

REPORT OF THE
WORKING GROUP ON BIOLOGY AND ASSESSMENT
OF DEEP-SEA FISHERIES RESOURCES

By Correspondence

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Appendices 1-11: Updated species-specific landings tables..... See separate Excel files

1 INTRODUCTION

1.1 Participants

The following WGDEEP members contributed to the report:

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H. Dobby	United Kingdom (Scotland)
M. Clarke	Ireland
J. Gil	Spain
P. Lucio	Spain
P D. Muñoz	Spain
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P. Lorance	France
P. Marchal	France
S. Munch-Petersen	Denmark
T. Sigurdsson	Iceland
M. Pinho	Portugal
V. Vinnichenko	Russian Federation
U. Piatkowski	Germany
J. Burnett	USA
R. Bowering	Canada

1.2 Terms of reference

The terms of reference of the Working Group adopted at the 2002 Annual Science Conference (90th Statutory Meeting) were as follows (C. Res. 2002/ACFM:28):

The Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources [WGDEEP] (Chair: O.A. Bergstad, Norway) and will work by correspondence in 2003 to:

- a) compile the available data on landings of deep-water species, including blue ling, ling, and tusk, by ICES Sub-area or Division;
- b) update descriptions of deep water fisheries in waters inside and beyond coastal state jurisdiction, for species such as grenadiers, scabbard fishes, orange roughy, forkbeards, sharks, ling, blue ling, and tusk, especially catch statistics by species, fleets and gear – and if possible the biological status of these stocks;
- c) update the data on length/age at maturity, growth and fecundity and document other relevant biological information on deep-water species;
- d) update information on quantities of discards by gear type for the stocks and fisheries considered by this group and make an inventory of deep-water fish community data;

WGDEEP will report by 1May 2003 for the attention of ACFM and of the Living Resources Committee.

The request for information from working group members produced a wide range of material, including several Working Documents (WD) listed in Section 7.

ICES also received special requests from NEAFC that the Working Group has dealt with in separate chapters towards the end of the report.

2 AVAILABLE DATA ON LANDINGS OF DEEP-WATER SPECIES, INCLUDING BLUE LING, LING, AND TUSK, BY ICES SUB-AREA OR DIVISION

The estimated landings for the deep-water species by ICES Sub-area and Division for the period 1988-2000 are given in Table 2.1, and species-specific landings are provided as Appendix Table 1-11. Data for both 2001 and 2002 are provisional and partly based on figures officially submitted to ICES, partly on numbers provided by working group members.

WGDEEP revised the entire data series (Table 2.1) during its meeting in 2002. However, it should be noted that some of the series remain incomplete, and for this reason some of the apparent fluctuations and trends should be interpreted with caution.

3 DESCRIPTIONS OF DEEP WATER FISHERIES IN WATERS INSIDE AND BEYOND COASTAL STATE JURISDICTION, FOR SPECIES SUCH AS GRENADIERS, SCABBARD FISHES, ORANGE ROUGHY, FORKBEARDS, SHARKS, LING, BLUE LING, AND TUSK, AND THE BIOLOGICAL STATUS OF THESE STOCKS

3.1 Catches by fleet and gear

No major changes in the deep-sea fisheries were reported for 2002, and the descriptions of national fisheries have apparently continued as described in previous WGDEEP reports, notably the one from 2002 (ICES CM 2002/ACFM:16). Some national descriptions and gear-specific data series were updated:

Denmark

Denmark reported catches from the industrial trawler fleet operating in the Skagerrak and the North Sea

Table 3.1 Landings and estimated catch of deep-water species by Danish industrial trawlers in Division IIIa and Sub-area IV in 2002.

2002	Human Consumption landings (t) (sales slip records)				Total
species	IIIa	IVa	IVb	IVc	
Greater Silver smelt	614.2	0.0	0.0	0.0	614.2
Lesser Silversmelt	0.0	0.0	0.0	0.0	0.0
Blue Ling	7.6	5.7	0.1	0.0	13.4
Ling	156.8	577.8	90.5	0.2	825.3
Roundnose Grenadier	0.0	0.0	0.2	0.0	0.2
Tusk	17.1	197.4	5.8	0.0	220.4
Witch Flounder	1366.0	363.1	178.6	0.0	1907.7
Lantern sharks	0.0	0.0	0.0	0.0	0.0
Rabbitfish (Chimaerids)	0.0	0.1	0.0	0.0	0.1
2002	Estimated catches for reduction (t)				Total
species	IIIa	IVa	IVb	IVc	
Greater Silver smelt	112.8	434.4	0.0	0.0	547.2
Lesser Silversmelt	0.2	489.6	0.8	0.7	491.2
Blue Ling	0.0	0.0	0.0	0.0	0.0
Ling	0.0	0.0	0.2	0.0	0.2
Roundnose Grenadier	4195.7	0.0	0.0	0.0	4195.7
Tusk	0.0	1.4	0.0	0.0	1.5
Witch Flounder	0.0	0.0	0.0	0.0	0.0
Lantern sharks	0.0	21.4	0.0	0.0	21.4
Rabbitfish (Chimaerids)	0.0	21.1	0.0	0.0	21.1

Table 2.1 Estimated landings (tonnes) of deep-water species by ICES Sub-areas and Divisions, 1988-2002. Data for 2001 and 2002 are preliminary.

I+II	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)															
	ARGENTINES (<i>Argentina silus</i>)	11351	8390	9120	7741	8234	7913	6807	6775	6604	4463	8261	7163	6293	14363	7474
	BLUE LING (<i>Molva dypterygia</i>)	3537	2058	1412	1479	1039	1020	422	364	267	292	279	292	252	200	148
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)															
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)															
	GREATER FORKBEARD (<i>Phycis blennoides</i>)			23	39	33	1								8	341
	LING (<i>Molva molva</i>)	6126	7368	7628	7793	6521	7093	6322	5954	6346	5409	9200	7651	5964	4950	7108
	MORIDAE															
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)															
	RABBITFISHES (Chimaerids)												1	6	5	2
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)			589	829	424	136				17	55		48	94	1
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)		22	49	72	52	15	15	7	2	106	100	46		2	12
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)															
	SHARKS, VARIOUS	37	15											1		
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)															
	SMOOTHHEADS (Alepocephalidae)															
	TUSK (<i>Brosme brosme</i>)	14403	19350	18628	18306	15974	17585	12566	11617	12795	9426	15353	17183	14008	12050	12182
	WRECKFISH (<i>Polyprion americanus</i>)															
III+IV	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)			1		2										
	ARGENTINES (<i>Argentina silus</i>)	2718	3786	2321	2554	5319	3269	1508	1082	3300	2598	3982	4319	2471	1914	1328
	BLUE LING (<i>Molva dypterygia</i>)	385	482	522	648	592	438	442	503	202	291	292	271	144	276	378
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)	2		57				16	2	4	2	9	6	5	12	18
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)												5			
	GREATER FORKBEARD (<i>Phycis blennoides</i>)	15	12	115	181	145	34	12	3	18	7	12	31	11	26	561
	LING (<i>Molva molva</i>)	11933	12486	11025	10943	12154	14249	12288	14112	14531	12325	14472	10472	9858	8375	9096
	MORIDAE															
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)															
	RABBITFISHES (Chimaerids)													15	10	24
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)					7					36			4	11	
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)	618	1055	1439	2053	2754	1441	771	85	2284	177	1854	3187	2406	3121	4250
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)															
	SHARKS, VARIOUS				3	133	78	86	20	14	32	359	201	36	62	
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)					27										
	SMOOTHHEADS (Alepocephalidae)															
	TUSK (<i>Brosme brosme</i>)	4490	6515	4319	4623	5029	5234	3433	3405	3576	2341	3474	2498	3411	3196	2990
	WRECKFISH (<i>Polyprion americanus</i>)															

Va	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)															
	ARGENTINES (<i>Argentina silus</i>)	206	8	112	247	657	1255	613	492	808	3367	13387	5518	4593	3046	4960
	BLUE LING (<i>Molva dypterygia</i>)	2171	2533	3021	1824	2906	2233	1632	1635	1323	1344	1154	1583	1680	906	1324
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)							1			1		9	18	8	13
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)															
	GREATER FORKBEARD (<i>Phycis blennoides</i>)															
	LING (<i>Molva molva</i>)	5861	5612	5598	5805	5116	4854	4604	4192	4060	3933	4302	4647	3743	3317	2887
	MORIDAE															
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)				65	382	717	158	64	40	79	28	14	68	19	10
	RABBITFISHES (<i>Chimaerids</i>)				499	106	3	60	106	21	15		2	4		
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)									15	4			4		5
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)	2	4	7	48	210	276	210	398	140	198	120	129	67	57	60
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)															
	SHARKS, VARIOUS		31	54	58	70	39	42	45	65	70	87	45	45	57	
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)															
	SMOOTHHEADS (<i>Alepocephalidae</i>)					10	3	1	1							
	TUSK (<i>Brosme brosme</i>)	6855	7061	7291	8732	8009	6075	5824	6225	6102	5394	5171	7264	6391	4747	3409
	WRECKFISH (<i>Polyprion americanus</i>)															

Vb	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)			5		4			1							
	ARGENTINES (<i>Argentina silus</i>)	287	227	2888	60	1443	1063	960	12286	9498	8433	17570	8214	8343	10460	406
	BLUE LING (<i>Molva dypterygia</i>)	9526	5264	4799	2962	4702	2836	1644	2440	1602	2798	2584	2932	2514	2318	1086
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)		166	419	152	33	287	160	424	186	68	180	172	313	581	358
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)												58	16		
	DEEP WATER CARDINAL FISH (<i>Epigonus telescopus</i>)												8	2	6	
	GREATER FORKBEARD (<i>Phycis blennoides</i>)	2	1	38	53	49	27	4	9	7	7	8	34	32	98	148
	LING (<i>Molva molva</i>)	4488	4652	3857	4512	3614	2856	3622	4070	4896	5657	5359	5238	3719	4505	2249
	MORIDAE				5								1			
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)			22	48	13	37	170	420	79	18	3	5	155	5	
	RABBITFISHES (<i>Chimaerids</i>)								1				3	54	82	47
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)											9	58	1	4	
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)	1	258	1549	2311	3817	1681	668	1223	1078	1112	1667	1996	1787	1719	814
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)															
	SHARKS, VARIOUS			140	78	164	478	192	262	380	308	433	470	409	543	
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)															
	SMOOTHHEADS (<i>Alepocephalidae</i>)															
	TUSK (<i>Brosme brosme</i>)	5665	5122	6181	6266	5391	3439	4316	3978	3310	3319	2710	3964	2974	4005	1957
	WRECKFISH (<i>Polyprion americanus</i>)															

VI+VII	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)		12	8		3	1	5	3	178	25	81	87	102	128	115
	ARGENTINES (<i>Argentina silus</i>)	10438	25559	7294	5197	5906	1577	5707	7546	5863	7301	5555	8856	13863	22273	15926
	BLUE LING (<i>Molva dypterygia</i>)	9285	9434	6396	7319	6697	5471	4309	4892	6928	7361	8004	9471	8522	11070	6096
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)		154	1060	2759	3436	3529	3101	3278	3689	2995	1967	2166	3712	4620	5947
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)												403	342	137	36
	DEEP WATER CARDINAL FISH (<i>Epigonus telescopus</i>)												279	241	349	3
	GREATER FORKBEARD (<i>Phycis blennoides</i>)	1898	1815	1921	1574	1640	1462	1571	2138	3590	2335	3040	3430	4919	4339	3170
	LING (<i>Molva molva</i>)	28092	20545	15766	14684	12671	13763	17439	20856	20838	16668	19863	15087	14593	11319	10250
	MORIDAE				1	25							20	104	95	49
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)		8	17	4908	4523	2097	1901	947	995	1039	1071	1337	1887	3692	5765
	RABBITFISHES (<i>Chimaerids</i>)							2					236	355	641	550
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)						18	5	2				34	9	28	6
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)	32	2440	5730	7793	8338	10121	7860	7767	7095	7070	6364	6538	9790	14907	8950
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)	252	189	134	123	40	22	10	11	29	56	17	25	20	50	24
	SHARKS, VARIOUS	85	40	43	254	639	1392	1864	2099	2176	3240	3023	1791	8		
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)						2						18	15		
	SMOOTHHEADS (<i>Alepocephalidae</i>)										7			978	4689	1
	TUSK (<i>Brosme brosme</i>)	3002	4086	3216	2719	2817	2378	3233	3085	2417	1832	2240	1654	4498	2673	1771
	WRECKFISH (<i>Polyprion americanus</i>)	7		2	10	15				83		12	14	14	17	
VIII+IX	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)			1		1		2	82	88	135	269	198	161	222	123
	ARGENTINES (<i>Argentina silus</i>)															191
	BLUE LING (<i>Molva dypterygia</i>)										14	33	3	2	4	37
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)	2602	3473	3274	3979	4389	4513	3429	4272	3815	3556	3152	2752	2403	2766	2724
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)												31	36	34	16
	DEEP WATER CARDINAL FISH (<i>Epigonus telescopus</i>)												3	5	3	3
	GREATER FORKBEARD (<i>Phycis blennoides</i>)	81	145	234	130	179	395	320	384	456	361	665	377	383	451	328
	LING (<i>Molva molva</i>)	1028	1221	1372	1139	802	510	85	845	1041	1034	1799	451	331	516	309
	MORIDAE								83	52	88			20	18	8
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)					83	68	31	7	22	23	14	39	52	20	21
	RABBITFISHES (<i>Chimaerids</i>)												2	2	7	6
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)															
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)			5	1	12	18	5		1		20	16	4	7	3
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)	826	948	906	666	921	1175	1135	939	1001	1036	981	647	691	453	458
	SHARKS, VARIOUS	3545	1789	1789	2850	6590	3740	4	43	64	1104	2890	2287	704	549	
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)	2666	1385	584	808	1374	2397	1054	5672	1237	1725	966	4653	57	413	16
	SMOOTHHEADS (<i>Alepocephalidae</i>)										7					
	TUSK (<i>Brosme brosme</i>)	1										1				
	WRECKFISH (<i>Polyprion americanus</i>)	198	284	163	194	269	338	409	393	294	214	227	151	121	165	124

X	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)	225	260	338	371	450	728	1500	623	536	983	228	175	124	199	
	ARGENTINES (<i>Argentina silus</i>)															
	BLUE LING (<i>Molva dypterygia</i>)	18	17	23	69	31	33	42	29	26	21	13	10	13		
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)				166	370	2		3	11	3	99	112	113		
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)												320	452	301	
	DEEP WATER CARDINAL FISH (<i>Epigonus telescopus</i>)													3		
	GREATER FORKBEARD (<i>Phycis blennoides</i>)	29	42	50	68	81	115	135	71	45	30	38	41	94	83	
	LING (<i>Molva molva</i>)															
	MORIDAE	18	17	23	36	31	33	42								
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)						1			471	6	177	10	188	28	
	RABBITFISHES (<i>Chimaerids</i>)															
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)												3			
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)									3	1	1	6	74		
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)	637	924	889	874	1110	829	983	1096	1036	1012	1114	1222	947	1034	
	SHARKS, VARIOUS	1098	2703	1204	3864	4241	1183	309	1246	1117	859	995				
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)	70	91	120	166	2160	1722	373	789	815	1115	1186	86	28	14	
	SMOOTHHEADS (<i>Alepocephalidae</i>)															
	TUSK (<i>Brosme brosme</i>)															
	WRECKFISH (<i>Polyprion americanus</i>)	191	235	224	170	237	311	428	240	240	177	139	133	268	232	
XII	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)								2							
	ARGENTINES (<i>Argentina silus</i>)						6			1			2			
	BLUE LING (<i>Molva dypterygia</i>)	263	70	5	1147	971	3335	752	573	788	417	438	1353	505	839	66
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)					512	1144	824	301	444	200	154	112	244	118	1
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)															
	GREATER FORKBEARD (<i>Phycis blennoides</i>)					1	1	3	4	2	2	1		6	8	6
	LING (<i>Molva molva</i>)			3	10			5	50	2	9	2	2	7	59	32
	MORIDAE													1		
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)					8	32	93	676	818	808	629	431	92	16	6
	RABBITFISHES (<i>Chimaerids</i>)										32	42	115	48	63	
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)												39	5	7	9
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)	10600	9500	2800	7510	1997	2741	1161	644	1728	8676	11978	9660	8522	7803	752
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)							75								
	SHARKS, VARIOUS				1	2	6	8	139	147	32	56	50	1069	1208	
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)		102	20			19									
	SMOOTHHEADS (<i>Alepocephalidae</i>)									230	3692	4643	6549	4146	3132	
	TUSK (<i>Brosme brosme</i>)	1	1		1	1	12	1	18	158	30	1	1	5	51	27
	WRECKFISH (<i>Polyprion americanus</i>)															

XIV	Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
	ALFONSINOS (<i>Beryx</i> spp.)			6										217	66	
	ARGENTINES (<i>Argentina silus</i>)															
	BLUE LING (<i>Molva dypterygia</i>)	242	71	79	155	110	3725	384	141	14	4	55	8	532	97	1
	BLACK SCABBARDFISH (<i>Aphanopus carbo</i>)											2		90		
	BLUEMOUTH (<i>Helicolenus dactylopterus</i>)															
	GREATER FORKBEARD (<i>Phycis blennoides</i>)															23
	LING (<i>Molva molva</i>)	3	1	9	1	17	9	6	17	0	61	6	1	26	35	20
	MORIDAE															
	ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>)															
	RABBITFISHES (<i>Chimaerids</i>)															
	ROUGHHEAD GRENADIER (<i>Macrourus berglax</i>)						52	5	2			6	14		26	4
	ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>)	52	45	47	29	31	26	15	27	25	59	126	124	46	92	41
	RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>)															
	SQUALID SHARKS	2253	2151	3871	5610	7836	7985	7474	6801	7065	6158	6318	5636	7150	9175	
	SHARKS, VARIOUS including some squalids	3630	1860	2026	4453	10429	9044	5757	5383	5974	7579	9602	7655	6764	7874	
	SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>)															
	SMOOTHHEADS (<i>Alepocephalidae</i>)													4158	4121	
	TUSK (<i>Brosme brosme</i>)	2	23	32	135	202	80	25	87	281	118	15	9	11	69	58
	WRECKFISH (<i>Polyprion americanus</i>)															

Portugal (Mainland)

Table 3.2 presents Portuguese deep-water species landings by fleet in 2002, in Division IXa.

Table 3.2. Portuguese Deep-water species landings by fleet category, 2002. Landings in tonnes.

SPECIES	TRAWL	PUR.-SEINE	FISH. IN SPAIN	ARTISANAL	TOTAL
<i>Aphanopus carbo</i>				2691.6	2691.6
<i>Argentina spp.</i>	0.1				0.1
<i>Aristeopsis edwardsiana</i>	18.4				18.4
<i>Aristeus antennatus</i>	75.5				75.5
<i>Beryx splendens</i>				27.8	27.8
<i>Beryx spp.</i>	0.1		0.2	31.2	31.5
<i>Brosme brosme</i>	0.1			0.1	0.1
<i>Centrophorus granulosus</i>	0.4		6.7	141.2	148.3
<i>Centrophorus squamosus</i>	0.1		36.6	575.0	611.7
<i>Centroscymnus coelolepis</i>	0.1		14.0	571.6	585.7
<i>Conger conger</i>	31.8	1.2	28.7	989.1	1050.9
<i>Dalatias licha</i>	0.1		0.1	4.7	4.9
<i>Deania calcea</i>				90.1	90.1
<i>Epigonus telescopus</i>			0.6	2.6	3.2
<i>Galeus melastomus</i>	5.4		1.5	42.9	49.8
<i>Helicolenus dactylopterus</i>	0.5			15.1	15.6
<i>Hexanchus griseus</i>	0.5		0.2	0.1	0.8
<i>Lepidopus caudatus</i>	1.2		0.3	64.4	65.9
<i>Nephrops norvegicus</i>	346.5		0.5	5.2	352.2
<i>Oxynotus centrina</i>	5.3	55.3**	0.1	25.2	30.6
<i>Pagellus acarne</i>	416.3	256.8	8.5	416.9	1098.5
<i>Pagellus bogaraveo</i>	17.9	1.1	5.2	87.1	111.3
<i>Phycis blennoides</i>	0.4			7.4	7.8
<i>Phycis spp.</i>	7.2	0.1	1.8	270.5	279.5
<i>Pleurotremata</i>	0.6	0.2		26.8	27.6
<i>Polyprion americanus</i>	0.4		1.7	86.0	88.1
<i>Pontinus kuhlii</i>	0.2				0.2
<i>Scorpaenidae</i>	32.3	0.1	14.3	102.9	149.6
<i>Scyliorhinus spp.</i>	398.4	0.2	4.7	270.0	673.3
<i>Sebastes marinus</i>			0.9	3.8	4.7
<i>Sebastes spp.</i>	8.8		0.1		8.9
<i>Squalus acanthias</i>	0.3		0.6	3.2	4.1
<i>Trichiurus lepturus</i>	0.4			0.2	0.6
TOTAL	1369.0	259.7	127.4	6552.9	

** It seems that some landings records on this species category have been incorrectly assigned to *Balistes carolinenses*, which has an identical Portuguese common name- 'Peixe-porco'. IPIMAR intends to investigate this situation in more detail during 2003.

The artisanal segment of the commercial fishing fleet of mainland Portugal is responsible for the largest landings of deep-water species. The majority of these landings come from longline fisheries operating on the Portuguese continental slope out of ports along the west coast of mainland Portugal, namely Viana do Castelo, Peniche, Sesimbra and Sagres (Figure 3.1).

The principal species in the deep-water landings from mainland Portugal are black scabbardfish (*Aphanopus carbo*), leaf-scale gulper shark (*Centrophorus squamosus*) and Portuguese dogfish (*Centroscymnus coelolepis*). However, other species with important commercial value are also landed (Table 3.3).

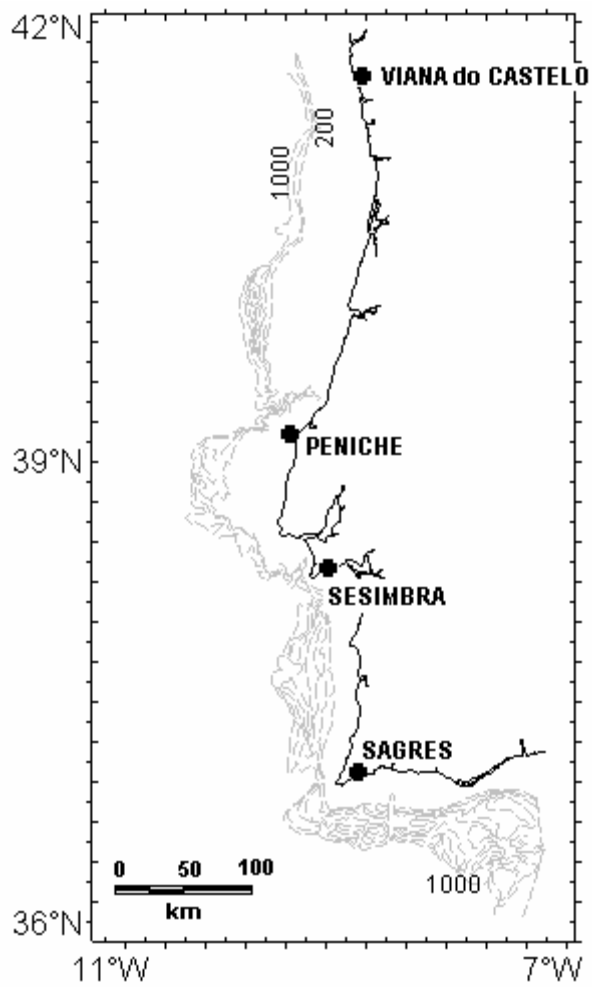


Figure 3.1 – Mainland Portugal major ports with deep-water species landings from longline fisheries.

Table 3.3 – Landings (Tonnes) of the most important deep-water species in the ports of Viana do Castelo, Peniche, Sesimbra and Sagres for the period between 1998 and 2002. Values of 2002 are still provisional.

