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Preliminary Results From Cod Tagging off West Greenland, 1989

by

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**1. Introduction**

The 1984 year-class of cod in West Greenland is believed to be of Icelandic origin. It was first observed by the Icelandic 0-group survey in large quantities drifting over the Dohrn bank area in August, 1984, and were later observed as young fish off East and West Greenland where it have dominated survey as well as commercial catches since (Anon., 1991). Young haddock of the same year-class were also taken in the ground fish surveys (Hovgård and Messtorff, 1987). As haddock is rarely observed in Greenland and is not assumed to spawn there this was taken as a further evidence for an unusual large inflow of Irminger water from Iceland to Greenland in 1984.

As cod of Icelandic origin is assumed to return to Iceland for spawning the Greenland Fisheries Research Institute decided in 1989 to tag cod of this year-class to be able to estimate the magnitude of migration. Only returns from the first full year after tagging is available by now. However, the results indicate an unusual high migration to Iceland.

**2. Materials and methods**

In August, 1989, the GFRI conducted a cod tagging experiment in coast and bank areas off West Greenland in Div. 1DEF. The tagging locations are shown in fig. 1 and the length distribution of catches are shown in fig. 2. The cod were tagged by jigging at depths between 20 and 250 m.

**3. Results**

All tag returns (total 15) in the tagging year were reported from West Greenland. In 1990 39 tags were received of which 14, i.e. 36%, were taken from Iceland (table 1). By May, 1991, 11 tags were received of which 10 were taken in Icelandic waters and 1 off East Greenland (table 2).

Returns of tags from Icelandic waters of cod tagged off West Greenland are well known (see Hansen, 1949, Riget & Hovgård, 1989). However 1st year recoveries are not common.

To evaluate the present findings it was tried to imitate the 1989 tagging experiment by filtering out tagging experiments made north of Div. 1D, East Greenland tagging and tagging from fiords from previous tagging data covering the 1946-1984 period. The distribution of returns from the historical data by return area and year after tagging are given in table 3. Of a total of 1831 first years recaptures 112 (6.1%) are taken off Iceland.

However, in earlier years the size distribution of cod off West Greenland were different from the present situation with many more large cod available. If excluding cod of a length of above 65 cm. from the historical data base to mimicry the size distribution tagged in 1989 only 12 1st year returns (1.8%) are taken off Iceland (table 4). Moreover, of these 12 returns 10 was between 61 cm and 65 cm when tagged.

**4. Discussion**

It is still premature to evaluate the migration rate from Greenland to Iceland of the 1984 year-class. However, 1st years recoveries shows an unprecedented high proportion of recoveries from Iceland, and this indicates an unusual high migration from West Greenland to Iceland.

The return distribution from the first four months of 1991 is even more unusual with no returns from West Greenland. Catches off West Greenland has however been very small in this period. In the trawl fishery only 1.963 tons were taken (as compared to 16.402 tons in 1989) by the end of April and the inshore fishery has yet not started. In Iceland the bulk of the catches are usually taken in the spawning period. It is therefore too early to interpret the return distribution from the 2nd year.

5. References

Anon. 1991 : Report of the Working Group on Cod Stocks off East Greenland. ICES, Doc. C.M. 1991/Assess:10.

Hansen, P.M., 1949 : Studies on the biology of cod in Greenland waters. Rapp. P.-v. Reun. Cons. int. Explor. Mer, 123:1-77.

Hovgård, H. and J. Messtorff, 1987 : Is the West Greenland cod mainly recruited from Icelandic waters ? NAFO SCR Doc. 87/31.

Riget, F.F. and H. Hovgård, 1989 : Recaptures by year-classes of cod in East Greenland/Iceland waters from tagging experiments at West Greenland. NAFO SCR. Doc. 89/24.

Table 1 : Distribution of tag returns in 1990 from the 1989 cod tagging experiment of Greenland, by tagging locality and return area.

Return area	West Greenland	East Greenland	Iceland
<u>Tagging location</u>			
Div. 1D Bank	6	0	2
Coast	6	1	1
Div. 1E Coast	9	1	7
Div. 1F Bank	1	1	4
East of Kap Farvel	0	0	0

Table 2 : Distribution of tag returns in 1991 (until 3. may) from the 1989 cod tagging experiment of Greenland, by tagging locality and return area.

