

**SCIENTIFIC COUNCIL MEETING – JUNE 2012****Spanish Research Report for 2011**

by

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Spanish catch information used in this Report is based on the Provisional STATLANT 21 A contributed by the Spanish Administration. Table 1 presents the catches by species and Division in 2011 based on this information. The split of catches between the different gears and the effort information in this Report are based on information from NAFO observers on board. In 2011 information from 1618 days was available while total effort of the Spanish fleet in NAFO Regulatory Area was 1,667 days (97% coverage).

In addition to NAFO observers, IEO scientific observers were on board 336 fishing days that it means 20 % of the Spanish total effort. All length, age and biological information presented in this paper is based on sampling carried out by IEO scientific observers: 393 samples were taken in 2011, with 49,934 individuals of different species examined (Table 2).

SUBAREA 3**A. Status of the fisheries**

A total of 14 Spanish trawlers and 1 pair trawler operated in NAFO Regulatory Area, Div. 3LMNO, during 2011, amounting to 1,667 days (25,276 hours) of fishing effort. Table 3 presents the Spanish effort (fishing hours) since 2003 in NAFO Regulatory Area (NRA) Subarea 3. In 2011, Spanish effort increased 11% in this Area in relation with 2010 effort. Total catches (Table 1) for all species combined in Div. 3LMNO were 17,897 tons in 2011.

Table 4 shows the effort (hours) by quarter and Division and their percentage. Table 5 presents the percentage of the effort by Division and mesh size and Figure 1 shows the NAFO Observers hauls position made with the different mesh sizes (footprint) by the Spanish fleet in 2011.

These tables and figure show that the Spanish fleet has, at least, five different fisheries in NAFO Subarea 3 characterized by different mesh size, target species, depth and fishing area. The main Spanish fisheries and effort in NAFO area were the following: in Div. 3LM, the effort is mainly directed to Greenland halibut using 135 mm cod-end mesh size at more than 700 m depth, alternating with the skate fishery in the second half of the year (Div. 3NO) using 280 mm cod-end mesh size at less than 200 m depth, shrimp fishery (Div. 3LM) using 40 mm cod-end mesh size at 200-600 m depth, redfish (Div. 3O and Div. 3M) using 135 mm cod-end mesh size at 200-700 m depth and Cod in Division 3M using mesh size of 135 mm at 100-400 m depth. This last is a traditional fishery that was closed in 1999 and was reopened in 2010.

Effort and fisheries by Division were: in Div. 3L, most of the effort was performed at more than 700 meters depth using cod-end mesh size of 135 mm, indicating that the fleet targeted Greenland halibut. In the first quarter of the year a small part of the effort was directed to the shrimp fishery at less than 600 meters. Regarding Div. 3M, most of the effort was carried out using 135 mm cod-end mesh size at more than 700 m depth targeting Greenland halibut and in less degree at depths less than 700 m targeting redfish and cod. In 2011 part of the effort directed to cod was

made by a pair trawler. In Div. 3N and during the first half of the year, most of the effort was carried out using 135 mm and in less degree with 280 mm cod-end mesh size, which indicates that the fleet targeted mainly Greenland halibut in depth more than 700 m and in less proportion skate in depth less than 200 m. However, during the second half of the year most part of the effort moved to depths less than 200 m where the skate fishery took place using 280 mm mesh size. Fishing effort in Div. 3O was limited (3%) and targeting redfish, using mainly 135 mm mesh size (89%) and in less proportion skates using mainly 280 mm mesh size (11%).

In addition to NAFO observers (NAFO Observers Program), 8 IEO scientific observers were onboard Spanish vessels, comprising a total of 336 observed fishing days, around 20% coverage of the total Spanish effort. Besides recording catches, discards and effort, these observers carried out biological sampling of the main species taken in the catch. For Greenland halibut, roughhead grenadier, American plaice and cod this includes recording weight at length, sex-ratio, maturity stages, performing stomach contents analyses and collecting material for reproductive studies. Otoliths of these four species were also taken for age determination. In 2011, 393 length samples were taken, with 49 934 individuals of different species examined to obtain the length distributions (Table 2). Length and age distributions presented in this paper are based on sampling carried out by these observers. Length-weight relationships parameters used to calculate the Sum Of Products (SOP) of the length distribution are shown by species in Table 6.

The Spanish activity en NAFO Regulatory Area (NRA) Subarea 3 in 2011 stock by stock was the following:

Cod

Div. 3NO: In Div. 3N, the most important part of the catches of this species were taken as by-catch in the skate fishery (280 mm mesh size) and in less degree in Greenland halibut fishery. Few catches were taken in Div. O. Table 7 shows the catch length distribution for Div. 3NO cod. All length distribution samples came from the skate fishery (280 mm mesh size) in Div. 3N. The bulk of the catches are comprised in the 64-88 cm range.

Div. 3M: Catches in Div. 3M were 1,735 tons and were taken in the reopen direct fishery. The legal mesh size of the Cod fishery is 130 mm. In 2011 one pair trawler participated in the fishery catching 365 tons. Pair trawler and trawlers have quiet different length distributions. Pair trawlers catch bigger fish and do not catch fish less than 50 cm. The total length distributions of the Spanish catches are presented in Table 8 and we can observe that most of the catches are comprised in the range of 50-80 cm.

Redfish

Div. 3LN: Spanish catches in 2011 were 44 tons. Most of the catches were taken as by-catch in the Greenland halibut fishery in Div. 3L. Table 9 shows the length distribution for Div. 3LN based on only three samples although the SOP is quit consistent.

3M: In Div. 3M the redfish catches in 2011 have been 340 tons and most of them were catch in a direct fishery. Table 10 shows the Spanish catches length distribution for redfish Division 3M and it can be observed that the bulk of the catches are in the 25-37 cm range.

Div. 3O: A directed fishery for this species took place in Div. 3O mostly in the second half of this year. Catches have reached 1,661 tons in this Division, most of them with 135 mm mesh size. Catches length distribution for Div. 3O are presented in Table 11 and it can be observed that are smaller (15-30 cm) than the observed 3M and 3LN length distributions. The length distribution SOP for this Division is very high and it is a signal of some problems with the samples that it could be not representative of the total catches.

American plaice

Div. 3LNO: Spanish catches in 2011 in Div. 3LNO were 566 tons. Most of the catches were taken as by-catch of the skate (430 tons) and in less degree in Greenland halibut fishery (136 tons). Length distributions in the skate fishery have a bigger length range than in the Greenland halibut fishery. Table 12 presents the total length distribution for Div. 3LNO. It can be observed a clear different length between sexes, males are smaller than females. The bulk of catches were in the range of 25-50 cm.

Div. 3M: Catches in Div. 3M only amounted 12 tons and were taken as by-catch of the Greenland halibut fishery. There is not available length distributions for Division 3M.

Witch flounder

Div. 2J and 3KL: Spanish catches for this stock in 2011 were 52 tons and were taken in the small part of NAFO Regulatory Area (NRA) of Div. 3L as by-catch of the Greenland halibut fishery. Length distributions of catches are presented in Table 13 and are based only on two samples.

Div. 3M: This species in this Division is also taken as by-catch in the Greenland halibut and redfish fishery. Catches this year were 147 tons and there is not management stock for this species in this Division. In 2011 there were not available catch length distribution samples.

Div. 3NO: Catches in this Division is taken as by-catch in the Greenland halibut (137 tons) and skate fishery (103 tons). The skate fishery lengths for this species are bigger than the Greenland halibut fishery lengths. Table 14 shows the total Spanish length distribution for this species.

Yellowtail flounder

Div. 3LNO: In 2011 the yellowtail flounder Spanish catches were 779 tons. Most of the catches were taken in Div. 3NO in the skate fishery (729 tons) as by-catch. There were not catches in Div. 3L. Length distributions for yellowtail flounder in Div. 3LNO are presented in Table 15, all length samples were taken in Division 3N. Most of the catches are in the 24-45 cm length range.

