Northwest Atlantic Fisheries Organization

Serial No. N5359 **NAFO SCS Doc. 07/11**

SCIENTIFIC COUNCIL MEETING - JUNE 2007

German Research Report for 2006

H.-J. Rätz, C. Stransky, M. Stein and H. Fock

Federal Research Centre for Fisheries, Institute for Sea Fisheries
Palmaille 9, D-22767 Hamburg, Federal Republic of Germany
christoph.stransky@ish.bfa-fisch.de, hans-joachim.raetz@ish.bfa-fisch.de, manfred.stein@ish.bfa-fisch.de,
heino.fock@ish.bfa-fisch.de

Sub-area 1

A. Status of the Fishery

In 2006, 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 544 tons of Greenland halibut. There was negligible by-catch of roundnose grenadiers of 2.2 t compared to 4 tons in 2005, 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 and 2005, catches declined to 1000 tons and to 794 tons, respectively, when CPUE reached a record low. In 2006, catch and CPUE increased little to 990 t and 937 kg/h (Greenland EEZ) and 468 kg/h (NRA). 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 12 – November 24, 2006), fishery oceanographic measurements were performed at 49 fishing stations off West Greenland by means of CTD/Rosette. Additionally, temperature and salinity at stations of 3 NAFO standard oceanographic sections off West Greenland (Cape Desolation [3], Fyllas Bank [1], and Holsteinsborg [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 (Divisions 1B-1F) outside the 3-mile limit to the 400 m isobath. In October-November 2006, **49** 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 35cm. Opposite to 2005, when there was an indication of a shift to older specimens >40 cm, average size declined in 2006.

Sub-area 2

A. **Status of the Fishery**

2 J

In 2003, 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. No fisheries was carried out in 2006. Table 3 lists a breakdown of the effort, landings, and non-standardised pelagic redfish CPUE by year and quarter.

2 H

In 2006, one catch of 4 t redfish was recorded for 2 H.

B. **Special Studies**

1. **Environment**

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

2. **Biological studies**

2006 hydro-acoustic survey for pelagic redfish: see SA 1

Sub-area 3

A. **Status of the Fishery**

In 2006, 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	total	1054	542	527	174
2004	August	124	53	411	133
2004	September	659	308	470	145
2004	October	427	173	415	172
2004	total	1210	534	443	155
2005	September	356	194	561	169
2005	October	610	307	522	179
2005	November	98	48	485	149
2005	total	1064	549	531	172
2006	September	129	93	724	224
2006	October	599	431	741	198
2006	November	32	20	601	91
2006	total	760	544	732	197

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
2006	1								
2006	2								
2006	3	154	326	486	231	836	894	937	451
2006	4								
2006	annual	154	326	486	231	836	894	937	451

Table 3. **(a)** 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, 2003-2006.
(b) German landings (tons), effort (hours fished), unstandardized CPUE (kg/h) and accompanied standard deviations for pelagic redfish (*Sebastes mentella*) in Sub-division 2H.

Table 3 a
NAFO SA 2J

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				
2005									
2005	annual	232	393	662	513	0	0	0	0
2006									
2006									
2006									
2006									
2006	annual	0	0	0	0	0	0	0	0

Table 3 b
NAFO SA 2H

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
2006	1								
2006	2								
2006	3	4	17	224	-				
2006	4								
2006	annual	4	17	224	-	0	0	0	0

Table 4 Size composition of the German catch of pelagic redfish in Div. 1 F in 2000-2006 by quarter, above 500 m. Subsamples in 2002 – 2006 not raised to total catch.