Viana do Castelo					
	1998	1999	2000	2001	2002
<i>Centrophorus granulosus</i>	20	142	---	---	---
<i>Centrophorus squamosus</i>	11	39	40	39	47
<i>Centroscymnus coelolepis</i>	21	36	21	20	14
<i>Conger conger</i>	77	73	49	67	42
<i>Pagellus acarne</i>	5	6	4	4	3
<i>Pagellus bogaraveo</i>	6	5	3	1	< 1
Peniche					
	1998	1999	2000	2001	2002
<i>Centrophorus granulosus</i>	62	11	16	51	70
<i>Conger conger</i>	898	1025	296	287	217
<i>Pagellus acarne</i>	63	10	70	76	71
<i>Phycis sp.</i>	107	135	77	88	71
<i>Polyprion americanus</i>	118	122	38	44	50
Scorpaenidae	164	183	37	46	30
Sesimbra					
	1998	1999	2000	2001	2002
<i>Aphanopus carbo</i>	2512	3646	2232	2178	2141
<i>Centrophorus squamosus</i>	239	417	317	349	405
<i>Centroscymnus coelolepis</i>	602	705	465	487	465
<i>Conger conger</i>	92	81	33	36	39
<i>Lepidopus caudatus</i>	4021	5361	---	---	---
<i>Pagellus bogaraveo</i>	154	150	2	3	3
Sagres					
	1998	1999	2000	2001	2002
<i>Conger conger</i>	66	100	39	73	75
<i>Pagellus acarne</i>	28	28	17	24	35
<i>Phycis sp.</i>	30	45	22	31	29
<i>Polyprion americanus</i>	18	32	32	5	12
<i>Scyliorhinus sp.</i>	33	47	34	28	26

Ireland

Irish deepwater fisheries continue to be active in several areas. The largest fishery is the directed orange roughy trawl fishery, mainly based on the continental slopes of the Porcupine Bank in Divisions VIIc and VIIIk. Preliminary Irish landings in these areas of orange roughy in 2002 were 5,000 t. There was some catches of orange roughy in the Rockall Trough slopes, both continental and on the Rockall Plateau. Roundnose grenadier, black scabbardfish, blue ling and deepwater siki sharks were a small bycatch in orange roughy fisheries, but also taken in the mixed species slope fisheries in these areas. Irish pelagic RSW vessels reported landings of argentines again in 2002, with preliminary landings of 7,500 t, mainly from Sub-area VIa and Division VIIc. Cardinal fish are discarded in large numbers in the orange roughy fishery, but some quantities (55 t) were landed too. As in previous years ling and forkbeard were landed in sizeable quantities, from both deepwater and shelf-based fisheries.

France

During 2002, the French high sea trawlers fleet operating on the deep-water fishery has been reduced. Five trawlers of 54 metres and 8 trawlers of 35 meters left this fishery. A new twin trawler of 44 meters integrated the deep-water fishery in the end of 2002.

During period 1996-2001, only one French vessel targeted orange roughy, in Sub-area VII. In 2002, this vessel reallocated its effort towards other deep-water species including grenadier. In 2002, there were no French vessels targeting orange roughy in VI or VII, which explains the drop in landings shown in Figure 3.2.

The proportion of blue ling in the total landings of the French deep-water fleet has decreased over time. In 1999, there were still two vessels targeting blue ling, which represented more than 40% of their landings. In 2002, the proportion of blue ling landings was lower than 20% of total landings, while grenadier has become the main target species. These observations are consistent with the decrease in blue ling landings since 1998 shown in Figure 3.2.

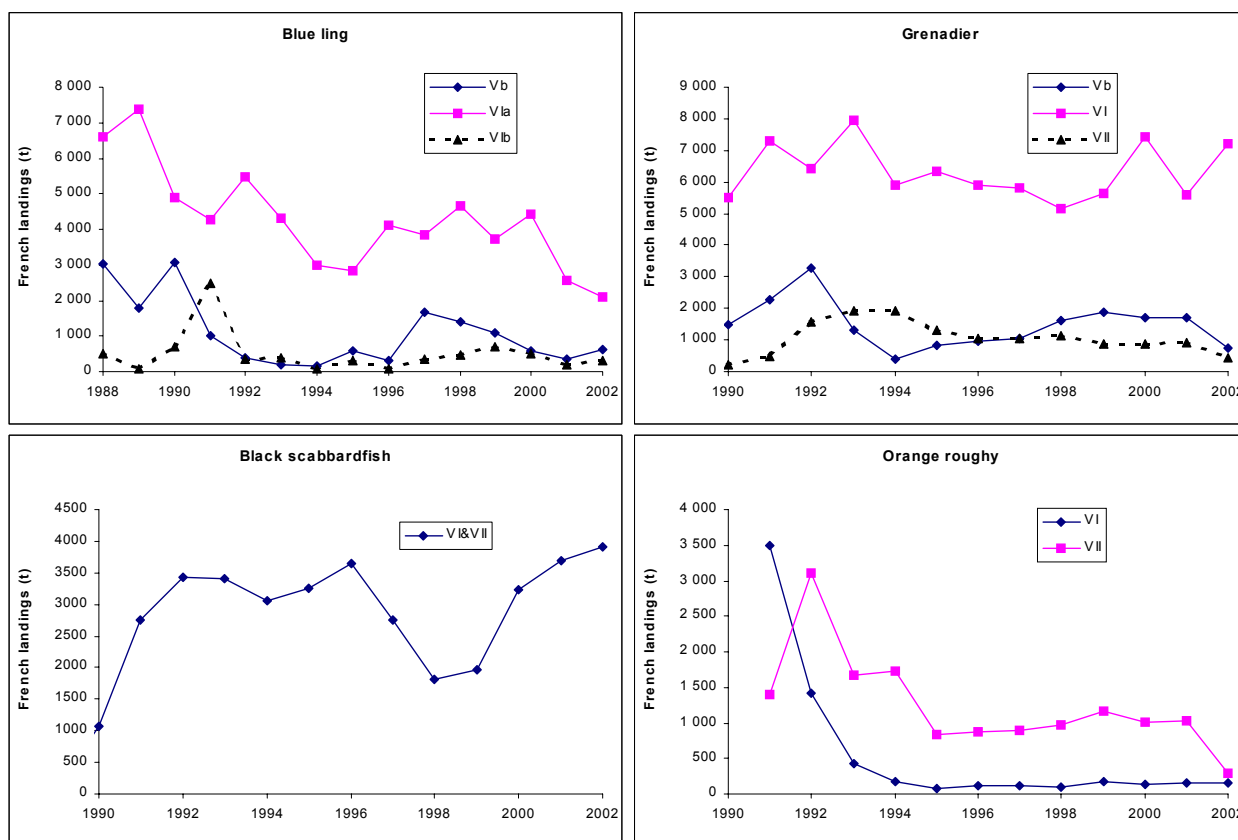


Figure 3.2. Time series of French landings of blue ling, grenadier (*Coryphaenoides ruspestris*), black scabbardfish, and orange roughy.

Spain (Strait of Gibraltar fishery only)

Developments in the Spanish Strait of Gibraltar fishery targeting *Pagellus bogaraveo* was described in a WD by Gil *et al.* 2003. This is an example of a fishery where technical regulations, minimum landing size, and closed seasons have been introduced, and a recovery plan is in force. The trend in the landings seems still to decline, but relatively large fish seem to re-appear. The trend in CPUE is difficult to interpret because it is likely that not all relevant effort is recorded.

Iceland

The following was extracted from a WD by Sigurdsson (2003).

Tusk, ling and blue ling remain the most important “deep-sea species” in Icelandic waters (Table 3.4). In recent years, about 120 vessels were engaged in these fisheries with registered catches from less than 100 kg to nearly 1000 tonnes. In 2002 around 5300 tonnes of deep water species were caught in bottom trawl, whereof 4500 were greater silver smelt. This is similar amount as in 2000, but nearly 1500 tonnes more than in 2001. The reduction in 2001 is mostly due to the decrease in the greater silver smelt fishery, but also due to reduction in the catches of tusk. By longline, nearly 4300 tonnes were caught, mostly tusk, but also blue ling and ling. This is similar as in 2001, but compared with 2000, this is a reduction of about 35%. About 1200 tonnes were fished with other gear types. Table 3.4 gives the overview of the Icelandic catches in 2001 by gear-type and by month. All catches of deep-sea species in 2001 were taken within the Icelandic EEZ.

Discard is prohibited on Icelandic vessels and information on prohibited discards is not available.

Orange roughy. Less than 10 tonnes were caught in 2002. The catches were taken by bottom trawl in the area south of Iceland.

Ling. Total of 2839 tonnes were caught, whereof 1281 tonnes with longline, 648 tonnes with gillnets and 662 tonnes with bottom trawl. This is very similar to the catches in 2001, but a considerable reduction from 2000 except for the trawl fishery. Except for the longline fisheries, catches of ling are a by-catch in the trawl and the gillnet fishery. The fishing grounds as recorded in the logbooks are shown in Figure 1 of the WD by Sigurdsson (2003) for 1998, 2000 and 2002. In addition to above mention catches, there are reported 426 tonnes of ling in Icelandic waters taken by Faroe Island vessels.

Blue Ling. Blue ling is mostly caught as a by-catch in the bottom trawl and longline fishery. The total catch in 2002 was 1261 tonnes whereof 256 and 960 tonnes were taken by longline and bottom trawl, respectively. The fishing grounds as recorded in the logbooks are shown in Figure 3.3 for 1998, 2000 and 2002.

Tusk. In the early 1990s directed effort towards tusk started and the catches increased to 6400 tonnes in 1991 and 1992. Since then, the catches have been between 4100 and 5800 tonnes until 2001. In 2001 the Icelandic catch decreased down to about 3400 t, whereof 3200 tonnes was taken by longlines but in 2002 the catches increased again to almost 4000 t

The fishing grounds as recorded in the logbooks are shown in Figure 3 of the WD by Sigurdsson (2003) for the period 1998, 2000 and 2002.

Greater Silver smelt. Greater silver smelt have been caught in bottom trawl for years, as a by-catch in the redfish fishery. Only small amounts were reported prior to 1996 as most of the fish was discarded. Since 1997, direct fishery for greater silver smelt has been ongoing and the catches increased significantly, from 800 tonnes in 1996 to 13 000 tonnes in 1998. In 1999 and 2000, the catches were close to 6000 tonnes, but decreased to only 3000 tonnes in 2001. The catches in 2002 increased again to almost 5000 tonnes where the dominant gear was bottom trawl. The fishing grounds as recorded in the logbooks are shown in Figure 4 of the WD by Sigurdsson (2003) for 1998, 2000 and 2002.

Fishery of other nations in Icelandic waters in 2002. There are reported catches of 1342 tonnes of tusk taken by vessels from the Faroe Islands in 2001, nearly exclusively with longlines. Faroese vessels also caught 426 tonnes of ling with the same gear.

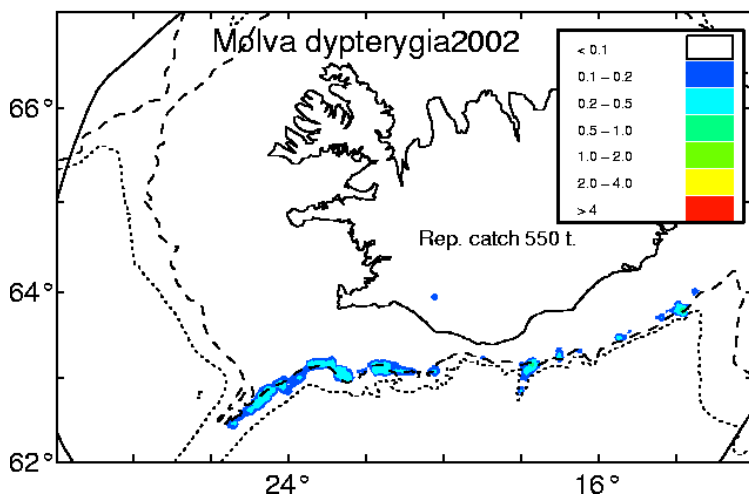
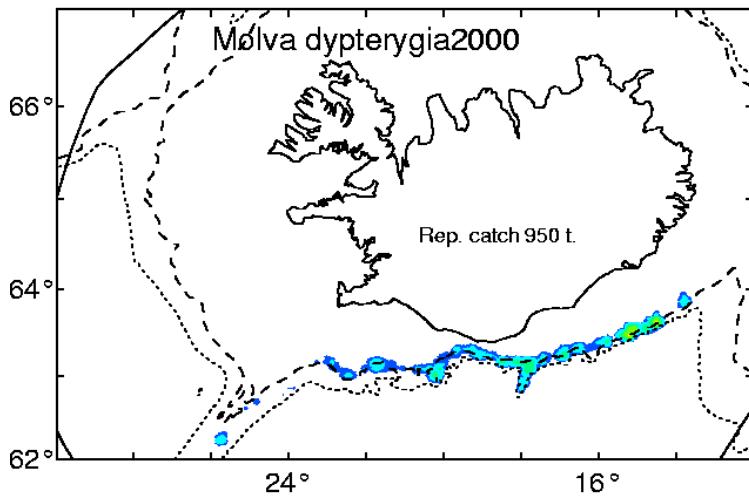
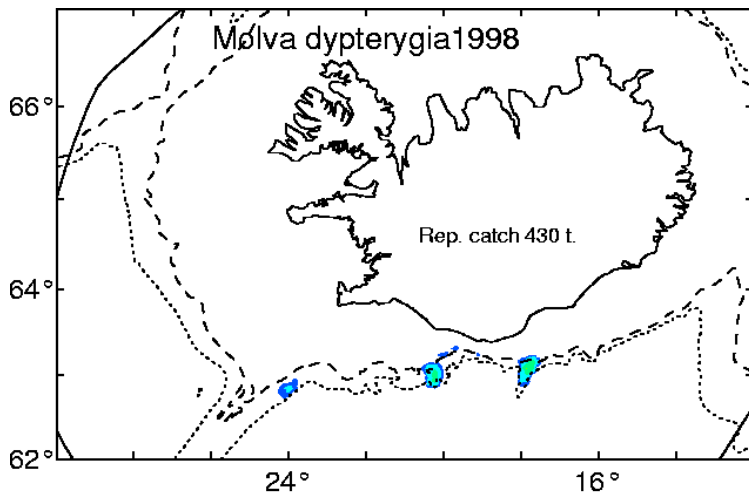


Figure 3.3. Distribution of Icelandic landings of blue ling.

Table3.4. Overview of Icelandic deep-sea fishery in 2001 by month and gear type.

Tonnes		Month												Grand Total
Species	Gear type	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Ling	Longline	65	76	122	81	138	76	73	140	109	118	150	132	1281
	Gillnet	25	49	87	132	256	27	4	5	14	19	19	11	648
	Jiggers	0	0	0	1	1	0	1	1	4	1	0	0	8
	Danish seine	3	3	5	3	7	11	2	1	5	6	2	4	52
	Bottom trawl	21	56	130	147	64	36	51	31	45	41	23	17	662
	Lobster trawl	0	0	0	2	35	58	60	7	11	10	1	1	187
2839														
Blue ling	Longline	1	0	0	0	37	21	101	70	3	3	14	5	256
	Gillnet	0	0	0	0	0		0		1	8	4	0	15
	Danish seine	0	0	0	0			0		2	4	0	0	8
	Bottom trawl	39	43	46	50	70	80	61	103	80	213	102	72	960
	Lobster trawl		0		0	0	1	5	7	8	0	0	0	22
1261														
Tusk	Longline	170	171	255	296	488	317	325	427	306	353	356	249	3715
	Gillnet	4	4	7	53	5	1	1	1	3	3	6	5	93
	Jiggers	0	0	0	2	3	2	1	2	5	1	0	1	16
	Danish seine	0	0	0	0	0		0	0	0	0	1	0	1
	Bottom trawl	5	7	11	6	6	4	4	4	6	10	6	6	75
	Lobster trawl	0	0	0	0	2	5	2	0	1	1	0	1	13
	Pelagic trawl											0		0
3914														
Greater silver smelt	Longline			0					0					0
	Gillnet	0				0								0
	Danish seine									0				0
	Bottom trawl	6	263	863	560	728	607	361	229	16	231	244	438	4544
	Lobster trawl					0								0
	Pelagic trawl					395								395
4940														

Norway

Norwegian fisheries for ling, tusk, greater silver smelt and roundnose grenadier, with minor by-catches of other species, continued almost as in previous years (Table 3.5). The relatively new longline fisheries on the Hatton Bank also continued in 2002, as reported in a WD by Fossen (2003). The following is the summary from a more detailed account given in the WD:

During the 2002 fishing season Norwegian longliners caught and landed approximately 1 500 tonnes, round weight, of demersal fish from international waters within the NEAFC region (Northeast Atlantic). About 60 % was caught in the Hatton Bank area. Some vessels went on whole trips (6 weeks) to Hatton Bank, and others fished for shorter periods. Norwegian longline vessels spent 135 days in the area during 2002, which is approximately 33 % of the effort spent during 2001. As during previous years the catch composition varied markedly between vessels. The proportion of Greenland halibut (*Reinhardtius hippoglossoides*) in the landings was lower in 2002, than 2001. This was a result of an increase in the portion of time being spent targeting blue ling (*Molva dipterygia*), tusk (*Brosme brosme*) and mora (*Mora moro*) in the shallower parts of the bank. Reduced prices especially for Greenland halibut seem to be the main reason for the reduced fishing intensity at Hatton Bank during 2002.

Table 3.5. Norwegian landings of deep-water species in 2002, by ICES Sub-area/Div., and gear. Source: Norwegian Directorate of Fisheries, preliminary data.

ICES Sub-area/Div.	Species	Trawl	Longline	Hook and line	Gillnet	Pots	Purse seine	Danish seine
I	Blue ling	0	0	0	0	0	0	0
	Tusk	1	771	8	10	0	0	0
	Ling	10	172	0	0	0	0	0
All species I		11	943	8	10	0	0	0
Ila	Blue ling	14	28	0	80	0	3	1
	Tusk	59	10016	124	923	103	6	15
	Roughhead grenadier	1	15	0	8	0	0	2
	Ling	308	3703	24	2744	5	33	29
	Roundnose grenadier	0	10	0	0	0	0	0
	Greater silver smelt	7455	0	0	17	0	0	0
All species Ila		7837	13771	148	3771	107	43	47
Ilb	Blue ling	0	0	0	0	0	0	0
	Tusk	1	29	0	0	0	0	0
	Roughhead grenadier	0	3	0	0	0	0	0
	Ling	3	6	0	0	0	0	0
	Roundnose grenadier	0	1	0	0	0	0	0
All species Ilb		4	38	0	0	0	0	0
IIla	Blue ling	0	0	0	0	0	0	0
	Tusk	2	11	0	16	0	0	0
	Ling	33	3	1	31	0	0	0
	Roundnose grenadier	24	0	0	0	0	0	0
	Greater silver smelt	0	0	0	0	0	0	0
All species IIla		60	14	1	48	0	0	0
IVa	Blue ling	14	18	0	25	1	0	0
	Tusk	44	2147	139	91	1	0	1
	Roughhead grenadier	1	2	0	0	0	0	0
	Ling	281	3512	3	688	1	1	5
	Roundnose grenadier	0	1	0	0	0	0	0
	Greater silver smelt	1	0	0	0	0	0	0
All species IVa		340	5679	142	805	3	1	5
IVb	Blue ling	0	1	0	0	0	0	0
	Tusk	0	60	0	0	0	0	0
	Ling	8	45	0	7	0	0	0
All species IVb		8	106	0	7	0	0	0
Va	Blue ling	0	74	0	0	0	0	0
	Tusk	0	372	0	0	0	0	0
	Ling	0	45	0	0	0	0	0
	Atl halibut	0	15	0	0	0	0	0
	Mora	0	18	0	0	0	0	0
All species Va		0	506	0	0	0	0	0
Vb1	Blue ling	0	268	0	6	0	0	0
	Tusk	0	1618	23	0	0	0	0
	Ling	0	1576	64	0	0	0	0
	Atl halibut	0	10	0	0	0	0	0
	Mora	0	18	0	0	0	0	0
	<i>Phycis blennoides</i>	0	83	0	0	0	0	0
	Sharks	0	13	0	0	0	0	0
	All species Vb1		0	3586	87	6	0	0
Vb2	Blue ling	0	21	0	0	0	0	0
	Tusk	0	281	0	0	0	0	0
	Ling	0	471	0	0	0	0	0
	Roundnose grenadier	0	0	0	0	0	0	0
	Atl halibut	0	4	0	0	0	0	0
	Mora	0	10	0	0	0	0	0
	<i>Phycis blennoides</i>	0	50	0	0	0	0	0
	Sharks	3	1	0	0	0	0	0
	All species Vb2		3	839	0	0	0	0
Vla	Blue ling	0	61	0	0	0	0	0
	Tusk	0	636	0	0	0	0	0
	Ling	0	973	0	0	0	0	0
	Atl halibut	0	1	0	0	0	0	0
	Mora	0	10	0	0	0	0	0
	<i>Phycis blennoides</i>	0	27	0	0	0	0	0
	All species Vla		0	1708	0	0	0	0
Vlb	Blue ling	0	273	0	0	0	0	0
	Tusk	0	515	0	0	0	0	0
	Roughhead grenadier	0	2	0	0	0	0	0
	Ling	0	289	0	0	0	0	0
	Atl halibut	0	2	0	0	0	0	0
	Mora	0	54	0	0	0	0	0

	<i>Phycis blennoides</i>	0	25	0	0	0	0	0
	Sharks	0	12	0	0	0	0	0
All species VIb		0	1171	0	0	0	0	0
VIIbc	Blue ling	0	0	0	0	0	0	0
	Tusk	0	30	0	0	0	0	0
	Ling	0	206	0	0	0	0	0
	<i>Phycis blennoides</i>	0	7	0	0	0	0	0
	Sharks	0	1	0	0	0	0	0
All species VIIbc		0	244	0	0	0	0	0
VIIde	Blue ling	0	3	0	0	0	0	0
	Tusk	0	39	0	0	0	0	0
	Ling	0	41	0	0	0	0	0
	Mora	0	0	0	0	0	0	0
	<i>Phycis blennoides</i>	0	15	0	0	0	0	0
All species VIIde		0	98	0	0	0	0	0
XII	Blue ling	0	9	0	0	0	0	0
	Tusk	0	27	0	0	0	0	0
	Roughhead grenadier	0	7	0	0	0	0	0
	Ling	0	4	0	0	0	0	0
	Atl halibut	0	1	0	0	0	0	0
	Mora	0	13	0	0	0	0	0
	<i>Phycis blennoides</i>	0	2	0	0	0	0	0
	Sharks	0	12	0	0	0	0	0
All species XII		0	76	0	0	0	0	0
XIVa	Tusk	0	0	0	0	0	0	0
	Ling	0	0	0	2	0	0	0
All species XIVa		0	0	0	2	0	0	0
XIVb	Blue ling	0	1	0	0	0	0	0
	Tusk	0	30	0	0	0	0	0
	Roughhead grenadier	12	37	0	0	0	0	0
	Ling	0	17	0	1	0	0	0
	Roundnose grenadier	10	5	0	0	0	0	0
	Greater silver smelt	0	0	0	0	0	0	0
	Atl halibut	6	63	0	0	0	0	0
	<i>Phycis blennoides</i>	0	23	0	0	0	0	0
All species XIVb		23	88	0	1	0	0	0

Russian Federation

An account of the Russian fisheries in 2002 was provided in a WD by Vinnichenko and Khlivnoy (2003). An extensive historical overview was provided in a WD by Vinnichenko *et al.* (2003).

In 2002, the Russian fleet proceeded fisheries in the deepwater of the Northeast Atlantic. The largest catch was taken on the Mid-Atlantic Ridge in the fisheries targeting roundnose grenadier (Table 3.6). Elsewhere the deep-sea species were, mainly, fished as by-catch.

Table 3.6. Russian catch (t) of deep-sea species in 2002.

SPECIES	ICES Divisions							Total
	I	IIa	IIb	Vb	VIb	XII	XIV	
Roundnose grenadier	-	-	1	-	-	737	-	738
Roughhead grenadier	1	-	-	-	-	-	4	5
Tusk	7	35	-	-	-	-	-	42
Great silver smelt	-	-	-	264	29	-	-	293
Blue ling	-	-	-	-	3	-	-	3
Total	8	35	1	264	32	737	4	1081

THE MID-ATLANTIC RIDGE (SUB-AREA XII): In March-May, from time to time, one trawler of 10th-tonnage class executed fishing of the roundnose grenadier (*Coryphaenoides rupestris*) on the sea mounts of ridge. The vessel operated in Sub-area XII. The pelagic trawl was used for fishery. The daily catch varied from 5 to 22 t. The total catch of roundnose grenadier amounted to 737 t.

THE EASTERN GREENLAND (SUB-AREA XIV): In July, when long-lining Greenland halibut (*Reinhardtius hippoglossoides*) a minor by-catch of roughhead grenadier (*Macrurus berglax*) was recorded. The total catch of this fish equaled to 4 t.

THE IRMINGER SEA (SUB-AREA XIV): In May-June, while fishing pelagic redfish (*Sebastes mentella*) in Sub-area XIV, in the catches taken near the sea mounts of the Reykjanes Ridge, single individuals of great silver smelt (*Argentina silus*) and black scabbardfish (*Aphanopus carbo*). The length of great silver smelt was estimated at 32-44 cm, of black scabbardfish – at 88-110 cm.

THE FAROE FISHING ZONE (DIV.Vb): In April-May, from 5 to 22 large-tonnage vessels of Russia were fishing with pelagic trawls within the Faroe Fishing Zone. From time to time, in blue whiting catches the by-catch of great

silver smelt (*Argentina* spp.) was recorded. The total catch of great silver smelt was equal to 293 t (Table 3.6). Data on great silver smelt are lack.

