Northwest Atlantic Fisheries Organization

Serial No. N5498 **NAFO SCR Doc. 08/7**

SCIENTIFIC COUNCIL MEETING – JUNE 2008

Results for Greenland halibut and American plaice of the Spanish survey in NAFO Div. 3NO for the period 1997-2007

by

Diana González-Troncoso, Esther Román and Xabier Paz

Instituto Español de Oceanografía
P.O. Box 1552. Vigo, Spain
e-mail: diana.gonzalez@vi.ieo.es

Abstract

Greenland halibut (*Reinhardtius hippoglossoides*) and American plaice (*Hippoglossoides platessoides*) indices from the bottom trawl survey that Spain carries out in Spring since 1995 in div. 3NO of the NAFO Regulatory Area are presented. Mean catch per town, biomass and length distribution for both species, as well as age distribution for Greenland halibut, are presented since 1997, year in which the survey extended the depth strata. In 2001, the R/V *Vizconde de Eza* replaced the C/V *Playa de Menduíña* in the execution of the survey. We present the transformed to the R/V *Vizconde de Eza* series for the period 1997-2000, and the original obtained data for the period 2002-2007. In 2001, there are data from the two vessels. Greenland halibut biomass and abundance estimates present a decreasing trend since 1999, cut in year 2007 with a slight increase, but it seems not to be recuperation of the stock. In last years it can be seen a presence of juveniles, mainly in 2004, but the greatest lengths have failed. Last year all the age classes were poor. For American plaice we can see an increasing trend along the whole period, reaching a maximum of biomass and number in 2006. For this species, a good recruitment occurred in 2004 and we can follow the length mode along the years.

Material and Methods

Since 1995, Spain carries out a Spring-Summer survey in the NAFO Regulatory Area of Div. 3NO on board the C/V *Playa de Menduíña* with a net trawl type *Pedreira*. In 2001, this vessel was replaced by the R/V *Vizconde de Eza*, using a trawl net type *Campelen*. To know more details about the technical specifications of the surveys, see Walsh *et al.*, 2001 and González Troncoso *et al.*, 2004.

The catch of each haul was sorted and weighted into species and a sample of each species was taken in order to measure the length distribution. For Greenland halibut and American plaice each individual of the sample was measured to the total length to the nearest lower cm. We present the indices for the period 1997-2007. In 1995 and 1996 only the less deeper strata were surveyed, so these years are not representative for these species, thus they are not included in the analysis.

In Table 1, we present the number of valid tows, the depth strata covered and the dates of the survey series (1997-2007).

For each species, all the indices are presented transformed until 2000 and no-transformed in the period 2002-2007. In the year 2001, there are data transformed from the former vessel with original data from the new vessel. To know more about the transformation, see González-Troncoso *et al*., 2005 and González-Troncoso *et al*., 2006. We present per haul the mean catch, the stratified mean catch per tow and the biomass with their variance per year; the length distribution in number per haul stratified mean catches per length, sex and year; as well as the mean catches per tow age numbers with their mean length and mean weight by age for Greenland halibut. The age numbers were calculated starting from the stratified mean catches per haul length distribution applying the Age Length Key (ALK) for age-length keys. Weight at age was calculated by applying the length/weight relationship for each year to the mean length.

Results

Greenland halibut

The Greenland halibut stock in Subarea and Div. 3KLMNO is considered to be part of a biological stock complex, which includes Subareas 0 and 1. Abundance and biomass indices were available from research vessel surveys by Canada in Div. 2J+3KLMNO (1978-2007), EU in Div. 3M (1988-2007) and EU-Spain in Div. 3NO (1995-2007).

The exploitable biomass (age 5+) was reduced to low levels in 1995-97 due to very high catches and high fishing mortality. It increased during 1998-2000 due to greatly reduced catches, much lower fishing mortality and improved recruitment. However, increasingly higher catches and fishing mortality since then accompanied by poorer recruitment has caused a subsequent decline. The current (2004-2007) estimates of exploitable biomass are amongst the lowest in the series.

So, the exploitable biomass has been declining in recent years and is presently estimated to be at its lowest observed level. All recruiting year-classes since the 1996 year-class have been below average, and fishing mortality has increased substantially in recent years, and is currently estimated as the highest in the time series (NAFO, 2007). Our results confirm these results presented by the Scientific Council last year.

Mean catches and Biomass

Table 2 shows the swept area, the tow number, the mean catches and their variance per haul and year for Greenland halibut. In Table 3 and Figure 1 we present the stratified mean catches per tow by stratum with the total variance per year. Table 4 and Figure 2 present the biomass per swept area per stratum and their total variance per year, as the biomass corresponding with the ages 5+ and 10+. In Table 5 we present the length-weight relationship parameters *a* and *b*.

Greenland halibut biomass decreased since the year 1999, although in 2007 the decreasing trend was changed with an increase over the year 2006 biomass. But at this moment the biomass is much below the level of 1997, and the stock seems not to recover. The lowest biomass value was in 2002. In 2007, the biomass 5+ and 10+ has had a slight increase.

Length Distribution

Table 6 presents the stratified mean catches per haul length distribution for the Greenland halibut, by sex and year, with the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the range of lengths met, as the total catch of this species and the total hauls made in the survey. In Figures 3 and 4 we can follow the evolution along the years. We can follow a mode since 1997 until 2001, but since then no high new values appears. The highest recruitments were in 1997, 2001 and 2004. In 2006 and 2007 the small individuals (around 12-14 cm) are the mode of the length distribution range, but all the length ranges were poor.

Age numbers

We present the abundance at age per stratified mean catch by haul, by sex and by year in Table 7 and the total by year in Figure 5. Individuals between 0 and 20 years were caught in the period 1997-2007, and in last years (most

since 2002) younger individuals were caught. Perhaps it can be due to the change of gear and/or vessel. We can follow three conspicuous cohorts in our series, the 1994-1996 cohorts (ages 1, 2 and 3 in 1997). Cohorts from following years seem to be weaker than those ones, but more constant. And 2002-2003 cohorts appear to be quite strong, as we can see in recent years, specially 2003 one, but it is no signal of these cohorts in recent years. This year the presence of all the ages classes is very weak, and in the last two years the mode of the whole age range was in the individuals of age 1.

Mean length and mean weight

Mean length and weight at age by sex over time are presented in Tables 8 and 9, and shown in Figures 6 and 7. It seems that the greatest ages were increasing their mean length and weight until 2003, and falling in the youngest individuals. The mean length seems to be more stable than mean weight, at least for the youngest and the oldest individuals. Note that, although the number has decreased, the total mean length and mean weight have increased in the year 2007 over the year 2006. It must be due that in year 2007 we have more proportion of oldest ages (more than 5 years) than in year 2006.

American plaice

There was no directed fishing of American plaice in 1994 and there has been a moratorium from 1995. Even under moratorium, catches have increased substantially in recent years. Biomass and SSB are very low compared to historic levels. SSB declined to the lowest estimated level in 1994 and 1995. It has increased since then but still remains very low. There has been no good recruitment to the exploitable biomass since the mid-1980s (NAFO, 2007).

Mean catches and Biomass

American plaice haul mean catches by stratum are presented in Table 10, included swept area, number of hauls and SD. Stratified mean catches per tow by stratum and year and their SD are presented in Table 11.

The entire time series (1997-2007) of biomass and their SD estimates of American plaice are presented in Table 12. Estimated parameters *a* and *b* values of length-weight distribution are presented in Table 13.

The American plaice indices show a general increasing trend along the years, agree with the results from the Canadian surveys. We can see a decreasing in 2001 and 2002, and an increasing since then, reaching the maximum historical value in 2006, and remains in 2007 at the same level than in 2005 (Fig. 8 and 9).

Length Distribution

Table 14 and Figures 10 and 11 show the stratified mean catches per haul length distribution by sex and year, besides the sampled size and its catch, for the period 1997-2007. The data have been grouped two by two**,** so we present the data every two cm. In 2004 there is a great presence of juveniles (8 cm), and in 2005 the mode appears around 14 cm, following with a mode of around 20 cm in 2006 and around 24 in 2007. In 2007, a decrease in the level of the number of individuals of all the length classes occurs.

References

González Troncoso, D., C. González and X. Paz. 2004. American plaice biomass and abundance from the surveys conducted by Spain in the NAFO Regulatory Area of Divisions 3NO, 1995-2003. NAFO SCR Doc. 04/09, Serial Number N4954, 22 pp.

González Troncoso, D., E. Román and X. Paz. 2004. Results for Greenland halibut from the surveys conducted by Spain in the NAFO Regulatory Area of Divisions 3NO, 1996-2003. NAFO SCR Doc. 04/11, Serial Number N4956, 16 pp.

González Troncoso, D., E. Román and X. Paz. 2005. Results for Greenland halibut of the Spanish survey in NAFO Divisions 3NO: Biomass, length distribution and age distribution for the period 1997-2004. NAFO SCR Doc. 05/27, Serial Number N5113, 18 pp.

González Troncoso, D., E. Román and X. Paz. 2006. Results for Greenland halibut and American plaice of the Spanish survey in NAFO Divisions 3NO: Biomass, length distribution and age distribution for the period 1997-2005. NAFO SCR Doc. 06/12, Serial Number N5227, 43 pp.

NAFO, 2007. Report of Scientific Council Meeting, 7-21 June 2007.

Walsh, J.S., X. Paz and P. Durán. 2001. A preliminary investigation of the efficiency of Canadian and Spanish Survey bottom trawls on the Southern Bank. NAFO SCR Doc., 01/74, Serial nº N4453, 18 pp.

TABLE 1.- Spanish spring bottom trawl surveys on NAFO Div. 3NO: 1997-2007

Year	Vessel	Valid tows	Depth strata covered (m)	Dates
1997	C/V *Playa de Menduíña*	128	42-1263	April 26-May 18
1998	C/V *Playa de Menduíña*	124	42-1390	May 06-May 26
1999	C/V *Playa de Menduíña*	114	41-1381	May 07-May 26
2000	C/V *Playa de Menduíña*	118	42-1401	May 07-May 28
2001(*)	R/V *Vizconde de Eza*	83	36-1156	May 03-May 24
	C/V *Playa de Menduíña*	121	40-1500	May 05-May 23
2002	R/V *Vizconde de Eza*	125	38-1540	April 29-May 19
2003	R/V *Vizconde de Eza*	118	38-1666	May 11-June 02
2004	R/V *Vizconde de Eza*	120	43-1539	June 06–June 24
2005	R/V *Vizconde de Eza*	119	47-1485	June 10–June 29
2005	R/V *Vizconde de Eza*	119	47-1485	June 10–June 29
2006	R/V *Vizconde de Eza*	120	45-1480	June 7–June 27
2007	R/V *Vizconde de Eza*	110	45-1374	May 29–June 19

(*) We took, for the calculation of the series, 83 hauls from the R/V *Vizconde de Eza* and 40 hauls from the C/V *Playa de Menduíña* (123 hauls in total)

TABLE 2.- Swept area, number of hauls and Greenland halibut mean catch (kg) and SD by stratum. Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. Swept area in square miles. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

	1997				1998				1999				2000			
Stratum	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD
353	0.0480	4	0.06	0.053	0.0465	4	1.37	1.274	0.0360	3	0.61	0.569	0.0356	3	0.19	0.178
354	0.0233	2	0.70	0.095	0.0356	3	2.36	1.246	0.0218	2	0.86	0.781	0.0356	3	0.11	0.057
355	0.0233	2	4.07	0.230	0.0221	2	0.29	0.066	0.0229	2	0.22	0.295	0.0233	2	0.22	0.274
356	0.0225	2	4.11	1.871	0.0221	2	4.27	4.759	0.0229	2	0.23	0.174	0.0225	2	0.49	0.043
357	0.0443	4	1.08	1.341	0.0240	2	8.40	6.433	0.0236	2	1.69	0.276	0.0124	1	0.11	-
358	0.0563	5	1.38	1.168	0.0236	3	2.35	1.843	0.0349	3	4.10	3.155	0.0341	3	0.48	0.529
359	0.0690	6	0.66	0.623	0.0698	6	0.22	0.185	0.0364	3	2.15	3.725	0.0469	4	1.35	2.014
360	0.3754	32	0.04	0.183	0.2561	25	0.04	0.158	0.2325	19	0.31	0.918	0.2396	20	0.13	0.352
374	0.0353	3	0.00	0.000	0.0353	3	0.05	0.080	0.0244	2	0.00	0.000	0.0240	2	0.00	0.000
375	0.0116	1	0.00	-	0.0345	3	0.00	0.000	0.0236	2	0.00	0.000	0.0244	2	0.00	0.000
376	0.1583	14	0.00	0.000	0.0930	10	0.00	0.000	0.1219	10	0.00	0.000	0.1200	10	0.00	0.000
377	0.0116	1	0.00	-	0.0229	2	0.03	0.039	0.0240	2	0.48	0.683	0.0229	2	0.16	0.221
378	0.0210	2	0.78	0.985	0.0120	2	0.66	0.873	0.0229	2	1.03	0.330	0.0233	2	1.09	1.214
379	0.0206	2	2.23	1.031	0.0356	3	1.88	0.826	0.0236	2	0.96	0.013	0.0225	2	1.23	0.880
380	0.0210	2	2.64	1.210	0.0113	2	2.48	2.022	0.0236	2	3.94	1.326	0.0236	2	2.42	1.447
381	0.0221	2	0.21	0.009	0.0229	2	0.70	0.144	0.0229	2	2.82	0.985	0.0236	2	1.36	0.352
382	0.0461	4	0.00	0.000	0.0229	3	0.04	0.064	0.0484	4	0.00	0.001	0.0499	4	0.12	0.147
721	0.0221	2	2.98	1.053	0.0203	2	11.82	9.833	0.0244	2	0.62	0.249	0.0236	2	0.48	0.681
722	0.0214	2	1.53	2.163	0.0101	2	24.84	1.628	0.0229	2	13.36	7.909	0.0218	2	19.49	9.977
723	0.0210	2	5.16	2.543	0.0233	2	5.32	1.956	0.0229	2	11.07	10.916	0.0248	2	2.85	1.094
724	0.0225	2	1.92	0.624	0.0206	2	8.40	1.044	0.0225	2	4.55	1.181	0.0233	2	5.83	2.179
725	0.0206	2	7.85	4.225	0.0086	1	2.07	-	0.0229	2	4.97	5.763	0.0210	2	10.03	8.796
726	n.s.	n.s.	n.s.	n.s.	0.0094	2	27.96	33.187	0.0225	2	29.04	26.314	0.0221	2	12.95	3.348
727	0.0094	1	5.16	-	0.0233	2	7.80	6.754	0.0236	2	10.48	8.316	0.0210	2	2.65	1.181
728	0.0214	2	36.24	23.055	0.0206	2	57.21	56.042	0.0233	2	62.32	12.655	0.0210	2	29.91	0.098
752	0.0218	2	36.90	9.964	0.0229	2	54.22	23.669	0.0233	2	56.93	8.677	0.0206	2	23.33	1.989
753	0.0214	2	32.43	8.270	0.0218	2	33.32	8.507	0.0229	2	64.23	4.417	0.0218	2	49.77	21.700
754	0.0330	3	18.70	4.941	0.0210	2	17.32	4.706	0.0206	2	17.12	11.204	0.0195	2	46.69	14.381
755	n.s.	n.s.	n.s.	n.s.	0.0206	2	19.07	0.177	0.0311	3	15.94	8.279	0.0431	4	35.73	20.076
756	0.0109	1	68.36	-	0.0225	2	220.13	34.559	0.0225	2	125.28	46.721	0.0203	2	60.60	40.187
757	0.0304	3	34.70	10.823	0.0206	2	95.25	21.628	0.0233	2	106.53	27.496	0.0214	2	37.41	10.108
758	0.0214	2	39.36	23.502	0.0105	2	52.55	9.813	0.0214	2	52.72	11.736	0.0210	2	56.67	11.487
759	n.s.	n.s.	n.s.	n.s.	0.0214	2	48.19	35.497	0.0218	2	44.72	44.096	0.0210	2	29.43	8.579
760	0.0105	1	10.44	-	0.0214	2	32.89	28.743	0.0225	2	44.98	46.019	0.0210	2	30.56	2.862
761	0.0315	3	61.90	36.985	0.0206	2	46.01	16.364	0.0210	2	37.88	1.004	0.0221	2	36.09	26.813
762	0.0308	3	45.89	27.172	0.0094	2	38.22	15.038	0.0210	2	63.34	37.289	0.0203	2	36.37	1.726
763	n.s.	n.s.	n.s.	n.s.	0.0218	2	35.02	27.312	0.0311	3	21.44	8.946	0.0416	4	25.64	21.799
764	0.0206	2	20.63	2.422	0.0218	2	21.31	10.686	0.0225	2	28.81	12.412	0.0218	2	16.96	6.498
765	0.0206	2	35.43	14.289	0.0098	2	22.82	3.131	0.0221	2	31.43	0.328	0.0203	2	37.13	30.587
766	0.0308	3	62.87	9.784	0.0191	2	20.82	3.479	0.0218	2	31.31	20.000	0.0214	2	16.76	2.475
767	n.s.	n.s.	n.s.	n.s.	0.0109	2	10.21	50.629	0.0214	2	25.90	9.786	0.0210	2	21.21	6.393

$$SD = \frac{\sum \left(x_i - \bar{x} \right)^2}{n-1}$$

TABLE 2 (cont.).- Swept area, number of hauls and Greenland halibut mean catch (kg) and SD by stratum. Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. Swept area in square miles. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

