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# Observations on the Faroese Prawn Fishery in East Greenland, March to June 1980

by

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Due to very favourable ice and weather conditions a large scale Faroese prawn fishery took place from late March to June.

The catches during this period was 3585 by 15 vessels participating to a varying degree. Catch/effort were very high in the beginning of the period coinciding with the hatching. The fishery took place mainly along the western edge of the Dohrn Bank.

In this paper matherial on catch and effort in time and place is presented based on about 50 percent of the catches (logbook records).

Further sampling data are given and there is a discussion on the prospects of the prawn fishery in East Greenland.

## THE FISHERY

The fishery started on the 25th March when the Faroese prawntrawler Vesturvarði made the first catch on the western edge of Dohrn Bank.

Due to high catch rates a major part of the Faroese Prawn Fleet changed from West Greenland waters to East Greenland. In late June the fishery stopped again. Details on the catches, effort and catch per effort by boats is given in table 1 for 10 selected boats.

In table 2 the geographical distribution of catches by these boats are given in tonnes and percentages.

In table 3 the distribution of catches on months and area are given and in table 4 the distribution of effort and catch/per effort is given by statistical rectangles.

It is seen that the fishery is going on in several statistical rectangles to the west of Dohrn Bank. This is in close agreement with the information from the skippers operating in the area.

The area outlined by them is shown in fig. 1.

The size of this area is rather large. It can be calculated to 9 300 $km^2$.

The catch/effort was very high in the beginning over 1 ton per trawling hour (table 5). It decreased and in late June the prawns had virtually disappeared from the main area on the edge of Dohrn Bank.

The most obvious explanation of this decrease, is that the fishery started on prehatcing concentrations, and that the prawns dispersed after hatching probably migrating to the north towards the ice limit. This is supported by the sampling.

SAMPLING

Two boats, landing in the Faroes, have been sampled. Further distribution on commercial size groups are available. These show that almost all is landed as 50-70/kg giving an average weight of about 17 g. The size composition of the samples is given in figure 2.

The samples were sorted in females with eggs, females without eggs, transitionals and males according to the shape of the endopodite of the first pleopod (Rasmussen 1953). (fig 2)

The arithmetic means for the sorted groups by samples and the modes of the distribution are

| Sample | Date | Females, length | | Males and transitionals, length | |
|---|---|---|---|---|---|
| | | arithm.mean | mode | arithm.mean | mode |
| 1 | early April | 35.6 mm | 35 mm | 30.7 mm | 31 mm |
| 2 | June | 34.9 mm | 34 mm | 30.1 mm | 28,32mm |

In the sample from April all the females were ovigerous, and the eggs close to hatching. Of 674 females measured only 9 had lost the eggs.

In the sample from June 19 females out of 250 still carried eggs.

It should be mentioned, that the samples were not random samples, and therefore do not reflect the true precentage of females and males in the catches as they stand.

**For comparison it can be mentioned that in samples from a Faroese vessel from April and May 1976 (Hoydal 1978) the modes of the distribution for ovigerous females was 29 to 30 and for males and transitionals 24 to 25.**

OTHER INFORMATIONS

Faroese vessels have occasionally made trial trawling on passing the area. According to one of the boats it was possible to get good catches of prawns fishing quite close to the ice limit in the summer.

It was more to the north than the fishery during the March-June fishing in 1980. It seems that the prawn after hatching moves upwards to the top of the plateau and northwards.

About the prospects of future fishery, there is agreement in the opinion of the skippers operating in this area, that the large landings this year were due to unusually favourable ice and weather conditions.

To their opinion this is an area, where fishing only will be possible in any scale in some years, and thus this resource only can be harvested very occasionally.

PRELIMINARY ESTIMATE OF STANDING STOCK

The first rough estimates of the standing stock in West Greenland were obtained in 1976 by the "swept area" method. (See e.g. Hoydal 1978). Later more detailed estimates confirmed this rough estimate as giving a fair estimate of the virgin stock present at that time.

The Faroese data can be used to make the same exercise for the East Greenland Area.

From log books and interviews with skippers, familiar with the area, the area shown in fig 1 is derived. The size of this is 9300 $km^3$.