Length (cm)	2000 3rd Quarter NAFO 3rd Q <500 m	2000 4th Quarter NAFO 4th Q <500 m	2000 Total	2001 3rd Quarter NAFO 3rd Q <500 m	2002 3rd Quarter NAFO 3rd Q <500 m	2004 3rd Quarter NAFO 3rd Q <500 m	2006 3rd Quarter NAFO 3rd Q <500 m
20.5	0	0	0	0	0	0	249
21.5	3464	419	3883	0	0	0	421
22.5	6928	838	7766	830	0	0	801
23.5	28576	3457	32033	1433	0	0	1198
24.5	39833	4820	44653	7950	0	6	1347
25.5	44163	5343	49506	10577	62	12	1407
26.5	48493	5867	54360	16095	151	41	1813
27.5	69275	8382	77657	16283	228	95	7031
28.5	105645	12782	118427	20607	255	265	16693
29.5	182714	22107	204821	27759	518	420	30376
30.5	211290	25564	236854	38757	788	573	52033
31.5	282298	34156	316454	52967	1078	722	70355
32.5	443363	53643	497006	79871	2365	1024	105137
33.5	693621	83923	777544	159013	3373	1466	120941
34.5	1089357	131803	1221160	220408	4784	2181	128909
35.5	1214919	146995	1361914	251605	5657	3050	150461
36.5	1205393	145843	1351236	220628	5491	2756	128480
37.5	1088491	131699	1220190	210579	5611	2342	96871
38.5	685827	82980	768807	143321	3111	1857	56993
39.5	419117	50710	469827	62035	1642	924	29798
40.5	142015	17183	159198	25585	525	412	15146
41.5	55420	6705	62125	3545	166	68	4371
42.5	19917	2410	22327	415	62	23	484
43.5	4330	524	4854	0	0	2	85
44.5	0	0	0	415	0	0	32
45.5	866	105	971	0	0	0	33
46.5	866	105	971	0	0	0	0
47.5	0	0	0	0	0	0	0
48.5	0	0	0	0	0	0	0
49.5	0	0	0	0	0	0	0
50.5	0	0	0	0	0	0	0
sum	8086181	978363	9064544	1570678	35867	18239	1021465
kg	3992000	483000	4475000	817000	20000	9467	477000
mean l (cm)	35.3	35.3	35.3	35.2	35.5	35.5	34.6
mean w (kg)	0.49	0.49	0.49	0.52	0.56	0.52	0.47

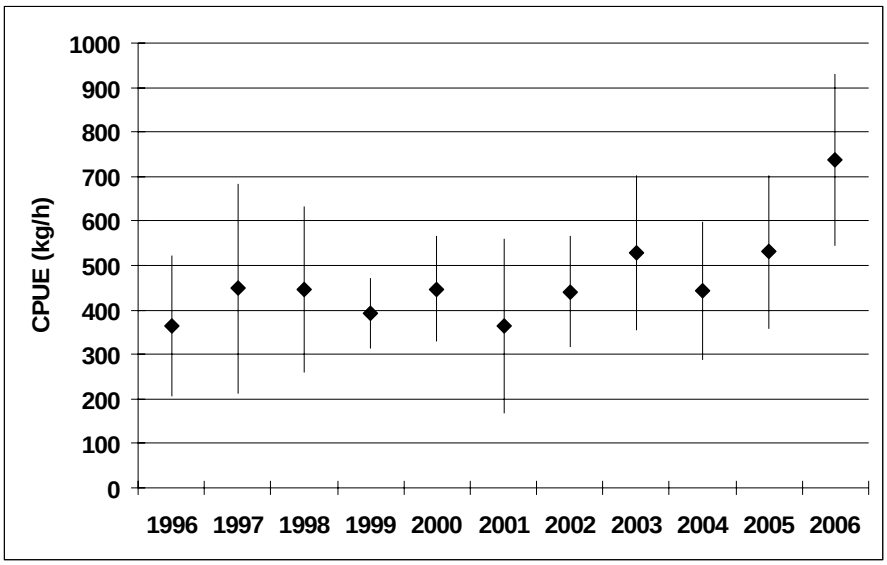

Fig. 1. Greenland halibut in NAFO Div. 1D. Unstandardised CPUE and accompanied standard deviation by year as derived from German commercial landings mainly taken during the 4th quarters, 1996-2005. Respective values are listed in Table 1.

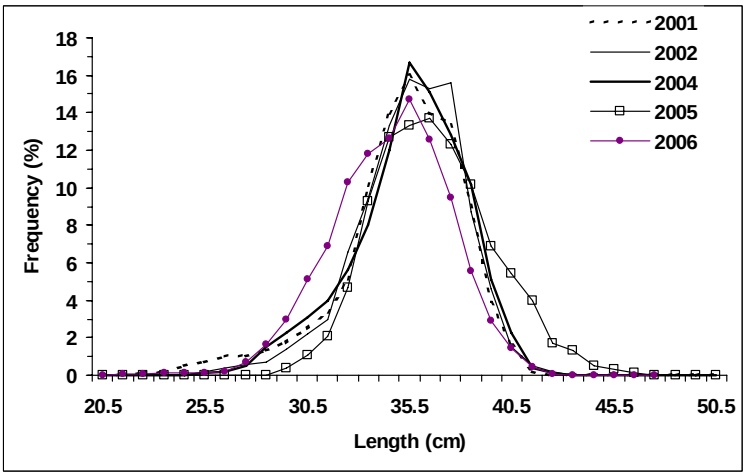

Fig. 2. Size composition of German catches of pelagic redfish in Div. 1 F, 2001-2005. Respective values are listed in Table 4.