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German Research Report for 2005

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Sub-area 1

A. Status of the Fishery

In 2005, demersal fishing was conducted with low effort in Division 1D inside the Greenland EEZ from September until November. The fishery was directed towards Greenland halibut (*Reinhardtius hippoglossoides*). By end of the year, reported landings amounted to 549 tons of Greenland halibut. There was negligible by-catch of roundnose grenadiers (4 tons), wolffish and skates reported (less than 1 ton). Table 1 lists a breakdown of the effort, landings, and non-standardised Greenland halibut CPUE by month and year. The annual trend is shown in Figure 1.

While the demersal fishery for Greenland halibut is a normal activity, the pelagic fishery for pelagic redfish (*Sebastes mentella*) occurred for the first time off Southwest Greenland in 1999 and increased substantially in 2000 due to a change in distribution patterns of the stock in westerly direction as derived from a biennial international hydro-acoustic surveys conducted in June/July 2001-2005 by Iceland, Russia and Germany (e.g. ICES CM, 2002, 2005). The German fisheries in Div. 1F as well as historic survey results are described in detail by (Rätz and Stransky, 2001). After 2000, the fishery was conducted in the NAFO Regulatory Area and Greenland EEZ in Div. 1F during the 3rd quarter at depths above 500 m and targeted almost exclusively mature redfish with almost no discard and no by-catch of other species. In comparison with 2000 when total landings of 4 476 tons were reported, both landings and effort decreased substantially after 2003, when 2 536 tons were caught. In 2004, catches declined to 1000 tons and clearly dropped to 794 tons in 2005 obtained with 1535 h effort. CPUE also reached a record low in 2005. Table 2 lists a breakdown of the effort, landings, and non-standardised pelagic redfish CPUE by area, year and quarter.

B. Special Studies

1. Environment

During the German groundfish survey off Greenland (October 19-November 12, 2005), fishery oceanographic measurements were performed at 41 fishing stations off West Greenland by means of CTD/Rosette. Additionally, temperature and salinity at stations of 2 NAFO standard oceanographic sections off West Greenland (Cape Desolation [3], Fyllas Bank [5]) were measured in order to describe long-term trends.

2. Biological Studies

Since 1982, annual groundfish surveys were conducted. During the fourth quarter, stratified random surveys covered shelf areas and the continental slope off West Greenland (Div. 1B-1F) outside the 3-mile limit to the 400 m isobath. In October-November 2005, 41 valid hauls were carried out while covering about 75 % of the standard survey area. Based on this survey information, assessments of the stock status for demersal

redfish (*Sebastes marinus*, *S. mentella*), American plaice (*Hippoglossoides platessoides*), Atlantic wolffish (*Anarhichas lupus*), and thorny skate (*Raja radiata*) are documented (Fock et al., 2006).

During the period 14 June until 12 July 2005, the German research vessel "*Walther Herwig III*" participated in the international hydro-acoustic pelagic trawl survey together with Icelandic and Russian vessels (ICES SGRS REPORT 2005, publ. as ICES CM 2005/D:03). The survey is designed to cover the entire distribution of pelagic redfish in NAFO and ICES Divisions down to 1 000 m depth. The redfish abundance in NAFO Div. 1F was slightly increased in 2005 compared to the period prior to 2003 (survey in 2003 was not recommended to be used for assessment purposes).

The catch rate estimates for pelagic redfish can hardly be interpreted as stock size indices given the recent redistribution of the fishery and its seasonal limitation. Catch rate analyses including the entire stock distribution in the NAFO and ICES Divisions are undertaken by the ICES North-western Working Group and recently reviewed by ACFM. The pelagic redfish size composition in the German catch is illustrated in Fig. 2. The size compositions of the catches in 2000-2004 are almost identical with mean fish sizes ranging about 35 cm, whereas for 2005 there is indication of a shift to older specimens >40 cm.