THE ROCKALL BANK (DIV. VIb): In March-August, when fishing haddock (*Melanogrammus aeglefinus*) and blue whiting (*Micromesistius poutassou*), ling (*Molva molva*), and greater silver smelt occasionally occurred in the catches by bottom trawls (Table 1). Besides, small amounts of blue ling (*Molva dypterygia*), tusk (*Brosme brosme*) and greater forkbeard (*Phycis blennoides*) were caught. In the early January, on the western slope of the bank, the longliner operated for a short period (during four days). In all, at 250-550 m depths 22.8 thousand of hooks were used. The mean catch rate per one thousand of hooks was 48 kg, the average daily catch – 360 kg. The catches contained tusk, greater forkbeard, haddock and skates. The main target species was tusk, the percentage of which made up more than a half (62.6%) of catches. Greater forkbeard was the second important species (24.5%).

THE NORWEGIAN SEA (DIVS. IIa AND IIb): Deep-water fishes were taken as by-catches when bottom fishing. Roughhead grenadier and tusk were the most plentiful (Table 3.6). At the most of vessels the catches of roughhead grenadier were discarded and, as a rule, not included into vessels daily reports. This species was recorded in catches by long-liners on the continental slope almost everywhere and the greatest amount was registered to the west of the Bear Island Bank.

THE BARENTS SEA (SUBAREA I): In the western part of the area, in longline catches tusk and roughhead grenadier were taken from time to time. Tusk 36-77 cm (mainly, 57-68 cm and 61.1 cm, on the average) in length were caught.

While trawl fishing demersal species, tusk, sharks and great silver smelt were sometimes taken as by-catches. There is no information about specific composition of caught sharks. The tusk from catches by bottom trawls had the length from 25 cm to 72 cm.

3.2 State of the stocks

Assessments of the deep-water stocks require fully updated catch and effort statistics, and many of the assessments also require substantial discussions. It is therefore not straightforward to carry out this task by correspondence. However, the primary reason why updated evaluations of stock status could not be provided in this report, nor in the report from the 2002 meeting, remains that CPUE series for the major fisheries off the European shelf were not updated/provided (Sub-areas VI, VII, XII). The series from the major trawl fisheries in these waters formed the sole basis of previous assessments for e.g. roundnose grenadier, orange roughy and blue ling.

No information provided to the group this year suggests that the status of any of the stocks have changed markedly since last year, but the basis for this conclusion is unsatisfactory. Particularly noteworthy is the continued increase in the catch level of orange roughy in Sub-area VII from target fisheries. This species is recognised as depleted in Sub-area VI, and WGDEEP highlighted the danger of sequential depletion of the aggregations in Sub-area VII. The ACFM advice provided in 2002 was that “the exploitation of orange roughy should be strictly limited and the stocks/populations closely monitored”. Despite this advice the Sub-area VII landings increased from 3,411 tonnes in 2001 to over 5,000 tonnes in 2002.

Ling (*Molva molva*)

No new assessments could be made due to lack of data, but some CPUE series were updated.

Danish CPUE data, trawlers.

A CPUE data series for Danish trawlers, first presented in 2002, were extended (Table 3.7). This series represents essentially by-catches of ling in the northern North Sea and Skagerrak, and it shows no trend.

Table 3.7. Ling. Landings, fishing days and CPUE (kg/fishing day) for Danish trawlers, 1992-2002.

DENMARK: Log-book recorded catch and effort			Species: Ling			ICES area: IIIA							
Mesh size in Trawl:													
Year	>100mm			70 - 100 mm			30 - 45 mm			< 25mm			All trawls
	Kg	days	CPUE	Kg	days	CPUE	Kg	days	CPUE	Kg	days	CPUE	CPUE
1992	4749	90	52.8	15431	363	42.5	2315	84	27.6	3335	51	65.4	43.9
1993	8060	166	48.6	55717	649	85.9	2228	96	23.2	8630	31	278.4	79.2
1994	5703	69	82.7	23369	390	59.9	915	41	22.3	2220	3	740.0	64.0
1995	4694	81	58.0	13406	270	49.7	672	30	22.4	260	5	52.0	49.3
1996	2732	55	49.7	9810	245	40.0	662	19	34.8	235	7	33.6	41.2
1997	1565	34	46.0	4362	157	27.8	350	10	35.0				31.2
1998	1325	19	69.7	3042	87	35.0	470	13	36.2	175	3	58.3	41.1
1999	948	28	33.9	2290	77	29.7	2709	79	34.3				32.3
2000	206	7	29.4	7688	211	36.4	1360	11	123.6				40.4
2001	2300	31	74.2	14886	304	49.0	65	2	32.5	1400	7	200.0	54.2
2002	2005	85	23.6	17198	399	43.1	210	9	23.3				39.4

DENMARK: Log-book recorded catch and effort			Species: Ling			ICES area: IIIA + IV							
Mesh size in Trawl:													
Year	>100mm			70 - 100 mm			30 - 45 mm			< 25mm			All trawls
	Kg	days	CPUE	Kg	days	CPUE	Kg	days	CPUE	Kg	days	CPUE	CPUE
1992	47244	400	118.1	215082	2143	100.4	6374	249	25.6	236253	1593	148.3	115.2
1993	32804	378	86.8	222476	1937	114.9	20473	608	33.7	262401	1830	143.4	113.2
1994	12137	156	77.8	236736	2148	110.2	7822	250	31.3	167136	1075	155.5	116.8
1995	8174	123	66.5	208869	1482	140.9	6867	227	30.3	119825	700	171.2	135.8
1996	4845	95	51.0	325041	2414	134.6	8391	196	42.8	76445	754	101.4	119.9
1997	82595	227	363.9	430248	2340	183.9	4660	130	35.8	47360	459	103.2	179.0
1998	42280	329	128.5	295028	1605	183.8	14949	174	85.9	47588	459	103.7	155.8
1999	80053	437	183.2	373549	2363	158.1	17262	405	42.6	22141	330	67.1	139.5
2000	36006	281	128.1	353925	2861	123.7	8332	235	35.5	32625	375	87.0	114.8
2001	141515	645	219.4	463486	3465	133.8	12750	299	42.6	118585	355	334.0	154.6
2002	465998	3478	134.0	32569	611	53.3	7040	182	38.7	29769	466	63.9	113.0

Iceland (Division Va)

Figures 3.4 shows catch per unit of effort of ling in the Icelandic long-line fishery. The CPUE is calculated using all long-line data where there have been registered catches of the species. Table 2 of the WD by Sigurdsson gives the

detailed information about the effort and number of hooks behind the figures. The CPUE for ling has been rather stable in the period.

The Icelandic Groundfish Survey which has been conducted annually in March since 1985, gives trends on fishable biomass of many exploited stocks on Icelandic fishing grounds. Total of more than 500 stations are taken annually in the survey at depths down to 500 meters. Therefore the survey area does not cover the most important distribution area of ling and blue ling as their distribution area goes to greater depths. Figures 3.5 shows the trend in the fishable biomass of ling. Number of stations with the species differs from year to year.

The survey index for each species is a biomass index of the fishable stock, computed by using a fishable stock ogive. The index (see Pálsson et.al, 1989) is stratified and there are a total of 36 strata where the stratification is based on depth intervals and areas. The index indicates a decrease in the fishable biomass of ling since the survey started in 1985.

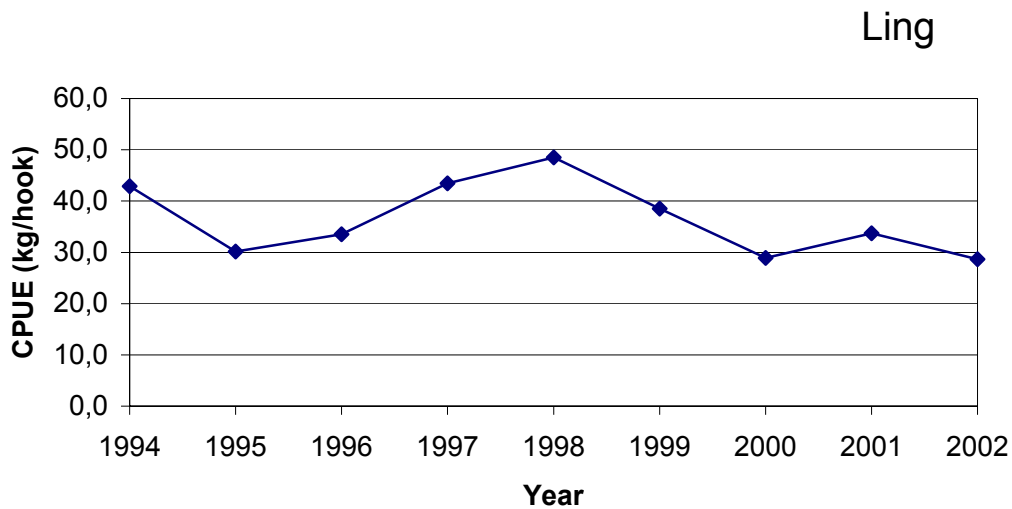


Figure 3.4. Ling in Va. Catch per unit of effort calculated from the Icelandic long-line fishery.

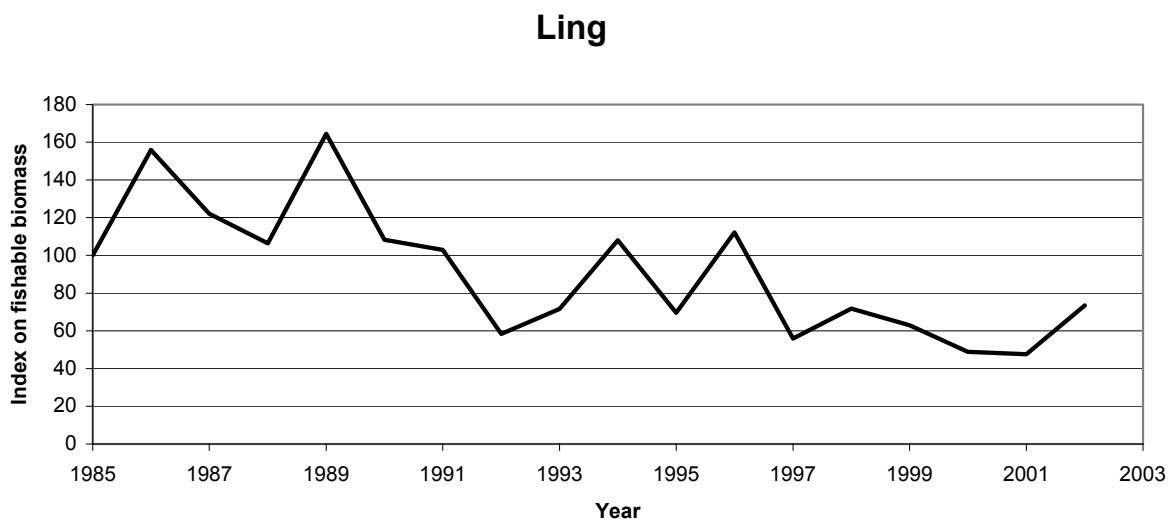


Figure 3.5. Ling. Index on fishable biomass calculated from the Icelandic groundfish survey at the Icelandic shelf (Division Va).

Blue ling (*Molva dypterygia*)

Iceland (Division Va)

The blue ling CPUE for longliners (Figure 3.6) was higher in 1999-2000 than have been observed in the period from 1994, but the values in 2001-2002 are similar to the values prior to 1999.

Figure 3.7 shows the blue ling CPUE from the trawler fleet, based on logbooks, selecting hauls where blue ling is 10% or more of total catches in each haul.

The blue ling groundfish survey index has decreased by 50% since 1986 (Figure 3.8).

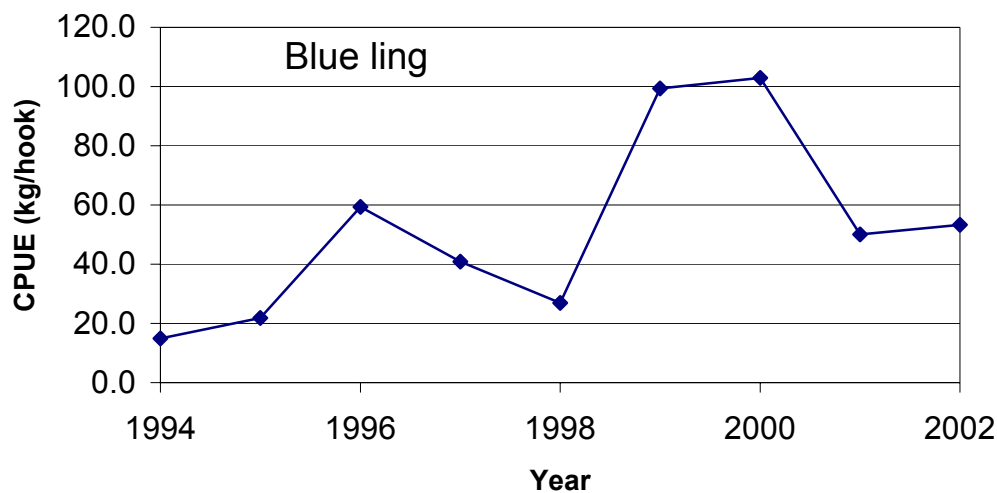


Figure 3.6. Blue ling in Va. Catch per unit of effort calculated from the Icelandic long-line fishery.

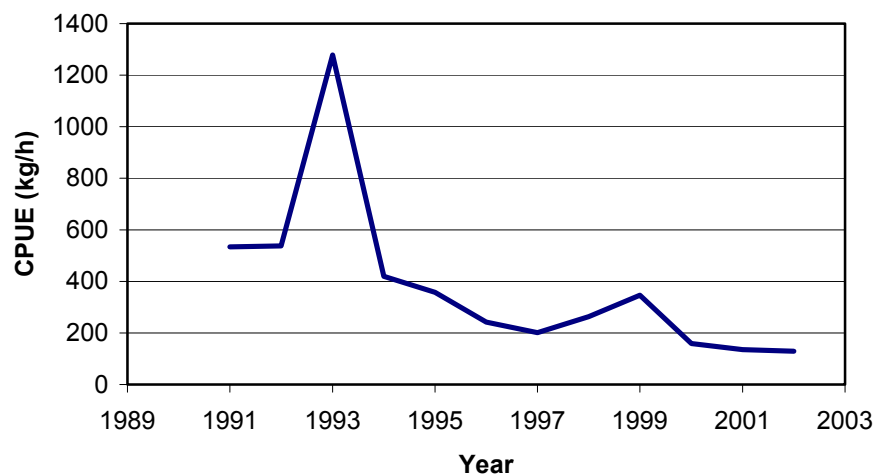


Figure 3.7. Blue ling in Va. Catch per unit off effort calculated from the Icelandic trawl fishery.

Blue ling

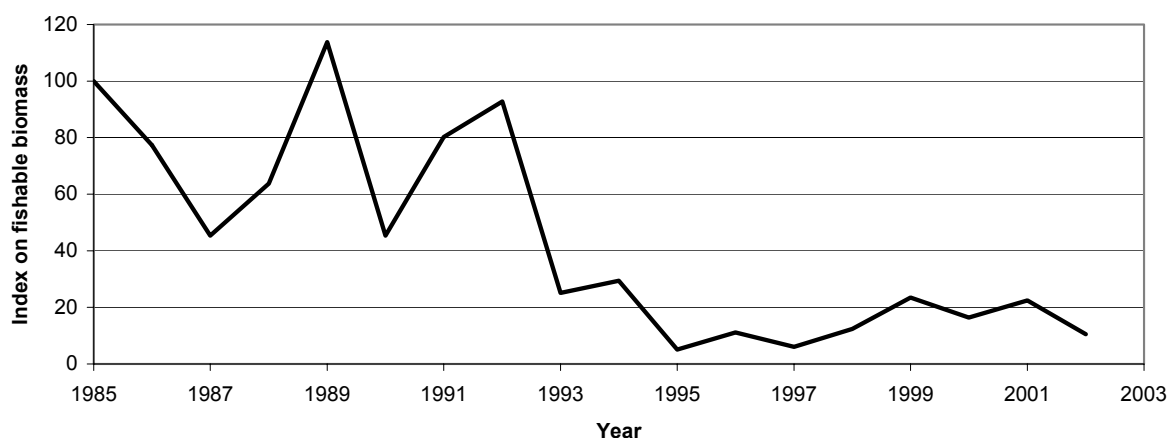


Figure 3.8 Blue ling. Index on fishable biomass calculated from the Icelandic groundfish survey at the Icelandic shelf. (Division Va).

Tusk (*Brosme brosme*)

Danish CPUE data, trawlers.

CPUE data for Danish trawlers, first presented in 2002, were extended (Figure 3.9). There appears to be a declining trend in CPUE since the early 1990s. This series represents essentially by-catches of tusk in the northern North Sea.

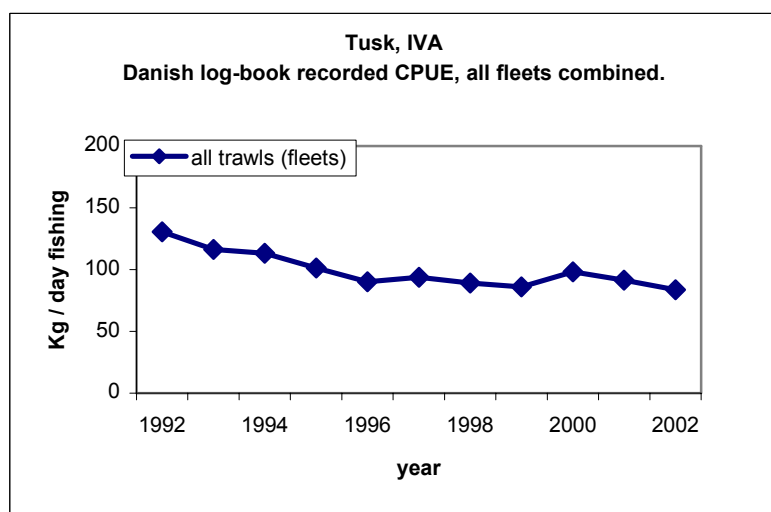


Figure 3.9 Tusk in IVa. CPUE of Danish trawlers.

Iceland (Division Va).

The tusk CPUE for longliners has decreased continuously since 1997 (Figure 3.10). The CPUE in 2001 was lower than has been observed in the whole period since 1994, but in 2002, there seems to be signs of recovery to the fishable stock, although the index is still low, compared with the peak in 1997. As seen in Figure 3.12, more than every second fish is below 55 cm, that is immature fish.

The survey index of tusk has also decreased in the period 1986-present (Figure 3.11), but as seen in the length distribution in the survey (Figure 3.13), there seems to be some sign of recruitment into the fishable stock in the nearest future.

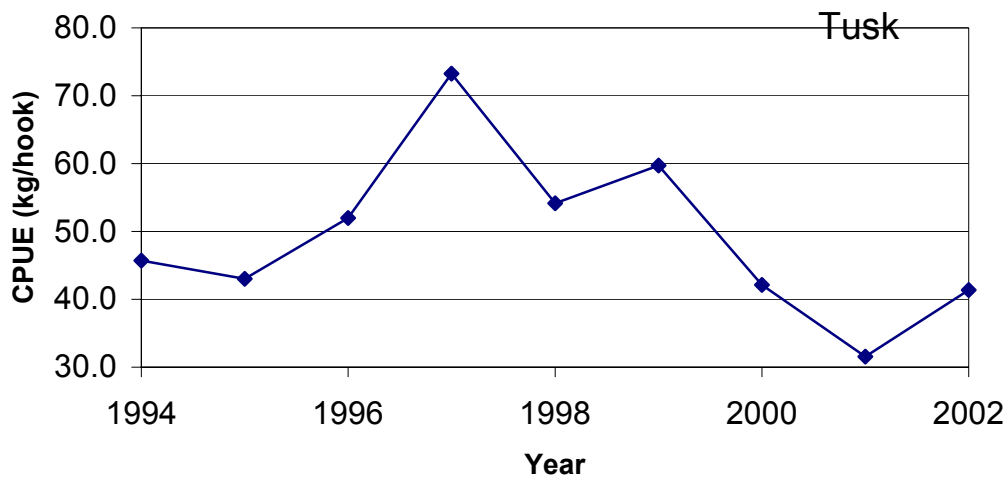


Figure 3.10 Tusk in Va. Catch per unit of effort calculated from the Icelandic long-line fishery.

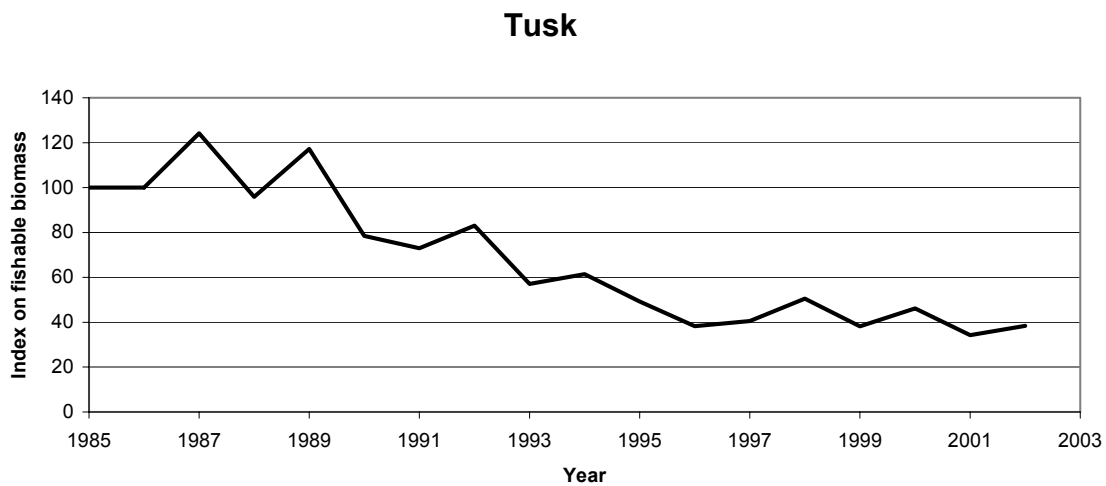


Figure 3.11 Tusk in Va. Index on fishable biomass calculated from the Icelandic groundfish survey at the Icelandic shelf.

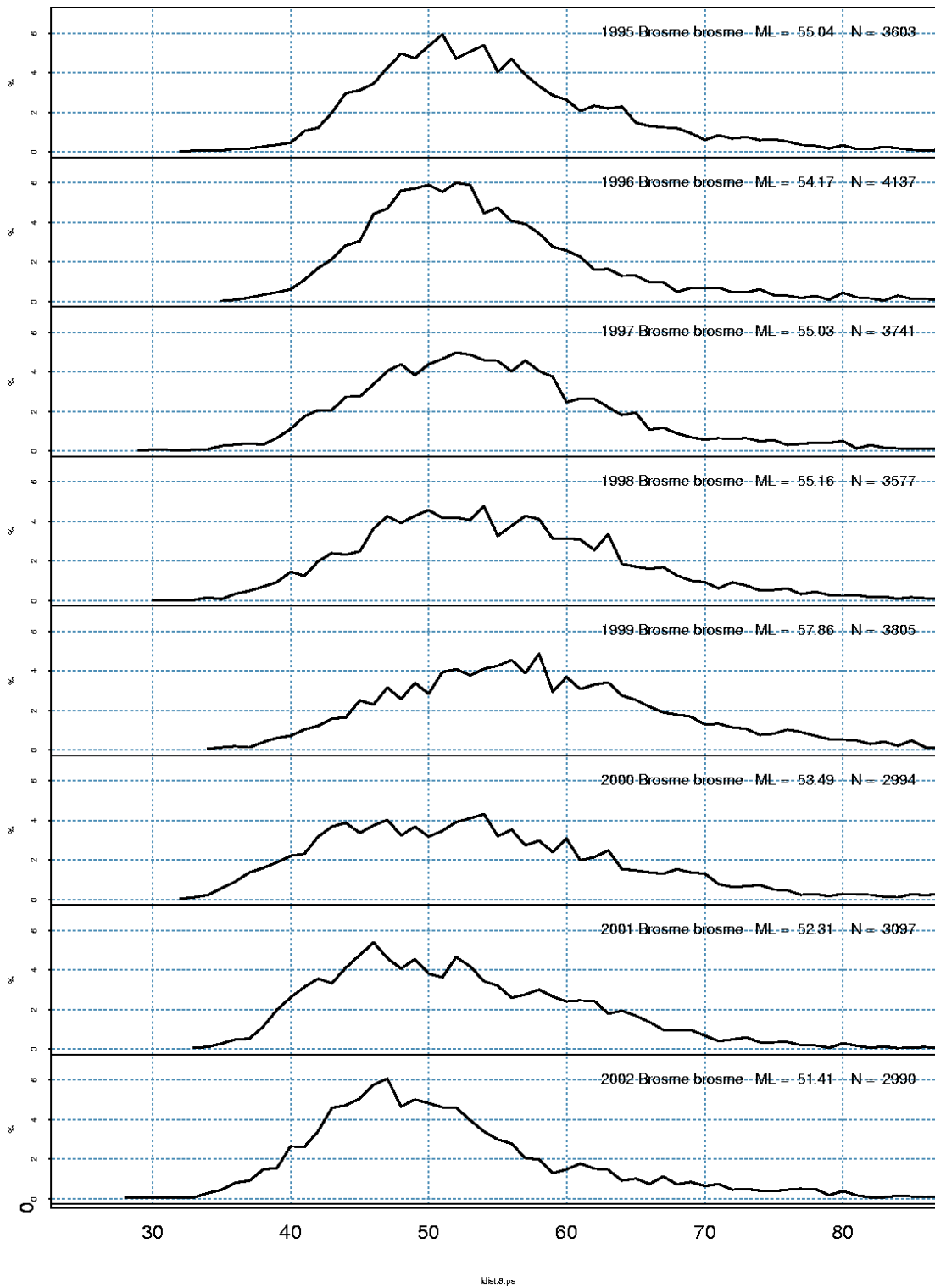


Figure 3.12. Length distribution of tusk in the Icelandic catches since 1997.

