

**SCIENTIFIC COUNCIL MEETING – JUNE 2018****Spanish Research Report for 2017**

by

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Spanish catch and effort information used in this Report is based on the logbook data contributed by the Spanish Administration. The logbooks information for 2017 was available haul by haul. Table 1 presents the Spanish catches by species and Division in 2017 in NAFO Regulatory Area. Total effort of the Spanish fleet in 2017 was 1,037 fishing days.

In 2017, IEO scientific observers were on board 329 fishing days that it means 32 % 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. In 2017, 483 samples were taken with 57,988 individuals of different species examined (Table 2).

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

A total of 10 Spanish trawlers operated in Div. 3LMNO NAFO Regulatory Area (NRA) during 2017, amounting to 1,025 days (15,101 hours) of fishing effort. Table 3 presents the Spanish effort (fishing hours) since 2003 in NRA Subarea 3. Total catches (Table 1) for all species combined in Div. 3LMNO were 14,118 tons.

Table 4 shows the effort (hours) by quarter, Division and their percentage by depth. Table 5 presents the percentage of the effort by Division, quarter and mesh size and Figure 1 shows the Spanish fleet footprint in 2017 based on the logbooks information. Figure 1 show the directed hauls to each species. Directed hauls are when more than 50% of the total haul catches corresponds to that species.

These effort tables and Figure 1 show that the Spanish fleet carry out different directed fisheries in NAFO Subarea 3 characterized by different mesh size, target species, depth and fishing area: 1) In Divisions 3LMNO at more than 600 meters depth with demersal 130 mm mesh size gear with Greenland halibut as target species. 2) In Divisions 3LMNO, mainly in Div 3O and 3M with demersal 130 mm mesh size gear in the 200-600 strata. The target species is the redfish. 3) In Divisions 3NO with 280 mm mesh size at less than 200 meters depth. The target species is the skates. 4) In Division 3M at depth between 150-550 meters targeting cod with 130 mm mesh size gear.

Effort and fisheries by Division were: in Div. 3L, most of the effort was performed at more than 600 meters depth using cod-end mesh size of 135 mm, indicating that the fleet targeted Greenland halibut. Regarding Div. 3M, the 57% of the effort was carried out using 135 mm cod-end mesh size at less than 600 m depth targeting redfish and cod and at depths more than 600 m (44%) targeting Greenland halibut. In Div. 3N, the effort carried out using 280 mm was the 70% and with 135 mm cod-end mesh size was 30%, which indicates that the fleet targeted mainly skate in depth less than 200 m. and Greenland halibut in depth more than 600 m. Fishing effort



in Div. 30 was limited (12%) targeting skates using mainly 280 mm mesh size (33%) in depth less than 200 meters and redfish in depth between 200-600 meters using 135 mm mesh size (67%).

In addition to NAFO observers (NAFO Observers Program), 8 IEO scientific observers were onboard Spanish vessels, comprising a total of 329 observed fishing days, around 32% 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 2017, 483 length samples were taken, with 57,988 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 and stocks in Table 6. These relationships were estimated based on the data collected by the IEO scientific observers and the European Union surveys information carried out in 2017 in the NAFO Regulatory Area (NRA).

The Spanish activity en the NRA Subarea 3 in 2017, stock by stock, was the following:

### **Cod (*Gadus morhua*)**

**Div. 3L:** In Div. 3L, the few catches of this species (10 tons) were taken as by-catch in the redfish fishery. There were no sample length distributions of this species in this Division.

**Div. 3NO:** The most important part of the catches of this species was taken as by-catch in the skate fishery and in less degree in the redfish fishery. Table 7 shows the catch length distribution for Div. 3NO cod. The size distributions present two dominant ranges: one between 30 and 50 cm and another between 80 and 100 cm.

**Div. 3M:** Catches in Div. 3M were 906 tons and most of them were taken in the direct fishery. In 2017 only trawlers operated in this fishery. A small part was taken as by catch of the redfish fishery. The legal mesh size of the Cod fishery is 130 mm and the minimum landing size 41 cm. The total length distributions of the Spanish catches are presented in Table 8 and we can observe that most of the catches length distributions are in the 35-80 cm range. The mode in 2017 was around 58 cm.

### **Redfish (*Sebastes mestella* and *Sebastes fasciatus*)**

**3M:** In Div. 3M the redfish catches in 2017 have been 2037 tons and most of them were catch in a direct fishery and a small part of them was taken as by-catch in the cod fishery. Table 9 shows the Spanish catches length distribution for redfish Division 3M and it can be observed that the bulk of the catches are in the 26-35 cm range, quite similar to the range observed in previous years. This length distribution of catches in Div. 3M are bigger than the observed in Div 30.

**Div. 3LN:** Spanish catches were 369 tons. Most of the catches were taken in a direct fishery for this stock. Table 10 shows the Spanish catches length distribution for redfish Division 3LN and it can be observed that the bulk of the catches are in the 21-30 cm range. This length distribution of catches in Div. 3LN is similar to the observed in Div. 3M and bigger than the observed in Div 30.

**Div. 30:** A directed fishery for this species took place in Div. 30. Catches have reached 1825 tons in this Division, most of them with 130 mm mesh size. Catches length distribution for Div. 30 are presented in Table 11 and it can be observed that are smaller (21-28 cm) than the observed in Div. 3M and Div. 3LN.

### **American plaice (*Hippoglossoides platessoides*)**

**Div. 3LNO:** Spanish catches in 2017 in Div. 3LNO were 272 tons. Most of the catches were taken with 280 mm mesh size (197 tons) as by-catch of the skate fishery and in less degree with 130 mm mesh size (75 tons). Length distributions with 280 mm mesh size have a bigger length range the 130 mm mesh size. 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 33-45 cm.

**Div. 3M:** Catches in Div. 3M only amounted 12 tons and most of them were taken as by-catch of the cod and redfish fisheries There were no available sample length distributions of this species in this Division.

### **Witch flounder (*Gluctocephalus cynoglossus*)**

**Div. 2J and 3KL:** Spanish catches for this stock in 2017 were 22 tons and were taken in the small part of NAFO Regulatory Area (NRA) of Div. 3L as by-catch of the Greenland halibut and redfish fishery. Table 13 shows the total Spanish length distribution for this species based only in one sample of 132 individuals. The bulk of catches were in the range of 39-51 cm. This length range is a little bigger than the observed in previous years. As in the American plaice case, this species presents a clear different length distribution between sexes, males are smaller than females.

**Div. 3M:** This species in this Division was taken as by-catch in the Cod and redfish fishery. Catches this year were 32 tons and there is not management stock for this species in this Division. In 2017, there were no available sample length distributions of this species in this Division.

**Div. 3NO:** Spanish catches for this stock in 2017 were 40 tons. Most of the catches were taken with 130 mm cod end gear in a direct fishery and as by-catch of the Redfish and Greenland halibut fisheries (95%) and in less degree in the skate fishery (5%). Table 14 shows the total Spanish length distribution for this species. The bulk of catches were in the range of 37-47 cm. In this case the different length distributions between sexes are less evident.

### **Yellowtail flounder (*Limanda ferruginea*)**

**Div. 3LNO:** In 2017 the yellowtail flounder Spanish catches were 422 tons. Most of the catches were taken in Div. 3NO in the skate fishery (394 tons) as by-catch. Length distributions for yellowtail flounder in Div. 3LNO are presented in Table 15. Most of the catches are in the 30-41 cm length range. Females are more abundant and bigger than males in the catches.

### **Greenland halibut (*Reinhardtius hippoglossoides*)**

**Subareas 2 and Div. 3KLMNO:** Greenland halibut continues to be one of the main target species for the Spanish fleet in NAFO area. In 2017 Spanish catches were 4,110 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 or greater than 130 mm. Tables 16 shows the length distributions of Spanish catches by Division (3L, 3M, 3N and 3O) and the total length distributions of Spanish catches in Divisions 3KLMNO. Most of the catches were in the 38-61 cm length range and the mode of the length distribution was in 49 cm. Total age composition based in the commercial Spanish Age Length Key (Table 22), mean weight and mean length at age for Div. 3KLMNO are presented in Table 17. Most of the Greenland halibut catches corresponds to ages 5 to 10 with a peak at ages 6-7. This age catch age distribution is similar to the last years.

Figure 2 presents the Spanish fleet standardised CPUE updated with the 2017 data presented by Gonzalez-Costas and Gonzalez-Troncoso (2009). It can be observed three different periods with different CPUE levels. In these three periods, CPUEs have been increasing, with the last period having the highest CPUE values of the whole series analyzed.

### **Thorny skate (*Amblyraja radiata*)**

Commercial catches of skates comprise a mix of skate species (*Amblyraja 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 90% of the skate taken in the Spanish catches base on 2014-2016 data from the EU Spanish 3NO Survey.

**Div. 3LNO:** Spanish skate catches in 2017 were 3,514 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 using 280 mm mesh size. Skate catches in Div. 3L (35 tons) were much smaller than those in Div. 3NO and they were by-catch of the Greenland halibut fishery (130 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 3NO. Most of the catches were in the 32-74 cm length range, similar to years before. It can be observed a clear different length between sexes, males are bigger than females.

**Div. 3M:** Skate catches in Div. 3M (17 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 (*Macrourus berglax*)**

**Subarea 2 and 3:** Roughhead grenadier is the main species taken as by-catch in the Greenland halibut fishery. Most of the 2017 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 2017 were 54 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 10-26 AFL length range, with a mode in 15 cm and a clear length difference between sexes, males are smaller than females.

Age distributions based on the Spanish commercial Age Length Key (Table 23), 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 2017 were based on ages 4 to 14 with a mode in 5-7 years old. This age distribution is smaller than the observed in the previous years where the mode was around 8-10 years old.

### **White hake (*Urophycis tenuis*)**

**Div. 3NO:** Catches of this species in 2017 in Div 3NO (43 tons) were a small by-catch of different fisheries. In Division 3NO a small part of the catches (2 tons) were taken with the 280 mesh size. Catches in Div. 3NO take with 130 mm mesh size (108 tons) are by-catch of the redfish fishery. Table 21 shows the total catches length distributions by sex of Div. 3NO. It was only available three length distribution sample with a small number of measured individuals. Due to this problem, this sample could not be very representative of the catches distributions. Most of the catches were in the 38-67 cm length range. These observed sizes are rather larger than those observed in the previous year.

### **Capelin (*Mallotus villosus*)**

**Div. 3NO:** Catches of this species are occasional. In 2017 the Capelin Spanish catches were less than one tons. Catches were taken in Div. 3NO. Length distributions for Capelin in Div. 3NO are presented in Table 24. Most of the catches are in the 12-15 cm length range.

