Fol. 41 H

International Council for the Exploration of the Sea

C.M.1981/H:1
Administrative Report

PELAGIC FISH COMMITTEE

by

O.J. Østvedt

1980

Belgium

(P. Hovart)

Herring and sprat.

No market sampling of pelagic fish has been carried out in 1980. Research vessel surveys with bottom trawl on the two juvenile species were continued as given in the table below. The research is limited to length measurements.

Research vessel surveys.

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

Canada

(G.H. Winters)

All research relevant to this committee has been reported to ICNAF/NAFO.

Denmark

(K. Popp Madsen)

Herring

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
Div. IV a	1	Mixed		2	3	3	0
	2	"		0	0	0	0
	3	"		6	34	34	34
	4	"		19	27	25	0
Div. IV b	1	Mixed		24	808	808	97
	2	"					
	3	"		21	887	887	0
	4	"		30	690	621	0
Div. IV c	1	Mixed		8	12	12	0
	2	"		0	0	0	0
	3	"		0	0	0	0
	4	"		0	0	0	0
Skager-rak	1	Mixed		13	194	194	0
	2	"		17	338	338	192
	3	"	1	38	2569	2568	152
	4	"		14	363	363	0
Katte-gat	1	Mixed	15	27	3421	3421	1738
	2	"		21	688	688	98
	3	"	11	17	3315	1328	1158
	4	"		38	1051	1050	522
Øre-sund	1	Mixed		2	220	220	220
	2	"		0	0	0	0
	3	"		1	117	117	117
	4	"		2	293	293	293
Danish Fiords	1	Mixed		0	0	0	0
	2	"		8	1360	1360	1360
	3	"		0	0	0	0
	4	"		2	325	325	325

The RV "Havfisken" participated in the International Young Herring Survey February-March in the Kattegat-Skagerrak area.

The FS "Lars A. Kruuse" in the Danish-Swedish Herring Acoustic Survey September in the Kattegat-Skagerrak area.

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
W of 4°W	1	Mixed		1	145	145	0
	4	"		1	176	176	0
North Sea	3	Mixed		1	187	187	0

Sprat

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
Div. IV b	1	Mixed		45	4855	4639	0
	2	"		4	6	6	0
	3	"		18	1561	1457	0
	4	"		30	3160	2690	0
Div. IV c	1	Mixed		24	2669	1880	0
	2	"		0	0	0	0
	3	"		0	0	0	0
	4	"		0	0	0	0
Div. IIIa North	1	Mixed		8	1124	1124	0
	2	"		7	387	373	0
	3	"		15	2037	2037	0
	4	"		6	569	569	0
Div. IIIa South	1	Mixed	15	16	3570	3570	0
	2	"		7	921	921	0
	3	"	12	4	7374	2506	0
	4	"		10	1278	1278	0

Blue Whiting

Area	Season	Type of fish	No of samples		No of fish		
			Research vessel	Market	Measured	Aged	Examined racially
Div. IV a	1	Mixed		13	611	0	0
	2	"		3	221	0	0
	3	"		1	1	0	0
	4	"		2	2	0	0
Div. VI a	1	Mixed		4	244	0	0
	2	"		0	0	0	0
	3	"		1	3	0	0
	4	"		0	0	0	0
Div. IIIa North	1	Mixed		0	0	0	0
	2	"		5	144	0	0
	3	"		10	314	0	0
	4	"		5	122	0	0

Denmark, (Faroes).

(S.H. i Jakupsstovu)

Blue Whiting (Micromesistius poutassou)

Research vessel surveys

Area	Season	objectives
Faroes	January-March	experimental fishery
W. of British Isles	April-June	acoustic abundance estimates, migrations routes.

Sampling

Area	Season	no of sample		no of fish	no of fish
		research vessel	market	measured	aged
Faroes	I	32		5478	400
W. of British Isles	II		6	1171	701
Faroes	II		1	186	86

Herring (Clupea harengus)

Sampling

Area	Season	no of sample		no of fish	no of fish
		research vessel	market	measured	aged
Faroese fjords	1		1	100	100
- -	3		2	376	168
- -	4		1	18	18

Mackerel (Scomber scombrus)

Area	Season	no of sample		no of fish	no of fish
		research vessel	market	measured	aged
VIa	I		8[x]	847	
IIa	III		1	61	61
Vb	III		1	58	58
VIa	IV		1	100	100

[x] sampled on board one fishing vessel.

Capelin (Mallotus villosus)

Area	Season	no of sample		no of fish	no of fish
		research vessel	market	measured	aged
East Greenland	III		2	746	200
- -	IV		2	719	200

Finland

(V. Sjøblom and R. Parmanne)

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

F R A N C E

(A. MAUCORPS)

Rapport d'activité concernant les laboratoires ISTPM de Boulogne, Lorient, La Rochelle.

Echantillonnage

HARENG

Région	Saison	Type de poisson	Nb. d'échantillons		Nb. de poissons		
			Bt de recherche	Marché	Mesurés	dont âge déterminé	examen racial
IVa	1	adulte	1		12	12	
"	3	"	2		132	74	
IVb	1	mélangé	x		2331	343	
"	4	adulte		1	244	62	
IVc+VIId	1	mélangé	x		224	80	
"	2	adulte		2	419	41	
"	4	"		8	1528	323	
VIa	1	adulte	x		275	80	
VIIa	4	adulte	3		122		

SPRAT

VIIa	4		2		215		
VIIf	4		2		246		

MAQUEREAU

Région	Saison (trimestre)	Type de poisson	Nb. d'échantillons		Nb. de poissons		
			Bt. de recherche	Marché	Mesurés	dont âge déterminé	examen racial
VI a	1er	adulte		1	224		
	2	"		2	306	61	
	4	"		4	830	40	
VIIa	2	"		1	64		
	3	"		1	151	37	
	4	"		4	784	48	
VIIb	1	"		1	227		
VIId	2	"		x	407		
	3	"		x	1651		
	4	"		x	126		
VIIe	1	"		13	2541	96	
	2	"		3	544	87	
	4	"	4	1	549	193	
VIIf	1	"		2	428	73	
	3	"		1	274	52	
	4	"		1	113		
VIIg	1	"		2	151		
	2	"		1	135	64	
	3	"		2	432	54	
	4	"		7	1437	102	
VIIh	1	"		3	546	38	
	2	"		3	688		
	4	"		2	358	40	
VIIj	1	"		1	88		
	2	"	4	2	743	80	
VIIIa-b	1	"	x	2x	660	109	
	2	"	x	5x	1350	233	
	3	"	x	5x	1247	68	
	4	"	1	7x	1670	80	

THONIDES

ISTPM - Nantes

Région	Saison	Type de poisson	Origine échantillon		Nb. de poissons	
			Bt. de recherche	Marché	Mesurés	Marqués
Germon (*Thunnus alalunga*)						
Açores	2		x		1184	508
VIIj,K - VIIId,e	3		x		527	112
Patudo (*Thunnus obesus*)						
Açores	2		x		55	15
Listao (*Katsuwonus pelamis*)						
Açores	2		x		43	

Germon (*Thunnus alalunga*)

CNEXO/COB

Région	Saison	Type	Nb. d'échantillons (marché)	Nb. de poissons		examen racial
				Mesurés	dont âge déterminé	
Golfe de Gascogne (VIII)	Juillet	juvéniles	2	1300	1300	0
Golfe de Gascogne (VIII)	Août	juvéniles	2	2040	2040	0

Campagnes Océanographiques (ISTPM)

Région	Dates	Objectifs
IVa, b, c + VIa	9.02 - 8.03	Campagne d'évaluation des poissons juvéniles (Y.F.S.) sous égide CIEM
IVa	10.07 - 1.08	Campagne d'évaluation acoustique sur le hareng (Echo Survey) sous égide CIEM
VII et VIII	12.06 - 7.07	Campagne d'évaluation d'abondance des oeufs de maquereaux sous égide CIEM
N et N.E. Açores	mai - juin	Campagne de prospection thonière et de marquage
VIIj,K - VIIId,e	août	- id -

German Democratic Republic

(L.Danke)

Sampling

Blue Whiting

Area	Season	Type of fish	No. of samples			No. of Fish		
			Research vessel	Commercial vessel	Market	Measured	Aged	Examined radically
S-Norwegian Sea II A	II+III	Mixed	-	16	-	3 483	-	-
S-Norwegian Sea II A	II	Mixed	-	-	8	1 702	200	-
Central-Norw. Sea II A	III	Mixed	-	16	-	3 913	299	-
Central-Norw. Sea II A	III	Mixed	-	-	6	1 265	200	-
Central-Norw. Sea II A	IV	Mixed	-	5	-	1 232	100	-
SE-Jan Mayen II A	III	Mixed	-	3	-	648	-	-
SE-Jan Mayen II A	III	Mixed	-	-	2	389	85	-
SE-Norw- Sea II A	II	Mixed	9	-	-	3 929	400	50[1)]
Norvegian Deep IV A	II	Mixed	2	-	-	940	100	50[1)]