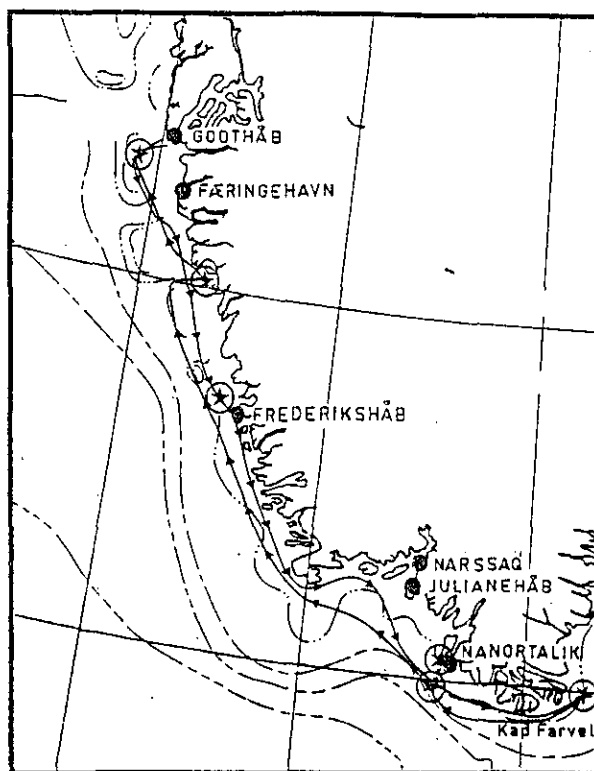
Return area	West Greenland	East Greenland	Iceland
<u>Tagging location</u>			
Div. 1D Bank	0	0	2
Coast	0	0	1
Div. 1E Coast	0	0	4
Div. 1F Bank	0	0	2
East of Kap Farvel	0	1	1

Table 3 : Distribution of tag returns by year after tagging and return area from West Greenland tagging, 1946-84.

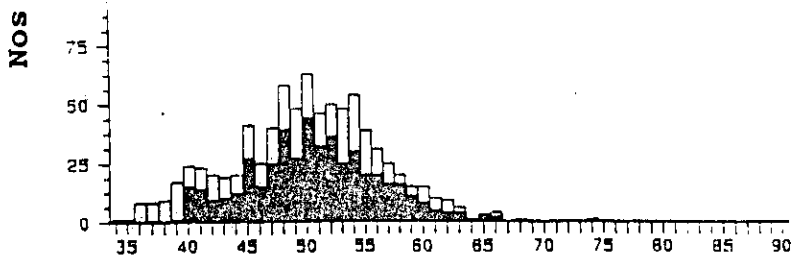
Return area	West Greenland	East Greenland	Iceland
<u>Return year</u>			
0	666	5	2
1	1660	59	112
2	791	52	152
3	411	30	110
4	165	15	85
5	89	10	30
6	25	4	10
7	12	4	2
8	13	0	0
9	3	0	0
10+	3	0	0

**Table 4 :** Distribution of tag returns by year after tagging and return area from West Greenland tagging, 1946-84. Only cod between 40 and 65 cm when tagged is included, to mimicry the length distribution tagged in the 1989 experiment (see fig. 2).

Return area	West Greenland	East Greenland	Iceland
<u>Return year</u>			
0	200	1	0
1	631	13	12
2	351	19	33
3	182	12	47
4	67	8	49
5	42	6	20
6	10	1	8
7	6	1	1
8	7	0	0
9	0	0	0
10+	2	0	0