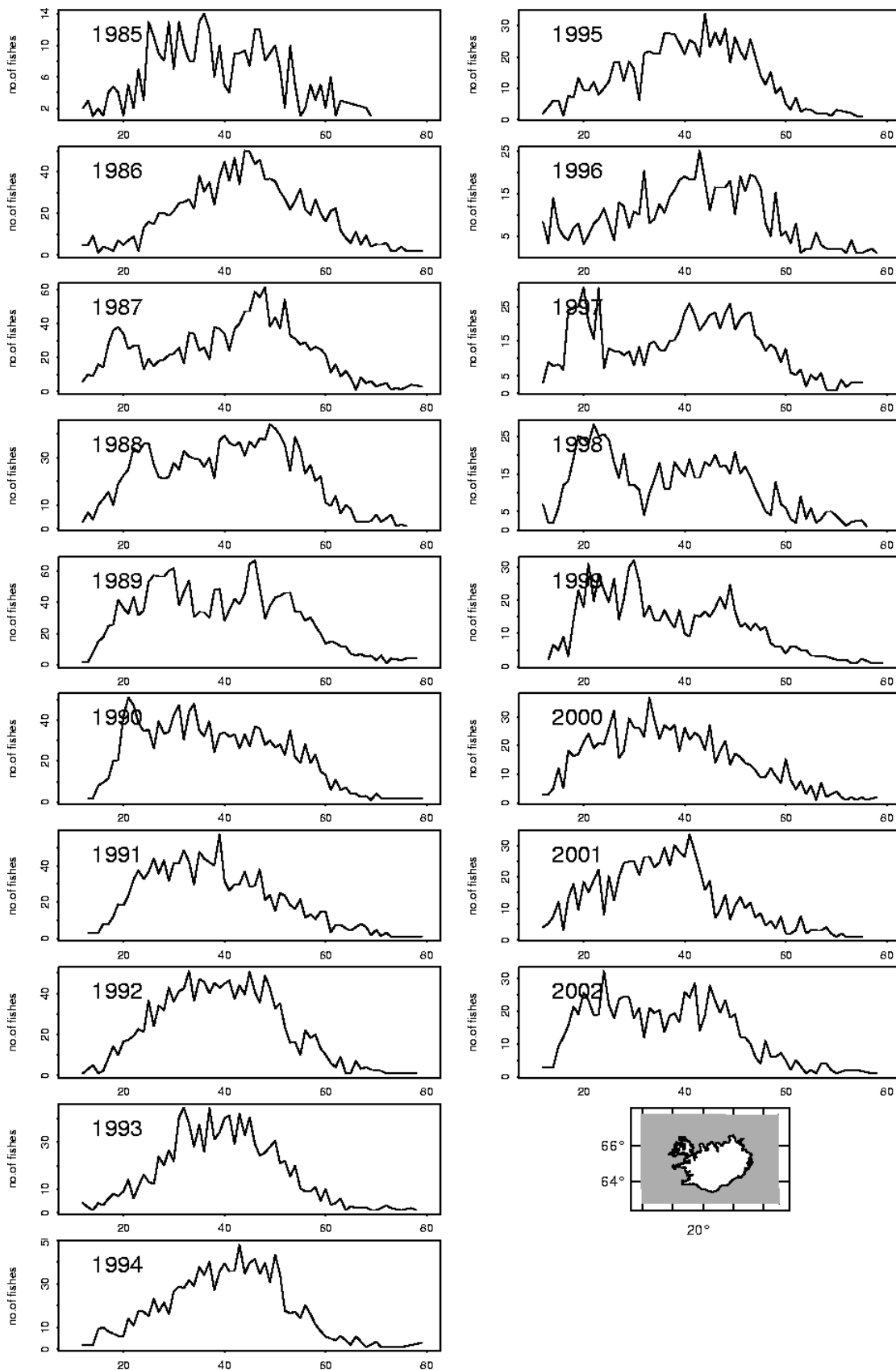
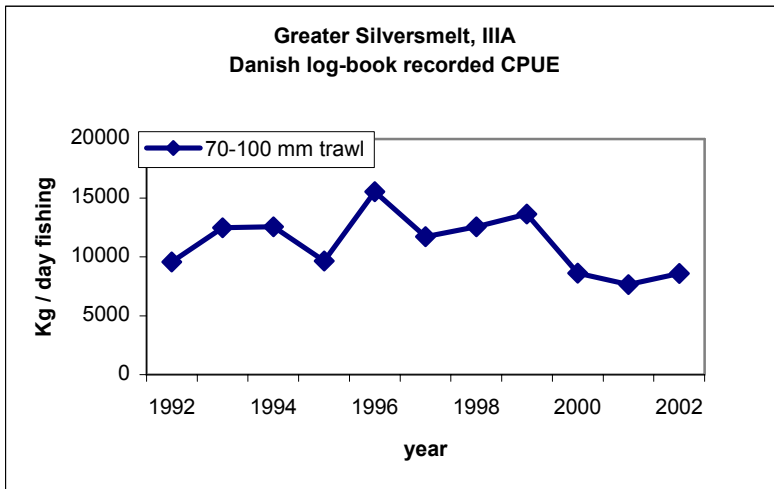


Figure 3.13. Tusk length distributions in the Icelandic groundfish survey in March 1985-2002.

Greater silver smelt or argentine (*Argentina silus*)

Danish CPUE data, trawlers.



CPUE data for Danish trawlers fishing in the Skagerrak, first presented in 2002, were extended (Figure 3.14). There appears to be variation without any clear trend.

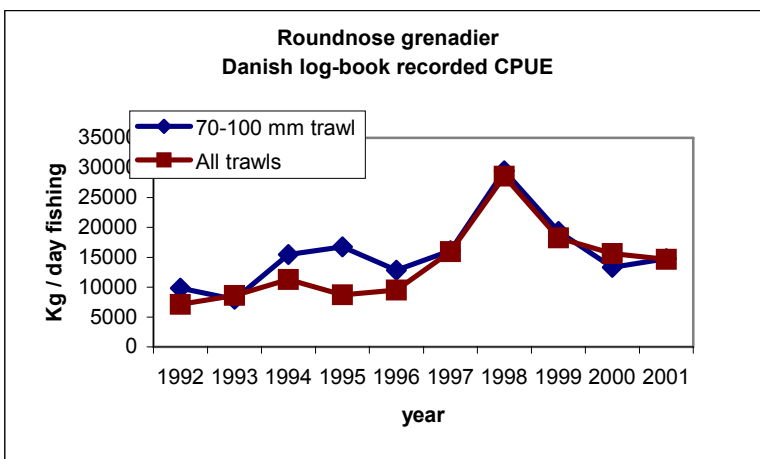
Figure 3.14. Greater silver smelt in IIIa. CPUE of Danish trawlers.

Orange roughy (*Hoplostethus atlanticus*)

There are no new data or assessments for orange roughy.

Roundnose grenadier (*Coryphaenoides rupestris*)

Danish CPUE data



CPUE data for Danish trawlers fishing in the Skagerrak, first presented in 2002, were extended (Figure 3.15). There appears to be variation without any clear trend.

Figure 3.15. Roundnose grenadier in IIIa. CPUE of Danish trawlers.

Black scabbard fish (*Aphanopus carbo*)

There is no new information on the state of the stocks. Some data on temporal catch per unit of effort in Division IXa were given in WD by Figueiredo *et al.* (2003).

Red (=blackspot) seabream (*Pagellus bogaraveo*)

No new data or assessments.

Greater forkbeard (*Phycis blennoides*)

No new data or assessments.

Alfonsino/Golden eye perch (*Beryx sp.*)

No new data or assessments.

Deep-water squalid sharks, primarily *Centrophorus squamosus* and *Centroscymnus coelolepis*

There is no new information on the state of the stocks. Some data on temporal catch per unit of effort in Division IXa were given in WD by Figueiredo *et al.* (2003).

4 DATA ON LENGTH/AGE AT MATURITY, GROWTH AND FECUNDITY AND DOCUMENTATION ON OTHER RELEVANT BIOLOGICAL INFORMATION

4.1 Black scabbardfish (*Aphanopus carbo*)

Portugal (extract from WD by Figueiredo *et al.* 2003).

In the scope of the National Minimum Landings Sampling Program, length frequency and biological samples from Sesimbra landing port were collected on a monthly basis during 2002. Length sampling was conducted at Sesimbra auction market whereas biological samples (ca. 30 individuals per month) were provided by a longliner from the black scabbardfish fishing fleet. A total of 271 and 213 specimens were analysed under length and biological sampling schemes, respectively.

The total length range of length frequencies samples varied between 87 and 129 cm (Figure 4.1) and corresponded to about 19 % of the total landings of black scabbardfish in Sesimbra. The modal length class was 111 cm. The length range observed was close to those from previous years, namely in 2001 (78-132 cm), 2000 (87-134 cm) and 1999 (81-131 cm).

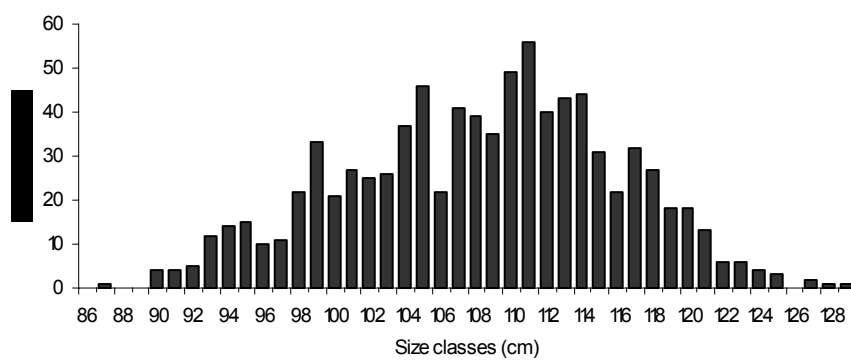


Figure 4.1 Total length frequencies of black scabbardfish specimens sampled at Sesimbra landing port in 2002.

Biological sampling included the recording of total and standard lengths, total and gutted weights, liver and gonad weights, sex, maturity stage and the removal of otoliths. Macroscopic maturity stages were assigned using the five-stage maturity scale defined in Gordo *et al.* (2000). The large majority of individuals were immature, exhibiting stages 1 (immature/resting) and 2 (developing) (Table 4.1). A reduced number of stage 3 (pre-spawning) specimens were recorded in both sexes. Females were more frequent than males.

Table 4.1 Number of black scabbardfish individuals sampled by sex and maturity stage

Mat.stage	F	M
1	79	57
2	47	23
3	2	5
4	---	---
5	---	---

IPIMAR together with FCUL (Faculty of Sciences of the University of Lisbon) has started to analyse black scabbardfish otoliths collected from 1999 to 2002. A detailed study on age and growth of the species is envisaged for the second half of 2002. The black scabbardfish length/weight relationship based on the biological data collected during 2002 at Sesimbra landing port is presented in Figure 4.2 for both sexes combined.

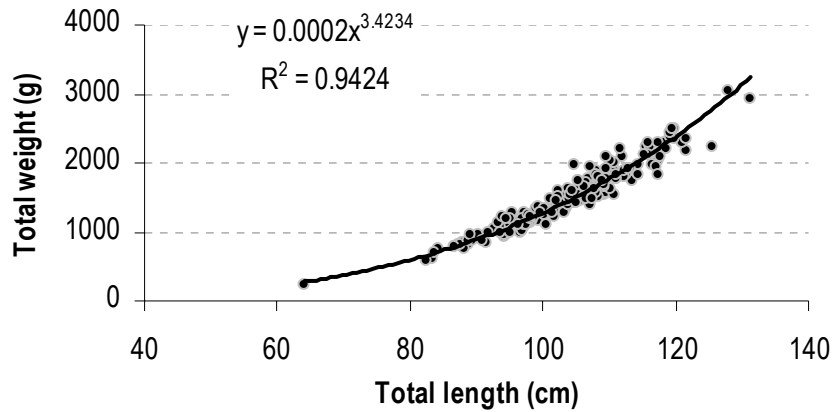


Figure 4.2 Length - weight relationship ($TW = aTL^b$) for both sexes combined of black scabbardfish sampled at Sesimbra landing port in 2002.

4.2 Leaf-scale gulper shark (*Centrophorus squamosus*).

Portugal (extract from WD by Figueiredo *et al.* 2003).

Samples of leaf-scale gulper shark were obtained on a monthly basis from commercial longline fishing vessels operating off Sesimbra, which generally operates at depths between 1000 and 1500 m. No sampling on Portuguese dogfish was made during 2002.

Data collected from each specimen included total and standard length (from nose tip to the end of caudal peduncle) to the nearest mm, total weight (to the nearest g), liver and gonad weights and sex. Dorsal spines were also removed for age and growth studies. The maturity stages were assigned according to the maturity scale described in Stehmann (2002). The sex-ratio [females/(males+females)] was calculated for each species.

A total of 142 females and 285 males were sampled. Males outnumbered females on commercial landings with an overall sex-ratio of 0.33.

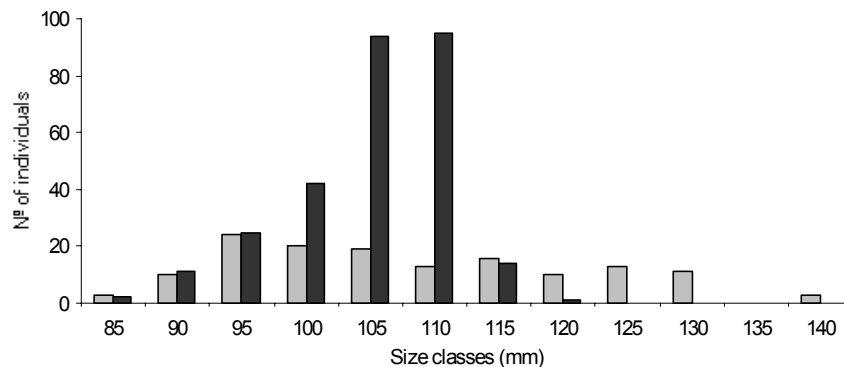


Figure 4.3 Length frequency distributions of leaf-scale gulper shark sampled at Sesimbra landing port in 2002. Females (grey bars) and males (black bars).

The length frequency distributions for each sex of the leaf-scale gulper shark sampled during 2002 are represented in Figure 4.3. Males ranged from 87.7 to 120.4 cm, being more frequent at lengths between 100.0 and 110.0 cm. Females registered a wider length interval (87.7 to 144.0 mm) and attained larger sizes than males. No differences were observed in the length frequency distributions of each sex between the months sampled.

The length/weight relationship for females is represented in Figure 4.4. Males' weight per length class data showed a high level of variability.

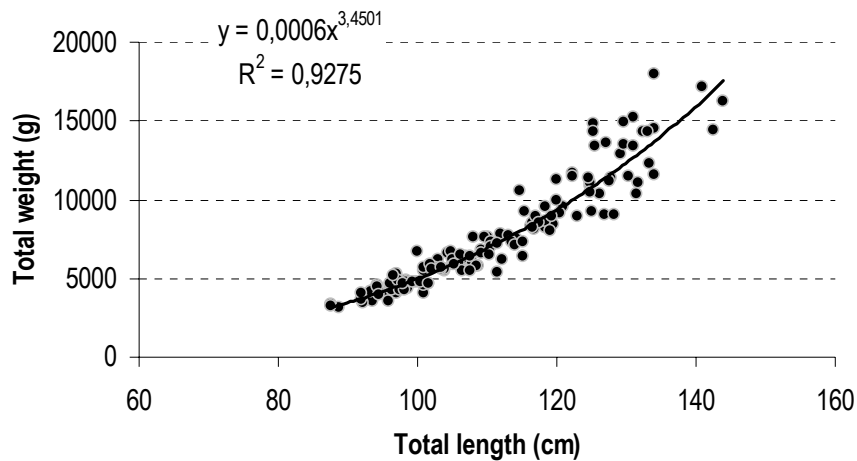


Figure 4.4 Length/ weight relationship ($TW = aTL^b$) for females of leaf-scale gulper shark sampled at Sesimbra landing port in 2002.

Data collected so far was insufficient to determine the length at first maturity for each sex. The majority (81.0%) of the females sampled were immature, measuring between 87.7 and 133.3 cm. Mature females had sizes over 122.2 cm, and corresponded only to the maturing (8.6%) and ripe oocytes (10.3%) stages. No pregnant females occurred on commercial landings.

The number of mature oocytes in the ovaries varied between 8 and 15 registering a diameter between 4.2 and 7.2 cm.

On the other hand, most of the males (69.5%) provided by commercial landings were mature, measuring over 99.8 cm. Immatures represented 14.0% of all males, measuring between 87.7 and 133.3 cm, while maturing specimens comprised 16.1% of the males and measured between 122.2 and 142.5 cm.

Age and growth studies for the leaf-scale gulper shark are now being initiated, by applying a former methodology developed for the birdbeak dogfish *Deania calcea* using the dorsal spines (Bordalo Machado *et al.*, 2000).

4.3 Roughhead grenadier (*Macrourus berglax*)

The following was extracted from the WD by Vinnichenko and Khlivnoy (2003):

In Div.IIb, roughhead grenadier with 40-80 cm (primarily, 52-58 cm) total length were caught by long-lines (Figure 4.5). The minimal average length was registered in May, the maximal one – in December. In Div.IIa the length of roughhead grenadier ranged from 41 cm to 80 cm, mainly, amounting to 50-58 cm (Fig 4.6).

In the catches by bottom trawls roughhead grenadier occurred in small amounts. In Div.IIb (the western slope of the Bear Island Bank) fish 36-75 cm in length were caught.

In May, in Div.IIa, prespawning and spawning specimens of roughhead grenadier were recorded in catches. In August, in Div.IIb, about 12% of females and around half of males were postspawning. In November, mature individuals had maturing gonads (Stage 3).

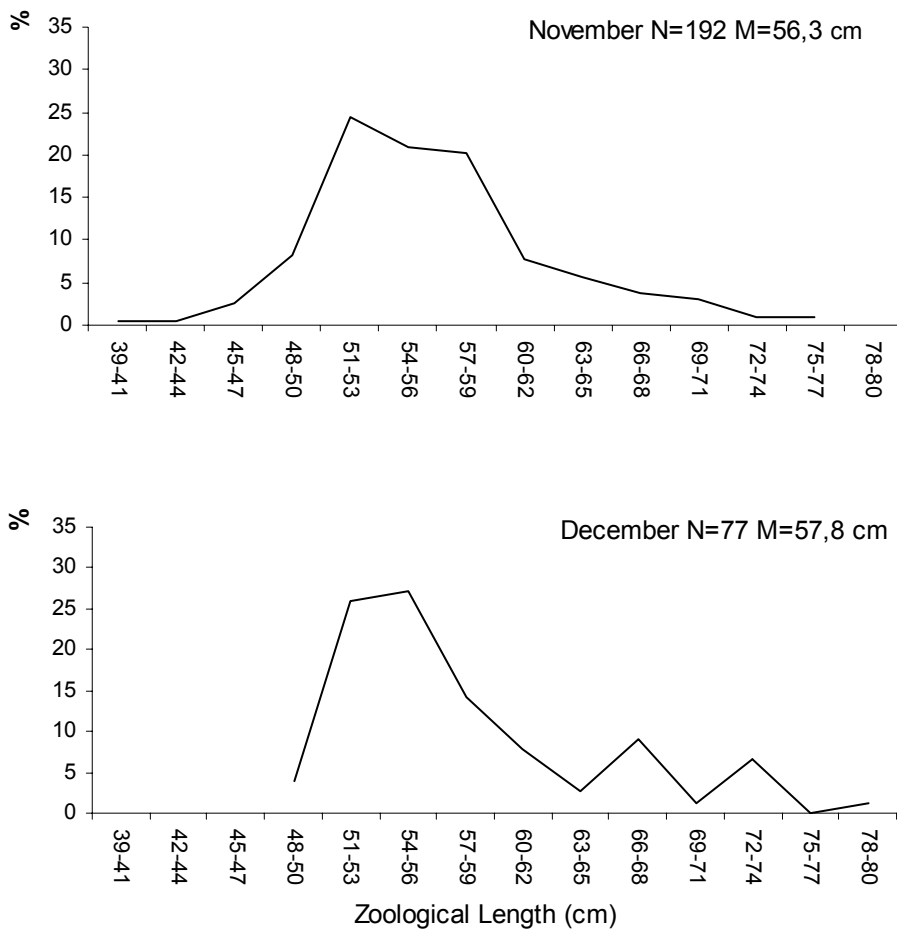


Figure 4.5 Size distribution of roughhead grenadier in long-line catches in Div. IIb in 2002.

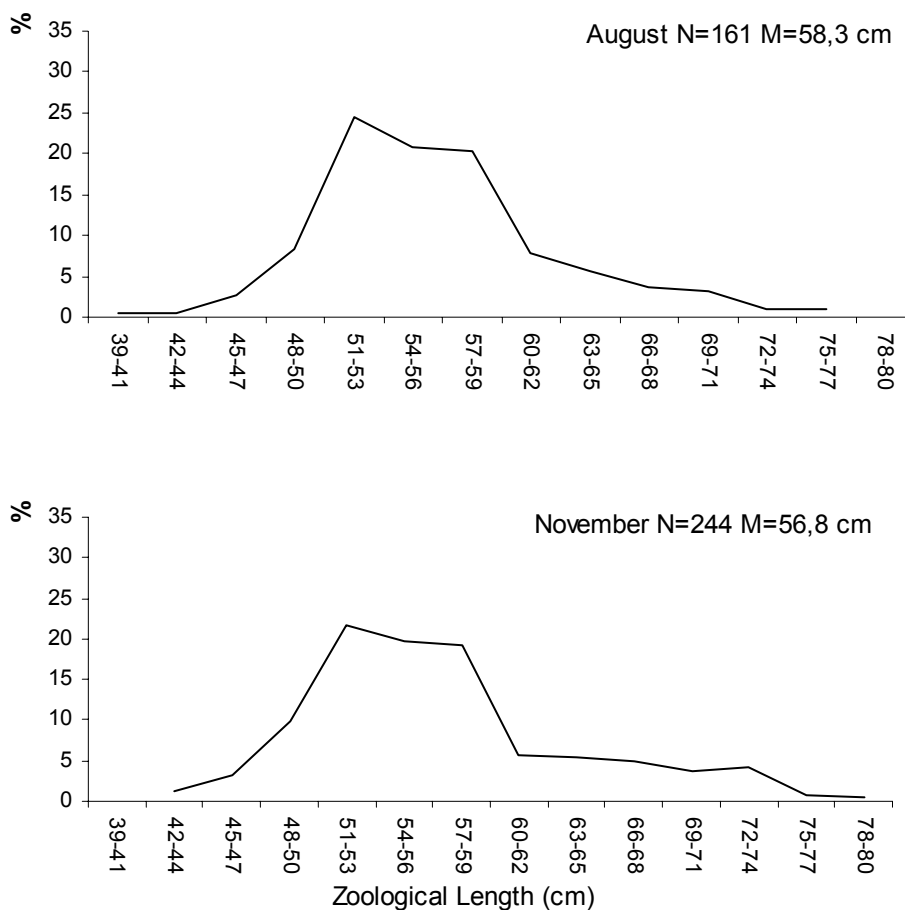


Figure 4.6 Size distribution of roughhead grenadier in long-line catches in Div. IIa in 2002.

In Div.IIb, roughhead grenadier fed on shrimps (25.6%), ophiurans (20.5%), hammarids (12.8%) and squids (5.1%). In Div.IIa, hammarids (27.3%), polychaetes (22.7%, shrimps (9.1%) and bivalves (9.1%) prevailed in stomachs.