1) parasitologically

Research vessel surveys

Area	Date	Objectives
Norwegian Sea	6.5. - 16.5.	Acoustic survey, midwater trawling, hydrography
Norwegian Deep	2.5. - 4.5. 17.5. - 20.5.	Acoustic survey, midwater trawling, hydrography

Argentina

Sampling

Area	Season	Type of fish	No. of Samples			No. of Fish		
			Research vessel	Commercial vessel	Market	Aged	Measured	Examined racially
SE-Norw. Sea II A	II	Mixed	2	-	-		85	

Germany, Federal Republic of

(H.Dornheim)

Sampling Herring

Area	Season	Type* of Fish	No of Samples		No of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
Hebrides (01)	III	34578	4	-	312	193	193
NW-North Sea (03)	I	567	1	-	22	22	-
	IV		9	-	231	-	-
NW of Ireland (06)	I	24578	5	-	195	93	93
	III	2345678	7	-	1956	400	200
	IV	245678	2	-	154	137	-
South Buchan (08)	I		1	-	33	-	-
Central North Sea (09)	I	123	31	-	2587	861	-
W of Ireland (10)	III	27	1	-	274	100	100
S-North Sea (12)	I		9	-	314	-	-
S of Ireland (13)	II	28	1	-	108	100	100
Bristol Channel (14)	II	267	2	-	232	100	100

* Stages of maturity

Research Vessel Surveys

Area	Date	Objectives
Central North Sea (09)	07.01.-19.01.80	Groundfish Survey
NW-North Sea (03) South Buchan (08) Central North Sea (09) S-North Sea (12)	01.02.-28.02.80	International Young Fish Survey
S-North Sea (12)	19.02.-05.03.80	Groundfish Survey
NW of Ireland (06) S of Ireland (13) Bristol Channel (14)	13.03.-14.04.80	Mackerel (adults, eggs) and Herring Survey
Hebrides (01) NW of Ireland (06) W of Ireland (10)	22.09.-03.10.80	Herring (adults, larvae) Survey
NW of Ireland (06)	13.11.-02.12.80	Pelagic Fish Survey
NW + NE-North Sea (03/04)	10.12.-20.12.80	Groundfish Survey

Sampling Sprat

Area	Season	Type of	No of Samples		No of Fish	
			Research Vessel	Market	Measured	Aged Examined racially
IV a N-North Sea	I		1	-	35	-
IV b	I		38	6	6033	-
Central North Sea	III		-	7	2523	-
	IV		1	-	104	-
IV c S-North Sea	I		3	-	279	-
VI a N of Ireland	I		7	-	573	-
VII b,c W of Ireland	I		2	-	147	-
	IV		2	-	104	
VII g-k S of Ireland	II		3	-	344	-
	IV		5	-	361	-

Research Vessel Surveys

Area	Date	Objectives
IV b, IV c Central + S-North Sea	07.01.-19.01.80	Groundfish Survey
IV a, IV b, IV c N-,Central, S-North Sea	04.02.-28.02.80	International Young Fish Survey
VI a N of Ireland VII b,c W of Ireland VII g-k S of Ireland	13.03.-14.04.80	Mackerel (adults, eggs) and Herring Survey
VII b,c W of Ireland VII g-k S of Ireland	13.11.-02.12.80	Pelagic Fish Survey
IV b Central North Sea	10.12.-20.12.80	Groundfish Survey

Sampling Mackerel

Area	Season	Type* of Fish	No of Samples		No of Fish	
			Research V.	Market	Measured	Aged
VI a	I	2,3,4,5,6	1	-	570	100
W of Scotland	III	2,8	2	-	212	100
	IV	2,3,8	1	-	279	100
VII b, c	I	3,4,5, 6	3	-	830	200
W of Ireland	II		3	-	493	100
	IV	2,8	1	-	120	100
VII f Bristol Channel	II	2,3,4	1	-	605	100
VII g-k	II	4,5,6	19	-	6305	200
S of Ireland	III	1	1	-	40	38
	IV		3	-	162	-

* Stages of maturity

Research Vessel Surveys

Area	Date	Objectives
VI a W of Scotland VII b,c W of Ireland VII f Bristol Channel VII g-k S of Ireland	13.03.-14.04.80	Mackerel (adults, eggs) and Herring Survey
IV a N-North Sea VI a W of Scotland VII g-k S of Ireland	04.09.-03.10.80	Herring (adults, larvae) Survey
VI a W of Scotland VII b,c W of Ireland VII g-k S of Ireland	13.11.-02.12.80	Pelagic Fish Survey

Sampling Horse mackerel

Area	Season	No of Samples R/V	No of Fish Measured
VI a W of Scotland	IV	6	783
VII b,c W of Ireland	IV	4	443
VII f Bristol Channel	IV	1	39
VII g-k	II	2	166
S of Ireland	IV	11	566

Research Vessel Surveys

Area	Date	Objectives
VII g-k S of Ireland	13.03.-14.04.80	Mackerel (adults, eggs) and Herring Survey
VI a W of Scotland VII b,c W of Ireland VII f Bristol Channel VII g-k S of Ireland	13.11.-02.12.80	Pelagic Fish Survey

Sampling Blue whiting

Area	Season	Type* of Fish	No of Samples		No of Fish		
			Research Vessel	Market	Measured	Aged	Examined racially
II Spitsb/BearIsl.	II		8	-	1121	223	
IIa Norw.Sea	II		7	-	951	134	
IVa N-North Sea	I		6	-	2710	532	
Vb1	I	3,4	12	-	2757	-	
Faroe Plateau	III		2	-	503	-	
VIa	I	3	19	-	5020	1260	
W of Scotland	III		9	-	629	-	
VIb	I		12	-	3459	813	
Rockall	IV		12	-	2838	106	200
VII g-k	I	3	7	-	1767	363	
S of Ireland	II		23	-	2640	100	
	III		8	-	597	100	
	IV		9	-	633	300	
XIV	II		11	-	2231	253	
E of Greenland	III	2	23	-	3469	513	200
	IV		11	-	1123	187	

* Stages of Maturity

Research Vessel Surveys

Area	Dates	Objectives
IVa N-North Sea Vb1 Faroe Plateau VIa W of Scotland VIb Rockall VIIg-k S of Ireland	08.01.-28.03.80	Pelagic Fish and Deep Sea Fishery
VIa W of Scotland VIIg-k S of Ireland	13.03.-14.04.80	Mackerel (adults,eggs) and Herring Survey
XIV E of Greenland	09.06.-25.07.80	Groundfish Survey
II Spitsb./Bear Isl. IIa Norwegian Sea	20.06.-30.07.80	Groundfish Survey
Vb1 Faroe Plateau VIb Rockall XIV E of Greenland	28.08.-27.10.80	Exploration of new Fishing Grounds and Species
VIa W of Scotland VIIg-k S of Ireland	22.09.-02.10.80	Herring (adults,larvae) Survey
VIIg-k S of Ireland	13.11.-01.12.80	Pelagic Fish Survey

ICELAND
(Jakob Jakobsson)

Sampling BLUE WHITING

Area	Season	Type of fish	No. of samples	No.of fish measured	No.of fish aged
S-SW Iceland	April	mixed	12	1111	
"	July	mixed	4	352	
S Iceland	Sept.	mixed	1	100	100
"	Nov.	juvenile	1	95	95
E Iceland	June	mixed	3	450	450
"	July	adult	8	796	
"	Aug.	adult	1	36	36
"	Sept.	adult	5	605	605
Dohrn Bank	Oct.	mixed	3	300	200

Research vessel Surveys

Area	Date	Objective
Icelandic waters	22 May - 10 June	Environmental and pel. fish survey
E Iceland	14 - 28 June	Blue whiting survey
E-SE Iceland	23 August - 25 Oct.	Blue whiting survey and exploratory fishing
Dohrn Bank		

Sampling CAPELIN

Area	Season	Type of Fish	No.of Samples		No.of Fish	No.of Fish	No.of Fish examined racially
			Research vessels	Fish. vessels	measured	aged	
NW-, N- and NE-Iceland	Jan.-Feb.	mixed	23	19	4077	2691	350
SE-, S- and SW Iceland	Feb.-Mar.	adult	4	15	2564	1600	400
Iceland - E-Greenland	Aug.-Nov.	mixed	25	28	3965	3965	900
Iceland - E-Greenland	August	0-group	140		6950		

