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German Research Report for 1998

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Subarea 1

A. Status of the Fishery

In 1998, fishing was conducted with low effort in Division 1D inside the Greenland EEC during the fourth quarter only. The fishery was exclusively directed towards Greenland halibut since fishing activities of the far distance fleets were transferred mainly to the oceanic redfish stock in the Reykjanes-Ridge area. By end of the year, reported catches amounted to 350 tons of Greenland halibut and 5 tons of roundnose grenadiers as by-catch. Table 1 lists a breakdown of the effort, catches, and non-standardised Greenland halibut CPUE by month. The trend is shown in Figure 1.

B. Special Studies

1. Environment

During the German groundfish survey off Greenland (30.09.-08.11.98), fishery oceanographic measurements were performed at 108 fishing stations by means of CTD/Rosette. Additionally, temperature and salinity at stations of 2 NAFO standard oceanographic sections off West Greenland (Cape Desolation and Fyllas Bank) were measured in order to describe climatic trends. For the annual meeting of the NAFO Scientific Council a climatic review for the Greenland area was prepared which comprised information on air temperature anomalies and ice distribution (Stein, 1999). To intensify the discussion in NAFO on the suitability of Environmental Indices which may be used for the fishery assessment process, two papers are submitted (Stein, 1999a; Stein and Lloret, 1999). 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, 9-16 May 1999. Within the scope of this project an analysis on “Distribution of Arctic and Subtropic Water Masses during four Decades – 1960s to 1990s – off Greenland and Labrador” was achieved. The paper analyses historic oceanographic data from the World Ocean Atlas 1994 and compares the findings with the climatology of the North Atlantic Oscillation (NAO) Index, sea surface temperatures (SST’s) and sea level pressure (SLP) anomalies of the 1960s to 1990s.

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 1998, 63 valid hauls were carried out and the

standard survey area was completely covered. The total survey catch amounted to 1667 kg. 69 562 specimens were classified to 49 taxonomic units. Based on this survey information, assessments of the stock status for redfish (*Sebastes marinus*, *S. mentella*), American plaice (*Hippoglossoides platessoides*), Atlantic wolffish (*Anarhichas lupus*), and thorny scate (*Raja radiata*) are documented (Rätz and Stransky, 1998; Rätz and Lloret, 1998 a and b; Rätz and Möller, 1998).

For 1996-98, estimates of Greenland halibut catch rates, mean length and size composition by year and quarter are presented (Tab. 1 and 2, Fig. 1 and 3). Catch rates and size compositions do not indicate significant changes in the stock abundance or structure.

One sample of Greenland halibut length measurements was provided by direct observations on board off a commercial vessel. The sample was taken during the fourth quarter and raised to the catch weight of 90 859 kg. The calculation of the age composition, length and weight at age was based on 304 otoliths (Tab. 3, Fig. 2). Age determination was conducted for the first time by a new technician but resulted in a good agreement in size at age as reported by the ICES Greenland halibut age reading work shop participants. The SOP-check resulted in a 2.1 % difference between observed and calculated sample weights.

Subareas 2 and 3

A. Status of the Fishery

In 1998, German fishing vessels did not fish in Sub-areas 2 and 3.

B. Special Studies

1. Environment

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

2. Biological studies

No biological samplings or studies were performed by Germany in NAFO Sub-areas 2 and 3.

References:

Rätz H.-J. and C. Stransky 1999. Assessment of Redfish (*Sebastes marinus*, *S. mentella*) in NAFO Subarea 1 and ICES Div. XIVb Based on Survey Indices, 1982-98. Announced for NAFO Scientific Council Meeting June 1999.

Rätz H.-J. and J. Lloret 1999 a. Assessment of American plaice (*Hippoglossoides platessoides*) in NAFO Subarea 1 and ICES Div. XIVb Based on Survey Indices, 1982-98. Announced for NAFO Scientific Council Meeting June 1999.

Rätz H.-J. and J. Lloret 1999 b. Assessment of Thorny Skate (*Raja radiata*) in NAFO Subarea 1 and ICES Div. XIVb Based on Survey Indices, 1982-98. Announced for NAFO Scientific Council Meeting June 1999.

Rätz H.-J. and V. Möller 1999. Assessment of Atlantic wolffish in NAFO Subarea 1 and ICES Div. XIVb Based on Survey Indices, 1982-98. Announced for NAFO Scientific Council Meeting June 1999.

Stein, M. 1999. Climatic Conditions Around Greenland - 1998. Announced for NAFO Scientific Council Meeting June 1999.

Stein, M. 1999a. Environmental Indices – A Review on Climatic Variability and Potential Effects on Marine Ecosystems. Announced for NAFO Scientific Council Meeting June 1999.

