

PELAGIC FISH (NORTHERN) COMMITTEE

by

J. Jakobsson

1976

Belgium

(P. Hovart)

Herring and Sprat

No market sampling of pelagic fish has been carried out in 1976. Research vessel surveys on the two species were continued as given in the table below :

Research vessel surveys

Area	Season	Objectives
Belgium coast	Whole year. Monthly intervals	Recording densities of immature herring and sprat.

Canada

(T.D. Iles & G.H. Winters)

All research relevant to this Committee has been reported to ICNAF.

Denmark

(K. Popp Madsen)

The RV "Dana" participated in the international young herring surveys in February 1976.

Sampling Herring. Denmark 1976.

Area	Season	Type of Fish	No. of Samples		No. of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
West of Shetland (02)	Jan-Mar.	immat adults	1		1		
	Apr.-Jun.	immat adults		1	3	3	
NW North Sea (03)	Jan-Mar	immat adults	1	18	108	86	
				5	990	990	
	Apr-Jun	immat adults		1	142	142	
	Jul-Sep	immat adults		3	6	6	
				4	498	498	
	Okt-Dec	immat adults		9	29	29	
				6	870	870	
NE North Sea (04)	Jan-Mar	immat adults		1	1	1	
	Apr-Jun	immat adults		2	2	2	
				1	105	106	
	Jul-Sep	immat adults		1	143	143	
Skagerrak (05)	Jan-Mar	immat adults		4	67	67	
	Apr-Jun	immat adults		3	79	79	
	Jul-Sep	immat adults		25	293	293	
	Okt-Dec	immat adults		10	108	108	
Central North Sea (09)	Jan-Mar	immat adults	20	33	2949	2949	
				7	322	322	
	Apr-Jun	immat adults		9	26	26	
				1	235	235	
	Jul-Sep	immat adults		28	672	672	
	Okt-Dec	immat adults		34	313	313	
Kattegat	Jan-Mar	immat adults		10	856	856	
	Apr-Jun	immat adults		12	1274	1274	
				2	162	162	
	Jul-Sep	immat adults		42	1172	1172	
	Okt-Dec	immat adults		50	1957	1957	

Herring_1976_continued.

Area	Season	Type of fish	No. of Samples		No. of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
Baltic	Jan-Mar	immat adults	17		1276	131	
	Apr-Jun	immat adults	10	2	1146	738	
Belt Sea	Apr Jun	immat adults		3	316	316	
	Jul-Sep	immat adults		1	34	34	
	Oct-Dec	immat adults		1	90	90	
Total	1976		49	329	16246	14670	

Blue_Whiting.

Hebrides 01	Apr-Jun	immat		9	2803	1537
NW North Sea 03	Jan-Mar	immat	2	5	1	
	Apr-Jun	immat		7	56	56
	Jul-Sep	immat		1	1	1
	Okt-Dec	immat		1	1	
NE North Sea 04	Jan-Mar	immat	4	9	26	26
	Apr-Jun	immat		11	112	110
	Jul-Sep	immat		2	9	9
	Okt-Dec	immat		2	7	6
Skagerrak 05	Jan-Mar	immat		1	2	2
	Apr-Jun	immat		2	2	2
	Jul-Sep.	immat		4	9	9
	Okt-Dec	immat		3		
NW of Ire- land 06	Apr-Jun	immat		7	167	167
Central North Sea 09	Apr-Jun	immat		1	26	26
	Okt-Dec	immat		2	19	16
Total			6	67	3241	1967

Sampling Sprat. Denmark 1976.

Area	Season	Type of Fish	No. of Samples		No. of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
NW North Sea (03)	Jan-Mar	immat		5	24	23	
	Apr-Jun	immat					
	Jul-Sep	immat		5	23	23	
	Oct-Dec	immat		2	4	3	
Skagerrak	Jan-Mar	immat		3	146	146	
	Apr-Jun	immat		7	389	385	
	Jul-Sep	immat		16	1189	1189	
	Oct-Dec	immat		10	833	833	
Central North Sea (09)	Jan-Mar	immat	16	38	9103	9003	
		adults		5	696	696	
	Apr-Jun	immat		13	215	293	
	Jul-Sep	immat		24	2184	2184	
Kattegat	Jan-Mar	immat		10	1136	1136	
	Apr-Jun	immat		12	559	557	
	Jul-Sep	immat		34	4252	4252	
	Oct-Dec	immat		41	3341	3341	
Baltic	Jan-Mar	immat	17		1151	194	
	Apr-Jun	immat		1	767	711	
Belt Sea	Jul-Sep	immat		1	119	119	
	Oct-Dec	immat		1	38	38	
The Channel	Apr-Jun	immat		1	1	0	
Total	1976		41	263	30398	29454	

Sampling Mackerel. Denmark 1976.

Area	Season	Type of Fish	No of Samples		No of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
NW North Sea (03)	Jul-Sep	immat		1	1		
NE North Sea (04)	Jan-Mar	immat	2		82		
	Apr-Jun	immat		1	21		
Skagerrak (05)	Jan-Mar	immat		1	1		
	Oct-Dec	immat		1	3		
Buchan (08)	Jul-Sep	immat		1	1		
Central North Sea (09)	Jan-Mar	immat	4		7		
	Jul-Sep	immat		1	1		
	Oct-Dec	immat		1	1		
Total	1976		6	7	118		

Finland

(V. Sjöblom)

Sampling Herring

Area	Season	No. of Samples		No. of Fish	
		Research Vessel	Market Samples	Measured	Aged
Hebrides (01)	Jun		1	100	100
	Jul		1	100	100
West of Shetland (02)	Jun		3	300	300
	Jul		4	400	400
NW North Sea (03)	Jun		1	100	100

Samples of Atlantic herring are taken on commercial vessels at sea.

