14000	700	500
North Sea	II	Adult	-	336	33000	600	600
IVa	III	Mixed	1	160	16000	1200	1000
	IV	Mixed	5	160	16000	700	500
Norwegian coast IVa	IV	Immat.	5	-	299	299	299
Central	I	Immat.	4	1	500	400	300
North Sea	II	Adult	-	57	5500	100	100
IVb	III	Mixed	-	127	12000	700	500
	IV	Immat.	19	4	2000	1500	1000
NW North Sea	III	Adult	-	4	400	-	-
Via	IV	Adult	-	5	500	100	100

Research vessel survey

Area	Season	Objectives
North Sea	Jan/Feb	Int. Young Fish survey. herring
The Norw. coast from Stavanger to Varangerfjord	Oct/Nov/Dec	Fish survey, 0-group sprat/herring
North Sea/Skagerrak	Nov/Dec	Herring acoustic survey

Tagging

Area	Season	Type of Tag	No tagged	Type of fish
North Sea	Nov	Int. steel	9300	Herring

Sprat (Sprattus sprattus)
Sampling

Area	Season	Type of fish	No. of samples of Research vessel	Market	No. of fish measured	No. of fish aged
Norwegian coast IVa	IV	Mixed	10	-	1000	100
Northern North Sea IVa	IV	Mixed	1	-	100	100

Research vessel surveys

Area	Season	Objectives
North Sea	Jan/Feb	Int. Young Fish Survey, sprat
The Norw. coast from Stavanger to Varangerfjord	Oct/Nov/Dec	Fish survey, 0-group, sprat/herring

Mackerel (*Scomber scombrus*)
Sampling

Area	Season	Type of fish	No. of samples		No. of fish measured	No. of fish aged
			Research vessel	Market		
Norwegian Sea, IIa	III	Mixed	-	4	400	400
Skagerrak IIIa	II	Mixed	-	1	100	100
	III	Mixed	-	2	200	200
Northern North Sea	II	Mixed	1	2	300	300
IVa	III	Mixed	3	14	1700	1700
	IV	Mixed	-	5	500	500
Central North Sea	II	Mixed	1	-	100	100
IVb	III	Mixed	3	-	300	300
NW North Sea, VIa	IV	Mixed	-	1	100	100
SW Ireland VIIg-k	II	Mixed	5	-	500	500

Research vessel survey

Area	Season	Objectives
North Sea	Jun-Jul	Spawning survey Eggproduction
North Sea/Skagerrak	Nov-Dec	Fish survey, I-group mackerel

Tagging

Area	Season	Type of tag	No. tagged	Type of fish
SW Ireland, VIIg-k	May	Int. steel	18 015	Mackerel
North Sea - Skagerrak, IVa,b, IIIa	Jul/Aug	Int. steel	15 001	Mackerel

Herring (Clupea harengus) North of 62°N

Sampling

Area	Season	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.	18	1	1548	378	
I	II	"	4	0	206	135	
	III	"	3	0	5	4	
Norw. coast	I	Mixed	13	132	11137	2427	
IIa	II	"	14	20	2609	1236	
	III	"	15	0	1263	1031	
	IV	"	43	45	9666	3581	
Norw. coast	II	Juv.	10	0	532	220	
IIb	III	"	1	0	1	0	
Total			121	198	26967	9012	

Research vessel surveys

Area	Date	Objectives
Norwegian coast IIa	February-March	Experimental fishing, acoustic survey of spawning stock
"	April-May	Tagging
Norwegian Sea/ Barents Sea IIa/1	May	Acoustic survey, juvenile herring
Norwegian Sea/ Barents Sea IIa/1	August	0-group distribution
Barents Sea IIa/1	September	Acoustic survey
Norwegian coast I/IIa	November-December	0-group survey

Tagging

Area	Season	Type of tags	No. tagg.	Type of fish	Recoveries
Norw. coast	II	internal	33990	adult	

Capelin (Mallotus villosus)

