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GDR Research Report, 1973

by

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The total catch in the Convention area taken by the German Democratic Republic in 1973 was 161114 tons (table 1), 48378 tons higher than in 1972. The overall GDR catch in the Northwest Atlantic Ocean in 1973 was 185242 tons, 11413 tons more than in 1972.

Table 1: Species composition of GDR catches (tons in the Convention area and in Northwest Atlantic Ocean 1972 and 1973

	<u>Subarea 1-5</u>		<u>Northwest Atlantic Ocean</u>	
	1972	1973	1972	1973
	112736	161114	173829	185242
Capelin	11	2	11	2
Aléwife	1111	594	3485	1630
Greenland halibut	402	2435	965	2435
Witch	648	2352	648	2352
Am. plaice	137	319	137	319
Flatfishes n.e.i.	56	36	56	36
Cusk	1	-	1	-
Cod	27274	23924	27277	23946
Silver hake	220	185	220	194
Red hake	5	-	45	-
Haddock	21	1	21	1
Pollock	4793	930	4816	948
Grenadier	239	2519	445	2519
Gadoids n.e.i.	-	1	-	1
Scup	18	-	255	-
Wolfishes	4	20	4	20
Redfish	4474	2791	4474	2791
Sea Robin	15	-	46	1
Saury	12	-	12	-
Bluefish	-	12	-	18
Butterfish	10	190	34	196
Herring	47423	57603	49496	58612
Yellowfin Tuna	-	30	-	43
Albacore	-	-	-	8
Mackerel	25403	54874	80568	76758
Sharks	16	-	16	-
Picked Dogfish	369	508	689	619
Skates	2	85	2	85
Miscellaneous marine fishes	72	11390	106	11395
Squids	-	313	-	313

S u b a r e a 1

A. Status of the Fisheries

A small fishery for roundnose grenadier and greenland halibut took place in November and December in 1 B and 1 C. The result of this fishery was 2595 t, including 1835 tons of roundnose grenadier, 754 tons of greenland halibut and 6 t of redfish.

B. Special Research Studies

In December 6762 roundnose grenadier were measured in Div. 1 C and 300 otoliths were taken for age determination. The lengths of roundnose grenadier ranged from 31 to 91 cm and their ages from 9 to 24. The mean length was 59,0 cm. The predominant year-classes were those from 1954 - 1959. Also in December 3170 greenland halibut were measured in 1 B and 628 in 1 C. The predominant length-groups were those from 40 - 55 cm (1 B) and 43 - 55 cm (1 C).

S u b a r e a 2

A. Status of the Fisheries

In 1973 the GDR catch in Subarea 2 was 4258 tons, including 2277 tons of cod, 883 tons of Greenland halibut, 632 tons of grenadier, 237 tons of redfish, 215 tons of other flatfish and a small quantity of other bottom species.

The cod was the most important species and the fishery for cod in January was based on a short Labradorfishery of GDR during the codseason 1973, which was again hampered by the severe ice conditions. So the total catch in 1973 declined from 12227 tons (1972) to 4258 tons (1973). As in 1972 fishery took only place in Div. 2 J, very few catches were reported from Div. 2 H. Also because of severe ice conditions the catch-per-day for stern-trawlers (Type Zubringer Trawler) decreased from 31,4 tons (1972) to 26,5 tons (1973) during January.

A small special fishery was carried out by a factory ship for Greenland halibut in June and July. Also a small special fishery by an factory ship in November 1973 results in catch-per-hours between 2 and 4 tons in the region between 59°N and 63°N. The main species was roundnose grenadier with by-catches of Greenland halibut (10 - 30 %) and redfish (5 - 20 %).

The change in the cod catch seems not to be a result of stock variation, they are caused by severe ice conditions.

As preliminary reports of the cod-season 1974 has shown the fishery conditions in spring 1974 were not very favourable. Especially dense cod concentrations are not found.

For the season 1975 the forecast of ice conditions and hydrological conditions is extremely important. The total biomass will somewhat decrease because the abundance of the strong year-classes 1967 and 1968 will be not so numerous as in previous years and the year classes 1969 and 1970 seem not belong to strong year classes.