	2001				2002				2003				2004			
Stratum	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD
353	0.0341	3	0.03	0.038	0.0476	4	0.21	0.278	0.0334	3	0.01	0.013	0.0338	3	1.44	2.395
354	0.0338	3	3.22	1.927	0.0356	3	0.85	0.839	0.0338	3	0.04	0.029	0.0345	3	1.51	2.160
355	0.0240	2	17.25	15.486	0.0236	2	0.43	0.467	0.0229	2	2.46	2.492	0.0229	2	4.02	5.119
356	0.0240	2	0.07	0.042	0.0233	2	1.40	1.131	0.0225	2	2.95	3.695	0.0221	2	3.35	3.873
357	0.0244	2	2.69	2.135	0.0240	2	1.15	1.626	0.0229	2	6.72	5.070	0.0229	2	1.50	0.521
358	0.0345	3	8.46	12.298	0.0345	3	3.20	0.819	0.0338	3	3.45	5.973	0.0330	3	0.94	0.438
359	0.0803	7	1.97	2.329	0.0686	6	0.28	0.219	0.0791	7	0.30	0.438	0.0791	7	1.18	2.137
360	0.2423	20	0.17	0.484	0.2865	25	0.00	0.007	0.2254	20	0.02	0.056	0.2310	20	0.11	0.459
374	0.0240	2	0.00	0.000	0.0345	3	0.00	0.000	0.0225	2	0.00	0.000	0.0233	2	0.00	0.005
375	0.0338	3	0.00	0.000	0.0353	3	0.00	0.000	0.0330	3	0.00	0.002	0.0338	3	0.00	0.000
376	0.1155	10	0.00	0.000	0.1140	10	0.00	0.000	0.1125	10	0.00	0.003	0.1166	10	0.00	0.000
377	0.0229	2	0.42	0.537	0.0229	2	0.00	0.001	0.0225	2	1.55	1.884	0.0218	2	0.07	0.011
378	0.0236	2	5.69	8.040	0.0233	2	1.85	0.636	0.0225	2	2.97	3.008	0.0225	2	0.38	0.530
379	0.0229	2	4.61	4.236	0.0229	2	5.85	4.313	0.0229	2	7.67	5.275	0.0124	1	2.60	-
380	0.0206	2	4.06	0.066	0.0225	2	5.05	3.041	0.0229	2	4.345	0.205	0.0221	2	10.3	0.424
381	0.0236	2	0.90	1.271	0.0229	2	0.5275	0.145	0.0229	2	1.06	1.188	0.0225	2	5.488	6.701
382	0.0469	4	0.05	0.080	0.0341	3	0.401	0.683	0.0454	4	0.045	0.061	0.0461	4	0.0575	0.068
721	0.0248	2	0.40	0.431	0.0233	2	0.08	0.062	0.0225	2	0.12	0.051	0.0221	2	1.92	0.693
722	0.0233	2	1.09	0.863	0.0236	2	2.63	2.906	0.0221	2	1.66	0.410	0.0218	2	24.04	23.144
723	0.0240	2	1.33	0.240	0.0233	2	1.24	1.075	0.0229	2	4.02	5.416	0.0229	2	3.85	3.755
724	0.0353	3	3.45	2.786	0.0225	2	4.75	1.202	0.0225	2	7.07	4.971	0.0214	2	12.45	3.182
725	0.0116	1	2.67	0.522	0.0225	2	7.35	6.718	0.0229	2	10.55	0.778	0.0225	2	19.57	19.537
726	0.0116	1	3.65	1.200	0.0214	2	3.25	3.323	0.0225	2	0.00	0.000	0.0225	2	14.71	1.287
727	0.0225	2	3.79	0.243	0.0233	2	2.01	1.400	0.0218	2	18.48	11.066	0.0233	2	20.47	10.281
728	0.0229	2	8.62	1.654	0.0229	2	7.93	10.986	0.0225	2	39.95	17.748	0.0180	2	5.70	4.950
752	0.0210	2	26.37	8.723	0.0116	1	0.34	-	0.0229	2	39.80	39.032	0.0214	2	4.64	5.424
753	0.0214	2	22.66	4.883	0.0229	2	2.45	3.465	0.0229	2	16.64	12.721	0.0218	2	4.37	0.820
754	0.0195	2	41.09	41.477	0.0341	3	20.33	4.996	0.0218	2	19.12	6.484	0.0214	2	3.21	0.007
755	0.0416	4	27.16	16.279	0.0338	3	0.46	0.655	0.0221	2	1.88	2.652	0.0319	3	2.64	4.567
756	0.0113	1	30.10	16.124	0.0229	2	10.55	14.920	0.0221	2	23.11	27.994	0.0218	2	14.99	4.609
757	0.0233	2	42.23	4.326	0.0225	2	9.95	2.192	0.0221	2	2.49	2.348	0.0218	2	4.55	6.435
758	0.0218	2	42.11	8.828	0.0225	2	17.15	1.485	0.0221	2	0.00	0.000	0.0214	2	9.73	3.714
759	0.0221	2	76.11	21.890	0.0225	2	2.15	3.041	0.0113	1	21.61	-	0.0214	2	4.43	3.203
760	0.0229	2	9.42	10.861	0.0229	2	4.75	4.172	0.0218	2	19.38	13.188	0.0221	2	14.63	7.958
761	0.0225	2	8.10	7.778	0.0225	2	16.65	16.900	0.0225	2	13.26	3.387	0.0221	2	2.92	1.996
762	0.0116	1	22.50	21.072	0.0225	2	2.11	1.563	0.0225	2	34.91	19.622	0.0233	2	8.44	4.349
763	0.0330	3	31.61	22.554	0.0225	2	0.74	1.047	0.0311	3	1.75	3.037	0.0326	3	20.78	9.792
764	0.0240	2	53.64	1.888	0.0236	2	6.95	5.869	0.0221	2	28.37	15.882	0.0229	2	33.78	29.165
765	0.0113	1	35.87	13.111	0.0236	2	45.90	39.739	0.0113	1	31.80	-	0.0225	2	20.98	8.464
766	0.0203	2	16.42	9.557	0.0233	2	9.53	1.025	0.0225	2	8.91	1.966	0.0225	2	8.46	11.958
767	0.0218	2	5.72	2.593	0.0225	2	0.85	1.202	0.0229	2	15.96	21.270	0.0218	2	1.26	1.782

$$SD = \frac{\sum \left(x_i - \bar{x} \right)^2}{n-1}$$

TABLE 2 (cont.).- Swept area, number of hauls and Greenland halibut mean catch (kg) and SD by stratum. Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. Swept area in square miles. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

	2005				2006				2007			
Stratum	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD	Swept area	Tow number	G. halibut Mean catch	G. halibut SD
353	0.0353	3	1.92	2.694	0.0371	3	1.44	1.561	0.0364	3	0.04	0.014
354	0.0353	3	3.13	4.202	0.0364	3	0.77	0.981	0.0364	3	4.90	7.475
355	0.0225	2	1.36	0.849	0.0248	2	3.39	0.858	0.0240	2	1.97	2.242
356	0.0233	2	0.92	0.973	0.0240	2	4.85	3.910	0.0240	2	1.74	1.725
357	0.0233	2	1.20	0.817	0.0244	2	0.27	0.299	0.0360	3	7.31	7.944
358	0.0349	3	1.91	3.063	0.0349	3	0.05	0.056	0.0368	3	0.44	0.445
359	0.0814	7	0.35	0.364	0.0975	8	0.00	0.000	0.0855	7	0.02	0.030
360	0.2325	20	0.29	1.075	0.2340	19	0.14	0.376	0.2378	20	0.00	0.008
374	0.0229	2	0.00	0.000	0.0236	2	0.00	0.000	0.0240	2	0.00	0.000
375	0.0349	3	0.00	0.000	0.0364	3	0.00	0.000	0.0364	3	0.00	0.000
376	0.1174	10	0.00	0.004	0.1219	10	0.00	0.006	0.1185	10	0.00	0.003
377	0.0233	2	1.34	1.898	0.0236	2	0.40	0.526	0.0240	2	0.00	0.006
378	0.0225	2	0.02	0.005	0.0240	2	0.56	0.668	0.0233	2	0.39	0.516
379	0.0236	2	3.72	3.370	0.0236	2	0.61	0.418	0.0240	2	2.06	0.862
380	0.0229	2	34.1	23.617	0.0229	2	21.445	6.159	0.0240	2	5.673	7.770
381	0.0233	2	6.248	3.948	0.0229	2	19.358	5.009	0.0240	2	0.7345	0.855
382	0.0458	4	0.49	0.571	0.0469	4	3.712	3.749	0.0484	4	0.014	0.020
721	0.0229	2	0.99	0.131	0.0236	2	0.51	0.714	0.0116	1	0.66	-
722	0.0233	2	23.29	12.887	0.0240	2	1.75	2.468	0.0225	2	12.87	3.097
723	0.0233	2	2.68	2.271	0.0236	2	6.89	3.149	0.0240	2	3.31	0.523
724	0.0225	2	11.98	10.925	0.0233	2	22.49	13.740	0.0233	2	11.58	5.699
725	0.0236	2	17.37	18.374	0.0233	2	11.81	2.819	0.0225	2	10.72	11.836
726	0.0113	1	12.24	-	0.0225	2	2.36	1.146	0.0229	2	8.90	3.702
727	0.0229	2	19.28	7.582	0.0225	2	8.80	2.121	0.0240	2	21.96	1.640
728	0.0109	1	0.84	-	0.0225	2	4.36	0.836	0.0225	2	18.98	21.814
752	0.0236	2	5.66	2.482	0.0225	2	6.10	0.898	0.0225	2	5.34	7.552
753	0.0225	2	9.00	1.107	0.0225	2	4.06	4.380	0.0225	2	6.99	7.792
754	0.0225	2	4.60	6.498	0.0225	2	0.65	0.919	0.0225	2	20.96	1.612
755	0.0450	4	5.61	4.039	0.0338	3	4.12	5.260	0.0338	3	7.30	2.970
756	0.0233	2	7.11	0.308	0.0229	2	6.54	6.739	0.0225	2	16.63	17.637
757	0.0225	2	6.81	3.422	0.0225	2	5.58	1.520	0.0229	2	35.49	37.929
758	0.0225	2	11.25	1.775	0.0225	2	13.44	14.665	0.0225	2	22.09	15.330
759	0.0229	2	9.03	12.763	0.0225	2	0.46	0.651	n.s.	n.s.	n.s.	n.s.
760	0.0229	2	4.77	2.843	0.0225	2	8.97	6.672	0.0233	2	16.31	5.706
761	0.0221	2	6.61	5.172	0.0233	2	5.18	3.603	0.0225	2	13.82	2.440
762	0.0225	2	13.23	3.500	0.0233	2	16.55	21.529	n.s.	n.s.	n.s.	n.s.
763	0.0334	3	5.06	6.575	0.0225	2	7.07	2.920	n.s.	n.s.	n.s.	n.s.
764	0.0233	2	4.07	5.756	0.0233	2	13.46	2.380	0.0225	2	18.67	4.197
765	0.0229	2	18.44	0.926	0.0236	2	13.00	14.333	0.0225	2	24.07	8.167
766	0.0229	2	9.33	13.198	0.0229	2	3.69	2.534	n.s.	n.s.	n.s.	n.s.
767	0.0113	1	0.00	-	0.0233	2	0.80	1.131	n.s.	n.s.	n.s.	n.s.

$$SD = \frac{\sum \left(x_i - \bar{x} \right)^2}{n-1}$$

TABLE 3.- Stratified mean catches (Kg) by stratum and year and SD by year of Greenland halibut (1997-2007). n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data (by FPC). 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
353	15.61	368.31	164.80	50.27	7.17	57.16	2.06	387.99	516.48	386.10	10.76
354	171.84	581.54	211.23	27.55	792.94	209.92	10.33	371.38	769.98	188.27	1204.25
355	301.21	21.29	16.18	16.14	1276.50	31.86	181.89	297.48	100.64	251.12	145.41
356	193.06	200.47	10.97	23.25	3.29	65.80	138.51	157.52	43.33	227.86	81.78
357	176.36	1377.73	277.07	17.81	441.16	188.60	1101.26	246.25	197.05	45.02	1199.33
358	310.53	529.11	921.77	108.61	1903.50	720.00	776.85	212.40	430.50	10.58	98.18
359	279.62	94.44	905.35	568.81	827.57	116.83	125.94	495.40	145.85	0.00	8.06
360	120.66	100.23	852.78	358.57	461.98	5.79	49.54	314.48	795.80	379.37	4.87
374	0.00	9.93	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.00
375	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00
376	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.00	1.60	2.40	1.60
377	0.00	2.78	48.27	15.59	42.00	0.10	154.80	7.40	134.20	39.80	0.40
378	108.38	92.26	143.03	151.61	790.22	257.15	413.25	52.13	2.71	77.49	53.52
379	236.64	199.42	101.35	130.87	488.13	620.10	813.02	275.60	394.00	64.50	218.41
380	253.84	237.93	377.84	232.32	389.43	484.80	417.12	988.80	3273.60	2058.72	544.61
381	30.54	100.25	406.36	196.29	129.93	75.96	152.64	790.27	899.71	2787.55	105.77
382	0.00	12.74	0.16	42.51	16.16	137.54	15.44	19.72	168.07	1273.22	4.80
721	193.53	768.09	40.40	31.32	25.68	5.23	7.54	124.80	64.51	32.83	42.90
722	128.46	2086.59	1122.44	1637.46	91.56	220.50	139.44	2018.94	1956.15	146.58	1081.08
723	799.62	824.44	1715.78	441.21	206.15	192.20	623.18	596.29	414.78	1068.42	513.05
724	237.69	1041.12	564.01	722.86	427.80	589.00	876.06	1543.80	1484.90	2788.45	1435.92
725	824.43	217.35	521.45	1052.65	280.46	771.75	1107.75	2054.33	1823.59	1239.74	1125.44
726	n.s.	2013.07	2090.94	932.35	262.92	234.00	0.00	1059.12	880.92	169.56	640.62
727	495.47	749.00	1006.54	253.97	364.03	192.96	1773.60	1965.12	1850.98	844.80	2108.16
728	2826.86	4462.31	4861.26	2333.24	672.64	618.66	3116.10	444.60	65.52	340.00	1480.09
752	4833.71	7102.82	7457.90	3056.49	3454.13	1731.75	5213.80	607.19	740.81	798.45	699.54
753	4475.84	4597.53	8863.93	6868.76	3126.94	338.10	2295.63	603.06	1242.35	560.69	964.62
754	3365.21	3117.02	3081.94	8403.69	7396.15	3141.00	3440.70	576.90	827.10	117.00	3772.80
755	n.s.	7342.42	6136.26	13757.44	10457.90	155.28	721.88	1015.12	2160.81	1585.43	2811.78
756	6904.11	22233.50	12653.16	6121.02	3040.24	1065.55	2333.61	1514.09	718.36	660.04	1679.73
757	3539.38	9715.91	10866.31	3815.73	4307.61	1014.90	253.98	464.10	694.62	568.65	3619.98
758	3896.21	5202.82	5218.91	5610.39	4168.97	1697.85	0.00	962.87	1113.26	1330.56	2186.91
759	n.s.	6119.66	5679.93	3737.70	9666.37	273.05	2744.47	561.98	1146.18	58.42	n.s.
760	1608.22	5065.54	6926.79	4706.01	1450.68	731.50	2983.75	2252.64	734.58	1381.07	2510.97
761	10584.19	7867.63	6477.12	6170.76	1385.10	2847.15	2266.61	499.58	1129.80	885.01	2362.37
762	9728.04	8102.93	13428.13	7711.31	4769.98	446.26	7399.86	1788.22	2803.70	3509.24	n.s.
763	n.s.	9139.92	5595.80	6691.10	8250.35	193.14	457.62	5422.71	1319.79	1846.44	n.s.
764	2063.07	2131.30	2880.87	1695.94	5363.50	695.00	2837.00	3377.75	407.00	1345.70	1866.75
765	4392.98	2829.86	3897.46	4604.20	4447.98	5691.60	3943.20	2600.90	2285.94	1611.38	2984.06
766	9053.27	2998.23	4508.03	2413.42	2364.63	1371.60	1283.04	1217.59	1343.88	531.07	n.s.
767	n.s.	1613.33	4092.64	3351.32	904.20	134.30	2521.68	199.08	0.00	126.40	n.s.
TOTAL	72148.61	121270.85	124125.15	98060.56	84455.93	27323.95	52695.22	38088.31	35083.03	31337.91	37568.52
$(\overline{Y})$	7.73	11.73	12.00	9.48	8.17	2.64	5.10	3.68	3.39	3.03	3.98
S.D.	0.62	0.89	1.00	0.75	0.84	0.45	0.61	0.40	0.36	0.42	0.44

TABLE 4.- Survey estimates (by the swept area method) of Greenland halibut biomass (t) and SD by stratum and year on NAFO Div. 3NO. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2001-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels. The last two rows present the biomass corresponding to set of ages 5+ and 10+.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
353	1	32	14	4	1	5	0	34	44	31	1
354	15	49	19	2	70	18	1	32	66	16	99
355	26	2	1	1	106	3	16	26	9	20	12
356	17	18	1	2	0	6	12	14	4	19	7
357	16	115	23	1	36	16	96	22	17	4	100
358	28	46	79	10	165	63	69	19	37	1	8
359	24	8	75	49	72	10	11	44	13	0	1
360	10	9	70	30	38	1	4	27	68	31	0
374	0	1	0	0	0	0	0	0	0	0	0
375	0	0	0	0	0	0	0	0	0	0	0
376	0	0	0	0	0	0	0	0	0	0	0
377	0	0	4	1	4	0	14	1	12	3	0
378	10	8	13	13	67	22	37	5	0	6	5
379	23	17	9	12	43	54	71	22	33	5	18
380	24	21	32	20	38	43	36	89	286	180	45
381	3	9	36	17	11	7	13	70	77	244	9
382	0	1	0	3	1	12	1	2	15	109	0
721	17	76	3	3	2	0	1	11	6	3	4
722	12	195	98	151	8	19	13	186	168	12	96
723	76	71	150	36	17	17	54	52	36	90	43
724	21	101	50	62	36	52	78	144	132	240	124
725	80	25	46	100	24	69	97	183	154	107	100
726	n.s.	195	186	84	22	22	0	94	78	15	56
727	53	64	85	24	32	17	163	169	162	75	176
728	265	433	418	222	59	54	277	49	6	30	132
752	444	621	642	296	329	151	456	57	63	71	62
753	419	423	775	632	293	30	201	55	110	50	86
754	306	297	299	862	758	275	316	54	74	10	335
755	n.s.	712	591	1276	1005	14	65	96	192	141	250
756	635	1976	1125	605	266	93	211	139	62	58	149
757	350	942	935	357	371	90	23	43	62	51	317
758	365	478	488	534	383	151	0	90	99	118	194
759	n.s.	573	522	356	874	24	244	53	100	5	n.s.
760	153	474	616	448	127	64	274	204	64	123	216
761	1008	763	617	558	123	253	201	45	102	76	210
762	949	786	1279	762	424	40	658	154	249	302	n.s.
763	n.s.	840	539	643	750	17	44	499	119	164	n.s.
764	200	196	256	156	447	59	256	295	35	116	166
765	426	270	352	455	402	482	351	231	200	136	265
766	883	314	415	226	233	118	114	108	117	46	n.s.
767	n.s.	146	383	319	83	12	220	18	0	11	n.s.
TOTAL	6859	11305	11246	9331	7721	2380	4701	3437	3071	2720	3286
S.D.	546	860	973	707	790	410	575	373	325	379	363
Biomass 5+	4303	6284	6367	8785	6700	2011	3386	2318	2585	2151	3057
Biomass 10+	406	504	660	1111	741	279	495	318	380	182	343

TABLE 5.- Length weight relationships in the calculation of Greenland halibut biomass. The equation is $Weight = a(l + 0.5)^b$ Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. To calculate the parameters for the indeterminate individuals, we used the total data (males + females + indeterminate individuals). *E* means Error.

