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**Results of the Spanish survey in NAFO Div. 3NO**

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Greenland halibut (*Reinhardtius hippoglossoides*), American plaice (*Hippoglossoides platessoides*), Atlantic cod (*Gadus morhua*), yellowtail flounder (*Limanda ferruginea*), redfish (*Sebastes spp.*), witch flounder (*Glyptocephalus cynoglossus*), roughhead grenadier (*Macrourus berglax*), thorny skate (*Amblyraja radiata*), white hake (*Urophycis tenuis*), squid (*Illex illecebrosus*) and capelin (*Mallotus villosus*) indices from the bottom trawl survey that Spain carries out in Spring since 1995 in Divisions 3NO of the NAFO Regulatory Area are presented. In 2020, the survey was not carried out due to the COVID pandemic situation. The presented indices are biomass by stratum, total length distribution and *a* and *b* parameters for the length-weight relationship; age distribution is also presented for Greenland halibut, Atlantic cod and American plaice.

**Methods**

Since 1995, Spain carries out a Spring-Summer (May/June) survey in the Divisions 3NO of the NAFO Regulatory Area of. From 1995 to 2000, the survey was conducted on board the C/V *Playa de Menduïña* with a net trawl type *Pedreira*. In 2001 this vessel was replaced by the R/V *Vizconde de Eza*, using a trawl net type *Campelen*. The Spanish multi specific bottom trawl survey in NAFO Regulatory Area Div. 3NO covers a depth range of 43-1 438 m according to a stratified random design. The current gear is a *Campelen* otter trawl with 20 mm mesh size in the cod-end. In 1995 most of the strata were not covered, and in 1996 the coverage of depths more than 1000 m was not complete. These years are not representative for the majority of the species, for which only data from 1997 are presented. For some species, only data from the R/V *Vizconde de Eza* series are presented. For more details about the technical specifications of the survey, see Walsh *et al.* (2001) and González Troncoso *et al.* (2004).

In each haul, all the individuals caught were sorted by species and weighted. Random samples of the catch of each species were length measured (total length) to the nearest lower cm, except for



roughhead grenadier, for which pre-anal length in 0.5 cm intervals to the inferior 0.5 cm is taken, and squid, for which length measures are of the total body in 0.5 cm intervals to the inferior 0.5 cm. For editorial reasons, in this document the length distributions are presented aggregated into 2 cm intervals (beginning with the even number) and raised to the catch of each species; except in the cases of roughhead grenadier and squid, aggregated into 1 cm intervals. To know more results details about the survey, please contact the authors.

The number of valid tows, the depth strata covered and the dates of the survey by year are presented in Table 1. Table 2 shows the swept area and number of hauls by stratum of the last five years of survey. Note that the survey was not carried out in 2020 due to the COVID pandemic situation. Figure 1 contains the map with the location of the hauls of the survey conducted in 2022. Table 3 presents by year the total survey mean catch per tow (total catches/number of hauls) as well as the main species and groups catch composition in percentage. Figure 2 shows the percentage by year of each species presented in the catches. In figure 3 the total mean catch per tow is shown. To obtain the index, the total catch of the survey was divided among the total number of hauls, by year.

Table 4 contains the length-weight relationship parameters  $a$  and  $b$  of the last five years of survey for all the species for which results are presented in this document.

For each of the objective species, the biomass estimated by the swept area method by stratum and the total length distribution by year is presented. Besides that, the total age distribution by year is presented for Greenland halibut, American plaice and Atlantic cod. For Greenland halibut and Atlantic cod, the otoliths collected during the survey were read in the Instituto Español de Oceanografía (IEO) of Vigo to generate the ALKs to transform the length distribution of these species into age distribution. The ALK used to transform the American plaice length distribution into age distribution was provided by Canada (Laura Wheeland personal comment).

For most of the species, the indices are presented transformed until 2000 and no-transformed since 2002. In 2001 there are both transformed data from C/V Playa de Menduiña and original data from R/V Vizconde de Eza. Further information about the calculation of these indices is available in González Troncoso and Paz (2003).