Other Research Activities

Information on catch and effort of Atlantic herring fishing has been collected, broken down by day, fishing gear and ICES statistical rectangles. Work on Baltic herring and sprat has been reported to the Baltic Fish Committee.

France

(A. Maucorps)

Echantillonnage Hareng

Région	Saison	Genre de Poissons	No. d'échantillons		No. de Poissons		
			Bateaux de Recherche	Marché	Mesurés	Agés	Classés/race
W. Mer du Nord (03)	Oct-Déc	adultes	-	10	1 996	210	-
Centre Mer du Nord (09)	Juil-Sep	adultes	-	2	1 487	110	-
Sud Mer du Nord (12)	Avr-Juin	adultes	2	-	361	-	-
	Oct-Déc	geniteurs	-	11	3 530	159	-
NW Irlande (06)	Oct-Déc	adultes	-	11	231	53	-
Mer d'Irlande (11)	Oct-Déc	adultes	-	1	267	53	-
Sud de l'Irlande (13)	Juil-Sep	adultes	-	1	91	52	-

Etude de Bateaux de Recherche

N.O. "Thalassa" : Mer du Nord février 1976 - "International Young Herring and Young Gadoid Survey".

Echantillonnage Maquereau

Région	Saison	No. d'échantillons		No de Poissons		
		Bateaux de Recherche	Marché	Mesurés	Agés	Classés/race
VIa	Jan-Mars	-	1	85	-	-
	Oct-Dec	-	4	525	-	-
VIIa	Avr-Juin	-	1	108	-	-
	Juil-Sep	-	2	190	-	-
	Oct-Déc	-	1	116	-	-
VIIb	Avr-Juin	-	3	515	-	-
VIId	Avr-Juin	-	4	738	-	-
	Juil-Sep	-	4	687	-	-
	Oct-Dec	-	3	545	-	-

continuation - voir page suivante

Continuation, Echantillonnage Maquereau

Région	Saison	No. d'échantillons		No. de Poissons	
		Bateaux de Recherche	Marché	Mesurés	Agés
VIIe	Jan-Mars	-	18	4 416	213
	Avr-Juin	-	3	789	-
	Oct-Déc	-	2	347	-
VIIIf	Jan-Mars	-	4	812	-
	Juil-Sep	-	1	152	25
VIIIg	Jan-Mars	-	7	1 123	30
	Avr-Juin	1	4	714	88
	Juil-Sep	-	7	1 418	151
	Oct-Déc	-	7	1 902	143
VIIIf	Jan-Mars	-	3	631	15
	Avr-Juin	-	3	441	-
	Juil-Sept	-	1	125	-

German Democratic Republic

(H. Schultz)

Sampling Mackerel

Area	Season	Type of Fish	No. of Samples		No. of Fish	
			Research Vessels	Market Samples	Measured	Aged
NW of Ireland(06)	II	adults/ immat.	-	33	8 154	870
NW of Ireland(06)	III	adults/ immat.	-	10	-	649
<u>Herring</u>						
Central North Sea (09)	I	adults/ immat.	-	1	907	50
NW of Ireland(06)	II	spawners	-	7	2 368	500
NW-North Sea (03)	III	adults/ immat.	1	-	225	100
<u>Sprat</u>						
Central North Sea (09)	I	adult	-	13	10 387	840

Tagging: Tagging experiments were not carried out in 1976.

Research Vessel Surveys

Area	Date	Objectives
NW North Sea	29.8.-28.9.1976	Herring stock Herring larvae

Germany, Federal Republic of

(D. Sahrhage)

Sampling Herring

Area	Season	Type of Fish*	No. of Samples		No. of Fish		
			Research Vessel	Market	measured	Aged	Examined racially
S. Buchan 08	I	<u>1</u> , 2	1	-	162	81	-
Central	I	<u>1</u> , <u>2</u> , 3	11	-	2025	500	300
N.Sea 09	III		-	3	137	-	-
	IV	1, <u>2</u> , 3	9	-	453	100	-
S. North Sea 12	I		2	-	335	-	-
	IV	<u>1</u> , <u>2</u> , 3, 4, 5, 7	4	-	370	240	100

*Stages of maturity

Research Vessel Surveys

Area	Season	Objectives
South Buchan (03) Central North Sea (09)	8 Jan to 29 Jan 1976	International Young Herring Survey
Central North Sea (09) S-North Sea (12)	13 Dec to 22 Dec 1976	Adult Herring

Other samples collected during demersal fish surveys

Sampling Sprat

Area	Season	Type of Fish	No. of Samples		No. of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
IV b	I		6	-	325	-	-
	IV	immature	19	-	170	-	-
	III/IV	immature	-	9	2538	-	-

Research Vessel Survey

Area	Season	Objectives
IV b	8 Jan to 29 Jan 1976	International Young Herring Survey (sprat bycatch)

Sampling Blue Whiting

Area	Season	Type of Fish*	No. of Samples			No. of Fish	
			Research Vessel	Market	Measured	Aged	Examined racially
Ib	III	2	1	-	201	-	-
IIb ₂	III	2	1	-	126	126	100
IIa	III	2	2	-	397	397	100
IVa ₁	III	2	2	-	585	100	100
Vb ₁	III	2	10	-	1914	1807	100
VIa ₂	III	2	2	-	766	242	100
VIII	I	1, <u>4</u> , <u>5</u>	3	-	902	293	100

*stages of maturity

Research Vessel Survey

Area	Season	Objectives
Finnmark Ib Bear Island IIb ₂	15 July to 20 Aug 1976	Groundfish survey (blue whiting by catch)
Hebrides VIa Shetlands IVa ₁ Faroe Islands Vb ₁	12 July to 12 Aug 1976	a) Blue Whiting and groundfish survey
Faroe Islands Vb ₁ Svinøya IIa		b) Gear research
Gulf of Biscay VIII	2 Feb to 8 Feb 1976	Blue Whiting