Sampling

Area	Season	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	Mixed	52		4449	3898	
	II	"	41		3458	2415	
	III	"	69		3817	3006	
	IV	"	12		790	201	
Jan Mayen							
Va	I	Spawn.		27	1907	1835	
XIVa	III	Adult	12	12	2167	1646	
Total			186	39	16588	13001	

Research vessel surveys

Area	Date	Objectives
Barents Sea I,II	5/1 - 23/1	Acoust.surv.prespawners
Barents Sea I,II	28/4 - 25/5	Acoust.surv. immatures
Barents Sea I,II	26/5 - 20/6	Larval survey
Barents Sea I,II	6/9 - 15/10	Acoust.surv.total stock
Norwegian Sea II,XIVa	28/7 - 20/8	Acoust.surv.matures

Blue whiting (Micromesistius potassou)

Sampling

Area	Season	Type of fish	No. of samples Research vessels	Market	No. of fish measured	No. of fish aged
Barents Sea	III	Mixed	4		172	116
I, IIb	IV	"	1		100	
Norwegian Sea	II	"	29		2197	1203
IIa	III	"	58		4293	4059
	IV	"	10		505	100
Northern	I	"		2	200	50
North Sea	II	"	3	7	800	546
IVa	III	"	9		333	279
	IV	"		2	100	100
West of the	I	"	6	2	798	788
British Isles	II	"	5	4	884	669
Faroes, Vb, VIa						
VIb, VIIbc,						
TOTAL			125	17	10382	7910

Research Vessel surveys

Area	Date	Objective
West of the British Isles, Vb, VIa, VIb, VIIbc	12 March-6 April	Acoustic assessment and structure of stock
Norwegian Sea IIa Northern North Sea IVa	22 July-18 Aug	"

Polar cod (Boreogadus saida)

Sampling

Area	Season	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		21	1568	87	
	II		6	525	75	
I,II	III		72	6031	2508	
	IV		15	707	0	
Total			114	8831	2670	

Research vessel surveys

Area	Date	Objectives
Barents Sea I,II	5/1 - 23/1	Acoustic surv.imm.
Barents Sea I,II	28/4 - 25/5	Acoustic surv.imm.
Barents Sea I,II	6/9 - 15/10	Acoustic surv.tot.stock

Greater Silver Smelt (Argentina silus)

Sampling

Area	Season	Type of fish	No. of samples Research Vessels	Market	No. of fish measured	No. of fish aged
Barents Sea I	IV	Adults	2		19	6
Norwegian Sea	II	"	26	15	2722	2006
IIa	III	"	8		181	103
	IV	"	9		358	30
Northern North Sea	II	"	2		83	82
IVa	III	"	3		54	
West of the British Isles	II	"	2		112	95
VIa						
TOTAL			52	15	3529	2322

Research vessel surveys

Area	Date	Objective
Norwegian Sea IIa	1-19 April	Acoustic survey, structure of stock and catchability

SPAIN

(C. Porteiro et M.A. Rodríguez)

Echantillonnages

Espèce: Sardina pilchardus

Région	Trimestre	Type de poisson	Nombre d' échantillons		No. de poissons mesurés	No. de poissons dont age déterminé	Classés par race
			Bateau	Marché			
VIIIc	1	Adultes	16	--	2095	761	--
	2	et	--	--	--	--	--
	3	immatures	--	--	--	--	--
	4		17	--	1037	304	--
IXa	1		4	33	4077	1026	--
	2	Adultes	--	50	4725	389	--
	3	et	--	52	4889	409	--
	4	immatures	2	29	3128	573	--
27°N à 28°N	1		--	15	803	--	--
	2	Adultes	--	21	3889	--	--
	3	et	--	71	15694	--	--
	4	immatures	--	99	21890	--	--
22°N à 26°N	1		--	19	3195	179	--
	2	Adultes	--	58	9450	269	--
	3	et	--	18	3592	--	--
	4	immatures	--	23	4501	--	--

Espèce: Trachurus trachurus

Région	Trimestre	Type de poisson	Nombre d' échantillons		No. de poissons mesurés	No. de poissons dont age déterminé	Classés par race
			Bateau	Marché			
VIIIc	1		5	--	297	297	--
	2		--	--	--	--	--
	3		31	--	760	760	--
	4		20	--	2407	--	--
IXa	1		6	6	1189	798	--
	2		--	12	948	--	--
	3		10	26	2175	130	--
	4		6	19	1673	428	--