Stein, M. and V. Borovkov 1999. Distribution of Arctic and Subtropic Water Masses during four Decades – 1960s to 1990s – off Greenland and Labrador. Announced for NAFO Scientific Council Meeting June 1999.

Stein, M. and J. Lloret 1999. Environmental Indices – Predicting Air Temperatures and Water Temperatures in the Northwest Atlantic By Time Series Analysis. Announced for NAFO Scientific Council Meeting June 1999.

Table 1. German effort (hours fished), catches (tons) and unstandardized CPUE (kg/h) and accompanied standard deviations for Greenland halibut by division and month, 1996-98.

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

Table 2. German samples of commercial Greenland halibut catches in Division 1D by year and quarter, 1996-98.

Year	Quarter	No. of Samples	Weight (kg)	Number	Age Determinations	Mean Length (cm)	Standard Dev. (cm)
1996	4	1	220	135		53,9	7,3
1997	4	1	47202	31084		54,8	5,2
1998	4	1	90859	51805	304	56,2	9,2

Table 3. Age composition, mean length and weight at age derived from a sample of commercial Greenland halibut catches in Division 1D, fourth quarter, 1998.

Age	4	5	6	7	8	9	10	11	12	13	14	15	16	Sum
Number	51	736	3315	4949	16060	12682	6129	3338	1966	1343	795	265	83	51712
Mean Length (cm)	38.7	42.2	47.4	51.6	52.5	54.3	59.7	66.8	71.9	76.2	82.3	83.6	103	
Mean Weight (kg)	0.415	0.565	0.853	1.154	1.227	1.383	1.937	2.887	3.749	4.609	6.059	6.406	13.446	
SOP	21	416	2828	5711	19706	17539	11872	9637	7371	6190	4817	1698	1116	88920

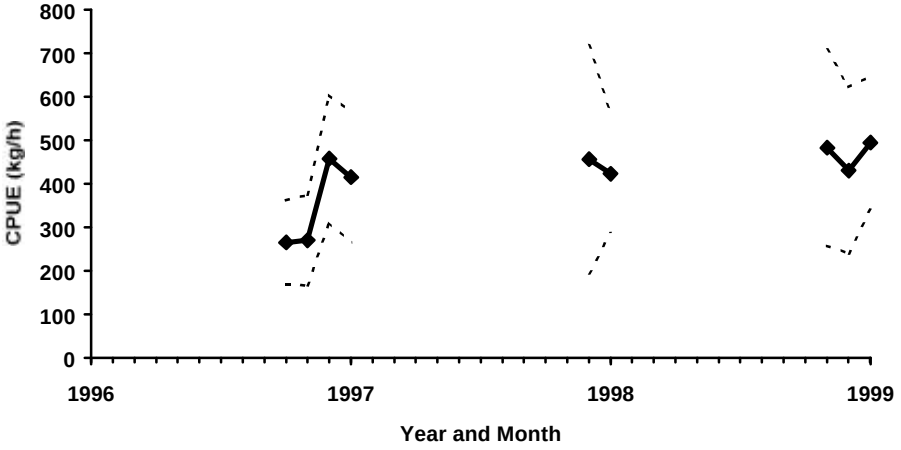

Fig. 1 Greenland halibut in NAFO Div. 1D. CPUE and accompanied standard deviation by year and month as derived from German commercial catches, 1996-98. Respective values are listed in Table 2.

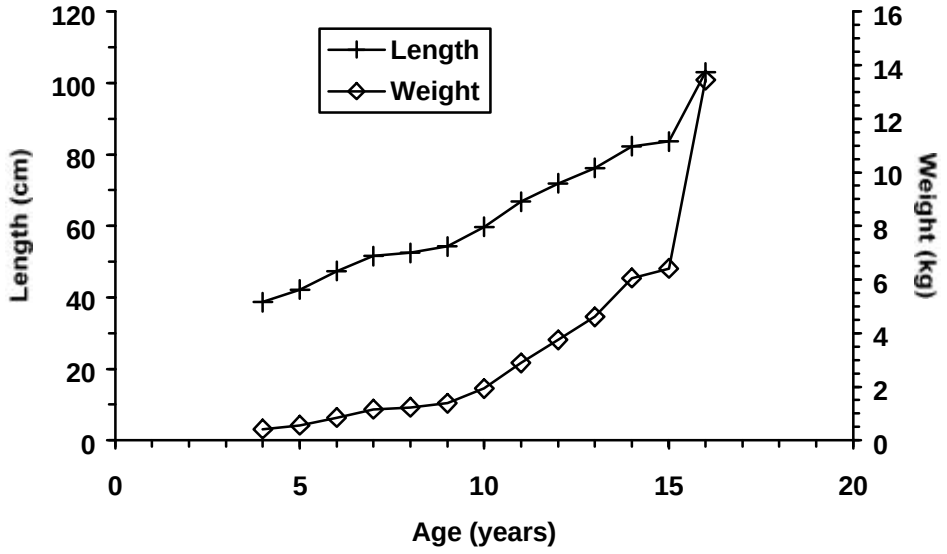

Fig. 2 Greenland halibut in NAFO Div. 1D. Length and weight at age during the fourth quarter 1998.

