International Council for the
Exploration of the Sea

C.M. 1995/K:3

REPORT OF THE WORKING GROUP ON CEPHALOPOD FISHERIES AND LIFE HISTORY

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1. INTRODUCTION

1.1 Terms of Reference

The Council Resolution 1994/2:43 decided that the Study Group on the Life History and Assessment of Cephalopods will be re-established as the Working Group on Cephalopod Fisheries and Life History under the chairmanship of Dr. U. Piatkowski (Germany) and will work by correspondence in 1995, and report to the 1995 Annual Science Conference, to:

a) update currently available landing statistics;

b) combine collection and evaluation of data on the life history and exploitation of relevant cephalopod stocks in the ICES Area;

c) describe trophic interactions between cephalopods and other marine resources;

d) develop an ICES work programme on cephalopods;

e) plan for a meeting in 1996.

1.2 Members of the Working Group

As a consequence of the re-establishment of the Group several members of the former Study Group on the Life History and Assessment of Cephalopods (34 members in 1994) are still not nominated for the present Working Group.

In August 1995 the following nominated 17 members belonged to the Working Group:

Herman Bjørke	Bergen, Norway
Eve Boucaud-Camou	Caen, France
Peter Boyle	Aberdeen, UK
Martin Collins	Aberdeen, UK
Earl Dawe	St. John's, Canada
Eilif Gaard	Tórshavn, Faroe Islands
Ana Moreno	Lisbon, Portugal
Sten Munch-Petersen	Charlottenlund, Denmark
João Pereira	Lisbon, Portugal
Uwe Piatkowski (Chairman)	Kiel, Germany
Graham Pierce	Aberdeen, UK
Carlos Sousa Reis	Lisbon, Portugal
Jean-Paul Robin	Caen, France
Paul Rodhouse	Cambridge, UK
Begoña Santos	Aberdeen, UK
Michael Vecchione*	Washington, D.C., USA
Cornelia Warneke-Cremer	Hamburg, Germany

1.3 General Considerations

The economic importance of cephalopod fisheries has grown rapidly in Europe. The considerable new research now in progress featured prominently at recent ICES meetings and in the work of the former Study Group on the Life History and Assessment of Cephalopods. The most comprehensive

research on economically important cephalopods of the North East Atlantic is currently funded by a project of the European Community's Research Programmes in the Fisheries Sector (AIR). It involves several ICES nations such as the UK, France, Germany, Portugal and Spain and investigates *Stock Dynamics, Interactions and Recruitment in North East Atlantic Squid Fisheries*. The project started in the beginning of 1993 and will terminate at the end of 1995. Detailed reports and publications of the results will appear in 1996.

A preceding EU-project with participating institutions from UK, Portugal and Spain ran from 1990 to 1992. It directed studies on the *Fishery Potential of North East Atlantic Squid Stocks*. The aims of this project were to improve understanding of the basis life-cycle biology, stock structure, trophic interactions and fisheries exploitation of North East Atlantic squid, in particular the loliginids *Loligo forbesi* and *Loligo vulgaris*. The results have recently been published in a special issue of Fisheries Research (Boyle & Pierce 1994): Seventeen contributions cover various aspects of the fishery biology of North East Atlantic squid; e.g., life history, population structure, fecundity, diet, stock assessment methods and economy of the squid catching industry.

The research undertaken during both projects mentioned above has been comprehensively introduced at recent ICES Annual Conferences and Statutory Meetings. Numerous presentations contributed to the sessions of the Shellfish Committee. In fact, the work of the ICES Study Group on the Life History and Assessment of Cephalopods largely benefited from the projects during the last years. Nearly all European members of the Study Group participated actively in the projects.