An average estimate for the stock abundance for the period March-June 1980 is obtained by weighing the catch per unit effort by the effort. The result is an average of 419 kg per hour trawled. (Table 5)

Assuming the area swept by the trawl is 0.167 $km^3$ the standing stock estimated, or rather the fishable stock present in this area in the period reviewed, can be estimated to 23 300 tons.

Using the same assumptions as for West Greenland removals of 40 % of the stock will safeguard the spawning stock (see Ulltang 1978).

This would mean an allowable catch of 9300 tonnes.

It has to be underlined, that this data set only covers 4 months of the year and nothing is known about the catch rates in the autumn season and about the distribution of prawn during the summer.

References:

Hoydal, K., 1978: An assessment of the Deep Sea Shrimp, Pandalus borealis, stocks off West Greenland.
ICNAF, Selected Papers No. 4.

Ulltang, Ö., 1978: A Method for Determining the Total Allowable Catch of Deep Sea Shrimp, Pandalus borealis, off West Greenland.
ICNAF, Selected Papers No. 4.

TABLE 1

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
veida sambart skipsdagbokur pr 15 september 1980

| SKIP | catch VEIDA | hours TROLLTIM. | hauls HAL | kg/hour KG/TROLLT | kg/haul KG/HAL |
|---|---|---|---|---|---|
| HOGIFOSS | 76 | 411 | 133 | 184 | 569 |
| VESTURVA | 121 | 310 | 191 | 390 | 632 |
| ORION | 121 | 274 | 119 | 441 | 1015 |
| VESTURLA | 69 | 343 | 137 | 202 | 506 |
| SUDURVAR | 137 | 155 | 82 | 883 | 1665 |
| TORSBUGV | 148 | 340 | 145 | 434 | 1018 |
| OKNIN | 85 | 223 | 107 | 379 | 792 |
| VUHAMMER | 200 | 174 | 93 | 1147 | 2151 |
| HVILVTEN | 46 | 373 | 116 | 122 | 393 |
| HVITANES | 370 | 818 | 298 | 452 | 1242 |
| HEILD | 1371 | 3422 | 1421 | 401 | 965 |

TABLE 2

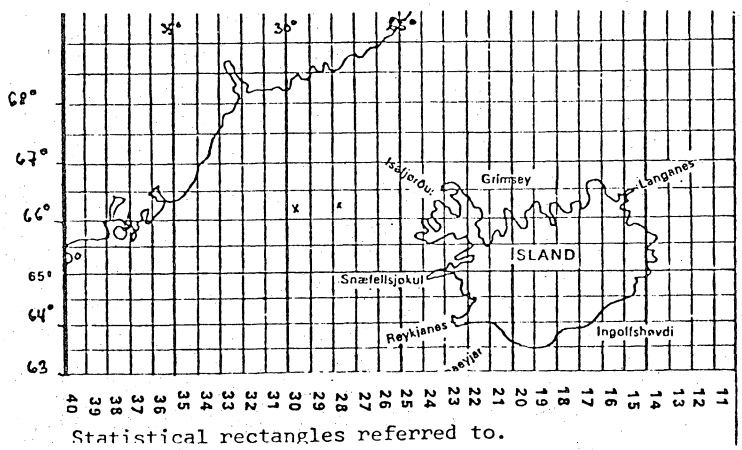
** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLLSKIP HEILDARVEIDA TONS total catch tonnes
LONGD ------>longitude

| BREIDD latit. | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | . | . | . | . | . | . |
| 68°00 | . | . | . | . | . | . |
| 67°30 | . | . | . | . | . | . |
| 67°00 | . | 29.4 | 67.2 | 15.1 | . | . |
| 66°30 | . | . | . | 160.2 | . | . |
| 66°00 | . | . | 716.6 | 1216.3 | 39.5 | . |
| 65°30 | . | . | 142.7 | 538.1 | . | . |
| 65°00 | . | . | . | . | . | . |
| 64°30 | . | . | . | . | . | . |
| 64°00 | . | . | . | . | . | . |
| 63°00 | . | . | . | . | . | . |
| 63°00 | . | . | . | . | . | . |

HEILDAR VEIDA UPPGIVIN I DAGBOK 1371.1 TONS
HEILDAR VEIDA UPPGIVIN TIL GRONLAND 10/6 2925.2 TONS
31/c 3585

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLLSKIP** % ** AV HEILDARVEIDA/PUNT
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | . | . | . | . | . | . |
| 68°00 | . | . | . | . | . | . |
| 67°30 | . | . | . | . | . | . |
| 67°00 | . | 1.0 | 2.3 | 0.5 | . | . |
| 66°30 | . | . | . | 5.5 | . | . |
| 66°00 | . | . | 24.5 | 41.6 | 1.3 | . |
| 65°30 | . | . | 4.9 | 18.4 | . | . |
| 65°00 | . | . | . | . | . | . |
| 64°30 | . | . | . | . | . | . |
| 64°00 | . | . | . | . | . | . |
| 63°30 | | | | | | |
| 63°00 | | | | | | |



Statistical rectangles referred to.