Greenland halibut

Subareas 2 and Div. 3KLMNO: Greenland halibut continues to be one of the main target species for the Spanish fleet in NAFO area. A great reduction of effort in this fishery has been carried out in the last years by the Spanish fleet to adapt to the NAFO Greenland halibut recovery plan. In 2011 Spanish catches were 4,740 tons; most of them have been taken in the Flemish Pass area (Div. 3LM) at depths more than 700 m. The mesh size used for this fishery was equal to or greater than 130 mm. Tables 16 shows the length distributions of Spanish catches by Division (3L, 3M and 3NO) and the total length distributions of Spanish catches in Divisions 3LMNO. Most of the catches were in the 35-65 cm length range and the mode of the length distribution was in 50 cm. Total age composition based in the commercial Spanish Age Length Key (ALK), mean weight and mean length at age for Div. 3LMNO are presented in Table 17. Most of the Greenland halibut catches corresponds to ages 5 to 8, with a peak at ages 6-7.

Figure 2 presents the Spanish fleet standardised CPUE updated with the 2011 data presented by Gonzalez-Costas and Gonzalez-Troncoso (2009). Results show that CPUE has decreased in the last year but it is at a similar level of the 2007-2010 period and at high level compare with the levels before 2007.

Thorny skate

Commercial catches of skates comprise a mix of skate species (*Raja radiata*, *Bathyraja spinicauda*, *Raja hyperborean*, *Raja senta*, etc). Thus the catch of skate in Table 1 refers to *Raja* spp. However, thorny skate dominates, comprising about 95% of the skate taken in the Spanish catches.

Div. 3LNO: Spanish skate catches in 2011 were 4,978 tons. Most of the catches were taken in Div. 3N at depths less than 200 meters, where a fishery directed to thorny skate took place mainly in the second semester of the year, using 280 mm mesh size. Skate catches in Div. 3L (44 tons) were much smaller than those in Div. 3NO and they were by-catch of the Greenland halibut fishery (135 mm cod-end). Table 18 shows the total catches length distributions by sex of Div. 3LNO, all catches length samples were with 280 mm mesh size and they were taken in Division 3N. These length distributions were applied to the catches made with 135 mm mesh size (192 tons). Most of the catches were in the 45-80 cm length range.

Div. 3M: Skate catches in Div. 3M (120 tons) were much smaller than those in Div. 3NO and they were by-catch of the Greenland halibut, redfish and cod fisheries. There is not available catches length distributions for this species in Division 3M.

Roughhead grenadier

Subarea 2 and 3: Roughhead grenadier is the main species taken as by-catch in the Greenland halibut fishery. Most of the 2011 catches and most of the length distribution samples were taken in Div. 3LM. Individuals were measured from tip of snout to base of first anal-fin ray (AFL) to the half centimetre below. Spanish catches in 2011 were 499 tons. Table 19 shows the AFL length distributions, grouping in 1 cm intervals, of Spanish catches for Div. 3LMNO. Most of the catches were in the 10-25 AFL length range, with a clear mode in 16 cm and a clear length difference between sexes, males are smaller than females.

Age distributions based on the Spanish commercial and Flemish Cap survey combined Age Length Key (ALK), mean weight and mean length (AFL) at age of the total catch for Div. 3LMNO are presented in Table 20. Most of the Roughhead grenadier catches in 2011 were based on ages 5 to 15 with a clear mode in 8 years old. This age distribution is similar to the years before.

White hake

Div. 3LMNO: Catches in the last year are in the same level as before 2000. Catches of this species in 2011 (91 tons) were a small by-catch of different fisheries. Catches in Div. 3LMN (24 tons) are by-catch of the Greenland halibut fishery and in Div. 3O (68 tons) are by-catch of the redfish fishery. There were not length distribution samples available for this species in 2011.

(B) Research studies

The Spanish bottom trawl survey in NAFO Regulatory Area Div. 3NO was conducted from 5th to 24th of June 2011 on board the R/V *Vizconde de Eza*. The gear was a *Campelen* otter trawl with 20 mm mesh size in the cod-end. A total of 122 valid hauls and 121 hydrographic stations were taken within a depth range of 44-1450 m according to a stratified random design. Furthermore, a stratified sampling by length class and sex was used to sample gonads and otoliths of Atlantic cod, American plaice and Greenland halibut for histological maturity, fecundity and growth studies. The results of this survey, including biomass indices with their errors and length distributions, as well as the calculated biomass based on conversion of length frequencies for Greenland halibut, American plaice, Atlantic cod, yellowtail flounder, redfish, witch flounder, roughhead grenadier, thorny skate and white hake are presented as Scientific Council Research Documents. In addition, age distributions are presented for Greenland halibut, American plaice and Atlantic cod.

In 2003 it was decided to extend the Spanish 3NO survey toward Div. 3L (Flemish Pass). In 2011, the bottom trawl survey in Flemish Pass (Div. 3L) was carry out on board R/V *Vizconde de Eza* using the usual survey gear (*Campelen* 1800) from 10th to 24th of August. The area surveyed was Flemish Pass to depths up 800 fathoms (1463 m) following the same procedure as in previous years. The number of hauls was 90 of which 89 were valid hauls. Survey results, including abundance indices and length distributions of the main commercial species, are presented as Scientific Council Research documents. Survey results for Div. 3LNO of the northern shrimp (*Pandalus borealis*) were presented in SCR 11/61. Samples for histological (Greenland halibut, American plaice, roughhead grenadier) and aging (Greenland halibut, American plaice, roughhead grenadier and cod) studies were taken. Feeding studies on demersal species (*Synphobranchus kaupii*, *Notacanthus chemnitzii*, *Hydrolagus affinis* and *Harriotta raleighana*) were performed and 307 stomach contents were analysed in depths of 342 to 1419 m. Eighty-four hydrographic profile samplings were made in a depth range of 115-1445 m.

The EU bottom trawl survey in Flemish Cap (Div. 3M) was carried out on board R/V *Vizconde de Eza* using the usual survey gear (*Lofoten*) from June 27th to August 9th 2011. The area surveyed was Flemish Cap Bank to depths up to 800 fathoms (1460 m) following the same procedure as in previous years. The number of hauls was 126 and five of them were nulls. This year only 30 of 32 strata were adequately sampled. Survey results including abundance indices of the main commercial species and age distributions for cod, redfish, American plaice, roughhead grenadier and Greenland halibut are presented as Scientific Council Research documents. Flemish Cap survey results for northern shrimp (*Pandalus borealis*) were presented in SCR 11/61. Samples for histological assessment of sexual maturity of cod, redfish, Greenland halibut and roughhead grenadier were taken. Oceanography studies continued to take place.

NEREIDA Project: During 2011 work with the taxonomic identification of the samples collected during NEREIDA 2009 and 2010 surveys was continued. Here is a summary of the main activities carried out during 2011 into the NEREIDA project:

Box Corer Samples: Overall 40 BC samples from a total of 368 have been processed to date. The Sackville Spur closed area was selected as the first case study from which Box Corer samples should be processed. The principal aim of this research was to acquire evidence to either support or oppose to continue the closure of the Sackville Spur to bottom-contact fishing gear. Analyses were centred upon the infauna extracted from Box Core samples inside and

outside the Sackville Spur closed area. Barrio *et al.* (2012) have described the results from this study. In addition, a similar assessment to the one carried out in Sackville Spur area is being carried out within North Flemish Pass (closed area 2). 25 BC samples have been processed.

Rock Dredge Samples: All 94 Rock Dredge samples have been processed by faunal group. Identification of Echinoderm and Cnidarian (except sea anemones) taxa to the lowest possible level has been completed. Molluscs and Porifera continue to be processed along with other less abundant taxonomic groups. It is expected to finish the processing of all groups before the end of 2014. At present over 1000 sponges spicule slides have been prepared for the specimen identification. A record of sponge and spicule photographs of sampled specimens during NEREIDA surveys is being prepared. In addition, Sponge Identification Sheets are being finalised in PDF format. Two reference collections with invertebrate ‘voucher’ specimens have also been created; one is stored in Vigo (Spain) and the other in Halifax (Canada). A common database is intended to store all the information regarding the invertebrate specimens collected during all the NEREIDA surveys. Biomass records from all 94 successful Rock Dredge trawls are being processed in an attempt to investigate the distribution of epibenthic biomass across the survey area, and how this relates to major geomorphologic features and environmental conditions.