Research vessel and other surveys

Area	Date	Objective
W, N-Iceland	6-12 Jan.	Capelin survey
W, N-Iceland	7-30 Jan.	Abundance estimates
NE, SE-Iceland	10-16 Jan.	Capelin survey, hydrography
N, NE, E-Iceland	22 Jan - 8 Feb.	Abundance estimates, hydrography
W-Iceland	6-28 Feb.	Capelin survey, hydrography
E, SE, S-Iceland	27 Feb. - 8 March	Capelin survey
W, N-Iceland	19-31 March	Juvenile and immature capelin survey
Icelandic waters	22 May - 10 June	Environmental and pel. fish survey
Iceland, E-Greenland	6-31 August	0-group, capelin and other species
W, NW, N-Iceland, E-Greenland	30 Sep. - 23 Oct.	Abundance estimates
W, N-Iceland	6-12 Nov.	Capelin survey

Sampling HERRING

Area	Season	Type of Fish	No.of Samples		No.of Fish measured	No.of Fish aged	No.of Fish examined racially
			Research vessels	Fish. vessels			
W-, N-, E- and S-Iceland	Jan.-Dec.	adults	8	54	5563	5237	5237
E-Iceland	Jul.-Dec.	mixed	18	5	2851	594	594
S- and E-Iceland	Sep.-Dec.	immature	3	-	200	200	200

Research vessel surveys

Area	Date	Objective
SE-Iceland	4-10 Jan.	Abundance estimates, hydrography
W, N-Iceland	16-29 Feb.	Abundance estimates, immatures, juveniles
W, N-Iceland	12-29 Sept.	Abundance estimates, immatures, juveniles
S, SE, N, W-Iceland	12-25 Nov.	Abundance estimates, matures, immatures
SE, E, NE, N-Iceland	27 Nov.-16 Dec.	Abundance estimates, hydrography

IRELAND

(J. Molloy)

Herring

Area	Season	Type of Fish	No. of samples	No.of fish measured	No.of fish aged	No.of fish examined racially
Div. VIa	I - XII	Adult	25	7629	1241	1241
Div. VIIb	I - VIII	Adult	37	9121	1847	1847
Div. VIIj	I - III, V, IX, X	Adult	19	3361	911	911
Div. VIIa	VII - X	Adult	20	5956	1000	1000
Celtic sea	I, II, VIII - XII	Adult	46	5526	2302	2302

Mackerel

Div. VIa	IX - XII	Adult	11	4281	809
Div. VIIb	I	Adult	1	126	516
Div. VIIg-k	IV, V	Adult	5	744	422

Sprat

Div. VIIg-k	I - III	Adult	9	2577	424

Research Vessel Survey

Area	Time	Objectives
Celtic Sea	I, II, X, XI, XII	Herring Larval Survey
Celtiv Sea	II, III, IV, VI, VII, IX	Mackerell and Sprat Egg Survey
Irish Sea	II	Young Herring Survey

THE NETHERLANDS

(A. Corten).

THE NETHERLANDS 1980

Samoling data for MACKEREL

Area	Quarter of year	No. of samples		No. of fish		
		research vessels	market samples	measured	aged	racial invest.
IVb Central North Sea	2	-	1	35	-	-
" " " "	3	-	17	687	50	-
" " " "	4	-	4	160	50	-
IVc Southern North Sea	2	-	17	651	75	-
" " " "	3	-	17	921	50	-
" " " "	4	-	7	423	150	-
VIa N.W. Ireland	2	-	7	383	175	-
" " "	3	-	2	176	75	-
" " "	4	-	7	340	235	-
VII South of Ireland	1	-	20	1,711	450	-
" " "	2	-	18	1,160	375	-
" " "	3	-	14	1,676	325	-
" " "	4	-	13	1,955	300	-
Total		-	144	10,273	2,310	

Sampling HERRING

Area	Quarter of year	Type of fish	No. of samples		No. of fish		
			research vessel	market	measured	aged	examined racially
01 Hebrides	2	adults	-	1	162	50	-
03 N.W. North Sea	1	"	1	-	129	50	-
" " " "	3	"	6	-	514	294	-
06 N.W. of Ireland	1	"	-	1	139	50	-
" " " "	2	"	-	3	371	150	-
" " " "	3	"	-	3	286	150	-
" " " "	4	"	-	2	295	100	-
09 Central North Sea	2	"	4	-	645	200	-
10 West of Ireland	2	"	-	1	106	50	-
" " " "	3	"	-	1	90	50	-
12 Southern North Sea	1	"	-	1*	187	50	-
" " " "	4	"	-	6	888	300	-
13 South of Ireland	1	"	-	1	112	50	-
" " " "	3	"	-	4	405	200	-
" " " "	4	"	-	1	121	50	-
14 Bristol Channel	1	"	-	2	340	100	-
15 West Channel	1	"	-	1	147	50	-
" " " "	2	"	-	1	149	50	-
" " " "	4	"	-	1	98	50	-
Total			11	30	5,154	2,044	-

* From a Danish catch landed in the Netherlands.

Research vessel surveys

Area	Dates	Objectives
IVc, VIId Southern North Sea	07/01-10/01	ICES herring larval survey
IVa, b, c North Sea	04/02-08/03	ICES Young Fish Survey
IVc Southern North Sea	03/03-19/04	Monitoring influx o-group herring
IVa Northern North Sea	07/07-19/07	ICES Echo survey
IVa " " "	03/09-11/09	ICES herring larval survey
IVb Central North Sea	15/09-01/10	" " " "
VIa West Scotland	10/10-20/10	" " " "
IVc, VIId Southern North Sea	16/12-19/12	" " " "

NORWAY
(J. Hamre, O.J. Østvedt)

Herring (Clupea harengus)
North of 62°N

SAMPLING

Area	Season	Type of Fish	No. of Samples		No. of Fish	No. of Fish	No. of Fish
			Research Vessel	Market	measured	aged	examined racially
Bar.Sea	I	Adult	1		22	20	
I	III	Juvenile	6		14		
Norw.coast	I	Mixed	21		1653	1531	2000
IIa	II	"	10		586	506	
	III	"	20		1269	1207	1500 x)
	IV	"	21	20	4707	2628	2800
Norw.Sea, northern IIb	III	Juvenile	4		9		
Total			84	20	8260	5892	6300

x) Mostly herring larvae

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
Norwegian coast 62°N - 69°N	January-March	Spawning migrations, experimental fishing
Norwegian coast 62°N - 70°N	April-May	Distribution herring larvae
Norwegian coast 62°N - 67°N	April-May	Tagging
Barents Sea/ Norwegian Sea	August	Distribution 0-group herring
Norwegian coast 62°N - 69°N	August	Distribution. Tagging
Norwegian coast 62°N - 69°N	Sept.-October	Sampling commercial fishery, experimental fishing
Norwegian coast 62°N - 71°N	Nov.-December	0-group survey

TAGGING

	Season	Type of Tags	No. of Tagged	Type of Fish	Recoveries
Norw.coast IIa	II	Internal	35 982	adult	153
	III	"	10 875	"	

Herring (contd)

North Sea, Skagerrak

Area	Season	Type of Fish	No. of Samples		No. of Fish measured	No. of Fish aged	No. of Fish examined racially
			Research Vessel	Market			
Central North Sea IVb	I	Immature	11	-	778	294	80
	IV	"	5	-	435	367	355
Northern North Sea IVa	II	Imm./Ad.	7	-	596	596	198
	III	"	7	6	919	900	595
	IV	"	10	-	596	590	574
Skagerrak IIIa	I	Imm./Ad.	3	6	818	810	730
	II	Adult	-	1	100	100	100
	III	Imm./Ad.	-	11	644	630	640
	IV	Imm.	9	-	900	845	840

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
North Sea, IV	January-February	Int. young fish survey, herring
North Sea, IV	October	Intern, herring larvae investigations
Skagerrak-(IIIa) Norw.west coast fjords	November	Fish survey, 0-group herring

TAGGING

Area	Season	Type of Tags	No. of Tagged	Type of Fish
Norw.Skagerrak coast(IIIa)	September	Int. steel	500	Herring
"	"	Ext. Floy	1850	"

Sprat (Sprattus sprattus)

SAMPLING

Area	Season	Type of Fish	No. of Samples		No. of Fish measured	No. of Fish aged
			Research Vessel	Market		
Central North Sea IVb	I	Adult	3	34	4000	600
	IV	"	4	132	13100	850
South North Sea IVc	I	"	-	49	5300	300
	IV	"	-	1	100	-
Skagerrak	I	"	1	-	100	
	IV	"	-	4	400	

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
North Sea, IV	January	Acoustic survey, sprat
North Sea-Skagerrak-Kattegat (IV-IIIa)	March/April	Acoustic survey, 1-group sprat
North Sea-Skagerrak (IV-IIIa)	November	Acoustic survey, 0-group sprat
Norwegian west coast fjords	November	Acoustic survey sprat

Capelin (Mallotus villosus)