5 DISCARDS AND COMMUNITY DATA

5.1 Discard data

France

The following is a progress report from the research programme conducted by PROMA and Ifremer described in the 2002 WGDEEP report (ICES CM 2002/ACFM:16).

Two sampling methods had been employed in order to obtain complementary auxiliary data concerning the catch. Whatever the sampling methods used, hauls characteristics are gathered: duration, geographical position and depth of the haul, technical aspects concerning the boat and its fishing gear.

The first sampling method consist in implies directly the crews on board in the collection of the information. Catch by commercial species or group of species, total bulk of the catch, the volume of species or group of species of non-commercial interest are evaluated. The localisation by depth and statistical rectangle of the sampled hauls in 2001 is indicated in Table 5.1 and 5.2, respectively for ICES sub area VI and VII. Data have also been collected in 2002 for more than 1000 hauls but the detail of the sampling is not yet available.

The second source of information comes from samples, provide by the crew. For several hauls, randomly choose, about 300 kg is taken from the discard fraction according to the protocol described in Blasdale (1998) and Tamsett (1999). For each species, size is recorded. In chondrichthyans fishes, sex and maturity stages have also been determined. The characteristics of the sampled hauls are indicated in Table 5.3.

Data are in course of analysis and results should be available for the next WG in 2004.

Table 5.1 Number of hauls by depth and statistical rectangle sampled in 2001 in Sub-area VI.

Statistical Rectangle	500	600	700	800	900	1000	1100	1200	1300	1400	1500	Total
40E0				1								1
41D9						3	16					19
41E0										1		1
42D9							11					11
42E0						3	3	2	4	2		14
43D8			4									4
43E0						8	2	1		2		13
44D8			1	5								6
44E0					6	2	3	4	2	2		19
45E0		1	1	1	5	8	13	5	2	12	5	53
46E0						10	11	6	2	7	3	39
46E1		1		1	1	16	6	6	4	12	7	54
46E2	4	3		1		1		3	1			13
47D9			7	19	4	25	14	1		4		74
47E0			30	27	12	9	12	3				93
47E1					1			2	7	8		18
47E2	6	18	1	2	6	6	7	2				48
47E3	4	5			1	2						12
48D8							5	2				7
48D9						4	32	6				42
48E0							10		1			11
48E1	1		9	20	1	4	11	9	8			63
48E2	2	8	8	4	8	15						45
48E3		9	6	7	5	7						34
49D8							14	2				16
49D9						1	9					10
49E0					1							1
49E1			2	2								4
49E2	1		2									3
51D9							1					1
Total VI	18	45	71	90	51	124	180	54	31	50	15	729

Table 5.2 Number of hauls by depth and statistical rectangle sampled in 2001 in Sub-area VII

Statistical Rectangle	500	600	700	800	900	1000	1100	1200	1300	1400	1500	Total
23E1						1						1
24E1				1	1	4	4					10
25E0						2	1	1				4
26D9							3	3				6
27D8					1	4	1		2			8
28D7									2	1	1	4
28D8						1	1	3	6			11
29D7									1			1
29D8						1		2	9	7		19
30D5							1					1
30D8				4	1							5
31D4					1							1
31D5						2						2
31D7							1		2	13	6	22
31D8								2	1			3
32D4						1				1		2
32D7									8	6	7	21
33D4								3	1			4
34D4							1	1				2
36D5							2					2
36D6								1				1
37D6							1	1				2
37D7						3	3	2	2			10
Total VII	0	0	0	5	4	19	19	19	34	28	14	142

Table 5.3 Description of the sampled hauls for the non-commercial fraction.

Year	Month	Total	Ship 1	Ship 2	Ship	Ship 4	Ship	Ship 6	Ship 7	Ship	Ship
2001	Nov	5		42E0-1400	49E1-	46E1-		37D7-	48E0-		
	Dec	3	47E1-	48E1-500				30D8-			
2002	Jan	7			45E0-	45E1-	48E2-	36D5-	47E2-	48E1-	40E0-
	Feb	2						46E0-	47E0-		
	Mar	4		46E1-1400			42D9-		49E8-		
	Apr	4		45E0-1200		46E1-900	47E2-	46E1-			
	May	4		48E1-700/1000			48E3-	46E0-	47E2-		
	Jun	4		47E1-		49D7-900	48E1-	47D4-			
	Jul	1								43E0-	
	Aug	3					47E0-	46D4-		48D5-	
	Sep	3	47E1-			48E1-	47D9-				
	Oct	5		47D4-1100			41D9-	48E3-			
	Nov	2					36D6-				
	Dec	1					43E0-				
2003	Jan	1						48E2-			
Total		49	2	7	2	5	12	12	5	3	1

The following was extracted from the WD provided by Gil *et al.* 2003.

The *Pagellus bogaraveo* fishery in the Strait of Gibraltar is almost a monospecific fishery with one clear target species. Red seabream represents the 74% from the total landed in average percentage in the period 1993-2002. However, Table 5.4 provides better information due to the species percentages are not constant: the highest value for red seabream was 95% in the year 1995, while the lowest was 47% along the year 2000 coinciding with the maximum value for atlantic pomfret. We must clarify that tuna fishery is a summer alternative for the red seabream one: obviously the gear (number and size of hooks) and the bait are quite different. Thus, the associate species to the red seabream fishery are: red seabream as target species with silver scabbardfish, atlantic pomfret, rockfish, horse mackerel and in a minor way wreckfish as concurrent species.

Table 5.4 Species landed, in percentage, by the “voracera” fleet of the Strait of Gibraltar (1993-2002).

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Species
77	95	59	75	61	70	92	47	87	73	<i>P. bogaraveo</i>
0	1	35	11	26	5	5	51	2	0	<i>B. brama</i>
5	0	5	14	13	20	1	1	0	0	<i>T. thynnus</i>
0	0	0	0	0	0	0	0	7	16	<i>L. caudatus</i>
0	0	0	0	0	0	0	1	1	7	<i>Trachurus spp.</i>
0	0	0	0	0	0	1	0	1	0	<i>H. dactylopterus</i>
0	0	0	0	0	0	0	0	0	0	<i>P. americanus</i>
0	0	0	0	0	0	0	0	0	0	<i>E. guaza</i>
19	4	1	1	0	5	0	1	2	3	Other fishes

5.2 Community data

An inventory of community data and a reference list was provided in the 2001 report, and some additional data reported in 2002. No new information was reported to the Group in 2003.

6 RESPONSES TO NEAFC REQUESTS

6.1 Baseline level of effort for stocks/fisheries for which effort reduction is advised

The request from NEAFC reads: “Where ICES has advised effort reductions in respect of deep-sea species, ICES is asked to clarify what reference basis should be used in interpreting the advised percentage reductions, i.e. which years or level of effort represents the 100% starting point”.

The question being raised is obviously very relevant and timely, not least in view of the current efforts at national and NEAFC level to introduce regulatory measures. The use of percentage reductions in effort was introduced by ACFM, and the issue of baseline levels has not been discussed by WGDEEP in previous meetings. ACFM would seem to have to revisit this issue.

The question concerns both the choice of effort measures/units, and year range or starting point at which the effort is set at 100%. In directed fisheries (e.g. for orange roughy, blue ling etc.) species-specific measures can be derived, but for mixed species fisheries this is unlikely. Hence for the latter the most feasible strategy is to choose fleet or gear-specific measures and reference levels.

There are three main gears used in the deep-sea fisheries: trawl, longline, and gillnet. For trawl fisheries, it has been suggested that aggregate power, or aggregate tonnage would be appropriate capacity measures and fishing days at sea*kW or GT would be appropriate effort measures. For longlines, number of hooks set per day has been suggested, and for gillnets a measure could be number and length of nets set per time unit.

The appropriate choice of baseline level of effort could vary between areas. If a year range is chosen, it would seem necessary to consider recent developments in the fisheries. In a situation of expanding fisheries, (when some fleets may even be supported by national funding schemes intended to stimulate exploration), effort in the most recent years would not necessarily reflect a sustained level. Using recent years as a reference would not produce an intended reduction in

effort, rather cement a too high effort level. The problem is the opposite when fisheries show a declining trend, but the potential for damaging effects would then seem to be less.

Practical difficulties tend to limit the choices of e.g. year range for calculating baseline effort levels. The current process in NEAFC shows that it is by no means a trivial task to compile and estimate effort measures, much less extensive time series for all relevant fleets and countries. Data are either not available or can only be derived for the most recent years. It appears unlikely that a full set of consistent effort statistics can be provided for years prior to 2000. For this reason alone, a baseline level based on the last 5 years of effort would seem to be appropriate and achievable. However, given that the working group in 1998 identified that most stocks were severely depleted, it seems prudent to use the earliest year for which effort data are available as a reference level for such stocks.

WGDEEP has never had a satisfactory basis in terms of data and other information to discuss this matter in session, but would be prepared to address this issue more fully in 2004, in view of the interim regulations now being proposed/introduced by the EU, national governments, and NEAFC.

6.2 New reporting areas

The relevant NEAFC request reads: *“With the aim of improving the system of provision of catch data for deep-sea species, ICES is requested to comment on possible sub-dividing of relevant areas. In doing this ICES should take account of the distribution of blue whiting and pelagic *Sebastes mentella*.”*

WGDEEP (and the predecessor SGDEEP) has previously commented on the problems associated with using the present set of ICES Sub-areas and Divisions for reporting landings/catch of deep-sea species. Although the population structure of most species are poorly known (or unknown), it is unfortunate that e.g. landings from parts of the European shelf gets merged with those from the Mid-Atlantic Ridge, and East Greenland landings cannot always be differentiated from Reykjanes Ridge landings. These examples highlight the problems caused by using an area system designed for shelf fisheries on fisheries utilising slope waters and open-ocean banks, ridges and seamounts. A further problem is that the present areas span wide depth ranges. These problems affect the Groups ability to describe fishery developments and activities and to carry out meaningful assessments.

WGDEEP is of the opinion that many of the problems could be resolved if catch data were reported by Statistical Rectangles. Such data are presently being recorded by many countries, but have hitherto not been reported to ICES. It should be a relatively easy task to implement such a reporting system and to construct a database that could be updated regularly. The Group is aware of the current efforts within NEAFC to carry out such work.

Reporting by Statistical Rectangles would not solve the problem of missing depth data, but the enhanced geographical resolution would reduce the problem significantly. Rectangle data would also provide a better basis for estimating catches by EEZs. This is a task that WGDEEP never managed to carry out satisfactorily.

Statistical Rectangle data would probably not be available for a historical data series. Hence to carry out/update certain assessments carried out previously by WGDEEP, catches from many rectangles would have to be aggregated in order to update relevant necessary catch series. With time, however, time series should emerge representing more appropriate areas than those used until now.

NEAFC requests comments on ‘sub-dividing of relevant areas’, and supposedly refers to ICES Sub-areas and Divisions. If Statistical Rectangle reporting is unachievable at this time, sub-dividing would be an alternative, but would only partly solve the problems commented on above. A system of new Divisions and Sub-divisions has been proposed and provided to the ICES Secretariat earlier this year, and WGDEEP members have commented on the proposal.

Recognising the need to retain present boundaries between Sub-areas and Divisions, the new areas were constructed by sub-dividing existing Sub-areas and Divisions. The Sub-areas/divisions affected were Va, VIb, X, XII, and XIVb. The proposed new areas are shown on Figure 6.1, and co-ordinates are given in Table 6.1.

Table 6.1 Proposed Sub-divisions of selected ICES Sub-areas/Divisions.

SUB-AREA VI

Sub-division VIb1 (Rockall)

Remainder of VIb when excluding VIb2)

Sub-division VIb2 (eastern Hatton Bk)

Lat (N)	Lon (W)
60	14
59	14
59	16
58	16
58	17
57	17
57	18
60	18
60	14

SUB-AREA XII

Division XIIb (western Hatton Bk)

Lat (N)	Lon (W)
60	18
54° 30'	18
54° 30'	24
60	24

Division XIIa (Southern Reykjanes Ridge south to Charlie-Gibbs Fracture Zone)

Present Sub-area XII bordered to the south by Lat 52°30'

Division XIIc

Present Sub-area XII between 52°30' and 48° 00' N

SUB-AREA X

Division Xa

Present Subarea X south to 40° N

Division Xb

Present Subarea X south of 40° N (essentially the Azores)

SUB-AREA XIV

Sub-division XIVb1

Remainder of XIVb when excluding XIVb2 (essentially East Greenland and most of Irminger Sea)

Sub-division XIVb2 (The portion of the Reykjanes Ridge now included in XIV)

Lat (N)	Lon (W)
63	27
59	27
59	36
61	36
61	34
62	34
62	33
63	33
63	27

SUB-AREA V

Sub-division Va1 (Iceland shelf, except Reykjanes Ridge)

Sub-division Va2 (northern Reykjanes Ridge)

Lat (N)	Lon (W)
63	24
62	24
62	27
63	27
63	24

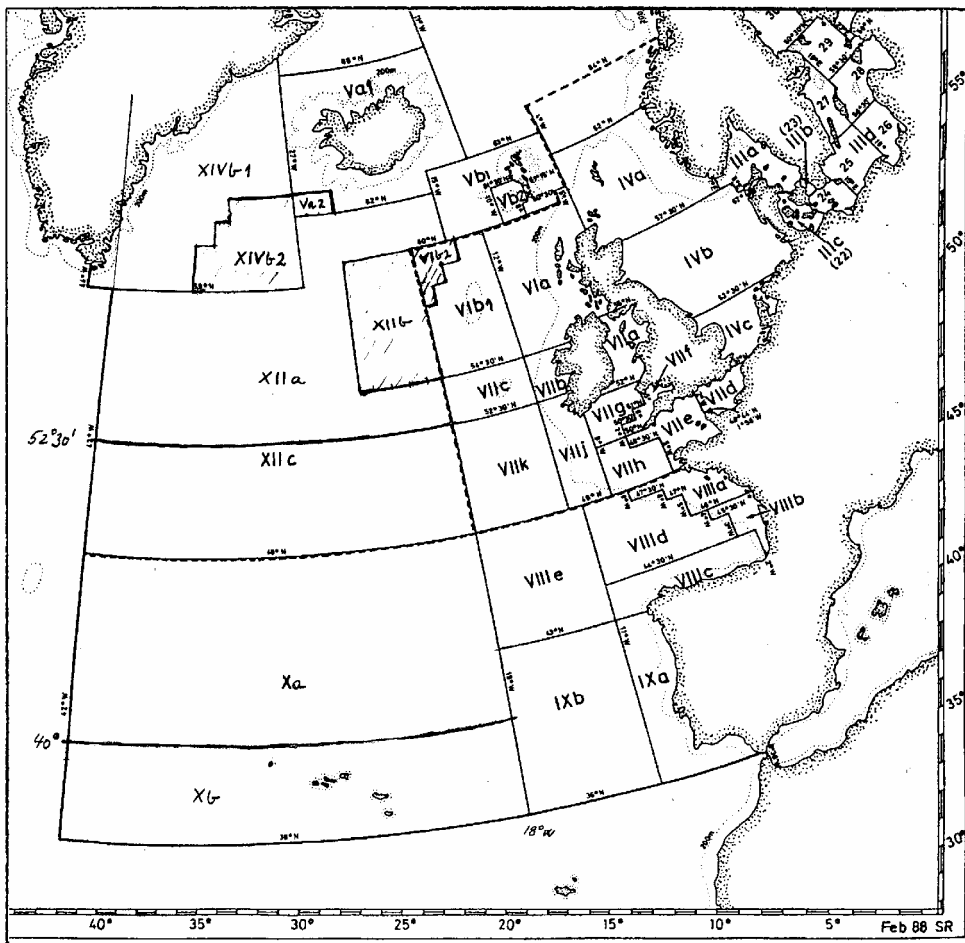


Figure 6.1 ICES Sub-areas, with proposed new Divisions and Sub-divisions (see Table 6.1. for details).

A comment to the proposed new sub-divisions has been that some areas sub-divide national EEZs, e.g. around the Azores and Iceland. The response to this comment is that catches by old areas may easily be derived by summing catches from the new sub-divisions. Also, there are many cases in the wider ICES area where sub-divisions do not correspond to EEZs. The reporting by ICES Sub-areas and Divisions remains independent of reporting by EEZs. Access to catch data by EEZs would be of value to the Working Group, but such data were unfortunately never provided consistently.

Another comment is that the proposed sub-divisions of XIVb and Va might create problems for the reporting of redfish catches. Again, the response would be that data by the existing scheme of divisions may still be derived by simple summation. It is very difficult to design an area system that satisfies all requirements or wishes.

The comment from the Russian Federation delegate is included as a citation:

“The Subarea X should be parted into two divisions at the site of crossing 200 mile zone at the Azores and MAR, i.e. along 43°N. In this case, statistical data will be collected separately for international waters (Division Xa - the northern Azores) and Portuguese 200-mile zone (Division Xb - Azores).

In Subarea XII it would be reasonable to separate four divisions:

XIIa - the Reykjanes Ridge (existing Subarea XII, bounded by the latitude of 52°30'N from the south and the longitude of 24°W from the east);

XIIb - the Mid-Atlantic Ridge (existing Subarea XII bounded by 52°30'N from the north and 24°W from the east);

XIIc - the western Hutton Bank;

XIID - the western Rockall Bank.

In this case such natural geographical areas as the Rockall Bank and the Mid-Atlantic Ridge, as well as the Rockall Bank and the Hutton Bank will be divided.

The boundary between Sub-divisions XIVb1 and XIVb2 offered in the proposal above divides the redfish *S.mentella* fishing area into two parts that results in additional problems appeared in collecting statistical data on this species. If the boundary is shifted westward, all the area of redfish fishery will be located within Sub-division XIVb2.

The necessity to divide Subarea V into two divisions which may lead to the problems appeared when collecting statistical data on redfish in the area of Iceland is doubtful.”

6.3 Aggregation areas for selected species

The NEAFC request reads: “ICES is requested to provide information on temporal and spatial distribution of vulnerable deep-sea aggregations, and to identify habitats especially vulnerable to fishing activities”.

The latter point concerning vulnerable habitats would also need to be considered by ACE. Cold-water coral reefs and seamount habitats would seem to qualify as especially vulnerable habitats, and this has been mentioned repeatedly by WGDEEP and SGDEEP in earlier reports. Experiences from deep-sea seamount fisheries in e.g. New Zealand and Australia provide evidence for the vulnerability to bottom trawl fisheries. The use of gillnets in coral areas enhances the danger of ghost fishing by lost nets. It is probable that longline is the only gear not adversely affecting these habitats, nor producing ghost fishing problems.

Species known to aggregate are orange roughy and blue ling, but also typical seamount species such as alfonsinos (*Beryx* spp.). In the 2002 WGDEEP report it was suggested by Russian sources that most traditional alfonsino concentrations at Mid-atlantic Ridge seamounts north of the Azores had been depleted or significantly reduced. If this is the case, some of the most important “stocks” of this group of species within the ICES area have been severely affected by fishing.

During the June 2002 Bergen meeting of the NEAFC ad hoc working group on deep-sea fisheries, a group of scientists authored the following paragraphs of relevance to blue ling and orange roughy:

Blue ling

The ICES advice delivered in 2002 reads: “ICES recommends that there be no directed fisheries for this stock and that technical measures such as closed areas on spawning aggregations be implemented to minimise catches of this stock in mixed fisheries.”

A ban on directed trawling and longlining is achievable, and the main challenge will be to restrict incidental catches on spawning aggregations. A possible solution to the latter is to close areas, primarily for trawling.

Closure of areas where spawning aggregations occur requires that these areas are known and can be mapped in sufficient detail. It is not at present possible to provide a complete map of spawning areas for the wide range of this species, and there is thus a need for provision of detailed spatially resolved historical and current data on catches during the spring spawning season. Data at statistical rectangle level, as requested by ICES in 2001, would enable ICES to map spawning/aggregation areas at a more satisfactory level of spatial resolution.

For selected areas, however, historical sources document that target fisheries for spawning fish have occurred in certain locations, and that spawning aggregations were depleted to a level at which fisheries ceased. There are at least five such documented locations:

- *A location in Division Va on the Reykjanes Ridge at the southern border of the Icelandic EEZ.*
- *A location in Division Va south of the Vestmanna Isles.*
- *A location in Division Vb.*
- *The Storegga at about 62° N, in Division IIa.*

- *The northern part of the Rockall Trough in Division VIa.*

All these locations have been mentioned in previous reports from ICES. For these areas it should be possible to provide exact documented information on locations combined with updated information on fishing activities. Contracting parties should be encouraged to make such information available to ICES.

Orange roughy

The ICES advice delivered in 2002 reads: "Orange roughy stocks cannot sustain high rates of exploitation. Newly-discovered aggregations are often overexploited before enough information is available to provide timely advice on management. Considering recent observations on the fishery developments, the exploitation of orange roughy should be strictly limited and the stocks/populations closely monitored. Data obtained should be incorporated into appropriate management measures. These recommendations should also apply to areas where there is currently no exploitation on orange roughy. There should be no directed fishery in Subarea VI."

As a consequence of the rapid depletion of the orange roughy stock in Sub-area VI, the ICES advice recommends no directed fishery in this sub-area. However, it is still possible that a small TAC will be implemented for this sub-area. The Hebridean Terrace Seamount is an area where aggregations of orange roughy were exploited during the early 1990s. This large seamount is presumed to have been inhabited by the main component of the spawning stock in Sub-area VI. It is suggested that a complementary measure be considered in order to protect remaining spawners on the Hebridean Terrace Seamount.

All the scientific literature available, and the experience of the collapse of the fishery in Sub-area VI, suggest that rapid depletion of orange roughy stock is very likely to occur in other areas as well. Although the state of the stock in Sub-area VII is unclear, basically because the adult stock biomass is unknown, the level of sustainable catches is believed to be low, and substantially lower than the recent catches. It is suggested that, as a precautionary measure, an area should be closed to the west of the Porcupine Bank. A closed area covering 2 or 3 statistical rectangles would ensure that a component of the stock in this area is protected from depletion and would preserve a potential for recovery of aggregations that are now under heavy fishing pressure.

The information on the location and state of the orange roughy aggregations in other sub-areas where exploitation within EEZs occurs (e.g. Va,b, X) is unknown, and the provision of data by statistical rectangles is necessary to provide more specific advice on e.g. closed areas. In the Azorean EEZ the fishery has only been exploratory, and a general trawl ban has been introduced.

Outside EEZs, there are fisheries for orange roughy on the Hatton Bank and Mid-Atlantic Ridge. The abundances and states of the populations in these areas are unknown. It is likely that the current landings result from catches of a few trawlers targeting small discrete aggregations. The precise fishing locations are unknown and data for both stock assessment and management are lacking. It is recommended that data on the area distribution of the catch at statistical rectangle scale are collected and data from VMS is made available for assessment and management.

It is recognised that the provision of detailed data on fishing location and catches, e.g. from VMS, will require that the question of confidentiality will have to be addressed.

Some additional information was provided to the Working Group for this report:

Ireland

Advice for blue ling has been to ban directed fishing. This can be achieved by not allowing targeted fishing on spawning aggregations in the first and second quarters. Five areas were cited in the NEAFC request on management advice for blue ling. Of these five areas, the Irish Marine Institute has information on the last one. Marine Institute trawl surveys in the Rockall Trough were carried out from 1993-1997. One survey was carried out in April 1993, and spawning blue ling were found at latitude 58° 01' 55" N and 9° 40' 10" W. Table 6.1 shows the details of this haul. Ripe and running fish were encountered in this area. These data could be used along with other information from elsewhere to verify that spawning occurs in this area.

Table 6.2 Numbers of blue ling in each stage of maturity, from Irish Marine Institute Deepwater Trawl Survey, April 1993. Sample taken from Hebrides Terrace (824 m depth), north west of St. Kilda in Division VIa. Latitude 58° 01' 55" N and 9° 40' 10" W.

Gonad maturity	f	m	Grand Total
1 virgin	1	7	10
2 developing virgin	20	10	30
3 early maturing	66	33	99
4 late maturing	4	16	20
5 ripe	15	5	20
6 running	6	6	12
7 spent	35	126	161
8 recovering	128	96	224
Grand Total	275	299	574

Portugal

Off the Portugal mainland slope, deep-water species are mainly taken by static gears and it is suggested that deep-water bottoms on that slope should be protected from trawling.

Concerning the Azorean archipelago, it is noted that the knowledge about spawning areas is severely limited, and this concerns seamount species and habitats. Hydrothermal vents areas must also be considered vulnerable habitats.

7 LIST OF WORKING DOCUMENTS SUBMITTED TO THE WORKING GROUP

Clarke, Maurice. 2003. Irish contribution to ICES WGDEEP in 2003, 2p.

Figueiredo, Ivone, Pedro Bordalo Machado and Ana Veríssimo. 2003. Mainland Portugal contribution to the 2003 WGDEEP report., 9p.