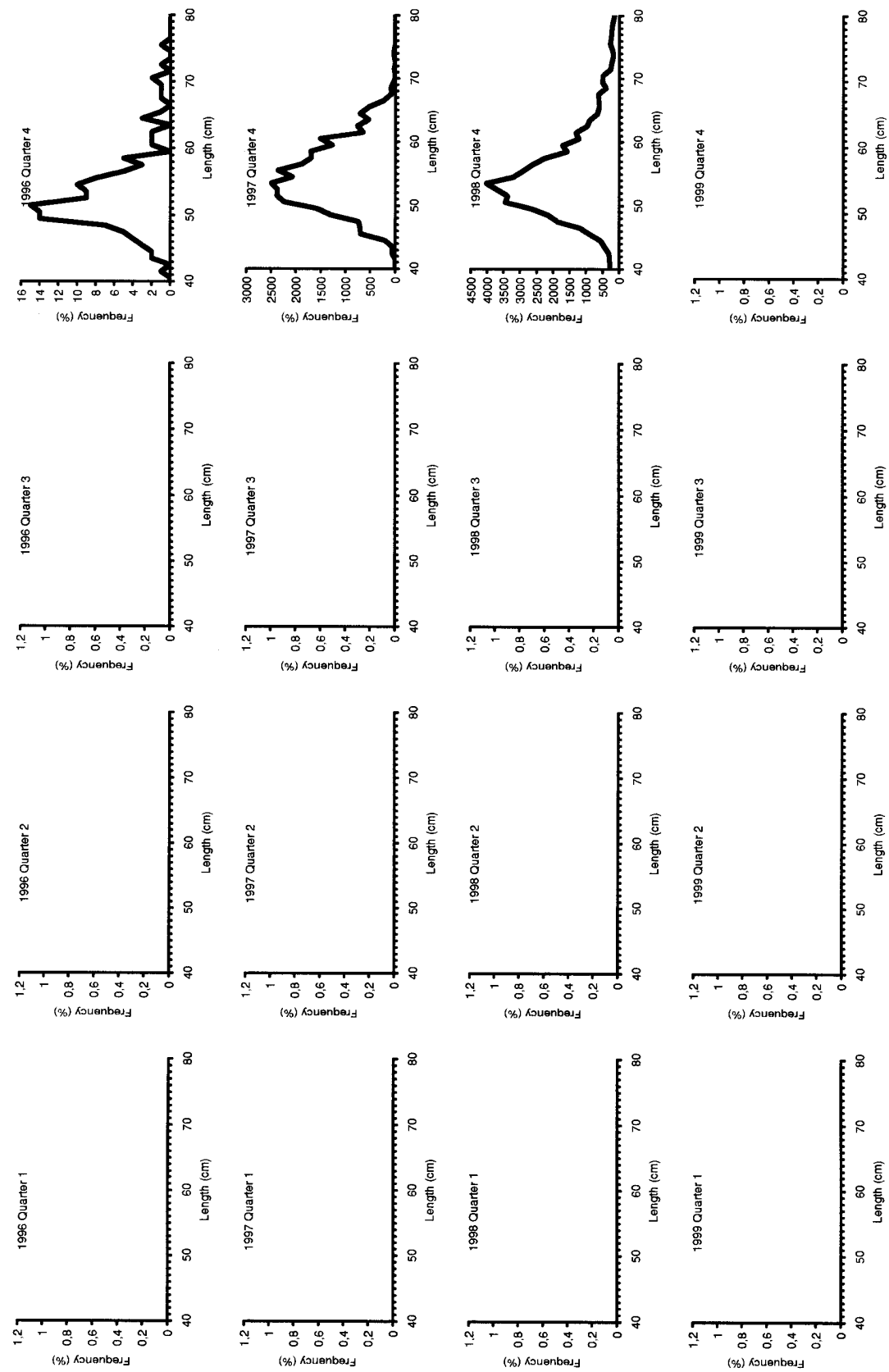

Fig. 3. Length composition of commercial catches of Greenland halibut in Division 1D by year and quarter, 1996-98.Sampling effort is described in Table 2.