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Males	a	0.0042 E = 0.0663	0.0042 E = 0.0824	0.0044 E = 0.1112	0.0020 E = 0.1562	0.0036 E = 0.2538	0.0031 E = 0.0962	0.0033 E = 0.1081	0.0034 E = 0.0886	0.0036 E = 0.1075	0.0042 E = 0.0826	0.0039 E =0.1100
	b	3.1561 E = 0.0185	3.1622 E = 0.0226	3.1587 E = 0.0308	3.3625 E = 0.0433	3.1925 E = 0.0846	3.2496 E = 0.0285	3.2318 E = 0.0318	3.2123 E = 0.0254	3.2050 E = 0.0306	3.1556 E = 0.0238	3.1847 E = 0.0315
		R^2 = 0.999 N = 893	R^2 = 0.999 N = 417	R^2 = 0.995 N = 267	R^2 = 0.996 N = 315	R^2 = 0.997 N = 15	R^2 = 0.987 N = 316	R^2 = 0.995 N = 509	R2 = 0.997 N = 498	R2 = 0.995 N = 387	R2 = 0.999 N = 402	R2 = 0.996 N= 411
Females	a	0.0033 E = 0.0650	0.0038 E = 0.0692	0.0033 E = 0.0897	0.0018 E = 0.1003	0.0034 E = 0.2252	0.0027 E = 0.1315	0.0034 E = 0.0871	0.0026 E = 0.0767	0.0050 E = 0.1357	0.0033 E = 0.1215	0.0041 E =0.0611
	b	3.2308 E = 0.0170	3.2043 E = 0.0179	3.2547 E = 0.0237	3.4066 E = 0.0262	3.2240 E = 0.0656	3.2950 E = 0.0368	3.2302 E = 0.0241	3.2998 E = 0.0212	3.1259 E = 0.0374	3.2306 E = 0.0342	3.1750 E = 0.0170
		R^2 = 0.999 N = 1473	R^2 = 0.999 N = 681	R^2 = 0.996 N = 408	R^2 = 0.995 N = 642	R^2 = 0.995 N = 26	R^2 = 0.993 N = 456	R^2 = 0.997 N = 726	R2 = 0.998 N = 600	R2 = 0.991 N = 602	R2 = 0.997 N = 539	R2 = 0.998 N= 680
Indet.	a	0.0032 E = 0.0547	0.0036 E = 0.0706	0.0040 E = 0.1010	0.0019 E = 0.0893	0.0038 E = 0.1320	0.0028 E = 0.0941	0.0027 E = 0.0814	0.0027 E = 0.0781	0.0040 E = 0.0941	0.0036 E = 0.0715	0.0042 E = 0.0622
	b	3.2409 E = 0.0145	3.2201 E = 0.0183	3.2009 E = 0.0269	3.3882 E = 0.0234	3.1925 E = 0.0394	3.2837 E = 0.0263	3.2894 E = 0.0226	3.2812 E = 0.0217	3.1787 E = 0.0260	3.2024 E = 0.0201	3.1663 E = 0.0174
		R^2 = 0.999 N = 2383	R^2 = 0.999 N = 1105	R^2 = 0.987 N = 679	R^2 = 0.998 N = 966	R^2 = 0.997 N = 44	R^2 = 0.996 N = 776	R^2 = 0.997 N = 1243	R2 = 0.997 N = 1105	R2 = 0.996 N = 990	R2 = 0.999 N = 941	R2 = 0.998 N= 1095

TABLE 6.- Greenland halibut length distribution per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data form the two vessels. (*) indicates untransformed data.

	1997				1998				1999				2000			
Lenght (cm.)	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.151	0.151	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.043	0.382	0.425	0.000	0.000	0.036	0.036	0.098	0.395	0.000	0.493	0.175	0.169	0.108	0.453
12	0.477	1.164	0.811	2.452	0.000	0.028	0.086	0.114	0.305	1.049	0.080	1.434	0.525	0.690	0.159	1.374
14	0.157	0.418	0.234	0.809	0.016	0.283	0.092	0.391	0.244	0.928	0.015	1.187	0.297	0.553	0.019	0.868
16	0.076	0.081	0.000	0.158	0.038	0.027	0.000	0.065	0.187	0.132	0.000	0.319	0.122	0.162	0.000	0.284
18	0.934	1.073	0.004	2.012	0.090	0.105	0.000	0.195	0.141	0.322	0.006	0.469	0.146	0.130	0.000	0.276
20	1.836	2.362	0.012	4.210	0.507	0.540	0.025	1.071	0.867	1.170	0.000	2.037	0.035	0.039	0.000	0.074
22	1.222	1.395	0.000	2.616	0.699	1.099	0.000	1.798	0.731	1.506	0.000	2.237	0.089	0.083	0.000	0.172
24	0.507	0.520	0.000	1.027	0.750	0.930	0.000	1.681	0.318	0.591	0.000	0.909	0.152	0.198	0.000	0.350
26	0.769	0.973	0.000	1.742	1.280	1.447	0.000	2.726	0.625	0.531	0.000	1.156	0.085	0.131	0.000	0.216
28	1.103	1.091	0.000	2.194	1.893	2.566	0.000	4.459	1.053	0.907	0.000	1.960	0.077	0.104	0.000	0.181
30	0.676	1.098	0.000	1.774	1.951	2.433	0.000	4.384	1.594	1.649	0.000	3.243	0.150	0.186	0.000	0.335
32	0.491	0.675	0.000	1.165	1.382	1.885	0.000	3.267	2.232	2.431	0.000	4.662	0.234	0.294	0.000	0.527
34	0.485	0.723	0.000	1.209	1.543	1.672	0.000	3.214	2.309	2.727	0.000	5.036	0.399	0.464	0.000	0.863
36	0.412	0.822	0.000	1.234	1.252	1.820	0.000	3.073	1.687	2.289	0.000	3.976	0.677	0.811	0.000	1.488
38	0.358	0.782	0.000	1.140	1.015	1.509	0.000	2.523	0.815	1.570	0.000	2.385	0.755	1.075	0.000	1.831
40	0.397	0.689	0.000	1.086	0.546	0.964	0.000	1.509	0.612	1.166	0.000	1.778	0.785	1.562	0.000	2.347
42	0.332	0.528	0.000	0.860	0.384	0.683	0.000	1.067	0.346	0.758	0.000	1.103	0.608	1.381	0.000	1.989
44	0.249	0.480	0.000	0.729	0.261	0.560	0.000	0.822	0.260	0.483	0.000	0.742	0.400	1.026	0.000	1.426
46	0.200	0.394	0.000	0.594	0.199	0.412	0.000	0.611	0.141	0.301	0.000	0.443	0.260	0.624	0.000	0.884
48	0.115	0.334	0.000	0.449	0.170	0.301	0.000	0.471	0.095	0.223	0.000	0.318	0.115	0.409	0.000	0.524
50	0.098	0.230	0.000	0.327	0.095	0.233	0.000	0.328	0.043	0.149	0.000	0.192	0.092	0.231	0.000	0.323
52	0.063	0.154	0.000	0.217	0.082	0.117	0.000	0.199	0.043	0.114	0.000	0.157	0.072	0.175	0.000	0.248
54	0.049	0.102	0.000	0.151	0.031	0.089	0.000	0.121	0.025	0.065	0.000	0.090	0.037	0.145	0.000	0.182
56	0.032	0.081	0.000	0.114	0.040	0.079	0.000	0.119	0.021	0.060	0.000	0.081	0.034	0.109	0.000	0.144
58	0.020	0.057	0.000	0.077	0.015	0.055	0.000	0.070	0.011	0.033	0.000	0.044	0.017	0.060	0.000	0.077
60	0.019	0.048	0.000	0.068	0.016	0.035	0.000	0.051	0.008	0.029	0.000	0.038	0.012	0.065	0.000	0.076
62	0.004	0.028	0.000	0.032	0.006	0.020	0.000	0.026	0.006	0.027	0.000	0.034	0.005	0.034	0.000	0.039
64	0.002	0.033	0.000	0.035	0.007	0.023	0.000	0.030	0.002	0.021	0.000	0.022	0.004	0.035	0.000	0.039
66	0.002	0.025	0.000	0.027	0.003	0.013	0.000	0.016	0.002	0.016	0.000	0.018	0.004	0.022	0.000	0.026
68	0.000	0.014	0.000	0.014	0.000	0.008	0.000	0.009	0.001	0.013	0.000	0.013	0.001	0.028	0.000	0.029
70	0.001	0.011	0.000	0.011	0.000	0.009	0.000	0.009	0.001	0.012	0.000	0.012	0.000	0.020	0.000	0.020
72	0.000	0.014	0.000	0.014	0.000	0.007	0.000	0.007	0.000	0.012	0.000	0.012	0.000	0.014	0.000	0.014
74	0.000	0.005	0.000	0.005	0.000	0.007	0.000	0.007	0.000	0.008	0.000	0.008	0.000	0.014	0.000	0.014
76	0.000	0.005	0.000	0.005	0.000	0.006	0.000	0.006	0.000	0.008	0.000	0.008	0.000	0.006	0.000	0.006
78	0.000	0.005	0.000	0.005	0.000	0.007	0.000	0.007	0.000	0.012	0.000	0.012	0.000	0.021	0.000	0.021
80	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.005	0.000	0.010	0.000	0.010
82	0.000	0.002	0.000	0.002	0.000	0.004	0.000	0.004	0.000	0.003	0.000	0.003	0.000	0.007	0.000	0.007
84	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.007	0.000	0.007
86	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.003	0.000	0.003	0.000	0.006	0.000	0.006
88	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.001	0.000	0.001
90	0.000	0.002	0.000	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002
92	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
94	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.001
96	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000
98	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Total	11.087	16.467	1.445	28.999	14.270	19.987	0.239	34.496	14.821	21.726	0.251	36.799	6.364	11.103	0.286	17.753
Nº samples (*):				75				84				78				81
Nº Ind. (*):	3444	5550	55	9049	4470	7080	14	11564	4012	6533	6	10551	2991	6162	10	9163
Sampled catch:				390				539				524				635
Range (*):				10-92				11-94				7-104				11-94
Total catch:				1259				1885				1898				1437
Total hauls (*):				128				124				114				118

TABLE 6 (cont.).- Greenland halibut length distribution per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels. (*) indicates untransformed data.

	2001				2002				2003				2004			
Lenght (cm.)	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.011	0.014	0.019	0.044	0.029	0.013	0.064	0.106	0.000	0.007	0.009	0.016
10	0.404	0.313	0.311	1.028	0.172	0.201	0.050	0.422	0.347	0.437	0.040	0.824	0.139	0.093	0.015	0.248
12	1.318	1.937	0.566	3.820	0.725	0.715	0.036	1.476	0.707	1.004	0.007	1.718	0.799	0.810	0.039	1.648
14	1.555	2.089	0.159	3.804	0.465	0.523	0.007	0.994	0.361	0.622	0.000	0.983	1.793	1.820	0.023	3.636
16	0.280	0.349	0.000	0.629	0.041	0.033	0.000	0.074	0.051	0.049	0.000	0.100	0.928	0.858	0.000	1.785
18	0.134	0.115	0.000	0.250	0.019	0.013	0.000	0.032	0.021	0.025	0.000	0.046	0.081	0.066	0.000	0.147
20	0.763	0.900	0.000	1.663	0.095	0.085	0.000	0.180	0.112	0.098	0.000	0.210	0.056	0.087	0.000	0.142
22	1.431	1.614	0.000	3.045	0.186	0.246	0.000	0.432	0.393	0.513	0.000	0.906	0.193	0.200	0.000	0.394
24	0.521	0.798	0.000	1.319	0.228	0.277	0.000	0.505	0.305	0.506	0.000	0.810	0.293	0.382	0.000	0.675
26	0.104	0.136	0.000	0.241	0.115	0.148	0.000	0.262	0.161	0.225	0.000	0.386	0.197	0.327	0.000	0.524
28	0.033	0.040	0.000	0.073	0.059	0.070	0.000	0.129	0.190	0.132	0.000	0.323	0.154	0.212	0.000	0.366
30	0.054	0.088	0.000	0.142	0.095	0.118	0.000	0.213	0.342	0.238	0.000	0.581	0.307	0.302	0.000	0.609
32	0.160	0.189	0.000	0.349	0.115	0.232	0.000	0.347	0.256	0.467	0.000	0.723	0.337	0.519	0.000	0.856
34	0.169	0.259	0.000	0.428	0.142	0.200	0.000	0.342	0.317	0.422	0.000	0.739	0.282	0.490	0.000	0.772
36	0.291	0.348	0.000	0.639	0.134	0.182	0.000	0.316	0.173	0.382	0.000	0.555	0.241	0.412	0.000	0.654
38	0.352	0.528	0.000	0.880	0.132	0.192	0.000	0.324	0.214	0.494	0.000	0.708	0.163	0.402	0.000	0.566
40	0.539	0.834	0.000	1.373	0.081	0.303	0.000	0.383	0.260	0.469	0.000	0.729	0.126	0.304	0.000	0.430
42	0.515	0.829	0.000	1.343	0.129	0.260	0.000	0.389	0.182	0.350	0.000	0.532	0.114	0.244	0.000	0.358
44	0.443	1.064	0.000	1.507	0.106	0.218	0.000	0.324	0.094	0.320	0.000	0.414	0.072	0.194	0.000	0.266
46	0.384	0.865	0.000	1.249	0.064	0.166	0.000	0.230	0.149	0.266	0.000	0.415	0.132	0.167	0.000	0.300
48	0.186	0.650	0.000	0.836	0.038	0.129	0.000	0.167	0.149	0.172	0.000	0.321	0.079	0.099	0.000	0.178
50	0.107	0.347	0.000	0.453	0.072	0.138	0.000	0.209	0.095	0.227	0.000	0.322	0.098	0.128	0.000	0.226
52	0.051	0.188	0.000	0.239	0.016	0.048	0.000	0.064	0.090	0.187	0.000	0.277	0.045	0.085	0.000	0.130
54	0.046	0.129	0.000	0.175	0.023	0.087	0.000	0.110	0.037	0.089	0.000	0.127	0.047	0.075	0.000	0.121
56	0.012	0.073	0.000	0.085	0.000	0.038	0.000	0.038	0.032	0.116	0.000	0.148	0.012	0.037	0.000	0.049
58	0.019	0.061	0.000	0.080	0.000	0.009	0.000	0.009	0.007	0.087	0.000	0.094	0.019	0.048	0.000	0.067
60	0.011	0.027	0.000	0.038	0.000	0.017	0.000	0.017	0.000	0.035	0.000	0.035	0.014	0.018	0.000	0.032
62	0.007	0.042	0.000	0.049	0.000	0.000	0.000	0.000	0.000	0.038	0.000	0.038	0.009	0.018	0.000	0.027
64	0.003	0.024	0.000	0.027	0.000	0.014	0.000	0.014	0.000	0.027	0.000	0.027	0.008	0.005	0.000	0.012
66	0.003	0.028	0.000	0.030	0.000	0.005	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.007
68	0.000	0.011	0.000	0.011	0.000	0.009	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
70	0.000	0.011	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.022	0.000	0.022	0.000	0.005	0.000	0.005
72	0.000	0.012	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.023	0.000	0.023	0.000	0.005	0.000	0.005
74	0.000	0.008	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.017	0.000	0.017	0.000	0.016	0.000	0.016
76	0.000	0.014	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.008	0.000	0.006	0.000	0.006
78	0.000	0.034	0.000	0.034	0.000	0.006	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
80	0.000	0.004	0.000	0.004	0.000	0.005	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.006
82	0.000	0.006	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.012	0.000	0.000	0.000	0.000
84	0.000	0.007	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
86	0.000	0.002	0.000	0.002	0.000	0.012	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
88	0.000	0.001	0.000	0.001	0.000	0.009	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
90	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
92	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
94	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.010	0.000	0.000	0.000	0.000
96	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.006
98	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	9.894	14.977	1.036	25.907	3.262	4.718	0.111	8.092	5.077	8.101	0.111	13.288	6.738	8.459	0.087	15.284
Nº samples (*):				44				76				79				79
Nº Ind. (*):	445	739	80	1264	535	782	17	1334	878	1317	17	2212	1235	1511	13	2759
Sampled catch:				291				430				742				624
Range (*):				10-78				9-89				8-95				9-96
Total catch:				332				429				749				624
Total hauls (*):				123				125				118				120

TABLE 6 (cont.).- Greenland halibut length distribution per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels. (*) indicates untransformed data.

	2005				2006				2007			
Lenght (cm.)	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005
10	0.005	0.028	0.000	0.033	0.116	0.030	0.000	0.146	0.050	0.030	0.019	0.099
12	0.097	0.078	0.012	0.187	0.505	0.523	0.007	1.035	0.259	0.204	0.011	0.474
14	0.322	0.383	0.000	0.705	0.755	0.674	0.000	1.429	0.329	0.418	0.005	0.752
16	0.133	0.270	0.000	0.403	0.323	0.259	0.000	0.582	0.218	0.212	0.008	0.438
18	0.032	0.035	0.000	0.068	0.053	0.060	0.000	0.113	0.017	0.036	0.000	0.053
20	0.151	0.092	0.000	0.243	0.013	0.007	0.000	0.020	0.030	0.004	0.000	0.034
22	0.441	0.552	0.000	0.993	0.024	0.019	0.000	0.043	0.071	0.078	0.000	0.149
24	0.302	0.518	0.000	0.820	0.073	0.106	0.000	0.179	0.166	0.300	0.000	0.466
26	0.152	0.320	0.000	0.472	0.075	0.081	0.000	0.156	0.141	0.243	0.000	0.384
28	0.099	0.131	0.000	0.230	0.050	0.144	0.000	0.194	0.044	0.062	0.000	0.106
30	0.102	0.193	0.000	0.294	0.102	0.159	0.000	0.260	0.042	0.016	0.000	0.058
32	0.199	0.226	0.000	0.425	0.177	0.167	0.000	0.344	0.059	0.049	0.000	0.107
34	0.216	0.307	0.000	0.523	0.278	0.203	0.000	0.481	0.161	0.122	0.000	0.282
36	0.191	0.320	0.000	0.511	0.193	0.284	0.000	0.478	0.133	0.239	0.000	0.373
38	0.215	0.377	0.000	0.592	0.163	0.294	0.000	0.457	0.174	0.286	0.000	0.460
40	0.182	0.343	0.000	0.525	0.200	0.332	0.000	0.533	0.221	0.313	0.000	0.534
42	0.118	0.225	0.000	0.343	0.160	0.397	0.000	0.557	0.179	0.267	0.000	0.446
44	0.047	0.196	0.000	0.243	0.099	0.303	0.000	0.402	0.117	0.406	0.000	0.524
46	0.050	0.164	0.000	0.214	0.052	0.120	0.000	0.172	0.145	0.352	0.000	0.498
48	0.067	0.117	0.000	0.184	0.082	0.147	0.000	0.229	0.102	0.342	0.000	0.445
50	0.038	0.095	0.000	0.133	0.050	0.149	0.000	0.199	0.107	0.292	0.000	0.399
52	0.053	0.081	0.000	0.134	0.031	0.102	0.000	0.133	0.069	0.141	0.000	0.209
54	0.073	0.067	0.000	0.141	0.028	0.054	0.000	0.082	0.014	0.115	0.000	0.129
56	0.047	0.026	0.000	0.072	0.033	0.050	0.000	0.083	0.017	0.087	0.000	0.104
58	0.020	0.088	0.000	0.109	0.018	0.037	0.000	0.055	0.012	0.057	0.000	0.069
60	0.013	0.024	0.000	0.037	0.023	0.019	0.000	0.042	0.018	0.025	0.000	0.043
62	0.000	0.020	0.000	0.020	0.006	0.010	0.000	0.016	0.000	0.017	0.000	0.017
64	0.009	0.018	0.000	0.027	0.000	0.019	0.000	0.019	0.000	0.027	0.000	0.027
66	0.000	0.006	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.022	0.000	0.022
68	0.006	0.011	0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.016	0.000	0.016
70	0.000	0.015	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.006
72	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.005	0.000	0.008	0.000	0.008
74	0.000	0.018	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
76	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.007	0.000	0.000	0.000	0.000
78	0.000	0.006	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
80	0.000	0.008	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
82	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
84	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.010
86	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.005	0.000	0.000	0.000	0.000
88	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
90	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
92	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
94	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
96	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
98	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
104	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	3.381	5.359	0.012	8.752	3.683	4.765	0.007	8.455	2.895	4.803	0.048	7.746
Nº samples (*):				78				71				68
Nº Ind. (*):	579	925	2	1506	611	773	1	1385	473	805	7	1285
Sampled catch:				507				460				623
Range (*):				11-81				10-87				9-84
Total catch:				551				467				623
Total hauls (*):				119				120				110

TABLE 7.-Greenland halibut age numbers per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007 Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data form the two vessels.