2. CURRENTLY AVAILABLE LANDING STATISTICS

The present report updates the landing statistics of cephalopod groups within the ICES area (Tables 1 to 5). They are largely based on the last year's report (Anon. 1994). Tables 1 to 4 give information on annual catch statistics (1988-1994) per cephalopod group in each ICES division and for each fishing nation. The data summarise official ICES statistics and informations on national catch statistics supplied by Working Group members. If values differed between official ICES data and available national statistics the higher value was considered for the compilation in the Tables. Table 5 summarises cephalopod landings for the whole ICES area (FAO region 27) according to FAO data (FAO 1995). It provides annual data (1987-1993) for each cephalopod group and for each fishing nation.

The quality of the landing statistics has been discussed in detail in the last group's reports (Anon. 1993; 1994). See also "Recommendations for Improvement in Cephalopod Fishery Data" (Anon. 1994). There have been few improvements since the last meeting of the Group. Difficulties remain in several aspects of data collection. Where cephalopod data are recorded there is frequently uncertainty on the species composition. The extent of this problem varies between countries with some making no distinction, some distiguishing between major groups (cuttlefish, squid, octopus) and some providing details on individual species (Anon. 1994).

Data are still partly inaccurate, because official data from Spain are not available since 1988. Data from England & Wales, France, Portugal and Scotland are of best quality. They have been obtained from official ICES statistics and/or national informations. Data from Belgium, Channel Islands, Denmark, Ireland, Isle of Man, Lithuania, Northern Ireland, Norway and Sweden have been taken from ICES statistics only. German landings are partly estimated from by-catch data. Iceland and the Netherlands don't collect landing statistics. Data for 1994 are provisional.

3. COLLECTION OF DATA ON CEPHALOPOD LIFE HISTORY

These data have been extensively presented for the major species in the last year's report (Anon. 1994; Tables 2 to 5). They will be reviewed regularly and additionally, life history data of the the European flying squid *Todarodes sagittatus* and the gonate squid *Gonatus fabricii* will be compiled for the next report. *T. sagittatus* seems to become an economically important species in the southern range of the ICES region and *G. fabricii* occurs with high densities in the Norwegian Sea with an estimated biomass of 1.5 Mio. tonnes in July 1994 (Bjørke 1995). It is the most important prey of bottlenose whales (*Hyperoodon ampullatus*).

Furthermore, there are a number of contributions by Working Group members on this subject. They will be presented at the Shellfish Committee sessions of the 1995 Annual Science Conference. Most of them address topics which cover the collection and evaluation of data on the life history and exploitation of relevant cephalopod stocks in the ICES Area.

4. TROPHIC INTERACTIONS

Cephalopods are entirely predatory. Early studies of diet composition suggest that approximately half of their food consists of crustaceans or fish, respectively. Among the fish prey identified are many of commercial importance. Neritic squid such as loliginids heavily prey on the early life stages of gadoid fish and flatfish, thus having an immense impact on the recruitment of economically important finfish. Recent studies show that *Loligo forbesi* feeds primarily on Gadidae, Ammodytidae and Clupeidae. Fishes occurred in more than 80% of non-empty stomachs (Pierce *et al.* 1994). Importance of cephalopods increases and importance of fish decreases in the diet of *L. forbesi* with growth showing considerable cannibalism in loliginid squid (Rocha *et al.* 1994).

Trophic interactions of squid in Scottish waters was examined by Pierce & Santos (in press). Cephalopods in the diet of marine mammals was reviewed by Pierce (1992) and González *et al.* (1994). Furness (1994) has estimated the quantity of squid consumed by seabirds in the North East Atlantic. According to the author annual squid consumption by seabirds reaches ca. 100,000 t in the North East Atlantic.

Recent studies investigate the cephalopod diet of stranded sperm whales and small cetaceans in Scotland and Spain (Santos et al. 1995a, b, c). Several thousand beaks of *Gonatus fabricii* have been found in the stomach of a bottlenose whale stranded in the Baltic Sea (Piatkowski in prep.).

All these studies clearly demonstrate the trophic interactions between cephalopods and other marine resources. They emphasize the considerable impact cephalopods have in the marine food web of the North East Atlantic. They also provide quantitative estimations of cephalopod prey taken by the predators. The Working Group will continue the evaluation of prey-predator relationships where cephalopods are involved.