TABLE 3

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 3 March
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 68°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°00 | 0.0 | 0.0 | 31.5 | 0.0 | 0.0 | 0.0 |
| 66°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 66°00 | 0.0 | 0.0 | 0.0 | 9.0 | 0.0 | 0.0 |
| 65°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 65°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 4 April
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 68°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°00 | 0.0 | 13.8 | 0.0 | 7.1 | 0.0 | 0.0 |
| 66°30 | 0.0 | 0.0 | 0.0 | 75.1 | 0.0 | 0.0 |
| 66°00 | 0.0 | 0.0 | 235.6 | 263.3 | 0.0 | 0.0 |
| 65°30 | 0.0 | 0.0 | 14.7 | 133.6 | 0.0 | 0.0 |
| 65°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 5 May
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 68°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 66°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 66°00 | 0.0 | 0.0 | 34.2 | 160.4 | 18.5 | 0.0 |
| 65°30 | 0.0 | 0.0 | 52.2 | 111.8 | 0.0 | 0.0 |
| 65°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

TABLE 3 (cont)

** Faroese Prawn Fisnery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 6 june
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 68°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 67°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 66°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 66°00 | 0.0 | 0.0 | 66.1 | 137.4 | 0.0 | 0.0 |
| 65°30 | 0.0 | 0.0 | 0.0 | 6.8 | 0.0 | 0.0 |
| 65°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 64°00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 63°30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

TABLE 4

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 3 March
TROLTIMAR hours trawled
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | * | * | * | * | * | * |
| 68°00 | * | * | * | * | * | * |
| 67°30 | * | * | * | * | * | * |
| 67°00 | * | * | 23.2 | * | * | * |
| 66°30 | * | * | * | * | * | * |
| 66°00 | * | * | * | 19.3 | * | * |
| 65°30 | * | * | * | * | * | * |
| 65°00 | * | * | * | * | * | * |
| 64°30 | * | * | * | * | * | * |
| 64°00 | * | * | * | * | * | * |
| 63°30 | * | * | * | * | * | * |
| 63°00 | * | * | * | * | * | * |

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 3 March
KG/ TROLTIMAR kilos / hour
LONGD ----->

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | 1359.7 | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | 465.5 | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |

see table 2

Table 4 (cont)

** Faroese Prawn Fisnery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 4 April
TROLTIMAR hours trawled
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | * | * | * | * | * | * |
| 68°00 | * | * | * | * | * | * |
| 67°30 | * | * | * | * | * | * |
| 67°00 | * | 8.8 | * | 8.8 | * | * |
| 66°30 | * | * | * | 55.4 | * | * |
| 66°00 | * | * | 422.5 | 485.8 | * | * |
| 65°30 | * | * | 28.3 | 206.5 | * | * |
| 65°00 | * | * | * | * | * | * |
| 64°30 | * | * | * | * | * | * |
| 64°00 | * | * | * | * | * | * |
| 63°30 | * | * | * | * | * | * |
| 63°00 | * | * | * | * | * | * |

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 4 April
KG/ TROLTIMAR kilos / hour
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | 1562.3 | . | 803.8 | . | . |
| | . | . | . | 1354.8 | . | . |
| | . | . | 557.7 | 542.0 | . | . |
| | . | . | 518.8 | 647.0 | . | . |
| see table 2 | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |

TROLTIMAR hours trawled
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | * | * | * | * | * | * |
| 68°00 | * | * | * | * | * | * |
| 67°30 | * | * | * | * | * | * |
| 67°00 | * | * | * | * | * | * |
| 66°30 | * | * | * | * | * | * |
| 66°00 | * | * | 85.1 | 513.2 | 96.3 | * |
| 65°30 | * | * | 149.6 | 212.1 | * | * |
| 65°00 | * | * | * | * | * | * |
| 64°30 | * | * | * | * | * | * |
| 64°00 | * | * | * | * | * | * |
| 63°30 | * | * | * | * | * | * |
| 63°00 | * | * | * | * | * | * |