Espèce: Scomber scombrus

Région	Trimestre	Type de poisson	Nombre d'échantillons Bateau Marché		No. de poissons mesurés	No. de poissons dont age déterminé	Classés par race
VIIIc	1		7	--	84	84	--
	2		30	--	739	739	--
	3		14	--	58	58	--
	4		5	--	262	262	--
IXa	4		8	723	103	--	--
	2		16	8	743	146	--
	3		1	15	990	5	--
	4		2	6	653	311	--

Espèce: Micromesistius poutassou

Région	Trimestre	Type de poisson	Nombre d'échantillons Bateau Marché		No. de poissons mesurés	No. de poissons dont age déterminé	Classés par race
VIIIc	1		--	--	--	--	--
	2		32	--	2578	2578	--
	3		31	--	2889	2889	--
	4		--	--	--	--	--
IXa	1		--	19	2240	38	--
	2		19	23	4227	1643	--
	3		19	27	5348	2538	--
	4		--	26	3079	105	--

CAMPAGNES DE NAVIRES DE RECHERCHE

Region	Date	Objectif
VIIIc IXa	Mars	Estimation de l'abondance de sardine par classes d'age. Distribution pendant la saison de ponte.
VIIIc IXa	Novembre	Estimation de l'abondance par classes d'age et du recrutement de la sardine.

SWEDEN
(O. Hagström)

HERRING
Sampling

Area	Season	Type of fish	No. of Samples		No. of Fish		No. of Fish examined racially
			Research Vessel	Market	Measured	Aged	
Kattegat	I, II, III		10	72	26 357	2 749	2 169
	IV, V, VI		-	72	22 153	1 036	892
	VII, VIII, IX		18	84	31 586	2 881	1 340
	X, XI, XII		4	37	12 157	995	995
Skagerrak	I, II, III		10	3	5 180	1 424	1 063
	IV, V, VI		-	6	2 839	450	316
	VII, VIII, IX		22	24	13 442	3 581	1 527
	X, XI, XII		1	1	613	117	117
Baltic	I, II, III		5	-	3 333	1 729	1 729
North Sea	IV, V, VI		-	1	414	90	90
Total			70	300	108 074	15 052	10 238

RESEARCH VESSEL SURVEYS

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

UNITED KINGDOM

(England and Wales)

(P.O. Johnson)

Sampling

HERRING

ICES Div. (Area)	Quarter	Type	<u>No. of Samples</u>		No. Measured	No. Aged	No. examined racially
			R.V.	Comm.			
IVa (N. North Sea)	3	imm./ mat.	2	-	260	153	153
IVb (E of 3 ⁰ E)	1	juv/ imm.	25	-	2,905	809	809
(East Central North Sea)	3	imm.	2	-	273	117	117
IVb (W of 3 ⁰ E)	1	juv./ imm.	24	-	2,352	1,075	1,075
(W. Central North Sea)	3	imm.	1	-	142	98	98
	3	mat.	4	-	842	359	359
IVc (South North Sea)	1	juv./ imm.	10	-	684	286	286
(Thames Stock)	1	mat.	-	3	537	354	354
"	4	mat.	-	3	581	325	325
(Wash-Thames Coastal)	3	juv.	17	-	2,101	837	837
(East Anglian Coast)	2	spent	-	1	299	151	151
	4	mat.	-	2	358	196	196
VIIe (West Channel)	1	mat.	1	-	188	112	112
	2	spent	1	-	31	30	30

SPRAT

ICES Div. (Area)	Quarter	Type	<u>No. of Samples</u>		No. Measured	No. Aged
			R.V.	Comm.		
IVb (E of 3 ⁰ E) (East Central North Sea)	1	imm./ mat.	18	-	1,441	487
IVb (W of 3 ⁰ E) (W. Central North Sea)	1	imm./mat. mat.	15	-	499	240
			1	-	92	65
IVc (South North Sea)	1	imm./mat. "	11	-	516	234
				6	1,250	437
(Wash-Thames Coastal)	3	juv./imm	16	-	1,231	202
(Suffok Coast)	4	mat.	-	3	489	134
	1	mat.	-	2	365	106
	1	"	1	-	123	55
	4	"	-	2	269	148
	4	"	3	-	486	87