Most of the tables present the last five years of survey, while most of the figures include the whole series of data. Information from previous years is available in Garrido et al. (2022).

## Results

### *Greenland halibut*

Figure 4 presents the map with the distribution of the Greenland halibut Spanish 3NO survey catches for the last four years.

### *Biomass and abundance*

Table 5 presents the biomass estimated by the swept area method by stratum and year for Greenland halibut, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 5 shows the total biomass and abundance indices by year.

The biomass index oscillates between 5 000-15 000 t. Since 2017, the indices have remained more or less stable with annual fluctuations around values of 7 500 tons.

### *Length and Age Distribution*

In Table 6, the abundance by length and total by year for the last five years of survey is presented with the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species. Figure 6 (a) shows the total length distribution by year for the whole series, where the evolution along the years can be followed. Table 7 presents the total Age-Length Key (ALK) to transform the length distribution in age distribution. In table 8 and figure 6 (b), the abundance by age and total by year are presented.

In recent years, it is not easy to track the different cohorts of this species in the length and in the age plots. There are some signals of recruitment (i.e. 2019 or 2021) and some signals of abundance at intermediate ages, but they don't seem to be related.

### ***American plaice***

Figure 7 presents the maps with the distribution of the catches by haul of American plaice during the Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 9 shows the biomass per swept area by stratum for American plaice for the last five years of survey, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 8 presents the estimated total biomass and abundance indices by year.

The American plaice biomass and abundance indices present more or less stable trends until 2016, when a sharp decline was observed. Biomass and abundance remain at low level since then, being 2022 the lowest biomass value of the entire series and 2019 the lowest abundance value.

### *Length and Age Distribution*

Table 10 shows the abundance by length and total by year for the last five years of survey, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species. Figure 9 shows the total length distribution by year.

According to the figure, three cohorts can be followed at different lengths before 2015. Since then, no large abundant cohorts have been observed.

### ***Atlantic cod***

Figure 10 presents the maps with the distribution of the hauls catches of Atlantic cod during the Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 11 shows the biomass per swept area by stratum for Atlantic cod, as well as total biomass, mean catch per tow and abundance and their variance per year for the last five years of survey. Figure 11 presents the estimated total biomass and abundance indices by year for the whole period.

Biomass of cod presented poor values between 1997 and 2008 with some fluctuations and a great deviation due to a few hauls in which the catches of that species were very high (e.g., 2001). Since then, an increasing trend in the biomass of this species could be seen, also with many fluctuations, reaching the maximum of the series in 2014. Since then, biomass has decreased reaching in 2022 the

minimum of the series, at the level of 1997, and has remained low ever since. Abundance follows a similar trend, despite the maximum of the series is placed in 2009 and 2011, instead of 2014.

### *Length and Age Distribution*

In table 12, the abundance by length and total by year is presented with the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 12 (a) shows the length distribution by year for the whole series, where the evolution along the years can be followed. Table 13 ALKs transform length distribution in age distribution. In table 14 and Figure 12 (b), the abundance by age and total by year are presented.

One cohort can be tracked from 2007 to 2011. Since 2012, the low abundances of the cohorts have not allowed to follow them.

### ***Yellowtail flounder***

Figure 13 presents the maps with the distribution of the hauls catches of yellowtail flounder Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 15 shows the biomass per swept area by stratum for yellowtail flounder for the last five years of survey, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 14 presents the total biomass and abundance indices by year.

Yellowtail flounder indices increased substantially from 1995 to 1999, and they remained almost constant at high levels until 2013, when they started to decline until 2022. Since 2019, biomass and abundance indices are at very low levels, similar to those before 1998.

### *Length Distribution*

Table 16 presents the abundance of yellowtail flounder by length and total by year, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 15 shows the length distribution by year.

No good recruitment can be observed in the series. Every year, a mode appears around 30 cm but the presence of juveniles is very low. The mode at intermediate lengths is also very low since 2019.

### ***Redfish***

Figure 16 presents the maps with the distribution of the hauls catches of redfish in the Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 17 shows the biomass per swept area by stratum for redfish, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 17 presents the total biomass and abundance indices by year.