SAMPLING

Area	Season	Type of Fish	No. of Samples		No. of Fish	No. of Fish
			Research Vessel	Market	measured	aged
Barents Sea I	I	Mixed	46	1364	143537	3081
	II	"	15	10	2292	822
	III	"	190	17	19024	6540
	IV	"	1		59	
Norw.coast IIa	I	"	19	685	73299	2638
	II	"	2	26	2950	177
	III	"	26	1	2004	50
	IV	"	6		520	160
Norw.Sea, Jan Mayen IIa	I	"	6		278	266
	III	"	17	64	6914	326
Norw.Sea, northern IIb	I	"	11		1050	596
	II	"	6		600	295
	III	"	52	696	74197	1655
	IV	"	7	147	15676	739
Jan Mayen, Iceland, Va	III	"	19		1388	310
	IV	"	16		1512	952
Jan Mayen, Greenland XIVa	III	"	12	112	12273	678
	IV	"	15		1057	553
Iceland Greenland XIVb	IV	"	6		350	350
Total			472	3122	358980	20188

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
Barents Sea	January	Distribution, spawning migrations
Jan Mayen	February	Distribution
Barents Sea, Finnmark coast	March	Spawning capelin
Finnmark coast	April	Distribution of spawning grounds
Barents Sea	June-July	Distribution of larvae. Investigations of older capelin in summer feeding areas
Barents Sea	August-Sept[x)]	0-group survey. Distribution and abundance of older capelin
Jan Mayen-Iceland	October	Distribution and abundance

x) Two vessels

TAGGING

None.

Blue whiting (Micromesistius poutassou)

SAMPLING

Area	Season	Type of Fish	No. of Samples		No. of Fish	No. of Fish
			Research Vessel	Market	measured	aged
Norw.Sea,	II	Mixed	24	3	2682	976
central	III	"	30	1	1121	1060
IIa	IV	"	33		1942	1308
Jan Mayen	III	Adult	32		1483	1410
IIa						
Norw.Sea,	III	Mixed	3		154	152
northern	IV	"	1		100	97
IIb						
Skagerrak	IV	"	3		81	79
IIIa						
North Sea	I	"	1	11	672	99
northern	II	"	18	51	3709	455
IVa	III	"	2	3	260	64
	IV	"	11		561	300
Iceland	III	"	2		111	111
Va	IV	"	1		100	50
Faroes	I	Adult		1	50	
Vb	II	"	8	65	5466	787
W. of	I	"		4	252	
Scotland	II	"	17	85	8521	1597
VIa						
W. of	I	"		1	40	
Scotland	II	"	1		200	100
VIb						
W. of	I	"		14	862	
Ireland	II	"	7		1185	587
VIIbc						
W. of	III	"	2		200	199
Jan Mayen	IV	"	4		69	61
XIVa						
Total			200	239	29821	9492

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
W. of British Isl./Faroes	April-May	Surveys spawning grounds
Norwegian coast	June	Distribution adult and 0-group
Norwegian Sea	August	Distribution
Bear Island/Svalbard	Sept.-Oct.	Distribution
Norwegian coast	Oct.-Nov.	Distribution
North Sea/Skagerrak	November	Distribution immature fish and 0-group

TAGGING

None.

Mackerel (Scomber scombrus)

SAMPLING

Area	Season	Type of Fish	No. of Samples		No. of Fish measured x)	No. of Fish aged
			Research Vessel	Market		
Rona	Jan.	Adult		3	300	291
ICES area VIIf	Jan.	"		4	400	390
SW of Ireland	May	"	3		300	286
ICES area VIIf	"	Ad./Imm.	1		20	18
NE North Sea	May/June	Adult	4		183	177
"	"	"		3	237	222
Skagerrak	June	"		2	169	163
ICES area IVb	"	"	4		347	334
"	July	"		3	300	294
NE North Sea	"	"		2	198	192
S. Norwegian Sea	"	"	1		36	34
E. of Shetland	"	"	1		35	34
Skagerrak	August	"	3		296	262
ICES area IVb	"	"		2	200	199
NE North Sea	"	"		1	100	98
S. Norwegian Sea	"	"		2	184	179
Skagerrak	Sep.	"		2	200	192
"	"	"		1	80	79
Hardanger, w.coast Norway	Nov.	Imm.	2		91	91
ICES area VIIf	Jan.	Adult		38	2361	-
" VIIe	Des.	"		7	166	-
" "	August	"		1	50	-
" VIa	Jan.	"		12	536	-
"	Oct.	"		1	50	-
SE of Shetland	Sep.	"		1	50	-
ICES area IVb	July/Sep.	"		41	1889	-
Norwegian Sea, S.	Aug./Sep.	"		30	1075	-
NE North Sea	"	"		16	488	-
North Sea	July/Sep.	"		17	251	-

x) In addition: all tagged fish are measured

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
North Sea	June/Aug.	Egg and larval survey, mackerel
Western Channel - North Sea	June	" "

TAGGING

Area	Season	Type of Tags	No. of Tagged	Type of Fish	Recoveries
E. Viking Bank	May	int. steel	250	Mackerel	
SW. of Ireland	"	"	10000	"	
SW North Sea,IV	June	"	958	"	230
Skagerrak(IIIa)	August	"	5676	"	

In order to obtain recoveries of tagged mackerel from catches landed for human consumption a tag-detector was placed at a processing plant - (fillet - bait) south of Bergen.

Bluefin tuna (Thunnus thunnus L.)

The total catch of bluefin tuna in Norwegian waters was ca 228 tons (Nos of fish 865).

The tuna investigations have been limited to estimate size composition in weight (kg). The results will be reported to ICCAT.

Spurdog (Squalus acanthias L.)

SAMPLING

Biological data were obtained in conjunction with tagging experiments only. The data comprise fish-length and sex from longline catches.

TAGGING

Area	Season	Type of Tags	No. of Tagged	Type of Fish	Recoveries
Norw. coast between 64°30'-66°N	Jul/Aug.	Petersen disc.	359	Imm.+adult	75

P O L A N D

(M. Giedz)

BLUE WHITING

Sampling (in 1980)

Area		Season	No of samples		No of fish	
			for measurements	for ageing	measured	aged
NE	Faroe	June	5	2	1 883	192
S	Bear Island	June	3	2	749	248
E	Jan Mayen	July	7	2	3 626	250
SE	Jan Mayen	July	19	5	9 227	541
E	Jan Mayen	August	10	4	4 803	407
NE	Jan Mayen	August	14	4	6 448	420
NE E	Jan Mayen	September	22	6	10 490	634
SE	Jan Mayen	October	4	1	2 056	105
Total			84	26	39 282	2 797

PORTUGAL

(Ivone Barraca)

1 - The most important pelagic species and, therefore, those that have been studied during 1980 by the INIP were the following: Sardine, horse-mackerel, mackerel and spanish-mackerel.
In what concerns the two first species, the lenght composition as well as other biological parameters were determined in the laboratories of the INIP. The data on mackerel and spanish-mackerel are those provided by the Biological Sampling Programm.

2 - In what concerns sardine, a more detailed work was accomplished, in the aim of ICES, for assessment of the state of the stock. The concerning report of the Working Group composed by Portuguese and Spanish scientists was presented at the Statutory Meeting of ICES in 1980, Pelagic Fish Committee C.M./H:53.

3 - The following tables include the data provided by the Biological Sampling Program and those obtained from the samplings accomplished in the laboratories of the INIP.

SPECIE: Sardina pilchardus (Walb.)

Area	Station	N. of Samples	N. of fishes		
		Commercial Ships	Measured	Whose age was determined Scale	Otoliths
IX	1st term	104	12 397	310	571
IX	2nd term	137	17 479	122	469
IX	3rd term	93	11 574	109	530
IX	4th term	150	15 747	184	456
	TOTAL	484	57 197	725	2026

SPECIE: Trachurus trachurus (Linné)

Area	Station	N. of samples	N. of fishes	
		Commercial Ships	Measured	Whose age was determined Otoliths
IX	1st term	249	17 435	235
IX	2nd term	321	22 000	158
IX	3rd term	235	17 635	40
IX	4th term	480	29 560	20
	TOTAL	1285	86 630	453

SPECIE: Scomber scombrus Linné.

Area	Station	N. of samples	N. of fishes
		Commercial ships	Measured
IX	1st term	15	676
IX	2nd term	-	-
IX	3rd term	1	123
IX	4th term	-	-
	TOTAL	16	799

SPECIE: Scomber japonicus Houttuyn

Area	Station	N. of samples	N. of fishes
		Commercial ships	Measured
IX	1	15	440
IX	2	25	1874
IX	3	27	2886
IX	4	42	1855
	TOTAL	109	7055

SPAIN

(C. Cendrero et M. A. Rodriguez)

Les Clupéidés

Sardine, Sardina pilchardus

Les recherches aux deux pêcheries traditionnelles espagnoles, la Galice (nord-ouest de la Péninsule Ibérique) et le banc canario-africain, ont continué comme d'habitude en 1980.