MACKEREL

ICES Div. (Area)	Quarter	Type of Fish	<u>No. of Samples</u>		No. Measured	No. Aged	No. examined racially
			R.V.	Comm.			
VIIe	1st	Mack.	3	-	320	440	-
VIIj	1st	Mack.	5	-	600	448	-
VIIIa	1st	Mack.	2	-	140	178	-
VIIIb	1st	Mack.	2	-	140	162	-
VIIe	2nd	Mack	4	-	430	87	-
VIIh	2nd	Mack.	1	-	120	114	-
VIIj	2nd	Mack.	4	-	450	212	-
VIIb	3rd	Mack.	1	-	116	116	-
VIIj	3rd	Mack.	1	-	147	147	-
VIIa	3rd	Mack.	1	-	130	130	-
IVc	3rd	Mack.	1	-	52	52	-
IVb	3rd	Mack.	5	-	250	157	-
IVa	3rd	Mack.	1	-	92	92	-
VIIe	4th	Mack.	4	-	278	186	-

PILCHARD

ICES Div. (Area)	Quarter	Type of Fish	<u>No. of Samples</u>		No. Measured	No. Aged	No. examined racially
			R.V.	Comm.			
VIIe	2nd	Pil.	2	-	210	145	-
VIIe	1st	Pil.	1	-	60	60	-

SCAD

ICES Div. (Area)	Quarter	Type of Fish	No. of Samples R.V.	No. Comm.	No. Measured	No. Aged	No. examined racially
VIIk	1st	Scad	1	-	156	-	-
VIIIa	1st	Scad	1	-	151	-	-
VIIa-k	1st	Scad	1	-	135	-	-
VIIIb	1st	Scad	1	-	147	-	-
VIIh	2nd	Scad	1	-	132	-	-
VIIj	2nd	Scad	1	-	133	-	-
VIIh	3rd	Scad	1	-	24	24	-
VIIj	3rd	Scad	1	-	28	28	-
VIIg	3rd	Scad	1	-	16	4	-

Research Vessel Surveys

MACKEREL

Area	Dates	Objectives	Vessel
VIIId,e (Channel)	3-23 Jan	Mackerel Acoustic Survey	Cirolana
VIIg-j (Celtic Sea- SW Approaches)	10 Mar- 7 Apr	Juvenile Mackerel Distri- bution (part of multi- species survey)	Cirolana
VIIb-h: VIII (W. Ireland- Biscay)	9 May- 5 Jun	Mackerel Egg Survey (ICES)	Cirolana
VIIg-j (Celtic Sea- Western Approaches)	14 Jul- 30 Jul	Mackerel Distribution (part of multispecies survey)	Clione
VIIg-j; VIII (Celtic Sea- Biscay)	28 Nov- 22 Dec	Mackerel Distribution (part of multispecies survey)	Cirolana

HERRING/SPRAT

Area	Dates	Objectives	Vessel
IVc/VIIId (S. North Sea/E.Channel)	3-13 Jun	Herring Larval Survey	Clione
IVc (Wash-Thames Coastal)	15-23 Jul	Inshore O-Group Herring Survey	Dawn Hunter (Charter)
IVb (W of 3 ⁰ E) (W. Central North Sea)	20 Aug- 4 Sep	Acoustic Survey for "Banks" Spawning Herring	Clione
VIIe (West Channel)	1-19 Dec	Acoustic Survey for Pelagic Species (Mackerel, Sprat, Scad and Pilchard)	Clione

Scotland
(R.S. Bailey)

