



**SCIENTIFIC COUNCIL MEETING – JUNE 2003**

Norwegian Fishery for Greenland Halibut, Grenadiers and Redfish in West-Greenland Waters, 2001-2002

by

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**ABSTRACT**

This research document contains information on landing statistics and catch composition of Greenland halibut in West-Greenland waters during 2002. Information covers length measurements for both years indicating catch composition from the trawl fishery. For 2002 information on sex composition, maturity, age and length – weight is available.

**Fishing Area**

Only trawlers participated. Main fishing grounds were located between 62°N - 64°N, 56°W - 58°W both in 2001 and 2002. Catches and CPUE for Greenland halibut, grenadiers, and redfish sp. is given by NAFO Division and month in Table 1 and 2 for 2001 and 2002, respectively.

Trawling was conducted along the continental slope on the ridge between Canada and Greenland in the Davis Strait (Div. 1CD). Main fishing depth was 1 000-1 400 m (Fig. 1).

**Length Compositions 2001**

Samples were provided from 2 of the Norwegian trawlers. A total of 1 597 Greenland halibut were measured from 15 hauls. Greenland halibut was in the length range 32-110 cm. Mean length was 56.2 cm (Table 3). Length distribution is shown in Fig. 2.

**Length Compositions 2002**

3 trawlers provided length measurements in 2002. A total of 2285 Greenland halibut were length measured from 22 trawl hauls. Greenland halibut were in the length range 32-102 cm. Mean length was 50.7 cm (Table 3). Length distribution is shown in Fig. 3.

Comparisons of length distributions from 2001 and 2002 showed that Greenland halibut were smaller in the latter year (Fig. 4).

**Biological Samples from 2002.**

During 2002 round weight, sex, maturity and age were collected from a subsample consisting of 104 Greenland halibut. Length range for the sample was 35-67 cm (Table 4).

The sample consisted of 70 males and 34 females. 48 of the males had started maturation. Of the 34 females analysed only 6 were maturing (Table 5). Figure 5 indicates total length in relation to sex. 7 individuals were aged.

Age range was 4 to 10. Estimated mean length at age is given in Table 6. Figure 6 shows mean length at age based in the raw data. Figure 7 compares mean length at age from West-Greenland to mean length at age for Greenland halibut in the Barents Sea/Svalbard area.

A relationship between total length (L in cm) and round weight (W in kg) was established from the 104 samples collected (Figure 8). The relationship was estimated as:

$$W = 7.02 * 10^{-6} * L^{3.027} (R^2 = 0.944, P = 0, N = 104)$$

### Landing statistics

**Table 1.** Norwegian trawl catches (based on log-books) by species and NAFO-areas in 2001. Catches of shrimp are not included.

Species	NAFO-area	Catch (tonnes)	Fishing months	CPUE		
				Tonnes /fishday	Tonnes /hours trawling	Tonnes /haul
Greenland halibut	1D	1 419	Sep-Dec	9.99	0.63	3.72
<b>Grenadiers</b>		4		0.028	0.0018	0.010

**Table 2.** Preliminary statistics showing Norwegian trawl catches (based on log-books) by species and NAFO-areas in 2002. Catches of shrimp are not included.

Species	NAFO-area	Catch (tonnes)	Fishing months	CPUE		
				Tonnes /fishday	Tonnes /hours trawling	Tonnes /haul
Greenland halibut	1C	552	Oct-Dec	42.46	2.36	12.84
	<b>1D</b>	1 182	Jun-Oct	<b>8.27</b>	0.49	<b>2.68</b>
<b>Grenadiers</b>	1C	3	Oct-Dec	0.25	0.014	0.075
	1D	9	Jun-Oct	0.063	0.0037	0.020
Redfishes	1C	5	Oct-Dec	0.37	0.021	0.11

Table 3. Summary table for length measurements conducted during the Norwegian trawl fishery in West-Greenland waters. Mean L = Mean length, Min L = minimum length measured, Max L = largest Greenland halibut measured, N = number of fish measured. All total lengths are given in cm.