Redfish indices oscillate greatly over time, probably because the gear does not adequately sample aggregating pelagic species. A great increase could be observed between 2008 and 2009, when the maximum values were reached both in the biomass and abundance indices. Since then, the indices followed an oscillating downward trend, being both in 2022 at levels previous to 2009.

### *Length Distribution*

Table 18 presents the abundance by length and total by year, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 18 shows the length distribution by year.

No good recruitment can be observed in the series. The last good year class was recorded in 2009 and this cohort can be tracked until 2019, but before and after that period the level is very low for all the length classes.

### ***Witch flounder***

Figure 19 presents the maps with the distribution of the hauls catches of witch flounder in the Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 19 shows the biomass per swept area by stratum for witch flounder, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 20 presents the total biomass and abundance indices by year.

Witch flounder indices follow a fluctuating downward trend throughout the entire period, reaching the lowest level in 2022 (less than 500 tons and around 1 million individuals) and the maximum in 2004 (more than 3 000 tons and more than 9.5 million individuals).

### *Length Distribution*

Table 20 presents the abundance of witch flounder by length and total by year, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 21 shows the length distribution by year.

The most abundant year classes were observed in the period 2002-2005 and has been very poor since then. Some modes can be tracked, probably due to the recruitments at the beginning of the series. In general, there was a quite good presence of individuals of lengths 34-42 cm. The presence of all the length ranges is poor in 2022.

### ***Roughhead grenadier***

Figure 22 presents the maps with the distribution of the hauls catches of roughhead grenadier in the Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 21 shows the biomass per swept area by stratum for roughhead grenadier for the last five years of survey, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 23 presents the total biomass and abundance indices by year.

The roughhead grenadier biomass and abundance indices follow an oscillating decreasing trend since 2004-2006, reaching the minimum of the series in 2019. In 2022, both indices remain at low levels.

### *Length Distribution*

Table 22 presents the abundance of roughhead grenadier by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 24 shows the length distribution by year.

The cohort being 10-11 cm in 1998 is easily followed until 2009. Some recruitment signal appeared in 2009, although all the length classes were poor, specially the largest. Since then, some signals of the smallest length ranges appear, although in 2022 all length classes are poorly represented.

### ***Thorny skate***

Figure 25 presents the maps with the distribution of the hauls catches of thorny skate in the Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 23 shows the biomass per swept area by stratum for thorny skate, the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 26 presents the total biomass and abundance indices by year.

Thorny skate biomass and abundance indices oscillate during the entire series. From maximum values in the 2004-2006 period, the indices show a general downward trend, reaching the minimum of the series in 2019. In 2022, the observed indices remained around de minimum of the series.

### *Length Distribution*

Table 24 presents the abundance of thorny skate by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 27 shows the length distribution by year.

The recruitment was good in 1997, 2002, 2010 and quite good in 2021. In 2021 all the length ranges recovered from the low values of 2019, when all the length ranges were very poor, following the drop of the biomass and abundance. In 2022, all the length classes are at low levels again.

### ***White hake***

Figure 28 presents the maps with the distribution of the hauls catches white hake in the Spanish 3NO survey for the last four years.

### *Biomass and abundance*

Table 25 shows the biomass per swept area by stratum for white hake for the whole period, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 29 presents the total biomass and abundance indices by year.

Biomass and abundance indices have been at low levels since 2001, when the maximums of the series were reached.

### *Length Distribution*

Table 26 presents the abundance of white hake by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these

samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 30 shows the length distribution by year.

Individuals within the length range 30-38 cm were very abundant in 2001 and can be followed up to 2006. All year classes have been poor since then, although small recruitment events were detected in 2004, 2013 and 2017, with individuals between 16-26 cm.

### ***Squid***

Figure 31 presents the maps with the distribution of the hauls catches of squid in the Spanish 3NO survey for the last four years.

#### *Biomass and abundance*

Table 27 shows the biomass per swept area by stratum for squid, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 32 presents the total biomass and abundance indices by year.