Sub-area 2

A. Status of the Fishery

In 2005, German trawlers conducted a pelagic fishery for pelagic redfish (*Sebastes mentella*) for the first time in the NAFO Regulatory Area of Div. 2J. The fishery was conducted in Div. 2J during the 3rd quarter only at depths above 500 m and targeted almost exclusively mature redfish with almost no discard and no by-catch of other species. In 2003, landings and effort amounted to 467 t and 606 trawling hours, respectively. Since then, landings declined, reaching 232 tons in 2005. Table 3 lists a breakdown of the effort, landings, and non-standardised pelagic redfish CPUE by year and quarter.

B. Special Studies

1. Environment

No research in relation to environment was carried out by Germany in NAFO Sub-area 2.

2. Biological studies

2005 hydro-acoustic survey for pelagic redfish: see SA 1

Sub-area 3

A. Status of the Fishery

In 2005, German fishing vessels did not fish in Sub-area 3.

B. Special Studies

1. Environment

No research in relation to environment was carried out by Germany in NAFO Sub-area 3.

2. Biological studies

No biological samplings or studies were performed by Germany in NAFO Sub-area 3.

References:

ICES CM 2005. Report of the study group on redfish stocks (SGRS). ICES CM 2005 D:03, 48 pp.

Fock, H., Rätz, H.-J. and C. Stransky 2006. Stock Abundance Indices and Length Compositions of Demersal Redfish and Other Finfish in NAFO Sub-area 1 and near-bottom water temperature derived from the German bottom trawl survey 1982-2004. NAFO SCR Doc., announced for NAFO Scientific Council Meeting June 2006.

Table 1. German effort (hours fished), landings (tons), unstandardized CPUE (kg/h) and accompanied standard deviations for Greenland halibut (*R. hippoglossoides*) in Sub-div. 1D by month and by year, 1996-2005.

Year	Month	Effort 1D	Landing 1D	CPUE 1D	St.Dev.
1996	September	74	19	265	97
1996	October	490	136	270	104
1996	November	562	259	457	147
1996	December	90	37	415	150
1996		1217	452	365	158
1997	November	758	334	456	262
1997	December	262	112	423	138
1997		1020	446	448	237
1998	October	34	16	482	225
1998	November	506	205	430	191
1998	December	267	129	494	154
1998		806	350	446	186
1999	September	208	89	428	80
1999	October	439	163	371	71
1999	November	462	187	400	83
1999		1108	439	393	80
2000	September	318	161	504	119
2000	October	471	194	426	120
2000	November	209	89	426	62
2000		998	444	447	118
2001	September	296	133	435	256
2001	October	873	277	329	164
2001	November	342	127	376	185
2001		1511	537	364	196
2002	September	119	58	482	187
2002	October	591	268	459	125
2002	November	463	191	416	111
2002	December	47	20	396	73
2002		1220	537	440	125
2003	October	449	204	460	121
2003	November	517	291	570	177
2003	December	88	47	611	267
2003		1054	542	527	174
2004	August	124	53	411	133
2004	September	659	308	470	145
2004	October	427	173	415	172
2004		1210	534	443	155
2005	September	356	194	561	169
2005	October	610	307	522	179
2005	November	98	48	485	149
2005		1064	549	531	172

Table 2. German landings (tons), effort (hours fished), unstandardized CPUE (kg/h) and accompanied standard deviations for pelagic redfish (*Sebastes mentella*) in Sub-division 1F in the NAFO Regulatory Area (NRA) and the Greenland Exclusive Economic Zone (EEZ) by quarter, 1999-2005.