5. ICES WORK PROGRAMME ON CEPHALOPODS

Cephalopods remain an extremely important component of marine ecosystems in many parts of the world and in some places offer a significant resource supporting large fisheries. In ICES waters, particularly the North East Atlantic the position is presently less clear. Fisheries for various species

exist but these are relatively small scale compared to finfish and do not always attract significant levels of research activity or data gathering.

Recent projects funded by the EU (see above) have furnished considerable data on basic biology, reproduction, distribution and genetic variability. These projects have also begun to address quantitative aspects of cephalopod populations with the application of fishery models. It is still the case, however, that information on abundance and population dynamics are lacking for many North East Atlantic species. Amongst the various areas of work which could be addressed by an ICES programme, those related to a better understanding of cephalopod populations, their role in North Atlantic ecosystems and the likely effects of continued exploitation are probably the most pressing. It is suggested that ICES uses its multi-disciplined approach to consider the following work areas:

a) Be more proactive in encouraging national administrations to collect and collate basic fisheries data- disaggregated to the statistical square level. This will provide a better picture of the actual removals by fishing, provide a clearer picture of cephalopod distributions and provide the basic data for use in fisheries or population models.

b) Make use of existing ICES stomach sampling data to establish likely quantities of cephalopods removed by predators. ICES should require that future stomach sampling programmes make greater attempts to identify cephalopod material in fish stomachs or to make available such material to cephalopod experts. This information would help to establish the relative importance of natural processes compared to fishery induced mortality.

c) Through the Study Group on the Assessment of Shellfish Stocks in the North Atlantic ICES should encourage the development and application of methods suitable for generating estimates of cephalopod population size. This work area has a bearing on the possible future management of squid resources but would also allow for a clearer picture of the likely significance of squid in the ecosystem.

d) Make use of squid population estimates and information on squid diets and consumption to evaluate the significance of squid as predators of fish. Little attention appears to have been paid to the relative importance of squid as predators of fish - particulary to ontogenic effects. Timing of squid recruitment in relation to recruiting fish species and the relative magnitude of the two groups of animals may have an important bearing on subsequent year class strengths.

e) Initiate links between activities on cephalopods and those in environmental disciplines such as hydrography in order more fully to investigate possible factors controlling recruitment in squid. Fisheries for these species are frequently characterised by their sporadic nature and environmental factors have been implicated - evidence has not, however, been fully considered and whether processes operate at the egg, paralarval or later life stages is not known.

6. RECOMMENDATIONS AND ADVICE ON THE FUTURE

The Working Group recommends to continue its work regarding the current terms of reference (see Chapter 1.1).

The next meeting of the Working Group is suggested for 17 to 19 April 1996 in Lisbon, Portugal.

7. REFERENCES

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Table 1. Landings (in tonnes) of Cuttlefishes (Sepiidae) and bobtail squids (Sepiolidae).

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Division IIIa (Skagerrak and Kattegat)							
Denmark	1	14	19	13	37	2	?
Total	1	14	19	13	37	2	?
ICES Division IVa (Northern North Sea)							
Denmark	0	1	5	7	7	1	?
Total	0	1	5	7	7	1	?
ICES Division IVb (Central North Sea)							
Belgium	0	0	0	2	12	6	?
Denmark	0	3	9	2	10	2	?
England & Wales	0	1	0	+	+	2	+
France	+	+	2	+	+	+	+
Total	+	4	11	4	22	10	+
ICES Division IVc (Southern North Sea)							
Belgium	0	0	0	9	13	25	?
Denmark	1	0	0	0	0	0	?
England & Wales	7	10	2	15	26	22	47
France	39	82	117	42	109	172	182
Total	47	92	119	66	148	219	229
ICES Division VIa (NW coast of Scotland and North Ireland)							
England & Wales	0	1	0	+	1	+	+
France	3	1	2	4	+	1	+
Total	3	2	2	4	1	1	+
ICES Division VIIa (Irish Sea)							
Belgium	0	0	0	1	4	1	?
England & Wales	1	3	6	5	46	11	13
France	+	2	6	2	+	1	+
Total	1	5	12	8	50	13	13
ICES Divisions VIIb,c (West of Ireland and Porcupine Bank)							
England & Wales	2	0	0	0	0	0	0
France	+	+	1	+	+	+	+
Spain	?	?	?	?	?	?	?
Total	2	+	1	+	+	+	+