	Trawl			N
	Mean L	Min L	Max L	
2001	56.2	32	110	1 597
2002	50.7	32	102	2 282

Table 4. Mean lengths and minimum and maximum measured length for Greenland halibut with respect to sex. Results are based on 104 samples taken during trawl fishery in West-Greenland in 2002.

	Females	Males	All
Mean length (cm)	46.7	47.4	47.1
Minimum (cm)	35	38	
Maximum (cm)	67	62	
Total Number	34	70	104

Table 5. Maturity classifications of Greenland halibut sampled from the trawl fishery in West-Greenland waters during 2002. Early maturing corresponds to female gonads just having started maturation. Results are based on 104 samples taken during trawl fishery in West-Greenland in 2002.

Sex	Females	Males	Total
Immature	28	22	50
Early maturing	6	48	54
Total	34	70	104

Table 6. Estimated mean length at age for Greenland halibut caught in West-Greenland waters in 2002. Last column gives the number of fish from which the estimates are based.

Age	Mean length (cm)	Number of aged fish
4	38.5	6
5	43.1	34
6	47.9	35
7	51.6	16
8	57.0	2
9	59.5	2
10	64.5	2
Not read		7
Total		104

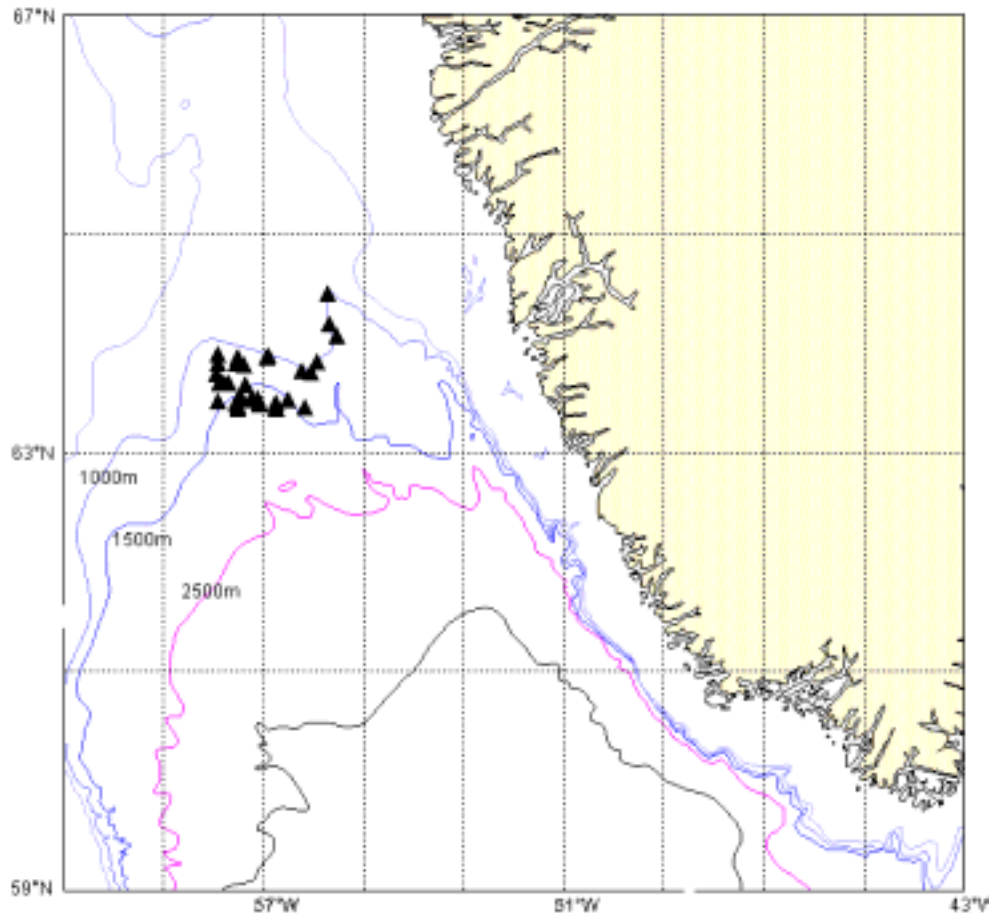


Fig. 1. Areas in West-Greenland where the Norwegian fishery was conducted in 2001 and 2002 (black triangles).