## B Special Research Studies

### 1. Environmental studies

No environmental studies were carried out in 1973

### 2. Biological studies

#### a) Cod

In January 3120 cod were measured in Div. 2 J and 1.95 otoliths were taken for age determination. The lengths of cod ranged from 30 to 77 cm and their ages from 4 to 15. The mean length was 44,1 cm, the mean weight 1141 g. The year-classes 1966 and 1967 were predominant, together 74,3 %. The next year-classes are those of 1965 (15,9 %), and 1968 (15,4 %).

#### b) Roundnose grenadier

In November 2.032 roundnose grenadier were measured in Div. 2 G and 103 otoliths were taken for age determination. The lengths of roundnose grenadier ranged from 36 to 80 cm and their ages from 9 to more than 22 years. The mean length was 66,3 cm. The predominant year-classes were those from 1954 - 1958. The 1960 year-class seem also to be numerous.

## Subarea 3

### A. Status of the Fisheries

In 1973 the GDR catch in Subarea 3 was 27536 tons, including 21594 tons of cod, 798 tons of Greenland halibut, 2508 tons of redfish, 2492 ton of other flatfish and a small quantity of other bottom species.

As in previous years the cod was by far the most important species. Due to the severe ice conditions the cod fishery took place in January and February in Div. 3 K. Only a small quantity of catches were reported from Div. 3 L. The total catch increased from 19084 tons (1972) to 27536 tons 1973 and the cod-catch from 15553 tons (1972) to 21594 tons 1973. The increase was caused

by a change of the fishing fleet from the Labrador area southward to Div. 3 K. Therefore the fishing effort 1973 was in Subarea 3 higher than 1972.

The total catch of redfish and flatfishes also increased. The catch-per-day 1973 for stern-trawlers (Type Zubringer-Trawler) in January was higher, in February somewhat lower than 1972. The difference between both years seems not to be caused by stock variation, rather by ice conditions.

#### B. Special Research Studies

1. No environmental studies were carried out in 1973
2. Biological studies

##### a) Cod

In the first quarter 4064 cod was measured in Div. 3 K. and 997 otoliths were taken for age determination. In January the lengths ranged from 33 to 107 cm, in February from 30 to 110 cm and in March from 30 to 101 cm. The mean lengths were 52,1, 52,5 and 52,3 cm. Specimens from 4 years to 20 years were observed in January, from 5 to 17 years in February and from 4 to 13 years in March. The 1967, 1966 and 1965 years-classes were dominant, with the last two (8- and 7-year-old fish) being the most numerous.

In Div. 3 L 1952 cod was measured (February and April) and 299 otoliths were taken for age determination. In February the lengths ranged from 36 to 119 cm and the ages from 6 to 19 years, in April the lengths ranged from 45 to 107 cm and the ages from 6 to 12 years. The mean-lengths were 56,8 cm and 52,1 cm. Dominant year-classes in February were 1964 to 1966, in April 1966 and 1967. The lack of the older specimens in April is probably caused by migration.

##### b) Redfish

In Div. 3 K. 3332 redfishes were measured in February, March and April. The lengths ranged from 19 to 60 cm. The mean length in February was 35,1, in March 27,7 cm and in April 43,1 cm.

##### c) Witch

In Div. 3 K 2972 witches were measured in February, March and April. The length range was from 20 to 68 cm with fish of 45 to 60 cm being the most numerous. The mean length in February was 51,2 cm, in March 53,4 cm and in April 49,1 cm.

S u b a r e a 4

A. Status of the Fisheries

There was no GDR commercial fishery in this Subarea.

B. Special Research Studies

No sampling or other studies were carried out in this Subarea during 1973.

S u b a r e a s 5 a n d 6

A. Status of the Fisheries

Total nominal catches of GDR increased from 140.000 tons in 1972 to 151.000 tons in 1973 due to higher herring catches. Catches of mackerel, alewife and saithe increased. Nominal catches for species and Subareas in 1973 are given below (1000 tons):

	5 Y	5 Z	6	Total 1973	Total 1972
Total	5,8	120,2	24.1	150,8	139,8
Herring	5,3	52,3	1,9	58,6	49,3
Mackerel	+	54,8	21,9	76,7	80,5
Alewife	-	0,6	1,0	1,6	3,5
Saithe	0,5	0,4	+	0,9	4,8
Squid	+	0,3	-	0,3	-
Others and unidentified	-	12,5	0,2	12,7	1,7

1. Herring

Although fishing days decreased to some degree nominal catch of herring increased. Higher catch-per-unit effort is the result of higher stock density and the use of a new pelagic trawl ("Jager-trawl"). In the unweighted average from June to October c.p.u.e. rose by 40 % and for the main season from August to October even by 60 % in comparison to 1972.