Geology: Geologists working in the NEREIDA project have carried out a classification of the geological features of the surveyed area. A classification has been proposed and mapped, which is intended to provide a summary of the geological context for interpreting the biological data derived from box core and rock dredge samples. The classification is based primarily on the interpretation of multibeam bathymetric data and TOPAS sub-bottom profiler data. Locally, backscatter data was also used. Many of the meso-topographic features may have a local influence on neared circulation patterns and variations in sediment type.

More information about the progress of NEREIDA project can be consulted in the report of the 4th Meeting of the NAFO Scientific Council Working Group on Ecosystem Approaches to Fisheries Management (WGEAFM).

SUBAREA 6

A. Status of the fisheries

One Spanish trawler operated in NAFO Regulatory Area, Div. 6G using a midwater trawl gear, during 2011, amounting to 9 days (68 hours) of fishing effort. The most important species in catches was the *Beryx splendens*. There is not available biological information of these catches. Other species present in catches were *Aphanopus carbo* and *Epigonus telescopus* (Table 1).

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Table 1. Spanish Catches (tons) in NAFO Area in 2011 by species and Division, based on the provisional STATLANT 21 A.

Code	English_name	Scientific_name	Provisional STATLANT 21A					Total
			3L	3M	3N	3O	6G	
SKA	Raja rays nei	Raja spp	44	120	4855	79		5098
GHL	Greenland halibut	Reinhardtius hippoglossoides	2660	1070	999	11		4740
COD	Atlantic cod	Gadus morhua	55	1735	397	71		2257
RED	Atlantic redfishes nei	Sebastes spp	27	340	17	1661		2045
YEL	Yellowtail flounder	Limanda ferruginea	0	0	734	45		779
PLA	Amer. Plaice	Hippoglossoides platessoides	47	12	451	68		577
RHG	Roughhead grenadier	Macrourus berglax	244	134	119	1		499
WIT	Witch flounder	Glyptocephalus cynoglossus	52	147	176	64		439
RNG	Roundnose grenadier	Coryphaenoides rupestris	54	199	102	0		355
PRA	Northern prawn	Pandalus borealis	292	0	0	0		292
CAT	Wolfishes nei	Anarhichas spp	76	34	83	4		196
BYS	Splendid alfonso	Beryx splendens					152	152
DGH	Dogfishes nei	Squalidae, Scyliorhinidae	52	52	36	2		142
HKR	Red hake	Urophycis chuss	44	29	23	0		96
HKW	White hake	Urophycis tenuis	13	7	4	68		91
HAL	Atlantic halibut	Hippoglossus hippoglossus	7	8	58	12		83
GDT	Arctic rockling	Gaidropsarus argentatus	35	17	5	1		58
HAD	Haddock	Melanogrammus aeglefinus	0	1	44	9		54
ANT	Blue antimora	Antimora rostrata	18	12	0	1		31
ANG	American angler	Lophius americanus	0	0	23	1		25
GDE	Threadfin rockling	Gaidropsarus ensis	17	2	1	0		20
GPE	Longfin hake	Phycis chesteri	1	0	0	10		11
HKE	European hake	Merluccius merluccius	0	0	0	8		8
BSF	Black scabbardfish	Aphanopus carbo					4	4
EPI	Black cardinal fish	Epigonus telescopus					1	1
OIL	Oilfish	Ruvettus pretiosus					1	1
SQI	Northern shortfin squid	Illex illecebrosus	0	0	0	1		1
ALC	Baird's slickhead	Alepocephalus bairdii	0	0	1	0		1
HER	Atlantic herring	Clupea harengus	0	0	0	1		1
RAT	Spotted ratfish	Hydrolagus collicii	0	0	0	0		0
Total (tons)			3735	3918	8128	2117	158	18055

Table 2. Samples and individuals sampled by the IEO Scientific Observers by species, mesh size and NAFO Division in 2011.

Species	Mesh size	Samples Data	Division				Total
			3L	3M	3N	3O	
Greenland Halibut	135 mm	Sampled Indivi.	9569	7499	2899	404	20371
		T. Samples	65	55	22	3	145
Roughead Grenadier	135 mm	Sampled Indivi.	2185	2119	318		4622
		T. Samples	16	17	2		35
American Plaice	135 mm	Sampled Indivi.	730		633		1363
		T. Samples	8		4		12
	280 mm	Sampled Indivi.			3152		3152
		T. Samples			28		28
Redfish	135 mm	Sampled Indivi.		863	332	2927	4122
		T. Samples		6	3	17	26
Skate	280 mm	Sampled Indivi.			3423		3423
		T. Samples			38		38
Cod	135 mm	Sampled Indivi.		1788		13	1801
		T. Samples		16		1	17
	135 PT	Sampled Indivi.		1071			1071
		T. Samples		14			14
	280 mm	Sampled Indivi.			396		396
		T. Samples			4		4
Yellowtail Flounder	135 mm	Sampled Indivi.			276		276
		T. Samples			2		2
	280 mm	Sampled Indivi.			2321		2321
		T. Samples			15		15
Witch Flounder	135 mm	Sampled Indivi.	228		727	345	1300
		T. Samples	2		5	2	9
	280 mm	Sampled Indivi.			661		661
		T. Samples			5		5
Roundnose Grenadier	135 mm	Sampled Indivi.	70	1566			1636
		T. Samples	1	14			15
Shrimp	40 mm	Sampled Indivi.	1492				1492
		T. Samples	9				9
Antimora rostrata	135 mm	Sampled Indivi.	292	503			795
		T. Samples	2	3			5
White Hake	135 mm	Sampled Indivi.	174	383			557
		T. Samples	2	4			6
Gaidropsarus ensis	135 mm	Sampled Indivi.	220				220
		T. Samples	2				2
Nezumia bairdii	135 mm	Sampled Indivi.	85	100			185
		T. Samples	1	1			2
Merluccius bilinearis	135 mm	Sampled Indivi.				78	78
		T. Samples				1	1
Centroscyllium fabricii	135 mm	Sampled Indivi.		63			63
		T. Samples		1			1
Anarhichas minor	135 mm	Sampled Indivi.		16			16
		T. Samples		1			1
Anarhichas denticulatus	135 mm	Sampled Indivi.		13			13
		T. Samples		1			1
Total Sampled Indivi.			15045	15984	15138	3767	49934
Total T. Samples			108	133	128	24	393

Table 3. Fishing effort (hours) of the Spanish fleet in 2011 in Divisions 3LMNO by year.

3LMNO	2003	2004	2005	2006	2007	2008	2009	2010	2011
Effort (Hours)	106821	76028	60128	44044	25163	21408	21250	22703	25276

Table 4. Fishing effort (hours) of the Spanish fleet in 2011, by quarter and Division, as well as percentage of effort by quarter and Division.

Division	units	1st Q	2nd Q	3rd Q	4th Q	Total	%
3L	Hours	4410	2156	1802	275	8643	35%
3M	Hours	784	2062	2135	514	5495	22%
3N	Hours	1071	1378	4179	3041	9669	39%
3O	Hours	191	247	181	93	711	3%
	Total Hours	6455	5843	8297	3923	24518	100%
	%	26%	24%	34%	16%	100%	

Table 5-. Percentage of the effort in SA 3 by mesh size, quarter and Division.

Div.	Mesh Size	1st Q	2nd Q	3rd Q	4th Q	Total
3L	<90 mm	12%	0%	0%	0%	6%
	100-200 mm	88%	100%	100%	100%	94%
	>200 mm					
3M	<90 mm					
	100-200 mm	100%	100%	100%	100%	100%
	>200 mm					
3N	<90 mm					
	100-200 mm	80%	55%	44%	20%	42%
	>200 mm	20%	45%	56%	80%	58%
3O	<90 mm					
	100-200 mm	90%	81%	98%	90%	89%
	>200 mm	10%	19%	2%	10%	11%

Table 6. Parameters of the length-weight relationship ($W(g) = a*L(cm)^b$) by species.