Iceland

(J. Jakobsson)

Sampling Herring

Area	Season	Type of Fish	No. of Samples		No. of Fish		
			Research Vessel	Fishing Vessel	measured	aged	Examined racially
South of Iceland	Jan-May	adults	4	8	780	727	727
	Jun-Sep	adults	-	17	1 685	1 668	1 668
	Oct-Dec	adults	5	34	283	282	282
N & W of Iceland	Jan-May	immat.	3	6	900	-	900
	Jun-Sep	immat.	4	6	400	-	400
	Oct-Dec	immat.	8	6	1 324	-	1 324
North Sea	October	adults	-	3	283	282	282

Research Vessel Surveys

Area	Date	Objectives
S-SW Iceland	28 June - 14 July	Herring Survey
S Iceland	21 Sept - 4 Oct	"
S Iceland	6 - 24 Oct	"
S-SE Iceland	4-17 Dec	Abundance estimates

Sampling Blue Whiting

Area	Season	Type of Fish	No. of Samples	No. of Fish	
				measured	aged
W.of Iceland	Apr-Jun	adults	8	84	-
E & W of Iceland	Jul-Sep	adults	15	1 349	700
E. of Iceland	Oct-Dec	adults	5	168	132

Research Vessel Surveys

Area	Dates	Objectives
E Iceland	28 May - 11 June	Blue Whiting Investig.
E Iceland	17 - 23 July	Experimental Fishing
E Iceland	26 July - 8 Aug.	"
E Iceland	11 - 26 August	"

Sampling Capelin

Area	Season	Type of Fish	No. of Samples		No. of Fish		
			Research Vessel	Fishing Vessel	measured	aged	examined racially
E,S,W Iceland	Jan-Mar	adults	7	40	4 700	4 465	500
N Iceland	Jan-Mar	adults	2	6	800	760	300
W Iceland	Apr-Jun	adults	5	3	800	760	-
	Jun-Sep	adults	16	14	2 950	2 802	-
around Iceland	Jun-Sep	immat.	41	-	2 487	2 487	-
N Iceland	Oct-Dec	adults	1	6	700	665	-

Research Vessel Surveys

Area	Dates	Objectives
E-NE Iceland	2 - 28 January	Monitoring Capelin Runs
SE Iceland	3 - 17 February	"
Around Iceland	17 Feb-6 March	"
E-SE-S Iceland	20 Feb-6 March	"
S-SW-W-NW Iceland	11-26 March	"
E-NE Iceland	1 - 3 April	"
W-N Iceland	22 June-27 July	"
N Iceland	24 July - 5 August	Capelin Survey
W-N Iceland	8 - 15 August	"
N Iceland	18 August-3 September	"
N-NW Iceland	10 October-11 November	"
W-N Iceland	3 - 21 November	"
N Iceland	21 November-20 December	"

Ireland
(J. Molloy)

Biological sampling was continued along all coasts of Ireland during 1976, along the same lines as in previous years. Details are given in the Table below.

Sampling Herring

Area	Season	Type of Fish	No. of Samples	No. of Fish	
				Measured	Aged
NW Ireland (06)	Jan-Dec	Adults & Juveniles	30	10 143	1 475
W & SW Ireland (10)	Jan-Dec	Adults	15	2 088	763
South Ireland (Celtic Sea) (13)	Jan, Sep, Dec	Adults	16	1 166	1 312
Irish Sea (11)	Jan-Dec	Adults & Juveniles	44	1 042	3 237

Research Vessel Survey : A young herring survey was conducted in the Irish Sea during September.

Sampling Sprats

Biological samples of sprats were examined from the Irish Sea and Celtic Sea as follows :

Area	No. of Samples	Aged	Measured
Irish Sea	33	1 406	7 507
Celtic Sea	3	96	243

Netherlands

(A. Corten)

Sampling Herring

Area	Quarter of the year	Type of fish	No. of samples		No. of fish		
			research vessel	market	measured	aged	examined racially (L ₁ - determinations)
01 Hebrides	3	adults	--	3	355	150	207
01 Hebrides	4	adults	--	6	891	300	
02 West of Shetland	3	adults	--	1	134	50	117
02 West of Shetland	4	adults	--	5	718	249	
03 N.W. North Sea	2	adults	--	4	669	199	---
03 N.W. North Sea	3	adults	--	1	180	50	---
03 N.W. North Sea	4	adults	--	3	422	120	---
06 N.W. of Ireland	3	adults	--	1	100	50	88
06 N.W. of Ireland	4	adults	--	4	516	199	
08 South Buchan	2	adults	--	1	103	50	---
08 South Buchan	3	adults	--	1	109	50	---
08 South Buchan	4	adults	--	1	144	50	---
09 Central North Sea	2	adults	--	2	370	100	---
09 Central North Sea	3	spawners	--	19	2 897	948	304
09 Central North Sea	4	spawners	--	3	521	150	---
10 West of Ireland	3	adults	--	6	666	300	172
10 West of Ireland	4	adults	--	1	145	50	
12 Southern North Sea	1	adults	--	3	634	150	---
12 Southern North Sea	4	spawners	--	7	1 399	350	219
13 South of Ireland	2	adults	--	2	326	100	---
13 South of Ireland	4	adults	--	2	342	100	---
14 Bristol Channel	1	adults	--	3	368	149	---
14 Bristol Channel	2	adults	--	1	89	50	---
Young Herring Surveys North Sea	1	Immatures	16	--	+ 4 300	728	---
TOTAL			16	80	16 398	4 722	1 107

Research Vessel Surveys

Area		Dates	Objectives
IVc + VIId	Southern North Sea	5-30 Jan.	I.C.E.S. herring larval survey
IVc	Dutch coastal zone	2 Fbr. - 8 April	O-group herring survey (larval stage)
IV a,b,c	North Sea	3-27 Febr.	I.C.E.S. young herring survey (I.Y.H.S)
IVb	Central North Sea	28 June - 2 July	Net standardization for I.Y.H.S.
IVb	Central North Sea	2-13 August	Net standardization for I.Y.H.S.
IVb	Central North Sea	16-24 Sept.	I.C.E.S. herring larval survey
IVb	Central North Sea	18-28 Oct.	I.C.E.S. herring larval survey
IV a,b,c	North Sea	13-23 Dec.	O-group herring survey (larval stage).