## **(B) Research studies**

The Spanish bottom trawl survey in NAFO Regulatory Area Div. 3NO was conducted from 15th of May to the 12nd of June 2017 on board the R/V Vizconde de Eza. The gear was a Campelen otter trawl with 20 mm mesh size in the cod-end. Following the method used last year, a total of 113 valid hauls were taken within a depth range of 45-1480 m according to a stratified random design. A hydrographic profile was casted in each fishing station. Furthermore, a stratified sampling by length class and sex was used to sample otoliths of Atlantic cod, American plaice and Greenland halibut for growth studies. Also, gonads of Atlantic cod and Greenland halibut were sampled from histological maturity and fecundity 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 and Atlantic cod.

In 2003 it was decided to extend the Spanish 3NO survey toward Div. 3L (Flemish Pass). In 2017, 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 July 21th to August 8th. 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 103 and 4 of them were nulls. 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 17/065.

Samples for histological (Greenland halibut, cod and roughhead grenadier) and aging (Greenland halibut, American plaice, roughhead grenadier and cod) studies were taken. Ninety-nine hydrographic profile samplings were made in a depth range of 98-1420 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 13rd to July 19th 2017. 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 184 and three of them were null. 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 a Scientific Council Research document. Flemish Cap survey results for Northern shrimp (*Pandalus borealis*) were presented in SCR 17/064. Samples for histological assessment of sexual maturity of cod, redfish, Greenland halibut and roughhead grenadier were taken. Oceanography studies continued to take place.

VME data from the 2017 UE (Spain and Portugal) bottom trawl groundfish surveys in NAFO Regulatory Area (Divs. 3LMNO):

New data on deep-water corals and sponges were presented from the 2017 EU and EU (Spain and Portugal) bottom trawl groundfish surveys. The data was made available to the NAFO WGESA to improve mapping of Vulnerable Marine Ecosystem (VME) species in the NAFO Regulatory Area (Divs. 3LMNO).

“Significant” catches (according to the NAFO definition from groundfish surveys) of deep-water corals and sponges were provided and mapped together with the closed areas. Distribution maps of presence and catches above threshold for RV data of sponges, large gorgonians, small gorgonians and sea pens following the thresholds were presented.

Sponges

For the EU 2017 data, sponges were recorded in 142 of the total tows (35.4% of the total tows analyzed), with depths ranging between 54 - 1338 m and average depth of 494 m.

Significant catches of sponge ( $\geq 75$  kg/tow) were found in five EU tows. Three of these catches were located in the eastern part of the Flemish Cap; the other two were located in Flemish Pass area inside the Kernel Density (KDE) sponge polygon. Sponge catches for these tows ranged between 145 - 7113 kg.

Large Gorgonians

For the EU 2017 data, large gorgonians were recorded in 12 tows (3% of total tows analyzed), with depths ranging between 342 - 1285 m and average depth of 845 m. Significant catches of large gorgonians ( $\geq 0.6$  kg/tow) were found in one EU tow. This catch was located in the Flemish Pass area inside the corresponding KDE polygon but outside the actual closed area number 2.

Small Gorgonians

For the EU 2017 data, small gorgonians were recorded in 55 tows (13 % of total tows analyzed), with depths ranging between 224 - 1434 m and average of 927 m. Significant catches ( $\geq 0.15$  kg/tow) were recorded in three tows (0.75% of the total tows) located at the Tail of the Grand Banks, outside of the actual closed areas with depths between 611 - 1369 m.

Sea Pens

For the EU 2017 data, sea pens were recorded in 140 tows (34.9% of total tows analyzed), with depths ranging between 242 - 1434 m and average depth of 884 m. Significant catches ( $\geq 1.4$  kg/tow) were recorded in three tows (1.52- 2.21 kg), two of them were located north of Flemish Cap and inside the corresponding VME KDE polygon. The other one was located southwest of the Flemish Cap, outside the KDE polygon.

## SUBAREA 6

### **A. Status of the fisheries**

One Spanish trawler operated during 2017 in Div. 6G NAFO Regulatory Area using a midwater trawl gear. The fishing effort of this trawler was 12 days (68 hours). The most important species in catches was the *Beryx splendens* (Table 1).

**Alfonsino Div. 6G:** Catches of this species in 2017 in Div 6G were 55 tons made with a midwater trawl gear. Table 25 shows the total catches length distributions by sex of Div. 6G. Most of the catches were in the 35-44 cm total length range.

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**Table 1.** Spanish Catches (tons) in NAFO Area in 2017 by species and Division, based on the Logbook data.

Code	English_name	Scientific_name	Provisional STATLANT 21A					Total
			3L	3M	3N	3O	6G	
GHL	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	2481	712	917	0		4110
RED	Atlantic redfishes nei	<i>Sebastes spp</i>	162	2037	206	1825		4231
SKA	Raja rays nei	<i>Raja spp</i>	35	17	3135	344		3531
COD	Atlantic cod	<i>Gadus morhua</i>	10	906	166	52		1133
YEL	Yellowtail flounder	<i>Limanda ferruginea</i>			379	42		422
PLA	American plaice	<i>Hippoglossoides platessoides</i>	19	12	197	56		283
HAL	Atlantic halibut	<i>Hippoglossus hippoglossus</i>	10	9	47	38		103
WIT	Witch flounder	<i>Glyptocephalus cynoglossus</i>	22	32	8	32		94
ALF	Splendid alfonsino	<i>Beryx spp</i>					55	55
RHG	Roughhead grenadier	<i>Macrourus berglax</i>	30	8	16			54
HKS	Silver hake	<i>Merluccius bilinearis</i>			0	48		48
HKW	White hake	<i>Urophycis tenuis</i>		1	2	41		43
RNG	Roundnose grenadier	<i>Coryphaenoides rupestris</i>	12	5	0			17
HAD	Haddock	<i>Melanogrammus aeglefinus</i>		0	6	4		11
CAT	Wolfishes (=Catfishes) nei	<i>Anarhichas spp</i>	3	3	3			9
HKR	Red Hake	<i>Urophycis chuss</i>	2	1	5			8
ANG	American angler	<i>Lophius americanus</i>			2	6		8
MZZ	Diadromous fishes n.e.i.	<i>Osteichthyes</i>	0	1	2			4
SQI	Northern shortfin squid	<i>Illex illecebrosus</i>				4		4
OIL	Oilfish	<i>Ruvettus pretiosus</i>					2	2
GPE	Longfin Hake	<i>Phycis chesteri</i>	1					1
GDE	Threadfin rockling	<i>Gaidropsarus ensis</i>	1					1
	Others				3		0	3
		Total tons	2787	3744	5095	2492	56	14174

**Table 2.** Samples and individuals sampled by the IEO Scientific Observers by species, mesh size and NAFO Division in 2017.

Code	Species	English_name	Catch/Disc.	Division	Mesh size	Samples	Ind.
GHL	<i>Reinhardtius hippoglossoides</i>	Greenland halibut	C	3L	130 mm	68	8973
RED	<i>Sebastes spp</i>	Redfish	C	3M	130 mm	52	8953
RJR	<i>Raja radiata</i>	Starry ray	C	3N	280 mm	42	5054
GHL	<i>Reinhardtius hippoglossoides</i>	Greenland halibut	C	3M	130 mm	39	4868
RED	<i>Sebastes spp</i>	Redfish	C	3O	130 mm	31	4307
GHL	<i>Reinhardtius hippoglossoides</i>	Greenland halibut	C	3N	130 mm	23	2754
YEL	<i>Limanda ferruginea</i>	Yellowtail flounder	C	3N	280 mm	22	2480
RHG	<i>Macrourus berglax</i>	Roughhead grenadier	C	3L	130 mm	19	1994
BYS	<i>Beryx splendens</i>	Splendid alfonso	C	6G	3	16	2264
PLA	<i>Hippoglossoides platessoides</i>	American plaice	C	3N	280 mm	16	984
RJR	<i>Raja radiata</i>	Starry ray	C	3O	280 mm	14	2069
RED	<i>Sebastes spp</i>	Redfish	C	3N	130 mm	12	1489
PLA	<i>Hippoglossoides platessoides</i>	American plaice	C	3O	130 mm	11	1054
RHG	<i>Macrourus berglax</i>	Roughhead grenadier	C	3N	130 mm	10	824
PLA	<i>Hippoglossoides platessoides</i>	American plaice	C	3O	280 mm	9	966
COD	<i>Gadus morhua</i>	Cod	C	3M	130 mm	9	854
RHG	<i>Macrourus berglax</i>	Roughhead grenadier	D	3L	130 mm	9	748
RED	<i>Sebastes spp</i>	Redfish	C	3L	130 mm	6	1222
COD	<i>Gadus morhua</i>	Cod	C	3M	130 mm	5	703
RHG	<i>Macrourus berglax</i>	Roughhead grenadier	C	3M	130 mm	5	460
RNG	<i>Coryphaenoides rupestris</i>	Roundnose grenadier	C	3M	130 mm	3	426
WIT	<i>Glyptocephalus cynoglossus</i>	Witch flounder	C	3O	280 mm	3	367
YEL	<i>Limanda ferruginea</i>	Yellowtail flounder	C	3O	280 mm	3	296
ANT	<i>Antimora rostrata</i>	Blue antimora	C	3L	130 mm	3	272
WIT	<i>Glyptocephalus cynoglossus</i>	Witch flounder	C	3N	130 mm	3	272
COD	<i>Gadus morhua</i>	Cod	C	3N	130 mm	3	221
GDE	<i>Gaidropsarus ensis</i>	Threadfin rockling	C	3L	130 mm	3	88
COD	<i>Gadus morhua</i>	Cod	C	3O	280 mm	3	48
RNG	<i>Coryphaenoides rupestris</i>	Roundnose grenadier	C	3L	130 mm	2	285
HKS	<i>Merluccius bilineares</i>	Silver hake	C	3O	130 mm	2	220
PLA	<i>Hippoglossoides platessoides</i>	American plaice	D	3N	130 mm	2	207
HKW	<i>Urophycis tenuis</i>	White hake	C	3O	280 mm	2	175