Species	a	b
Greenland halibut	0.003485	3.2141
Redfish	0.012549	3.0206
Roughhead grenadier	0.12288	2.8756
Witch flounder	0.0021969	3.301899
American plaice	0.0033298	3.2754745
Cod	0.00595	3.0846
Roundnose grenadier	0.20400	2.9636
Yellowtail Flounder	0.0052283	3.1284802
Skate	0.0082085	3.041765
<i>S. mentella</i>	0.02473	2.8376
White Hake	0.00540	3.0938

Table 7. Length distribution of 3NO Spanish Cod catches.

Cod Length (cm)	Division 3NO			Total
	Males	Females	Ind.	
38	0	0	0	
39	0	0	0	0
40	0	0	0	0
41	0	0	0	0
42	0	431	0	431
43	352	0	0	352
44	0	431	0	431
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	431	0	0	431
49	431	0	0	431
50	0	783	0	783
51	0	0	0	0
52	431	0	0	431
53	783	0	0	783
54	861	0	0	861
55	431	0	0	431
56	783	0	0	783
57	0	431	0	431
58	1681	1292	0	2973
59	0	820	21	840
60	1524	704	0	2227
61	1250	1292	0	2542
62	2033	0	21	2053
63	0	0	0	0
64	1482	1172	62	2716
65	1565	1250	42	2857
66	2301	1482	0	3783
67	3394	741	21	4156
68	2348	861	0	3209
69	1524	1135	42	2700
70	1598	1524	84	3205
71	2227	431	104	2762
72	1408	2621	62	4091
73	1875	741	84	2700
74	1524	1524	42	3089
75	3241	1292	84	4617
76	2653	1834	146	4633
77	3515	3515	271	7301
78	2968	3163	229	6360
79	2375	4571	0	6946
80	778	1602	83	2463
81	1908	1875	230	4013
82	1093	1871	125	3089
83	783	1949	146	2878
84	1561	1519	104	3183

85	1130	2727	125	3983
86	1991	1681	0	3672
87	1209	778	104	2091
88	1639	1250	103	2993
89	0	1130	21	1150
90	352	431	0	783
91	389	0	83	472
92	389	778	41	1208
93	1209	1209	166	2584
94	0	0	0	0
95	389	0	62	451
96	0	0	83	83
97	741	0	21	761
98	431	431	41	902
99	0	389	21	409
100	431	431	0	861
101	0	389	42	431
102	431	431	0	861
103	0	0	0	0
104	0	431	0	431
105	431	0	0	431
106	0	389	0	389
107	0	0	0	0
108	0	0	0	0
109	0	0	0	0
110	431	0	0	431
111	0	0	0	0
112	0	0	0	0
113	0	0	21	21
Total	64700	55726	2934	123360

Ind. Sampled	396
Samples	4
Catch (tons)	468
SOP	0.94

Table 8. Length distribution of 3M Spanish Cod catches.

Cod Length (cm)	3M		Ind.	Total
	Males	Females		
20	0	0	187	187
21	0	0	0	0
22	0	0	0	0
23	0	0	187	187
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	1176	536	1712
28	0	0	374	374
29	1140	0	349	1489
30	5773	2281	187	8240
31	1140	2021	723	3884
32	0	0	374	374
33	881	1125	1259	3265
34	1140	2265	909	4315
35	1140	5702	723	7565
36	5443	0	560	6003
37	4597	2281	536	7413
38	2281	0	162	2443
39	4561	3162	374	8097
40	0	1140	0	1140
41	0	0	187	187
42	0	0	187	187
43	0	881	162	1043
44	0	0	187	187
45	4287	1375	374	6035
46	3406	3421	374	7200
47	4287	4796	909	9992
48	7734	6558	909	15202
49	6378	10095	1494	17967
50	9075	7286	1657	18017
51	7972	9749	1494	19216
52	12921	7223	1819	21963
53	4602	6908	1307	12818
54	3735	2809	1470	8014
55	4788	9047	2055	15889
56	8967	4522	1234	14723
57	7515	3234	536	11285
58	5525	6641	536	12702
59	8915	6609	747	16271
60	7169	9084	885	17138
61	10175	10139	1283	21597
62	12117	9078	1096	22292
63	9189	11863	1047	22099

64	14163	12509	1072	27744
65	8459	8093	1746	18297
66	9373	8997	1259	19628
67	6380	10169	1185	17734
68	3155	8421	998	12575
69	4724	8409	674	13807
70	7251	5986	511	13748
71	4100	6470	674	11244
72	3404	8760	674	12838
73	1136	5847	487	7470
74	6892	5171	974	13037
75	4208	4047	487	8742
7	2512	2349	162	5023
77	1875	4690	487	7052
78	1915	3568	162	5646
79	2528	3137	325	5990
80	955	4552	0	5507
81	1379	2728	162	4269
82	2033	7789	162	9984
83	3514	2800	0	6314
84	2430	2939	325	5694
85	2888	2903	325	6115
86	1576	2442	162	4180
87	1268	2275	162	3705
88	1893	2769	325	4986
89	1504	2901	0	4405
90	1639	3885	162	5686
91	2089	2887	0	4975
92	1599	3314	0	4913
93	844	2217	0	3061
94	1588	3698	0	5285
95	552	1951	162	2665
96	461	1079	511	2051
97	1649	1679	0	3328
98	502	327	0	828
99	463	1779	162	2404
100	357	2477	0	2834
101	200	1557	162	1919
102	154	801	0	955
103	192	335	0	527
104	491	514	0	1005
105	0	1579	0	1579
106	214	587	0	801
107	657	1165	0	1822
108	15	1591	0	1606
109	104	217	0	322
110	285	601	0	886
111	0	94	0	94

112	83	50	0	133
113	197	15	0	212
114	0	38	0	38
115	91	111	0	202
116	0	45	0	45
117	0	15	0	15
118	0	83	0	83
119	0	115	0	115
120	0	130	0	130
121	0	0	0	0
122	0	0	0	0
123	0	147	0	147
TOTAL	282793	328277	44047	655117
Ind. Sampled				2859
Samples				30
Catch (tons)				1735
SOP				1.00

Table 9. Redfish 3LN stock Spanish catches length distribution.

Redfish	3LN			
Length (cm)	Males	Females	Ind.	Total
20	1374	1176	0	2550
21	92	0	0	92
22	2902	0	0	2902
23	810	1176	0	1986
24	3466	3267	0	6733
25	6112	7895	0	14008
26	5104	8965	0	14069
27	7864	9335	0	17199
28	2721	7485	0	10206
29	3545	9789	0	13334
30	6508	12280	0	18788
31	5244	9123	0	14367
32	1528	4266	0	5794
33	1528	4007	0	5535
34	185	277	0	462
35	903	1713	0	2615
36	0	185	0	185
37	185	3443	0	3628
38	185	370	0	555
39	810	92	0	903
40	92	810	0	903
TOTAL	51157	85655	0	136812
Ind. Sampled				332
Samples				3
Catch (tons)				44
SOP				0.94

Table 10. Redfish 3M stock Spanish catches length distribution.

Redfish Length (cm)	3M			Total
	Males	Females	Ind.	
14	1868	0	0	1868
15	934	0	0	934
16	934	0	0	934
17	0	0	1488	1488
18	1619	0	8806	10426
19	1619	0	8806	10426
20	3925	686	5799	10410
21	2991	686	9680	13357
22	3925	2057	12518	18499
23	1619	4173	18526	24318
24	9221	3487	18470	31178
25	6668	4858	22659	34185
26	5982	8973	19713	34667
27	4421	10899	24724	40044
28	5982	9717	33500	49199
29	5544	8097	33662	47304
30	5544	14138	37828	57510
31	15699	2553	49895	68148
32	9717	7601	23945	41264
33	13204	11584	30592	55380
34	8156	9965	23866	41987
35	7601	4858	17935	30395
36	6726	5544	25918	38188
37	2991	10213	14581	27785
38	686	8097	17273	26056
39	0	5107	13208	18315
40	0	5107	8721	13827
41	0	0	8844	8844
42	0	2743	2567	5310
43	0	3239	3840	7079
44	0	3487	1171	4658
45	0	0	447	447
46	0	686	0	686
47	0	0	0	0
48	0	0	92	92
49	0	0	92	92
50	0	0	0	0
51	0	0	185	185
52	0	0	0	0
53	0	0	92	92
TOTAL	127575	148555	499445	775575
Ind. Sampled				863
Samples				6
Catch (tons)				340
SOP				1.00

Table 11. Redfish 3O stock Spanish catches length distribution.