Fossen, Inge. 2003. Norwegian Commercial Fisheries on Hatton Bank during 2002, 16 p.

Gil, Juan, Ignacio Sobrino and Jesús Canoura, 2003. Update of the information about the red seabream (*Pagellus bogaraveo*) fishery in the Strait of Gibraltar (ICES IXa south) 5p.

Sigurdsson, Thorsteinn. 2003. Information on Deep Sea species in Icelandic waters., 20p.

Vinnichenko V.I., Khlivnoy V.N., 2003. Russian deep-sea research and fisheries in the northeast Atlantic in 2002., 7p.

Vinnichenko, V.I.; Khlivnoy V.N.; Orlov, A.M., 2003. Specific features of deep-sea species distribution and biology in the north east Atlantic (Lauzy Bank, Hatton-Rockall Plateau, Faroe Islands area), 23p.

8 REFERENCES

Bordalo Machado, P. and Figueiredo, I. 2000. A technique for ageing the birdbeak dogfish (*Deania calcea* Lowe, 1839) from dorsal spines. Fisheries Research, 45: 93 - 98.

Gordo, L. S., Carvalho, D. S., Figueiredo, I., Reis, S., Machado, P. B., Newton, A. and Gordon J. 2000. The sexual maturity scale of black scabbardfish: A macro- and microscopic approach. Celta Editora, Oeiras, 35 p. ISBN 972 - 774 - 060 - X.

Stehmann, M. 2002. Proposal of a maturity stages scale for oviparous and viviparous cartilaginous fishes (Pisces, Chondrichthyes). Arch. Fish. Mar. Res., 50: 23 - 48.

1988	14	-1	100	49	-	38	10	211														
1989	10	-1	138	112	1	43	7	311														
1990	11	-1	8	63	1	59	27	169														
1991	4	-1	10	31	2	60	18	125														
1992	4	-1	7	43	1	40	10	105														
1993	10	-1	51	81	2	60	15	219														
1994	8	-1	136	46	2	76	16	284														
1995	12	9	143	106	1	-2	34	305														
1996	11	6	147	29	-	-2	17	210														
1997	8	6	179	59	2	-2	10	264														
1998	7	7	89	69	1	-2	25	198														
1999	7	3	32	29		-2	13	84														
2000	3	2	18	25			25	73														
2001*		3	33	20			31	87														
2002*		5	91	15			7	118														

*Preliminary. ⁽¹⁾ French catches in VII not split into divisions, see Ling VII. ⁽²⁾ Included with UK (EW)

LING VIIb,c

Year	France (1)	Germany	Ireland	Norway	Spain ⁽³⁾	E & W	N.I.	Scotland	Total
1988	-1	-	50	57		750	-	8	865
1989	-1	+	43	368		161	-	5	577
1990	-1	-	51	463		133	-	31	678
1991	-1	-	62	326		294	8	59	749
1992	-1	-	44	610		485	4	143	1,286
1993	-1	97	224	145		550	9	409	1,434
1994	-1	98	225	306		530	2	434	1,595
1995	78	161	465	295		630	-2	315	1,944
1996	57	234	283	168		1117	-2	342	2,201
1997	65	252	184	418		635	-2	226	1,780
1998	32	1	190	89		393		329	1,034
1999	50	4	377	288		488		159	1,366
2000	116	21	401	170		327		140	1,175
2001*	71	2	413	515		94		122	1,217
2002*	104		315	206		151		156	932

*Preliminary. ⁽¹⁾ See Ling VII. ⁽²⁾ Included with UK (EW). ⁽³⁾ Included with VIIg-k.

Year	Belgium	Denmark	France	Germany	Ireland	Norway	Spain ⁽²⁾	E&W	IOM	N.I.	Scot.	Total										
1988	35	1	-1	-	286	-	2,652	1,439	-	-	2	4,415										
1989	23	-	-1	-	301	163		518	-	+	7	1,012										
1990	20	+	-1	-	356	260		434	+	-	7	1,077										
1991	10	+	-1	-	454	-		830	-	-	100	1,394										
1992	10	-	-1	-	323	-		1,130	-	+	130	1,593										
1993	9	+	-1	35	374			1,551	-	1	364	2,334										
1994	19	-	-1	10	620		184	2,143	-	1	277	3,254										
1995	33	-	1597	40	766	-	195	3046		-3	454	6,131										
1996	45	-	1626	169	771		583	3209			447	6,850										
1997	37	-	1,574	156	674		33	2112			459	5,045										
1998	18	-	1,362	88	877		1669	3,465			335	7,814										
1999	-	-	1,229	49	554		455	1,619			292	4,198										
2000	17		1006	12	624		639	921			303	3522										
2001*			963	4	727	24	559	591			285	3153										
2002*			849		951		739	862			94	3495										
*Preliminary. ⁽¹⁾ See Ling VII. ⁽²⁾ Includes VIIb,c. ⁽³⁾ Included in UK (EW).																						
LING VIII																						
Year	Belgium	France	Germany	Spain	E & W	Scot.	Total															
1988		1,018			10		1,028															
1989		1,214			7		1,221															
1990		1,371			1		1,372															
1991		1,127			12		1,139															
1992		801			1		802															
1993		508			2		510															
1994		n/a		77	8		85															
1995		693		106	46		845															
1996		825	23	170	23		1,041															
1997	1	705	+	290	38		1,034															
1998	5	1,220	-	543	29		1,797															
1999	22	232	-	188	8		450															
2000	1	218		106	5		330															
2001*		167		341	6	2	516															
2002*		199		100	10	0	309															
*Preliminary																						

1994		+	-	4	1	1	6																
1995	-	-		14	3	0	17																
1996	-			0			0																
1997	1			60			61																
1998	-			6			6																
1999	-			1			1																
2000			26	-			26																
2001*				35			35																
2002*				20			20																
*Preliminary.																							
LING, total landings by Sub-areas or Division																							
Year	I	IIa	IIb	III	IVa	IVb,c	Va	Vb1	Vb2	VIa	VIb	VII	VIIa	VIIb,c	VIIde	VIII	VIIg-k	VIII	IX	XII	XIV	All areas	
1988		6,119	7	331	11,223	379	5,861	2,372	2,116	14,556	1,765	5,057	211	865	779	444	4,415	1,028		0	3	57,531	
1989		7,368		422	11,677	387	5,612	2,962	1,690	8,631	3,743	5,261	311	577	700	310	1,012	1,221		0	1	51,885	
1990		7,628		543	10,027	455	5,598	3,062	795	6,730	1,505	4,575	169	678	799	233	1,077	1,372		3	9	45,258	
1991		7,793		484	9,969	490	5,805	3,465	1,047	4,795	2,662	3,977	125	749	680	302	1,394	1,139		10	1	44,887	
1992		6,521		549	10,763	842	5,116	2,400	1,214	4,588	1,891	2,552	105	1,286	519	137	1,593	802		0	17	40,895	
1993		7,093		642	12,810	797	4,854	2,242	614	5,301	1,522	2,294	219	1,434	436	223	2,334	510		0	9	43,334	
1994		6,309	13	469	11,496	323	4,604	2,657	965	6,730	2,540	2,185	284	1,595	451	400	3,254	85		5	6	44,371	
1995		5,954		412	13,041	659	4,192	3,286	784	8,847	1,638		305	1,944	1,389	602	6,131	845		50	17	50,096	
1996	136	6,083	127	402	12,705	1,424	4,060	3,996	900	8,577	1,124		210	2,201	1,477	399	6,850	1,041		2	0	51,714	
1997	31	5,373	5	311	11,315	699	3,933	4,733	924	6,746	814		264	1,780	1,472	547	5,045	1,034	0	9	61	45,096	
1998	123	9,072	5	214	13,631	627	4,302	4,029	1,330	7,362	1,394		198	1,034	1,500	561	7,814	1,797	2	2	6	55,003	
1999	64	7,581	6	216	9,810	446	4,647	4,576	662	6,899	1,175		84	1,366	1,053	312	4,198	450	1	2	1	38,907	
2000	69	5891	4	228	9246	384	3743	3320	399	6889	1879		73	1175	838	217	3522	330	1	7	26	38241	
2001*	66	4851	33	252	7841	282	3317	3826	679	5089	788		87	1217	783	202	3153	516	0	59	35	33076	
2002*	182	6917	9	225	8624	247	2887	1778	471	3906	530		118	932	841	428	3495	309	0	32	20	31951	
*Preliminary.																							

Appendix Table 2. Blue ling (<i>Molva dypterygia</i>).										
Working Group estimates of landings (tonnes)										
Blue ling I										
Year	Iceland	Norway	Germany	Total						
1988										
1989										
1990										
1991										
1992										
1993										
1994			3	3						
1995	+		5	5						
1996		+		+						
1997	+	1		1						
1998		1		1						
1999		1		1						
2000		3	+	3						
2001*		1		1						
2002*				0						
*Preliminary.										
Blue ling IIa and b										
Year	Faroes	France	Germany	Greenland	Norway	E & W	Scotland	Total		
1988	77	37	5	-	3,416	2	-	3,537		
1989	126	42	5	-	1,883	2	-	2,058		
1990	228	48	4	-	1,128	4	-	1,412		
1991	47	23	1	-	1,408	-	-	1,479		
1992	28	19	+	3	987	2	-	1,039		
1993	-	12	2	3	1003	+	+	1,020		
1994	-	9	2	-	399	9	-	419		
1995	0	12	2	2	342	1		359		
1996	0	8	1		254	2	2	267		
1997	0	10	1		280	+		291		
1998	0	3	+		272	+	3	278		
1999	0	1	1		287	+	2	291		
2000		2	4		240	1	2	249		
2001*		6	+		190	1	2	199		
2002*		1	1		129	1	16	148		
*Preliminary.										
Blue ling III										
Year	Denmark	Norway	Sweden	Total						
1988	10	11	1	22						
1989	7	15	1	23						
1990	8	12	1	21						
1991	9	9	3	21						
1992	29	8	1	38						
1993	16	6	1	23						
1994	14	4	+	18						
1995	16	4		20						
1996	9	3		12						
1997	14	5	2	21						
1998	4	2		6						
1999	5	1		6						
2000	13	1		14						
2001*	20	4		24						
2002*	8	1		9						
*Preliminary.										
Blue ling IVa										
Year	Denmark	Faroes	France (IV)	Germany	Norway	E & W	Scotland	Ireland	Total	
1988	1	13	223	6	116	2	2		363	
1989	1	-	244	4	196	12	+		457	
1990	+	-	321	8	162	4	+		495	
1991	1	31	369	7	178	2	32		620	
1992	1	-	236	9	263	8	36		553	
1993	2	101	76	2	186	1	44		412	
1994	+		144	3	241	14	19		421	

1995	+	2	73	+	201	8	193		477				
1996	+	0	52	4	67	4	52		179				
1997	+	0	36	+	61	0	172		269				
1998	+	1	31		55	2	191		280				
1999	2		21	+	94	25	120	2	264				
2000	2		15	1	53	10	46	2	129				
2001*	7		9	+	75	7	145	9	252				
2002*	6		11		57	4	286	4	368				
*Preliminary. ⁽¹⁾ Included in VI.													
Blue ling IVb													
Year	France	E & W	Norway	Faroes	Denmark	Germany	Scotland	Total					
1988		-						-					
1989	2	-						2					
1990	6	-						6					
1991	7	-						7					
1992	1	-						1					
1993	0	3						3					
1994	0	-	+	+				0					
1995	3	3	+		+			6					
1996	5	5	1		+			11					
1997	1		+					1					
1998	5		1					6					
1999	-1	1	0				+	1	+				
2000	1						+	1					
2001*	0				+	+	+	0					
2002*	0		1					1					
*Preliminary.													
Blue ling IVc													
Year	E & W	Norway	Denmark	Total									
1988	-	-		-									
1989	-	-		-									
1990	-	-		-									
1991	-	-		-									
1992	-	-		-									
1993	-	-		-									
1994	3			3									
1995	-	-		-									
1996			8	6									
1997				-									
1998				-									
1999		0		-									
2000				-									
2001				-									
2002				-									
*Preliminary.													
Blue ling Va													
Year	Faroes	Germany	Iceland	Norway	E & W	Scotland	Total						
1988	271	-	1,893	7			2,171						
1989	403	-	2,125	5			2,533						
1990	1,029	-	1,992	-			3,021						
1991	241	-	1,582	1			1,824						
1992	321	-	2,584	1			2,906						
1993	40	-	2,193				2,233						
1994	89	1	1,542				1,632						
1995	113	3	1,519	-			1,635						
1996	36	3	1,284				1,323						
1997	25	+	1,319				1,344						
1998	59	9	1,086				1,154						
1999	31	8	1,525	8	8	3	1,583						
2000	36	7	1,605	25	7	+	1,680						
2001*	69	12	753	49	22	1	906						
2002*		4	1236	74	6	4	1324						
*Preliminary.													
Blue ling Vb₁													
Year	Faroes	France ⁽³⁾	Germany ⁽²⁾	Norway	E & W	Scotland ⁽¹⁾	Ireland	Iceland	Total				
1988	3,487	3,036	49	94	-				6,666				
1989	2,468	1,800	51	228	-				4,547				
1990	946	3,073	71	450	-				4,540				
1991	1,573	1,013	36	196	1				2,819				
1992	1,918	407	21	390	4				2,740				
1993	2,088	192	24	218	19				2,541				

Year	France ⁽¹⁾	UK (Scot)	Total										
1988	-	-	-										
1989	-	-	-										
1990		-	-										
1991		1	1										
1992		-	-										
1993		-	-										
1994		-	-										
1995		-	-										
1996													
1997													
1998													
1999													
2000													
2001*													
2002													
*Preliminary. ⁽¹⁾ Included in VIa													
Blue ling VIIb,c													
Year	France (VII)	Germany	Ireland	Norway	Spain ⁽¹⁾	E & W	Scotland	Total					
1988	21	1	-	-		-	-	22					
1989	269	-	-	2		-	-	271					
1990	177	-	-	-		-	-	177					
1991	157	-	-	-		-	-	157					
1992	126	-	-	3		-	6	135					
1993	106	-	-	2		11	28	147					
1994	100	-	1	1		6	22	130					
1995	95	-	3	-		3	11	112					
1996	118			1		15	57	191					
1997	113		0	2		36	3	154					
1998	157			1		60	6	224					
1999	36		3	1		24	7	71					
2000	45	1	45	5		9	2	107					
2001*	31	+	169	5		16	3	224					
2002*	15	2	155			43	1	216					
*Preliminary. ⁽¹⁾ Included in VIIg-k													
Blue ling VIIId,e													
Year	France	Total											
1988		0											
1989	1	1											
1990	0	0											
1991	10	10											
1992	15	15											
1993	3	3											
1994	8	8											
1995	4	4											
1996	4	4											
1997	1	1											
1998	3	3											
1999													
2000													
2001*													
2002*													
*Preliminary.													
Blue ling VIIg-k													
Year	France ⁽¹⁾	Germany	Spain ⁽¹⁾	E & W	Scotland	Ireland	Total						
1988				-	-								
1989				-	-								
1990	46			-	-		46						
1991	44			-	-		44						
1992	256			-	-		256						
1993	164			5	2		171						
1994	190		4	3	4		201						
1995	56		13	40	5		114						
1996	67		21	42	40		170						
1997	65	8	0 ⁽²⁾	134	12	9	228						
1998	92		22 ⁽²⁾	223	24	10	371						
1999	40	2 ⁽²⁾	59 ⁽²⁾	144	11	24	280						

2000	39	1	65	22	15	30	172							
2001*	41	2	64	13	14	325	459							
2002*	14	3	42	33	6	119	217							
*Preliminary. ⁽¹⁾ Included in VIII,c ⁽²⁾ Reported as VII.														
Blue ling VIII and IX														
Year	Spain	France	Total											
1997	14		14											
1998	33		33											
1999	3		3											
2000	2		2											
2001	4		4											
2002*	18	19	37											
Blue ling XII														
Year	Faroes	France	Germany	Spain	E & W	Scotland	Norway	Iceland	Total					
1988		263							263					
1989		70							70					
1990		5							5					
1991		1147							1147					
1992		971							971					
1993	654	2591	90						3,335					
1994	382	345	25						752					
1995	514	47			12				573					
1996	445	60		264		19			788					
1997	1	1		411	4				417					
1998	36	26		375	1				438					
1999	156	17		943	8	43		186	1,353					
2000		23		406	18	23	21	14	505					
2001*		26		421	32	91	103	2	839					
2002*		1			8	48	9		66					
*Preliminary. ⁽¹⁾ Included in VIa														
Blue ling XIV														
Year	Faroes	France	Germany	Greenland	Iceland	Norway	E & W	Scotland	Spain	Total				
1988	21	-	218	3	-	-	-	-	-	242				
1989	13	-	58	-	-	-	-	-	-	71				
1990	-	-	64	5	-	-	10	-	-	79				
1991	-	-	105	5	-	+	45	-	-	155				
1992	-	-	27	2	-	50	27	4	-	110				
1993	-	390	16	-	3,124	173	21	1	-	3,725				
1994	1	-	15	-	300	11	57	-	-	384				
1995	0	-	5	-	117	+	16	3	-	141				
1996	0	-1	12	-	-	+	2	+	-	14				
1997	1	-	1	-	-	+	2	-	-	4				
1998	48	-	-	-	-	1	6	-	-	55				
1999	-	-	+	-	-	1	7	-	-	8				
2000	+	-	-	-	4	-	2	-	526	532				
2001*	-	-	-	-	-	-	6	-	91	97				
2002*	-	-	-	-	-	1	-	-	-	1				
*Preliminary														
BLUE LING Total landings by area/division and grand total														
Year	I	II	III	III	IV	Va	Vb	VI	VII	VIII-IX	XII	XIV	Total	
1988	0	3,537	218	22	363	2171	9526	9263	22		263	242	25409	
1989	0	2,058	58	23	459	2533	5264	9141	293		70	71	19912	
1990	0	1,412	64	21	501	3021	4799	6173	223		5	79	16234	
1991	0	1,479	105	21	627	1824	2962	7107	212		1147	155	15534	
1992	0	1,039	27	38	554	2906	4702	6291	406		971	110	17017	
1993	0	1,020	16	23	415	2233	2836	5150	321		3335	3725	19058	
1994	3	419	15	18	424	1632	1644	3970	339		752	384	9585	
1995	5	359	5	20	483	1635	2440	4662	230		573	141	10548	
1996	0	267	12	12	190	1323	1602	6563	365		788	14	11124	
1997	1	291	1	21	270	1344	2798	6978	383	14	417	4	12522	
1998	1	278	-	6	286	1154	2584	7406	598	33	438	55	12839	
1999	1	291	+	6	265	1583	2932	9120	351	3	1353	8	15913	
2000	3	249	-	14	130	1680	2514	8243	279	2	505	532	14151	
2001*	1	199	-	24	252	906	2318	10387	683	4	839	97	15710	
2002*	-	148	-	9	369	1324	1086	5663	433	37	66	1	9136	
*Prelimina														

1990	136	1	144	48	3,838	1	29	-	57		4,254								
1991	142	12	212	47	4,008	1	26	-	89		4,537								
1992	169	-	119	42	4,435	2	34	-	131		4,932								
1993	102	4	82	29	4,768	+	9	-	147		5,141								
1994	82	4	86	27	3,001	+	24	-	151		3,375								
1995	81	6	68	24	2,988		10		171		3,348								
1996	120	8	49	47	2,970		11		164		3,369								
1997	189	0	47	19	1,763	+	16		238	-	2,272								
1998	114	3	38	12	2,943		11		266	-	3,387								
1999	165	7	44	10	1,983		12		213	1	2,435								
2000	208	+	32	10	2,651	2	12		343	1	3,259								
2001*	258		26	8	2,443		11		343	1	3,090								
2002*	199		21		2,377		8		269		2,874								
⁽¹⁾ Includes IVb 1988-1993																			
TUSK IVb																			
Year	Denmark	France	Norway	Germany	E & W	Scotland	Total												
1988		n.a.		-	-														
1989		3		-	1		4												
1990		5		-	-		5												
1991		2		-	-		2												
1992	10	1		-	1		12												
1993	13	1		-	-		14												
1994	4	1		-	2		7												
1995	4	-	5	1	3	2	15												
1996	134 ⁽¹⁾	-	21	4	3	1	163												
1997	6	1	24	2	2	3	38												
1998	4	0	55	1	3	3	66												
1999	8	-	21	1	1	3	34												
2000	8		106	+	-	2	116												
2001*	6		45 ⁽¹⁾	1	1	3	56												
2002*	6		61		1	2	70												
⁽¹⁾ Includes IVc																			
TUSK Va																			
Year	Faroes	Germany	Iceland	Norway	Scotland	E&W	Total												

1988	3,757	-	3,078	20				6,855											
1989	3,908	-	3,143	10				7,061											
1990	2,475	-	4,816	-				7,291											
1991	2,286	-	6,446	-				8,732											
1992	1,567	-	6,442	-				8,009											
1993	1,329	-	4,746	-				6,075											
1994	1,212	-	4,612	-				5,824											
1995	979	1	5,245	-				6,225											
1996	872	1	5,226	3				6,102											
1997	575		4,819					5,394											
1998	1,052	1	4,118	0				5,171											
1999	1,075	2	5,795	391	1			7,264											
2000	1,302	+	4,714	374	+	1		6,391											
2001*	1049	1	3407	285	+	5		4747											
2002*	n/a		3935	372	1	1		4309											
*Preliminary																			
TUSK Vb1																			
Year	Denmark	Faroes	France	Germany	Norway	E & W	Scotland ⁽¹⁾	Total											
1988	+	2,827	81	8	1,143	-		4,059											
1989	-	1,828	64	2	1,828	-		3,722											
1990	-	3,065	66	26	2,045	-		5,202											
1991	-	3,829	19	1	1,321	-		5,170											
1992	-	2,796	11	2	1,590	-		4,399											
1993	-	1,647	9	2	1,202	2		2,862											
1994	-	2,649	8	1 ⁽²⁾	747	2		3,407											
1995		3,059	16	1 ⁽²⁾	270	1		3,347											
1996		1,636	8	1	1,083			2,728											
1997		1,849	11	+	869		13	2,742											
1998		1,272	20	-	753	1	27	2,073											
1999		1,956	27	1	1,522		11 ⁽³⁾	3,517											
2000		1,316	13	1	1,191	1	11 ⁽³⁾	2,533											
2001*		1779	13	1	1572	1	20	3386											
2002*		n/a	10		1642	1	23	1676											
⁽¹⁾ Included in Vb ₂ until 1996. ⁽²⁾ Includes Vb ₂ . ⁽³⁾ Reported as Vb.																			
TUSK Vb2																			

Year	Faroe	Norway	E & W	Scotland ⁽¹⁾	Total														
1988	545	1,061	-	+	1,606														
1989	163	1,237	-	+	1,400														
1990	128	851	-	+	979														
1991	375	721	-	+	1,096														
1992	541	450	-	1	992														
1993	292	285	-	+	577														
1994	445	462	+	2	909														
1995	225	404	- ²	2	631														
1996	46	536			582														
1997	157	420			577														
1998	107	530			637														
1999	132	315			447														
2000	108	333			441														
2001*	150	469			619														
2002*	n/a	281			281														
⁽²⁾ See Vb ₁ . ⁽³⁾ Included in Vb ₁ .																			
TUSK VIa																			
Year	Denmark	Faroes	France ⁽¹⁾	Germany	Ireland	Norway	E & W	N.I.	Scot.	Spain	Total								
1988	-	-	766	1	-	1,310	30	-	13		2,120								
1989	+	6	694	3	2	1,583	3	-	6		2,297								
1990	-	9	723	+	-	1,506	7	+	11		2,256								
1991	-	5	514	+	-	998	9	+	17		1,543								
1992	-	-	532	+	-	1,124	5	-	21		1,682								
1993	-	-	400	4	3	783	2	+	31		1,223								
1994	+		345	6	1	865	5	-	40		1,262								
1995		0	332	+	33	990	1		79		1,435								
1996		0	368	1	5	890	1		126		1,391								
1997		0	359	+	3	750	1		137	11	1,261								
1998			395	+		715	-		163	8	1,281								
1999			193	+	3	113	1		182	47	539								
2000			238	+	20	1327	8		231	158	1982								
2001*			162	+	31	1201	8		279	37	1718								
2002*			110		8	636	5		257	64	1080								
⁽¹⁾ Not allocated by divisions before 1993.																			