	1997				1998				1999				2000			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0											0.15	0.15				
1	3.74	4.74	1.44	9.92	0.57	0.92	0.22	1.71	1.14	3.15	0.10	4.38	1.15	1.49	0.29	2.92
2	2.70	2.82	0.00	5.52	2.61	2.62	0.01	5.24	1.86	2.94	0.00	4.80	0.22	0.27		0.49
3	1.67	1.82		3.49	4.24	4.84		9.08	4.09	3.12		7.21	0.34	0.47		0.80
4	0.81	2.99		3.81	3.35	5.12		8.47	4.35	4.96		9.31	0.59	0.80		1.39
5	0.98	1.26		2.24	1.92	3.14		5.06	2.06	4.23		6.29	1.50	2.34		3.84
6	0.77	1.20		1.97	0.97	1.80		2.77	0.81	2.12		2.92	1.48	2.95		4.42
7	0.21	1.01		1.22	0.34	0.76		1.10	0.32	0.45		0.77	0.89	1.67		2.56
8	0.19	0.41		0.60	0.20	0.46		0.66	0.13	0.36		0.49	0.12	0.59		0.71
9	0.01	0.06		0.07	0.04	0.17		0.21	0.04	0.19		0.23	0.06	0.23		0.28
10	0.00	0.05		0.05	0.03	0.06		0.08	0.03	0.06		0.09	0.02	0.06		0.08
11	0.00	0.05		0.05	0.01	0.03		0.03	0.01	0.02		0.03	0.01	0.05		0.06
12	0.00	0.01		0.02	0.00	0.03		0.03	0.00	0.04		0.05	0.00	0.03		0.04
13		0.01		0.01		0.02		0.02		0.03		0.03	0.00	0.04		0.05
14		0.02		0.02		0.01		0.01		0.03		0.03	0.00	0.05		0.06
15		0.01		0.01		0.01		0.01		0.02		0.02		0.03		0.03
16		0.00		0.00		0.00		0.00		0.01		0.01		0.02		0.02
17		0.00		0.00		0.00		0.00		0.00		0.00		0.01		0.01
18		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
19										0.00				0.00		0.00
20		0.00		0.00						0.00						
Total	11.09	16.47	1.44	29.00	14.27	19.99	0.24	34.50	14.82	21.73	0.25	36.80	6.36	11.10	0.29	17.75

	2001				2002				2003				2004			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0																
1	3.40	4.44	1.03	8.87	1.40	1.40	0.11	2.91	1.39	2.07	0.11	3.56	0.45	0.71	0.05	1.22
2	2.59	3.30	0.01	5.90	0.33	0.32	0.00	0.64	1.05	1.35	0.00	2.40	3.55	3.37	0.04	6.96
3	0.51	0.67		1.18	0.38	0.65		1.02	0.82	0.86		1.68	0.74	1.34		2.09
4	0.41	0.66		1.07	0.24	0.46		0.69	0.86	1.05		1.91	1.01	1.04		2.06
5	1.20	1.64		2.84	0.47	0.67		1.14	0.35	1.22		1.58	0.33	0.91		1.24
6	1.23	2.73		3.96	0.32	0.60		0.92	0.29	0.61		0.90	0.39	0.46		0.85
7	0.50	1.06		1.56	0.11	0.33		0.44	0.28	0.50		0.78	0.15	0.37		0.51
8	0.02	0.20		0.22	0.01	0.21		0.23	0.04	0.23		0.26	0.09	0.12		0.21
9	0.01	0.05		0.06		0.02		0.02	0.00	0.06		0.06	0.01	0.04		0.05
10	0.01	0.04		0.05		0.01		0.01		0.04		0.04	0.02	0.01		0.03
11	0.01	0.03		0.04		0.02		0.02		0.01		0.01	0.01	0.00		0.01
12	0.00	0.05		0.05		0.02		0.02		0.07		0.07		0.03		0.03
13	0.00	0.04		0.05		0.01		0.01		0.01		0.01		0.02		0.02
14	0.00	0.04		0.04		0.01		0.01		0.01		0.01		0.01		0.01
15		0.02		0.02		0.02		0.02						0.01		0.01
16		0.00		0.00												
17		0.00		0.00						0.01		0.01				
18																
19		0.00		0.00												
20																
Total	9.89	14.98	1.04	25.91	3.26	4.72	0.11	8.09	5.08	8.10	0.11	13.29	6.74	8.46	0.09	15.28

TABLE 7 (Cont.).-Greenland halibut age numbers per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007 Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels.

	2005				2006				2007			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0												
1	0.42	0.64	0.01	1.07	1.24	1.06	0.01	2.31	0.87	0.89	0.05	1.81
2	0.56	0.40	0.00	0.97	0.58	0.53		1.12	0.26	0.39		0.64
3	0.63	1.18		1.81	0.14	0.27		0.41	0.19	0.32		0.51
4	0.44	0.60		1.04	0.68	0.87		1.55	0.18	0.14		0.32
5	0.49	0.83		1.32	0.37	1.01		1.38	0.50	0.99		1.48
6	0.40	1.04		1.44	0.37	0.45		0.81	0.50	0.90		1.40
7	0.30	0.39		0.68	0.20	0.32		0.52	0.28	0.74		1.02
8	0.08	0.11		0.19	0.06	0.16		0.22	0.08	0.20		0.29
9	0.02	0.06		0.08	0.02	0.03		0.05		0.10		0.10
10	0.02	0.04		0.06	0.02	0.01		0.03	0.02	0.07		0.09
11	0.00	0.02		0.03		0.02		0.02		0.03		0.03
12	0.01	0.01		0.02		0.02		0.02		0.03		0.03
13		0.03		0.03		0.00		0.00				
14		0.02		0.02		0.01		0.01		0.01		0.01
15		0.00		0.00								
16		0.00		0.00		0.00		0.00		0.01		0.01
17												
18		0.00		0.00								
19												
20												
Total	3.38	5.36	0.01	8.75	3.68	4.76	0.01	8.45	2.90	4.80	0.05	7.75

TABLE 8.-Greenland halibut mean length (cm) per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels.

	1997				1998				1999				2000			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0											7.50	7.50				
1	19.81	18.18	12.74	18.01	21.13	19.32	14.09	19.24	16.18	15.28	12.90	15.46	13.81	13.69	12.61	13.63
2	25.07	23.39	20.19	24.21	25.80	24.54	21.50	25.16	23.11	22.79	18.50	22.91	21.01	19.39		20.12
3	30.53	29.26		29.87	30.57	29.55		30.03	31.66	30.02		30.95	26.56	27.06		26.85
4	35.84	33.84		34.27	34.21	33.49		33.78	34.05	34.09		34.07	33.79	32.46		33.02
5	39.56	39.25		39.38	37.70	38.41		38.14	37.18	38.20		37.87	38.28	38.60		38.47
6	43.76	44.13		43.99	42.32	42.05		42.14	42.30	40.91		41.30	41.55	42.53		42.21
7	50.97	47.85		48.38	48.42	47.13		47.53	46.47	46.35		46.40	44.89	45.91		45.56
8	50.30	52.28		51.66	50.85	50.89		50.88	51.48	50.42		50.69	53.78	50.51		51.05
9	59.75	59.71		59.72	55.22	53.98		54.22	54.20	53.41		53.54	54.71	55.22		55.12
10	62.50	65.54		65.39	55.28	60.01		58.54	52.29	58.76		56.86	59.85	60.83		60.63
11	65.19	64.52		64.53	62.73	63.40		63.25	62.78	63.55		63.35	62.57	62.58		62.58
12	66.19	71.70		70.74	64.83	68.11		67.86	65.90	66.89		66.83	62.94	65.05		64.77
13		75.84		75.84		73.38		73.38		72.91		72.91	63.53	68.44		68.21
14		77.14		77.14		74.81		74.81		74.49		74.49	67.06	72.48		72.06
15		75.41		75.41		77.99		77.99		76.64		76.64		78.52		78.52
16		86.66		86.66		81.44		81.44		83.60		83.60		78.94		78.94
17		91.50		91.50		87.76		87.76		90.06		90.06		83.62		83.62
18		83.35		83.35		90.48		90.48		94.50		94.50		85.17		85.17
19														91.03		91.03
20		92.50		92.05												
Total	28.46	29.93	12.76	28.52	32.78	33.62	14.54	33.14	32.05	31.74	9.76	31.72	34.47	37.83	12.61	36.22

TABLE 8 (Cont.).-Greenland halibut mean length (cm) per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels. (*) indicates untransformed data.

	2001				2002				2003				2004			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0																
1	13.85	13.94	12.78	13.77	13.51	13.40	11.53	13.39	12.96	13.17	10.15	12.99	12.14	12.94	11.54	12.58
2	22.07	22.05	14.84	22.05	22.93	20.64	14.50	21.80	23.06	23.83	12.50	23.49	16.47	16.75	14.07	16.59
3	24.68	26.41		25.66	25.34	25.56		25.48	31.31	31.43		31.37	25.29	29.09		27.74
4	33.45	35.67		34.83	33.61	33.31		33.41	36.64	36.62		36.63	33.61	34.70		34.17
5	39.96	41.07		40.60	37.57	39.21		38.53	42.37	41.22		41.48	39.85	39.40		39.52
6	44.62	45.07		44.93	44.31	43.42		43.73	47.12	46.49		46.70	45.12	44.79		44.94
7	48.26	49.83		49.33	50.04	48.67		49.03	51.58	52.40		52.11	52.07	50.62		51.04
8	56.67	55.58		55.66	55.13	53.43		53.53	56.19	56.47		56.43	54.02	55.95		55.16
9	59.08	59.18		59.16		57.13		57.13	58.50	60.69		60.57	59.66	58.82		59.04
10	60.33	62.15		61.71		61.02		61.02		63.25		63.25	61.61	61.10		61.41
11	62.31	64.62		64.21		63.39		63.39		64.50		64.50	64.50	64.50		64.50
12	63.71	67.60		67.33		71.71		71.71		72.19		72.19		63.61		63.61
13	66.28	73.91		73.25		78.50		78.50		77.50		77.50		73.79		73.79
14	78.50	76.47		76.49		87.50		87.50		82.50		82.50		75.50		75.50
15		80.53		80.53		88.68		88.68						88.20		88.20
16		86.14		86.14												
17		89.08		89.08						95.50		95.50				
18																
19		97.50		97.50												
20																
Total	26.34	29.99	12.80	27.91	25.23	30.33	11.55	28.02	28.49	31.73	10.16	30.31	24.00	27.33	12.63	25.78

	2005				2006				2007			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0												
1	14.77	15.08	12.50	14.93	13.77	14.07	13.50	13.91	14.75	14.96	12.92	14.80
2	20.68	21.61	12.50	21.06	17.68	17.03		17.37	24.42	25.10		24.83
3	24.98	24.59		24.73	26.28	27.23		26.91	26.81	26.69		26.74
4	31.66	30.75		31.13	34.31	35.11		34.76	33.54	34.10		33.79
5	36.91	37.57		37.32	39.43	41.20		40.72	38.38	39.95		39.42
6	41.07	41.85		41.63	43.24	44.80		44.10	43.78	45.29		44.75
7	48.58	48.96		48.80	49.53	50.18		49.93	49.28	49.84		49.68
8	55.20	56.59		55.98	54.46	54.90		54.78	54.65	54.19		54.32
9	57.66	58.45		58.25	59.57	58.01		58.62		57.46		57.46
10	62.45	60.69		61.24	61.82	61.50		61.73	61.05	61.36		61.28
11	61.50	64.47		64.10		62.10		62.10		65.60		65.60
12	68.48	69.92		69.45		64.50		64.50		68.74		68.74
13		71.44		71.44		72.50		72.50				
14		77.40		77.40		77.50		77.50		72.50		72.50
15		76.68		76.68								
16		76.04		76.04		87.50		87.50		84.50		84.50
17												
18		79.50		79.50								
19												
20												
Total	30.85	33.07	12.50	32.18	27.30	32.39	13.50	30.16	31.59	37.34	12.92	35.04

TABLE 9.-Greenland halibut mean weight (gr) per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels. (*) indicates untransformed data.

	1997				1998				1999				2000			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0											2.53	2.53				
1	56.55	44.11	12.86	44.25	66.73	56.01	19.75	54.81	33.43	28.91	14.71	29.77	14.69	13.93	10.45	13.89
2	116.19	90.71	54.44	103.16	126.63	111.44	70.48	118.89	93.56	89.74	45.51	91.18	59.74	47.35		52.97
3	210.65	184.05		196.79	216.07	199.69		207.33	248.40	218.64		235.53	128.63	150.58		141.39
4	343.22	296.07		306.12	307.90	300.76		303.58	313.10	327.53		320.789	282.32	262.15		270.66
5	477.91	474.14		475.79	416.64	461.62		444.53	409.22	473.15		452.20	427.90	463.68		449.67
6	655.66	691.54		677.57	598.59	618.72		611.69	609.82	591.51		596.56	569.60	645.43		620.11
7	1039.74	904.80		927.81	910.39	891.49		897.31	822.33	886.29		859.87	730.54	839.28		801.57
8	1026.08	1215.64		1156.61	1069.28	1143.26		1120.75	1140.19	1164.85		1158.54	1328.46	1174.58		1199.73
9	1712.22	1824.90		1803.51	1386.01	1376.62		1378.47	1348.28	1405.65		1395.92	1413.25	1563.75		1533.36
10	1955.36	2451.90		2427.15	1432.74	1924.36		1771.37	1232.46	1904.19		1707.55	1905.57	2159.81		2106.74
11	2237.75	2337.64		2335.75	2039.82	2276.20		2223.67	2111.90	2448.25		2362.51	2208.37	2378.52		2363.60
12	2352.23	3300.22		3135.63	2253.06	2917.28		2867.21	2463.10	2940.32		2912.86	2245.01	2715.93		2653.68
13		3942.66		3942.66		3684.55		3684.55		3877.33		3877.33	2312.31	3242.15		3199.58
14		4190.79		4190.79		3909.22		3909.22		4188.33		4188.33	2772.46	3964.91		3872.13
15		3887.49		3887.49		4480.36		4480.36		4594.01		4594.01		5205.90		5205.90
16		6092.92		6092.92		5136.80		5136.80		6339.81		6339.81		5334.32		5334.32
17		7169.24		7169.24		6438.79		6438.79		7771.36		7771.36		6423.59		6423.59
18		5376.62		5376.62		7159.28		7159.28		8870.58		8870.58		6830.30		6830.30
19														8552.11		8552.11
20		7425.48		7425.48												
Total	232.20	308.61	12.96	264.67	303.57	365.55	22.83	337.54	299.38	352.89	7.97	328.98	420.62	613.57	10.45	534.70

	2001				2002				2003				2004			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0																
1	16.47	17.18	13.45	16.48	15.16	14.44	9.15	14.58	13.64	14.67	5.75	13.99	10.36	12.15	8.85	11.35
2	72.15	75.92	20.95	74.19	85.12	64.56	18.23	74.96	91.26	98.95	11.06	95.57	32.38	33.31	16.10	32.74
3	102.12	138.28		122.55	115.32	119.77		118.13	233.58	239.55		236.64	127.49	187.69		166.28
4	271.96	351.48		321.30	292.89	280.11		284.52	384.32	389.32		387.08	276.74	315.37		296.34
5	474.57	549.96		518.19	420.87	483.24		457.46	603.57	567.97		575.95	474.56	478.78		477.67
6	676.20	739.46		719.83	705.62	677.06		686.90	848.07	832.07		837.28	707.95	723.66		716.51
7	869.70	1020.42		971.90	1043.65	978.53		995.47	1139.15	1223.51		1193.47	1111.11	1087.07		1094.00
8	1427.84	1443.38		1442.29	1413.34	1331.03		1336.18	1491.39	1556.30		1546.84	1261.22	1510.72		1408.99
9	1628.57	1759.76		1735.49		1645.43		1645.43	1696.71	1957.74		1942.74	1714.45	1774.27		1759.06
10	1741.34	2059.38		1981.96		2045.34		2045.34		2235.61		2235.61	1901.04	2010.19		1944.89
11	1929.96	2341.88		2269.44		2325.25		2325.25		2380.78		2380.78	2200.49	2398.03		2258.79
12	2073.82	2719.39		2673.75		3573.05		3573.05		3442.28		3442.28		2297.05		2297.05
13	2352.00	3656.76		3543.88		4688.33		4688.33		4308.25		4308.25		3746.17		3746.17
14	4033.42	4068.04		4067.64		6704.09		6704.09		5272.40		5272.40		4034.69		4034.69
15		4770.13		4770.13		7010.77		7010.77						6945.38		6945.38
16		5906.19		5906.19												
17		6596.90		6596.90						8458.35		8458.35				
18																
19		8790.83		8790.83												
20																
Total	235.78	384.60	13.51	312.93	222.00	406.07	9.20	326.40	290.81	443.31	5.78	381.40	187.38	285.66	11.97	240.78

TABLE 9 (Cont.).-Greenland halibut mean weight (gr) per haul mean catches by sex and year. Number per stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels.