Les études sur la pêcherie galicienne ont compris deux parties: la pêche du large à la seine et celle pratiquée à l'intérieur de la baie de Vigo avec des petits filets maillants de dérive (xeitos). Cette modalité de pêche a réalisé un effort petit et ses apports sont modestes, à cause du fait que le prix de la sardine s'est maintenu bas aux criées de la région du à la grande abondance de l'espèce. Les pêches expérimentales avec des filets maillants à mailles de dimensions différentes font penser qu'il existe une certaine sélectivité, mais les données dont on dispose ne sont pas encore suffisantes pour en affirmer.

Les apports de la pêche du large (divisions VIIIc ouest et IXa) ont été au niveau de l'année antérieure (50 000 t à peu près). Il y a eu aussi des captures mineures provenantes du côté oriental de la division VIIIc, où la sardine constitue une pêche accessoire.

Le programme d'échantillonnage s'est élargie, et en 1980 on a échantillonné les débarquements au port de Sada, au nord de la Galice (division VIIIc).

En ce qui concerne les recherches sur la sardine du banc canarien, la routine des échantillonnages biologiques et l'étude des paramètres biologiques et de la pêcherie ont suivi sans changement.

Echantillonnages

Région	Trimestre	Type de poissons	Nombre des échantillons		Nombre de poissons		
			Bateau	Marché	Mesurés	Agés	Race
VIIIc	1	Juveniles et adultes	-	26	2 618	156	-
	2		-	20	2 014	95	-
	3	"	-	22	2 234	100	-
	4	"	-	13	1 316	94	-
IXa	1	"	-	23	2 301	138	-
	2	"	-	30	3 035	143	-
	3	"	-	32	3 215	228	-
	4	"	-	23	2 298	126	-
Afrique ouest, Canaries	1	Adultes	-	32	14 904	346	-
	2	"	-	4	1 342	126	-
	3	"	-	42	17 507	491	-
	4	"	-	69	23 863	399	-

Anchois, Engraulis encrasicolus

En 1980, comme en 1979, la saison de pêche dans le golfe de Gascogne est commencée en avril, avec quelques prises sporadiques en mars. Les conditions météorologiques du printemps n'ont pas été favorables, donc le temps de pêche effective a subi des pertes. Les apports totaux sont un peu inférieurs à ceux de 1979.

La composition des captures a regagné sa normalité. Les anchois de la classe d'âge 2 constituent la plupart des échantillons étudiés; outre, la "taille" moyenne n'est pas si grosse que celle observée en 1979. Cela paraît indiquer une récupération de la population, qui avait expérimenté une importante chute depuis 1978.

Echantillonnages

Région	Trimestre	Type de poissons	Nombre des échantillons		Nombre de poissons		
			Bateau	Marché	Mesurés	Agés	Race
VIII b,c	1 2	Adultes "	- 19	1 5	94 2 400	43 573	- -

Les Scombriformes

Les pêcheries espagnoles de Scombriformes, notamment de Thonidés, qui sont l'objet de recherches actives comprennent trois aires principales: la pêche du germon et de l'espadon dans le golfe de Gascogne et les régions voisines, la pêche aux madragues du détroit de Gibraltar et la pêche des Thonidés tropicaux aux Iles Canaries et à l'Afrique du nord-ouest.

Les espèces étudiées et exploitées, autres que les deux mentionnées ci dessus, sont le thon rouge, Thunnus thynnus (L.), le listao, Katsuwonus pelamis (L.), l'albacore, Th. albacares (Bonn.), le patudo, Th. obesus (Löve), la melva, Auxis rochei (Risso), la bonite à dos rayé, Sarda sarda (Bloch) et la thonine, Euthynnus quadripunctatus (L. Geoffroy Saint-Hilaire). Les études comprennent les paramètres biologiques, les migrations (campagnes de marquage) et les modèles de production des espèces les plus importantes. Une campagne a eu lieu dans le golfe de Gascogne en été pour obtenir des données sur les rendements de la pêche de germon et de thon rouge par rapport aux conditions hydrologiques.

Echantillonnages — Thunnus alalunga

Région	Trimestre	Type de poissons	Nombre des échantillons	Nombre de poissons mesurés
VIIIc	3	Juveniles	47	1 777
VIIId	3	"	37	3 756
VIIIe	3	"	3	319
X	2 3	" "	2 2	147 289
Afrique ouest	2 4	" "	6 9	289 607

Thunnus thynnus

Région	Trimestre	Type de poissons	Nombre des échantillons	Nombre de poissons mesurés
VIIIa, b,c,d	3 4	Juveniles "	30 4	2 287 288
Afrique ouest	2 4	" "	6 7	33 113

Thunnus thynnus

Région	Trimestre	Type de poissons	Nombre des échantillons	Nombre des poissons mesurés
Atlantique est	1	Adultes	2	52
	2	"	14	356
	3	"	39	1 154

Thunnus albacares

Région	Trimestre	Type de poissons	Nombre des échantillons	Nombre de poissons mesurés
Atlantique est	2	Adultes	28	61
	3	"	2	7
	4	"	25	417

Katsuwonus pelamis

Région	Trimestre	Type de poissons	Nombre des échantillons	Nombre de poissons mesurés
Atlantique est	2	Adultes et juvéniles	18	604
	3		37	1 171
	4		31	1 505

Xiphias gladius

Région	Trimestre	Type de poissons	Nombre des échantillons	Nombre de poissons mesurés
VIIIa	3	Adultes	2	148
	4	"	2	36
VIIIb	4	"	4	227
VIIIc	4	"	1	19
VIIIc	3	"	5	230
	4	"	6	405
IXa	3	"	1	45
IXa,	2	"	1	31
	3	"	2	86
	4	"	3	300
IX	4	"	2	90

Campagnes de marquage

En 1980 l'Institut Espagnol d'Océanographie a fait des campagnes de marquage de Méditerranée aux trois grandes régions de pêche des flottilles espagnoles. 310 exemplaires de Thunnus thynnus, 222 de Th. alalunga, 3 de Th. albacares, 2 de Th. obesus, 370 de Sarda sarda, 100 d'Euthynnus alletteratus et 437 de Katsuwonus pelamis ont été marqués pendant ces campagnes.

Autres espèces

Merlan bleu, Micromesistius poutassou

Les investigations sur cette espèce, dont les apports sont très importants pour les débarquements pêchant dans la ZEE espagnole, ont été dirigées vers l'étude des paramètres biologiques de la population des divisions VIIIc et IXa.

Échantillonnages

Région	Trimestre	Type de poisson	Nombre des échantillons Bateau	Marché	Nombre de poissons Mesurés	Âgés	Race
VIIIc	3	Adultes et juvéniles	25	-	3 250	150	-
IXa	3	"	27	-	4 500	50	-

Chinchard, Trachurus trachurus

Échantillonnages

Région	Trimestre	Type de poisson	Nombre des échantillons Bateau	Marché	Nombre de poissons Mesurés	Âgés	Race
VIIIc	3	Adultes	25	-	2 650	177	-
IXa	3	"	23	-	2 300	130	-

Sweden

(R. Rosenberg)

1980 Sampling data Herring, Sweden

Area	Season	Type of fish	No. of samples Research vessel	Market	No. of fish Measured only	Aged	No. of fish Examined racially
Kattegat	I, II, III	Imm, ad	18	6	9 571	2 170	2 170
"	IV, V	Imm, ad, spawners		5	1 405	264	264
"	VII, VIII, IX	Imm, ad	4	20	7 582	1 852	1 852
"	X, XI	Imm, ad, spawners		10	4 052	929	929
Skagerak	I, II, III	Imm, ad, spawners	8	6	1 650	870	870
"	IV, V	Imm, ad, spawners		8	1 243	613	613
"	VII, IX	Imm, ad	8	3	996	589	589

Research Vessel Survey

Area	Season	Objectives
Kattegat, Skagerrak	II	Investigation on young herring and stock separation, and herring larvae.
" "	IX	Investigation on herring, herring larvae. Echointegrations.