RED	<i>Sebastes spp</i>	Redfish	C	3O	280 mm	2	112
COD	<i>Gadus morhua</i>	Cod	C	3O	130 mm	2	108
WIT	<i>Glyptocephalus cynoglossus</i>	Witch flounder	C	3O	130 mm	2	108
PLA	<i>Hippoglossoides platessoides</i>	American plaice	C	3L	130 mm	1	139
CFB	<i>Centroscyllium fabricii</i>	Black dogfish	C	3N	130 mm	1	132
WIT	<i>Glyptocephalus cynoglossus</i>	Witch flounder	C	3L	130 mm	1	132
HKW	<i>Urophycis tenuis</i>	White hake	C	3O	130 mm	1	130
RJR	<i>Raja radiata</i>	Starry ray	D	3N	280 mm	1	120
CAP	<i>Mallotus villosus</i>	Capelin	C	3N	280 mm	1	114
YEL	<i>Limanda ferruginea</i>	Yellowtail flounder	D	3N	280 mm	1	112
	<i>Ammodytes dubius</i>	Northern sand lance	C	3N	280 mm	1	110
CAP	<i>Mallotus villosus</i>	Capelin	C	3O	280 mm	1	106
PLA	<i>Hippoglossoides platessoides</i>	American plaice	D	3L	130 mm	1	101
GHL	<i>Reinhardtius hippoglossoides</i>	Greenland halibut	C	3O	130 mm	1	100
RJQ	<i>Bathyraja spinicauda</i>	Spinetail ray	D	3O	280 mm	1	95
COD	<i>Gadus morhua</i>	Cod	D	3N	130 mm	1	85
RJR	<i>Raja radiata</i>	Starry ray	D	3O	280 mm	1	59
NZB	<i>Nezumia bairdi</i>	Marlin-spike grenadier	C	3M	130 mm	1	58
COD	<i>Gadus morhua</i>	Cod	D	3O	130 mm	1	29
CFB	<i>Centroscyllium fabricii</i>	Black dogfish	C	3L	130 mm	1	27
HKS	<i>Merluccius bilineares</i>	Silver hake	C	3O	280 mm	1	23
PLA	<i>Hippoglossoides platessoides</i>	American plaice	C	3N	130 mm	1	22
WIT	<i>Glyptocephalus cynoglossus</i>	Witch flounder	C	3M	130 mm	1	18
CAB	<i>Anarhichas denticulatus</i>	Northern wolffish	C	3M	130 mm	1	13
CAB	<i>Anarhichas denticulatus</i>	Northern wolffish	C	3L	130 mm	1	9
HKS	<i>Merluccius bilineares</i>	Silver hake	C	3N	280 mm	1	9
HAD	<i>Melanogrammus aeglefinus</i>	Haddock	C	3O	130 mm	1	8
HER	<i>Clupea harengus</i>	Atlantic herring	C	3O	280 mm	1	6
ANG	<i>Lophius americanus</i>	American angler	D	3O	280 mm	1	4
HAL	<i>Hippoglossoides hippoglossus</i>	Atlantic halibut	C	3L	130 mm	1	2

**Table 3.** Fishing effort (hours) of the Spanish fleet in Divisions 3LMNO by year based on the Logbook data.

3LMNO	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Effort (Hours)	106821	76028	60128	44044	25163	21408	21250	22703	25276	25410	18602	18271
3LMNO	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Effort (Hours)	18031	15577	15101									

**Table 4.** Fishing effort (hours) of the Spanish fleet in 2017, by quarter, depth strata and Division, as well as percentage of effort by quarter and Division based on the NAFO Observers data.

Division	Depth	1st Q	2nd Q	3rd Q	4th Q	Total	% Div.
<b>3L</b>	<200					0%	
	200-600		45	31	58	3%	
	>600	1479	943	578	763	97%	
	<b>Total</b>	<b>1479</b>	<b>988</b>	<b>609</b>	<b>821</b>	<b>3897</b>	<b>26%</b>
<b>3M</b>	<200		39	4	7	2%	
	200-600	702	56	819	4	55%	
	>600	653	221	332	50	44%	
	<b>Total</b>	<b>1355</b>	<b>316</b>	<b>1155</b>	<b>61</b>	<b>2886</b>	<b>19%</b>
<b>3N</b>	<200	210	780	1956	1515	69%	
	200-600	69	77	152	178	7%	
	>600	184	628	435	265	23%	
	<b>Total</b>	<b>464</b>	<b>1485</b>	<b>2542</b>	<b>1958</b>	<b>6449</b>	<b>43%</b>
<b>3O</b>	<200	264	429	41	57	42%	
	200-600	323	310	291	152	58%	
	>600				3	0%	
	<b>Total</b>	<b>586</b>	<b>739</b>	<b>332</b>	<b>211</b>	<b>1869</b>	<b>12%</b>
	<b>Total Hours</b>	<b>3883</b>	<b>3528</b>	<b>4639</b>	<b>3051</b>	<b>15101</b>	100%
	<b>%</b>	26%	23%	31%	20%	100%	

**Table 5.** Percentage of the 2017 Spanish effort in SA 3 by mesh size, quarter and Division based on the NAFO Observers data.

Div.	Mesh Size	1st Q	2nd Q	3rd Q	4th Q	Total
3L	<90 mm					
	100-200 mm	100%	100%	100%	99%	100%
	>200 mm				1%	0.0
3M	<90 mm					
	100-200 mm	100%	100%	100%	100%	100%
	>200 mm					
3N	<90 mm					
	100-200 mm	41%	47%	24%	23%	30%
	>200 mm	59%	53%	76%	77%	70%
3O	<90 mm					
	100-200 mm	58%	52%	97%	94%	67%
	>200 mm	42%	48%	3%	6%	33%

**Table 6.** Parameters of the length-weight relationship ( $W(g) = a \cdot L(cm)^b$ ) by species (2017).

Species	Source	a	b
Greenland halibut	Commercial	0.0025742	3.3032091
Redfish 3O - 3LN	Commercial	0.0106383	3.065961
Redfish 3M	Commercial	0.0106383	3.065961
Roughhead grenadier	FC Survey	0.109653	2.9134
Witch flounder	3NO Survey	0.0017314	3.3549261
American plaice 3LNO	Commercial	0.0038529	3.248559
American plaice 3M	FC Survey	0.00347	3.2932
Cod 3NO	Commercial	0.0028077	3.2714124
Cod 3M	Commercial	0.0028077	3.2714124
Alfonsino 6G	Commercial	0.0043623	3.2436936
Yellowtail Flounder	3NO Survey	0.0062634	3.0870843
Skate	3NO Survey	0.01132	2.9548306
White Hake	Commercial	0.019079	2.7727652
Capelin	3NO Survey	0.0005898	3.725396

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

<b>Cod Length (cm)</b>	<b>Division 3NO</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
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	0	0	0
30	26	0	0	26
31	0	26	0	26
32	26	11	0	38
33	0	856	0	856
34	883	1660	0	2543
35	1660	2490	0	4150
36	856	856	0	1713
37	72	2554	0	2626
38	928	38	0	966
39	1671	2652	0	4324
40	883	5848	0	6731
41	42	3354	0	3396
42	875	2569	0	3445
43	23	2501	0	2524
44	1702	11	0	1713
45	38	57	0	95
46	2539	49	0	2588
47	864	879	0	1743
48	53	23	0	76
49	23	49	0	72
50	75	49	0	125
51	940	917	0	1856
52	875	19	0	894
53	38	932	0	970
54	902	11	0	913
55	23	30	0	53
56	19	1683	0	1702
57	38	924	0	962
58	0	11	0	11
59	0	72	0	72
60	87	23	0	109
61	42	53	0	94
62	26	830	0	856
63	128	11	0	140
64	79	42	0	121
65	49	30	0	79

<b>66</b>	917	75	0	992
<b>67</b>	45	53	0	98
<b>68</b>	117	90	0	207
<b>69</b>	42	11	0	53
<b>70</b>	30	38	0	68
<b>71</b>	11	19	0	30
<b>72</b>	79	0	0	79
<b>73</b>	30	42	0	72
<b>74</b>	68	165	0	232
<b>75</b>	30	75	0	105
<b>76</b>	56	38	0	94
<b>77</b>	338	0	0	338
<b>78</b>	338	376	0	714
<b>79</b>	357	56	0	413
<b>80</b>	977	0	0	977
<b>81</b>	413	19	0	432
<b>82</b>	0	1187	0	1187
<b>83</b>	510	0	0	510
<b>84</b>	319	1601	0	1920
<b>85</b>	338	1589	0	1927
<b>86</b>	4136	38	0	4174
<b>87</b>	0	849	0	849
<b>88</b>	491	172	0	663
<b>89</b>	0	319	0	319
<b>90</b>	357	626	0	983
<b>91</b>	473	473	0	945
<b>92</b>	473	0	0	473
<b>93</b>	0	1724	0	1724
<b>94</b>	0	626	0	626
<b>95</b>	0	172	0	172
<b>96</b>	1571	1890	0	3460
<b>97</b>	0	1601	0	1601
<b>98</b>	0	0	0	0
<b>99</b>	319	1571	0	1890
<b>100</b>	0	0	0	0
<b>101</b>	0	0	0	0
<b>102</b>	0	0	0	0
<b>103</b>	0	0	0	0
<b>104</b>	0	0	0	0
<b>105</b>	0	0	0	0
<b>106</b>	0	0	0	0
<b>107</b>	0	0	0	0
<b>108</b>	0	0	0	0
<b>109</b>	0	19	0	19
<b>110</b>	0	0	0	0
<b>111</b>	0	0	0	0
<b>112</b>	0	153	0	153
<b>113</b>	0	0	0	0
<b>114</b>	0	0	0	0
<b>115</b>	0	0	0	0

<b>116</b>	0	0	0	0
<b>117</b>	0	0	0	0
<b>118</b>	0	0	0	0
<b>119</b>	0	0	0	0
<b>120</b>	0	0	0	0
<b>121</b>	0	0	0	0
<b>122</b>	0	0	0	0
<b>123</b>	0	0	0	0
<b>124</b>	0	0	0	0
<b>125</b>	0	0	0	0
<b>126</b>	0	0	0	0
<b>127</b>	0	0	0	0
<b>128</b>	0	0	0	0
<b>129</b>	0	0	0	0
<b>130</b>	0	0	0	0
<b>131</b>	0	0	0	0
<b>132</b>	0	0	0	0
<b>133</b>	0	0	0	0
<b>134</b>	0	0	0	0
<b>135</b>	0	0	0	0
<b>Total</b>	29320	47788	0	77108