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Table 1. continued.

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Divisions VIId,e (English Channel)							
Belgium	0	0	0	15	20	24	?
Channel Islands	0	7	20	1	4	2	?
England & Wales	582	1,292	3,000	642	898	1,882	1,783
France	4,389	5,517	9,144	2,820	3,281	6,561	4,151
Scotland	0	1	12	1	0	0	0
Total	4,971	6,817	12,176	3,479	4,203	8,469	5,934
ICES Division VIIf (Bristol Channel)							
Belgium	0	0	0	4	4	11	?
England & Wales	10	10	83	28	35	95	37
France	6	5	99	11	15	13	17
Scotland	0	0	5	0	0	0	0
Total	16	15	187	43	54	119	54
ICES Divisions VIIg-k (Celtic Sea and SW of Ireland)							
Belgium	0	0	0	3	9	12	?
England & Wales	40	68	443	39	101	114	146
France	166	386	2,295	1,215	347	373	295
Total	206	454	2,738	1,257	457	499	441
ICES Sub-area VIII (Bay of Biscay)							
Belgium	0	0	0	0	3	5	?
England & Wales	6	9	7	42	58	41	?
France	6,081	3,068	6,110	4,411	5,463	3,707	3,043
Portugal	5	12	12	11	4	4	+
Spain	?	?	?	?	?	?	?
Total	6,092	3,089	6,129	4,464	5,528	3,757	3,053
ICES Sub-area IX (Portuguese Waters)							
Portugal	1,900	1,567	1,609	1,197	1,230	1,205	1,120
Spain	?	?	?	?	?	?	?
Total	1,900	1,567	1,609	1,197	1,230	1,205	1,120
Grand Total	13,239	12,060	23,008	15,423	11,737	14,295	10,834

Table 2. Landings (in tonnes) of Common Squid (includes *Loligo forbesi*, *Loligo vulgaris* and *Alloteuthis subulata*).

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Division IIIa (Skagerrak and Kattegat)							
Sweden	0	0	1	1	3	0	?
Total	0	0	1	1	3	0	?
ICES Division IVa (Northern North Sea)							
England & Wales	1	1	4	1	9	1	1
France	9	19	27	11	7	2	0
Germany	+	+	+	1	3	1	+
Scotland	448	609	952	549	561	242	93
Total	458	629	983	562	580	246	94
ICES Division IVb (Central North Sea)							
Belgium	37	24	38	4	6	22	?
England & Wales	5	87	83	22	50	22	4
France	+	1	4	2	1	1	1
Germany	+	+	+	1	2	1	+
Northern Ireland	0	0	1	0	0	0	0
Scotland	22	70	151	62	106	36	5
Total	64	182	277	91	165	82	10
ICES Division IVc (Southern North Sea)							
Belgium	50	68	142	19	35	84	?
England & Wales	3	6	3	2	4	3	10
France	42	118	102	111	119	299	193
Germany	+	+	+	1	2	1	+
Scotland	0	0	+	0	0	+	0
Total	95	192	247	133	160	387	203
ICES Division Vb (Faroe Grounds)							
England & Wales	0	0	+	0	0	0	1
France	2	1	+	+	+	+	+
Scotland	+	+	2	+	5	+	+
Total	2	1	2	+	5	+	1
ICES Division VIa (NW coast of Scotland and North Ireland)							
Belgium	0	1	0	0	0	0	?
England & Wales	6	14	2	1	50	24	5
France	375	338	330	246	227	148	86
Ireland	97	206	30	15	30	78	?
Northern Ireland	2	+	1	3	21	4	?
Scotland	331	565	267	248	339	182	85
Total	817	1,124	630	513	667	436	176

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Table 2. continued.