Squid biomass and abundance indices are very low in general. In 2018 and 2019 a sharp increase in biomass was observed during the survey. This increase is observed only in 2019 in the abundance due to no samples of this species were recorded during the 2018 survey. In 2021, the indices return to the low levels observed in previous years, and the situation remains the same in 2022.

#### *Length Distribution*

Table 28 presents the abundance of squid by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 33 shows the length distribution by year. Samples of this species were taken only in years 2011, 2017, 2019 and 2021.

In the years sampled, all the length classes were very poor except for 2019, when the length classes between 8 and 16 cm were well represented.

### ***Capelin***

Figure 34 presents the maps with the distribution of the hauls catches of capelin in the Spanish 3NO survey for the last four years.

#### *Biomass and abundance*

Table 29 shows the biomass per swept area by stratum for capelin, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 35 presents the total biomass and abundance indices by year.

The biomass of this species showed an increasing trend from 2007 to 2012, when the maximum of the series was reached. Since then, the biomass declined until 2021, reaching again intermediate levels in 2022. The abundance index is similar, although the maximum was reached in 2009.

#### *Length Distribution*

Table 30 presents the abundance of capelin by length and total by year, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 36 shows the length distribution by year.

Good recruitment signs are observed in 2007, 2009 and 2011. The effects of these recruitments seem to disappear in 2015. Since then, all the length classes are poor until 2022, when a signal of abundance at intermediate lengths is observed.

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**Table 1.** Spanish spring bottom trawl survey in NAFO Div. 3NO.

Year	Vessel	Valid tows	Depth strata covered (m)	Dates
1995	C/V Playa de Menduiña	77	42-684	May 18-May 29
1996	C/V Playa de Menduiña	112	41-1066	May 7-May 23
1997	C/V Playa de Menduiña	128	42-1263	April 26-May 18
1998	C/V Playa de Menduiña	124	42-1390	May 06-May 26
1999	C/V Playa de Menduiña	114	41-1381	April 07-May 26
2000	C/V Playa de Menduiña	118	42-1401	May 07-May 28
2001	R/V Vizconde de Eza	83	36-1156	May 03-May 04
2001	C/V Playa de Menduiña	121	40-1500	May 05-May 23
2002	R/V Vizconde de Eza	125	38-1540	April 29-May 19
2003	R/V Vizconde de Eza	118	38-1666	May 11-June 02
2004	R/V Vizconde de Eza	120	43-1539	June 06-June 24
2005	R/V Vizconde de Eza	119	47-1438	June 10-June 29
2006	R/V Vizconde de Eza	120	45-1480	June 07-June 27
2007	R/V Vizconde de Eza	110	45-1374	May 29-June 19
2008	R/V Vizconde de Eza	122	38-1460	May 27-June 16
2009	R/V Vizconde de Eza	109	41-1424	May 31-June 18
2010	R/V Vizconde de Eza	95	40-1395	May 30-June 18
2011	R/V Vizconde de Eza	122	44-1450	June 05-June 24
2012	R/V Vizconde de Eza	122	45-1462	June 03-June 21
2013	R/V Vizconde de Eza	122	42-1459	June 01-June 21
2014	R/V Vizconde de Eza	122	42-1334	June 02-June 21
2015	R/V Vizconde de Eza	122	43-1482	May 31-June 19
2016	R/V Vizconde de Eza	115	44-1761	May 30-June 18
2017	R/V Vizconde de Eza	113	41-1439	May 23-June 11
2018	R/V Vizconde de Eza	114	47-1410	June 02-June 21
2019	R/V Vizconde de Eza	115	43-1438	June 08-June 24
2020	No survey was carried out			
2021	R/V Vizconde de Eza	113	42-1394	June 5-June 24
2022	R/V Vizconde de Eza	113	40-1460	June 13-July 01

(\*) In 2001, for the calculation of the series, 83 hauls were taken from the R/V *Vizconde de Eza* and 40 hauls from the C/V *Playa de Menduiña* (123 hauls in total)

**Table 2.** Swept area and number of hauls by stratum. Last five years of the Spanish Spring survey in NAFO Div. 3NO. Swept area in square miles.