Herring Sampling

Area	Season	Type of Fish	No of Samples		No of Fish		
			Research Vessels	Market	Measured	Aged	Examined Racially
South Buchan	Jan-Mar	Juv	14	0	1950	304	0
	Jul-Sep	Juv	2	0	277	22	0
		Adult	8	10	3897	627	0
Central North Sea	Jan-Mar	Juv	23	0	5554	299	0
	Jul-Sep	Juv	7	0	147	23	0
		Adult	4	3	1240	291	0
		Mixed	5	0	992	61	0
North Western North Sea	Jan-Mar	Juv	8	0	2055	144	0
		Adult	12	11	4161	938	0
		Mixed	13	0	1933	219	0
	Apr-Jun	Adult	0	8	1590	505	0
	Jul-Sep	Adult	53	87	18207	2981	540
		Mixed	8	0	1763	414	180
	Oct-Dec	Adult	1	13	2577	562	0
North Eastern North Sea	Jan-Mar	Juv	2	0	26	2	0
		Mixed	1	0	23	5	0
	Jul-Sep	Juv	1	0	1	0	0
		Adult	1	0	2	0	0
		Mixed	1	0	90	28	0
Vla North	Jan-Mar	Juv	5	0	646	231	0
		Adult	10	6	2919	1125	0
		Mixed	8	0	652	253	0
	Apr-Jun	Adult	0	1	237	139	0
	Jul-Sep	Adult	0	19	2761	989	0
	Oct-Dec	Juv	1	0	16	0	0
		Adult	8	18	6248	770	0
		Mixed	4	10	4852	1393	0
Vla South	Jan-Mar	Juv	1	0	7	0	0
		Adult	8	0	1425	510	0
	Apr-Jun	Adult	2	0	13	11	0
	Oct-Dec	Adult	4	0	397	83	0
		Mixed	1	0	7	6	0

Herring Sampling (contd)

Area	Season	Type of Fish	No of Samples		No of Fish		
			Research Vessels	Market	Measured	Aged	Examined Racially
Clyde	Jan-Mar	Juv	2	0	77	33	0
		Adult	2	0	246	97	0
		Mixed	6	0	1401	498	0
	Apr-Jun	Adult	5	52	9746	831	0
		Mixed	2	0	443	163	0
	Jul-Sep	Adult	0	80	9570	682	0
		Mixed	0	7	1003	274	0
	Oct-Dec	Juv	8	0	1429	182	0
		Mixed	2	3	1320	369	0

Tagging

Area	Season	Tag type	No tagged	Type of fish	Recoveries
Northwestern North Sea	July	Floy T tags	14662	Adult	144

Research Vessel Surveys

<u>Area</u>	<u>Season</u>	<u>Objectives</u>
Northwestern to Southeastern North Sea (Areas IVa, IVb)	February	International Young Fish Survey
North and West of Scotland (Area VIa)	Feb-Mar	Recruit Trawling Survey
Firth of Clyde	March	Larval Survey and Trawling Survey
Firth of Clyde	April	Larval and Trawling Survey
Firth of Clyde	May-Jun	Acoustic and Trawling Survey
Northwestern North Sea	July	Acoustic and Trawling Survey ²

(contd)

Notes

2 In accordance with C. Res. 1980/2:24.

Research Vessel Surveys (contd)

<u>Area</u>	<u>Season</u>	<u>Objectives</u>
Via (North) and Northwestern North Sea	Aug-Sep	Larval Survey and Herring Patch Study ¹
South Buchan	September	Larval Survey ¹
Via (North) and Northwestern North Sea	September	Larval Survey ¹
Via and Northwestern North Sea	October	Larval Survey ¹
Via	November	Acoustic Survey for Herring and Mackerel

Notes

- 1 In accordance with previous ICES resolutions.

Additional Research Activities

- 1 Otolith studies of the Clyde herring using computer digitisation of otolith measurements to investigate stock mixing.