Sampling Mackerel

Area		Quarter of year	Type of fish	No of samples		No of fish	
				Research vessel	Market	Measured	Aged
IVa	Northern North Sea	1	adult	--	3	132	50
IVa	Northern North Sea	2	adult	--	5	434	100
IVa	Northern North Sea	3	adult	--	5	286	88
IVa	Northern North Sea	4	adult	--	6	290	150
IVb	Central North Sea	2	adult	--	6	262	50
IVb	Central North Sea	3	adult	--	25	1 177	200
IVb	Central North Sea	4	adult	--	14	856	146
IVc	Southern North Sea	1	adult	--	1	39	---
IVc	Southern North Sea	2	adult	--	20	1 166	150
IVc	Southern North Sea	3	adult	--	8	621	150
IVc	Southern North Sea	4	adult	--	15	772	100
VIa	N.W. of Ireland	1	adult	--	1	69	50
VIa	N.W. of Ireland	3	adult	--	2	117	92
VIa	N.W. of Ireland	4	adult	--	12	693	139
VII g-k	South Ireland	1	adult	--	4	678	200
VII g-k	South Ireland	2	adult	--	6	771	250
VII g-k	South Ireland	3	adult	--	2	223	50
VII g-k	South Ireland	4	adult	--	3	129	129
TOTAL				--	138	8 715	2 094

Norway
(I. Røttingen)

Sampling Herring

Area	Season	Type of Fish	No. of Samples		No. of Fish	
			Research Vessel	Market	Measured	Aged
Møre-Trøndelag (07)	1	Immat. Spawn.	6	-	328	299
Trøndelag-Helgeland (06)	1	"	11	-	776	731
Helgeland-Troms (05)	1	Spawners	2	-	104	94
Møre-Trøndelag (07)	2	Immat.	2	-	200	185
Trøndelag-Helgeland (06)	2	Immat./Spawn.	5	-	500	483
Helgeland-Troms (05)	2	"	1	-	100	98
Troms-W.Finnmark (04)	2	"	1	-	100	94
Møre-Trøndelag (07)	3	Adult	2	-	26	25
Trøndelag-Helgeland (06)	3	Immat./Adult	2	-	161	149
Troms-W.Finnmark (04)	3	Immat.	1	-	100	76
W. off Lofoten (37)	3	"	1	-	7	2
Møre-Trøndelag (07)	4	Immat./Adult	21	-	1 480	1 362
Trøndelag-Helgeland (06)	4	"	15	-	1 181	1 154
Helgeland-Troms (05)	4	"	20	-	1 653	1 472
Troms-W.Finnmark (04)	4	"	3	-	296	189
E. Finnmark (03)	4	"	4	-	224	202

Tagging

Area		Season	Type of tags	No. tagged	Type of fish	Recoveries
Code No.	Name					
07-06-05-04	Stadt/Troms	2	Internal	26 791	Juv./Adult Spawners	7

Research Vessel Surveys

Area	Date	Objectives
Stadt/Troms	24 Feb-12 March	Spawning Migration
Stadt/Finnmark	6 Apr-12 Apr	Distribution of Larvae
"	21 Apr-13 May	"
"	16 Jun-6 July	Distribution
Barents Sea	25 Aug-6 Sept ^{*)}	O-Group Survey
Stadt/Finnmark	5 Oct-15 Dec	Distribution
"	1 Nov-16 Dec	O-Group Distribution and Abundance

^{*)} 2 vessels.

Sampling Herring

Area	Season Quarters	Type of Fish	No. of Samples		No. of Fish		
			Research Vessel	Fishing Vessel	Measured	Aged	Examined racially
W. of Shetland (02)	2	Adults	-	3	300	300	-
	3	Adults	-	5	400	300	-
	4	Adults	-	5	464	100	-
NW North Sea (03)	2	Adults	-	21	1 921	700	-
	3	Adults	-	16	1 347	400	-
	4	Adults	-	1	100	100	-
Skagerrak (05)	1	Spawn.	-	2	200	200	194
South Buchan (08)	1	Immat./Adults	-	3	300	300	-
Central North Sea (09)	1	Immat.	5	2	678	500	500

Sampling Sprat

W. of Shetland (02)	4	Immat./Adults	-	7	600 ^x)	100	-
NW North Sea (03)	4	Immat./Adults	-	256	25 000 ^x)	100	-
NE North Sea (04)	4	Immat./Adults	2	19	2 000 ^x)	200	-
South Buchan (08)	4	Adults	-	47	4 000 ^x)	200	-
Central North Sea (09)	1	Adults	3	355	35 000 ^x)	395	-
	3	Immat.	2	1	300 ^x)	300	-
	4	Immat./Adults	-	100	10 000 ^x)	-	-

^x) prleiminary figures

Research Vessel Surveys

Area	Date	Objectives
North Sea	9 Feb-5 March	ICES Young Herring Survey
North Sea/Skagerrak	24 May-10 July	Fish Survey
Central North Sea	18 Oct-25 Oct	Larval Survey
North Sea	25 Oct-20 Nov	Fish Survey
Fjords of Western and Norther Norway	1.Nov-18 Dec	O-Group Survey

Tagging

Area	Season	Type of Tags	No. tagged	Type of Fish
Central North Sea	Feb-Mar	Internat steel tag	3 200	Sprat
	Sep-Oct	"	5 800	Sprat