Redfish Length (cm)	3O			Total
	Males	Females	Ind.	
14	0	5940	0	5940
15	0	2102	0	2102
16	6306	6306	4832	17445
17	40297	21926	13021	75244
18	140643	99971	86667	327282
19	311646	236180	482568	1030394
20	730130	515587	1110357	2356074
21	527370	636915	1194971	2359256
22	162654	434476	764340	1361470
23	97447	217875	452748	768070
24	57837	78950	218257	355043
25	21523	61119	120929	203571
26	14912	47724	59872	122508
27	5940	16256	39452	61648
28	0	7160	19571	26730
29	0	17025	5880	22905
30	0	0	8790	8790
31	0	0	2502	2502
32	0	0	2882	2882
33	0	0	0	0
34	0	0	8537	8537
35	0	0	0	0
36	0	0	0	0
37	0	0	0	0
38	0	0	0	0
39	0	0	5180	5180
TOTAL	2116704	2405512	4601358	9123573
Ind. Sampled				2768
Samples				16
Catch (tons)				1661
SOP				1.32

Table 12. American plaice 3LNO stock Spanish catches length distribution.

American Plaice Length (cm)	Division 3LNO			Total
	Males	Females	Ind.	
17	300	617	0	917
18	300	350	0	650
19	532	397	0	929
20	437	1673	0	2109
21	1906	924	0	2830
22	2243	2413	0	4656
23	3571	2120	0	5692
24	5630	898	0	6528
25	5906	3897	0	9804
26	7316	7018	0	14333
27	10985	10388	42	21414
28	16380	13388	0	29768
29	18872	8408	42	27322
30	18719	12728	0	31447
31	25086	13296	42	38425
32	24818	36261	0	61079
33	30929	37885	0	68814
34	19860	50367	0	70228
35	15591	67855	0	83447
36	8447	60512	0	68959
37	6496	57181	0	63677
38	5237	43650	0	48887
39	5255	31627	0	36882
40	806	37328	0	38134
41	2579	31275	0	33854
42	326	33444	361	34132
43	694	32109	0	32803
44	0	32181	0	32181
45	361	34520	0	34881
46	0	24861	0	24861
47	0	18978	0	18978
48	0	12394	0	12394
49	0	7241	0	7241
50	143	6248	0	6391
51	0	6570	0	6570
52	0	6279	0	6279
53	0	4838	0	4838
54	0	3221	0	3221
55	0	5699	0	5699
56	0	5111	0	5111
57	0	6734	0	6734
58	0	5451	0	5451
59	0	2681	0	2681
60	0	2708	0	2708
61	0	1803	0	1803
62	0	1733	0	1733

63	0	1905	0	1905
64	0	1686	0	1686
65	0	1303	0	1303
66	0	184	0	184
67	0	395	0	395
68	0	0	0	0
69	0	495	0	495
70	0	452	0	452
Total	239726	793680	487	1033894

Ind. Sampled	3907
Samples	33
Catch (tons)	566
SOP	0.96

Table 13. Witch flounder Spanish catches length distribution for Div. 3L.

Witch flounder Length (cm)	3L			Total
	Males	Females	Ind.	
30	0	0	0	0
31	338	338	0	675
32	675	0	0	675
33	1888	1282	0	3170
34	1619	607	0	2226
35	1551	2832	0	4383
36	2901	2901	0	5802
37	5058	5259	0	10317
38	6609	2157	0	8766
39	2901	2832	0	5733
40	4114	6002	0	10116
41	4045	4314	0	8360
42	1213	8091	0	9304
43	944	7147	0	8091
44	0	7284	0	7284
45	944	7822	0	8766
46	607	4990	0	5596
47	0	3170	0	3170
48	0	1013	0	1013
49	0	2226	0	2226
50	0	0	0	0
51	0	1213	0	1213
52	0	338	0	338
53	0	338	0	338
54	0	0	0	0
55	0	0	0	0
56	0	0	0	0
57	0	338	0	338
TOTAL	35406	72490	0	107896
Ind. Sampled				228
Samples				2
Catch (tons)				52
SOP				0.97

Table 14. Witch flounder Spanish catches length distribution for Div. 3NO.

Witch flounder Length (cm)	3NO			Total
	Males	Females	Ind.	
17	0	0	35	35
18	0	0	69	69
19	0	0	0	0
20	0	0	0	0
21	0	0	104	104
22	0	0	69	69
23	0	0	69	69
24	0	0	35	35
25	0	0	138	138
26	0	0	276	276
27	0	0	832	832
28	0	2459	867	3325
29	1844	1844	1353	5042
30	615	2459	970	4044
31	2459	708	2160	5326
32	2459	2441	1623	6523
33	615	6762	2105	9481
34	1937	814	2965	5716
35	3178	3445	2063	8687
36	13380	4584	3333	21297
37	7522	4947	5323	17792
38	9318	10776	8891	28986
39	15555	13039	13259	41852
40	11341	15579	16448	43368
41	10293	16727	18521	45541
42	3032	22179	20410	45621
43	1773	12527	17632	31932
44	1050	18170	16102	35322
45	742	6960	13754	21456
46	2497	6591	10864	19951
47	64	6200	8413	14677
48	0	4707	5778	10485
49	0	4467	5052	9519
50	243	2480	2509	5233
51	0	1228	2492	3720
52	0	1191	1400	2592
53	0	187	425	612
54	0	0	221	221
55	0	0	1100	1100
56	0	0	362	362
57	0	0	668	668
58	0	0	487	487
59	0	0	0	0
60	0	0	238	238

61	0	0	181	181
TOTAL	89917	173470	189596	452076
Ind. Sampled				1616
Samples				12
Catch (tons)				240
SOP				1.05

Table 15. Yellowtail flounder Spanish catches length distribution for Div. 3LNO.

Yellowtail flounder Length (cm)	3LNO			Total
	Males	Females	Ind.	
15				
16	0	196	0	196
17	0	196	0	196
18	0	196	0	196
19	196	392	3508	4096
20	0	196	3508	3704
21	0	0	7016	7016
22	614	392	3508	4514
23	196	392	3508	4096
24	4101	4244	3508	11853
25	392	4635	7016	12044
26	1968	11576	7016	20560
27	7291	24249	10525	42065
28	20002	25976	17541	63519
29	27960	54797	24558	107315
30	27807	53033	24558	105398
31	50711	75028	21049	146788
32	59913	71954	24558	156425
33	50080	78468	28066	156614
34	48445	106637	35082	190165
35	44815	98794	35082	178691
36	22638	143084	45607	211329
37	7247	101850	38590	147688
38	8717	129657	28066	166440
39	1640	113829	24558	140027
40	0	91646	24558	116203
41	810	37090	14033	51933
42	972	11661	10525	23158
43	0	23333	10525	33858
44	0	18218	7016	25235
45	0	8002	3508	11510
46	0	1061	0	1061
47	0	0	0	0

48	0	1044	3508	4552
49	0	128	0	128
50	0	781	0	781
51	0	0	0	0
52	0	128	0	128
53	0	64	0	64
54	0	0	0	0
55	0	64	0	64
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0
60	0	0	0	0
61	0	64	0	64
62	0	0	0	0
63	0	0	0	0
64	0	64	0	64
65	0	0	0	0
66	0	0	0	0
67	0	0	0	0
68	0	0	0	0
68	0	64	0	64
Total	386515	1293183	470101	2149800

Ind. Sampled	2047
Samples	12
Catch (tons)	779
SOP	0.97

Table 16. Greenland halibut Spanish catches length distribution for Div. 3L and 3M.