	2005				2006				2007			
Age	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
0												
1	20.40	24.66	12.40	22.85	16.77	17.32	15.20	17.0178509	21.41	22.91	15.24	21.99
2	61.94	81.27	12.40	69.97	39.71	35.77		37.8321887	104.32	115.53		111.03
3	109.33	113.89		112.30	128.14	147.05		140.615589	138.93	140.89		140.14
4	235.20	229.40		231.85	296.98	335.57		318.554396	283.54	303.54		292.31
5	384.54	423.10		408.67	463.22	558.91		533.208085	437.41	507.44		484.01
6	540.86	602.50		585.18	614.40	718.56		671.840504	666.30	752.32		721.42
7	940.73	972.27		958.57	955.05	1039.83		1007.24941	962.80	1017.87		1002.51
8	1371.22	1504.91		1446.10	1261.22	1386.76		1351.91267	1337.24	1325.29		1328.75
9	1567.35	1668.79		1643.60	1666.78	1648.82		1655.80027		1590.23		1590.23
10	2030.67	1869.10		1919.39	1871.62	1984.49		1901.68274	1894.70	1958.27		1941.94
11	1926.64	2255.28		2214.16		2048.31		2048.31179		2416.31		2416.31
12	2733.13	2920.33		2858.54		2314.58		2314.57716		2801.55		2801.55
13		3122.04		3122.04		3376.88		3376.87597				
14		4024.01		4024.01		4188.75		4188.7526		3315.34		3315.34
15		3923.74		3923.74								
16		3829.26		3829.26		6199.50		6199.50348		5391.71		5391.71
17												
18		4337.35		4337.35								
19												
20												
Total	328.36	425.37	12.40	387.33	270.93	426.46	15.20	358.38	381.58	598.44	15.24	513.79

TABLE 10.- Swept area, number of hauls and American plaice mean catch (kg) and SD by stratum. Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. Swept area in square miles. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

	1997				1998				1999				2000			
Stratum	Swept area	Tow number	A. Plaice Mean	A. Plaice SD	Swept area	Tow number	A. Plaice Mean	A. Plaice SD	Swept area	Tow number	A. Plaice Mean	A. Plaice SD	Swept area	Tow number	A. Plaice Mean	A. Plaice SD
353	0.0480	4	47.97	25.084	0.0465	4	267.95	103.830	0.0360	3	388.97	37.624	0.0356	3	426.02	210.639
354	0.0233	2	34.16	18.447	0.0356	3	381.49	146.407	0.0218	2	184.12	100.017	0.0356	3	147.44	84.780
355	0.0233	2	14.02	4.617	0.0221	2	134.67	132.931	0.0229	2	60.82	30.122	0.0233	2	60.01	1.539
356	0.0225	2	8.15	4.133	0.0221	2	14.23	5.343	0.0229	2	31.47	23.877	0.0225	2	28.11	24.368
357	0.0443	4	1.86	1.051	0.0240	2	2.33	0.484	0.0236	2	3.06	1.913	0.0124	1	0.55	-
358	0.0563	5	4.44	4.415	0.0236	3	6.73	1.265	0.0349	3	9.06	15.047	0.0341	3	298.64	437.609
359	0.0690	6	30.12	15.773	0.0698	6	198.60	199.740	0.0364	3	484.88	84.636	0.0469	4	659.75	139.208
360	0.3754	32	26.15	17.839	0.2561	25	107.53	64.858	0.2325	19	263.77	91.624	0.2396	20	324.76	269.238
374	0.0353	3	8.40	3.170	0.0353	3	4.00	0.906	0.0244	2	44.00	1.495	0.0240	2	5.60	0.440
375	0.0116	1	1.85	-	0.0345	3	5.93	3.550	0.0236	2	42.21	15.545	0.0244	2	30.11	9.300
376	0.1583	14	12.53	8.741	0.0930	10	82.92	73.283	0.1219	10	119.90	62.748	0.1200	10	250.98	179.289
377	0.0116	1	20.96	-	0.0229	2	47.18	59.694	0.0240	2	86.16	117.320	0.0229	2	27.02	29.064
378	0.0210	2	1.87	1.583	0.0120	2	5.22	2.199	0.0229	2	7.14	4.199	0.0233	2	19.74	22.646
379	0.0206	2	1.78	1.568	0.0356	3	2.65	1.804	0.0236	2	0.78	0.308	0.0225	2	2.30	1.146
380	0.0210	2	1.41	0.079	0.0113	2	1.69	0.945	0.0236	2	2.22	0.066	0.0236	2	1.74	0.402
381	0.0221	2	1.55	0.895	0.0229	2	8.41	10.927	0.0229	2	0.59	0.231	0.0236	2	2.03	1.269
382	0.0461	4	0.59	0.340	0.0229	3	4.35	3.017	0.0484	4	2.25	0.610	0.0499	4	1.92	0.562
721	0.0221	2	13.40	12.225	0.0203	2	7.68	6.464	0.0244	2	20.06	10.378	0.0236	2	4.21	4.725
722	0.0214	2	46.66	65.850	0.0101	2	1.99	2.375	0.0229	2	2.43	0.704	0.0218	2	1.21	1.715
723	0.0210	2	8.79	5.464	0.0233	2	10.04	8.619	0.0229	2	34.05	29.946	0.0248	2	10.67	7.344
724	0.0225	2	13.33	17.024	0.0206	2	10.84	2.528	0.0225	2	9.89	10.466	0.0233	2	12.31	1.803
725	0.0206	2	1.31	0.882	0.0086	1	0.62	-	0.0229	2	2.48	0.073	0.0210	2	8.64	8.707
726	n.s.	n.s.	n.s.	n.s.	0.0094	2	2.95	2.726	0.0225	2	39.96	47.051	0.0221	2	8.24	4.177
727	0.0094	1	9.37	-	0.0233	2	9.02	3.782	0.0236	2	7.56	7.651	0.0210	2	4.59	2.089
728	0.0214	2	32.09	23.965	0.0206	2	15.58	4.617	0.0233	2	37.93	22.294	0.0210	2	22.82	0.178
752	0.0218	2	112.70	128.072	0.0229	2	49.95	7.102	0.0233	2	35.68	10.927	0.0206	2	128.14	25.680
753	0.0214	2	56.78	41.643	0.0218	2	146.98	13.280	0.0229	2	14.74	4.969	0.0218	2	169.96	216.964
754	0.0330	3	5.50	6.447	0.0210	2	2.67	3.782	0.0206	2	0.00	0.000	0.0195	2	0.00	0.000
755	n.s.	n.s.	n.s.	n.s.	0.0206	2	0.39	0.550	0.0311	3	0.05	0.090	0.0431	4	0.00	0.000
756	0.0109	1	75.68	-	0.0225	2	199.76	258.188	0.0225	2	124.34	44.457	0.0203	2	31.68	11.829
757	0.0304	3	626.06	753.372	0.0206	2	82.24	100.918	0.0233	2	17.07	3.782	0.0214	2	5.12	6.827
758	0.0214	2	0.60	0.447	0.0105	2	4.03	5.695	0.0214	2	0.31	0.438	0.0210	2	1.32	1.649
759	n.s.	n.s.	n.s.	n.s.	0.0214	2	0.00	0.000	0.0218	2	0.34	0.484	0.0210	2	1.99	2.814
760	0.0105	1	17.16	-	0.0214	2	8.04	5.519	0.0225	2	20.30	28.275	0.0210	2	43.59	58.396
761	0.0315	3	1.21	1.954	0.0206	2	3.47	1.605	0.0210	2	0.00	0.000	0.0221	2	0.19	0.264
762	0.0308	3	0.00	0.000	0.0094	2	0.00	0.000	0.0210	2	18.49	26.142	0.0203	2	0.00	0.000
763	n.s.	n.s.	n.s.	n.s.	0.0218	2	0.08	0.110	0.0311	3	0.00	0.000	0.0416	4	0.30	0.606
764	0.0206	2	0.17	0.237	0.0218	2	0.25	0.352	0.0225	2	0.00	0.000	0.0218	2	0.00	0.000
765	0.0206	2	0.00	0.000	0.0098	2	0.00	0.000	0.0221	2	0.00	0.000	0.0203	2	0.00	0.000
766	0.0308	3	0.00	0.000	0.0191	2	0.00	0.000	0.0218	2	0.00	0.000	0.0214	2	0.00	0.000
767	n.s.	n.s.	n.s.	n.s.	0.0109	2	0.00	0.000	0.0214	2	0.00	0.000	0.0210	2	0.11	0.156

$$SD = \frac{\sum \left(x_i - \bar{x} \right)^2}{n-1}$$

TABLE 10 (cont.).- Swept area, number of hauls and American plaice mean catch (kg) and SD by stratum. Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. Swept area in square miles. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

	2001				2002				2003				2004			
Stratum	Swept area	Tow number	A. Plaice Mean	A. Plaice SD	Swept area	Tow number	A. Plaice Mean	A. Plaice SD	Swept area	Tow number	A. Plaice Mean	A. Plaice SD	Swept area	Tow number	A. Plaice Mean	A. Plaice SD
353	0.0341	3	451.08	185.936	0.0476	4	630.50	240.448	0.0334	3	470.86	217.828	0.0338	3	418.60	276.823
354	0.0338	3	172.21	144.326	0.0356	3	207.67	77.048	0.0338	3	806.33	68.178	0.0345	3	220.64	173.634
355	0.0240	2	206.75	85.065	0.0236	2	100.75	40.659	0.0229	2	112.14	7.297	0.0229	2	23.50	9.758
356	0.0240	2	83.56	40.362	0.0233	2	53.95	51.548	0.0225	2	159.80	99.561	0.0221	2	0.66	0.893
357	0.0244	2	76.85	105.720	0.0240	2	5.18	2.015	0.0229	2	59.40	76.650	0.0229	2	0.84	1.190
358	0.0345	3	35.80	28.161	0.0345	3	27.67	21.202	0.0338	3	26.50	16.096	0.0330	3	27.72	15.234
359	0.0803	7	347.89	328.624	0.0686	6	177.40	129.497	0.0791	7	459.09	433.737	0.0791	7	440.97	296.394
360	0.2423	20	261.79	173.177	0.2865	25	143.72	117.177	0.2254	20	229.12	120.612	0.2310	20	283.51	168.955
374	0.0240	2	14.95	1.909	0.0345	3	3.42	1.630	0.0225	2	15.33	4.207	0.0233	2	89.95	46.315
375	0.0338	3	4.77	1.680	0.0353	3	1.41	1.073	0.0330	3	9.96	10.915	0.0338	3	73.12	19.172
376	0.1155	10	46.95	32.487	0.1140	10	47.96	50.207	0.1125	10	62.92	55.173	0.1166	10	195.37	112.407
377	0.0229	2	21.09	10.204	0.0229	2	34.05	39.527	0.0225	2	48.61	30.816	0.0218	2	84.23	73.928
378	0.0236	2	2.75	1.287	0.0233	2	8.10	6.364	0.0225	2	9.42	8.040	0.0225	2	34.30	14.001
379	0.0229	2	0.84	0.092	0.0229	2	5.75	5.445	0.0229	2	3.47	4.667	0.0124	1	0.71	-
380	0.0206	2	2.97	0.638	0.0225	2	7.25	1.768	0.0229	2	6.68	0.735	0.0221	2	2.01	2.174
381	0.0236	2	2.35	0.154	0.0229	2	3.81	2.821	0.0229	2	7.70	3.111	0.0225	2	29.64	18.611
382	0.0469	4	3.02	0.929	0.0341	3	1.09	0.904	0.0454	4	2.12	0.643	0.0461	4	55.76	49.674
721	0.0248	2	115.20	86.974	0.0233	2	18.20	12.445	0.0225	2	222.75	273.155	0.0221	2	0.00	0.000
722	0.0233	2	30.29	35.511	0.0236	2	30.10	42.568	0.0221	2	14.31	15.493	0.0218	2	1.02	1.442
723	0.0240	2	36.15	39.244	0.0233	2	7.20	0.849	0.0229	2	2.10	2.687	0.0229	2	0.68	0.955
724	0.0353	3	26.47	26.158	0.0225	2	47.05	41.931	0.0225	2	7.02	7.050	0.0214	2	0.00	0.000
725	0.0116	2	3.37	0.368	0.0225	2	3.55	4.313	0.0229	2	3.34	0.049	0.0225	2	19.30	27.294
726	0.0116	2	1.80	0.430	0.0214	2	2.83	0.948	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000
727	0.0225	2	8.46	5.277	0.0233	2	2.85	1.061	0.0218	2	42.85	21.001	0.0233	2	0.37	0.338
728	0.0229	2	5.85	1.143	0.0229	2	9.58	13.467	0.0225	2	40.45	23.264	0.0180	2	0.00	0.000
752	0.0210	2	15.79	7.922	0.0116	1	0.00	-	0.0229	2	27.05	12.516	0.0214	2	0.00	0.000
753	0.0214	2	60.01	68.290	0.0229	2	3.60	5.091	0.0229	2	0.00	0.000	0.0218	2	0.00	0.000
754	0.0195	2	1.26	1.781	0.0341	3	8.60	14.206	0.0218	2	0.00	0.000	0.0214	2	0.00	0.000
755	0.0416	4	0.00	0.000	0.0338	3	0.00	0.000	0.0221	2	0.00	0.000	0.0319	3	0.00	0.000
756	0.0113	2	11.58	8.167	0.0229	2	11.73	12.551	0.0221	2	1.83	0.884	0.0218	2	0.00	0.000
757	0.0233	2	105.18	148.295	0.0225	2	31.15	13.223	0.0221	2	5.17	7.304	0.0218	2	0.00	0.000
758	0.0218	2	0.16	0.220	0.0225	2	1.27	0.523	0.0221	2	0.00	0.000	0.0214	2	0.00	0.000
759	0.0221	2	0.26	0.374	0.0225	2	0.00	0.000	0.0113	1	0.00	-	0.0214	2	0.00	0.000
760	0.0229	2	37.80	37.618	0.0229	2	4.75	6.718	0.0218	2	0.00	0.000	0.0221	2	0.00	0.000
761	0.0225	2	0.25	0.346	0.0225	2	1.90	1.577	0.0225	2	0.00	0.000	0.0221	2	0.01	0.007
762	0.0116	2	0.00	0.000	0.0225	2	0.30	0.424	0.0225	2	0.00	0.000	0.0233	2	0.00	0.000
763	0.0330	3	0.00	0.000	0.0225	2	0.00	0.000	0.0311	3	0.00	0.000	0.0326	3	0.00	0.000
764	0.0240	2	0.35	0.205	0.0236	2	0.50	0.707	0.0221	2	0.63	0.884	0.0229	2	0.00	0.000
765	0.0113	2	0.05	0.071	0.0236	2	0.64	0.792	0.0113	1	0.00	-	0.0225	2	0.00	0.000
766	0.0203	2	0.44	0.616	0.0233	2	0.00	0.000	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000
767	0.0218	2	0.00	0.000	0.0225	2	0.05	0.071	0.0229	2	0.00	0.000	0.0218	2	0.57	0.799

$$SD = \frac{\sum\left(x_i - \bar{x}\right)^2}{n-1}$$

TABLE 10 (cont.).- Swept area, number of hauls and American plaice mean catch (kg) and SD by stratum. Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. Swept area in square miles. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

	2005				2006				2007			
Stratum	Swept area	Tow number	A. Plaice Mean catch	A. Plaice SD	Swept area	Tow number	A. Plaice Mean catch	A. Plaice SD	Swept area	Tow number	A. Plaice Mean catch	A. Plaice SD
353	0.0353	3	224.63	106.622	0.0371	3	321.42	64.587	0.0364	3	115.27	45.889
354	0.0353	3	220.46	151.511	0.0364	3	134.53	130.027	0.0364	3	73.70	29.781
355	0.0225	2	73.44	60.161	0.0248	2	32.85	27.506	0.0240	2	24.70	8.344
356	0.0233	2	8.37	11.257	0.0240	2	4.38	6.194	0.0240	2	0.42	0.598
357	0.0233	2	0.00	0.000	0.0244	2	6.82	9.378	0.0360	3	0.62	0.939
358	0.0349	3	26.52	20.817	0.0349	3	22.10	19.361	0.0368	3	34.98	32.739
359	0.0814	7	371.26	369.519	0.0975	8	329.81	332.590	0.0855	7	399.00	357.447
360	0.2325	20	293.79	173.170	0.2340	19	562.23	459.478	0.2378	20	297.23	200.496
374	0.0229	2	126.47	116.171	0.0236	2	120.64	27.344	0.0240	2	214.10	141.421
375	0.0349	3	56.44	35.364	0.0364	3	55.90	18.748	0.0364	3	55.44	62.196
376	0.1174	10	177.42	92.305	0.1219	10	136.03	74.695	0.1185	10	122.53	76.602
377	0.0233	2	317.45	167.514	0.0236	2	242.64	52.446	0.0240	2	275.55	170.625
378	0.0225	2	10.15	7.734	0.0240	2	21.65	15.203	0.0233	2	31.32	27.407
379	0.0236	2	1.37	1.923	0.0236	2	0.12	0.171	0.0240	2	1.04	1.440
380	0.0229	2	0.35	0.488	0.0229	2	0.00	0.000	0.0240	2	1.77	0.750
381	0.0233	2	57.15	57.629	0.0229	2	6.43	6.824	0.0240	2	155.55	150.119
382	0.0458	4	36.82	11.832	0.0469	4	44.32	11.998	0.0484	4	15.69	11.851
721	0.0229	2	0.00	0.000	0.0236	2	0.00	0.000	0.0116	1	0.00	-
722	0.0233	2	0.00	0.000	0.0240	2	0.00	0.000	0.0225	2	0.00	0.000
723	0.0233	2	0.00	0.000	0.0236	2	0.04	0.049	0.0240	2	0.00	0.000
724	0.0225	2	0.00	0.000	0.0233	2	0.00	0.000	0.0233	2	0.00	0.000
725	0.0236	2	5.45	7.707	0.0233	2	1.02	1.385	0.0225	2	2.66	3.638
726	0.0113	1	0.00	-	0.0225	2	0.20	0.287	0.0229	2	0.22	0.311
727	0.0229	2	0.00	0.000	0.0225	2	0.00	0.000	0.0240	2	0.00	0.000
728	0.0109	1	0.00	-	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000
752	0.0236	2	0.00	0.000	0.0225	2	0.07	0.092	0.0225	2	0.72	0.346
753	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000
754	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000
755	0.0450	4	0.00	0.000	0.0338	3	0.00	0.000	0.0338	3	0.00	0.000
756	0.0233	2	0.00	0.000	0.0229	2	0.00	0.000	0.0225	2	0.00	0.000
757	0.0225	2	0.00	0.000	0.0225	2	0.14	0.191	0.0229	2	0.00	0.000
758	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000	0.0225	2	0.00	0.000
759	0.0229	2	0.00	0.000	0.0225	2	0.00	0.000	n.s.	n.s.	n.s.	n.s.
760	0.0229	2	6.10	8.627	0.0225	2	0.00	0.000	0.0233	2	0.00	0.000
761	0.0221	2	0.00	0.000	0.0233	2	0.00	0.000	0.0225	2	0.00	0.000
762	0.0225	2	0.00	0.000	0.0233	2	0.00	0.000	n.s.	n.s.	n.s.	n.s.
763	0.0334	3	0.00	0.000	0.0225	2	0.00	0.000	n.s.	n.s.	n.s.	n.s.
764	0.0233	2	0.00	0.000	0.0233	2	0.00	0.000	0.0225	2	0.00	0.000
765	0.0229	2	0.00	0.000	0.0236	2	0.00	0.000	0.0225	2	0.00	0.000
766	0.0229	2	0.00	0.000	0.0229	2	0.00	0.000	n.s.	n.s.	n.s.	n.s.
767	0.0113	1	0.00	-	0.0233	2	0.00	0.000	n.s.	n.s.	n.s.	n.s.