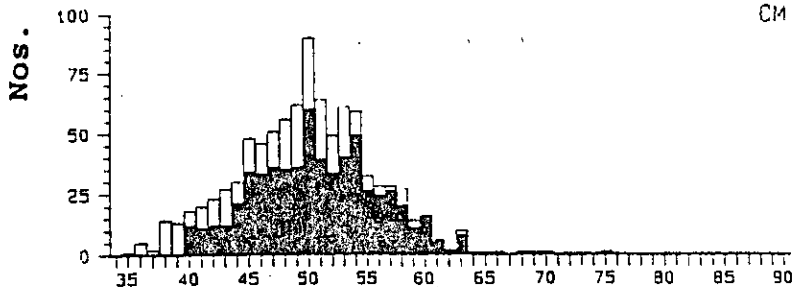


**Fig. 1:** Map of Southwest Greenland showing the tagging localities.



Fylla bank, Div. 1D

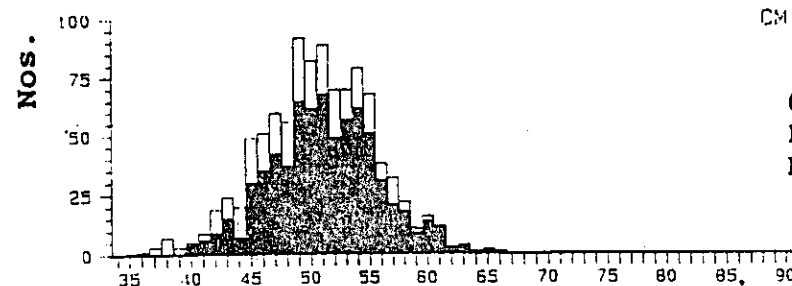
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Coast off Fiskenesstet

Div. 1D

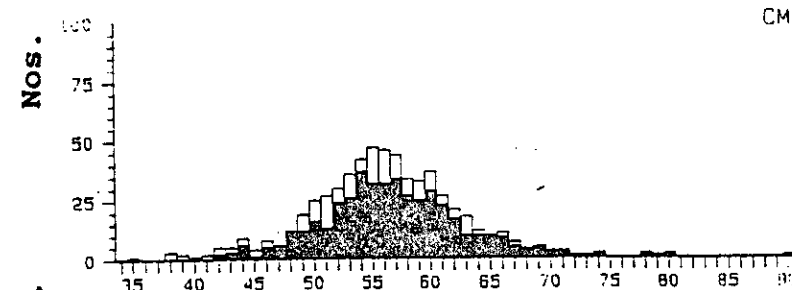
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Coast off Paamiut

Div. 1E

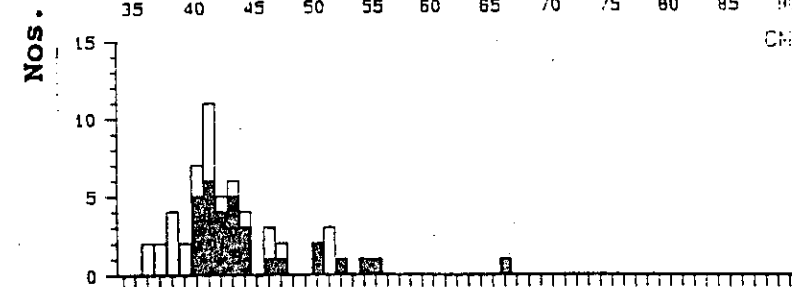
N=999



Nanortalik bank

Div. 1F

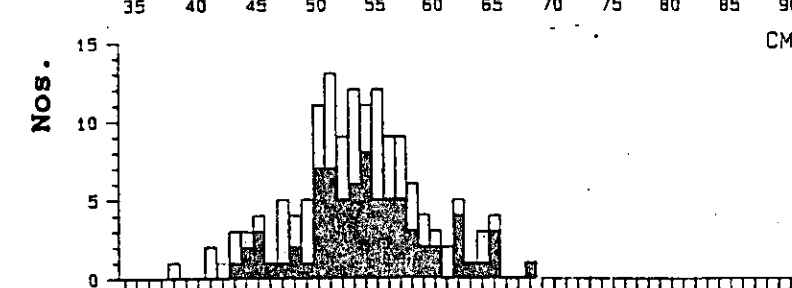
N=608



Coast off Nanortalik

Div. 1F

N=56



Bank East of Kap Farvel

East Greenland

N=144

Fig. 2: Length distribution of the cod caught in the tagging experiments. The filled bars indicate the numbers tagged the open bars the numbers discarded.