Sampling Blue Whiting

Area	Season	Type of Fish	No. of Samples		No. of Fish	
			Research Vessel	Market	Measured	Aged
Jærens Rev (08)	1	Immat.	1	-	169	20
Vikingbank (28)	1	Immat./Spawn.	3	-	188	-
E. of Faroe Islands(31)	1	Spawners	1	-	201	100
Shetland-Tampen (42)	1	"	3	-	302	200
W. British Isles(43)	1	"	2	-	373	100
E. of Faroe Islands(31)	2	"	-	8	616	-
W. British Isles (43)	2	"	6	5	1 680	487
W. British Isles (47)	2	"	1	-	288	100
W. of Faroe Islands(57)	2	"	-	12	868	-
W. of Faroe Islands(58)	2	"	-	4	287	-
. of Bear Islands (12)	3	Adult	1	-	54	54
Bear Island (20)	3	Immat./Adult	1	-	148	100
W. of Spitsbergen(21)	3	Adult	1	-	158	100
W. of Spitsbergen(25)	3	"	1	-	26	26
W. of Bear Island (27)	3	"	2	-	267	188
Norwegian Sea (34)	3	"	1	-	21	21
S. of Jan Mayen (35)	3	"	5	-	760	316
SW of Jan Mayen (36)	3	Immat./Adult	2	-	262	125
W. of Lofoten (37)	3	"	2	-	212	175
N. of Jan Mayen (38)	3	"	4	-	393	239
NW. of Lofoten (39)	3	Adult	2	-	247	179
Jærens Rev (08)	4	Immat./Adult	4	-	187	187
Vikingbank (28)	4	"	1	-	307	100
NW. of Faroe Islands(30)	4	"	1	-	11	11
Tampen (42)	4	Immat.	1	-	11	11

Tagging : None.

Research Vessel Surveys

Area	Date	Objectives
Hebrides/Faroe	25 March - 12 April	Distribution and migration
Norwegian Sea	12 July - 11 August	Distribution
North Sea	16 Nov. - 12 Dec.	O-Group Survey
Shetland/Lofoten	28 Nov. - 16 Dec.	Distribution

Sampling Capelin

Area	Season	Type of Fish	No. of Samples		No. of Fish	
			Research Vessel	Market	Measured	Aged
Barents Sea (03)	1	Mixed	19	2 881	301 058	1 212
" (04)	1	"	1	465	48 456	100
" (10)	1	"	19	532	57 988	714
" (11)	1	"	22	-	1 781	776
" (12)	1	"	-	51	5 464	-
" (13)	1	"	9	119	13 503	364
" (14)	1	"	10	32	4 216	100
" (15)	1	"	5	-	457	257
" (20)	1	"	3	-	300	99
" (23)	1	"	2	-	200	100
" (03)	2	"	3	246	25 802	303
" (04)	2	"	1	255	26 476	100
" (10)	2	"	4	4	819	200
" (12)	2	"	1	-	86	75
" (13)	2	"	15	3	1 527	905
" (14)	2	"	-	1	120	-
" (15)	2	"	9	-	746	300
" (20)	2	"	9	-	735	470
" (23)	2	"	1	-	100	100
" (24)	2	"	1	-	100	100
New Foundland	2	Spawn./Mixed	24	-	2 361	580
Barents Sea (01)	3	Mixed	4	-	235	10
" (02)	3	"	6	-	240	-
" (03)	3	"	2	-	43	-
" (10)	3	"	9	-	668	50
" (11)	3	"	22	-	1 362	310
" (12)	3	"	2	-	2	-
" (13)	3	"	8	-	499	-
" (14)	3	"	28	3	2 013	793
" (15)	3	"	23	1	1 306	530
" (16)	3	"	17	339	37 488	1 069
" (17)	3	"	17	-	1 603	1 200
" (18)	3	"	10	153	17 052	526
" (20)	3	"	8	-	258	100
" (23)	3	"	10	446	48 156	899
" (24)	3	"	12	-	1 124	924
New Foundland	3	Spawn./Mixed	4	-	469	100
Barents Sea (05)	4	Mixed	1	-	1	1
" (06)	4	"	1	-	1	1
" (15)	4	"	-	4	415	-
" (20)	4	"	9	-	208	-
" (21)	4	"	4	-	141	-
" (23)	4	"	2	395	42 647	-
" (24)	4	"	-	138	14 619	-

Tagging

Area	Season	Type of Tag	No. tagged	Type of Fish	Recoveries
E. Finnmark (03)	1	Internal	10 500	Spawners	347

Research Vessel Surveys

Area	Date	Objectives
Barents Sea	10 Jan-31 Jan	Distribution and Migration
Barents Sea	20 Jan-13 Mar	Distribution, Migration and Tagging
Finnmark Coast	12 Mar-6 Apr	Spawning localities and Spawning behaviour
Finnmark Coast/Barents Sea	27 Apr-5 Jun	Distribution of larvae
Barents Sea	8 Jun-9 Jul	Distribution and Abundance
Barents Sea	21 Jul-6 Sept [*]	Distribution
Barents Sea	25 Aug-8 Sept [*]	O-Group Surveys
Barents Sea	11 Sept-1 Oct [*]	Distribution and Abundance

^{*}) 2 vessels

Sampling Mackerel (Scomber Scombrus)

Area	Season	Type of Fish	No of Samples		No. of Fish	
			Research Vessel	Market ^{x)}	Measured	Aged
NE North Sea	Apr/May	Adult	2	-	200	200
SW of Ireland	May	Adult	4	-	350	349
N North Sea/ Skagerrak	June	Adult	-	4	353	251
N North Sea	Jul/Sept	Adult	1	1 162	62 457	1 199
NW of Lofoten	August	Juveniles	1	-	89	-
N of Rona- Sulisker	Oct/Nov	Adult	-	16	ca. 800	-

^{x)} Samples obtained from fish cooperative and meal and oil factories.