Stratum	Division	Area	2017		2018		2019		2021		2022	
			Number of hauls	Swept Area	Number of hauls	Swept Area	Number of hauls	Swept Area	Number of hauls	Swept Area	Number of hauls	Swept Area
353	30	269	3	0.0360	3	0.0338	3	0.0386	3	0.0398	3	0.0390
354	30	246	3	0.0356	3	0.0341	3	0.0382	3	0.0386	3	0.0386
355	30	74	2	0.0225	2	0.0232	2	0.0262	2	0.0251	2	0.0251
356	30	47	2	0.0232	2	0.0225	2	0.0248	2	0.0262	2	0.0251
357	3N	164	2	0.0232	2	0.0236	2	0.0251	2	0.0247	2	0.0244
358	3N	225	3	0.0364	3	0.0345	3	0.0382	3	0.0379	3	0.0390
359	3N	421	5	0.0596	5	0.0589	5	0.0634	5	0.0638	5	0.0641
360	3N	2,783	17	0.2044	17	0.1939	17	0.2212	17	0.2156	17	0.2201
374	3N	214	2	0.0236	2	0.0225	2	0.0255	2	0.0270	2	0.0259
375	3N	271	3	0.0364	3	0.0356	3	0.0382	3	0.0401	3	0.0386
376	3N	1,334	8	0.0975	8	0.0907	8	0.1042	8	0.1042	8	0.1009
377	3N	100	2	0.0251	2	0.0232	2	0.0262	2	0.0255	2	0.0255
378	3N	139	2	0.0236	2	0.0229	2	0.0259	2	0.0259	2	0.0255
379	3N	106	2	0.0244	2	0.0225	2	0.0262	2	0.0240	2	0.0244
380	3N	96	2	0.0236	2	0.0225	2	0.0262	2	0.0247	2	0.0251
381	3N	144	2	0.0229	2	0.0225	2	0.0255	2	0.0262	2	0.0259
382	3N	343	3	0.0360	4	0.0450	5	0.0645	4	0.0517	4	0.0525
721	30	65	2	0.0229	2	0.0229	2	0.0262	2	0.0251	2	0.0225
722	30	84	2	0.0232	2	0.0236	2	0.0255	2	0.0251	2	0.0240
723	3N	155	2	0.0229	2	0.0240	2	0.0248	2	0.0247	2	0.0251
724	3N	124	2	0.0240	2	0.0232	2	0.0244	2	0.0229	2	0.0255
725	3N	105	2	0.0244	2	0.0232	2	0.0255	2	0.0244	2	0.0240
726	3N	72	2	0.0232	2	0.0225	2	0.0259	2	0.0240	2	0.0240
727	3N	96	2	0.0229	2	0.0225	2	0.0248	2	0.0262	2	0.0259
728	3N	78	2	0.0229	2	0.0225	2	0.0248	2	0.0259	2	0.0236
752	3N	131	2	0.0236	2	0.0232	2	0.0266	2	0.0251	2	0.0217
753	3N	138	2	0.0232	2	0.0236	2	0.0247	2	0.0225	2	0.0247
754	3N	180	2	0.0217	2	0.0225	2	0.0240	2	0.0225	2	0.0214
755	3N	385	3	0.0338	3	0.0338	3	0.0356	2	0.0225	2	0.0225
756	3N	101	2	0.0229	2	0.0229	2	0.0251	2	0.0240	2	0.0225
757	3N	102	2	0.0225	2	0.0225	2	0.0262	2	0.0232	2	0.0217
758	3N	99	2	0.0229	2	0.0225	2	0.0259	2	0.0240	2	0.0221
759	3N	127	2	0.0225	2	0.0225	2	0.0251	2	0.0236	2	0.0236
760	3N	154	2	0.0236	3	0.0356	2	0.0255	2	0.0247	2	0.0221
761	3N	171	2	0.0236	1	0.0124	2	0.0236	2	0.0255	2	0.0244
762	3N	212	2	0.0229	2	0.0225	2	0.0255	2	0.0232	2	0.0221
763	3N	261	3	0.0352	3	0.0345	3	0.0382	3	0.0367	3	0.0334
764	30	100	2	0.0229	2	0.0225	2	0.0248	2	0.0251	2	0.0229
765	30	124	2	0.0225	2	0.0232	2	0.0251	2	0.0232	2	0.0229
766	30	144	2	0.0225	2	0.0229	2	0.0248	2	0.0240	2	0.0225
767	30	158	2	0.0229	2	0.0236	2	0.0244	2	0.0232	2	0.0229

**Table 3.** Percentage of catches for category by year and mean catch per tow by year. Spanish Spring survey in NAFO Div. 3NO.