$$SD = \frac{\sum \left(x_i - \bar{x} \right)^2}{n-1}$$

TABLE 11.- Stratified mean catches (Kg) by stratum and year and SD by year of American plaice (1997-2007). n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
353	12903.67	72078.57	104632.35	114599.70	121339.62	169604.50	126660.44	112602.50	60426.37	86461.08	31006.73
354	8402.49	93846.24	45293.87	36269.52	42363.66	51086.00	198357.18	54277.44	54233.57	33093.23	18130.20
355	1037.72	9965.35	4500.63	4440.80	15299.50	7455.50	8298.36	1739.00	5434.56	2430.90	1827.80
356	382.89	668.59	1478.94	1321.33	3927.32	2535.65	7510.60	30.95	393.39	205.86	19.88
357	304.55	382.45	502.29	90.77	12602.58	848.70	9741.60	138.01	0.00	1118.23	101.68
358	999.88	1513.72	2037.49	67195.07	8055.00	6225.00	5962.50	6236.25	5966.25	4972.28	7870.50
359	12680.29	83608.73	204132.53	277756.52	146459.89	74685.40	193275.09	185648.37	156301.96	138849.75	167979.00
360	72766.01	299247.75	734066.28	903798.01	728547.66	399985.01	637653.48	789018.07	817625.50	1564674.81	827191.09
374	1796.59	856.16	9415.49	1197.73	3199.30	731.88	3279.55	19249.30	27063.51	25815.89	45817.40
375	500.53	1606.63	11438.83	8160.97	1291.77	381.21	2698.26	19816.42	15294.34	15149.44	15024.24
376	16719.30	110620.38	159942.67	334810.31	62631.30	63978.64	83931.28	260619.58	236676.28	181467.22	163455.02
377	2095.72	4718.47	8616.07	2702.20	2108.50	3405.00	4861.00	8422.50	31745.00	24263.50	27555.00
378	259.32	726.10	991.91	2744.49	382.25	1125.90	1308.69	4767.70	1411.06	3009.35	4353.48
379	188.36	281.25	82.40	243.73	88.51	609.50	367.82	75.26	145.22	12.83	109.76
380	134.92	162.68	213.43	167.31	285.07	696.00	641.28	193.20	33.12	0.00	169.92
381	222.76	1211.16	84.85	291.71	338.05	547.92	1108.80	4268.16	8229.60	925.20	22399.20
382	202.64	1493.12	770.56	657.24	1037.19	372.73	726.30	19126.54	12628.40	15200.90	5382.01
721	871.09	499.21	1303.60	273.96	7488.00	1183.00	14478.75	0.00	0.00	0.00	0.00
722	3919.11	167.16	203.73	101.86	2544.36	2528.40	1201.62	85.68	0.00	0.00	0.00
723	1362.72	1556.71	5277.38	1653.10	5603.25	1116.00	325.50	104.63	0.00	5.43	0.00
724	1653.48	1343.68	1226.09	1526.83	3281.87	5834.20	869.86	0.00	0.00	0.00	0.00
725	137.94	65.30	260.04	907.63	353.82	372.75	350.18	2026.50	572.25	107.21	279.25
726	n.s	212.68	2876.79	593.27	129.33	203.76	0.00	0.00	0.00	14.62	15.84
727	899.68	865.65	725.35	440.29	811.92	273.60	4113.60	35.42	0.00	0.00	0.00
728	2502.92	1215.08	2958.88	1780.30	455.96	747.05	3155.10	0.00	0.00	0.00	0.00
752	14763.59	6543.72	4674.08	16785.97	2068.61	0.00	3543.55	0.00	0.00	8.52	94.52
753	7835.24	20283.24	2033.90	23454.24	8281.50	496.80	0.00	0.00	0.00	0.00	0.00
754	989.34	481.33	0.00	0.00	226.67	1548.60	0.00	0.00	0.00	0.00	0.00
755	n.s	149.64	19.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
756	7643.89	20175.92	12558.72	3200.13	1169.09	1184.23	184.33	0.00	0.00	0.00	0.00
757	63857.75	8388.77	1741.19	522.51	10728.11	3177.30	526.83	0.00	0.00	13.77	0.00
758	59.81	398.64	30.63	130.83	15.39	125.73	0.00	0.00	0.00	0.00	0.00
759	n.s	0.00	43.44	252.73	33.57	0.00	0.00	0.00	0.00	0.00	n.s
760	2643.21	1237.81	3126.85	6713.38	5821.20	731.50	0.00	0.00	939.40	0.00	0.00
761	206.83	592.85	0.00	31.90	41.90	324.05	0.00	0.86	0.00	0.00	0.00
762	0.00	0.00	3918.87	0.00	0.00	63.60	0.00	0.00	0.00	0.00	n.s
763	n.s	20.29	0.00	79.13	0.00	0.00	0.00	0.00	0.00	0.00	n.s
764	16.71	24.87	0.00	0.00	34.50	50.00	62.50	0.00	0.00	0.00	0.00
765	0.00	0.00	0.00	0.00	6.20	79.36	0.00	0.00	0.00	0.00	0.00
766	0.00	0.00	0.00	0.00	62.68	0.00	0.00	0.00	0.00	0.00	n.s
767	n.s	0.00	0.00	17.44	0.00	7.90	0.00	89.27	0.00	0.00	n.s
TOTAL	240960.96	747209.90	1331180.06	1814912.89	1199115.08	804322.34	1315194.03	1488571.60	1435119.78	2097800.01	1338782.52
$(\overline{Y})$	25.80	72.25	128.72	175.49	115.95	77.77	127.17	143.93	138.77	202.84	141.82
S.D.	5.09	6.51	6.85	19.24	12.31	7.46	10.79	13.03	12.92	29.01	15.31

TABLE 12.- Survey estimates (by the swept area method) of American plaice biomass (t) and SD by stratum and year on NAFO Div. 3NO. n.s. means stratum not surveyed. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
353	1075	6200	8719	9651	10666	14245	11385	10009	5143	6987	2557
354	723	7903	4165	3054	3766	4302	17632	4720	4616	2729	1495
355	89	901	393	382	1275	631	726	152	483	196	152
356	34	60	129	117	327	218	668	3	34	17	2
357	28	32	43	7	1034	71	852	12	0	92	8
358	89	130	175	5907	700	541	530	567	513	428	642
359	1103	7192	16836	23702	12775	6530	17099	16424	13445	11393	13753
360	6203	25808	59988	75434	60151	34903	56586	68313	70333	127046	69585
374	153	73	773	100	267	64	292	1656	2366	2185	3818
375	43	140	968	670	115	32	245	1761	1316	1249	1239
376	1479	9578	13124	27901	5422	5612	7461	22347	20164	14890	13794
377	180	413	718	236	184	298	432	774	2731	2054	2296
378	25	62	87	236	32	97	116	424	125	251	374
379	18	24	7	22	8	53	32	6	12	1	9
380	13	14	18	14	28	62	56	17	3	0	14
381	20	106	7	25	29	48	97	379	708	81	1867
382	18	131	64	53	88	33	64	1659	1104	1297	445
721	79	49	107	23	605	102	1287	0	0	0	0
722	367	16	18	9	219	214	109	8	0	0	0
723	130	134	461	134	467	96	28	9	0	0	0
724	147	130	109	131	279	519	77	0	0	0	0
725	13	8	23	86	30	33	31	180	48	9	25
726	n.s.	21	256	54	11	19	0	0	0	1	1
727	96	74	61	42	72	24	378	3	0	0	0
728	234	118	255	170	40	65	280	0	0	0	0
752	1358	572	402	1628	197	143	310	0	0	1	8
753	733	1865	178	2157	775	43	0	0	0	0	0
754	90	46	0	0	23	6	0	0	0	0	0
755	n.s.	15	2	0	0	0	0	0	0	0	0
756	703	1793	1116	316	102	104	17	0	0	0	0
757	6307	813	150	49	923	282	48	0	0	1	0
758	6	37	3	12	1	11	0	0	0	0	0
759	n.s.	0	4	24	3	0	0	0	0	0	n.s
760	252	116	278	639	509	64	0	0	82	0	0
761	20	57	0	3	4	29	0	0	0	0	0
762	0	0	373	0	0	6	0	0	0	0	n.s
763	n.s.	2	0	8	0	0	0	0	0	0	n.s
764	2	2	0	0	3	4	6	0	0	0	0
765	0	0	0	0	1	7	0	0	0	0	0
766	0	0	0	0	6	0	0	0	0	0	n.s
767	n.s.	0	0	2	0	1	0	8	0	0	n.s
TOTAL	21827	64635	110010	152997	101137	69511	116842	129432	123227	170910	112086
S.D.	4495	5946	5825	16740	10841	7097	9777	12335	11396	24806	13032

TABLE 13.- Length weight relationships in the calculation of American plaice biomass. The equation is $Weight = a(l + 0.5)^b$ Spanish Spring Surveys on NAFO Div. 3NO: 1997-2007. To calculate the parameters for the indeterminate individuals, we used the total data (males + females + indeterminate individuals)

		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Males	a	0.0043 E = 0.1296	0.0041 E = 0.1200	0.0049 E = 0.2799	0.0024 E = 0.1281	0.0064 E = 0.1556	0.0041 E = 0.0660	0.0037 E = 0.0752	0.0075 E = 0.1483	0.0027 E = 0.0882	0.0061 E = 0.1501	0.0050 E = 0.0603
	b	3.1794 E = 0.0378	3.1943 E = 0.0348	3.1454 E = 0.0817	3.3523 E = 0.0382	3.0742 E = 0.0485	3.1930 E = 0.0205	3.2287 E = 0.0234	3.0284 E = 0.0468	3.3274 E = 0.0274	3.0860 E = 0.0458	3.1406 E = 0.0185
		R^2 = 0.995 N = 1050	R^2 = 0.996 N = 573	R^2 = 0.983 N = 183	R^2 = 0.995 N = 321	R^2 = 0.992 N = 188	R^2 = 0.988 N = 384	R^2 = 0.998 N = 622	R2 = 0.992 N = 411	R2 = 0.997 N = 311	R2 = 0.996 N = 434	R2 = 0.999 N= 645
Females	a	0.0027 E = 0.1058	0.0027 E = 0.0595	0.0048 E = 0.1420	0.0020 E = 0.0981	0.0039 E = 0.0624	0.0032 E = 0.0628	0.0030 E = 0.0549	0.0047 E = 0.0807	0.0027 E = 0.0634	0.0049 E = 0.0781	0.0048 E = 0.0719
	b	3.3263 E = 0.0291	3.3218 E = 0.0162	3.1704 E = 0.0389	3.4049 E = 0.0271	3.2256 E = 0.0177	3.2752 E = 0.0178	3.2918 E = 0.0157	3.1757 E = 0.0228	3.3290 E = 0.0177	3.1703 E = 0.0219	3.1754 E = 0.0206
		R2 = 0.998 N = 1396	R2 = 0.999 N = 937	R2 = 0.993 N = 201	R2 = 0.998 N = 402	R2 = 0.998 N = 370	R2 = 0.998 N = 703	R2 = 0.999 N = 960	R2 = 0.997 N = 765	R2 = 0.998 N = 569	R2 = 0.999 N = 757	R2 = 0.9974 N= 1000
Indet.	a	0.0026 E = 0.0928	0.0028 E = 0.0602	0.0022 E = 0.1531	0.0020 E = 0.0817	0.0054 E = 0.0866	0.0035 E = 0.0599	0.0032 E = 0.0581	0.0069 E = 0.1315	0.0025 E = 0.0523	0.0045 E = 0.0483	0.0041 E = 0.0493
	b	3.3370 E = 0.0255	3.3153 E = 0.0164	3.3812 E = 0.0431	3.4049 E = 0.0226	3.1409 E = 0.0248	3.2527 E = 0.0171	3.2795 E = 0.0167	3.0712 E = 0.0382	3.3552 E = 0.0148	3.1868 E = 0.0138	3.2121 E = 0.0142
		R^2 = 0.997 N = 2446	R^2 = 0.999 N = 1513	R^2 = 0.989 N = 386	R^2 = 0.997 N = 726	R^2 = 0.996 N = 573	R^2 = 0.998 N = 1087	R^2 = 0.998 N = 1587	R2 = 0.990 N = 1226	R2 = 0.999 N = 884	R2 = 0.999 N = 1213	R2 = 0.999 N= 1699

TABLE 14.- American plaice length distribution. Estimated numbers per haul stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels. (*) indicates untransformed data.

	1997				1998				1999				2000			
Length (cm.)	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.087	5.812	22.898	0.203	10.681	0.227	11.111
12	0.000	0.000	0.000	0.000	0.007	0.008	0.000	0.015	0.000	4.272	4.272	8.543	11.240	11.450	0.117	22.807
14	0.073	0.049	0.000	0.121	0.009	0.000	0.000	0.009	0.289	1.667	0.190	2.146	30.021	34.561	0.000	64.582
16	0.136	0.242	0.000	0.378	0.546	0.263	0.000	0.809	1.474	2.739	0.000	4.212	59.167	75.997	0.000	135.164
18	0.648	0.705	0.023	1.377	0.044	0.146	0.000	0.190	0.210	0.894	0.000	1.104	24.333	41.298	0.005	65.635
20	1.215	0.750	0.000	1.966	0.370	0.163	0.000	0.533	0.398	0.508	0.000	0.906	4.514	5.307	0.000	9.821
22	2.337	1.371	0.000	3.708	1.053	0.693	0.000	1.746	0.765	0.857	0.000	1.622	2.416	2.785	0.000	5.201
24	2.605	1.883	0.000	4.489	3.474	2.310	0.000	5.784	2.904	0.468	0.000	3.372	1.722	1.695	0.000	3.417
26	4.484	2.641	0.000	7.126	5.241	3.713	0.000	8.954	10.069	2.129	0.000	12.197	2.762	0.685	0.000	3.447
28	8.809	2.201	0.000	11.010	8.847	4.872	0.000	13.719	19.126	7.192	0.000	26.318	7.298	1.581	0.000	8.879
30	7.228	3.773	0.000	11.001	11.342	5.977	0.000	17.319	29.710	11.614	0.000	41.323	18.574	3.666	0.000	22.240
32	5.657	4.242	0.000	9.898	10.173	8.235	0.000	18.408	24.357	10.595	0.000	34.952	25.029	7.213	0.000	32.242
34	3.662	4.350	0.000	8.012	7.537	13.315	0.000	20.852	16.253	10.386	0.000	26.638	15.779	13.921	0.000	29.699
36	1.897	4.574	0.000	6.471	4.471	15.805	0.000	20.276	9.405	18.159	0.000	27.564	9.881	16.429	0.000	26.310
38	0.964	3.885	0.000	4.849	2.240	15.381	0.000	17.621	4.435	20.646	0.000	25.081	4.817	18.573	0.000	23.390
40	0.359	3.021	0.000	3.381	0.785	12.615	0.000	13.400	1.846	23.474	0.000	25.320	2.094	26.863	0.000	28.957
42	0.205	1.968	0.000	2.173	0.462	8.995	0.000	9.457	0.370	18.287	0.000	18.657	1.180	25.649	0.000	26.828
44	0.182	1.128	0.000	1.310	0.117	6.272	0.000	6.388	0.467	12.030	0.000	12.497	0.465	19.940	0.000	20.404
46	0.039	0.666	0.000	0.705	0.119	3.702	0.000	3.821	0.043	6.881	0.000	6.924	0.266	13.733	0.000	13.999
48	0.006	0.433	0.000	0.438	0.025	2.391	0.000	2.416	0.020	4.457	0.000	4.478	0.233	8.588	0.000	8.821
50	0.003	0.385	0.000	0.388	0.000	1.132	0.000	1.132	0.000	3.395	0.000	3.395	0.031	6.231	0.000	6.263
52	0.000	0.158	0.000	0.158	0.000	0.476	0.000	0.476	0.000	1.747	0.000	1.747	0.092	3.692	0.000	3.784
54	0.000	0.122	0.000	0.122	0.023	0.380	0.000	0.404	0.000	1.360	0.000	1.360	0.000	3.440	0.000	3.440
56	0.000	0.047	0.000	0.047	0.000	0.301	0.000	0.301	0.000	0.938	0.000	0.938	0.000	1.172	0.000	1.172
58	0.000	0.037	0.000	0.037	0.000	0.314	0.000	0.314	0.000	0.432	0.000	0.432	0.000	1.290	0.000	1.290
60	0.000	0.034	0.000	0.034	0.000	0.306	0.000	0.306	0.000	0.401	0.000	0.401	0.000	1.120	0.000	1.120
62	0.000	0.054	0.000	0.054	0.000	0.103	0.000	0.103	0.000	0.047	0.000	0.047	0.000	1.168	0.000	1.168
64	0.000	0.057	0.000	0.057	0.000	0.122	0.000	0.122	0.000	0.298	0.000	0.298	0.000	0.637	0.000	0.637
66	0.000	0.008	0.000	0.008	0.000	0.045	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
68	0.000	0.011	0.000	0.011	0.000	0.091	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.086	0.000	0.086
72	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.018
74	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
76	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.054	0.000	0.054	0.000	0.000	0.000	0.000
Total	40.511	38.798	0.023	79.332	56.883	108.124	0.000	165.008	122.141	183.012	10.273	315.426	222.117	359.467	0.348	581.933
Nº samples (*):				116				108				93				96
Nº Ind. (*):	8297	5729	3	14029	4640	7390	0	12030	4541	7742	4	12287	3732	7721	5	11458
Sampled catch:				1390				1617				1858				1697
Range (*):				14-68				13-68				10-77				11-72
Total catch:				4209				8540				10565				15533
Total hauls (*):				128				124				114				118

TABLE 14 (cont.).- American plaice length distribution. Estimated numbers per haul stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels. (*) indicates untransformed data.

