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German Research Report for 2001

by

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Subarea 1

A. Status of the Fishery

In 2001, 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 catches amounted to 537 tons of Greenland halibut. There was negligible by-catch of roundnose grenadiers (5 tons), wolffish and skates reported (less than 1 ton). Table 1 lists a breakdown of the effort, catches, and non-standardised Greenland halibut CPUE by month. The trend is shown in Fig. 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 West Greenland in 1999 and increased substantially in 2000 due to a change in distribution patterns of the stock in westerly direction as derived from an international hydro-acoustic survey conducted in June/July 2001 by Iceland, Russia and Germany (ICES CM, 2002). The German fisheries in Div. 1F as well as historic survey results are described in detail by (Rätz and Stransky, 2001). In 2001, the fishery was conducted only in Div. 1F from July to September 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 a total catch of 4475 tons was reported, both catch and effort in 2001 decreased substantially and amounted on to 817 tons and 869 trawling hours, respectively. Table 2 lists a breakdown of the effort, catches, and non-standardised pelagic redfish CPUE by year and month.

B. Special Studies

1. Environment

During the German groundfish survey off Greenland (12.10-22.11.2001), fishery oceanographic measurements were performed at 59 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, Frederikshaab Bank, Fyllas Bank) were measured in order to describe climatic trends. For the "Mini-Symposium" of the annual meeting of the NAFO Scientific Council a "Climatic Overview on NAFO Subarea 1 – 1991-2000" was prepared which comprises information on air temperature anomalies, water mass properties and ice distribution (Stein, 2002a). Climatic conditions off West Greenland during 2001 are considered in Stein (2002b and http://www.ices.dk/status/clim0102/). As part of the Russian/German project on "Assessment of Short-time Climatic Variations in the Labrador Sea" a report is presented on the project meeting in Hamburg, Germany, 22-26 April 2002 (Stein and Borovkov, 2002).

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 2001, 59 valid hauls were carried out and the standard survey area was almost covered except for the 2 northernmost strata. The total survey catch amounted to 2 316 kg. 16 651 specimens were classified to 49 taxonomic units. 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 (Rätz and Stransky, 2002 a and b). Two additional papers deal with redfish otolith shape analyses for species/stock identification (Stransky, 2002) and age determination and validation for *S. mentella* (Stransky *et al.*, 2002), which were conducted within the frame of an EU-project REDFISH with international cooperation (http://www.redfish.de).

For 1996-2001, estimates of catches, effort and catch rates for Greenland halibut and pelagic redfish by year and month are presented (Tables 1 and 2). The series of average Greenland halibut CPUEs is shown in Fig. 1 and does not reveal a trend, although the 2001 values is among the lowest observed since 1996. There are no biological sampling data available for Greenland halibut. Table 3 lists the size composition of the German catch of pelagic redfish in 2000 and 2001 aggregated by quarter. The computations are based on 16 (9 336 length measurements) and 5 samples (4 994 length measurements), respectively. The pelagic redfish size composition in the German catch is illustrated in Fig. 2. The size compositions of the catches in 2000 and 2001 are almost identical with mean fish sizes amounting to 35.3 cm and 35.2 cm, respectively. There is indication of some recruitment of pelagic redfish below 30 cm length in both years.

Subareas 2 and 3

A. **Status of the Fishery**

In 2001, German fishing vessels did not fish in Subareas 2 and 3.

B. **Special Studies**

1. **Environment**

No research in relation to environment was carried out by Germany in NAFO Subareas 2 and 3.

2. **Biological studies**

No biological samplings or studies were performed by Germany in NAFO Subareas 2 and 3.

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Table 1. German effort (hours fished), catches (tons), unstandardized CPUE (kg/h) and accompanied standard deviations for Greenland halibut by division and month, 1996-2001.

Year	Month	Effort 1D	Catch 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

Table 2. German effort (hours fished), pelagic catches (tons), unstandardized CPUE (kg/h) and accompanied standard deviations for pelagic redfish (*Sebastes mentella*) by division (inside Greenland EEZ only) and month, 1999-2001.

Year	Month	Effort 1F	Catch 1F	CPUE 1F	St.Dev.
1999	September	231	154	663	226
1999	∑	231	154	663	226
2000	August	1859	2107	1180	480
2000	September	1685	1885	1376	1092
2000	October	574	483	878	358
2000	∑	4118	4475	1231	831
2001	July	71	50	717	104
2001	August	35	26	752	146
2001	September	583	741	1617	1806
2001	∑	689	817	1508	1715

Table 3. Size composition of the German catch of pelagic redfish in Div. 1 F in 2000 and 2001 by quarter, above 500 m.