Sprat Sampling

Area	Season	No of Samples		No of Fish	
		Research	Commercial	Measured	Aged
IVa Northern North Sea	Jan-Mar	20	-	2737	341
	Apr-Jun	-	-	-	-
	Jul-Sep	7	-	514	-
	Oct-Dec	-	6	1635	45
IVb Central North Sea	Jan-Mar	27	-	3983	468
	Apr-Jun	-	-	-	-
	Jul-Sep	6	-	221	-
	Oct-Dec	-	-	-	-

(contd)

Sprat Sampling (contd)

Area	Season	No of Samples		No of Fish	
		Research	Commercial	Measured	Aged
VIa West of Scotland (excluding Clyde)	Jan-Mar	25	1	2009	356
	Apr-Jun	-	-	-	-
	Jul-Sep	-	-	-	-
	Oct-Dec	10	8	2982	187
VIa West of Scotland (Clyde)	Jan-Mar	10	2	2054	285
	Apr-Jun	6	-	1267	279
	Jul-Sep	-	-	-	-
	Oct-Dec	7	2	879	179

Research Vessel Surveys

<u>Area</u>	<u>Date</u>	<u>Objectives</u>
Northern and Central North Sea	January	Sprat Acoustic Survey ¹
Northern and Central North Sea	January	Sprat Trawling Survey ¹

1 In accordance with C. Res. 1981/2:22.

Squalus acanthias (Spurdog)

Sampling: Length measurements continued to be taken from commercial and research vessel samples.

Tagging: No new tagging experiments were carried out but recoveries from previous experiments continued to be monitored.

MACKEREL

Sampling

Area	Season	Type of Fish	No of Samples		No of Fish	
			Research Vessel	Market	Measured	Aged
IVa	Jul-Sep	1 mm/adult	29		695	204
Northern North Sea	Oct-Dec	adult		2	188	9
IVb	Jul-Sep	1 mm/adult	20		726	178
Central North Sea						
VIa	Jan-Mar	1 mm/adult	18	9	3432	1184
West of Scotland	Apr-Jun	adult		1	107	-
	Jul-Sep	adult		16	1513	632
	Oct-Dec	1 mm/adult	18	72	7637	1855
VIIb	Apr-Jun	1 mm/adult	7		436	172
West of Ireland						
VIIc	Apr-Jun	1 mm/adult	1		6	6
Porcupine Bank						
VIIj	Apr-Jun	1 mm/adult	15		811	586
Great Sole Bank						
VIIh	Apr-Jun	1 mm/adult	1		54	24
Little Sole Bank						

Research Vessel Surveys

Area	Date	Objective
West of UK	May	Mackerel egg survey
West of UK	June	Mackerel egg survey
West of Scotland	December	Recruits survey

Other Research Activities

Investigation of mackerel otolith morphometrics with a view to stock discrimination (ICES CM 1986/H:7).
Mackerel fecundity investigations.

M. Poutassou

Sampling

Area	Season	Type of Fish	No of Samples		No of Fish	
			Research Vessel	Market	Measured	Aged
VIa	Jan-Mar	Mixed	-	1	57	57
	Apr-Jun	Mixed	-	2	192	151

U.S.A.

(R.C. Hennemuth)

General

Seasonal fish trawl surveys, plankton net surveys, and hydrographic surveys were continued. Annual assessments were completed for scup, Atlantic herring, Atlantic mackerel, butterfish, bluefish, river herrings, striped bass, and squid.

Studies of the evaluation of precision of trawl surveys, and hydrographic and ichthyoplankton production in zooplankton faunal zones were completed.

Atlantic mackerel

Completed fourth year of cooperative research with Polish vessels on distribution, abundance, and biology.

Herring

Studied parasitic Anisakis simplex as a means of differentiating stocks. Studies were also conducted on the process of recruitment and comparative distribution of larvae in 1970's and 1980's on Georges Bank.

Large pelagics (sharks, billfish, and tuna)

Cooperative longline cruise on Polish research vessel to study ecology was completed.

Butterfish

Special study of the spatial distribution by size groups was completed.