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Division VIb (Rockall)							
England & Wales	1	21	6	1	8	1	2
France	+	+	+	1	+	+	0
Ireland	0	0	10	26	50	5	?
Northern Ireland	0	4	0	+	0	0	?
Scotland	25	681	70	21	65	9	22
Total	53	702	86	49	123	15	24
ICES Division VIIa (Irish Sea)							
Belgium	11	32	36	1	6	0	?
England & Wales	76	92	37	25	74	112	32
France	55	111	32	42	65	47	15
Ireland	66	175	5	4	5	11	?
Isle of Man	6	21	12	7	15	15	?
Northern Ireland	80	105	73	33	89	62	?
Scotland	12	10	9	6	19	10	4
Total	306	546	204	118	273	257	51
ICES Divisions VIIb,c (West of Ireland and Porcupine Bank)							
England & Wales	1	0	0	1	13	47	1
France	125	120	62	60	21	56	11
Ireland	1	11	10	24	40	35	?
Northern Ireland	0	0	0	0	0	1	+
Scotland	+	2	2	2	5	1	0
Spain	10	?	?	?	?	?	?
Total	137	133	74	87	79	140	12
ICES Divisions VIId,e (English Channel)							
Belgium	101	142	213	45	86	70	?
Channel Islands	0	3	2	0	1	0	?
England & Wales	467	720	566	416	698	869	718
France	2,013	2,777	1,360	1,736	2,218	3,083	1,962
Total	2,581	3,642	2,141	2,197	3,003	4,022	2,680
ICES Division VIIf (Bristol Channel)							
Belgium	18	56	23	10	2	+	?
England & Wales	37	65	56	35	57	134	160
France	267	286	254	191	370	351	298
Total	322	407	333	236	439	485	458

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Table 2. continued.

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Divisions VIIg-k (Celtic Sea and SW of Ireland)							
Belgium	25	46	54	4	3	2	?
England & Wales	46	43	74	24	122	282	38
France	823	967	519	354	569	624	310
Ireland	32	39	112	80	135	133	?
Northern Ireland	0	+	0	0	0	0	?
Scotland	+	0	2	1	8	14	0
Spain	16	?	?	?	?	?	?
Total	942	1,095	761	463	837	1,055	348
ICES Sub-area VIII (Bay of Biscay)							
Belgium	23	23	40	6	34	36	?
England & Wales	63	22	17	84	65	94	?
France	1,512	1,667	1,850	1,135	1,222	1,313	1,691
Portugal	7	2	7	1	1	0	0
Spain	311	?	?	?	?	?	?
Total	1,916	1,714	1,914	1,226	1,322	1,443	1,691
ICES Sub-area IX (Portuguese Waters)							
Portugal	1,080	1,191	1,319	1,869	1,569	508	309
Spain	193	?	?	?	?	?	?
Total	1,273	1,191	1,319	1,869	1,569	508	309
ICES Sub-area X (Azores Grounds)							
Portugal[+]	362	441	348	260	76	109	?
Total	362	441	348	260	76	109	?
Grand Total	9,328	11,999	9,320	7,805	9,301	9,185	6,057

[+]Landings consist exclusively of *Loligo forbesi*.

Table 3. Landings (in tonnes) of Shortfin Squid (*Illex coindetii* and *Todaropsis eblanae*) and European Flying Squid (*Todarodes sagittatus*).