	GHL	PLA	COD	YEL	RED	WIT	RGH	SKA	HKW	SQU	CAP	Fish	Crustacea	Mollusca	Human Rests	Other	MCPT (kg)	Total catch (t)
1995	1.7	26.5	4.4	13.5	41.7	1.9	0.2	7.9	0.0	0.0	0.3	1.9	0.0	0.0	0.0	0.0	342	26
1996	9.7	28.9	3.0	29.6	7.5	2.9	1.3	13.8	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	515	58
1997	20.9	20.9	2.4	22.9	2.8	1.9	5.6	10.0	0.0	0.0	0.3	12.4	0.0	0.0	0.0	0.0	502	64
1998	14.4	19.5	6.6	26.0	13.2	1.8	3.7	7.8	0.0	0.0	0.1	6.9	0.1	0.0	0.0	0.0	1,136	141
1999	11.4	19.0	1.0	28.7	20.9	1.5	2.1	8.3	0.0	0.0	0.0	6.4	0.5	0.0	0.0	0.0	1,568	179
2000	7.4	23.8	1.7	18.1	17.7	2.2	3.0	9.8	0.0	0.0	0.2	10.9	5.0	0.0	0.0	0.2	1,782	210
2001	0.6	19.7	6.0	27.7	30.7	1.1	0.2	5.9	1.3	0.0	2.7	3.4	0.8	0.0	0.0	0.0	702	58
2002	1.0	20.6	6.3	32.3	6.3	0.9	2.0	9.6	1.4	0.0	5.0	6.9	2.4	0.3	0.0	5.0	357	45
2003	1.5	27.6	1.7	22.3	6.8	1.2	2.0	5.2	0.4	0.0	9.3	8.6	1.5	0.4	0.0	11.5	428	51
2004	1.0	21.6	0.9	23.8	11.4	0.8	3.2	7.3	0.2	0.4	3.6	19.1	2.1	0.3	0.0	4.2	530	64
2005	0.7	16.5	1.0	17.8	35.7	0.5	2.2	5.3	0.5	0.0	0.3	11.7	1.0	0.3	0.0	6.6	673	80
2006	0.6	21.9	5.0	19.5	26.8	0.4	2.2	6.6	0.2	0.1	0.3	7.9	1.0	0.2	0.0	7.1	660	79
2007	0.8	16.8	3.0	20.8	30.4	0.3	1.4	3.5	0.1	0.0	4.0	13.8	0.7	0.1	0.0	4.1	664	73
2008	1.4	21.2	4.6	17.5	17.7	0.4	1.4	3.4	0.0	0.0	7.7	9.7	0.4	0.1	0.0	14.4	690	84
2009	1.1	6.5	5.3	9.4	58.3	0.2	0.6	1.4	0.1	0.0	5.1	4.0	0.3	0.0	0.0	7.4	1,572	171
2010	1.6	6.8	9.2	9.2	60.7	0.3	0.7	1.2	0.0	0.0	3.7	3.1	0.3	0.0	0.1	3.2	1,425	135
2011	0.7	8.9	9.3	12.5	59.0	0.1	0.6	0.9	0.1	0.4	0.6	4.8	0.4	0.1	0.0	1.4	1,327	162
2012	0.9	10.7	10.4	14.1	38.6	0.3	1.0	2.3	0.2	0.0	10.6	7.1	0.2	0.0	0.0	3.4	1,065	130
2013	0.6	10.2	3.8	12.3	54.9	0.2	0.6	1.6	0.2	0.0	2.4	7.5	0.2	0.0	0.0	5.4	1,170	143
2014	0.9	8.5	21.5	12.6	37.7	0.2	0.6	0.8	0.1	0.0	8.1	6.6	0.3	0.0	0.0	2.1	913	111
2015	0.9	7.6	8.1	8.1	60.9	0.2	0.7	1.4	0.1	0.0	2.3	6.4	0.2	0.0	0.0	3.1	1,261	154
2016	2.1	6.0	8.9	18.9	37.5	0.7	0.9	3.5	0.6	0.0	1.4	11.8	0.5	0.1	0.0	7.1	518	60
2017	3.3	3.4	6.4	8.9	59.5	0.6	1.3	2.2	0.2	0.1	0.7	10.2	0.3	0.1	0.0	2.8	708	80
2018	1.5	5.0	1.9	9.2	60.4	0.2	0.6	1.8	0.1	2.4	3.1	10.8	1.0	0.0	0.0	1.8	726	83
2019	2.4	3.2	1.4	5.8	57.3	0.1	0.3	0.6	0.0	6.0	4.5	15.6	0.8	0.1	0.0	1.8	517	59
2021	3.1	8.9	5.7	8.6	35.6	0.3	1.4	6.7	0.5	0.0	2.2	21.3	0.7	0.3	0.0	4.6	346	39
2020																		
2022	3.2	2.2	0.8	2.6	51.9	0.1	0.3	0.6	0.1	0.0	12.7	20.8	1.0	0.1	0.0	3.7	434	49
<b>Mean Percentage</b>	<b>3.5</b>	<b>14.5</b>	<b>5.2</b>	<b>16.8</b>	<b>34.9</b>	<b>0.8</b>	<b>1.5</b>	<b>4.8</b>	<b>0.2</b>	<b>0.3</b>	<b>3.4</b>	<b>9.4</b>	<b>0.8</b>	<b>0.1</b>	<b>0.0</b>	<b>3.7</b>		