*Preliminary											
TUSK VIb											
Year	Faroes	France	Germany	Ireland	Iceland	Norway	E & W	N.I.	Scot.	Russia	Total
1988	217		-	-		601	8	-	34		860
1989	41	1	-	-		1,537	2	-	12		1,593
1990	6	3	-	-		738	2	+	19		768
1991	-	7	+	5		1,068	3	-	25		1,108
1992	63	2	+	5		763	3	1	30		867
1993	12	3	+	32		899	3	+	54		1,003
1994	70	1	+	30		1,673	6	-	66		1,846
1995	79	1	+	33		1,415	1		35		1,564
1996	0	1		30		836	3		69		939
1997	1	1		23		359	2		90		476
1998		1		24	18	630	9		233		915
1999				26	-	591	5		331		953
2000		2		22		1933	14		372	1	2,344
2001*		1		31		476	10		157	5	680
2002*	n/a	8		3		515	8		86		620
TUSK VIIa											
Year	France	E & W	Scotland	Total							
1988	n.a.	-	+	+							
1989	2	-	+	2							
1990	4	+	+	4							
1991	1	-	1	2							
1992	1	+	2	3							
1993	-	+	+	+							
1994	-	-	+	+							
1995	-	-	1	1							
1996	-	-									
1997	-	-	1	1							
1998	-	-	1	1							
1999	-	-	+	+							
2000		-	+	+							
2001*		-	1	+							
2002*	n/a	-	-	-							

TUSK VIIb,c								
Year	France	Ireland	Norway	E & W	N.I.	Scotland	Total	
1988	n.a.	-	12	5	-	+	17	
1989	17	-	91	-	-	-	108	
1990	11	3	138	1	-	2	155	
1991	11	7	30	2	1	1	52	
1992	6	8	167	33	1	3	218	
1993	6	15	70	17	+	12	120	
1994	5	9	63	9	-	8	94	
1995	3	20	18	6		1	48	
1996	4	11	38	4		1	58	
1997	4	8	61	1		1	75	
1998	3		28	-		2	33	
1999	-	16	130	-		1	147	
2000	3	58	88	12		3	164	
2001*	3	54	177	4		25	263	
2002*	1	31	30	1		3	66	
*Preliminary								
TUSK VIIg-k								
Year	France	Germany	Ireland	Norway	E & W	Scotland	Spain	Total
1988	n.a.		-	-	5	-		5
1989	3		-	82	1	-		86
1990	6		-	27	0	+		33
1991	4		-	-	8	2		14
1992	9		-	-	38	-		47
1993	5		17	-	7	3		32
1994	4		12	-	12	3		31
1995	3		8	-	18	8		37
1996	3		20	-	3	3		29
1997	4	4	11	-		+	0	19
1998	2	3	4	-		1	0	10
1999	1	1	-	-		+	6	8
2000	3		5	-	-	+	6	14
2001*	3		-	9	-	+	2	14

1996	-	139	142		281														
1997	-	10	108		118														
1998	1	-	14		15														
1999	-	n.a.	9		9														
2000			11		11														
2001*			69		69														
2002*	n/a	28	30		58														
*Preliminary																			
TUSK, total landings by Sub-areas or Division																			
Year	I	IIa	IIb	III	IVa	IVb	Va	Vb1	Vb2	VIa	VIb	VIIa	VIIb,c	VIIg-k	VIIIa	XII	XIVa	XIVb	All areas
1988		14,403	0	61	4429	0	6,855	4,059	1,606	2,120	860		17	5	1	1	2	0	34,419
1989		19,350	0	93	6418	4	7,061	3,722	1,400	2,297	1,593	2	108	86	1	1	1	22	42,158
1990		18,628	0	60	4254	5	7,291	5,202	979	2,256	768	4	155	33		0	2	30	39,667
1991		18,306	0	84	4537	2	8,732	5,170	1,096	1,543	1,108	2	52	14		1	2	133	40,782
1992		15,974	0	85	4932	12	8,009	4,399	992	1,682	867	3	218	47		1		202	37,423
1993		17,584	1	79	5141	14	6,075	2,862	577	1,223	1,003		120	32		12		80	34,803
1994		12,566	0	51	3375	7	5,824	3,407	909	1,262	1,846		94	31		1		25	29,398
1995		11,388	229	42	3348	15	6,225	3,347	631	1,435	1,564	1	48	37		18		87	28,415
1996	587	12,047	161	44	3369	163	6,102	2,728	582	1,391	939		58	29		158		281	28,639
1997	665	8,667	94	31	2272	38	5,394	2,742	577	1,261	476	1	75	19		30		118	22,460
1998	805	14,475	73	21	3387	66	5,171	2,073	637	1,281	915	1	33	10	1	1		15	28,965
1999	907	16,250	26	29	2435	34	7,264	3,517	447	539	953		147	15	0	1		9	32,573
2000	798	13,192	18	36	3259	116	6,391	2,533	441	1982	2,344		164	8		5		11	31,215
2001*	614	11290	146	51	3089	56	4747	3386	619	1718	680	1	263	11		51		69	26791
2002*	797	11355	30	46	2874	70	3409	1676	281	1080	620		66	5		27		58	22394
*Preliminary																			

ARGENTINES (<i>Argentina silus</i>) Vb												
Year	Faroes	Russia/USSF	UK (Scot)	UK(EWN)	Ireland	France	Netherlands	TOTAL				
1988	287							287				
1989	111	116						227				
1990	2885	3						2888				
1991	59		1					60				
1992	1439	4						1443				
1993	1063							1063				
1994	960							960				
1995	5534	6752						12286				
1996	9495		3					9498				
1997	8433							8433				
1998	17570							17570				
1999	8186		15	23		5		8214				
2000	7094	1185	247			64		8343				
2001*	9952	414	94		1			10460				
2002*	n/a	264	137				5	406				
*preliminary												
ARGENTINES (<i>Argentina silus</i>) VI and VII												
Year	Faroes	France	Germany	Ireland	Netherlands	Norway	E & W	Scotland	N.I.	Russia	Spain	TOTAL
1988				5454		4984						10438
1989	188			6103	3715	12184	198	3171				25559
1990	689		37	585	5871			112				7294
1991			7	453	4723			10	4			5197
1992			1	320	5118			467				5906
1993					1168			409				1577
1994			43	150	4137			1377				5707
1995	1597		357	6	5440			146				7546
1996			1394	295	3953			221				5863
1997			1496	1089	4696			20				7301
1998			463	405	4687							5555
1999		21	24	394	8025			387		5		8856
2000		17	482	4703	3633			4965		29	34	13863
2001*		12	189	7494	6882			7620		76		22273
2002*			150	7589	4020			4138		29		15926
*preliminary												
ARGENTINES (<i>Argentina silus</i>) VIII												
Year	Netherlands	TOTAL										
2002*	191	191										
ARGENTINES (<i>Argentina silus</i>) XII												
Year	Faroes	Iceland	TOTAL									
1988												
1989												
1990												
1991												
1992												
1993	6		6									
1994												
1995												
1996	1		1									
1997												
1998												
1999												
2000		2	2									
2001*												
2002*												
*preliminary												

ARGENTINES (<i>Argentina silus</i>) XIV													
Year	Norway	Iceland	TOTAL										
1988													
1989													
1990	6		6										
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998													
1999													
2000		217	217										
2001*	66		66										
2002*													
*preliminary													
Argentines, (<i>Argentina silus</i>). All areas.													
	I + II	III + IV	Va	Vb	VI + VII	VIII	XII	XIV	Total				
1988	11351	2718	206	287	10438				25000				
1989	8390	3786	8	227	25559				37970				
1990	9120	2321	112	2888	7294			6	21741				
1991	7741	2554	247	60	5197				15799				
1992	8234	5319	657	1443	5906				21559				
1993	7913	3269	1255	1063	1577		6		15083				
1994	6807	1508	613	960	5707				15595				
1995	6775	1082	492	12286	7546				28181				
1996	6604	3300	808	9498	5863		1		26074				
1997	4463	2598	3367	8433	7301				26162				
1998	8261	3982	13387	17570	5555				48755				
1999	7163	4319	5518	8214	8856		2		34087				
2000	6293	2471	4593	8343	13863			217	36027				
2001*	14363	1914	3046	10460	22273			66	45174				
2002*	7474	1328	4960	406	15926	191			30285				

Appendix Table 5. Working Group estimates of landings of orange roughy, *Hoplostethus atlanticus*.

Orange roughy in Division Va							
Year	Iceland	Total					
1988	-	0					
1989	-	0					
1990	-	0					
1991	65	65					
1992	382	382					
1993	717	717					
1994	158	158					
1995	64	64					
1996	40	40					
1997	79	79					
1998	28	28					
1999	14	14					
2000	68	68					
2001*	19	19					
2002*	10	10					
*Preliminary.							
Orange roughy in Division Vb							
Year	Faroes	France	Total				
1988	-	-	0				
1989	-	-	0				
1990	-	22	22				
1991	-	48	48				
1992	1	12	13				
1993	36	1	37				
1994	170	+	170				
1995	419	1	420				
1996	77	2	79				
1997	17	1	18				
1998	-	3	3				
1999	4	1	5				
2000	155	0	155				
2001*	1	4	5				
2002*	n/a	+	+				
*Preliminary.							
Orange roughy in Sub-area VI							
Year	Faroes	France	E & W	Scotland	Ireland	Spain	Total
1988	-	-	-	-	-	-	0
1989	-	5	-	-	-	-	5
1990	-	15	-	-	-	-	15
1991	-	3,502	-	-	-	-	3,502
1992	-	1,422	-	-	-	-	1,422
1993	-	429	-	-	-	-	429
1994	-	179	-	-	-	-	179
1995	40	74	-	2	-	-	116
1996	0	116	-	0	-	-	116
1997	29	116	1	-	-	-	146
1998	-	100	-	-	-	2	102
1999	-	175	-	-	0	1	176
2000	-	136	-	-	2	-	138
2001*	-	159	-	11	110	-	280
2002*	n/a	152		31	130		313
* Preliminary.							
Orange roughy in Sub-area VII							
Year	France	Spain	E & W	Ireland	Scotland	Total	
1988	-	-	-	-	-	0	

1989	3	-	-	-	-	3		
1990	2	-	-	-	-	2		
1991	1,406	-	-	-	-	1,406		
1992	3,101	-	-	-	-	3,101		
1993	1,668	-	-	-	-	1,668		
1994	1,722	-	-	-	-	1,722		
1995	831	-	-	-	-	831		
1996	879	-	-	-	-	879		
1997	893	-	-	-	-	893		
1998	963	6	-	-	-	969		
1999	1,157	4	-	-	-	1,161		
2000	1,019	-	729	1	-	1,749		
2001*	1022	-	1	2367	22	3412		
2002*	300	-	14	5114	24	5452		
*Preliminary.								
Orange roughy in Sub-area VIII								
Year	France	Spain VIII&IX	E & W	Total				
1988	-	-	-	0				
1989	0	-	-	0				
1990	0	-	-	0				
1991	0	-	-	0				
1992	83	-	-	83				
1993	68	-	-	68				
1994	31	-	-	31				
1995	7	-	-	7				
1996	22	-	-	22				
1997	1	22	-	23				
1998	4	10	-	14				
1999	33	6	-	39				
2000	47	-	5	52				
2001*	20	-	-	20				
2002*	21	-	-	21				
Orange roughy in Sub-area IX								
Year	Spain	Total						
1988	-	0						
1989	-	0						
1990	-	0						
1991	-	0						
1992	-	0						
1993	-	0						
1994	-	0						
1995	-	0						
1996	-	0						
1997	1	1						
1998	1	1						
1999	1	1						
2000	0	0						
2001*	0	0						
2002*	0	0						
*Preliminary.		Continued						
		...						
Orange roughy in Sub-area X								
Year	Faroes	France	Norway	E & W	Portugal	Total		
1988	-	-	-	-	-	0		
1989	-	-	-	-	-	0		
1990	-	-	-	-	-	0		
1991	-	-	-	-	-	0		

1992	-	-	-	-	-	-	0		
1993	-	-	1	-	-	-	1		
1994	-	-	-	-	-	-	0		
1995	-	-	-	-	-	-	0		
1996	470	1	-	-	-	-	471		
1997	6	-	-	-	-	-	6		
1998	177	-	-	-	-	-	177		
1999	-	10	-	-	-	-	10		
2000	-	3	-	28	157	-	188		
2001*	-	-	-	28	-	-	28		
2002*	n/a	-	-	-	-	-	-		
*Preliminary.									
Orange roughy in Sub-area XII									
Year	Faroes	France	Iceland	Spain	E & W		Total		
1988	-	-	-	-	-	-	0		
1989	-	0	-	-	-	-	0		
1990	-	0	-	-	-	-	0		
1991	-	0	-	-	-	-	0		
1992	-	8	-	-	-	-	8		
1993	24	8	-	-	-	-	32		
1994	89	4	-	-	-	-	93		
1995	580	96	-	-	-	-	676		
1996	779	36	3	-	-	-	818		
1997	802	6	-	-	-	-	808		
1998	570	59	-	-	-	-	629		
1999	345	43	-	43	-	-	431		
2000	69	21	-	-	2	-	92		
2001*	-	14	-	-	2	-	16		
2002*	n/a	6	-	-	-	-	6		
*Preliminary.									
ORANGE ROUGHY (<i>Hoplostethus atlanticus</i>), all areas									
Year	Va	Vb	VI	VII	VIII	X	XII	All areas	
1988	0	0	0	0	0	0	0	0	
1989	0	0	5	3	0	0	0	8	
1990	0	22	15	2	0	0	0	39	
1991	65	48	3502	1406	0	0	0	5021	
1992	382	13	1422	3101	83	0	8	5009	
1993	717	37	429	1668	68	1	32	2952	
1994	158	170	179	1722	31	0	93	2353	
1995	64	420	116	831	7	0	676	2114	
1996	40	79	116	879	22	471	818	2425	
1997	79	18	146	893	23	6	808	1973	
1998	28	3	102	969	14	177	629	1922	
1999	14	5	176	1161	39	10	431	1836	
2000	68	155	138	1749	52	188	92	2442	
2001	19	5	280	3412	20	28	16	3780	
2002*	10		313	5452	21		6	5802	

Appendix Table 6. Working Group estimates of landings of ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>).											
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) I and II											
Year	Faroe	Denmark	France	Germany	Norway	Russia/USSR	GDR	UK(E+W)	UK(Scot)	TOTAL	
1988											
1989			1	2		16	3			22	
1990			32	2		12	3			49	
1991			41	3	28					72	
1992		1	22	0	29					52	
1993			13	0	2					15	
1994			3	12						15	
1995			7							7	
1996			2							2	
1997	1		5		100					106	
1998			0		87	13				100	
1999			0		44	2				46	
2000			0						0	0	
2001*			0					2	0	2	
2002*	n/a				11	1				12	
*preliminary											
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) III											
Year	Denmark	Norway	Sweden	TOTAL							
1988	612		5	617							
1989	884		1	885							
1990	785	280	2	1067							
1991	1214	304	10	1528							
1992	1362	211	755	2328							
1993	1103	55		1158							
1994	517		42	559							
1995	0		1	1							
1996	2213			2213							
1997	0	124	42	166							
1998	1490	329		1819							
1999	3113	13		3126							
2000	2400	4		2404							
2001*	3067	35		3102							
2002*	4196	24		4220							
*preliminary											
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) IV											
Year	France	Germany	Norway	Scotland	Denmark	TOTAL					
1988		1				1					
1989	167	1			2	170					
1990	370	2				372					
1991	521	4				525					
1992	421			4	1	426					
1993	279	4			0	283					
1994	185	2			25	212					
1995	68	1			15	0	84				
1996	59				5	7	71				
1997	1				10	0	11				
1998	35		0			0	35				
1999*	56		5			0	61				
2000	2					0	2				
2001*	2					17	19				
2002*	11		1		18	0	30				
*preliminary											

ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) Va																		
Year	Faroes	Iceland***	Germany	UK(E+W)	TOTAL													
1988		2			2													
1989	2	2			4													
1990		7			7													
1991		48			48													
1992		210			210													
1993		276			276													
1994		210			210													
1995	0	398			398													
1996	1	139			140													
1997	0	198			198													
1998		120	0		120													
1999*		129	0		129													
2000		67			67													
2001*		57		0	57													
2002*	n/a	60			60													
*** includes other grenadiers from 1988 to 1996																		
*preliminary																		
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) Vb																		
Year	Faroes	France	Norway	Germany	Russia/USSSR	UK	TOTAL											
1988				1			1											
1989	20	181		5	52		258											
1990	75	1470		4			1549											
1991	22	2281	7	1			2311											
1992	551	3259	1	6			3817											
1993	339	1328		14			1681											
1994	286	381		1			668											
1995	405	818					1223											
1996	93	983		2			1078											
1997	53	1059					1112											
1998	50	1617					1667											
1999*	104	1861	2	0		29	1996											
2000	44	1699		1		43	1787											
2001*		1719					1719											
2002*	n/a	758				56	814											
*preliminary																		
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) VI																		
Year	Faroes	France	Germany	Ireland	Norway	Spain	E & W	UK (Scot)	Russia	TOTAL								
1988	27		4				1			32								
1989	2	2211	3					2		2218								
1990	29	5484	2							5515								
1991		7297	7							7304								
1992	99	6422	142		5		2	112		6782								
1993	263	7940	1					1		8205								
1994		5898	15	14				11		5938								
1995	0	6329	2	59				82		6472								
1996	0	5888						156		6044								
1997	15	5795		4	-			218		6032								
1998	13	5170			21	3				5207								
1999		5637	3	1	-	1				5642								
2000		7423		41	1	1002	1	433		8901								
2001*		5587	6	31	32	6942	21	955	3	13577								
2002*	n/a	7207		12				674		7893								
*preliminary																		

ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) VII					
Year	France	Ireland	Spain	UK (Scot)	TOTAL
1988					0
1989	222				222
1990	215				215
1991	489				489
1992	1556				1556
1993	1916				1916
1994	1922				1922
1995	1295				1295
1996	1051				1051
1997	1033		5		1038
1998	1146		11		1157
1999	892		4		896
2000	889		0		889
2001*	914	416	0		1330
2002*	451	605		1	1057
*preliminary					
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) VIII and IX					
Year	France	Spain	TOTAL		
1988			0		
1989	0		0		
1990	5		5		
1991	1		1		
1992	12		12		
1993	18		18		
1994	5		5		
1995	0		0		
1996	1		1		
1997	0	0	0		
1998	1	19	20		
1999	9	7	16		
2000	4	0	4		
2001*	7	0	7		
2002*	3	0	3		
*preliminary					
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) X					
Year	Faroes	France	JK (E+W)	TOTAL	
1988					
1989				0	
1990				0	
1991				0	
1992				0	
1993				0	
1994				0	
1995	0			0	
1996	3			3	
1997	1			1	
1998	1			1	
1999	3	3		6	
2000	0	0	74	74	
2001*	0			0	
2002*	n/a			0	
*preliminary					

ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) XII													
Year	Faroes**	France	Germany	Iceland	Ireland	Latvia	Ukraine/USSR	Poland	Spain	Germany	K (Scotl.)	Norway	TOTAL
1988							10600						10600
1989		0					9500						9500
1990		0					2800						2800
1991		14				4296	3200						7510
1992		13				1684	300						1997
1993		26	39			2176	500						2741
1994	457	20	9			675							1161
1995	359	285											644
1996	136	179		77			200		1136				1728
1997	138	111					700	5867	1800				8676
1998	19	116					800	6769	4262				11978
1999		287					-1	576	546	8251			9660
2000		391					2325		5791	9	6		8522
2001*		156			3		1714		5922		7	1	7803
2002*	n/a	14					737				1		752
*preliminary													
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>) XIV													
Year	Faroes	Germany	Greenland	Iceland***	Norway	E & W	Scotland	TOTAL					
1988		45	7					52					
1989	3	42						45					
1990		45	1			1		47					
1991		23	4			2		29					
1992		19	1	4	6		1	31					
1993		4	18	4				26					
1994		10	5					15					
1995	0	13	14					27					
1996	0	6	19					25					
1997	6	34	12		7			59					
1998	1	116	3		6			126					
1999		105	0		19			124					
2000		41			5			46					
2001*		11			7	2	72	92					
2002*		25			15		1	41					
*preliminary													
ROUNDNOSE GRENADIER (<i>Coryphaenoides rupestris</i>). All areas													
Year	I+II	III	IV	Va	Vb	VI	VII	VII+IX	X	XII	XIV	Total	
1988		617	1	2	1	32	0	0		10600	52	11,305	
1989	22	885	170	4	258	2218	222	0	0	9500	45	13,324	
1990	49	1067	372	7	1549	5515	215	5	0	2800	47	11,626	
1991	72	1528	525	48	2311	7304	489	1	0	7510	29	19,817	
1992	52	2328	426	210	3817	6782	1556	12	0	1997	31	17,211	
1993	15	1158	283	276	1681	8205	1916	18	0	2741	26	16,319	
1994	15	559	212	210	668	5938	1922	5	0	1161	15	10,705	
1995	7	1	84	398	1223	6472	1295	0	0	644	27	10,151	
1996	2	2213	71	140	1078	6044	1051	1	3	1728	25	12,356	
1997	106	166	11	198	1112	6032	1038	0	1	8676	59	17,399	
1998	100	1819	35	120	1667	5207	1157	20	1	11978	126	22,230	
1999	46	3126	61	129	1996	5642	896	16	6	9660	124	21,702	
2000	0	2404	2	67	1787	8901	889	4	74	8522	46	22,696	
2001*	2	3102	19	57	1719	13577	1330	7	0	7803	92	27,708	
2002*	12	4220	30	60	814	7893	1057	3	0	752	41	14882	
*preliminary													

Appendix Table 7. Working Group estimates of landings of Black scabbardfish (*Aphanopus carbo*).

Black scabbardfish in Sub-areas III and IV						
Year	France	Germany	Scotland	E&W&NI	Total	
1988	2	-	-	-	2	
1989	0	-	-	-	0	
1990	57	-	-	-	57	
1991	0	-	-	-	0	
1992	0	-	-	-	0	
1993	0	-	-	-	0	
1994	13	3	-	-	16	
1995	-	-	2	-	2	
1996	3	-	1	-	4	
1997	0	-	2	-	2	
1998	-	-	9	-	9	
1999	4	-	3	-	6	
2000	2	0	3	-	5	
2001*	1	0	10	1	12	
2002*			18		18	
* Preliminary.						
Black scabbardfish in Division Va						
Year	Iceland	Total				
1988	-	0				
1989	-	0				
1990	-	0				
1991	-	0				
1992	-	0				
1993	0	0				
1994	1	1				
1995	+	+				
1996	0	0				
1997	1	1				
1998	0	0				
1999	9	9				
2000	18	18				
2001*	8	8				
2002*	13	13				
* Preliminary.						
Black scabbardfish in Division Vb						
Year	Faroes	France	Germany	Scotland	E&W&NI	Total
1988	-	-	-	-	-	0
1989	-	166	-	-	-	166
1990	12	407	-	-	-	419
1991	1	151	-	-	-	152
1992	4	29	-	-	-	33
1993	202	76	9	-	-	287
1994	114	45	1	-	-	160
1995	249	175	-	-	-	424
1996	57	129	-	-	-	186
1997	18	50	-	-	-	68
1998	36	144	-	-	-	180
1999	31	135	-	6	-	172
2000	117	186	0	9	-	313
2001*	189	371	0	20	0	581
2002*		310		48		358
* Preliminary.						