United Kingdom

1. England and Wales

(A. C. Burd)

1. Sampling

HERRING

Area		No. of samples		No. of fish		
		Research vessels	Market	Measured	Aged	Racial invest
North Sea	104A **)	5		513	331	331
	104B	7		2 068	865	784
	104C		1	21	21	21
W. Scotland	106A	1		205	100	100
W. English Channel	107E	1		154	100	100
Irish Sea	107A	1	4	1 320	393	393
Thames Estuary	104C*	3	1	4 925	1 173	1 173

* 655 herring tagged with external hydrostatic tags

** Code 104A = Sub-Division IVa, etc.

SPRAT

Area		No. of samples		No. of fish	
		Research vessels	Market	Measured	Aged
North Sea	104B	6	2	1 190	
	104C	3		476	
Thames Estuary	104C		5	935	80
W. English Channel	107E		23	2 230	110
Irish Sea	107A		1	227	49

MACKEREL

Area		No. of samples		No. of fish	
		Research vessels	Market	Measured	Aged
North Sea	104	3		230	230
W. Scotland	106A	3	2	890	82
W. Ireland	107B 107C	6		3 355	680
Celtic Sea	107G-K	2		1 195	520
W. English Channel	107E	12	211	27 959	2 784
Bristol Channel	107F				
Biscay	108	12		1 085	381

PILCHARD

Area		No. of samples		No. of fish	
		Research vessels	Market	Measured	Aged
W. English Channel	107E		29	3 308	428
Celtic Sea	107G-H				
Bristol Channel	107F				

(HORSE MACKEREL)

Area		No. of samples		No. of fish	
		Research vessels	Market	Measured	Aged
English Channel	107D 107E	9	16	2 897	744
Bristol Channel	107F				
Celtic Sea	107G-K				
Biscay	108	2		270	142

2. Research vessel surveys

Area	Month	Objectives
North Sea 104	January	Sprat Acoustic Survey
Bay of Biscay/English Channel/ W. Approaches 108, 107E, 107F-G	January	H. Mackerel Exploratory Voyage
" " " " "	January	" " " "
" " " " "	Jan/Feb	" " " "
North Sea 104	Jan/Feb	International Young Fish Survey
English Channel/W. Approaches 107E, 107F-G	February	H. Mackerel Exploratory Voyage
Bay of Biscay/English Channel/ W. Approaches 108, 107E, 107F-G	Feb/Mar	" " " "
North Sea (Thames) 104C	March	Herring Recruitment Investigation
West Ireland/Biscay/W. Approaches/ English Channel 107B-C, 108, 107E,F,G-K	Mar/Apr	Mackerel Egg Survey
North Sea Thames (104C)	April	Herring Recruitment Investigation
West Ireland/English Channel/ Biscay/W. Approaches 107B-C, 108, 107,E,F,G-K	Apr/May	Mackerel Egg Survey
Celtic Sea, W Ireland, W. Scotland 107G-K, 107B-C, 106A	June	H. Mackerel Exploratory Voyage
Celtic Sea, Biscay, W. Ireland, W. Scotland, S.W. Approaches 107F, 107G-K, 108, 107B-C, 106A	July	" " " "
North Sea 104	July	'0' Gp Herring Survey
West Ireland/English Channel/ Biscay/Celtic Sea 107B-C, 108, 107E,F,G-K	Jul/Aug	Mackerel Egg Survey + H. Mackerel
Celtic Sea, West Ireland, West Scotland 107G-K, 107B-C, 106A	August	H. Mackerel Exploratory Voyage
N. Sea 104	Aug/Sept	Herring Larval Survey
N. Sea 104	Oct	Herring Larval Survey

United Kingdom

SCOTLAND

(R. Bailey).

HERRING SAMPLING

Area		Season	Type of herring	No. of samples		No. of fish		Examined racially
				Research vessel	Market	measured	aged	
IVa	Northern North Sea							
	West of Shetland (02)	Jan-Mar	immat.	2		52	35	0
		Jul-Sep	adult	6		477	425	265
	NW North Sea (03)	Jan-Mar	immat.	10		844	243	0
		Apr-Jun	adult	1		375	99	50
		Jul-Sep	adult	17		2104	573	446
		Jul-Sep	mixed	15		799	329	0
		Oct-Dec	mixed	7		1365	0	0
IVb	Central North Sea							
	South Buchan (08)	Jul-Sep	mixed	7		525	185	-
		Oct-Dec	immat.	11		1726	5	-
	Central North Sea (09)	Jan-Mar	immat.	26		2368	447	0
		Oct-Dec	immat.	2		285	47	0
VIa	West of Britain							
	NW Ireland (06)	Jan-Mar	mixed	3		597	0	0
	N and S Minch (07a and b)	Jan-Mar	mixed	10		1745	42	42
		Jul-Sep	adult	2		285	285	85
		Jul-Sep	immat.	1		17	17	0
		Oct-Dec	mixed	18		1272	773	0
	Clyde (07c)	Jan-Mar	adult	6		1174	811	0
		Apr-Jun	adult		21	2738	-	-
		Apr-Jun	adult	14		1950	904	697
		Jun-Sep	adult		75	3318	850	850
		Oct-Dec	immat.	28		3929	857	785

Tagging

Area	Season	Type of tag	No. tagged	Type of fish	Recoveries
Clyde	April-June	Flag	888	Mixed	197
Clyde	April-June	Snap Spaghetti	1326	Mixed	207
Clyde	April-June	Floy T Tag	4683	Mixed	309
Minch	Oct-Dec	Floy T Tags	277	Mixed	nil
Minch	Oct-Dec	Snap Spaghetti	822	Mixed	nil
Minch	Oct-Dec	Thin Spaghetti	190	Mixed	nil
Minch	Oct-Dec	Thick Spaghetti	758	Mixed	nil

Research Vessel Surveys

Area	Season	Objectives
North Sea	February-March	International Young Herring Survey
North Sea and west of Orkney and Shetland	June-July	Acoustic and trawling survey
North Sea	September-October	Larval surveys
West coast of Scotland	September-October	0-group trawling survey
West coast of Scotland	August-October	Larval surveys
West coast of Scotland	November-December	1-group trawling survey
Clyde	November	0- and 1-group trawling survey

Other Research Activities

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

Immature and mature herring from the Firth of Clyde and the northern Irish Sea were examined for tag parasites which might help to clarify the stock situation in these areas. Examination of both adult and juvenile Minch herring was continued whenever samples were available to obtain further information to quantify the proportion of recruitment from Blåden and other nursery areas at each age to the Minch. In addition juvenile herring samples from the North Sea were examined for tag parasites in order to check for changes in infection rates which may have occurred over the period of several years since these were last investigated.

Histological work was continued to investigate the maturation stages of adult Clyde herring as a further aid to racial classification.

SPRAT SAMPLING

Area	Season	No. of samples		No. of fish	
		Research vessel	Market	Measured	Aged
IVa	January-March	22	8	3502	375
	April-June	-	-	-	-
	July-September	-	-	-	-
	October-December	4	-	976	64
IVb	January-March	32	10	7120	592
	April-June	-	-	-	-
	July-September	-	-	-	-
	October-December	23	5	5057	324
VIa	January-March	-	1	337	37
	April-June	-	-	-	-
	July-September	-	-	-	-
	October-December	26	19	9159	555

Research Vessel Surveys

Area	Date	Objective
Western North Sea	January	Acoustic and trawling survey
Western North Sea	November	Acoustic and trawling survey

BLUE WHITING

SAMPLING

Area	Season	Type of fish	No. of samples		No. of fish measured	No. of fish aged
			Research vessel	Market		
Faroe (Vb)	Apr-Jun	Adults	-	1	226	119
West of Scotland (VIa)	Apr-Jun	Spawners/ adults	6	5	3520	1102
Rockall (VIb)	Apr-Jun	Spawners/ adults	2	-	775	217

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
Continental slope west of Scotland and Rockall	2-22 April 1980	Acoustic and trawling survey

Additional information on sex, maturity, individual weight, parasitic infection and stomach contents was also collected.

Investigations into the methodology and interpretative aspects of age determination were continued.

SPURDOG Squalus acanthias

SAMPLING

Area	Season	Type of fish	No. of samples		No. of fish measured
			Research vessel	Market	
IVa/b	all	all	92	40	5454
VIa	1-4	all	21	67	9386

TAGGING

Area	Season	Type of tags	No. tagged	Type of fish	Recoveries
VIa	Oct-Dec	Petersen Discs + Flags	1020	all	1

RESEARCH VESSEL SURVEYS

Area	Date	Objectives
VIa	28/11 - 18/12/80	Trawling survey

OTHER RESEARCH ACTIVITIES

Stomach contents analyses, maturity and fecundity data were obtained.