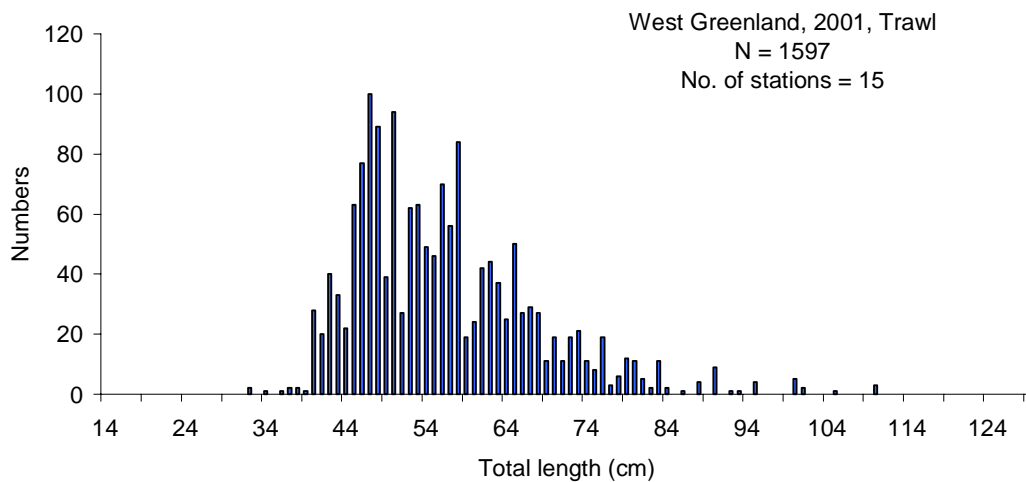


Fig. 2. Length distribution of Greenland halibut measured during commercial trawl fishery for Greenland halibut in West Greenland waters in 2001.

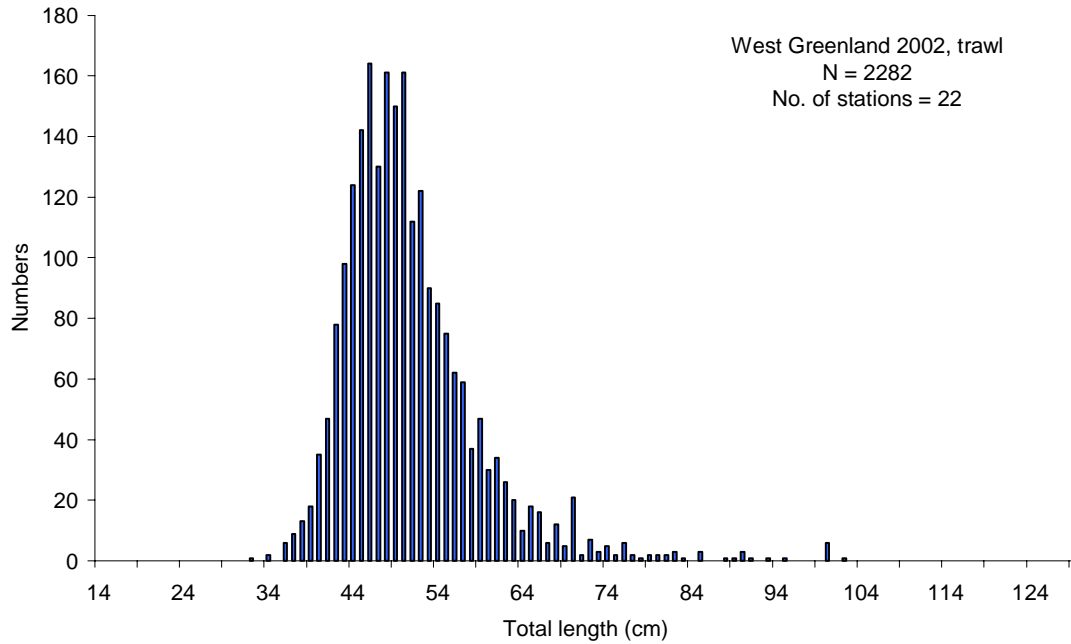


Fig. 3. Length distribution of Greenland halibut measured during commercial trawl fishery for Greenland halibut in West Greenland waters in 2002.