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Sub-areas I + II (Barents Sea and Norwegian Sea)							
Norway	1,183	5	0	0	0	0	0
Total	1,183	5	0	0	0	0	0
ICES Division VIa (NW coast of Scotland and North Ireland)							
France	+	1	1	1	1	+	+
Total	+	1	1	1	1	+	+
ICES Division VIIa (Irish Sea)							
France	+	+	+	+	+	+	0
Total	+	+	1	3	2	+	?
ICES Divisions VIIb,c (West of Ireland and Porcupine Bank)							
France	0	1	+	3	4	+	+
Spain	3	?	?	?	?	?	?
Total	3	1	+	3	4	+	+
ICES Divisions VIId,e (English Channel)							
England & Wales	2	1	7	0	0	0	0
France	7	2	1	2	2	1	+
Total	9	3	8	2	2	1	+
ICES Division VIIf (Bristol Channel)							
France	0	+	+	+	1	+	+
Total	0	+	+	+	1	+	+
ICES Divisions VIIg-k (Celtic Sea and SW of Ireland)							
England & Wales	2	0	0	0	0	0	0
France	36	38	37	63	70	44	28
Spain	49	?	?	?	?	?	?
Total	87	38	37	63	70	44	28
ICES Sub-area VIII (Bay of Biscay)							
England & Wales	14	5	0	0	0	0	0
France	333	189	188	173	426	377	222
Portugal	0	2	3	3	11	1	+
Spain	1,358	?	?	?	?	?	?
Total	1,705	196	191	176	437	378	222

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Table 3. continued.

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Sub-area IX (Portuguese Waters)							
Portugal	419	351	320	509	766	259	190
Spain	1,621	?	?	?	?	?	?
Total	2,040	351	320	509	766	259	190
Grand Total	5,030	595	557	754	1,281	682	440

Table 4. Landings (in tonnes) of Octopuses (*Eledone cirrhosa* and *Octopus vulgaris*).

Country	1988	1989	1990	1991	1992	1993	1994P
ICES Division IVa (Northern North Sea)							
England & Wales	0	1	1	0	0	0	0
Scotland	0	59	110	86	31	10	?
Total	0	60	111	86	31	10	?
ICES Division IVb (Central North Sea)							
Belgium	0	0	0	43	24	10	?
England & Wales	1	1	7	2	8	1	4
Scotland	0	0	1	1	1	2	?
Total	1	1	8	46	33	13	4
ICES Division IVc (Southern North Sea)							
Belgium	0	0	0	1	0	1	?
England & Wales	0	0	0	+	1	+	4
Total	0	0	0	1	1	1	4
ICES Division VIa (NW coast of Scotland and North Ireland)							
England & Wales	0	0	1	5	4	+	1
Scotland	0	8	11	1	3	1	?
Total	0	8	12	6	7	1	1
ICES Division VIIa (Irish Sea)							
Belgium	0	0	0	1	14	8	?
England & Wales	1	3	2	1	2	4	24
France	0	0	0	+	0	0	+
Ireland	0	1	0	0	0	0	?
Total	1	4	2	2	16	12	24

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Table 4. continued.

Country	1988	1989	1990	1991	1992	1993P	1994P
ICES Divisions VIIb,c (West of Ireland and Porcupine Bank)							
England & Wales	0	0	0	0	0	+	+
Ireland	0	0	0	0	0	3	?
Spain	41	?	?	?	?	?	?
Total	41	?	?	?	?	3	+
ICES Divisions VIId,e (English Channel)							
Belgium	0	0	0	0	1	2	?
Channel Islands	0	1	0	0	0	0	?
England & Wales	61	47	9	9	20	21	60
France	2	0	638	38	1	2	32
Total	63	48	647	47	22	25	92
ICES Division VIIf (Bristol Channel)							
Belgium	0	0	0	1	2	4	?
England & Wales	3	4	1	1	8	13	26
France	0	0	5	+	1	+	3
Total	3	4	6	2	11	17	29
ICES Divisions VIIg-k (Celtic Sea and SW of Ireland)							
Belgium	0	0	0	1	2	6	?
England & Wales	35	14	3	3	22	57	77
France	5	0	+	+	+	+	6
Ireland	0	0	0	0	1	1	?
Spain	76	?	?	?	?	?	?
Total	116	14	3	4	25	64	83
ICES Sub-area VIII (Bay of Biscay)							
Belgium	0	0	0	0	0	7	?
England & Wales	35	18	0	22	0	0	?
France	112	12	3	4	3	2	56
Portugal	49	57	17	82	144	111	+
Spain	2,841	?	?	?	?	?	?
Total	3,037	87	20	108	147	113	56
ICES Sub-area IX (Portuguese Waters)							
Portugal	8,212	10,334	6,978	7,440	9,476	7,099	7,319
Spain	3,558	?	?	?	?	?	?
Total	11,770	10,334	6,978	7,440	9,476	7,099	7,319
ICES Sub-area X (Azores Grounds)							
Portugal[+]	4	5	33	7	11	7	?
Total	4	5	33	7	11	7	?
Grand Total	15,066	10,565	7,820	7,749	9,780	7,365	7,612