Black scabbardfish in Sub-area XII									
Year	Faroes	France	Germany	Spain	Scotland	Total			
1988	-	-	-	-	-	0			
1989	-	-	-	-	-	0			
1990	-	-	-	-	-	0			
1991	-	-	-	-	-	0			
1992	-	512	-	-	-	512			
1993	1051	-	93	-	-	1,144			
1994	779	-	45	-	-	824			
1995	301 ⁽¹⁾	-	-	-	-	301			
1996	187	4	-	253	-	444			
1997	102	-	-	98	-	200			
1998	20	-	-	134	-	154			
1999	-	3	-	109	0	112			
2000	1	6	0	237	-	244			
2001	-	3	0	115	-	118			
2002*	-	0	0	0	1	1			
* Preliminary. ⁽¹⁾ Includes VIb.									
Black scabbardfish in Sub-area XIV									
Year	Faroes	Spain	Total						
1988	-	-	0						
1989	-	-	0						
1990	-	-	0						
1991	-	-	0						
1992	-	-	0						
1993	-	-	0						
1994	-	-	0						
1995	-	-	0						
1996	-	-	0						
1997	-	-	0						
1998	2	-	2						
1999	-	-	0						
2000	-	90	90						
2001	-	0	0						
2002*	-	0	0						
* Preliminary.									
Black Scabbardfish (<i>Aphanopus carbo</i>) All ICES areas									
	III+IV	Va	Vb	VI+VII	VIII+IX	X	XII	XIV	Total
1988	2	0	0	0	2602	0	0	0	2604
1989	0	0	166	154	3473	0	0	0	3793
1990	57	0	419	1060	3274	0	0	0	4810
1991	0	0	152	2759	3979	166	0	0	7056
1992	0	0	33	3436	4389	370	512	0	8740
1993	0	0	287	3529	4513	2	1144	0	9475
1994	16	1	160	3101	3429	0	824	0	7531
1995	2+		424	3278	4272	3	301	0	8280
1996	4	0	186	3689	3815	11	444	0	8149
1997	2	1	68	2995	3556	3	200	0	6825
1998	9	0	180	1967	3152	99	154	2	5563
1999	6	9	172	2166	2752	112	112	0	5329
2000	5	18	313	3712	2403	113	244	90	6898
2001*	12	8	581	4620	2766	0	118	0	8105
2002*	18	13	358	5947	2724	0	1	0	9061

Appendix Table 8. Working Group estimates of landings of RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>).						
RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>) VI and VII						
Year	France	Ireland	Spain	E & W	Ch. Islands	TOTAL
1988	52	0	47	153	0	252
1989	44	0	69	76	0	189
1990	22	3	73	36	0	134
1991	13	10	30	56	14	123
1992	6	16	18	0	0	40
1993	5	7	10	0	0	22
1994	0	0	9	0	1	10
1995	0	6	5	0	0	11
1996	0	4	24	1	0	29
1997	0	20	0	36		56
1998	0	4	7	6		17
1999	0	8	0	15		25
2000	4	n/a	3	13		20
2001*	1	11	2	37		50
2002*	2		9	13		24
* Preliminary						
RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>) VIII						
Year	France	Spain	England	TOTAL		
1988	37	91	9	137		
1989	31	234	7	272		
1990	15	280	17	312		
1991	10	124	0	134		
1992	5	119	0	124		
1993	3	172	0	175		
1994	0	131	0	131		
1995	0	110	0	110		
1996	0	23	0	23		
1997	18	7	0	25		
1998	18	86	0	104		
1999	20	84	0	104		
2000	81	189	0	270		
2001*	11	168	0	179		
2002*	8	89		97		
* Preliminary						
RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>) IX						
Year	Portugal	Spain	TOTAL			
1988	370	319	689			
1989	260	416	676			
1990	166	428	594			
1991	109	423	532			
1992	166	631	797			
1993	235	765	1000			
1994	150	854	1004			
1995	204	625	829			
1996	209	769	978			
1997	203	808	1011			
1998	357	520	877			

1999	265	278	543					
2000	83	338	421					
2001*	97	277	374					
2002*	111	250	361					
* Preliminary								
RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>) X								
Year	Portugal	TOTAL						
1988	637	637						
1989	924	924						
1990	889	889						
1991	874	874						
1992	1110	1110						
1993	829	829						
1994	983	983						
1995	1096	1096						
1996	1036	1036						
1997	1012	1012						
1998	1114	1114						
1999	1222	1222						
2000	947	947						
2001*	1034	1034						
2002*								
*Preliminary								
RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>) XII								
Year	Latvia	TOTAL						
1988		0						
1989		0						
1990		0						
1991		0						
1992		0						
1993		0						
1994	75	75						
1995		0						
1996		0						
1997		0						
1998		0						
1999		0						
2000		0						
2001*		0						
2002*		0						
* Preliminary								
RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>) in Madeira (Portugal)								
Year	Portugal	TOTAL						
1988		0						
1989		0						
1990	6	6						
1991	8	8						
1992	7	7						
1993	8	8						

1994	7	7						
1995	8	8						
1996	4	4						
1997	5	5						
1998	14	14						
1999	13	13						
2000								
2001*								
2002*								
*Preliminary								
RED (=BLACKSPOT) SEABREAM (<i>Pagellus bogaraveo</i>) All ICES sea areas								
Year	VI+VII	VIII	IX	X	XII	TOTAL		
1988	252	137	689	637	0	1715		
1989	189	272	676	924	0	2061		
1990	134	312	594	889	0	1929		
1991	123	134	532	874	0	1663		
1992	40	124	797	1110	0	2071		
1993	22	175	1000	829	0	2026		
1994	10	131	1004	983	75	2203		
1995	11	110	829	1096	0	2046		
1996	29	23	978	1036	0	2066		
1997	56	25	1011	1012	0	2104		
1998	17	104	877	1114	0	2112		
1999	25	104	543	1222	0	1884		
2000	20	270	421	947	0	1658		
2001*	50	179	274	1034	0	1537		
2002*	24	97	361			482		
* Preliminary								

Appendix Table 9 Alfonsinos (*Beryx* sp.). Working Group estimates of landings (tonnes).

ALFONSINOS (<i>Beryx</i> spp.) IV				
Year	France	TOTAL		
1988	0	0		
1989	0	0		
1990	1	1		
1991	0	0		
1992	2	2		
1993	0	0		
1994	0	0		
1995	0	0		
1996	0	0		
1997	0	0		
1998	0	0		
1999	0	0		
2000	0	0		
2001*	0	0		
2002*	0	0		
*Preliminary				
ALFONSINOS (<i>Beryx</i> spp.) Vb				
Year	Faroes	France	TOTAL	
1988			0	
1989			0	
1990		5	5	
1991		0	0	
1992		4	4	
1993		0	0	
1994		0	0	
1995	1	0	1	
1996	0	0	0	
1997	0	0	0	
1998	0	0	0	
1999	0	0	0	
2000	0	0	0	
2001*	0	0	0	
2002*	0	0	0	
*Preliminary				
ALFONSINOS (<i>Beryx</i> spp.) VI and VII				
Year	France	E & W	Spain	TOTAL
1988				
1989	12			12
1990	8			8
1991				0
1992	3			3
1993	0		1	1
1994	0		5	5
1995	0		3	3
1996	0		178	178
1997	17	4	4	25
1998	10	0	71	81
1999	67	0	20	87
2000		2	100	102
2001*		13	115	128
2002*	31	15	69	115
*Preliminary				

ALFONSINOS (<i>Beryx</i> spp.) VIII and IX						
Year	France	Portugal	Spain	E & W	TOTAL	
1988						
1989						
1990	1				1	
1991					0	
1992	1				1	
1993	0				0	
1994	0		2		2	
1995	0	75	7		82	
1996	0	43	45		88	
1997	69	35	31		135	
1998	1	9	259		269	
1999	8	29	161		198	
2000		40	117	4	161	
2001*		43	179	0	222	
2002*	11	60	38	14	123	
*Preliminary						
ALFONSINOS (<i>Beryx</i> spp.) X						
Year	Faroes	Norway	Portugal	Russia	E & W	TOTAL
1988			225			225
1989			260			260
1990			338			338
1991			371			371
1992			450			450
1993		195	533			728
1994		0	636	864		1500
1995	0	0	523	100		623
1996	0		536			536
1997	5		378	600		983
1998	0		228			228
1999	0		175			175
2000			209		15	224
2001*			199			199
2002*						0
*Preliminary						
ALFONSINOS (<i>Beryx</i> spp.) XII						
Year	Faroes	TOTAL				
1988		0				
1989		0				
1990		0				
1991		0				
1992		0				
1993		0				
1994		0				
1995	2	2				
1996	0	0				
1997	0	0				
1998	0	0				
1999	0	0				
2000	0	0				
2001*	0	0				
2002*	n/a					
*Preliminary						

ALFONSINOS (<i>Beryx</i> spp.) in Madeira (Portugal)							
Year	Portugal	TOTAL					
1988		0					
1989		0					
1990		0					
1991		0					
1992		0					
1993		0					
1994		0					
1995	1	1					
1996	11	11					
1997	4	4					
1998	3	3					
1999	2	2					
2000	n/a						
2001*	n/a						
2002*	n/a						
*Preliminary							
ALFONSINOS (<i>Beryx</i> spp.). All areas.							
Year	IV	Vb	VI+VII	VIII+IX	X	XII	TOTAL
1988	0	0	0	0	225	0	225
1989	0	0	12	0	260	0	272
1990	1	5	8	1	338	0	353
1991	0	0	0	0	371	0	371
1992	2	4	3	1	450	0	460
1993	0	0	1	0	728	0	729
1994	0	0	5	2	1500	0	1507
1995	0	1	3	82	623	2	711
1996	0	0	178	88	536	0	802
1997	0	0	25	135	983	0	1143
1998	0	0	81	269	228	0	578
1999	0	0	87	198	175	0	460
2000	0	0	102	161	224	0	487
2001*	0	0	128	222	199	0	549
2002*	0	0	115	123	0	0	238
*Preliminary							

Appendix Table 10. Working Group estimates of landings of GREATER FORKBEARD (*Phycis blennoides*).

GREATER FORKBEARD (<i>Phycis blennoides</i>) I and II						
Year	Norway	France	Russia	Scotland	Germany	TOTAL
1988	0					0
1989	0					0
1990	23					23
1991	39					39
1992	33					33
1993	1					1
1994	0					0
1995	0					0
1996	0					0
1997	0					0
1998	0					0
1999	0	0				0
2000	0	0				0
2001*	0	1	7			8
2002*	338			1	2	341
*Preliminary data						
GREATER FORKBEARD (<i>Phycis blennoides</i>) III and IV						
Year	France	Norway & W & N.I.	Scotland ⁽¹⁾	Germany	TOTAL	
1988	12	0	3	0	15	
1989	12	0	0	0	12	
1990	18	92	5	0	115	
1991	20	161	0	0	181	
1992	13	130	0	2	145	
1993	6	28	0	0	34	
1994	11			1	12	
1995	2			1	3	
1996	2	10		6	18	
1997	2			5	7	
1998	1		0	11	12	
1999	3		5	23	31	
2000	3		0	7	11	
2001*	5		1	19	26	
2002*	1	537	1	22	561	
*Preliminary data						
(1) Includes Moridae						
GREATER FORKBEARD (<i>Phycis blennoides</i>) Vb						
Year	France	Norway & W & N.I.	Scotland ⁽¹⁾	TOTAL		
1988	2	0		2		
1989	1	0		1		
1990	10	28		38		
1991	9	44		53		
1992	16	33		49		
1993	5	22		27		
1994	4			4		
1995	9			9		
1996	7			7		
1997	7			7		
1998	4	4		8		
1999	6	28	0	34		
2000	4	26	0	32		
2001*	5	92	1	98		
2002*	10	133	5	148		

*Preliminary data									
⁽¹⁾ Includes Moridae									
GREATER FORKBEARD (<i>Phycis blennoides</i>) VI and VII									
Year	France	Ireland	Norway	Spain	E&W&N.I.	Scotland ⁽¹⁾	Germany	Russia	TOTAL
1988	252	0	0	1584	62	0			1898
1989	342	14	0	1446	13	0			1815
1990	454	0	88	1372	6	1			1921
1991	476	1	126	953	13	5			1574
1992	646	4	244	745	0	1			1640
1993	582	0	53	824	0	3			1462
1994	451	111		1002	0	7			1571
1995	430	163		722	808	15			2138
1996	519	154		1428	1434	55			3590
1997	512	131	5	46	1460	181			2335
1998	357	530	162	530	1364	97			3040
1999	317	686	183	824	929	518	1		3430
2000	622	743	380	1613	731	820	8	2	4919
2001*	587	663	536	1359	540	640	10	4	4339
2002*	389	481	300	1050	420	521	9	0	3170
*Preliminary data									
(1) Includes Moridae									
GREATER FORKBEARD (<i>Phycis blennoides</i>) VIII and IX									
Year	France	Portugal	Spain	TOTAL					
1988	7	0	74	81					
1989	7	0	138	145					
1990	16	0	218	234					
1991	18	4	108	130					
1992	9	8	162	179					
1993	0	8	387	395					
1994		0	320	320					
1995	54	0	330	384					
1996	25	2	429	456					
1997	4	1	356	361					
1998	3	6	655	664					
1999	6	10	361	377					
2000	31	6	374	411					
2001*	22	8	454	484					
2002*	47	8	273	328					
*Preliminary data									
GREATER FORKBEARD (<i>Phycis blennoides</i>) X									
Year	Portugal ⁽¹⁾	TOTAL							
1988	29	29							
1989	42	42							
1990	50	50							
1991	68	68							
1992	81	81							
1993	115	115							
1994	135	135							
1995	71	71							
1996	45	45							
1997	30	30							
1998	38	38							
1999	41	41							
2000	94	94							

2001*	83	83							
2002*									
*Preliminary data									
(1) Includes Moridae									
GREATER FORKBEARD (<i>Phycis blennoides</i>) XII									
Year	France	Norway	E.&W&N.I.	Scotland ⁽¹⁾	Spain	TOTAL			
1988									
1989									
1990									
1991									
1992	1					1			
1993	1					1			
1994	3					3			
1995	4					4			
1996	2					2			
1997	2					2			
1998	1					1			
1999	0			0		0			
2000	2			4		6			
2001*	0	6	1	1	76	84			
2002*	0	2	4			6			
*Preliminary data									
GREATER FORKBEARD (<i>Phycis blennoides</i>) XIV									
Year	Norway	TOTAL							
2002*	23	23							
(1) Includes Moridae									
GREATER FORKBEARD (<i>Phycis blennoides</i>) All areas.									
Year	I+II	III+IV	Vb	VI+VII	VIII+IX	X	XII	XIV	TOTAL
1988	0	15	2	1898	81	29	0		2025
1989	0	12	1	1815	145	42	0		2015
1990	23	115	38	1921	234	50	0		2381
1991	39	181	53	1574	130	68	0		2045
1992	33	145	49	1640	179	81	1		2128
1993	1	34	27	1462	395	115	1		2035
1994	0	12	4	1571	320	135	3		2045
1995	0	3	9	2138	384	71	4		2609
1996	0	18	7	3590	456	45	2		4118
1997	0	7	7	2335	361	30	2		2742
1998	0	12	8	3040	665	38	1		3764
1999	0	31	34	3430	377	41	0		3913
2000	0	11	32	4919	383	94	6		5445
2001*	8	26	98	4339	451	83	8		5013
2002*	341	561	148	3170	328		6	23	4577
*Preliminary data									

Appendix Table 11. Other species. Working Group estimates of landings (tonnes). Data from 2001 and 2002 are preliminary.

SMOOTHHEAD (*Alepocephalus* spp.) Va

Year	Iceland	TOTAL
1988		
1989		
1990		
1991		
1992	10	10
1993	3	3
1994	1	1
1995	1	1
1996		
1997	+	
1998		
1999		
2000		
2001		
2002		

SMOOTHHEAD (*Alepocephalus* spp.) VI

Year	Spain	Scotland	TOTAL
2000	978		978
2001	4689		4689
2002		1	1

SMOOTHHEAD (*Alepocephalus* spp.) XII

Year	Spain	TOTAL
1988		
1989		
1990		
1991		
1992		
1993		
1994		
1995		
1996	230	230
1997	3692	3692
1999	4643	4643
1999	6549	6549
2000	4146	4146
2001	3132	3132
2002		

SMOOTHHEAD (*Alepocephalus* spp.) XIV

Year	Germany	Spain	TOTAL
1988			
1989			
1990			
1991			
1992			
1993			
1994			
1995			
1996			
1997			
1999			
2000	12		12
2001			
2002			

SMOOTHHEAD (*Alepocephalus* spp.). All areas.

Year	Va	VI	XII	XIV	TOTAL
1988					
1989					
1990					

1991										
1992	10					10				
1993	3					3				
1994	1					1				
1995	1					1				
1996			230			230				
1997			3692			3692				
1999			4643			4643				
1999			6549			6549				
2000		978	4146	12		5136				
2001		4689	3132			7821				
2002		1				1				
RABBIT FISH (<i>Chimaera monstrosa</i>) II										
Year	France	TOTAL								
1988										
1989										
1990										
1991										
1992										
1993										
1994										
1995										
1996										
1997										
1998										
1999	1	1								
2000	6	6								
2001	5	5								
2002	2	2								
RABBIT FISH (<i>Chimaera monstrosa</i>) III/IV										
Year	Denmark	France	Scotland	TOTAL						
1988										
1989										
1990										
1991										
1992	122									
1993	8									
1994	167									
1995										
1996	14									
1997	38									
1998	56									
1999	45									
2000	17	15	1	15						
2001	10	10		10						
2002	21	3		24						
RABBIT FISH (<i>Chimaera monstrosa</i>) Va										
Year	Iceland	TOTAL								
1988		0								
1989		0								
1990		0								
1991	499	499								
1992	106	106								
1993	3	3								
1994	60	60								
1995	106	106								
1996	21	21								
1997	15	15								
1998	29	29								
1999	2	2								
2000	5	5								
2001		0								
2002		0								
RABBIT FISH (<i>Chimaera monstrosa</i>) Vb										

Year	Faroes	France	Scotland	TOTAL						
1988										
1989										
1990										
1991										
1992										
1993										
1994										
1995	1				1					
1996	0									
1997	0									
1998										
1999		3	+		3					
2000		54			54					
2001		82			82					
2002		47			47					
RABBIT FISH (<i>Chimaera monstrosa</i>) VI and VII										
Year	EWI	France	Ireland	Scotland	Spain	TOTAL				
1988										
1989										
1990										
1991										
1992										
1993										
1994				2		2				
1995										
1996										
1997										
1998										
1999		235			1	236				
2000		3	347	3	+	2	355			
2001		1	622	13		6	642			
2002			543			7	550			
RABBIT FISH (<i>Chimaera monstrosa</i>) VIII										
Year	France	TOTAL								
1988										
1989										
1990										
1991										
1992										
1993										
1994										
1995										
1996										
1997										
1998										
1999	2	2								
2000	2	2								
2001	7	7								
2002	6	6								
RABBIT FISH (<i>Chimaera monstrosa</i>) XII										
Year	Spain	France	Ireland	TOTAL						
1988				0						
1989				0						
1990				0						
1991				0						
1992				0						
1993				0						
1994				0						
1995				0						
1996				0						
1997	32			32						
1998	42			42						
1999	114	1		115						
2000	46	2		48						

2001	61	1	1	63					
2002				0					
RABBIT FISH (<i>Chimaera monstrosa</i>). All areas.									
Year	II	III/IV	Va	Vb	VI/VII	VIII	XII	TOTAL	
1988			0				0	0	
1989			0				0	0	
1990			0				0	0	
1991			499				0	499	
1992			106				0	106	
1993			3				0	3	
1994			60			2	0	62	
1995			106	1			0	107	
1996			21				0	21	
1997			15				32	47	
1998							42	42	
1999	1		2	3	236		2	115	359
2000	6	15	4	54	355		2	48	484
2001	5	10		82	641		7	63	808
2002	2	24		47	550		6		629
DEEP_WATER CARDINAL FISH (<i>Epigonus telescopus</i>) Vb									
Year	France	TOTAL							
1999	8	8							
2000	2	2							
2001	6	6							
2002		0							
DEEP_WATER CARDINAL FISH (<i>Epigonus telescopus</i>) VI									
Year	France	Ireland	UK (SCO) E & W	TOTAL					
1999	54			54					
2000	60	1 +		61					
2001	58	10	21	89					
2002		3	0	3					
DEEP_WATER CARDINAL FISH (<i>Epigonus telescopus</i>) VII									
Year	France	Faroes	Ireland	TOTAL					
1999	221	4		225					
2000	178		2	180					
2001	74		207	281					
2002									
DEEP_WATER CARDINAL FISH (<i>Epigonus telescopus</i>) VIII and IX									
Year	France	Portugal	TOTAL						
1999		3	3						
2000	2	3	5						
2001		3	3						
2002		3	3						
DEEP_WATER CARDINAL FISH (<i>Epigonus telescopus</i>) X									
Year	France	TOTAL							
1999									
2000	3	3							
2001									
2002									
DEEP_WATER CARDINAL FISH (<i>Epigonus telescopus</i>). All areas.									
Year	Vb	VI	VII VIII and IX	X	TOTAL				
1999	8	54	225	3	290				
2000	2	61	180	5	251		3		
2001	6	68	281	3	358				

2002			3		3		6						
BLUEMOUTH (<i>Helicolenus dactylopterus</i>) III/IV													
Year	UK (EW)	UK (SCO)	TOTAL										
1999	5	+	5										
2000		+											
2001			0										
2002			0										
BLUEMOUTH (<i>Helicolenus dactylopterus</i>) Vb													
Year	UK (EW)	UK (SCO)	TOTAL										
1999	58	+	58										
2000	16		16										
2001			0										
2002			0										
BLUEMOUTH (<i>Helicolenus dactylopterus</i>) VI													
Year	France	Spain	UK (EW)	UK (SCO)	TOTAL								
1999	57	91		58	206								
2000	37	64	28	85	214								
2001	37	9	33		79								
2002			14		14								
BLUEMOUTH (<i>Helicolenus dactylopterus</i>) VII													
Year	France	UK (EW)	UK (SCO)	Spain	TOTAL								
1999	66	112	19	+	197								
2000	61	49	18	+	128								
2001	37	21		+	58								
2002		25			25								
BLUEMOUTH (<i>Helicolenus dactylopterus</i>) VIII and IX													
Year	France	Portugal	Spain	TOTAL									
1999	7	15	9	31									
2000	17	12	7	36									
2001	5	22	7	34									
2002		16		16									
BLUEMOUTH (<i>Helicolenus dactylopterus</i>) X													
Year	Portugal	TOTAL											
1999	320	320											
2000	452	452											
2001	301	301											
2002													
BLUEMOUTH (<i>Helicolenus dactylopterus</i>). All areas													
Year	III and IV	Vb	VI	VII	VIII and IX	X	TOTAL						
1999	5	58	206	197	31	320	817						
2000		16	214	128	36	452	846						
2001			79	58	34	301	472						
2002			14	25	16		55						
SILVER SCABBARD FISH (<i>Lepidopus caudatus</i>) VI and VII													
Year	EWN	France	Germany	Scotland	TOTAL								
1993			2		2								
1999		18			18								
2000	+		3	12	15								

2001					0						
2002					0						
SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>) VIII and IX											
Year	France	Portugal	Spain	ssia/USSR	TOTAL						
1988		2666			2666						
1989		1385			1385						
1990		547		37	584						
1991		808			808						
1992		1264		110	1374						
1993		2397			2397						
1994		1054			1054						
1995		5672			5672						
1996		1237			1237						
1997		1725			1725						
1998		966			966						
1999	2	3067	1584		4653						
2000	1	15			16						
2001	2	22	389		413						
2002		16			16						
SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>) X											
Year	Latvia	Portugal	TOTAL								
1988		70	70								
1989		91	91								
1990		120	120								
1991		166	166								
1992	1905	255	2160								
1993	1458	264	1722								
1994		373	373								
1995	8	781	789								
1996		815	815								
1997		1115	1115								
1998		1186	1186								
1999		86	86								
2000		28	28								
2001		14	14								
2002											
SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>) XII											
Country	ssia/USSR	TOTAL									
1988											
1989	102	102									
1990	20	20									
1991											
1992											
1993	19	19									
1994											
1995											
1996											
1997*											
1998											
1999											
2000											
2001											
2002											
SILVER SCABBARDFISH (<i>Lepidopus caudatus</i>). ALL AREAS											
	VI and VII	VIII and IX	X	XII	TOTAL						
1988		2666	70		2736						
1989		1385	91	102	1578						
1990		584	120	20	724						

1991		808	166		974				
1992		1374	2160		3534				
1993	2	2397	1722	19	4140				
1994		1054	373		1427				
1995		5672	789		6461				
1996		1237	815		2052				
1997		1725	1115		2840				
1998		966	1186		2152				
1999	18	4653	86		4757				
2000	15	57	28		100				
2001		413	14		427				
2002		16			16				

ROUGHHEAD GRENADIER (*Macrourus berglax*) I and II

Year	Germany	Norway	Russia	TOTAL
1988				
1989				
1990	9	580		589
1991		829		829
1992		424		424
1993		136		136
1994				
1995				
1996				
1997		17		17
1998		55		55
1999				
2000		35	13	48
2001		74	20	94
2002			1	1

ROUGHHEAD GRENADIER (*Macrourus berglax*) III and IV

Year	France	Ireland	Norway	Scotland	TOTAL
1988					
1989					
1990					
1991					
1992			7		7
1993					
1994					
1995					
1996					
1997	36				36
1998					
1999					
2000		1	3 +		4
2001	1	1	9		11
2002					0

ROUGHHEAD GRENADIER (*Macrourus berglax*) Va

Year	Iceland	TOTAL
1988		
1989		
1990		
1991		
1992		
1993		
1994		
1995		
1996	15	15
1997	4	4
1998	1	1
1999		
2000	5	5

1992	3	234		237						
1993		308	3	311						
1994		428		428						
1995		240		240						
1996		240		240						
1997		177		177						
1998		139		139						
1999		133		133						
2000		268		268						
2001		232		232						
2002										
WRECKFISH (<i>Polyprion americanus</i>) All areas										
	VI and VII	VIII and IX	X	TOTAL						
1988	7	198	191	396						
1989		284	235	519						
1990	2	163	224	389						
1991	10	194	170	374						
1992	15	269	237	521						
1993		338	311	649						
1994	0	409	428	837						
1995	0	393	240	633						
1996	83	294	240	617						
1997	0	214	177	391						
1998	12	227	139	378						
1999	14	151	133	298						
2000	14	121	268	403						
2001	17	165	232	414						
2002		124		124						