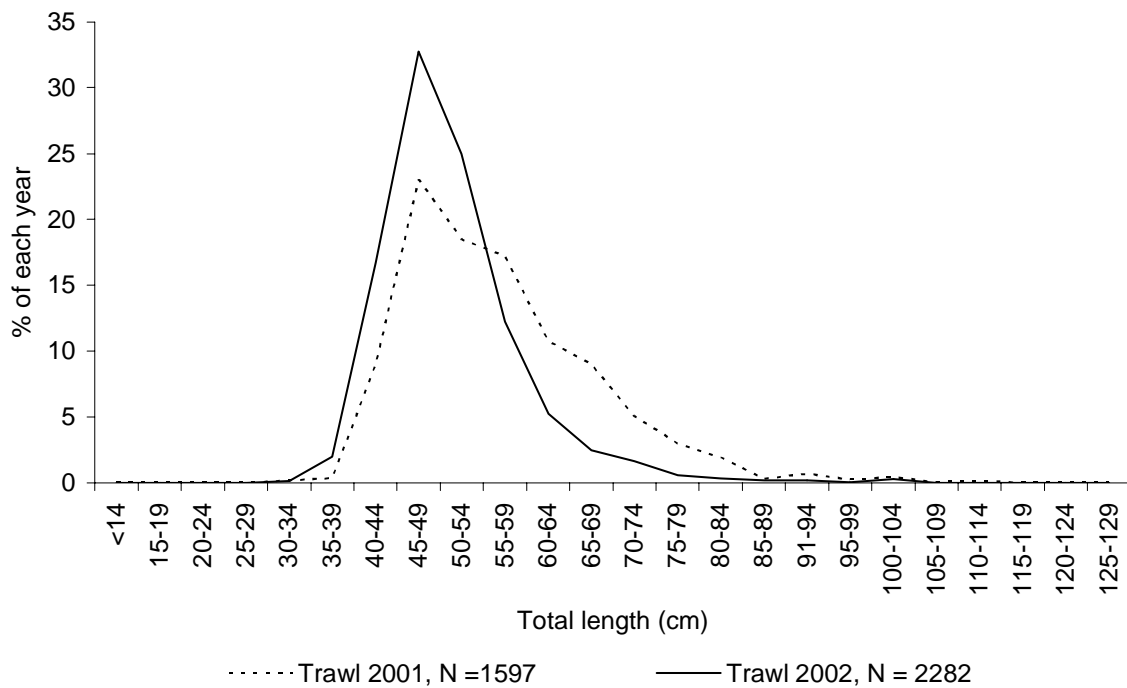


Fig. 4. Comparisons of Greenland halibut length distributions from trawl fishery in West-Greenland waters.