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 5 May
KG/ TROLTIMAR kilos / hour
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| see table 2 | . | . | 402.0 | 312.6 | 192.0 | . |
| | . | . | 349.0 | 527.2 | . | . |

TABLE 4 (cont)

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 6 June
TROLTIMAR hours / trawled
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| 68°30 | * | * | * | * | * | * |
| 68°00 | * | * | * | * | * | * |
| 67°30 | * | * | * | * | * | * |
| 67°00 | * | * | * | * | * | * |
| 66°30 | * | * | * | * | * | * |
| 66°00 | * | * | 383.3 | 668.8 | * | * |
| 65°30 | * | * | * | 55.3 | * | * |
| 65°00 | * | * | * | * | * | * |
| 64°30 | * | * | * | * | * | * |
| 64°00 | * | * | * | * | * | * |
| 63°30 | * | * | * | * | * | * |
| 63°00 | * | * | * | * | * | * |

** Faroese Prawn Fishery EAST GREENLAND March July 1980 **
OLL SKIP MANADUR 6 June
KG/ TROLTIMAR kilos / hour
LONGD ------>

| BREIDD | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | 172.4 | 205.4 | . | . |
| | . | . | . | 122.9 | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |
| | . | . | . | . | . | . |

TABLE 5

CATCH EFFORT BY MONTH EAST GREENLNAD MARCH-JUNE 1980. Logbooks.

| | March | April | May | June | weight average |
|---|---|---|---|---|---|
| kg/hour | 1015 | 641 | 373 | 195 | 419 |
| | 40.5 | 743.1 | 377.1 | 210.3 | |
| | 42.5 | 1216.1 | 1056.3 | 1107.4 | |