	2000 3rd Quarter	2000 4th Quarter	2000	2001 3rd Quarter	2001
Length (cm)	NAFO 3rd Q <500 m	NAFO 4th Q <500 m	Total	NAFO 3rd Q <500 m	Total
20.5	0	0	0	0	0
21.5	3464	419	3883	0	0
22.5	6928	838	7766	830	830
23.5	28576	3457	32033	1433	1433
24.5	39833	4820	44653	7950	7950
25.5	44163	5343	49506	10577	10577
26.5	48493	5867	54360	16095	16095
27.5	69275	8382	77657	16283	16283
28.5	105645	12782	118427	20607	20607
29.5	182714	22107	204821	27759	27759
30.5	211290	25564	236854	38757	38757
31.5	282298	34156	316454	52967	52967
32.5	443363	53643	497006	79871	79871
33.5	693621	83923	777544	159013	159013
34.5	1089357	131803	1221160	220408	220408
35.5	1214919	146995	1361914	251605	251605
36.5	1205393	145843	1351236	220628	220628
37.5	1088491	131699	1220190	210579	210579
38.5	685827	82980	768807	143321	143321
39.5	419117	50710	469827	62035	62035
40.5	142015	17183	159198	25585	25585
41.5	55420	6705	62125	3545	3545
42.5	19917	2410	22327	415	415
43.5	4330	524	4854	0	0
44.5	0	0	0	415	415
45.5	866	105	971	0	0
46.5	866	105	971	0	0
47.5	0	0	0	0	0
48.5	0	0	0	0	0
49.5	0	0	0	0	0
50.5	0	0	0	0	0
Summe	8086181	978363	9064544	1570678	1570678
kg	3992000	483000	4475000	817000	817000
mean	35.3	35.3	35.3	35.2	35.2
SOP		1.09			1.03

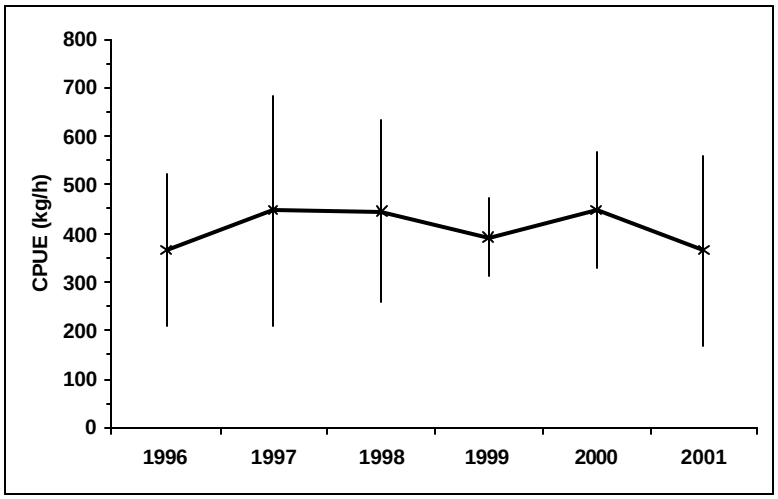

Fig. 1. Greenland halibut in NAFO Div. 1D: Unstandardized CPUE and accompanied standard deviation by year as derived from German commercial catches, 1996-2001. Respective values are listed in Table 1.

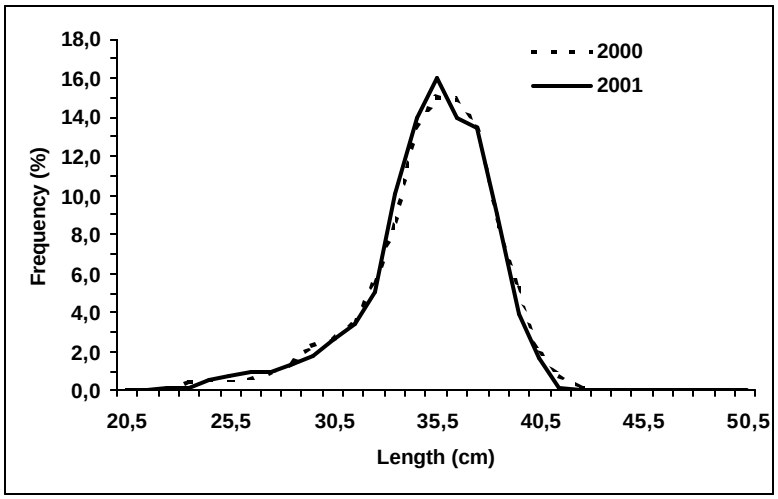

Fig. 2. Size composition of German catches of pelagic redfish in Div. 1 F, 2000 and 2001. Respective values are listed in Table 3.