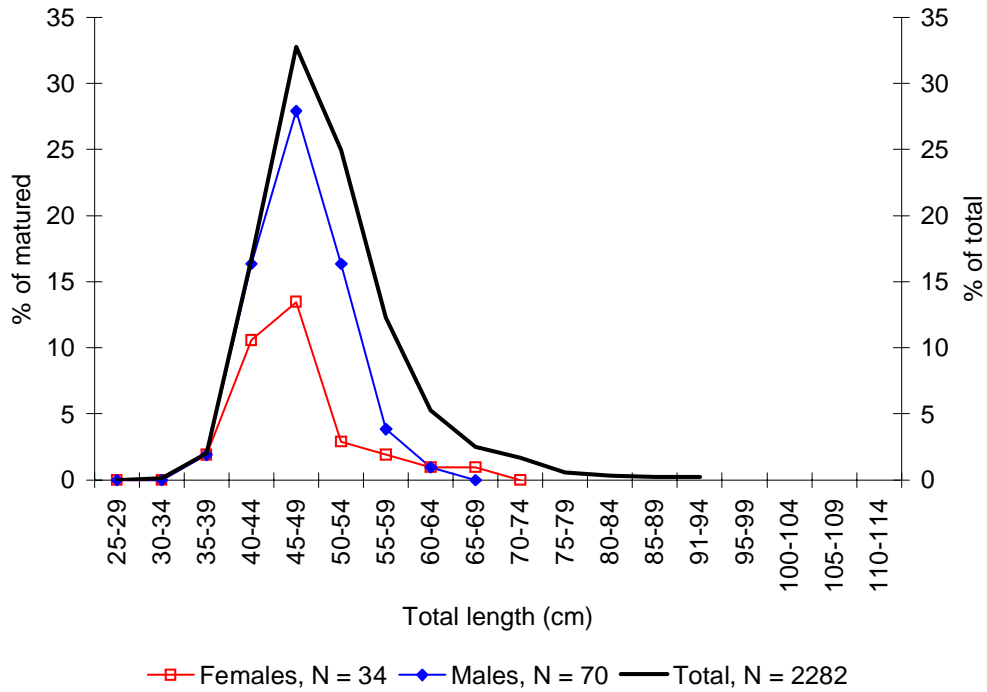


Fig. 5. Length distributions of Greenland halibut females and males relative to total length distribution from 3 trawlers fishing in West-Greenland waters during 2002.

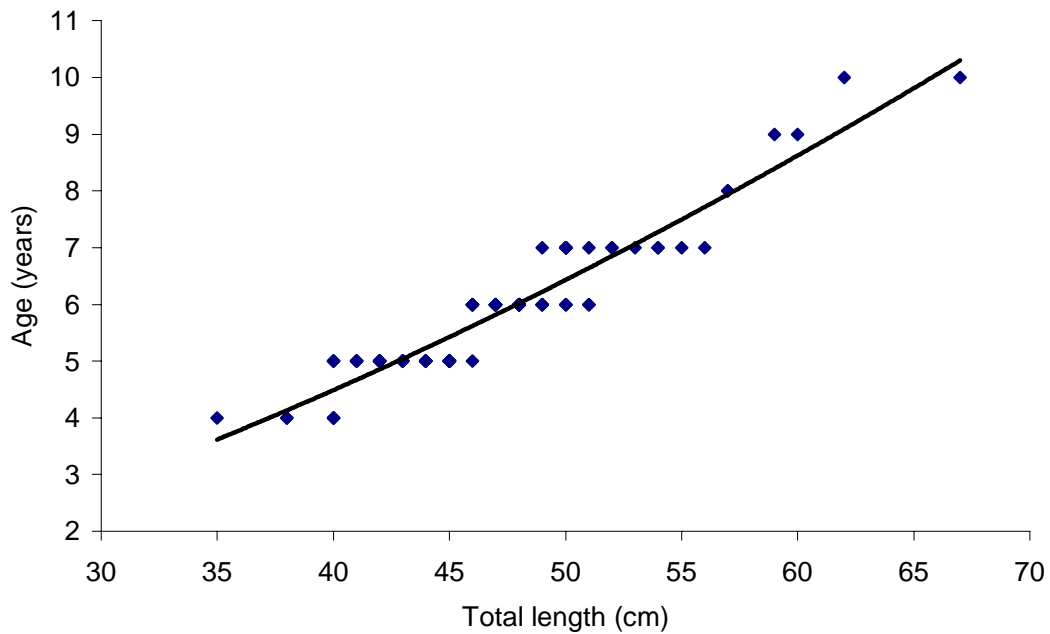


Fig. 6. Age – length – relationship for Greenland halibut in West-Greenland waters 2002. Samples from trawl catches.