<b>Samples</b>	8
<b>Ind. Sampled</b>	377
<b>Catch (ton)</b>	218
<b>SOP</b>	0.97

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

<b>Cod Length (cm)</b>	<b>Division 3M</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
<b>30</b>				0
<b>31</b>	57	182	0	239
<b>32</b>	1002	189	361	1552
<b>33</b>	1032	1823	0	2855
<b>34</b>	2263	2863	0	5126
<b>35</b>	1674	4290	0	5964
<b>36</b>	4899	5900	0	10799
<b>37</b>	2715	4497	0	7212
<b>38</b>	4116	4151	0	8267
<b>39</b>	5719	4377	0	10096
<b>40</b>	4250	3610	0	7860
<b>41</b>	5592	4429	0	10021
<b>42</b>	2787	2311	0	5099
<b>43</b>	5260	4021	0	9281
<b>44</b>	3659	5399	0	9058
<b>45</b>	6412	6890	0	13301
<b>46</b>	5221	4727	0	9948
<b>47</b>	6195	3656	0	9851
<b>48</b>	8619	4640	0	13259
<b>49</b>	6829	6442	0	13271
<b>50</b>	3286	3951	0	7237
<b>51</b>	2006	3124	0	5129
<b>52</b>	4036	4040	0	8076
<b>53</b>	5687	3113	0	8800
<b>54</b>	6535	3870	0	10405
<b>55</b>	5489	4175	0	9665
<b>56</b>	4152	7108	0	11260
<b>57</b>	8163	5070	0	13234
<b>58</b>	14051	7022	0	21073
<b>59</b>	8441	10674	0	19115
<b>60</b>	6667	10582	0	17249
<b>61</b>	10749	8482	0	19230
<b>62</b>	7916	13021	0	20938
<b>63</b>	6800	6445	0	13245
<b>64</b>	4729	7201	0	11930
<b>65</b>	7015	8424	0	15439
<b>66</b>	5116	6238	0	11354
<b>67</b>	2421	5329	0	7750
<b>68</b>	6431	3476	0	9907
<b>69</b>	3841	3964	0	7805
<b>70</b>	3772	5122	0	8894
<b>71</b>	1636	3237	0	4874
<b>72</b>	1946	908	0	2854
<b>73</b>	796	3044	0	3840

<b>74</b>	392	850	0	1242
<b>75</b>	397	1939	0	2336
<b>76</b>	1612	784	0	2396
<b>77</b>	934	2525	0	3459
<b>78</b>	830	898	0	1728
<b>79</b>	314	1926	0	2240
<b>80</b>	0	2165	0	2165
<b>81</b>	189	1208	0	1397
<b>82</b>	1534	160	0	1694
<b>83</b>	563	769	0	1332
<b>84</b>	322	1450	0	1773
<b>85</b>	0	665	0	665
<b>86</b>	0	1727	0	1727
<b>87</b>	0	613	0	613
<b>88</b>	1952	0	0	1952
<b>89</b>	0	398	0	398
<b>90</b>	0	0	0	0
<b>91</b>	0	182	0	182
<b>92</b>	0	57	0	57
<b>93</b>	0	712	0	712
<b>94</b>	363	371	0	734
<b>95</b>	0	820	0	820
<b>96</b>	0	620	0	620
<b>97</b>	238	0	0	238
<b>98</b>	0	0	0	0
<b>99</b>	0	76	0	76
<b>100</b>	0	0	0	0
<b>101</b>	460	335	0	795
<b>102</b>	0	358	0	358
<b>103</b>	0	57	0	57
<b>104</b>	278	278	0	556
<b>105</b>	0	563	0	563
<b>106</b>	0	516	0	516
<b>107</b>	0	520	0	520
<b>108</b>	0	701	0	701
<b>109</b>	0	701	0	701
<b>110</b>	0	0	0	0
<b>111</b>	0	335	0	335
<b>112</b>	0	278	0	278
<b>113</b>	0	181	0	181
<b>114</b>	0	80	0	80
<b>115</b>	0	278	0	278
<b>116</b>	0	0	0	0
<b>117</b>	0	0	0	0
<b>118</b>	0	0	0	0
<b>119</b>	0	1031	0	1031
<b>120</b>	0	0	0	0
<b>121</b>	0	0	0	0



<b>122</b>	0	0	0	0
<b>123</b>	0	0	0	0
<b>124</b>	0	0	0	0
<b>125</b>	0	0	0	0
<b>126</b>	0	0	0	0
<b>127</b>	278	0	0	278
<b>128</b>				0
<b>129</b>				0
<b>130</b>				0
<b>Total</b>	220639	239142	361	460142

<b>Samples</b>	14
<b>Ind. Sampled</b>	1557
<b>Catch (tons)</b>	906
<b>SOP</b>	1.00

**Table 9.** Redfish 3M stock Spanish catches length distribution.

<b>Redfish Length (cm)</b>	<b>Division 3M</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
<b>16</b>	0	0	92	92
<b>17</b>	0	0	0	0
<b>18</b>	447	276	0	723
<b>19</b>	0	92	0	92
<b>20</b>	0	142	0	142
<b>21</b>	5092	1072	0	6164
<b>22</b>	4459	2236	0	6695
<b>23</b>	6324	2808	0	9132
<b>24</b>	29991	7204	0	37194
<b>25</b>	54730	13736	0	68466
<b>26</b>	128125	28563	0	156689
<b>27</b>	226291	62281	0	288572
<b>28</b>	387546	112956	0	500501
<b>29</b>	444826	270023	0	714850
<b>30</b>	369968	391947	0	761915
<b>31</b>	224878	386170	0	611048
<b>32</b>	121613	365357	0	486970
<b>33</b>	73773	240084	0	313857
<b>34</b>	47665	134467	0	182132
<b>35</b>	38211	92383	0	130594
<b>36</b>	31469	60340	0	91809
<b>37</b>	35456	56708	0	92164
<b>38</b>	24926	47244	0	72170
<b>39</b>	16322	38318	0	54640
<b>40</b>	16417	35339	0	51756
<b>41</b>	9939	25307	0	35246
<b>42</b>	5855	22887	0	28742
<b>43</b>	2476	21678	0	24155
<b>44</b>	2897	18317	0	21214
<b>45</b>	582	12097	0	12679
<b>46</b>	0	7800	0	7800
<b>47</b>	533	5066	0	5599
<b>48</b>	0	4105	0	4105
<b>49</b>	0	1371	0	1371
<b>50</b>	0	0	0	0
<b>51</b>	0	0	0	0
<b>52</b>	0	389	0	389
<b>53</b>				0
<b>54</b>				0
<b>Total</b>	2310811	2468767	92	4779670
<b>Samples</b>				525
<b>Ind. Sampled</b>				8953
<b>Catch (tons)</b>				2037
<b>SOP</b>				0.98

**Table 10.** Redfish 3LN stock Spanish catches length distribution.

<b>Redfish Length (cm)</b>	<b>Division 3LN</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
<b>15</b>	0	0	1143	1143
<b>16</b>	0	0	1143	1143
<b>17</b>	0	0	0	0
<b>18</b>	2286	0	0	2286
<b>19</b>	7109	0	0	7109
<b>20</b>	20868	4286	0	25154
<b>21</b>	71887	15990	0	87877
<b>22</b>	126441	55206	0	181647
<b>23</b>	150738	94782	0	245520
<b>24</b>	109608	126917	0	236525
<b>25</b>	60355	114169	0	174523
<b>26</b>	60214	85405	0	145619
<b>27</b>	46644	76996	0	123640
<b>28</b>	30497	57292	0	87789
<b>29</b>	11608	44715	0	56323
<b>30</b>	8552	36112	0	44664
<b>31</b>	5730	34533	0	40264
<b>32</b>	5415	39633	0	45047
<b>33</b>	427	27371	0	27798
<b>34</b>	590	18710	0	19300
<b>35</b>	585	14281	0	14866
<b>36</b>	468	2911	0	3379
<b>37</b>	453	2149	0	2602
<b>38</b>	814	55	0	869
<b>39</b>	17	59	0	76
<b>40</b>	383	519	0	902
<b>41</b>	3	9	0	12
<b>42</b>	0	3	0	3
<b>43</b>	0	0	0	0
<b>44</b>	0	0	0	0
<b>45</b>	0	0	0	0
<b>46</b>	0	0	0	0
<b>47</b>	0	0	0	0
<b>48</b>	0	0	0	0
<b>49</b>	0	0	0	0
<b>50</b>	0	0	0	0
<b>51</b>	0	0	0	0
<b>52</b>	0	0	0	0
<b>53</b>	0	0	0	0
<b>54</b>	0	0	0	0
<b>55</b>	0	0	0	0
<b>Total</b>	721690	852103	2286	1576078
<b>Samples</b>				18
<b>Ind. Sampled</b>				2711
<b>Catch (tons)</b>				368
<b>SOP</b>				0.98

**Table 11.** Redfish 30 stock Spanish catches length distribution.

<b>Redfish Length (cm)</b>	<b>30</b>		<b>Ind.</b>	<b>Total</b>
	<b>Males</b>	<b>Females</b>		
<b>10</b>	23065	0	92260	115325
<b>11</b>	0	0	23065	23065
<b>12</b>	0	0	23065	23065
<b>13</b>	14525	51026	0	65551
<b>14</b>	6310	55841	4138	66289
<b>15</b>	4814	252	0	5066
<b>16</b>	12315	4896	0	17212
<b>17</b>	14623	170	0	14793
<b>18</b>	34266	16102	0	50368
<b>19</b>	37051	18974	0	56025
<b>20</b>	277134	75524	0	352658
<b>21</b>	950077	246117	0	1196194
<b>22</b>	1265858	607241	0	1873099
<b>23</b>	1070110	1163337	0	2233448
<b>24</b>	595736	1264288	0	1860024
<b>25</b>	271023	971089	0	1242112
<b>26</b>	124573	663152	0	787725
<b>27</b>	41169	274980	0	316149
<b>28</b>	6909	148657	0	155567
<b>29</b>	0	53105	0	53105
<b>30</b>	0	25406	0	25406
<b>31</b>	0	5281	0	5281
<b>32</b>	0	4696	0	4696
<b>33</b>	0	2071	0	2071
<b>34</b>	0	0	0	0
<b>35</b>	0	3276	0	3276
<b>36</b>	0	0	0	0
<b>37</b>	0	690	0	690
<b>38</b>	0	0	0	0
<b>39</b>	0	0	0	0
<b>40</b>	0	0	0	0
<b>Total</b>	4749560	5656174	142528	10548262
<b>Samples</b>				33
<b>Ind. Sampled</b>				4419
<b>Catch (tons)</b>				1825
<b>SOP</b>				0.98

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

American Plaice Length (cm)	Division 3LNO			Total
	Males	Females	Ind.	
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	421	5	0	426
20	0	39	0	39
21	17	58	0	74
22	654	3319	0	3973
23	567	950	0	1517
24	1011	467	0	1478
25	828	3288	0	4115
26	1324	4361	0	5684
27	2314	3448	0	5763
28	2028	5496	0	7524
29	1750	5900	0	7651
30	3086	3137	0	6223
31	2733	4956	0	7689
32	4956	4204	0	9159
33	6209	11724	0	17932
34	5520	10392	39	15951
35	8394	10576	0	18971
36	5141	26175	0	31316
37	4203	13189	0	17391
38	2433	23823	0	26256
39	1215	29355	0	30570
40	350	27154	0	27504
41	12	25718	0	25731
42	379	25779	0	26158
43	320	21011	0	21331
44	106	18095	0	18200
45	0	16060	0	16060
46	175	10485	0	10660
47	0	8251	0	8251
48	0	8014	0	8014
49	167	5251	0	5418
50	0	2585	0	2585
51	237	3448	0	3685
52	0	2682	0	2682
53	0	3102	0	3102
54	0	2894	0	2894
55	0	3418	0	3418
56	0	1056	0	1056
57	0	577	0	577
58	0	1081	0	1081
59	0	1067	0	1067
60	0	151	0	151