SAMPLING

Area	Quarter	Month	Type of fish	No. of age samples	No. of fish measured	aged
1	2	3	4	5	6	7

Blue whiting

IIa	I	Jan	Prespawning	-	340	-
		Feb	Spawning	4	3705	400
		Mar	Postspawning	2	5091	200
		In all		6	9136	600
	II	Apr	Postspawning	2	21819	200
		May	Feeding	7	18990	700
		Jun	Feeding	2	21737	200
		In all		11	62546	1100
	III	Jul	Feeding	3	13024	300
		Aug	Feeding	10	29139	1000
		Sep	Feeding	7	11808	600
		In all		20	53971	1900
	IV	Oct	Feeding	1	4909	100
		Nov	Feeding	-	11049	-
		Dec	Feeding	-	2356	-
		In all		1	18314	100
	Total			38	143967	3700
IIb	IV	Nov	Feeding	2	348	50
Total				2	348	50
IVa	I	Feb	Spawning	-	1944	-
		Mar	Postspawning	1	339	100
		In all		1	2283	100
	II	Apr	Postspawning	1	317	100
		In all		1	317	100
	IV	Oct	Feeding	-	323	-
		Nov	Feeding	-	401	-
		In all		-	724	-
	Total			2	3324	200

1	2	3	4	5	6	7
Vb ₁	I	Jan Feb Mar	Prespawning Spawning Postspawning	- - 1	1019 7707 327	- - 100
		In all		1	9053	100
	II	May	Feeding	1	1058	100
		In all		1	1058	100
	IV	Nov Dec	Feeding Feeding	2 1	4572 607	200 100
		In all		3	5179	300
Total				5	15290	500
Vb ₂	II	May	Feeding	-	347	-
Total				-	347	-
Vla	I	Mar	Postspawning	3	1431	300
		In all		3	1431	300
	II	Apr	Postspawning	1	986	100
		In all		1	986	100
Total				4	2417	400
Vlb	II	Apr	Postspawning	-	337	-
Total				-	337	-
VIIb,c	I	Jan Feb Mar	Prespawning Spawning Postspawning	1 1 1	5420 6099 3388	100 100 100
		In all		3	14907	300
	II	Apr	Postspawning	-	657	-
		In all		-	657	-
Total				3	15564	300
VIIk	I	Feb Mar	Spawning Postspawning	4 3	15917 34919	400 300
		In all		7	50236	700
	II	Apr	Postspawning	4	1325	400
		In all		4	1325	400
Total				11	51561	1100
VIII	I	Feb	Spawning	-	13056	-
Total				-	13056	-

1 : 2 : 3 : 4 : 5 : 6 : 7 :
 : : : : : : : :
 - - - - - - - -

Polar cod

I	I	Jan	Prespawning	-	573	-
		Mar	Postspawning	-	310	-
		In all		-	883	-
	II	May	Feeding	-	585	-
		Jun	Feeding	-	750	-
		In all		-	1335	-
	III	Aug	Feeding	7	2930	650
		Sep	Prespawning	8	5675	500
		In all		15	8605	1150
	IV	Oct	Prespawning	4	3224	400
		Nov	Prespawning	-	4396	-
		In all		4	7620	400
Total				19	18443	1550
IIa	III	Sep	Feeding	-	110	-
		In all		-	110	-
	IV	Oct	Prespawning	1	406	12
		Nov	Prespawning	-	356	-
		In all		1	762	12
Total				1	872	12
IIb	III	Aug	Feeding	3	1649	300
		Sep	Feeding	1	4707	100
		In all		4	6356	400
	IV	Oct	Prespawning	1	2224	100
		Nov	Prespawning	-	8775	-
		In all		1	10999	100
Total				5	17355	500

Capelin

I	I	Jan	Prespawning	4	14402	400
		Feb	Prespawning	3	6324	300
		Mar	Spawning	17	17635	1700
		In all		24	38361	2400
	II	Apr	Spawning	4	4376	400
		May	Feeding	1	1128	25
		Jun	Feeding	1	436	600
		In all		6	5940	1025