Year	Quarter	Landings (t) NRA	Effort (h) NRA	CPUE (kg/h) NRA	Std.Dev. (kg/h) NRA	Landings (t) EEZ	Effort (h) EEZ	CPUE (kg/h) EEZ	Std.Dev. (kg/h) EEZ
1999	1	0	0			0	0		
1999	2	0	0			0	0		
1999	3	0	0			154	231	663	226
1999	4	0	0			0	0		
1999		0	0			154	231	663	226
2000	1	0	0			0	0		
2000	2	0	0			0	0		
2000	3	2558	2219	1231	571	1434	1325	1360	1156
2000	4	438	506	909	374	46	69	716	214
2000		2996	2725	1171	554	1480	1394	1324	1134
2001	1	0	0			0	0		
2001	2	0	0			0	0		
2001	3	26	36	752	147	791	654	1540	1744
2001	4	0	0			0	0		
2001		26	36	752	147	791	654	1540	1744
2002	1	0	0			0	0		
2002	2	0	0			0	0		
2002	3	2167	2122	1088	678	155	218	864	977
2002	4	0	0			0	0		
2002		2167	2122	1088	678	155	218	864	977
2003	1	0	0			0	0		
2003	2	0	0			0	0		
2003	3	1669	1389	1375	1019	622	694	896	368
2003	4	0	0			245	278	918	512
2003		1669	1389	1375	1019	867	972	902	408
2004	1	0	0			0	0		
2004	2	0	0			0	0		
2004	3	777	625	1623	1676	243	424	633	320
2004	4	0	0			0	0		
2004		777	625	1623	1676	243	424	633	320
2005	1								
2005	2								
2005	3	430	915	485	338	364	620	594	338
2005	4								
2005 annual		430	915	485	338	364	620	594	338

Table 3. German landings (tons), effort (hours fished), unstandardized CPUE (kg/h) and accompanied standard deviations for pelagic redfish (*Sebastes mentella*) in Sub-division 2J in the NAFO Regulatory Area (NRA) by quarter, 2003-2005.

Year	Quarter	Landings (t) NRA	Effort (h) NRA	CPUE (kg/h) NRA	Std. Dev. (kg/h) NRA	Landings (t) EEZ	Effort (h) EEZ	CPUE (kg/h) EEZ	Std.Dev. (kg/h) EEZ
2003	1	0	0			0	0		
2003	2	0	0			0	0		
2003	3	467	606	785	208	0	0		
2003	4	0	0			0	0		
2003		467	606	785	208	0	0		
2004	1	0	0			0	0		
2004	2	0	0			0	0		
2004	3	28	35	900	544	0	0		
2004	4	0	0			0	0		
2004		28	35	900	544	0	0		
2005									
2005									
2005	3	232	393	662	513	0	0	0	0
2005									
2005	annual	232	393	662	513				

Table 4 Size composition of the German catch of pelagic redfish in Div. 1 F in 2000-2004 by quarter, above 500 m.

	2000 3rd Quarter NAFO 3rd Q	2000 4th Quarter NAFO 4th Q	2000	2001 3rd Quarter NAFO 3rd Q	2001	2002 3rd Quarter NAFO 3rd Q	2002	2004 3rd Quarter NAFO 3rd Q	2004
Length (cm)	<500 m	<500 m	Total	<500 m	Total	<500 m	Total	<500 m	Total
20.5	0	0	0	0	0	0	0	0	0
21.5	3464	419	3883	0	0	0	0	0	0
22.5	6928	838	7766	830	830	0	0	0	0
23.5	28576	3457	32033	1433	1433	0	0	0	0
24.5	39833	4820	44653	7950	7950	0	0	6	6
25.5	44163	5343	49506	10577	10577	62	62	12	12
26.5	48493	5867	54360	16095	16095	151	151	41	41
27.5	69275	8382	77657	16283	16283	228	228	95	95
28.5	105645	12782	118427	20607	20607	255	255	265	265
29.5	182714	22107	204821	27759	27759	518	518	420	420
30.5	211290	25564	236854	38757	38757	788	788	573	573
31.5	282298	34156	316454	52967	52967	1078	1078	722	722
32.5	443363	53643	497006	79871	79871	2365	2365	1024	1024
33.5	693621	83923	777544	159013	159013	3373	3373	1466	1466
34.5	1089357	131803	1221160	220408	220408	4784	4784	2181	2181
35.5	1214919	146995	1361914	251605	251605	5657	5657	3050	3050
36.5	1205393	145843	1351236	220628	220628	5491	5491	2756	2756
37.5	1088491	131699	1220190	210579	210579	5611	5611	2342	2342
38.5	685827	82980	768807	143321	143321	3111	3111	1857	1857
39.5	419117	50710	469827	62035	62035	1642	1642	924	924
40.5	142015	17183	159198	25585	25585	525	525	412	412
41.5	55420	6705	62125	3545	3545	166	166	68	68
42.5	19917	2410	22327	415	415	62	62	23	23
43.5	4330	524	4854	0	0	0	0	2	2
44.5	0	0	0	415	415	0	0	0	0
45.5	866	105	971	0	0	0	0	0	0
46.5	866	105	971	0	0	0	0	0	0
47.5	0	0	0	0	0	0	0	0	0
48.5	0	0	0	0	0	0	0	0	0
49.5	0	0	0	0	0	0	0	0	0
50.5	0	0	0	0	0	0	0	0	0
sum	8086181	978363	9064544	1570678	1570678	35867	35867	18239	18239
kg	3992000	483000	4475000	817000	817000	20000	20000	9467	9467
mean	35.3	35.3	35.3	35.2	35.2	35.5	35.5	35.5	35.5