Length (cm)	Division 3L				Division 3M			
	Males	Females	Indter.	Total	Males	Females	Indter.	Total
23	0	0	0	0	0	0	0	0
24	0	277	0	277	0	0	0	0
25	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0
28	0	3237	0	3237	0	0	0	0
29	0	0	0	0	0	0	0	0
30	461	744	0	1206	72	0	0	72
31	98	3699	0	3797	81	0	0	81
32	7693	8492	0	16185	0	466	0	466
33	5688	13878	0	19566	704	399	0	1103
34	9526	5795	0	15321	602	702	0	1304
35	15503	3144	502	19149	353	189	0	542
36	24567	14258	1051	39876	1407	957	525	2889
37	19481	31511	4340	55331	339	1450	1556	3345
38	36438	22653	4542	63634	2285	1854	2711	6850
39	37848	28961	8272	75081	1689	2047	5391	9126
40	39980	37142	12211	89333	4249	3145	5384	12778
41	31661	62316	15338	109315	5415	4624	9086	19126
42	46828	47508	17830	112166	4949	7300	9758	22008
43	49021	52431	27248	128701	7244	8908	13633	29785
44	35316	67976	23124	126416	6870	10724	16443	34037
45	35454	65899	22984	124337	11447	15243	16174	42865
46	43368	72051	23916	139335	11188	19589	11356	42133
47	50965	92266	17928	161159	11964	18804	8853	39621
48	49092	131292	6715	187099	15833	25391	4392	45615
49	50673	122989	2885	176546	16509	29113	1306	46928
50	71004	151361	1721	224086	15919	31166	694	47780
51	49864	135627	287	185777	15811	29842	0	45653
52	43438	112290	0	155728	15128	33104	0	48232
53	27372	90323	0	117695	14075	31247	0	45323
54	17235	65336	0	82570	10155	29123	0	39278
55	9307	55913	0	65220	9156	29377	0	38533
56	7862	45815	0	53677	6547	27672	0	34218
57	5528	40479	0	46007	4797	28974	0	33771
58	1698	30016	0	31714	3758	25258	0	29016
59	1566	24678	0	26244	2997	21474	0	24471
60	3321	20279	0	23600	1420	21863	0	23283
61	1251	19719	0	20970	173	17467	0	17640
62	0	14013	0	14013	519	17221	0	17740
63	351	11583	0	11935	361	13927	0	14288
64	396	8367	0	8763	226	10678	0	10905
65	0	7078	0	7078	203	8977	0	9180
66	0	6035	0	6035	56	7870	0	7926
67	0	3308	0	3308	173	5676	0	5849

68	0	2410	0	2410	0	4675	0	4675
69	0	2333	0	2333	0	4545	0	4545
70	254	2510	0	2765	0	3709	0	3709
71	0	3389	0	3389	0	1722	0	1722
72	0	1859	0	1859	0	1090	0	1090
73	0	509	0	509	0	854	0	854
74	0	1152	0	1152	0	1382	0	1382
75	0	2712	0	2712	0	1155	0	1155
76	0	529	0	529	0	454	0	454
77	0	915	0	915	0	507	0	507
78	0	301	0	301	0	788	0	788
79	0	514	0	514	0	521	0	521
80	0	91	0	91	0	585	0	585
81	0	193	0	193	0	451	0	451
82	0	0	0	0	0	325	0	325
83	0	0	0	0	0	518	0	518
84	0	529	0	529	0	314	0	314
85	0	141	0	141	0	0	0	0
86	0	415	0	415	0	0	0	0
87	0	91	0	91	0	166	0	166
88	0	346	0	346	0	0	0	0
89	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
101	0	309	0	309	0	0	0	0
102	0	0	0	0	0	0	0	0
103	0	0	0	0	0	269	0	269
Total	830107	1751986	190894	2772986	204676	565851	107262	877789
Samples				65				55
Ind. Sampled				9569				7499
Catch (tons)				2660				1070

Table 16 (cont.). Greenland halibut Spanish catches length distribution for Div. 3N and 3O.

Length (cm)	Division 3N					Division 3O			
	Males	Females	Indter.	Total		Males	Females	Indter.	Total
23	0	0	0	0		0	0	0	0
24	0	0	0	0		0	0	0	0
25	0	0	0	0		0	0	0	0
26	0	0	0	0		0	0	0	0
27	315	335	0	650		0	0	0	0
28	0	0	0	0		17	0	0	17
29	3067	861	0	3928		0	17	0	17
30	977	861	0	1838		17	0	0	17
31	1388	1242	0	2630		0	0	0	0
32	831	8123	0	8955		0	0	0	0
33	5494	2735	0	8229		17	0	0	17
34	2132	3595	0	5727		0	0	0	0
35	4670	9113	0	13783		17	0	0	17
36	8725	13793	0	22518		0	0	0	0
37	10054	9512	0	19566		0	0	0	0
38	14215	23224	0	37439		0	0	34	34
39	15775	23604	0	39379		0	0	34	34
40	16034	33935	0	49969		0	0	0	0
41	16734	39388	0	56122		0	0	0	0
42	13821	38359	0	52179		0	0	0	0
43	9891	54311	0	64202		0	0	0	0
44	17678	37728	0	55406		0	0	51	51
45	14965	38708	0	53673		0	34	68	102
46	8931	41374	0	50305		0	17	17	34
47	11435	41546	0	52980		0	51	0	51
48	13434	47991	0	61425		52	110	0	162
49	8914	28369	0	37284		175	477	0	652
50	5932	27859	0	33791		541	557	0	1098
51	10042	28656	0	38699		548	950	0	1498
52	4142	22491	0	26634		550	756	0	1306
53	6559	23416	0	29975		546	848	0	1394
54	1009	21762	0	22771		357	669	0	1025
55	156	15876	0	16033		301	438	0	739
56	948	27478	0	28427		77	371	0	448
57	2132	30532	0	32664		105	198	0	303
58	0	9542	0	9542		210	312	0	522
59	0	3870	0	3870		105	173	0	278
60	0	9116	0	9116		17	102	0	119
61	212	7718	0	7930		0	34	0	34
62	119	8366	0	8485		0	34	0	34
63	175	5864	0	6040		0	51	0	51
64	60	5920	0	5980		0	34	0	34
65	60	4652	0	4711		0	17	0	17
66	0	7439	0	7439		0	0	0	0
67	60	1817	0	1877		0	17	0	17
68	60	803	0	862		0	0	0	0

69	0	5795	0	5795		0	0	0	0
70	0	698	0	698		0	0	0	0
71	0	19	0	19		0	0	0	0
72	0	315	0	315		0	17	0	17
73	0	0	0	0		0	0	0	0
74	0	0	0	0		0	0	0	0
75	0	272	0	272		0	0	0	0
76	0	7206	0	7206		0	0	0	0
77	0	0	0	0		0	17	0	17
78	0	286	0	286		0	0	0	0
79	0	0	0	0		0	0	0	0
80	0	0	0	0		0	0	0	0
81	0	0	0	0		0	0	0	0
82	0	0	0	0		0	0	0	0
83	0	0	0	0		0	0	0	0
84	0	0	0	0		0	0	0	0
85	0	0	0	0		0	0	0	0
86	0	0	0	0		0	0	0	0
87	0	0	0	0		0	0	0	0
88	0	0	0	0		0	0	0	0
89	0	351	0	351		0	0	0	0
90	0	0	0	0		0	0	0	0
91	0	0	0	0		0	0	0	0
92	0	0	0	0		0	0	0	0
93	0	0	0	0		0	0	0	0
94	0	0	0	0		0	0	0	0
95	0	0	0	0		0	0	0	0
96	0	0	0	0		0	0	0	0
97	0	0	0	0		0	0	0	0
98	0	0	0	0		0	0	0	0
99	0	0	0	0		0	0	0	0
100	0	0	0	0		0	0	0	0
101	0	0	0	0		0	0	0	0
102	0	0	0	0		0	0	0	0
103	0	0	0	0		0	0	0	0
Total	231147	776827	0	1007974		3653	6298	203	10154
Samples				22					3
Ind Sampled				2899					404
Catch (tons)				999					11

Table 16 (cont.). Greenland halibut Spanish catches length distribution for Div. 3LMNO.