MACKEREL SAMPLING

Area	Season	No of Samples Research vessel	Market	No of fish meas.	aged	Type of fish
IVa	Jan-Mar	-	3	56	56	Adult
Northern North Sea	Apr-June	1	2	195	138	Adult
	July-Sept	52	12	2428	891	Adult
	Oct-Dec	-	1	86	-	Adult
IVb	Jan-Mar	3	-	4	-	Immature
Central North Sea	Apr-June	-	1	121	76	Adult
	July-Sept	4	8	670	275	Adult
	Oct-Dec	-	2	211	60	Adult
VIa	Jan-Mar	10	2	132	91	Adult
West of Scotland	Apr-June	-	1	83	-	Adult
	July-Sept	29	58	5049	1272	Adult
	Oct-Dec	8	25	2263	515	Adult
VIIb,c						
West of Ireland	Apr-June	1	-	91	79	Adult
VIIg-k						
South of Ireland	Apr-June	4	-	48	47	Adult

TAGGING

Area	Season	Type of Tag	No tagged	Type of Fish	Recoveries
Minch	July-Sept	Flag	100	adult	1

RESEARCH VESSEL SURVEYS

Area	Season	Objectives
West of Ireland to Bay of Biscay	Mar	Egg Survey
West of Ireland to Bay of Biscay	May-June	Egg Survey
Minch, Scottish North Coast	Aug-Sept	Accustic Survey

OTHER RESEARCH ACTIVITIES

During discard investigations of the Cornish fishery (ICES Areas VII e, f) in January 1980, 4265 fish were measured.

USA

(Richard C. Hennemuth
Edward D. Houde)

Herring

The Northeast Fisheries Center assessed the status of the Atlantic herring stocks (Gulf of Maine and Georges Bank) with results serving as input to fishery management plans.

A remote aerial surveillance program designed to locate schools of migrating herring was conducted by Zapata Corporation during April-May in the Gulf of Maine and on Georges Bank.

A bottom-trawl survey was conducted during September by the USSR R/V VIANDRA on Georges Bank to locate concentrations of spawning herring.

Herring gonads were collected from the Gulf of Maine stock for a new fecundity study.

Herring tagging was conducted in coastal Maine waters by the State of Maine Department of Marine Resources.

In the eastern Gulf of Mexico, age, growth, and mortality of coastal herrings were studied by E. D. Houde and S. A. Berkeley, University of Maryland and University of Miami. Objectives are to estimate growth and mortality of several species, including Sardinella anchovia, Opisthonema oglinum, and Decapterus punctatus, from which yield models will be developed to estimate potential of these fishes to sustain major directed fishing effort.

Mackerel

The Northeast Fisheries Center provided an updated assessment of the status of the Atlantic mackerel stock (Cape Hatteras to Newfoundland) for use in the amended fishery management plan for 1981-82.

Length and age samples were collected from the Spring 1980 recreational fishery for mackerel in the New Jersey - New York area. Commercial, recreational, and research samples of mackerel otoliths were aged for use in the assessment.

Bluefish

The Northeast Fisheries Center updated an earlier assessment of the status of bluefish along the Atlantic coast of the US for use in preparing a fishery management plan for the species. The assessment included an estimate of maximum sustained yield determined from a generalized stock-production model.

Butterfish

The Northeast Fisheries Center produced an update on the status of butterfish for use in amending the fishery management plan for 1981-82.

Sharks

The Northeast Fisheries Center completed an analysis which attempted to estimate the maximum sustained yield of pelagic sharks in the Western North Atlantic and the Gulf of Mexico based on international reported and estimated catches and from a wide variety of fisheries by-catches and catch-per-unit effort from the Japanese tuna longline fishery. The results from this analysis provided input to existing and proposed fishery management plans for sharks.

In 1980, 5,236 sharks representing 34 species were tagged and released under the National Marine Fisheries Service cooperative shark-tagging program. In addition, 253 teleosts of 11 species were tagged. Volunteer taggers accounted for 95% of the releases.

Research cruises were conducted aboard two foreign vessels (R/V WIECZNO from Gdynia, Poland, and JANE R from Lockeport, Nova Scotia) and two US vessels (BIRD OF PASSAGE from Woods Hole, Massachusetts, and DONNA LEE from Highlands, New Jersey). Areas of operation during the cooperative foreign cruises in March and August extended from the offings of Daytona Beach, Florida, northward along the edge of the continental shelf to Hydrographer Canyon on the southern margin of Georges Bank. The purpose of the cruises was to tag sharks and other large gamefish for migration studies and to collect biological data for life history studies of sharks and swordfish. The primary fishing method was pelagic longlines except aboard the BIRD OF PASSAGE where chumming, handlines, and harpoons were employed. All fish captured were tagged (287) or taken on board for studies of shark food habits, age and growth, and reproduction. Reproductive information was collected from a total of 54 sharks. A prime objective of the BIRD OF PASSAGE cruise was to study the digestion rate in the blue shark with the use of sonic telemetry. The work was done in cooperation with Dr. Frank Carey of the Woods Hole Oceanographic Institution. The sonic tracking experiments provided first quantitative information on blue shark feeding rates under natural conditions. To date, 523 stomach samples have been analyzed by area (inshore, less than 50 fathoms; offshore, greater than 50 fathoms) and for sexual differences with respect to the type and amount of food they contained.

Swordfish

Age determination and ecology of South Carolina swordfish were investigated by J. M. Dean and C. Wilson, University of South Carolina, to describe otoliths and determine the age of all life stages of swordfish, and to correlate such estimates with those obtained using fin spines. In addition, biological data on diet, reproductive states, and fecundity are being collected.

The fishery and biology of broadbill swordfish were investigated by E. D. Houde, S. A. Berkeley, D. P. deSylva, E. Irby, and J. Jolley, University of Miami and Florida Department of Natural Resources, to assess the stock, investigate its biology, and make management recommendations based on collection of catch-effort statistics and biological data.

Bluefin tuna

Bluefin tuna fishery-oceanography in the Gulf of Mexico and western North Atlantic were investigated by F. Williams, University of Miami, to determine how tuna availability varies as a function of ocean productivity by using both satellite remote sensing and ground truth data.

Sailfish

The Florida sailfish, Istiophorus platypterus, fishery was monitored by E. Irby, Florida Department of Natural Resources, with the objective to assess stock abundance and the fishery through long-term monitoring of catch and effort.

Striped bass

An assessment of larval stocks of striped bass in the Potomac estuary was undertaken by F. D. Martin and E. Setzler-Hamilton, University of Maryland, with the objective to estimate larval abundance and correlate it with distribution and abundance of larval food and predators.

King mackerel

Migrations and stock identification of king mackerel, Scomberomorus cavalla, were studied by R. Williams and C. Godcharles, Florida Department of Natural Resources. Objectives are to determine seasonal migration patterns and to attempt stock identification through tagging studies. The stock was studied by H. Arnold of the same Department, with the objective to use electrophoresis in an isozyme analysis to distinguish stocks from the southeastern US and Gulf of Mexico.

Round scad

The life history of round scad, Decapterus punctatus, in the South Atlantic Bight was studied by S. Hales, College of Charleston, South Carolina. The objectives are to: (1) determine distribution and abundance based on trawl catch data, (2) estimate ages and growth rates from otoliths, (3) determine food habits, and (4) investigate reproductive biology.

Ecosystem Dynamics and Food Chain Projects

Further refinements were made in the energy budget for Georges Bank, particularly for zooplankton production estimates; and comparisons of production at all trophic levels were made between Georges Bank, the North Sea, and the Nova Scotian Shelf. Work continued on developing estimates of size-related prey selection and food consumption in fishes on Georges Bank, and progress to date was summarized in several documents presented at the 1980 ICES meeting. Daily rations were estimated for silver hake and cod, using a model based on an exponential digestion process, with results falling between upper and lower theoretical limits of food consumption for these species. These data were used in preliminary testing of a multispecies model designed to explore the importance of predation on recruitment fluctuations in multispecies fish communities.

A monograph was completed on the ecology of fishes in the Middle Atlantic Bight (Cape Hatteras to Cape Cod), including life history synopses of 43 species of fish and shellfish, a brief zoogeographic description of the finfish community, and an overview of the changes in fish populations in relation to fishing, temperature trends, and pollution.

Pelagic fish in general

The Miami Laboratory, Southeast Fisheries Center, conducted an ichthyoplankton cruise in the Gulf of Mexico from February 25 to March 27, 1980. The purpose of the cruise was to collect tuna, scombroid, and other important commercial and recreational fish larvae for studies on development, abundance, and distribution. The material was collected using bongo and neuston nets from R/V OREGON II. The ichthyoplankton samples were sent to the Polish Sorting Center for sorting to be completed by early 1981. A total of 102 stations were made throughout the Gulf of Mexico.

Physical oceanographic data were collected by cooperating scientists from the University of Miami. These data included continuous surface temperatures, 8 bottle hydrocasts, and secchi disk and light transmission measurements at each ichthyoplankton station. Cooperating scientists from Texas A&M University studied primary productivity and measured chlorophyll-a,b,c, suspended solids, phytoplankton, and nutrients.

Additional Southeast Fisheries Center research included a large-scale tagging experiment conducted on bluefin tuna juveniles off the northeastern coast of the US in June. The purpose of this study is to obtain population parameters necessary for assessment studies. Cooperative tagging studies of billfish continued in 1980.