Tagging

Area	Season	Type of Tag	No. tagged ^{x)}	Type of Fish	Recoveries ^{xx)}
SW of Ireland	May	Internal tag	9 474	Adult	300
North Sea	Aug/Sept	"	1 764	Adult	1 200

^{x)} total reported recoveries during the year 1976.

^{xx)} Length measurements are taken of all tagged fish.

Research Vessel Surveys

Area	Season	Objectives
SW Ireland	May	Mackerel tagging
North Sea-Skagerrak	May-June	Plankton, egg-larvae survey Hydrography
S Norwegian Sea/Banks- Coastal Waters of Western Norway	July	Echo survey, purse seine fishing experiments on mackerel
Stad-Lofoten	Aug-Sept	
North Sea	November	Mackerel tagging
North Sea		Echo survey of mackerel, horse mackerel and species included in the "mixed fisheries".

Bluefin Tuna (Thynnus thynnus L.)

The total catch of bluefin tuna in Norwegian waters in 1976 was 413 tons. The tuna investigations have been limited to estimate the size composition in kilograms. The results are sent to the ICES Bluefin Tuna Working Group in order to be published.

Horse Mackerel (Trachurus trachurus L.)

In connection with the Norwegian purse-seine fishery for mackerel, 4 900 tons horse mackerel were caught as by-catch in the areas where the purse-seiners were operating. Except 90 tons taken west of Shetland, the total quantity of horse mackerel was caught in the northern North Sea (In addition, about 400 tons were landed by trawlers fishing off the southern Norwegian west coast). Our total catch in 1976 has increased a little compared with the 1975 quantity of the Norwegian total quantity (ca. 3 200 tons). The horse mackerel was landed for fish meal and oil factories from which our samples are obtained.

Sampling Horse Mackerel

Area	Season	Type of Fish	No. of Samples	No. of Fish measured
N North Sea	Jul-Oct	Adult	120	5 900

Sampling Dogfish (Squalus acanthias L.)

Area	Season	Type of Fish	No. of Samples		No. of Fish measured
			Research Vessel	Market	
W Shetland	February	Adult	-	3	322
North Sea	Autumn	Adult	-	-	500
Central North Sea	August	Adult	5	-	733
W of the Shetlands/Orkneys	September	Adult	3	-	283

Tagging

Area	Season	Type of Fish	Type of Tag	No. tagged	Recoveries
Central North Sea	August	Adult	External yellow alcatene	275	12

Research Vessel Surveys

Area	Season	Objectives
Central North Sea	August	Long-line fishing experiments and tagging experiments on dogfish
North-Ireland/Shetland	August/September	Long-line fishing experiments on dogfish

Poland
(J. Sosiński & M. Liwoch)

Area Species	Season Months	No. of Samples		No. of Fish	
		Research Vessels	Commercial Trawlers	Measured	Aged
<u>HERRING</u>					
01	May	-	2	442	200
	Aug	1	-	1 073	100
02	Jun	-	3	1 416	300
	Jul	2	-	1 102	200
03	May	-	6	2 881	600
	Jul	-	3	3 080	300
	Aug	-	1	1 442	100
06	May	-	3	1 159	300
	Aug	2	-	1 982	200
08	Aug	-	1	670	100
09 W	Mar	-	1	130	100
	Aug	-	3	3 020	300
13	Aug	1	-	116	100
<u>MACKEREL</u>					
IVa	2	-	1	303	100
	3	10	-	5 580	959
IVb	3	1	-	419	100
VIa	2	-	3	1 220	200
	3	2	-	2 560	249
VIIg-k	3	5	-	4 353	441
<u>SPRAT</u>					
IV	3	4	-	1 410	446
VIIg-k	3	3	-	785	271
<u>BLUE WHITING</u>					
Vb	2	-	19	14 280	1 900
VIa,b	1	-	3	927	100
	2	-	9	7 114	900
VIIb,c	1	-	6	1 939	599
	2	-	10	3 662	1 002
VIIg-k	2	-	2	672	200

Portugal
(M. Sobral)

No work was done in 1976 in the area of interest of the Pelagic Fish (Northern) Committee.

Spain
(O. Cendrero)

No work was done in 1976 on pelagic fish in the area of the Pelagic Fish (Northern) Committee.

Sweden
(A. Lindquist & H. Ackefors)

Sampling Data Sprat

Area	Season	Type of Fish	No of Samples		No of Fish		No of Fish examined racially
			Research Vessel	Market	measured	aged	
Inner Skagerrak	I-III	Adults	-	4	2 454	477	-
	IX-XII	"	7	-	2 825	807	-
Skagerrak	I-III	"	2	3	2 104	526	-
	IX-XII	"	-	4	1 705	445	-
Kattegatt	I-III	"	12	2	3 716	1 080	-
	VI	Spawners	7	-	1 992	472	-
	IX-XII	Adults	-	14	5 293	1 427	-
Baltic	IV-VI	Spawners	27	-	10 964	1 295	-
	IX-XII	Adults	8	-	2 772	319	-
North Sea	I-III	Adults	3	-	602	174	-

Research Vessel Surveys

Area	Season	Objectives
Baltic	IV, V	Acoustic surveys, echointegrations, trawling
Skagerrak, Kattegatt	VI IX	} Acoustic surveys, echointegrations, trawling