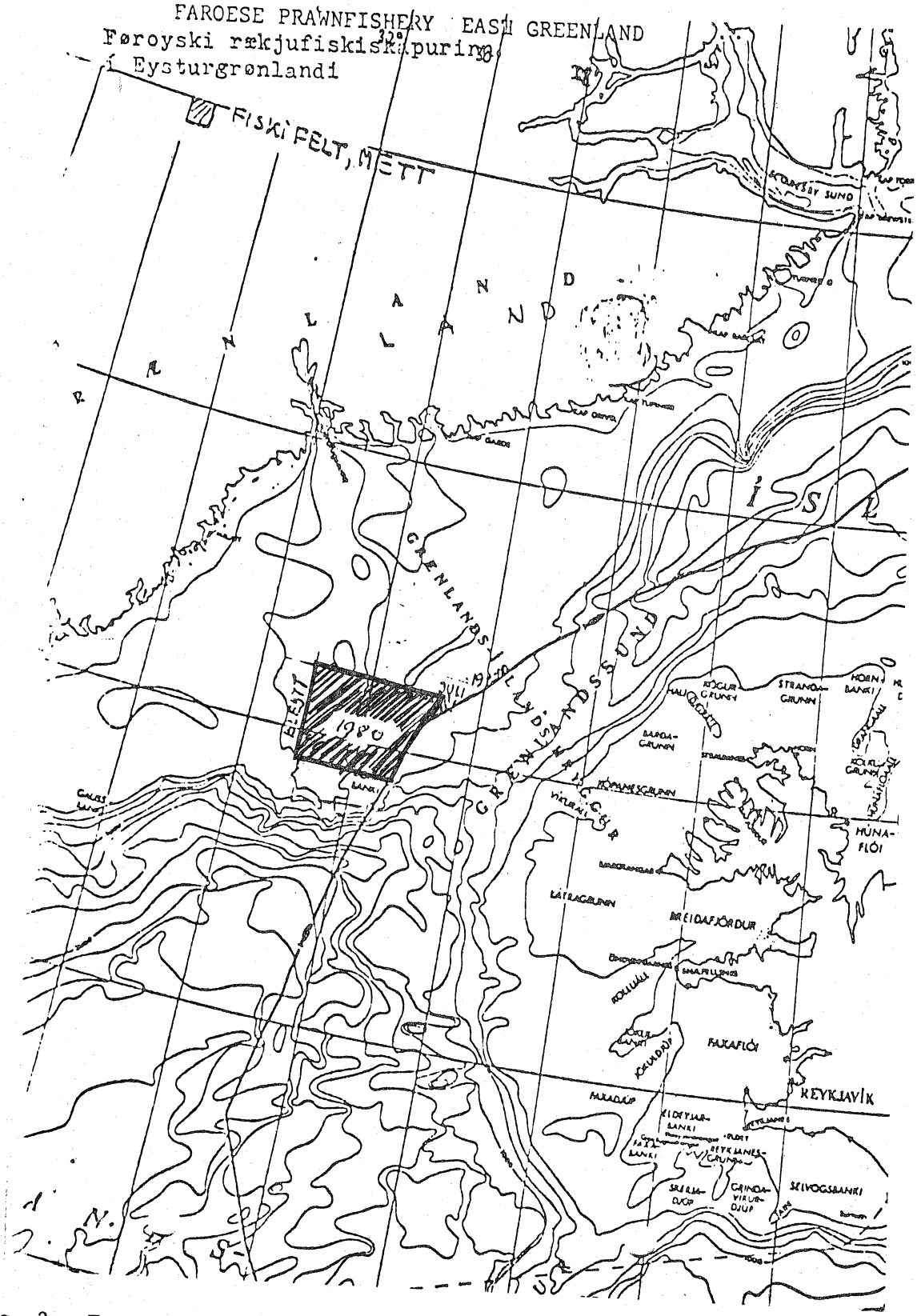



Fig. 2. Faroese prawn fishery at East Greenland, 1980.