Catch per day fished of factory trawlers (tons)

June - October		August - October	
1972	1973	1972	1973
32,5	45,1	35,8	57,5

Fishing days of factory trawlers

1972	1973
769	659

Also another type of stern-trawlers were fishing for herring in SA 5.

Abundance of herring increased substantially by the strong year-class 1970 estimated to be greater than the year-class 1966.

The mean age distribution in commercial catches from August to October was as follows:

Age	3	4	5	6	7	8	9	>9
%	91,0	4,4	1,8	0,8	0,6	0,5	0,5	0,4

The portion of 3-years-old herring seems somewhat overestimated in relation to the age structure of the stock. The lowest share of 3-years-old found in September on the western slope of Georges-Bank/Nantucket was 82,6 % (4years-old 7,3 %, older specimens 10,1 %).

## 2. Mackerel

Slight decrease in number of fishing days and less favourable natural conditions at the end of the year 1973 let go down nominal mackerel catch by 5 % against 1972. In the average of the period from November to February the following catches per day of factory trawlers were taken:

	1971/72	1972/73	1973/74
November-February	76,6	77,9	57,7
November-May	72,0	73,3	

The continuation of high c.p.u.e. in the season 1972/73 seems at least partially due to the use of the above mentioned "Jager-trawl". In 1973/74 catch per day decreased by 26 % against 1972/73.

In 1973 71 % of mackerel catches originated in SA 5, vice versa in 1972 69 % of mackerel catches arose from SA 6.

In the fourth quarter of 1973 the year-class 1972 made up considerable portion of the catch (47 % in 5 Ze, 24 % in 5 Zw, and 10 % in 6 A), after it had already appeared as 0-group fish in the season 1972/73. This year-class seems to be a strong one. The year-classes 1971 and 1970 were less abundant. A great portion of the catches consisted of the strong year-classes 1969-67.

### 3. Alewife <sup>1/</sup>

Fishing operations of side trawlers by otter-trawl for various species, mackerel, alewife and herring, were carried out from January to July. Best alewife catches per day fished were taken in June and July. In other months mackerel dominated in the catches.

Nominal catches of alewife in 1973 declined by more than 50 % against 1972 to 1.600 tons because fishing vessels were most orientated to mackerel in the first quarter of the year.

### 4. Saithe

Fishery for saithe took place in January and in November and December in SA 5 Y and 5 Ze. Nominal catches went down by 80 % against 1972 to 900 tons due to sharp decline of fishing effort and o.p.a.c. Since 1970 catch per day of side- and stern trawlers steadily diminished. Catch per day of side trawlers decreased by 66 % in comparison to 1972. The decline of catch per day and stern trawler from 1971 to 1972 amounted to 24 %. In the season 1973 no stern trawlers were fishing for saithe.

### 5. Squid

For the first time ~~as was~~ fishing took place for squid nominal catches amounted to 300 tons and catch per day and factory trawler to 15.0 t shortfin squid in July.

## B. Special Research Studies

### 1. Environmental Studies

No environmental investigations were carried out.

### 2. Biological Studies

Routine sampling of herring and mackerel on board of commercial vessels was conducted in following extent:

	Month	Samples	Length measurements	Age determinations
Herring	I, VIII-XI	63	13666	2409
Mackerel	I, X - XII	48	16949	1443

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<sup>1/</sup> may include several species of Alosa.

Beside length, age and maturity determinations in herring pectoral fin rays as racial character were counted for some samples in the autumn.

### 3. Gear Studies

Comparisons made in the herring season 1972 have shown catches by the new pelagic "Jager-trawl" characterised by ropes connected to large meshes instead of yarn-meshes in the forenet by 20 - 25% higher than those taken by 2280-meshes-pelagic trawl up to that time used.

In the herring fishery 1972 one third of the fleet of factory trawlers used the Jager-trawl, in 1973 all factory ships operated with it.