<b>61</b>	0	1022	0	1022
<b>62</b>	0	199	0	199
<b>63</b>	0	245	0	245
<b>64</b>	0	628	0	628
<b>65</b>	0	273	0	273
<b>66</b>	0	4	0	4
<b>67</b>	0	44	0	44
<b>68</b>	0	0	0	0
<b>69</b>	0	164	0	164
<b>70</b>	0	0	0	0
<b>71</b>	0	164	0	164
<b>72</b>	0	0	0	0
<b>73</b>	0	0	0	0
<b>74</b>	0	6	0	6
<b>75</b>	0	0	0	0
<b>76</b>	0	0	0	0
<b>77</b>	0	0	0	0
<b>Total</b>	56547	355493	39	412079

<b>Samples</b>	38
<b>Ind. Sampled</b>	3165
<b>Catch (tons)</b>	272
<b>SOP</b>	1.00

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

<b>Witch flounder Length (cm)</b>	<b>Males</b>	<b>3L Females</b>	<b>Ind.</b>	<b>Total</b>
<b>30</b>				30
<b>31</b>				31
<b>32</b>				32
<b>33</b>				33
<b>34</b>				34
<b>35</b>	234	234		35
<b>36</b>	0	234		36
<b>37</b>	234	1170		37
<b>38</b>	0	234		38
<b>39</b>	468	1170		39
<b>40</b>	234	702		40
<b>41</b>	0	702		41
<b>42</b>	234	1170		42
<b>43</b>	234	1639		43
<b>44</b>	234	2341		44
<b>45</b>	0	1639		45
<b>46</b>	0	3511		46
<b>47</b>	468	3277		47
<b>48</b>	0	1405		48
<b>49</b>	0	3980		49
<b>50</b>	0	2341		50
<b>51</b>	0	1639		51
<b>52</b>	0	468		52
<b>53</b>	0	468		53
<b>54</b>	0	234		54
<b>Total</b>	2341	28559	0	30900
<b>Samples</b>				1
<b>Ind. Sampled</b>				132
<b>Catch (tons)</b>				22
<b>SOP</b>				1.05

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

Witch flounder Length (cm)	3NOL			Total
	Males	Females	Ind.	
22	62	62	0	125
23	0	62	0	62
24	0	0	0	0
25	0	0	0	0
26	1	0	0	1
27	0	0	0	0
28	62	994	0	1056
29	0	0	0	0
30	127	126	0	252
31	2001	0	0	2001
32	17	6	0	23
33	252	69	0	321
34	1102	69	0	1171
35	130	91	0	222
36	1439	193	0	1631
37	1934	139	0	2073
38	3695	2326	0	6020
39	2512	3376	0	5888
40	3688	2414	0	6102
41	4881	4244	0	9124
42	2548	5755	0	8303
43	2548	5614	0	8162
44	302	7263	0	7565
45	2165	1281	0	3445
46	1167	2817	0	3984
47	1	986	0	987
48	44	1852	0	1896
49	0	446	0	446
50	100	2395	0	2494
51	189	471	0	661
52	101	404	0	504
53	130	229	0	359
54	0	0	0	0
55	0	0	0	0
<b>Total</b>	31199	43682	0	74881
<b>Samples</b>				8
<b>Ind. Sampled</b>				747
<b>Catch (tons)</b>				40
<b>SOP</b>				1.06



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

Yellowtail flounder Length (cm)	3LNO			Total
	Males	Females	Ind.	
15	0	0	0	0
16	0	0	0	0
17	121	0	0	121
18	127	0	0	127
19	1152	0	0	1152
20	59	0	0	59
21	118	565	411	1094
22	2434	0	0	2434
23	451	0	0	451
24	1777	1247	0	3025
25	3826	92	0	3917
26	1915	1301	345	3561
27	4000	114	0	4113
28	8129	3794	0	11922
29	7173	5858	0	13032
30	20559	9843	0	30402
31	31932	22937	0	54868
32	59933	36057	0	95991
33	80961	50233	0	131194
34	63852	69499	0	133351
35	44098	102586	0	146684
36	17582	87387	0	104969
37	7481	80580	0	88061
38	5399	55246	0	60645
39	1684	56655	0	58340
40	1058	31445	0	32503
41	114	18211	0	18325
42	66	11378	0	11443
43	22	8255	0	8277
44	0	6714	0	6714
45	0	3717	0	3717
46	0	3434	0	3434
47	0	1032	0	1032
48	0	162	0	162
49	0	55	0	55
50	0	565	0	565
51	0	0	0	0
<b>Total</b>	<b>366022</b>	<b>668962</b>	<b>757</b>	<b>1035740</b>
<b>Samples</b>				<b>25</b>
<b>Ind. Sampled</b>				<b>2776</b>
<b>Catch (tons)</b>				<b>422</b>
<b>SOP</b>				<b>1.05</b>

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

Length (cm)	Division 3L				Division 3M			
	Males	Females	Ind.	Total	Males	Females	Ind.	Total
15				0				0
16	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0
20	17	0	0	17	0	0	0	0
21	0	0	0	0	0	0	0	0
22	17	17	0	34	0	0	0	0
23	9	9	0	17	0	0	0	0
24	17	26	0	43	0	0	0	0
25	26	43	0	69	0	0	0	0
26	26	26	0	52	0	0	0	0
27	26	52	0	77	0	0	0	0
28	9	17	0	26	0	0	0	0
29	429	43	0	472	0	0	0	0
30	111	411	0	523	0	0	0	0
31	112	282	0	394	0	0	0	0
32	1399	830	0	2229	97	0	0	97
33	1495	1128	0	2622	425	0	0	425
34	2068	2248	0	4316	319	100	0	420
35	2740	1990	0	4729	798	100	0	898
36	6148	3238	0	9386	820	100	0	920
37	5997	7046	0	13044	2263	291	12	2566
38	10487	7971	0	18458	3678	294	0	3972
39	15762	17034	0	32796	4106	405	0	4511
40	14022	11784	0	25806	4547	809	0	5356
41	22404	26482	0	48885	3732	1315	0	5047
42	31928	32655	0	64583	7607	1108	0	8716
43	39041	40688	0	79729	9219	2385	0	11604
44	42107	50417	0	92524	9403	2264	0	11667
45	41530	63874	0	105404	7814	3709	0	11523
46	45287	63082	0	108368	11825	6618	0	18443
47	46629	67442	241	114313	9177	6570	0	15747
48	44999	71687	0	116685	10663	7905	94	18662
49	41443	81817	0	123260	11026	10543	0	21569
50	36751	83092	0	119843	10578	14730	0	25308
51	32382	90479	0	122861	10020	17441	0	27461
52	22209	95115	0	117325	9871	16893	0	26765
53	26187	96995	0	123182	7620	25093	140	32853
54	20539	99702	0	120241	5654	26068	0	31722
55	16464	95768	0	112232	5874	26352	0	32225
56	10755	86018	0	96773	2546	27367	0	29913
57	6760	82452	0	89212	1606	27960	0	29566
58	3701	67760	0	71461	1654	27321	0	28975
59	2974	55373	0	58346	172	22218	0	22389
60	1177	46543	0	47720	698	17873	0	18571

<b>61</b>	777	36703	0	37480	246	14762	0	15008
<b>62</b>	676	24156	0	24832	205	11749	0	11954
<b>63</b>	0	16246	0	16246	377	10910	0	11287
<b>64</b>	207	9905	0	10111	0	5783	0	5783
<b>65</b>	0	8995	0	8995	0	5009	0	5009
<b>66</b>	0	7502	0	7502	0	3389	0	3389
<b>67</b>	0	5040	0	5040	0	1218	0	1218
<b>68</b>	0	3094	0	3094	0	1908	0	1908
<b>69</b>	0	2378	0	2378	0	890	0	890
<b>70</b>	0	872	0	872	0	1406	0	1406
<b>71</b>	0	653	0	653	0	1544	0	1544
<b>72</b>	0	102	0	102	0	683	0	683
<b>73</b>	0	460	0	460	0	675	0	675
<b>74</b>	316	1555	0	1871	0	984	0	984
<b>75</b>	0	0	0	0	0	750	0	750
<b>76</b>	0	79	0	79	0	436	0	436
<b>77</b>	316	574	0	890	0	629	0	629
<b>78</b>	0	552	0	552	0	162	0	162
<b>79</b>	0	0	0	0	0	0	0	0
<b>80</b>	0	0	0	0	0	196	0	196
<b>81</b>	0	378	0	378	0	162	0	162
<b>82</b>	0	232	0	232	0	0	0	0
<b>83</b>	0	0	0	0	0	135	0	135
<b>84</b>	0	0	0	0	0	0	0	0
<b>85</b>	0	94	0	94	0	12	0	12
<b>86</b>	0	74	0	74	0	110	0	110
<b>87</b>	0	0	0	0	0	0	0	0
<b>88</b>	0	0	0	0	0	12	0	12
<b>89</b>	0	0	0	0	0	135	0	135
<b>90</b>	0	0	0	0	0	0	0	0
<b>Total</b>	598474	1571278	241	2169994	154637	357483	246	512366
<b>Samples</b>				68				39
<b>Ind. Sampled</b>				8973				4868
<b>Catch (tons)</b>				2481				712

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

Length (cm)	Division 3N				Division 3O			
	Males	Females	Ind.	Total	Males	Females	Ind.	Total
15	54	0	54	109				
16	0	0	109	109				
17	27	0	54	82				
18	0	27	136	163				
19	0	0	82	82				
20	82	82	54	217				
21	54	54	54	163				
22	109	136	0	245				
23	0	54	0	54				
24	109	82	0	190				
25	471	27	0	498				
26	390	0	0	390				
27	586	82	0	668				
28	471	136	0	607				
29	0	54	0	54				
30	970	1691	0	2660				
31	1666	1765	0	3431				
32	1888	3531	0	5419				
33	3967	2214	0	6181				
34	1719	4299	0	6018				
35	3871	2785	0	6657				
36	6726	7347	0	14073				
37	5938	10533	0	16471				
38	8916	17235	0	26150				
39	13768	17368	0	31136				
40	13894	20160	0	34053				
41	13435	22401	0	35836				
42	9602	27160	0	36761				
43	9734	32052	0	41786				
44	15103	26310	0	41413				
45	13513	36680	0	50193				
46	11334	34403	0	45737				
47	15376	38228	0	53604				
48	11494	38073	0	49568				
49	9915	34041	0	43955				
50	9321	38678	0	47999				
51	5325	30048	0	35373				
52	7254	35858	0	43112				
53	3501	31849	0	35350				
54	2294	29756	0	32049				
55	1326	30811	0	32137				
56	681	27647	0	28328				
57	541	23628	0	24169				
58	426	16688	0	17114				
59	1180	13372	0	14552				
60	0	9851	0	9851				
61	140	3639	0	3779				