**Table 4.** Length-weight relationship for each species by year. Spanish Spring survey in NAFO Div. 3NO.

		2017	2018	2019	2021	2022
<b>American plaice</b>	<b>a</b>	<b>0.0033</b>	<b>0.0031</b>	<b>0.0036</b>	<b>0.0042</b>	<b>0.0043</b>
	<b>b</b>	<b>3.2528</b>	<b>3.2784</b>	<b>3.2253</b>	<b>3.1912</b>	<b>3.1801</b>
	<b>R2</b>	0.99	0.98	0.98	0.99	0.98
	<b>N</b>	912	1059	1084	1208	1208
<b>Atlantic cod</b>	<b>a</b>	<b>0.0044</b>	<b>0.0053</b>	<b>0.0064</b>	<b>0.0060</b>	<b>0.0053</b>
	<b>b</b>	<b>3.1313</b>	<b>3.1107</b>	<b>3.0626</b>	<b>3.0698</b>	<b>3.1040</b>
	<b>R2</b>	0.98	0.99	0.98	0.99	0.98
	<b>N</b>	942	1110	822	912	490
<b>Capelin</b>	<b>a</b>	<b>0.0003</b>	<b>0.0006</b>	<b>0.0009</b>	<b>0.0009</b>	<b>0.0006</b>
	<b>b</b>	<b>3.9534</b>	<b>3.7360</b>	<b>3.5916</b>	<b>3.6069</b>	<b>3.7037</b>
	<b>R2</b>	0.89	0.87	0.92	0.94	0.86
	<b>N</b>	386	532	1359	1043	1333
<b>Greenland halibut</b>	<b>a</b>	<b>0.0032</b>	<b>0.0034</b>	<b>0.0034</b>	<b>0.0038</b>	<b>0.0040</b>
	<b>b</b>	<b>3.2292</b>	<b>3.2127</b>	<b>3.2187</b>	<b>3.1742</b>	<b>3.1697</b>
	<b>R2</b>	0.99	0.99	0.99	0.99	0.99
	<b>N</b>	1184	1447	1917	1323	1585
<b>Redfish</b>	<b>a</b>	<b>0.0092</b>	<b>0.0091</b>	<b>0.0097</b>	<b>0.0093</b>	<b>0.0082</b>
	<b>b</b>	<b>3.0892</b>	<b>3.1002</b>	<b>3.0895</b>	<b>3.1070</b>	<b>3.1427</b>
	<b>R2</b>	0.99	0.99	0.97	0.98	0.98
	<b>N</b>	668	1105	1083	1240	1042
<b>Roughhead grenadier</b>	<b>a</b>	<b>0.0846</b>	<b>0.0831</b>	<b>0.0658</b>	<b>0.0798</b>	<b>0.0645</b>
	<b>b</b>	<b>2.9808</b>	<b>2.9717</b>	<b>3.0580</b>	<b>2.9814</b>	<b>3.0562</b>
	<b>R2</b>	0.98	0.98	0.99	0.98	0.99
	<b>N</b>	1181	893	296	935	440
<b>Squid</b>	<b>a</b>	<b>0</b>	<b>0</b>	<b>0.0497</b>	<b>0.0361</b>	<b>0</b>