1	2	3	4	5	6	7
III	Jul	Feeding		1	902	100
	Aug	Feeding		3	768	300
	Sep	Feeding		10	3350	573
	In all			14	5020	973
IV	Oct	Feeding		2	420	102
	Nov	Feeding		-	851	-
	Dec	Feeding		1	-	100
	In all			3	1271	202
Total				47	50592	4600
IIa	I	Feb	Prespawning	-	47	-
		Mar	Spawning	-	229	-
		In all		-	276	-
III	Jul	Feeding		1	251	100
	Aug	Feeding		1	59	100
	Sep	Feeding		-	52	-
	In all			2	362	200
IV	Oct	Feeding		5	1764	264
	In all			5	1764	264
Total				7	2402	464
IIb	I	Jan	Prespawning	-	355	-
		Feb	Prespawning	-	216	-
		In all		-	571	-
III	Jul	Feeding		1	894	100
	Aug	Feeding		4	3245	349
	Sep	Feeding		3	5194	300
	In all			8	9333	749
IV	Oct	Feeding		2	1675	34
	Nov	Feeding		2	1254	200
	Dec	Feeding		3	-	300
	In all			7	2929	534
Total				15	12833	1283
<u>Mackerel</u>						
IIa	II	Jun	Postspawning	1	7491	200
		In all		1	7491	200
III	Jul	Feeding		4	21907	400
	Aug	Feeding		8	2387	800
	Sep	Feeding		-	74	-
	In all			12	24368	1200
Total				13	31859	1400

1	2	3	4	5	6	7
Ib	III	Jul	Feeding	3	-	300
Total				3	-	300
IVa	I	Mar	Spawning	-	269	-
	II	In all		-	269	-
		Apr	Spawning	-	335	-
		May	Postspawning	-	621	-
		Jun	Postspawning	-	1363	-
		In all		-	2319	-
Total				-	2588	-
Vb ₁	II	Jun	Postspawning	-	3251	-
Total				-	3251	-
VIa	II	Apr	Postspawning	-	318	-
Total				-	318	-
VIIk	I	Mar	Spawning	-	205	-
	II	Apr	Postspawning	-	678	-
		May	Postspawning	-	311	-
		In all		-	989	-
Total				-	1194	-
VIII	II	May	Postspawning	-	911	-
Total				-	911	-

Atlanto-Scandian herring

I	I	Jan	Feeding	8	20062	800
		Feb	Feeding	10	20950	1000
		Mar	Feeding	8	15243	800
		In all		26	56255	2600
	II	Apr	Feeding	1	9655	100
		May	Feeding	5	3374	500
		Jun	Feeding	-	262	-
		In all		6	13291	600
	III	Jul	Feeding	1	-	2
		Aug	Feeding	16	31	63
		Sep	Feeding	15	2142	508
		In all		32	2173	573

1	2	3	4	5	6	7
	IV	Oct	Feeding	5	350	109
		Nov	Feeding	1	-	11
		Dec	Feeding	-	-	-
		In all		6	350	120
Total				70	72069	3893
IIa	III	Aug	Feeding	2	25	25
		In all		2	25	25
	IV	Oct	Feeding	13	154	159
		Nov	Feeding	2	684	100
		Dec	Feeding	-	834	-
		In all		15	1672	259
Total				17	1697	284
IIb	III	Sep	Feeding	2	-	2
		Oct	Feeding	-	1	-
Total				2	1	2
IVa	II	May	Postspawning	-	680	-
Total				-	680	-
Vb	II	Jun	Feeding	2	-	36
Total				2	-	36
VIa	I	Mar	Spawning	-	706	-
		In all		-	706	-
	II	Apr	Postspawning	-	301	-
		May	Feeding	-	305	-
		In all		-	606	-
Total				-	1312	-

RESEARCH VESSEL SURVEYS

Survey area	Period	Investigations
Barents Sea	Jan-Apr	Observations over distribution and migrations of capelin and Atlanto-Scandian herring
West Ireland shelf, areas off the Hebrides, Faroe and Shetland Islands	Feb-Apr	Echo survey of blue whiting stock in spawning areas
Norwegian Shallows	Feb-Apr	Studying the spawning efficiency of Atlanto-Scandian herring
SW Barents Sea	Apr-Jun	Survey of bottom and pelagic fish larvae
Faroe Islands and off-shore Norwegian Sea areas	Aug	International echo survey of blue whiting stocks in feeding areas
Barents Sea and adjacent waters	Aug-Sep	International O-group fish survey
Barents Sea	Sep-Oct	International echo survey of the Barents Sea capelin, polar cod and young Atlanto-Scandian herring