<b>62</b>	0	5043	0	5043
<b>63</b>	0	3967	0	3967
<b>64</b>	0	2792	0	2792
<b>65</b>	0	3459	0	3459
<b>66</b>	0	1080	0	1080
<b>67</b>	0	405	0	405
<b>68</b>	0	140	0	140
<b>69</b>	0	1517	0	1517
<b>70</b>	0	0	0	0
<b>71</b>	0	729	0	729
<b>72</b>	0	290	0	290
<b>73</b>	0	0	0	0
<b>74</b>	0	439	0	439
<b>75</b>	0	0	0	0
<b>76</b>	0	0	0	0
<b>77</b>	0	0	0	0
<b>78</b>	0	0	0	0
<b>79</b>	0	0	0	0
<b>80</b>	0	0	0	0
<b>81</b>	0	145	0	145
<b>82</b>	0	0	0	0
<b>83</b>	0	0	0	0
<b>84</b>	0	0	0	0
<b>85</b>	0	0	0	0
<b>86</b>	0	0	0	0
<b>87</b>	0	0	0	0
<b>88</b>	0	0	0	0
<b>89</b>	0	0	0	0
<b>90</b>	0	208	0	208
<b>Total</b>	207168	691048	544	207168

<b>Samples</b>	24
<b>Ind Sampled</b>	2854
<b>Catch (tons)</b>	917

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

Length (cm)	Division 3LMNO			Total
	Males	Females	Indter.	
15	54	0	54	109
16	0	0	109	109
17	27	0	54	82
18	0	27	136	163
19	0	0	82	82
20	99	82	54	235
21	54	54	54	163
22	126	153	0	279
23	9	63	0	72
24	126	107	0	233
25	497	70	0	567
26	416	26	0	441
27	612	133	0	745
28	480	153	0	633
29	429	97	0	526
30	1081	2102	0	3183
31	1778	2046	0	3824
32	3384	4361	0	7745
33	5886	3342	0	9228
34	4106	6647	0	10754
35	7409	4875	0	12284
36	13693	10686	0	24379
37	14198	17870	12	32081
38	23081	25500	0	48581
39	33635	34808	0	68443
40	32463	32753	0	65215
41	39571	50198	0	89769
42	49137	60923	0	110060
43	57994	75125	0	133119
44	66613	78991	0	145604
45	62857	104263	0	167120
46	68445	104103	0	172548
47	71181	112241	241	183663
48	67156	117665	94	184915
49	62384	126401	0	188785
50	56650	136500	0	193149
51	47728	137968	0	185695
52	39335	147867	0	187202
53	37307	153937	140	191384
54	28486	155526	0	184012
55	23663	152930	0	176593
56	13982	141032	0	155014
57	8906	134040	0	142947
58	5781	111769	0	117550
59	4325	90963	0	95288
60	1875	74267	0	76142
61	1163	55105	0	56267

<b>62</b>	881	40948	0	41829
<b>63</b>	377	31122	0	31499
<b>64</b>	207	18480	0	18686
<b>65</b>	0	17462	0	17462
<b>66</b>	0	11971	0	11971
<b>67</b>	0	6663	0	6663
<b>68</b>	0	5143	0	5143
<b>69</b>	0	4784	0	4784
<b>70</b>	0	2278	0	2278
<b>71</b>	0	2926	0	2926
<b>72</b>	0	1074	0	1074
<b>73</b>	0	1135	0	1135
<b>74</b>	316	2978	0	3294
<b>75</b>	0	750	0	750
<b>76</b>	0	514	0	514
<b>77</b>	316	1203	0	1519
<b>78</b>	0	715	0	715
<b>79</b>	0	0	0	0
<b>80</b>	0	196	0	196
<b>81</b>	0	685	0	685
<b>82</b>	0	232	0	232
<b>83</b>	0	135	0	135
<b>84</b>	0	0	0	0
<b>85</b>	0	106	0	106
<b>86</b>	0	185	0	185
<b>87</b>	0	0	0	0
<b>88</b>	0	12	0	12
<b>89</b>	0	135	0	135
<b>90</b>	0	208	0	208
<b>Total</b>	960279	2619809	1031	3581119

<b>Samples</b>	131
<b>Ind Sampled</b>	16695
<b>Catch (tons)</b>	4110
<b>SOP</b>	0.98





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

Skates Length (cm)	3LNO			Total
	Males	Females	Ind.	
20	0	71	0	71
21	71	0	0	71
22	0	914	0	914
23	0	410	0	410
24	138	832	0	970
25	1830	231	0	2061
26	2433	1803	0	4236
27	1974	1080	0	3054
28	2676	698	0	3374
29	3212	3091	0	6303
30	3515	2841	0	6356
31	6488	6826	0	13314
32	8270	8307	0	16577
33	11962	11594	0	23556
34	10585	10776	0	21361
35	12675	10044	0	22720
36	14264	13310	0	27574
37	18394	21022	0	39416
38	19716	19202	0	38918
39	13615	19693	0	33307
40	17121	18031	0	35152
41	25729	20169	0	45898
42	19040	25983	0	45023
43	20833	25242	0	46075
44	18583	24960	0	43543
45	25693	31186	0	56879
46	29827	31284	0	61111
47	27510	31332	0	58842
48	33015	31111	0	64125
49	31744	35618	0	67361
50	30936	33820	0	64756
51	28713	29083	0	57796
52	32168	27026	0	59194
53	30709	32991	0	63700
54	27607	29518	0	57124
55	32583	23352	0	55934
56	26010	29172	0	55182
57	25601	26880	0	52481
58	23694	22380	0	46074
59	24380	24528	0	48908
60	15400	19304	0	34704
61	22423	15642	0	38065
62	15821	14710	0	30531
63	21718	17044	0	38762
64	16188	17669	0	33857
65	19883	12752	0	32635
66	15469	14279	0	29748

<b>67</b>	10714	11508	0	22222
<b>68</b>	13866	13646	0	27512
<b>69</b>	10603	9785	0	20388
<b>70</b>	13704	12612	0	26316
<b>71</b>	11136	10573	0	21710
<b>72</b>	14483	12107	0	26590
<b>73</b>	14524	11794	0	26318
<b>74</b>	16154	8523	0	24676
<b>75</b>	11607	7510	0	19118
<b>76</b>	7371	3575	0	10946
<b>77</b>	9115	5384	0	14499
<b>78</b>	7517	3372	0	10889
<b>79</b>	8214	4747	99	13059
<b>80</b>	7024	1773	0	8797
<b>81</b>	6798	2186	0	8985
<b>82</b>	6555	1730	0	8285
<b>83</b>	4453	781	0	5235
<b>84</b>	4675	510	0	5185
<b>85</b>	3013	299	0	3313
<b>86</b>	3297	8	0	3305
<b>87</b>	1858	0	0	1858
<b>88</b>	1076	0	0	1076
<b>89</b>	713	0	0	713
<b>90</b>	907	0	0	907
<b>91</b>	625	0	0	625
<b>92</b>	771	0	0	771
<b>93</b>	238	0	0	238
<b>94</b>	0	0	0	0
<b>95</b>	0	0	0	0
<b>96</b>	59	0	0	59
<b>97</b>	0	0	0	0
<b>98</b>	0	0	0	0
<b>99</b>	0	0	0	0
<b>100</b>	0	0	0	0
<b>Total</b>	981283	920238	99	1901619

<b>Samples</b>	56
<b>Ind. Sampled</b>	7123
<b>Catch (ton)</b>	3514
<b>SOP</b>	1.08

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

<b>Roughhead G. Length (cm)</b>	<b>3LMNO</b>			<b>Total</b>
	<b>Males</b>	<b>Females</b>	<b>Ind.</b>	
<b>5</b>	41	8	0	50
<b>6</b>	5	5	0	10
<b>7</b>	189	5	38	232
<b>8</b>	462	31	210	704
<b>9</b>	947	322	181	1450
<b>10</b>	1630	555	90	2275
<b>11</b>	2578	1151	61	3789
<b>12</b>	4867	1996	0	6862
<b>13</b>	5870	1971	17	7858
<b>14</b>	4427	2572	0	6999
<b>15</b>	6985	2927	0	9912
<b>16</b>	5611	3274	0	8885
<b>17</b>	5128	3144	0	8272
<b>18</b>	5369	2733	0	8102
<b>19</b>	3951	4386	0	8338
<b>20</b>	2099	2751	16	4866
<b>21</b>	1040	2423	0	3463
<b>22</b>	797	2330	0	3127
<b>23</b>	265	2263	0	2528
<b>24</b>	141	2143	0	2284
<b>25</b>	32	1779	16	1828
<b>26</b>	32	1659	0	1692
<b>27</b>	18	1038	0	1056
<b>28</b>	16	920	0	936
<b>29</b>	32	739	0	771
<b>30</b>	0	274	0	274
<b>31</b>	0	162	0	162
<b>32</b>	0	120	0	120
<b>33</b>	16	112	0	128
<b>34</b>	16	172	0	188
<b>35</b>	0	30	0	30
<b>36</b>	0	5	0	5
<b>37</b>	0	35	0	35
<b>38</b>	0	37	0	37
<b>39</b>	0	49	0	49
<b>40</b>	0	47	0	47
<b>Total</b>	52565	44168	630	97363
<b>Samples</b>				34
<b>Ind. Sampled</b>				3278
<b>Catch (tons)</b>				54
<b>SOP</b>				1.00