SAMPLING DATA FOR MACKEREL

Nil

Sampling Herring

Area	Season	Type of Fish	No. of Samples		No. of Fish		
			Res Vessels	Market	Measured	Aged	Racial ^{x)}
Kattegat	I	Imm., Ad, Spawn.		1	879	407	407
"	II	" " "	6		575	388	388
"	III	" " "		4	875	286	286
"	IV	" " "		4	959	378	378
"	V	" " "		4	938	395	395
"	VI	Imm.	1		125	50	50
"	VII	Imm., Ad		4	1295	325	325
"	VIII	" "		4	644	364	364
"	IX	Imm., Ad, Spawn	2	4	1459	510	510
"	X	" " "		4	1093	319	319
"	XI	" " "		4	1153	285	285
"	XII	Imm., Ad.		4	1283	343	343
Inner Skagerrak	I	Imm., Ad.		1	221	100	100
	II	" "	4	1	767	410	410
	III	Spawn.		1	23	106	106
	VI	Imm.	1	1	447	190	190
	IX	Imm., Ad.		2	291	206	206
	X	" "		2	152	202	202

Research Vessel Surveys

Area	Season	Objectives
Kattegat	II	Investigations on young herring (trawling)
"	II	" " herring larvae
"	IV	" " "
Skagerrak	II	Investigations on young herring (trawling)
"	II	" " herring larvae
"	IV	" " "

x) Approximate figures

United Kingdom

1. England and Wales

(A.C. Burd)

Sampling Herring

Area	No. of samples		No. of fish		
	Research vessels	Market samples	Measured	Aged	Racial invest
N. North Sea 104A	2		189	189	189
M. North Sea 104B		14	5377	1442	1342
S. North Sea 104C		18	7891	1700	900
E. English Channel 107D		1	115	100	100
Irish Sea 107A		25	9956	2273	2273

Note: Mackerel reported to Pelagic Southern Committee.

SPRATS

Area	No. of samples		No. of fish		
	Research vessels	Market samples	Measured	Aged	Racial invest
North Sea 104		76	12205	597	
W. English Channel 107E		21	2618	406	

Research Vessel Surveys

HERRING

Area	Month	Objectives
S. North Sea and Channel Irish Sea	January January	ICES Herring Larval Survey Herring larvae + "O" group distribution
North Sea E. Coast England	January/February July/August	ICES Young Herring Survey "O" group herring + sprat survey
Central North Sea " " "	September October	ICES Herring Larval Survey " " " "

2. Scotland
(R.S. Bailey)

Sampling Herring

Area	Season	Type of Herring	No of Samples		No of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
<u>IVa Northern North Sea</u>							
West of Shetland [02]	Apr-Jun	Adult	0	15	2247	611	611
	Jul-Sep	Adult	0	16	2136	569	55
NW North Sea [03]	Apr-Jun	Adult	0	2	-	108	108
	Jul-Sep	Adult	0	52	4193	1913	1186
	Oct-Dec	Immature	6	0	973	-	-
<u>IVb Central North Sea</u>							
South Buchan [08]	Jan-Mar	Immature		4	50	385	50
	Jan-Mar	Immature	8		461	186	-
Central North Sea [09]	Jan-Mar	Immature		1	51	218	218
	Jan-Mar	Immature	26		3871	544	-
	Jul-Sep	Adult		7	536	660	200
<u>VIa W of Britain</u>							
West of Scotland [07]	Jan-Mar	Adult		100	10145	2892	2333
	Apr-Jun	Adult		93	10735	2817	852
	Jul-Sep	Adult		125	8818	3602	334
	Oct-Dec	Adult		147	15131	4365	1336
	Oct-Dec	Immature	2		33	33	-

Tagging

Area	Season	Type of Tags	No Tagged	Type of Fish	Recoveries
02B + 03A Shetland	September	Scottish Combination	3000	Adult	1
		Spaghetti	3700	Adult	3
07 Clyde	October	Spaghetti	1300	Adult	65
		Flag	1300	Adult	60
07 N Minch	Oct-Nov	Spaghetti	950	Adult	15
		Scottish Combination	1120	Adult	13

Research Vessel Surveys

Area	Season	Objectives
North Sea	Feb	International Young Herring Survey
Clyde	Mar-Apr	Larval Survey of Spawning Grounds
North Sea	Sep-Oct	Larval Surveys
West coast and north coast of Ireland	Sep-Oct	Larval Surveys
Minch	Sep-Oct	Young Herring Survey

Other Research Activities

Immature herring from Bløden and from Scottish coastal waters were examined for the parasites Renicola and Lacistorhynchus. More than 2 000 adult herring from the Minch were also examined to provide an estimate of the proportions of fish of Bløden and Moray Firth origin present in the population.

Experimental studies continued on the development, growth and survival of herring eggs and larvae in water varying in the intensity of contamination by industrial pollutants.

Sampling Sprat

Area	Season	No of Samples		No of fish	
		Research Vessel	Market	Measured	Aged
IVa Northern North Sea	Jan-Mar	0	29	8665	510
	Jul-Sep	17	2	2269	175
	Oct-Dec	7	11	3899	1024
IVb Central North Sea	Jan-Mar	31	17	10202	930
	Apr-Jun	6	0	1969	50
	Jul-Sep	0	1	291	39
	Oct-Dec	0	1	325	62
VIa West of Britain	Oct-Dec	17	8	4689	444

Sampling Mackerel

Area	Season	Type of Fish	No of Samples		No of Fish	
			Res.Vess.	Market	Meas	Aged
IVa Northern North Sea	April-June	Adult	0	3	933	170
" " "	July-Sept	"	0	22	2209	517
" " "	Oct-Dec	"	0	6	618	75
IVb Central North Sea	July-Sept	Adult	0	3	331	223
" " "	Oct-Dec	"	0	2	171	108
VIa West of Scotland	April-June	Adult	0	20	1918	548
" " "	July-Sept	"	6	45	4245	1229
" " "	Oct-Dec	"	0	14	1223	360
TOTAL			6	120	11648	3230

Tagging

Area	Season	Type of tag	no tagged	Type of fish	Recoveries
VIa Minch	Sept-Oct	Internal	192	Adult	0
		External combination	150	"	0
		Bridled spaghetti	99	"	0
		TOTAL	441		0

Sampling Blue Whiting

Area	Season	Type of Fish	No of Samples		No of Fish	
			Research Vessel	Market	Measured	Aged
VIa West of Scotland	Apr-Jun	Adult + Immature	4	1	1056	434
	Jul-Sep	"		1	64	64
Vb Faroe	Apr-Jun	"	2	1	623	362
IVa Northern North Sea	Oct-Dec	"	1		280	151
IIa Norwegian Sea	Oct-Dec	"	4		471	304

Research Vessel Surveys

Area	Month	Objectives
West of Scotland	April	Midwater Trawling and Acoustic Survey.
Norwegian Sea and Northern North Sea	November	Midwater Trawling and Acoustic Survey.