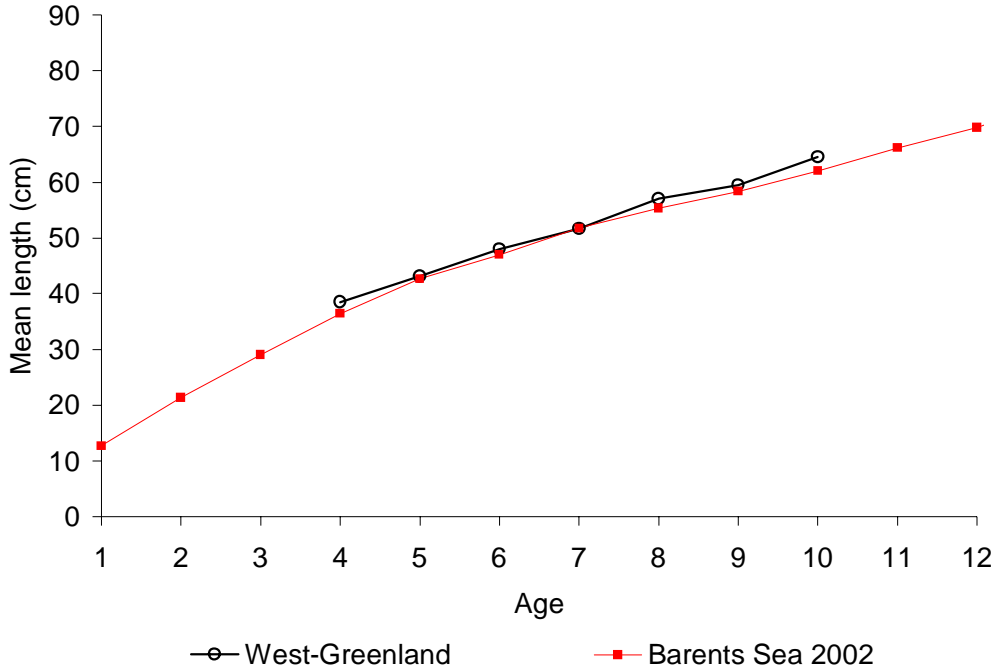


Fig. 7. Mean length at age Greenland halibut in West-Greenland waters 2002 (black) compared to mean length at age in the Barents Sea (red) (2002).

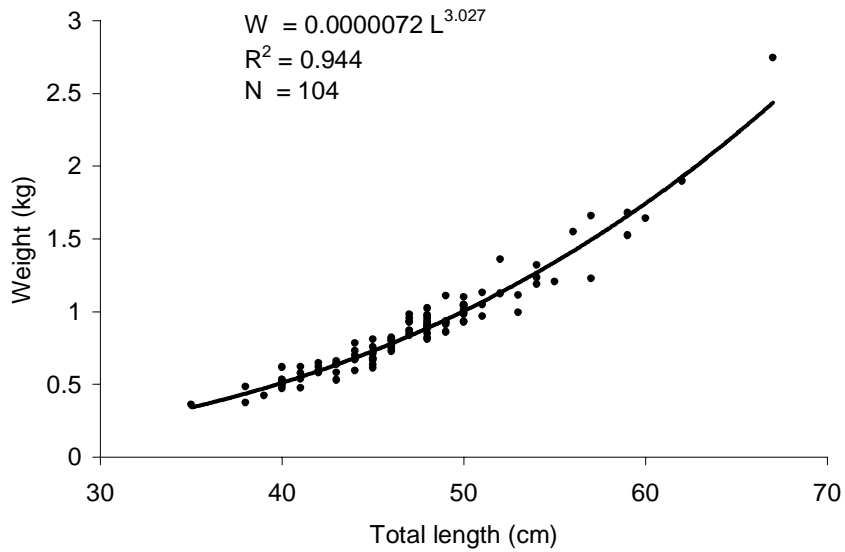


Fig. 8. Length – Weight – relationship for Greenland halibut, based on trawl samples. Data from West-Greenland, 2002.