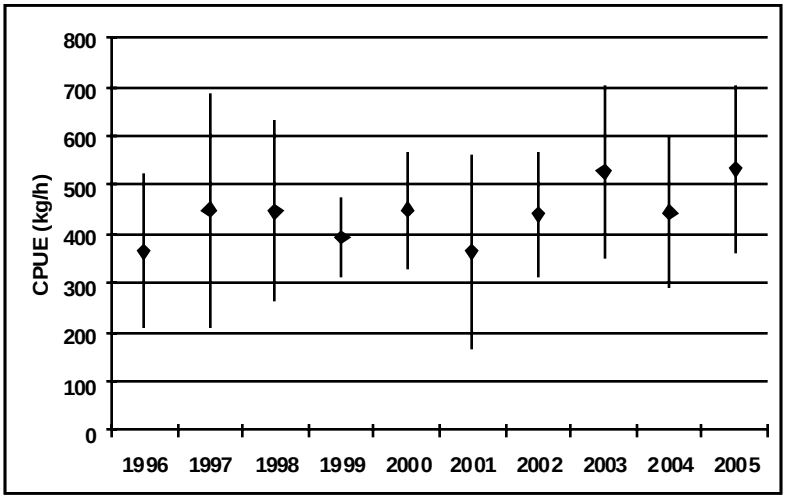

Fig. 1. Greenland halibut in NAFO Div. 1D. Unstandardised CPUE and accompanied standard deviation by year as derived from German commercial landings mainly taken during the 4th quarters, 1996-2005. Respective values are listed in Table 1.

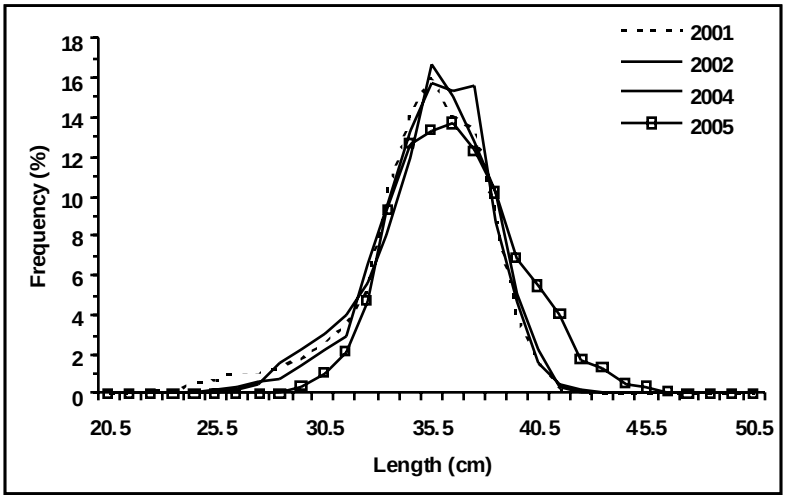

Fig. 2. Size composition of German catches of pelagic redfish in Div. 1F, 2001-2005. Respective values are listed in Table 4.