Several hundred blue whiting were examined for the level of infection with Anisakis and other nematode larvae.

U.S.A.

(V.C. Anthony)

All work done within the field of interest of the Pelagic Fish (Northern) Committee has been reported to ICNAF.

U.S.S.R.

(P. A. Moiseev)

In 1976 investigations of the biology of herring in the Norwegian and Barents Seas, capelin in the Barents Sea and Northwest Atlantic (Newfoundland and Labrador), polar cod in the Barents and Kara Seas, and in the Labrador area, and blue whiting in the Norwegian Sea were continued.

To study dynamics of the fish abundance and to assess their stocks, the age-length structure of stocks, size and composition of catches were analysed, the efficiency of herring spawning was determined and strength of year classes was evaluated. Seasonal migrations of fish, biotic and abiotic factors influencing the fish distribution were studied. Assessment of the fish abundance was made with the help of hydroacoustic devices, underwater photography and the vehicles "Sever 1" (hydrostate) and "Sever 2" (deep-diving autonomous submersible).

Investigations were conducted by the research vessel "Odysseus", "Perseus III", "Akademik Knipovich" and "Fridtjof Nansen". Material was also collected on board scouting and fishing vessels.

In April 1976 an ichthyoplankton survey was carried out in the area of spawning grounds of herring in the Norwegian Sea; a joint oceanographic survey of the Norwegian Sea was conducted in June (together with Iceland); at the end of August and in September 0-group fish were investigated in the Barents and Eastern Norwegian Seas (together with Norway and Great Britain); in September and October an assessment of the stocks of the Barents Sea capelin was made (together with Norway); in October and in November stocks of polar cod in the Barents Sea and those of capelin in the northwest Atlantic in June and in October-November were evaluated.

All investigations will be continued in 1977.

In 1976 investigations of changes in the abundance and state of pelagic stocks were continued in the North Sea as well as in Sub-areas VI, VII, VIII. In February a trawl survey of young herring was carried out in accordance with the ICES programme. In autumn, the survey of 0-group of sprat was conducted. Data on biology and environment of horse mackerel and mackerel in the Celtic Sea and the Bay of Biscay were collected.

The composition of commercial catches was studied.

Sampling data

Species	Mass measurements No of Fish	Aged No. of Fish
Herring	12 300	2 100
Mackerel	209 562	5 127
Horse Mackerel	14 670	3 400
Sprat	93 193	4 132

Sampling Data

Species Area	Season	Type of Fish	No. of Samples		No. of Fish	
			Research Vessel	Market	Measured	Aged
<u>HERRING</u>						
IIa	1	Adult	3		292	126
IIa	4	Adult	1	-	-	1
IVa ₁	2	Adult	1	-	155	24
I (with many vertebrae)	4	Adult	1	-	9	9
I (with few vertebrae)	1	Adult	1	-	2 249	100
	2	Adult	6	-	4 199	648
I	3	Adult	6	-	274	153
I	4	Adult	9	-	11 477	1 000
<u>BLUE WHITING</u>						
IIa	1	Adult	1	-	-	3
IIa	2	Adult	8	-	1 246	415
IIa	3	Adult	4	-	1 407	366
IIa	4	Adult	2	-	17	17
Vb	2	Adult & Young	2	-	628	128
IVa ₁	1	Spawning	-	-	320	-
IVa ₁	2	Adult	1	-	474	100
VIa	1	Adult	-	-	356	-
VIa	2	Adult	1	-	1 299	100
VIIb	2	Adult	1	-	704	100
VIIb,c	1	Spawning	1	-	309	100
VIIb,c	2	Spawning	-	-	1 926	-
VIIg,h,j,k	1	Spawning	1	-	3 190	100
VIIg,h,j,k	1	Spawn.&Adult	1	-	1 752	25
VIII	1	Spawning	1	-	100	100
XIV	2	Adult	1	-	945	100
XIV	3	Adult	1	-	200	200
IXa	1	Adult	1	-	67	50
IIb	2	Adult	-	-	20	-
IIb	3	Adult	3	-	6 263	300
IIb	4	Adult	2	-	6 042	101
<u>CAPELIN</u>						
I	1	Spawning	15	-	37 218	1 500
I	2	Spawn.&Adult	8	-	19 409	800
I	3	Adult	4	-	371	60
I	4	Adult	3	-	3 502	250
IIb	1	Immat.&Adult	4	-	9 204	400
IIb	2	"	-	-	1 955	-
IIb	3	"	33	-	48 185	3 300
IIb	4	Immature	10	-	18 080	1 000
Kara Sea	3	Adult	-	-	147	-
<u>POLAR COD</u>						
I	1	Adult	1	-	7 593	100
I	2	Adult	2	-	1 144	200
I	4	Pre-Spawn. & Spawning	16	-	30 981	1 393
IIb	1	Adult	-	-	4 329	-
IIb	2	Adult	1	-	1 532	100
IIb	3	Adult	-	-	8 256	-
IIb	4	Adult	11	-	10 648	1 050
Kara Sea	3	Small	1	-	6 552	100