Length (cm)	Division 3LMNO			Total
	Males	Females	Indter.	
23	0	0	0	0
24	0	277	0	277
25	0	0	0	0
26	0	0	0	0
27	315	335	0	650
28	17	3237	0	3254
29	3067	878	0	3945
30	1527	1605	0	3133
31	1567	4941	0	6507
32	8524	17081	0	25605
33	11903	17011	0	28914
34	12260	10093	0	22352
35	20544	12446	502	33492
36	34699	29008	1576	65284
37	29873	42473	5896	78242
38	52938	47731	7287	107956
39	55311	54612	13697	123620
40	60263	74222	17595	152080
41	53810	106329	24424	184562
42	65598	93167	27589	186353
43	66156	115651	40881	222688
44	59865	116428	39617	215910
45	61867	119884	39226	220977
46	63487	133031	35289	231807
47	74364	152666	26781	253811
48	78411	204783	11107	294301
49	76271	180948	4191	261410
50	93397	210943	2415	306755
51	76266	195075	287	271627
52	63258	168641	0	231899
53	48552	145835	0	194387
54	28756	116889	0	145645
55	18921	101604	0	120525
56	15434	101335	0	116769
57	12562	100183	0	112745
58	5666	65129	0	70795
59	4668	50195	0	54863
60	4758	51360	0	56117
61	1636	44938	0	46574
62	638	39634	0	40272
63	888	31426	0	32313
64	682	24999	0	25682
65	263	20723	0	20986
66	56	21344	0	21400
67	233	10818	0	11051
68	60	7887	0	7947

69	0	12672	0	12672
70	254	6917	0	7171
71	0	5130	0	5130
72	0	3280	0	3280
73	0	1364	0	1364
74	0	2534	0	2534
75	0	4139	0	4139
76	0	8189	0	8189
77	0	1439	0	1439
78	0	1374	0	1374
79	0	1034	0	1034
80	0	676	0	676
81	0	644	0	644
82	0	325	0	325
83	0	518	0	518
84	0	843	0	843
85	0	141	0	141
86	0	415	0	415
87	0	257	0	257
88	0	346	0	346
89	0	351	0	351
90	0	0	0	0
91	0	0	0	0
92	0	0	0	0
93	0	0	0	0
94	0	0	0	0
95	0	0	0	0
96	0	0	0	0
97	0	0	0	0
98	0	0	0	0
99	0	0	0	0
100	0	0	0	0
101	0	309	0	309
102	0	0	0	0
103	0	269	0	269
Total	1269583	3100961	298359	4668903

Samples	145
Ind Sampled	20371
Catch (tons)	4740
SOP	1.01

Table 17. Greenland halibut Subarea 2 Div. 3LMNO stock Spanish catches age distribution, mean weight (g) and mean length (cm) by age.

Age	Abundance				Age	Mean Weight (g)			
	Males	Females	Ind.	Total		Males	Females	Ind.	Total
1	0	0	0	0	1				
2	210	388	0	598	2	147	115		126
3	4475	3529	0	8004	3	192	169		182
4	45166	36325	1772	83264	4	320	287	398	307
5	257480	267593	56448	581522	5	484	466	540	481
6	476427	946144	207094	1629665	6	732	741	693	732
7	403941	1028040	32802	1464783	7	1078	1098	840	1087
8	57599	357322	243	415164	8	1319	1396	1031	1385
9	14527	130492	0	145019	9	1593	1600		1600
10	7317	163577	0	170894	10	1753	1913		1906
11	1167	69574	0	70741	11	2236	2292		2291
12	837	31682	0	32519	12	2343	2482		2478
13	252	25598	0	25850	13	2618	2665		2665
14	129	17208	0	17338	14	2860	3161		3159
15	54	16713	0	16767	15	3037	3781		3779
16	0	3577	0	3577	16		4460		4460
17	0	1675	0	1675	17		5591		5591
18	0	530	0	530	18		5435		5435
19	0	416	0	416	19		6469		6469
20	0	578	0	578	20		10094		10094

Age	Mean Length (cm)			
	Males	Females	Ind.	Total
1				
2	27.5	25.4		26.1
3	29.9	28.7		29.3
4	34.9	33.6	37.5	34.4
5	39.6	39.1	41.1	39.5
6	45.0	45.2	44.4	45.1
7	50.9	51.2	47.2	51.1
8	54.2	55.3	50.4	55.1
9	57.6	57.7		57.6
10	59.3	61.0		60.9
11	64.1	64.5		64.5
12	64.9	66.1		66.1
13	67.2	67.5		67.5
14	69.2	71.2		71.2
15	70.5	75.4		75.3
16		79.3		79.3
17		85.2		85.2
18		84.4		84.4
19		89.2		89.2
20		102.4		102.4

Table 18. Skates Spanish catches length distribution by sex for Div. 3LNO.

Skates Length (cm)	3LNO			Total
	Males	Females	Ind.	
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0
29	0	1214	0	1214
30	3765	658	0	4423
31	1949	0	0	1949
32	1214	1214	0	2428
33	0	4791	0	4791
34	6412	9346	0	15758
35	3404	8955	0	12358
36	1185	10024	0	11208
37	8162	9957	0	18119
38	14495	8118	0	22613
39	8468	6608	0	15076
40	21424	9502	0	30926
41	17466	10376	0	27842
42	15266	18590	0	33856
43	16308	14624	0	30932
44	11346	23930	0	35277
45	35373	12346	0	47719
46	23801	13576	0	37377
47	29499	24774	0	54273
48	25923	25056	0	50978
49	22783	28973	0	51756
50	42103	27577	0	69680
51	30897	33261	0	64157
52	38689	29966	0	68655
53	18370	21802	0	40172
54	35869	26879	0	62747
55	27350	20341	0	47691
56	23232	21197	0	44429
57	35367	25717	0	61084
58	16214	14718	0	30932
59	24741	18460	0	43201
60	22839	19625	0	42464
61	34273	21489	0	55763
62	17421	27512	0	44933
63	22270	27598	0	49868
64	22296	24431	0	46728
65	35609	18058	0	53667
66	27563	21999	0	49563
67	34675	30105	0	64780
68	23876	26263	0	50139
69	12545	35470	0	48015
70	24019	14188	0	38207

71	23924	17286	0	41210
72	32770	16062	0	48832
73	38862	25274	0	64137
74	35826	21135	0	56961
75	33579	20505	0	54084
76	25010	13328	0	38338
77	30410	7837	3342	41589
78	35960	12073	0	48032
79	27591	7813	0	35404
80	25567	9939	0	35506
81	20286	2085	0	22371
82	26243	1927	0	28170
83	15292	368	0	15660
84	3817	0	0	3817
85	11470	3030	0	14500
86	3272	0	0	3272
87	5927	1214	0	7141
88	368	2127	0	2495
89	4928	0	0	4928
90	4304	652	0	4956
91	2223	0	0	2223
92	1440	0	0	1440
93	761	0	0	761
94	568	0	0	568
95	201	0	0	201
96	658	0	0	658
Total	1249718	911943	3342	2165002

Ind. Sampled	2706
Samples	30
Catch (tons)	4978
SOP	1.09

Table 19. Roughhead grenadier Spanish catches length distribution measured as preanal fin lengths (AFL) for Divisions 3LMNO.

Roughhead G. Length (cm)	3LMNO			Total
	Males	Females	Ind.	
5				
6	446	469	0	915
7	888	615	0	1503
8	4220	2294	0	6514
9	5424	2184	0	7608
10	10421	8439	0	18860
11	17282	9901	0	27183
12	33081	16807	0	49887
13	31310	22313	0	53623
14	47780	25641	0	73421
15	54756	34890	0	89646
16	55879	42270	0	98149
17	48625	41655	0	90280
18	37164	31597	0	68762
19	18114	34212	0	52326
20	8703	31230	0	39932
21	4789	27722	0	32512
22	1423	22724	0	24146
23	458	22952	0	23410
24	0	14648	0	14648
25	122	18889	0	19010
26	369	18605	0	18974
27	376	17752	0	18128
28	0	14414	0	14414
29	0	8378	0	8378
30	0	7821	0	7821
31	0	2154	0	2154
32	0	1844	0	1844
33	0	1568	0	1568
34	0	418	0	418
35	0	352	0	352
36	0	99	0	99
37	0	653	0	653
38	0	30	0	30
39	0	0	0	0
40	0	23	0	23
Total	381629	485561	0	867189
Ind. Sampled				4622
Samples				35
Catch (tons)				499
SOP				0.97

Table 20. Roughhead grenadier Div. 3LMNO Spanish catches distribution, mean weight (g) and mean length (AFL cm) by age.