Tab. 5. Total cephalopod landings (in tonnes) in ICES area according FAO statistics for FAO region 27 (FAO 1995). For France since 1989 data according national informations. For Spain data for *Loligo* spp. + Loliginidae, Ommastrephidae are combined in compilation for Common Squid.

Country	1987	1988	1989	1990	1991	1992	1993
(a) Cuttlefishes (Sepiidae) and bobtail squids (Sepiolidae).							
Belgium	0	0	0	0	33	171	84
Channel Islands	1	3	4	4	4	4	4
Denmark	1	2	18	32	22	54	5
England & Wales	257	646	1,394	3,541	771	1,160	2,164
France	4,992	10,684	12,156	21,576	12,943	10,634	13,653
Portugal	1,460	1,905	1,580	1,621	1,208	1,234	922
Spain	543	?	544	612	563	595	500
Total	7,255	13,240	15,696	27,386	15,544	13,852	17,332
(b) Common Squid: *Loligo forbesi, Loligo vulgaris, Alloteuthis subulata.*							
Belgium	187	265	391	544	89	64	215
Channel Islands	2	2	2	2	2	1	1
England & Wales	612	786	1,067	831	646	921	1,174
France	3,785	5,223	6,430	4,540	3,888	4,819	5,923
Ireland	167	198	431	183	149	260	364
Isle of Man	1	6	21	12	7	15	15
Northern Ireland	22	82	107	73	36	88	69
Portugal	1,604	1,087	1,634	1,675	1,870	1,646	573
Scotland	660	834	1,830	1,406	890	1,042	477
Spain	930	974	974	1,096	1,009	1,066	1,050
Sweden	0	0	0	1	1	3	4
Total	7,970	9,457	12,887	10,363	8,587	10,166	9,865
(c) Shortfin Squid: *Illex coindetii, Todaropsis eblanae, Todarodes sagittatus* (Norway only)							
England & Wales	1	17	6	7	0	0	0
France	291	376	2,307	2,276	2,435	5,042	4,221
Norway	3,936	1,183	5	0	0	0	0
Portugal	926	420	353	322	512	777	208
Spain	5,237	2,621	2,621	2,949	2,714	2,867	2,800
Total	10,391	4,618	5,212	5,554	5,661	8,686	7,229

...continued

Table 5. continued.

Country	1987	1988	1989	1990	1991	1992	1993
(d) Octopuses: *Eledone cirrhosa, Octopus vulgaris.*							
Belgium	0	0	0	0	46	44	37
England & Wales	110	122	86	16	48	48	?
France	101	119	103	54	38	121	128
Ireland	0	0	1	1	0	1	4
Portugal	9,075	8,261	10,395	7,028	7,522	9,631	5,318
Scotland	0	0	67	121	104	36	12
Spain	8,524	6,547	6,547	7,367	6,781	7,160	7,000
Total	17,810	15,049	17,199	14,587	14,539	17,041	12,489