	2001				2002				2003				2004			
Length (cm.)	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
4	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	0.000	0.021	2.401	2.422	0.000	0.000	0.052	0.052	0.188	0.044	0.287	0.519	0.084	0.090	8.701	8.875
8	0.021	0.031	1.194	1.245	0.005	0.133	0.013	0.152	0.356	0.223	0.056	0.635	1.027	0.746	49.783	51.556
10	0.280	1.972	0.217	2.469	0.853	1.420	0.091	2.365	0.074	0.142	0.065	0.280	0.133	0.271	6.226	6.630
12	3.620	4.188	0.757	8.565	4.606	6.883	0.135	11.625	0.814	0.891	0.000	1.705	1.164	1.209	0.004	2.377
14	5.797	7.593	0.398	13.788	3.250	3.490	0.027	6.768	1.576	1.005	0.000	2.581	6.529	4.615	0.000	11.145
16	10.535	10.617	0.031	21.183	1.688	2.104	0.000	3.792	6.969	5.441	0.000	12.410	3.692	3.184	0.000	6.875
18	48.738	38.461	0.010	87.210	6.588	6.831	0.000	13.420	17.873	13.925	0.000	31.798	1.904	1.239	0.000	3.143
20	69.747	56.807	0.000	126.554	10.751	8.917	0.000	19.668	7.441	7.791	0.000	15.232	4.051	3.190	0.000	7.241
22	36.774	35.802	0.000	72.576	26.930	17.681	0.000	44.611	14.162	8.973	0.000	23.135	18.341	8.930	0.000	27.271
24	7.776	13.101	0.000	20.877	34.971	33.222	0.000	68.193	35.284	11.606	0.000	46.890	18.592	14.481	0.000	33.073
26	3.211	3.416	0.000	6.627	21.342	29.173	0.000	50.515	62.238	21.586	0.000	83.823	27.188	10.344	0.000	37.532
28	4.639	1.994	0.000	6.633	7.317	13.800	0.000	21.117	42.882	44.576	0.000	87.458	46.289	14.760	0.000	61.048
30	11.353	1.499	0.000	12.852	5.530	4.861	0.000	10.391	17.283	42.818	0.000	60.100	36.904	23.718	0.000	60.622
32	18.793	2.218	0.000	21.012	7.801	1.697	0.000	9.498	11.921	19.885	0.000	31.805	17.960	43.845	0.000	61.804
34	15.703	4.001	0.000	19.705	7.563	1.390	0.000	8.953	11.256	8.363	0.000	19.618	10.580	42.211	0.000	52.791
36	8.760	9.830	0.000	18.591	5.397	1.575	0.000	6.973	8.333	3.467	0.000	11.800	6.172	20.482	0.000	26.654
38	3.802	11.082	0.000	14.884	2.528	4.239	0.000	6.767	4.505	2.965	0.000	7.470	3.628	6.955	0.000	10.583
40	1.392	13.048	0.000	14.440	1.263	6.464	0.000	7.726	1.685	4.476	0.000	6.161	1.587	4.815	0.000	6.402
42	0.889	13.008	0.000	13.897	0.411	8.085	0.000	8.496	0.475	7.659	0.000	8.135	0.582	5.407	0.000	5.990
44	0.354	11.312	0.000	11.666	0.164	6.918	0.000	7.081	0.147	6.731	0.000	6.877	0.183	6.655	0.000	6.838
46	0.060	8.611	0.000	8.672	0.031	5.848	0.000	5.878	0.063	6.855	0.000	6.917	0.109	7.216	0.000	7.325
48	0.000	5.567	0.000	5.567	0.018	3.791	0.000	3.810	0.000	5.653	0.000	5.653	0.000	5.071	0.000	5.071
50	0.000	3.461	0.000	3.461	0.024	2.186	0.000	2.210	0.000	3.517	0.000	3.517	0.008	3.552	0.000	3.559
52	0.000	1.021	0.000	1.021	0.051	1.614	0.000	1.666	0.000	3.150	0.000	3.150	0.000	2.925	0.000	2.925
54	0.000	1.245	0.000	1.245	0.000	1.152	0.000	1.152	0.000	2.273	0.000	2.273	0.000	2.326	0.000	2.326
56	0.010	0.755	0.000	0.765	0.000	0.720	0.000	0.720	0.000	1.159	0.000	1.159	0.059	1.604	0.000	1.663
58	0.000	0.546	0.000	0.546	0.000	0.351	0.000	0.351	0.000	0.804	0.000	0.804	0.000	1.066	0.000	1.066
60	0.000	0.335	0.000	0.335	0.000	0.231	0.000	0.231	0.000	0.447	0.000	0.447	0.000	0.271	0.000	0.271
62	0.000	0.250	0.000	0.250	0.000	0.139	0.000	0.139	0.000	0.073	0.000	0.073	0.000	0.294	0.000	0.294
64	0.000	0.045	0.000	0.045	0.000	0.020	0.000	0.020	0.000	0.222	0.000	0.222	0.000	0.162	0.000	0.162
66	0.000	0.078	0.000	0.078	0.000	0.101	0.000	0.101	0.000	0.032	0.000	0.032	0.000	0.132	0.000	0.132
68	0.000	0.004	0.000	0.004	0.000	0.006	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.049	0.000	0.049
70	0.000	0.016	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
72	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
74	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
76	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	252.254	261.936	5.053	519.242	149.083	175.044	0.319	324.447	245.522	236.752	0.407	482.682	206.765	241.817	64.714	513.296
Nº samples (*):				81				108				91				75
Nº Ind. (*):	4996	7906	114	13016	5873	7234	12	13119	6122	7333	9	13464	5076	7561	1353	13990
Sampled catch:				3388				3675				3885				4614
Range (*):				5-70				7-68				6-66				6-68
Total catch:				11477				9201				13955				13729
Total hauls (*):				123				125				118				120

TABLE 14 (cont.).- American plaice length distribution. Estimated numbers per haul stratified mean catches. Spanish Spring Survey on NAFO 3NO: 1997-2007. Indet. means indeterminate. 1997-2000 data are transformed C/V *Playa de Menduíña* data. 2002-2007 data are original R/V *Vizconde de Eza* data. In 2001, there are data from the two vessels. (*) indicates untransformed data.

	2005				2006				2007			
Length (cm.)	Males	Females	Indet.	Total	Males	Females	Indet.	Total	Males	Females	Indet.	Total
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.159	0.159
6	0.014	0.007	0.513	0.534	0.043	0.000	0.096	0.139	0.357	0.306	2.373	3.036
8	0.172	0.400	1.875	2.446	0.019	0.010	0.095	0.124	0.756	0.622	1.006	2.384
10	1.474	1.177	0.099	2.750	0.072	0.060	0.000	0.131	0.117	0.112	0.045	0.275
12	29.728	22.828	0.062	52.618	2.843	2.168	0.000	5.011	0.273	0.273	0.019	0.565
14	46.137	45.635	0.056	91.828	8.939	8.049	0.000	16.989	0.409	0.230	0.000	0.639
16	22.245	20.487	0.000	42.733	15.983	14.714	0.000	30.697	1.201	1.058	0.000	2.259
18	6.715	6.709	0.000	13.424	68.546	51.271	0.000	119.817	7.895	7.011	0.000	14.906
20	6.343	5.253	0.000	11.596	95.356	94.226	0.000	189.583	18.350	11.397	0.000	29.748
22	3.618	3.026	0.000	6.644	33.891	37.382	0.000	71.273	44.794	25.820	0.000	70.614
24	7.908	3.341	0.000	11.249	16.301	12.507	0.000	28.808	49.297	38.741	0.000	88.038
26	17.567	6.709	0.000	24.276	18.093	10.179	0.000	28.272	25.290	24.747	0.000	50.037
28	31.709	13.734	0.000	45.444	32.376	6.712	0.000	39.087	20.585	12.655	0.000	33.240
30	46.328	13.928	0.000	60.256	57.378	11.702	0.000	69.080	25.139	7.487	0.000	32.626
32	32.463	16.433	0.000	48.896	48.434	22.092	0.000	70.526	25.351	7.517	0.000	32.868
34	14.535	26.469	0.000	41.005	26.510	20.787	0.000	47.297	16.904	10.904	0.000	27.809
36	7.360	35.775	0.000	43.134	12.445	26.465	0.000	38.909	6.664	14.769	0.000	21.433
38	3.353	24.246	0.000	27.600	4.025	37.156	0.000	41.181	4.007	18.315	0.000	22.321
40	0.745	10.301	0.000	11.046	1.775	28.755	0.000	30.530	1.327	21.746	0.000	23.074
42	0.202	4.700	0.000	4.903	0.304	12.994	0.000	13.297	0.463	15.291	0.000	15.754
44	0.057	3.419	0.000	3.477	0.216	6.821	0.000	7.037	0.137	7.011	0.000	7.148
46	0.164	3.433	0.000	3.597	0.014	3.300	0.000	3.314	0.118	4.045	0.000	4.163
48	0.090	2.990	0.000	3.080	0.037	3.481	0.000	3.518	0.044	2.998	0.000	3.041
50	0.107	2.272	0.000	2.379	0.000	3.394	0.000	3.394	0.051	1.920	0.000	1.970
52	0.049	1.634	0.000	1.683	0.000	2.126	0.000	2.126	0.010	1.822	0.000	1.832
54	0.000	1.531	0.000	1.531	0.000	1.451	0.000	1.451	0.000	1.783	0.000	1.783
56	0.000	1.546	0.000	1.546	0.000	2.357	0.000	2.357	0.000	1.473	0.000	1.473
58	0.000	0.905	0.000	0.905	0.000	1.581	0.000	1.581	0.000	1.065	0.000	1.065
60	0.000	0.753	0.000	0.753	0.000	0.763	0.000	0.763	0.000	0.707	0.000	0.707
62	0.000	0.407	0.000	0.407	0.000	0.300	0.000	0.300	0.000	0.475	0.000	0.475
64	0.000	0.174	0.000	0.174	0.000	0.200	0.000	0.200	0.000	0.449	0.000	0.449
66	0.000	0.302	0.000	0.302	0.000	0.088	0.000	0.088	0.000	0.068	0.000	0.068
68	0.000	0.081	0.000	0.081	0.000	0.019	0.000	0.019	0.000	0.039	0.000	0.039
70	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.015	0.000	0.015	0.000	0.015
72	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.014	0.000	0.000	0.000	0.000
74	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.015
76	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.006	0.000	0.000	0.000	0.000
Total	279.087	280.604	2.603	562.294	443.600	423.144	0.191	866.936	249.539	242.885	3.602	496.025
Nº samples (*):				70				73				75
Nº Ind. (*):	6097	8494	62	14653	5942	8030	20	13992	5356	6995	163	12514
Sampled catch:				4556				5906				4342
Range (*):				6-69				6-77				5-75
Total catch:				13193				17334				12282
Total hauls (*):				119				120				111

FIGURE 1.- Greenland halibut stratified mean catches in Kg and ±SD by year. Spanish Spring surveys on NAFO Div. 3NO: 1997-2007 (1997-2000 transformed data from C/V *Playa de Menduíña*; 2002-2007 original data from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels).

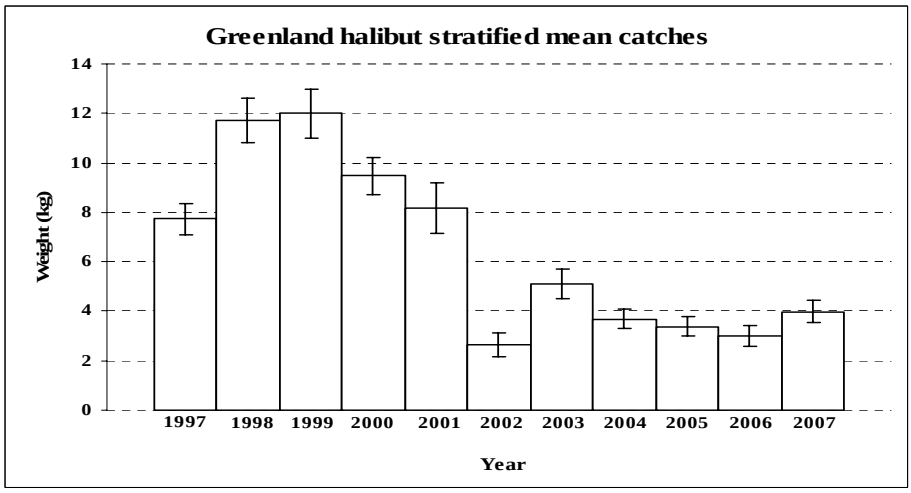
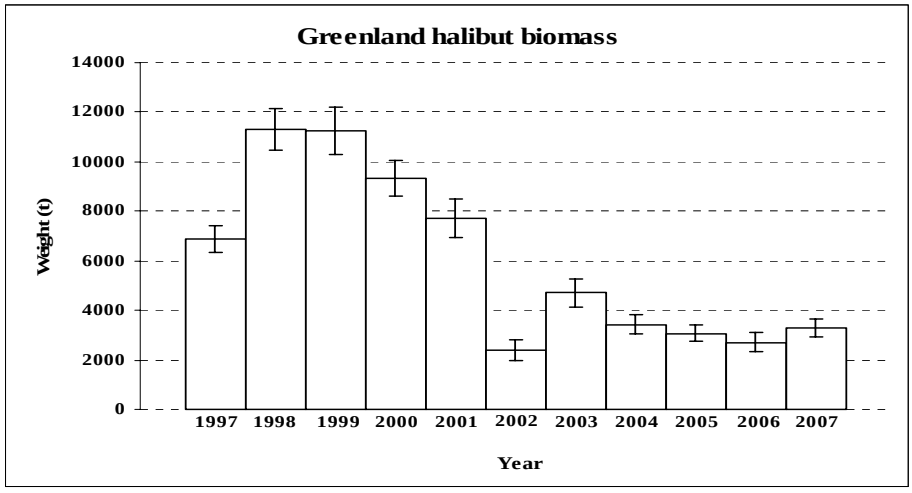


FIGURE 2.- Greenland halibut biomass calculated by the swept method in tons and ±SD by year. Spanish Spring surveys on NAFO Div. 3NO: 1997-2007 (1997-2000 transformed data from C/V *Playa de Menduíña*; 2002-2007 original data from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels).



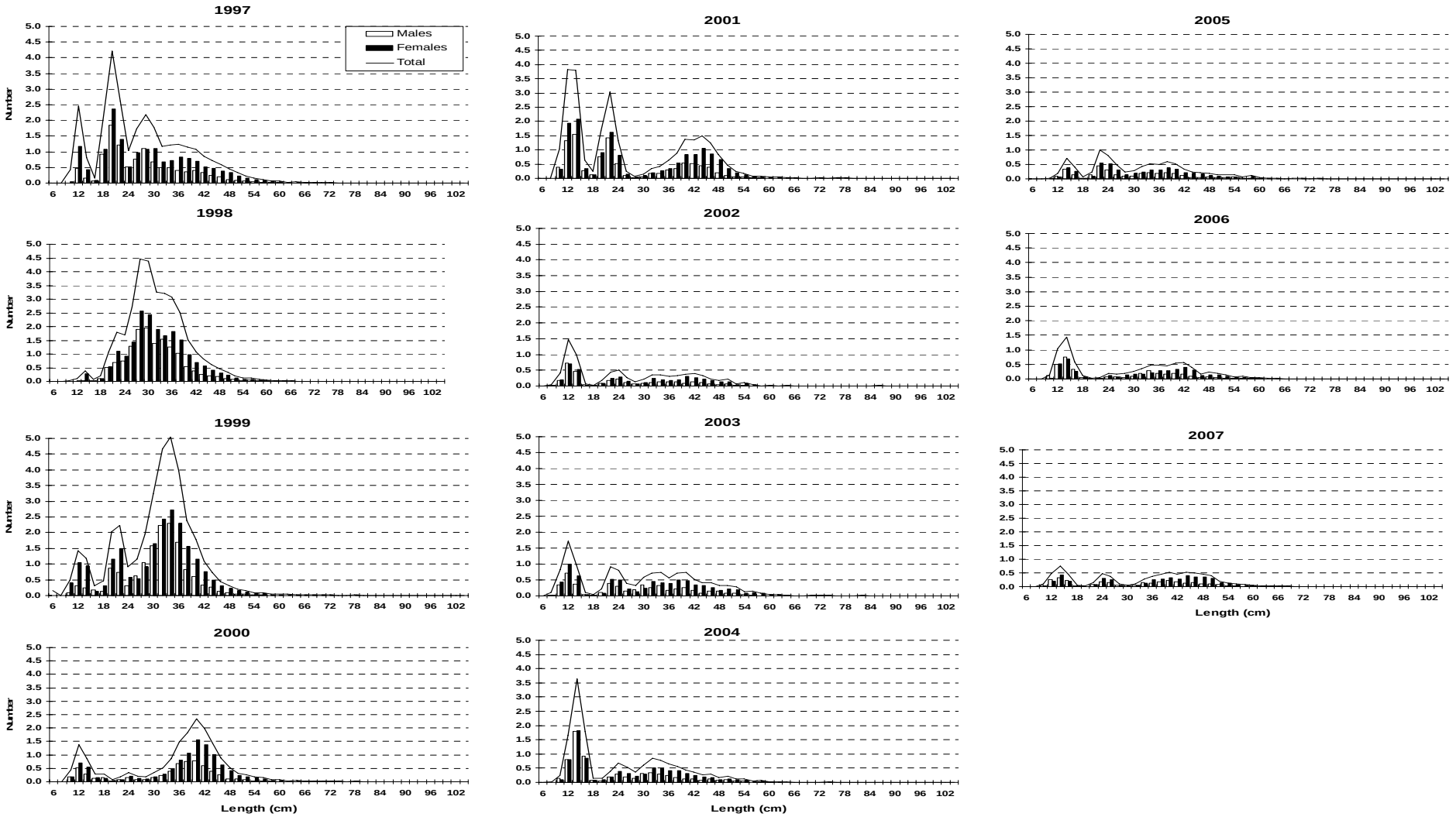


FIGURE 3.- Greenland halibut length distribution (cm) on NAFO 3NO: 1997-2007. Number per stratified mean catches. 1997-2000 data are transformed data from C/V *Playa de Menduíña*, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

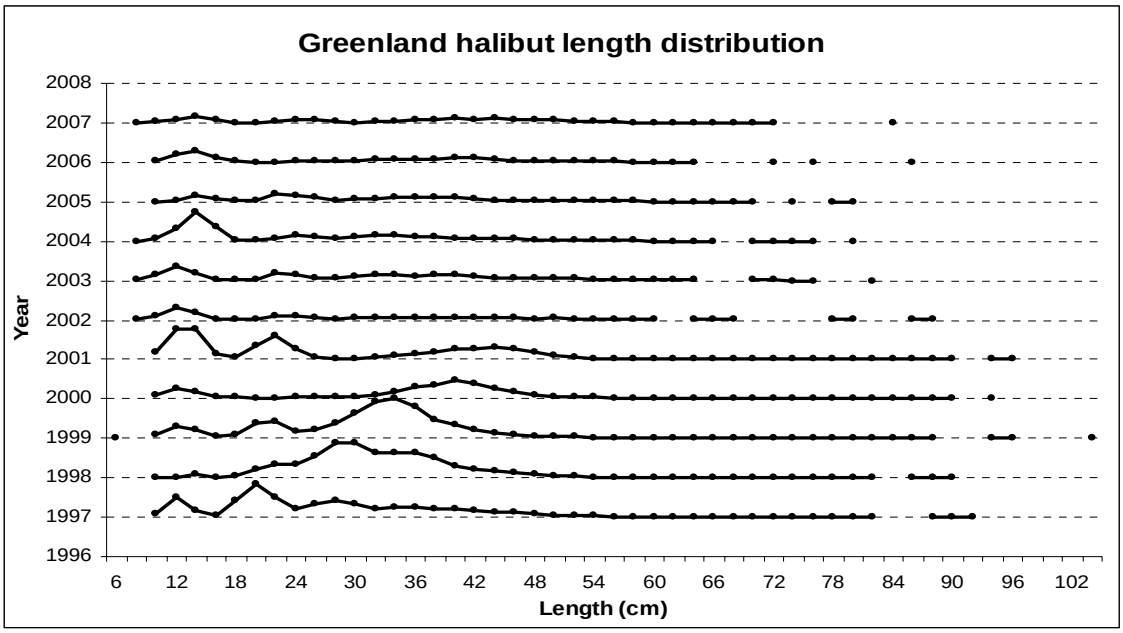


FIGURE 4.- Greenland halibut length distribution (cm) on NAFO 3NO: 1997-2007.