Age	Abundance				Age	Mean Weight (g)			
	Males	Females	Ind.	Total		Males	Females	Ind.	Total
2	188	94	0	282	2	32	26		30
3	2108	2588	0	4696	3	49	51		50
4	11900	7430	0	19330	4	88	90		89
5	26042	17298	0	43340	5	132	137		134
6	45086	31505	0	76590	6	186	203		193
7	71580	47054	0	118634	7	258	282		267
8	93538	79613	0	173151	8	361	387		373
9	74726	56405	0	131131	9	446	529		482
10	39119	73532	0	112651	10	551	678		634
11	9339	38875	0	48214	11	666	885		842
12	3502	36108	0	39610	12	709	1124		1087
13	2397	28605	0	31002	13	938	1361		1329
14	1348	26373	0	27721	14	818	1592		1554
15	714	17965	0	18678	15	888	1782		1748
16	30	11059	0	11089	16	1657	1972		1971
17	6	3740	0	3746	17	1657	2311		2310
18	6	3090	0	3096	18	1657	2387		2386
19	0	1075	0	1075	19		2581		2581
20	0	2058	0	2058	20		2794		2794
21	0	280	0	280	21		2971		2971
22	0	493	0	493	22		2874		2874
23	0	213	0	213	23		3881		3881
24	0	109	0	109	24		4062		4062

Age	Mean Length (cm)			
	Males	Females	Ind.	Total
2	7.0	6.5		6.9
3	8.0	8.2		8.1
4	9.8	10.0		9.9
5	11.4	11.6		11.5
6	12.8	13.3		13.0
7	14.4	14.8		14.6
8	16.2	16.6		16.4
9	17.4	18.5		17.8
10	18.7	20.1		19.6
11	20.0	22.0		21.6
12	20.4	24.0		23.7
13	22.3	25.6		25.3
14	21.2	27.0		26.7
15	22.0	28.1		27.9
16	27.5	29.1		29.1
17	27.5	30.8		30.8
18	27.5	31.1		31.1
19		31.8		31.8
20		32.7		32.7
21		33.6		33.6
22		33.0		33.0
23		36.8		36.8
24		37.5		37.5

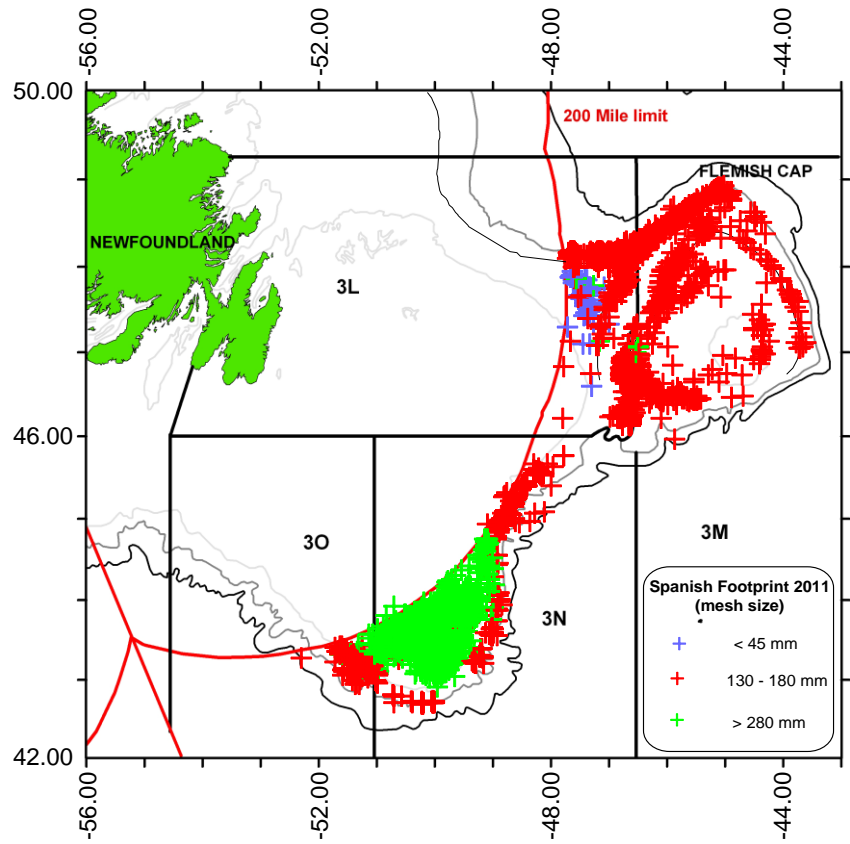


Figure 1. Spanish Fishery 2010 footprint by mesh size based in NAFO Observers data.

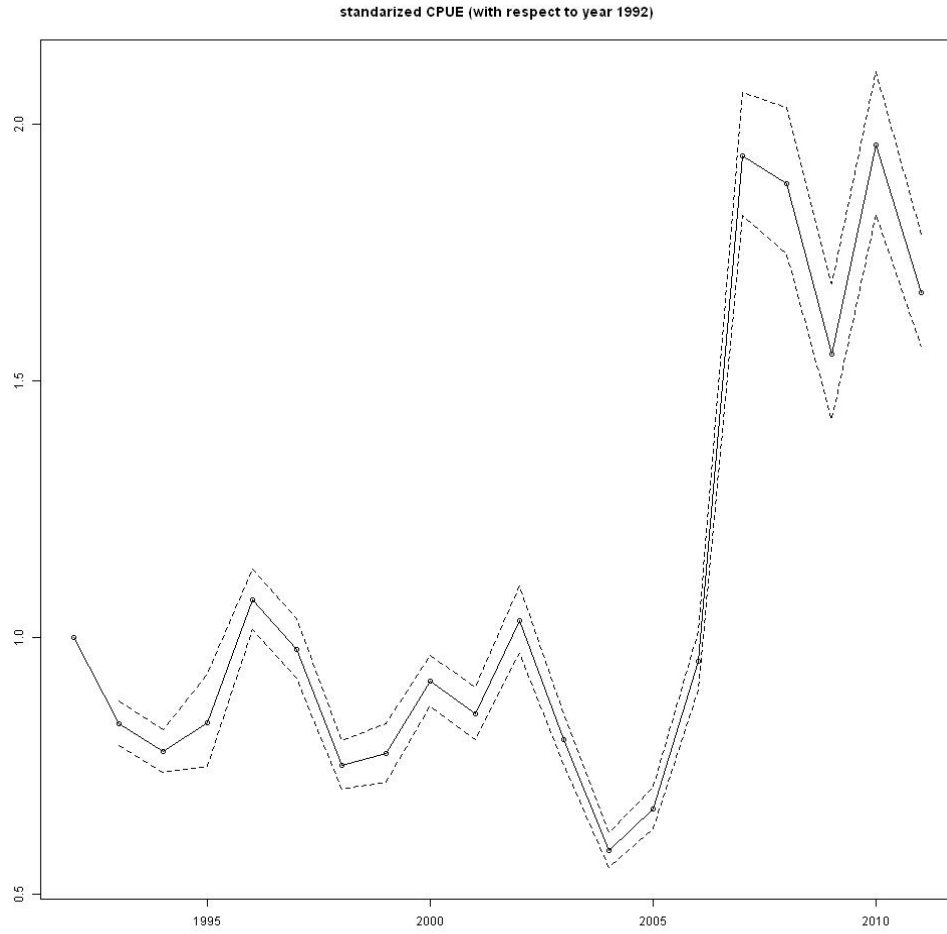


Figure 2. Spanish fleet standardized CPUE with model presented by Gonzalez-Costas and Gonzalez-Troncoso (2009) update with the 2011 data.