# Northwest Atlantic



# Fisheries Organization

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GERMAN DEMOCRATIC REPUBLIC RESEARCH REPORT FOR 1982

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### INTRODUCTION

The total yield taken by the GDR fleet in the NAFO Area was equal to 5093 tons in 1982 or 307 tons more than in 1981. The fisheries were carried out in NAFO-Subareas 2 and 3 only.

Table 1: GDR nominal catches (tons) of species in the NAFO-area for 1981 and 1982

	1981	1982
Greenland halibut	1350	2487
Witch	32	4
American plaice		9
Red and white hakes		3
Cod	605	341
Roundnose grenadier	1407	1640
Wolffish	51	16
Redfish	1302	437
Baird's smoothhead		46
Greenland shark		6
Skates	39	104
Total	4786	5093

### Subareas 2 and 3

## A. Status of the Fisheries

The fishery was carried out by factory trawlers (= 34 per cent of nominal catch in the NAFO area) and by sterntrawlers of the type "Zubringer-Trawler". Only the bottom-trawl-fishery was carried out.

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Also in 1982 the fishery activity was strongly connected with the quota regulations like in the previous year, therefore the catches do not reflect the stocksituations and stockvariations, but nevertheless the seasonal characteristics of the fishery.

Table 2: GDR nominal catches (tons) of species by Divisions of Subareas 2 and 3 for 1982

	2 H	2 J	3 K	3 L	Total 1982
Greenland halibut	2287	36	164		2487
Witch			4	<b>6110</b> )	4
American plaice	8	6339	<b>.</b>	6340	9
Red and white hakes			3		3. J
Cod	329	ame -	12	- <b>43</b> 10	341
Roundnose grenadier	582	69	989		1640
Wolffish	15	. 6:20	<b>639</b>	1	16
Redfish	125	86	214	12	437
Baird's smoothhead	13	32	1	6380	46
Greenland shark	6	100	675	800	6
Skates	94	1	9	1000 1000	104
Total	3459	224	1397	13	5093

#### 1. Cod

In the Division 2 H a specialized cod fishery was carried out by a factory ship (96.4 per cent of nominal catch of cod) in November and in December only. The catch per hour during this period was at a level of 0.79 tonnes and therefore smaller than in 1981 and especially in 1980. This decrease of the c.p.u.e. seemes to be not mainly the result of stock-fluctuations but it results obviously from the problem of the beginning of cod concentrations, which were observed later in 1982 than in the years before.

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### 2. Redfish

Redfish was caught by a factory trawler in Division 3 L (January), and by sterntrawler of the type "Zubringer-Trawler" in Division 3 K (December), where a directed Redfish fishery was carried out for a short time.

During the period September/December Redfish was also caught as by-catch in the Grenadier/Halibut fishery in Divisions 2 H, 3 J, and 3 K.

The c.p.u.e. in the directed Redfish fishery decreased in 1982 compared to 1980. However these results are not representative because unfavourable biotops of Redfish, were fished.

## 3. Roundnose Grenadier/Greenland halibut

The main feature of the season 1982 is the spatial separation of fishing grounds and fishing depths for the two main fish species. Corresponding to the experience of the last year a further separation of the main fish species was observed. The reasons for the changes of the local and vertical limits of the distribution should be sought in the progressive changes of the hydrographical systeme (cooling) in the Northwest Atlantic. This temperature reduction, noted since 1970, resulted in an emigration of the concentrations of grenadier with zones of optimum temperatures of about +  $4^{\circ}$ C into greater depths. Depending on these environmental conditions the main fishing depths of 600-800 m (1968-1971) shifted to 800-1300 m (1982), because the composition of the catches changed at the same time. In grenadier fishery in 1970 the proportion of halibut was at about 15 per cent. This level had to change due to the actual environmental conditions, because halibut prefers optimum temperatures of about  $\pm 0^{\circ}$ C (depending on the physiological state between  $-2^{\circ}$ C to  $+2^{\circ}$ C). For that reason the proportion of halibut in the grenadier fishery at depths of about 600-800 m in the cooler and therefore shallower area can amount to more than 50 per cent.

Based on the above mentioned factors influencing the fishery, it can be established that the resources, i.e. the stock situation had not affected the fishing results, but on the other hand the concentrations conditions (fishing depths) and fishing tactics had been effective on the fishery.

The grenadier/halibut fishery was carried out in Divisions 2 H, 2 J and 3 K by factory trawler and by sterntrawler type "Zubringer trawler" from September until December. Again, like in 1980 and 1981, the relation of the proportions of grenadier and halibut in the catches was different from time to time depending on the area and depth in which the fishery was conducted (see above).

Therefore in the northern fishing grounds (2 H) the proportion halibut amounted to 30 to 90 per cent compared to the southern areas (2 J, 3 K) the same one amounted to 10 to 25 per cent only. Therefore it would be also misleading to compare the c.p.u.e. values for grenadier and halibut in 1982 with the corresponding data for 1980 and 1981.

cm 4, ∞

<u>Table 3:</u> Development of the c.p.u.e. (catch per hour in tons) of Roundnose grenadier (RNG) and Greenland halibut (GHL) 1981 (in bracket) and 1982 for factory trawlers (2000 to 3000 BRT)

Constant Conference and Constant Specific Specif	September		October		November		December	
	RNG	GHL	RNG	GHL	RNG	GHL	RNG	GHL
Div. 2 H	(0.44)	(0.19)	0.49 (0.16)	0.5 (0.36)	0.01 (0.25)	0.17 (0.32)	0.03 (0.08)	0.19 (0.50)
Div. 2 J	(0.09)	(0.06)	0.63 (0.18)	0.08 (0.18)	0.78 (0.48)	0.04 (0.08)	(0.34)	(0.17)

Div.	3	K	0.47	0.10	1330	ത്രമ	0.70	0.13 1.15	0.13
	· .		4530 j	- (	0.22)	(0.11)	(0.50)	(0.11) $(0.08)$	(0.07)

<u>Note</u>: The catch per unit effort data presented in Table 3 are calculated as the ratio of the catch of the given species to the total effort exerted on all species caught during the month

B. Special Research Studies

1. Environmental Studies

No data

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2. Biological Studies

Roundnose grenadier:

During catch period in Division 3 K length-, age-, and weight data were collected on board of commercial vessels in November and December.

In all samples of males dominated the analfin-length 9.5-13.0 cm (below) at an analfin-length-spectrum of 5.0-18.0 cm in November and 9.5-14.0 cm (below) at an analfin-length-spectrum of 8.0-16.5 cm in December. In all samples of females dominated the analfin-length 9.5-13,5 cm (below) at an analfin-length-spectrum of 6.5-17.0 cm in November and 9.5-13.5 cm at an analfin-length-spectrum of 6.5-18.5 cm in December.

The detailed length- and weight data were sent to the NAFOsecretariat.

At present the age samples (otoliths) are investigated. Contrary to 1981 a significant difference between the propertions of males and females in the catches was found (male : female = 59 : 41 per cent) from the investigations in 1982.

#### Greenland halibut:

During catch period in Division 3 K length-, age-, and weight data were collected on board of commercial vessels in November and December. All detailed data of length, age (length/age keys) and weight were sent to the NAFO-secretariat.

In Division 3 K the 50-58 cm length groups (year classes 1972-1974) of males and the 54-66 cm length groups (year classes 1971-1974) of females dominated with 55 per cent in November. Regarding the sex ratio a dominance of females with 62 % was found.

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