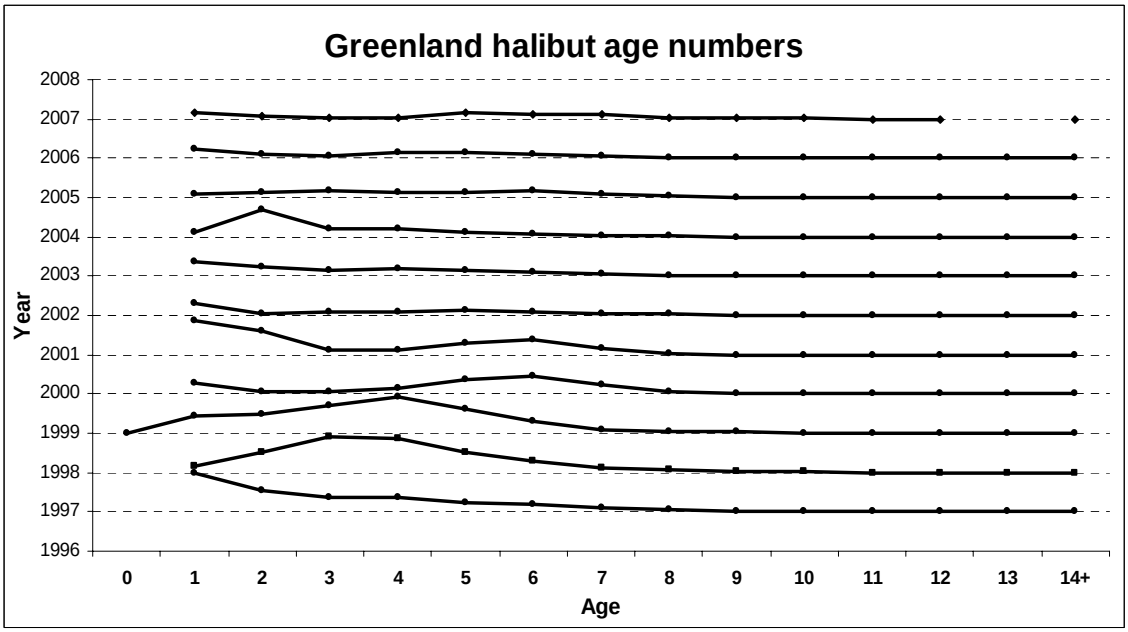


FIGURE 5.- Greenland halibut age distribution on NAFO 3NO: 1997-2007.

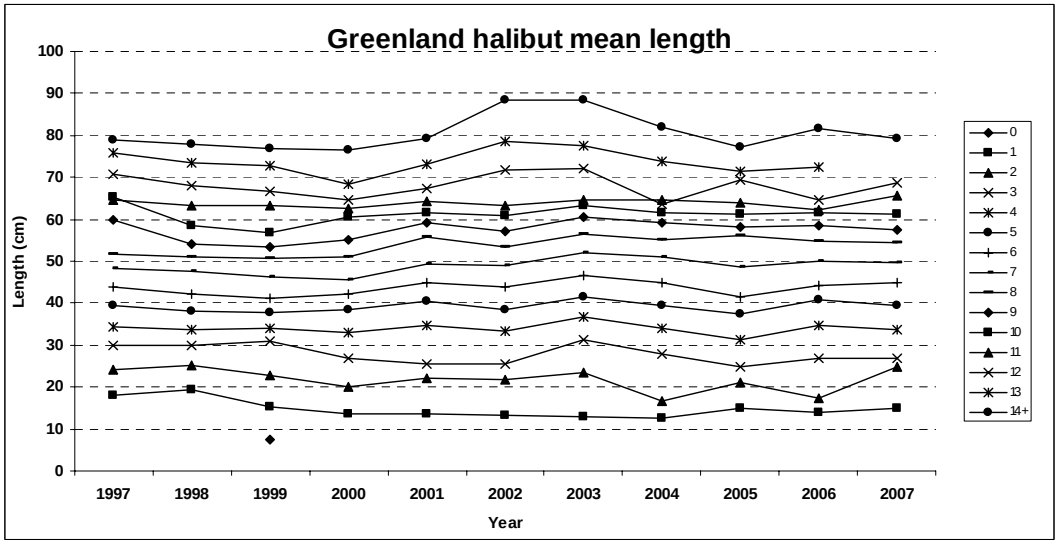


FIGURE 6.- Greenland halibut mean length (cm) at age on NAFO 3NO: 1997-2007. Ages from 0 to 14+.

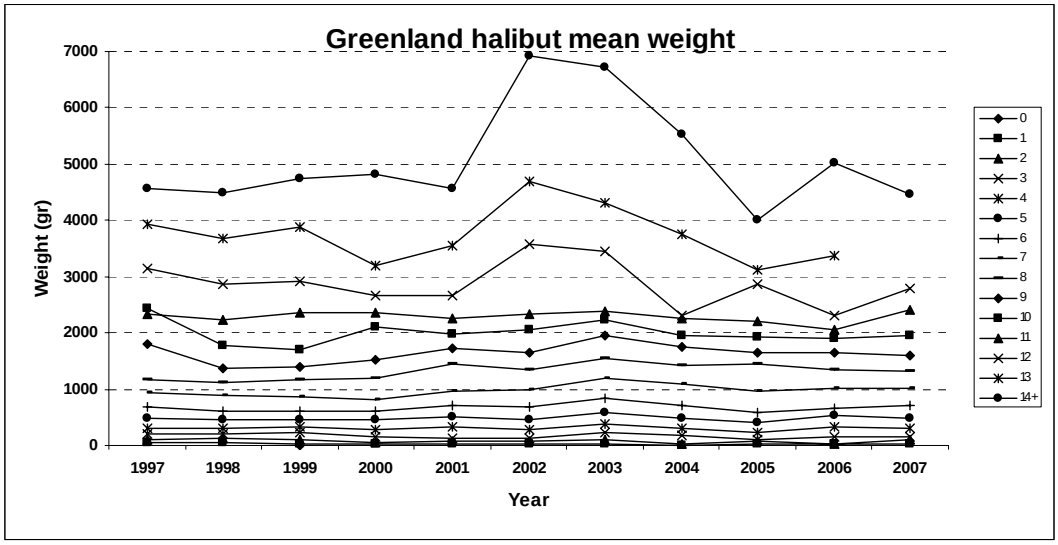


FIGURE 7.- Greenland halibut mean weight (gr) at age on NAFO 3NO: 1997-2007. Ages from 0 to 14+.

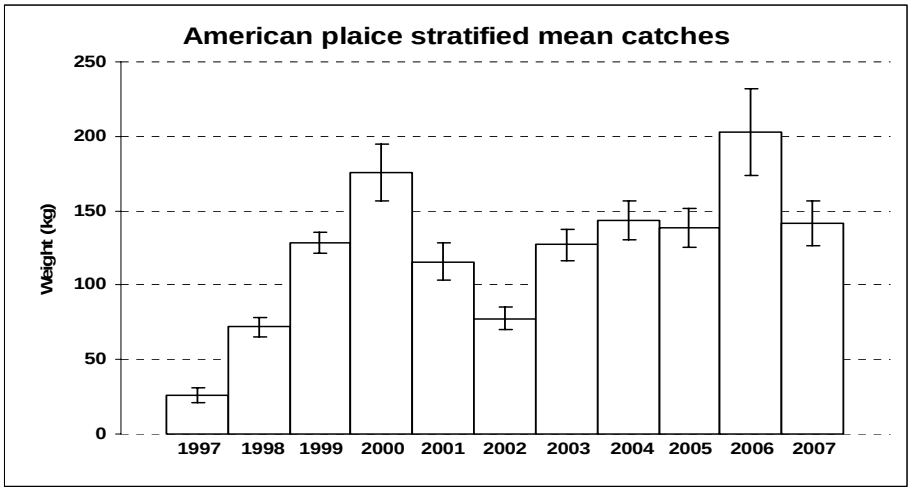


FIGURE 8.- American plaice stratified mean catches in Kg and ±SD by year. Spanish Spring surveys on NAFO Div. 3NO: 1997-2007 (1997-2000 transformed data from C/V *Playa de Menduíña*; 2002-2007 original data from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels).

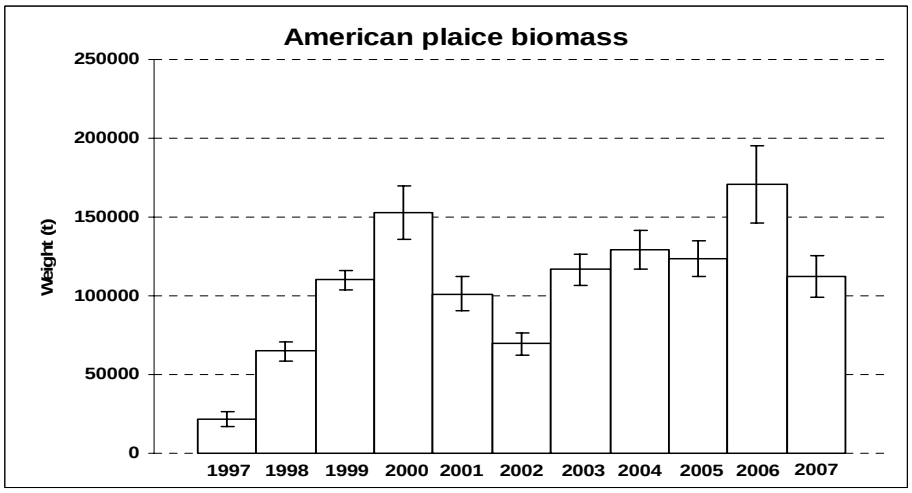


FIGURE 9.- American plaice biomass calculated by the swept method in tons and ±SD by year. Spanish Spring surveys on NAFO Div. 3NO: 1997-2007 (1997-2000 transformed data from C/V *Playa de Menduíña*; 2002-2007 original data from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels).

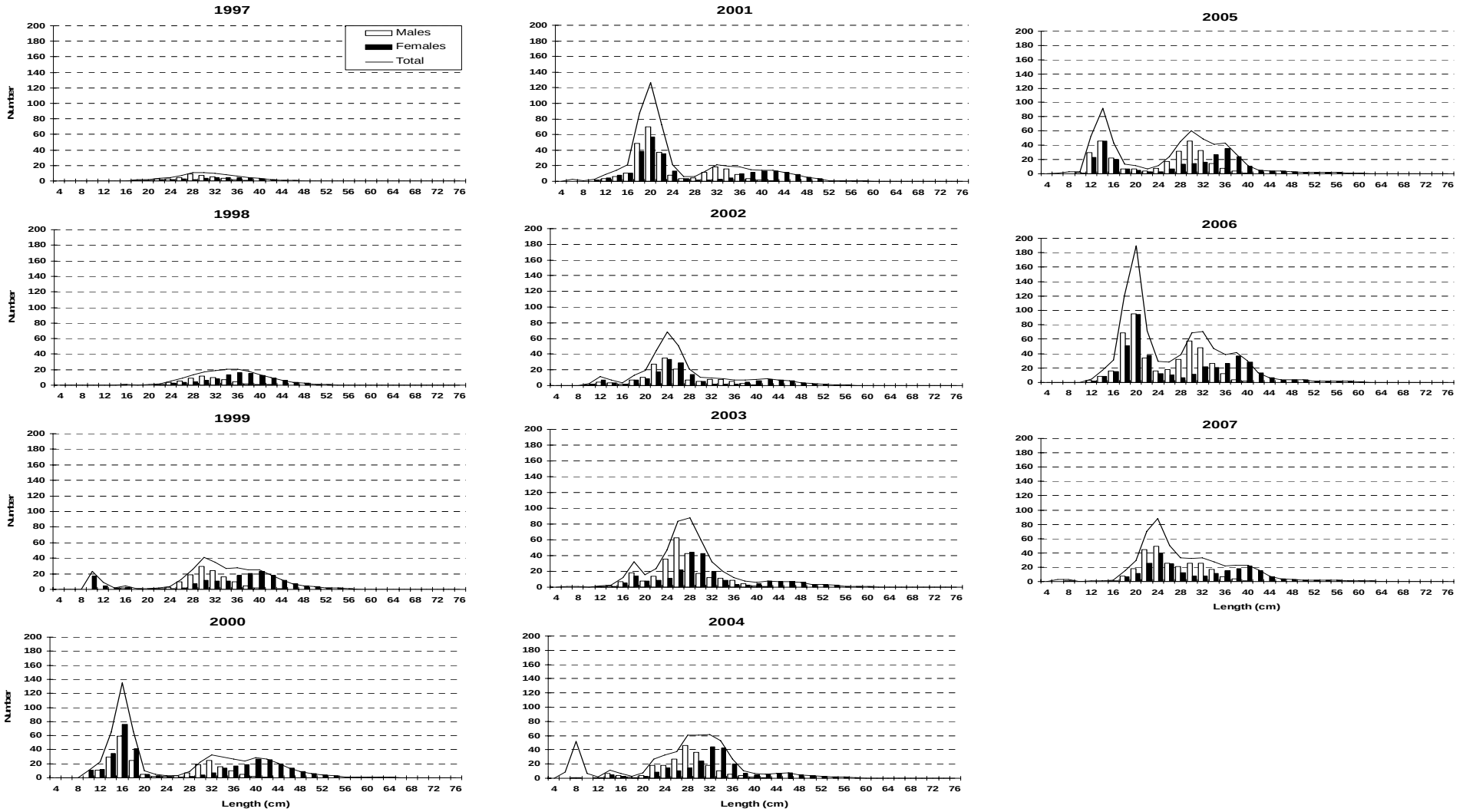


FIGURE 10.- American plaice length distribution (cm) on NAFO 3NO: 1997-2007. Estimated numbers per haul stratified mean catches. 1997-2000 data are transformed data from C/V *Playa de Menduíña*, and 2002-2007 data are original from R/V *Vizconde de Eza*. In 2001, there are data from the two vessels.

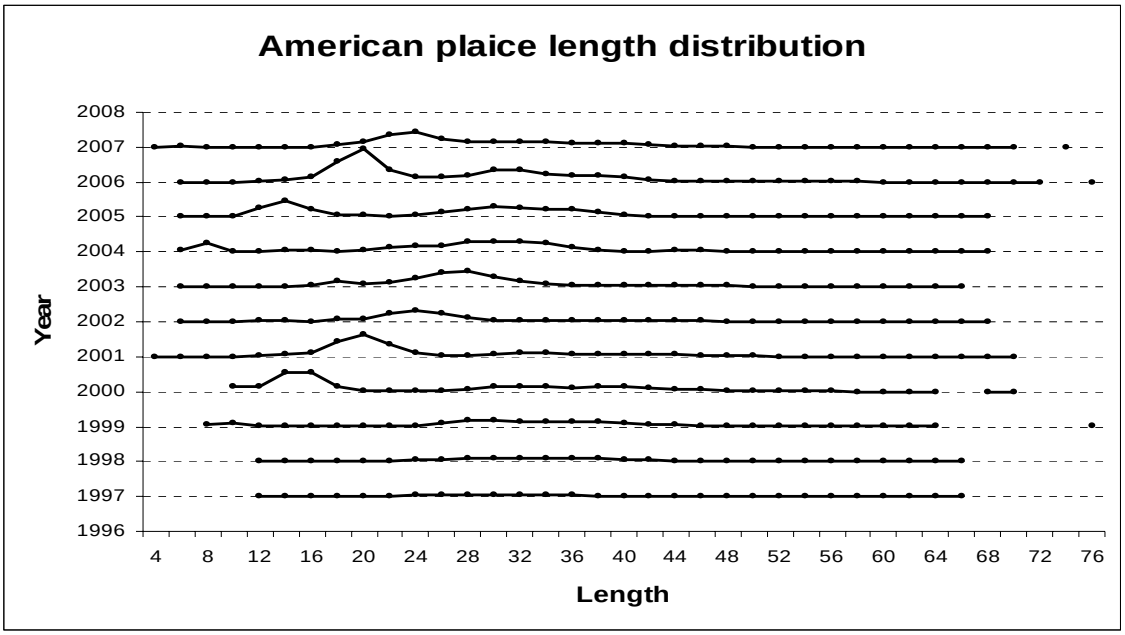


FIGURE 11.- Series of American plaice length distribution (cm) on NAFO 3NO: 1997-2007.