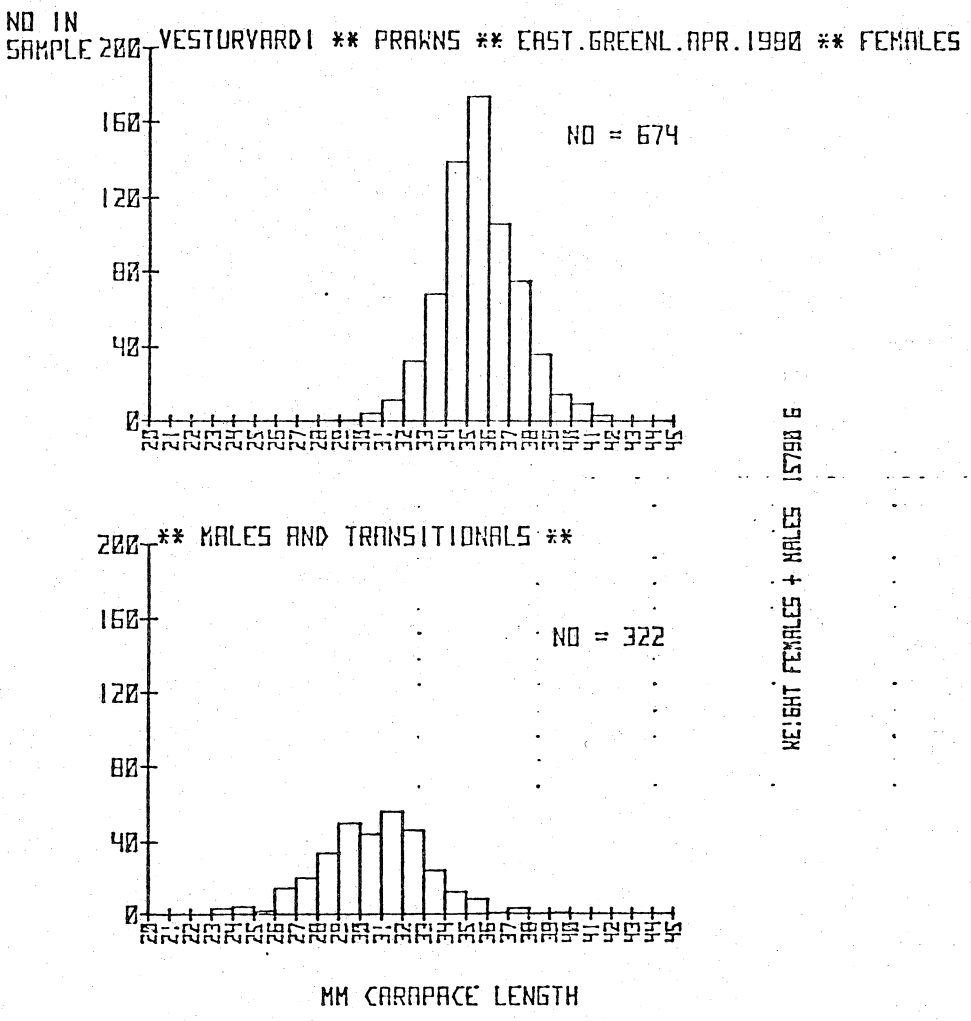

NO IN SAMPLE
VESTURVARDI ** PRAWNS ** EAST.GREENL.APR.1980 ** FEMALES
NO = 674
** MALES AND TRANSITIONALS **
NO = 322
MM CARAPACE LENGTH
WEIGHT FEMALES + MALES 15790 G

Fig. 2.

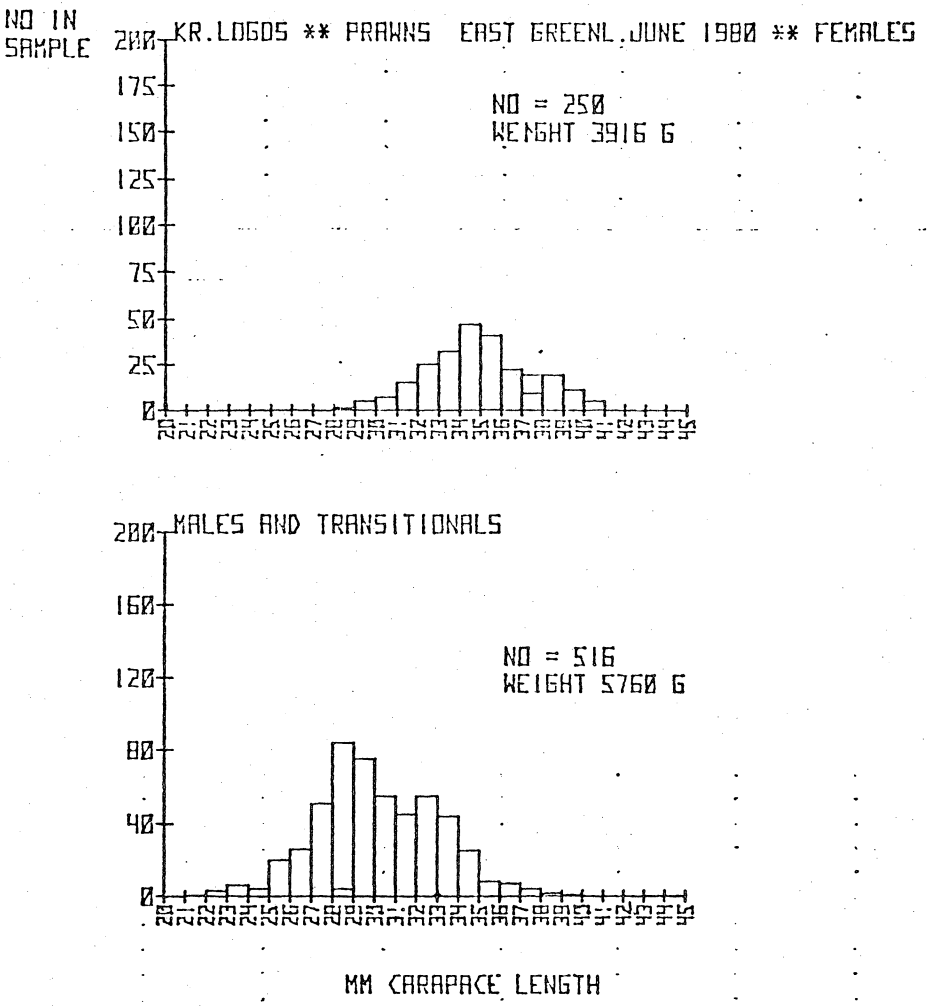

NO IN SAMPLE
KR.LODOS ** PRAWNS EAST GREENL.JUNE 1980 ** FEMALES
NO = 250
WEIGHT 3916 G
MALES AND TRANSITIONALS
NO = 516
WEIGHT 5760 G
MM CARAPACE LENGTH

Fig. 2. Cont'd.