**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
1	0	0	0	0	1				
2	77	15	11	103	2	26	22	39	26
3	620	356	298	1275	3	52	75	59	60
4	4579	2282	210	7070	4	131	149	94	136
5	11059	4376	71	15506	5	203	222	131	208
6	9932	4867	8	14807	6	288	315	185	297
7	8228	5795	0	14022	7	379	427		399
8	6747	3621	0	10367	8	494	539		510
9	4338	3974	3	8314	9	563	629	727	594
10	3390	3513	8	6911	10	665	769	727	718
11	2083	3379	5	5467	11	765	978	979	897
12	924	3851	9	4784	12	851	1107	1258	1058
13	443	2363	4	2811	13	966	1276	1278	1227
14	70	2155	1	2226	14	1583	1601	1374	1601
15	28	1518	2	1548	15	1851	1707	1374	1709
16	14	612	0	626	16	2070	1887		1891
17	11	859	0	870	17	2790	2130		2138
18	3	286	0	289	18	3041	2840		2841
19	16	173	0	189	19	3314	3135		3150
20	3	118	0	120	20	3041	4479		4446
21	0	57	0	57	21		3314		3314
22	0	0	0	0	22				
23	0	0	0	0	23				
24	0	0	0	0	24				
Age	Mean Length (cm)				Age	Mean Length (cm)			
	Males	Females	Ind.	Total		Males	Females	Ind.	Total
1					1				
2	6.4	6.1	7.5	6.4	2				
3	8.2	9.4	8.6	8.7	3				
4	11.3	11.8	10.1	11.4	4				
5	13.1	13.5	11.3	13.2	5				
6	14.8	15.3	12.7	15.0	6				
7	16.3	17.0		16.6	7				
8	17.9	18.5		18.1	8				
9	18.7	19.5	20.5	19.1	9				
10	19.8	20.9	20.5	20.3	10				
11	20.8	22.6	22.4	21.9	11				
12	21.6	23.6	24.6	23.2	12				
13	22.4	24.8	24.8	24.4	13				
14	26.7	26.8	25.5	26.7	14				
15	28.2	27.3	25.5	27.3	15				
16	29.2	28.4		28.4	16				
17	32.4	29.4		29.5	17				
18	33.5	32.7		32.7	18				
19	34.5	32.7		32.9	19				
20	33.5	38.2		38.0	20				
21		34.5		34.5	21				
22					22				
23					23				
24					24				

**Table 21.** White hake Spanish catches length distribution by sex for Div. 3NO.

White hake Length (cm)	3NO			Total
	Males	Females	Ind.	
14	7	0	0	7
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	7	0	0	7
20	0	0	0	0
21	0	15	0	15
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	7	0	0	7
29	252	0	0	252
30	0	7	0	7
31	0	0	0	0
32	252	256	0	507
33	0	7	0	7
34	0	0	0	0
35	0	0	0	0
36	252	0	0	252
37	252	0	0	252
38	503	252	0	755
39	252	252	0	503
40	256	252	0	507
41	1006	503	0	1510
42	507	1006	0	1514
43	507	252	0	759
44	252	0	0	252
45	759	1011	0	1769
46	503	503	0	1006
47	503	1258	0	1761
48	516	1006	0	1522
49	0	260	0	260
50	1006	767	0	1774
51	256	1011	0	1266
52	256	4	0	260
53	256	511	0	767
54	1015	0	0	1015
55	759	507	0	1266
56	1019	252	0	1270
57	771	1015	0	1786
58	1275	507	0	1782
59	260	268	0	528
60	260	1019	0	1279

61	17	507	0	524
62	511	12	0	524
63	507	21	0	528
64	256	759	0	1015
65	276	507	0	784
66	771	4	0	776
67	507	12	0	520
68	12	256	0	268
69	264	21	0	285
70	21	17	0	37
71	256	8	0	264
72	8	12	0	21
73	0	264	0	264
74	4	8	0	12
75	252	21	0	272
76	4	8	0	12
77	0	12	0	12
78	0	12	0	12
79	0	8	0	8
80	0	4	0	4
81	0	8	0	8
82	0	8	0	8
83	0	285	0	285
84	0	264	0	264
85	0	12	0	12
86	0	12	0	12
87	0	4	0	4
88	0	4	0	4
89	0	4	0	4
90	0	8	0	8
91	0	0	0	0
92	0	4	0	4
93	0	4	0	4
94	0	0	0	0
95	0	0	0	0
96	0	0	0	0
97	0	4	0	4
98	0	0	0	0
99	0	0	0	0
100	0	0	0	0
101	0	0	0	0
102	0	8	0	8
103	0	0	0	0
104	0	252	0	252
105	0	0	0	0
106	0	4	0	4
107	0	0	0	0
108	0	0	0	0
109	0	0	0	0
110	0	0	0	0

<b>Total</b>	17392	16064	0	33455
<b>Samples</b>				3
<b>Ind. Sampled</b>				305
<b>Catch (ton)</b>				43
<b>SOP</b>				0.97

**Table 22.** Greenland halibut Spanish 2017 catches total Age Length key (ALK).

LENGTH	Ages																				TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
10																					0
11																					0
12	1																				1
13	7																				7
14	9																				9
15	8																				8
16	8																				8
17	8																				8
18	3																				3
19	1	1																			2
20		3																			3
21		1																			1
22		2																			2
23			1																		1
24			1																		1
25																					0
26			1																		1
27																					0
28			1																		1
29				1																	1
30				2																	2
31				3																	3
32				8																	8
33				7	2																9
34				9	7																16
35				4	7																11
36				6	17																23
37				7	21	1															29
38				3	25	2															30
39				4	25	8															37
40					21	10															31
41					28	13															41
42					21	21															42
43					13	31															44
44					10	31	1														42
45						37	3														40
46						2	42	4													48
47						2	33	10													45
48						1	30	19													50
49							24	24	1												49
50							10	32	3	1											46
51							8	39	1												48
52								33	11	1											45
53								37	8	6											51
54								28	13	6											47
55								21	13	8	1										43
56								21	18	2	1										42
57								9	17	10	1										37
58								5	15	12	3										35
59								3	6	9	9	2									29
60								1	1	6	17	1	1								27
61									5	15	6	1	1								27
62								1	2	10	6	1									20
63									2	14	3		1	1							21
64										3	4	6	2								15
65										3	9	7									19
66										1	2	3	3	1							10
67										1	2	2	3	3							11
68										1	4	4	2								11
69											1	2	1								4
70											4	1	2								7
71											4										4
72												2	1	1							4
73												3	1	1							5
74												1	1	2	1	1					6
75													1								1
76												1	1	1							3
77													2	1	1						4
78														1		1					2
79														1							1
80															1	2					3
81																1					1
82																1	2	1			4
83																	1				1
84																					0
85																				1	1
86																			1	1	2
87																					0
88																			1	1	2
89																			1	1	1
90																			1	1	2
91																			1		1
92																					0
93																					0
94																					0
95																					0
96																					0
97																					0
98																					0
99																					0
100																					0
101																					0
102																					1
103																					0
104																					0
105																					0
TOTAL	45	7	4	54	202	301	290	107	71	79	36	26	30	13	12	10	6	3	4	1	1301





**Table 22 (Cont.)** Greenland halibut Spanish 2017 catches males Age Length key (ALK).

LENGTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL		
10																						0	
11																							0
12																							0
13	4																						4
14	4																						4
15	4																						4
16	4																						4
17	4																						4
18	1																						1
19	1	1																					2
20		1																					1
21			1																				1
22			2																				2
23				1																			1
24				1																			1
25				1																			1
26				1																			1
27				1																			1
28				1																			1
29					1																		1
30					2																		2
31					1																		1
32					5																		5
33				4	2																		6
34				4	3																		7
35				1	4																		5
36				4	11																		15
37				5	10																		15
38				3	13	1																	17
39					14	6																	20
40					11	6																	17
41					12	10																	22
42					15	7																	22
43					8	15																	23
44					6	15																	21
45						19																	19
46					1	22	1																24
47					1	16	4																21
48					1	13	10																24
49						14	10																24
50						7	14	2	1														24
51						5	18																23
52							17	5															22
53							20	3	1														24
54							15	5	1														21
55							10	4	5														19
56							10	6	1														17
57							5	6	3														14
58								2	4														6
59								1	1	2													4
60									2	2			1										5
61									1	2													3
62								1	2	10	6	1											20
63									2	14	3			1	1								21
64										3	4	6	2										15
65										3	9	7											19
66										1	2	3	3	1									10
67										1	2	2	3	3									11
68											1	4	4	2									11
69												1	2	1									4
70													4	1	2								7
71													4										4
72														2	1	1							4
73													3	1	1								5
74												1	1		2	1	1						6
75															1								1
76																							0
77															2	1	1						4
TOTAL	22	5	6	30	112	156	134	35	24	38	28	25	27	12	9	3	2	0	0	0	0	668	



Table 22 (Cont.) Greenland halibut Spanish 2015 catches females Age Length key (ALK).

LENGTH	Ages																				TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
10																					0
11																					0
12	1																				1
13	3																				3
14	5																				5
15	4																				4
16	4																				4
17	4																				4
18	2																				2
19	1	1																			2
20		2																			2
21		1																			1
22		2																			2
23			1																		1
24			1																		1
25			1																		1
26			1																		1
27			1																		1
28			1																		1
29				1																	1
30				1																	1
31				2																	2
32				3																	3
33				3																	3
34				5	4																9
35				3	3																6
36				2	6																8
37				2	11	1															14
38					12	1															13
39				4	11	2															17
40					10	4															14
41					16	3															19
42					6	14															20
43					5	16															21
44					4	16	1														21
45						18	3														21
46					1	20	3														24
47					1	17	6														24
48						17	9														26
49						10	14	1													25
50						3	18	1													22
51						3	21	1													25
52							16	6	1												23
53							17	5	5												27
54							13	8	5												26
55							11	9	3	1											24
56							11	12	1	1											25
57							4	11	7	1											23
58							5	13	8	3											29
59							3	5	8	7	2										25
60							1	1	4	15		1									22
61								4	13	6		1									24
62								1	2	10	6	1									20
63									2	13	3		1	1							20
64										3	4	6	2								15
65										3	9	7									19
66										1	2	3	3	1							10
67										1	2	2	3	3							11
68											1	4	4	2							11
69												2	1								4
70												4	1	2							7
71												4									4
72													2	1	1						4
73													3	1	1						5
74													1	1	2	1	1				6
75														1							1
76														1	1						3
77															2	1	1				4
78																1		1			2
79																					1
80																	1				3
81																					1
82																					4
83																					1
84																					0
85																					1
86																					2
87																					0
88																					2
89																					1
90																					2
91																					1
92																					0
93																					0
94																					0
95																					0
96																					0
97																					0
98																					0
99																					0
100																					0
101																					0
102																					1
TOTAL	24	6	6	26	90	145	156	73	51	72	36	25	30	13	12	10	6	3	4	1	789



**Table 23.** Roughhead grenadier Spanish 2017 Commercial Total Age Length key (ALK).

AFL cm	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
0																									0	
1																										0
2																										0
3	5																									5
4		1																								1
5		28																								28
6		28	2																							30
7		5	13																							18
8			4																							4
9			2	4																						6
10				6	4																					10
11				11	8	1																				20
12				16	39	4																				59
13				4	36	17																				57
14					16	23	6																			45
15					6	35	20																			61
16					2	11	31	11	1																	56
17						3	26	20	8	3																60
18						1	8	32	18	3	1															63
19							1	15	29	17	9	1														72
20									9	24	9	5	2													49
21									2	15	9	5	2													33
22										5	13	14	2	1												35
23											8	7	3	2	1											21
24											3	7	8		1											19
25											2	8	4	1	2											17
26													4	10	2	1	1			1						19
27													2	4	3	2	2									13
28														1	2	1	2									6
29															2	1	1									4
30															3		2									5
31																1	3	2								6
32																		2								2
33																			1							1
34																		2				1				3
35																										0
36																										0
37																										0
38																					2					2
39																					1					1
40																										0
<b>TOTAL</b>	5	62	21	41	111	95	92	78	67	67	54	47	27	21	15	6	12	5	4	0	1	0	0	0	0	831