Comparison of the bioenergetics of feeding in two plankton-feeding fishes, menhaden, B. tyrannus, and herring, Clupea harengus, was undertaken by Ann and Edward Durbin, University of Rhode Island, to determine how filter-feeding planktivores (menhaden) differ from particle-selectors (herring) in relation to food use and efficiencies.

An estimation of early life history vital parameters of marine fishes, and development of larval mortality models, was undertaken by S. Saila, University of Rhode Island.

An assessment of the population dynamics of important commercial or recreational fish of Chesapeake Bay is being carried out by B. J. Rothschild, University of Maryland, using catch-and-effort statistics to obtain preliminary stock assessments of several species, including striped bass, bluefish, river herring, American shad, and white perch.

A comparison of larval food and condition among striped bass, white perch, and Clupeidae spp.in the Potomac estuary is being made by E. Setzler-Hamilton, F. D. Martin, G. E. Drewry, and J. A. Mihursky, University of Maryland, to determine larval food habits, compare them among species, assess larval condition, and relate it to abundance of zooplankton used as food.

Forecasting commercial finfish landings and crab catch from Maryland estuarine waters is being done by R. E. Ulanowicz, University of Maryland, to develop algorithms that rely on environmental correlates to predict the magnitudes of annual catches of several species, including striped bass, alewife, bluefish, butterfish, menhaden, scup, American shad, gizzard shad, and white perch.

In North Carolina, as part of the Anadromous Fisheries Management Program, M. Street is coordinating: (1) stock assessment of alosids in Albermarle and

Pamlico Sounds: (2) stock assessment of striped bass in Albermarle and Pamlico Sounds and the Cape Fear River; (3) offshore assessment (trawling surveys) of all anadromous species, from Cape Lookout to Chesapeake Bay; and (4) experimental stocking of striped bass to increase population size. All of these programs are carried out with field sampling, juvenile abundance indices, commercial catch statistics, and biological data on the catch composition.

The relationship of upwelling events to spawning by pelagic fishes is being investigated by T. Targett, Skidaway Institute of Oceanography. Objectives are to use satellite remote sensing and ground truth data to assess primary production, zooplankton production, and larval abundance, and to infer how spawning by fishes, particularly menhaden and bluefish, is linked to oceanographic events.

Temporal and areal distribution of scombrid larvae in the Florida Straits was investigated by K. Burns, Florida Department of Natural Resources, to determine seasonal spawning activity by tunas and mackerels in relation to oceanographic factors.

The role of Mississippi Sound in recruitment of commercial and recreational fish stocks was investigated by S. Richardson, University of Mississippi, Gulf Coast Research Laboratory, to assess potential recruitment of many species by monthly larval abundance surveys.

USSR

(A.A. Elizarov)

In 1980 the specialists of the PINRO Laboratory of pelagic fish continued their investigations on biology of the Norwegian Sea herring and blue whiting, the Barents Sea capelin, polar cod and arctic herring and also capelin of the north-west Atlantic.

Fish stocks conditions, distribution peculiarities, factors and conditions favouring the formation of commercial fish concentrations were studed on the base of analysis of stocks age-length composition, results of observations, stocks survey data obtained during the research vessels "Poisk", "Gemma", "Academician Knipovich" and "Nikolay Kononov" cruises.

In May-June a combined oceanographic survey in the Norwegian and Greenland Seas was carried out by the specialists of the laboratory in cooperation with scientists from Iceland. In April-May the assessment of blue whiting stocks was carried out by the R/V "Poisk" in the area north-west from the Faroe Islands.

In August-September the 0-group survey of the Barents Sea and Spitsbergen area, commercial fishes was undertaken jointly with the Norwegian scintists; in September capelin stock assessment was made.

Table

Material on pelagic fish collected in 1980

HERRING

ICES Div.	Season month	Type of fish	Samples number on vessels	Samples number on market	Number of measured fish	Number of fish for age	Number of fish for racial analysis
1	2	3	4	5	6	7	8
	I	I Adult	I		20	2	
		II Adult	I		748	3	
		III Pre-spawn.	6		7090	27	
		Σ	8		7858	32	
	II	Iy Adult	8		8553	286	
		y Pre-spawn.	I6		52I0	I93	
		yI Pre-spawn.	-		24	-	
I		Σ	24		I3787	479	
	III	yIII Post-spawn.			I088		
		Σ			I088		
	IV	X Post-spawn.			677		
		XI Adult			2901		
		XII Adult			260		
		Σ			3838		
	Total		32		2657I	5II	
II[a]	I	III Post-spawn.	7		I9	I9	

CAPELIN

	I	I Pre-spawn.	8		I1656	375
		II Pre-spawn.	6		I4I04	600
		III Spawning	7		I5979	700
		Σ	2I		4I739	I675
	II	Iy Spawning	5		I750	450
		y Adult	2		457	50
		yI Adult	3		2I58	I50
		Σ	I0		4365	650
I	III	yIII Adult	4		5587	400
		IX Adult	5		9936	309
		Σ	9		I5523	709

1	2	3	4	5	6	7	8
		X Adult			2631		
I	IV	XI Immature			5481		
		XII Immature			18228		
		Σ			26340		
	Total		40		87967	3034	
	II	VI Adult			333		
		Σ			333		
		VII Adult			316		
	III	VIII Adult	3		16350	300	
II b		IX Adult	7		10253	600	
			10		26919	900	
		X Adult	4		16508	400	
	IV	XI Immature	2		6003	200	
		XII Immature			5240		
		Σ	6		27748	600	
	Total		16		55000	1500	
					POLAR COD		
		I Immature			2847		
	I	II Immature			2030		
		III Adult			360		
		Σ			5237		
		IV Adult	1		1187	100	
	II	V Adult	1		389	100	
		VI Adult			121		
I		Σ	2		1697	200	
		VIII Adult	1		2013	100	
	III	IX Adult	4		2277	350	
		Σ	5		4290	450	
		X Adult	2		3981	150	
	IV	XI Pre-spawn.	3		22517	300	
		XII Pre-spawn.	1		15940	100	
		Σ	6		42438	550	
	Total		13		53662	1200	
II b	II	V Adult			128		
		Σ			128		

3

1	2	3	4	5	6	7	8
	III	IV Adult			297		
		IX Adult		5	3598	450	
IIb		Σ		5	3895	450	
	IV	X Adult		I	3247	I00	
		Σ		I	3247	I00	
	Total			6	7I42	550	

BLUE WHITING

	I	I Adult			980		
		II Adult			2571		
		III Adult		4	I3737	206	
		Σ		4	I7288	206	
		IV Adult		I0	I3405	699	
	II	V Adult		6	I6068	525	
		VI Adult		I3	62969	I300	
		Σ		29	92442	2524	
		VII Adult		6	37536	600	
IIa	III	VIII Adult		6	25003	600	
		IX Adult		3	I3910	300	
		Σ		I5	76449	I500	
		X Adult		2	I4209	200	
	IV	XI Adult		I	6421	I00	
		Σ		3	20630	300	
	Total			5I	206809	4530	
	II	V Adult		5	9690	500	
		VI Adult		I	2940	I00	
		Σ		6	I2630	600	
IIb	III	VII Adult		I	5236	I00	
		IX Adult		2	2I97	200	
		Σ		3	7433	300	
	Total			9	20063	900	
IVa	I	I Pre-spawn.		I		I00	
		II Pre-spawn.		I		I00	
	Total			2		200	

4

1	2	3	4	5	6	7	8
	I	I Pre-spawn.		I	6I6I	I00	
		Σ		I	6I6I	I00	
IVB I	II	IV Post-spawn.		I	8I8 44	I00	
		Σ		I	862	I00	
	Total			2	7023	200	

In 1980 five cruises to different areas of the eastern Central Atlantic were made

Area	Season	Objectives
Sierra Leone Guineabissau 34.1.3 Morocco	February-March April-May May-June	Trawl surveys on fish abundance and acoustic surveys to determine the state of fish resources.
34..1.3 Morocco Guineabissau	April-June June-August August-September	Oceanographic investigations. Biological sampling
34.1.3 Guineabissau Sierra Leone	May, August May-June June-July	
34.1.3 Benin	November December	
34.1.3	November-December	

A total of 862 hauls and 1085 hydrological stations was made. The data on the main commercial fish species are given in the table:

The data collected in the Eastern Central Atlantic, 1980.

Fish species	Massive measurements, sp.	Biological analyses, sp.	Age samples, sp.
Horse-mackerel, Trachurus trachurus	63234	8390	1400
Horse-mackerel, Trachurus trecae	28390	3890	500
Mackerel Scomber colias	32490	4923	350
Sardine Sardina pilchardus	76802	6815	1100
Sardinella Sardinella aurita	1270	270	-
Sardinella Sardinella eba	650	-	-

The minimum abundance and biomass of 4 fish species is estimated. Sardine, horse-mackerel and mackerel were predominant pelagic fish species.