**Table 23 (Cont.)** Roughhead grenadier Spanish 2015 Commercial males Age Length key (ALK).

AFL cm	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
0																									0	
1																										0
2																										0
3																										0
4																										0
5																										0
6																										0
7																										0
8				2																						2
9				4																						4
10				5	3																					8
11				7	8	1																				16
12				9	24	4																				37
13				2	24	13																				39
14					12	15	5																			32
15					4	27	17																			48
16					1	7	20	9	1																	38
17						2	14	16	6	3																41
18							3	23	15	3	1															45
19								8	15	14	9	1														47
20									5	12	4	4	2													27
21										5	4	2	1													12
22										1	4	2														7
23											1	1	1													3
24																										0
25																										0
26																										0
27																										0
28																										0
29																										0
30																										0
31																										0
32																										0
33																										0
34																										0
35																										0
36																										0
37																										0
38																										0
39																										0
40																										0
<b>TOTAL</b>	0	0	0	2	27	76	69	59	56	42	38	23	10	4	0	0	0	0	0	0	0	0	0	0	0	406



**Table 23 (Cont.)** Roughhead grenadier Spanish 2015 Commercial females Age Length key (ALK).

AFL cm	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL		
0																										0	
1																											0
2																											0
3																											0
4																											0
5																											0
6																											0
7																											0
8																											0
9			1																								1
10				1	1																						2
11				4																							4
12				7	15																						22
13				2	12	4																					18
14					4	8	1																				13
15					2	8	3																				13
16					1	4	11	2																			18
17						1	12	4	2																		19
18						1	5	9	3																		18
19							1	7	14	3																	25
20								4	12	5	1																22
21								2	10	5	3	1															21
22									4	9	12	2	1														28
23										7	6	2	2	1													18
24										3	7	8		1													19
25										2	8	4	1	2													17
26											4	10	2	1	1					1							19
27												2	4	3	2	2											13
28												1	2	1	2												6
29												2	1	1													4
30														3		2											5
31															1	3	2			2							6
32																				2							2
33																				1							1
34																		2				1					3
35																											0
36																											0
37																											0
38																					2						2
39																					1						1
40																											0
<b>TOTAL</b>	0	0	1	14	35	26	33	22	25	29	31	37	23	21	15	6	12	5	4	0	1	0	0	0	0	340	



**Table 24.** Capelin Spanish catches length distribution for Div. 3NO.

<b>Capelin Length (cm)</b>	<b>Males</b>	<b>3NO Females</b>	<b>Ind.</b>	<b>Total</b>
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	88	88
11	0	0	982	982
12	0	0	3576	3576
13	0	0	4924	4924
14	0	0	6238	6238
15	0	0	3288	3288
16	0	0	445	445
17	0	0	90	90
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
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	0	0	0
30	0	0	0	0
<b>Total</b>	0	0	19632	19632
<b>Samples</b>				2
<b>Ind. Sampled</b>				220
<b>Catch (tons)</b>				0
<b>SOP</b>				1.04

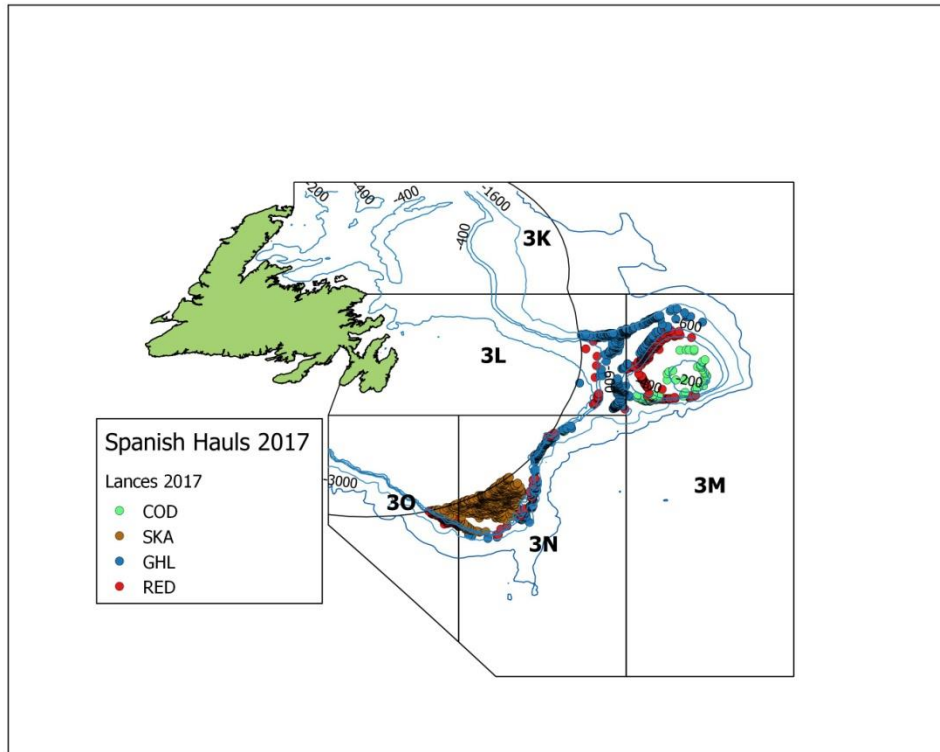
**Table 25.** Splendid alfonsino Spanish catches length distribution for Div. 6G.

Splendid alfonsino Length (cm)	6G			Total
	Males	Females	Ind.	
19	0	0	53	53
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
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	0	0	0
30	33	0	0	33
31	0	0	0	0
32	101	367	0	468
33	1280	132	0	1411
34	722	442	0	1164
35	2364	674	0	3038
36	2781	670	0	3452
37	3856	2575	0	6431
38	6040	2735	0	8775
39	5158	3514	0	8672
40	4608	4044	0	8652
41	4199	3399	0	7598
42	2729	2946	0	5675
43	1580	2676	0	4256
44	1292	2140	0	3431
45	926	1324	0	2250
46	785	843	0	1628
47	536	641	0	1177
48	328	400	0	728
49	189	171	0	359
50	95	79	0	174
51	5	338	0	344
52	0	401	0	401
53	0	168	0	168
54	15	15	0	30
55	0	0	0	0
56	0	0	0	0
57	0	0	0	0
58	0	33	0	33
59				0
60				0
<b>Total</b>	39621	30726	53	70400

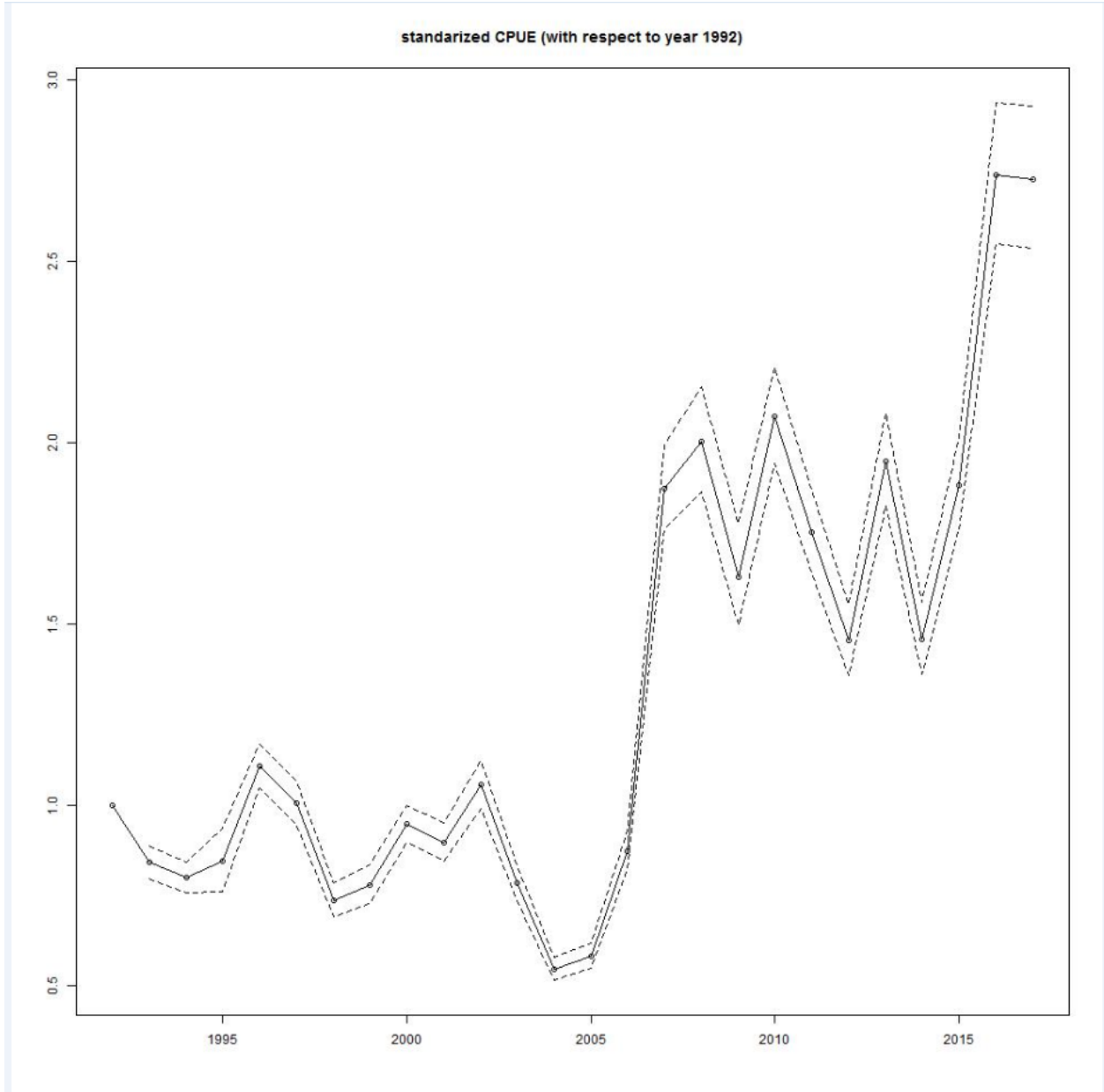
<b>Samples</b>	16
<b>Ind. Sampled</b>	2264
<b>Catch (tons)</b>	55
<b>SOP</b>	1.06







**Fig. 1.** Spanish Fishery 2017 footprint based in Logbook data.



**Fig. 2.** Spanish fleet standardized CPUE with model presented by Gonzalez-Costas and Gonzalez-Troncoso (2009) update with the 2017 data.