	<b>b</b>	<b>0</b>	<b>0</b>	<b>2.6237</b>	<b>2.7336</b>	<b>0</b>
	<b>R2</b>	0	0	0.90	0.89	0
	<b>N</b>	0	0	779	314	0
<b>Thorny skate</b>	<b>a</b>	<b>0.0098</b>	<b>0.0098</b>	<b>0.0081</b>	<b>0.0051</b>	<b>0.0054</b>
	<b>b</b>	<b>2.9921</b>	<b>2.9997</b>	<b>3.0418</b>	<b>3.1487</b>	<b>3.1389</b>
	<b>R2</b>	0.98	0.98	0.98	0.99	0.98
	<b>N</b>	594	404	109	990	98
<b>White hake</b>	<b>a</b>	<b>0.0025</b>	<b>0.0060</b>	<b>0.0044</b>	<b>0.0037</b>	<b>0.0038</b>
	<b>b</b>	<b>3.2827</b>	<b>3.0565</b>	<b>3.1165</b>	<b>3.1533</b>	<b>3.1535</b>
	<b>R2</b>	0.99	0.97	0.98	0.98	0.99
	<b>N</b>	150	74	57	168	63
<b>Witch flounder</b>	<b>a</b>	<b>0.0011</b>	<b>0.0014</b>	<b>0.0013</b>	<b>0.0023</b>	<b>0.0014</b>
	<b>b</b>	<b>3.4686</b>	<b>3.4047</b>	<b>3.4198</b>	<b>3.2726</b>	<b>3.3991</b>
	<b>R2</b>	0.98	0.98	0.98	0.97	0.98
	<b>N</b>	595	430	196	312	141
<b>Yellowtail flounder</b>	<b>a</b>	<b>0.0071</b>	<b>0.0041</b>	<b>0.0049</b>	<b>0.0057</b>	<b>0.0046</b>
	<b>b</b>	<b>3.0434</b>	<b>3.2177</b>	<b>3.1647</b>	<b>3.1082</b>	<b>3.1677</b>
	<b>R2</b>	0.98	0.97	0.97	0.98	0.97
	<b>N</b>	689	794	937	990	985

**Table 5.** Biomass (t) of Greenland halibut by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353	1	83	27	174	42
354	23	6	12	67	8
355	4	9	49	3	7
356	0	1	7	12	0
357	9	1	3	26	18
358		10	9	52	10
359	7	16	8	45	145
360	6	13	12	186	148
374	4		0		
375	0				0
376	1	0	0		
377	0	6	0	2	0
378	20	10	1	1	2
379	0	1	0	11	9
380	130	91	418	246	180
381	20	1	319	254	54
382	4	1	8	65	1
721	22	37	6	13	5
722	69	113	93	263	3
723	39	41	63	115	23
724	36	15	131	44	100
725	41	47	108	45	21
726	141	53	186	109	113
727	486	275	663	110	354
728	924	144	250	248	223
752	1022	268	282	344	959
753	493	172	180	157	165
754	977	576	556	219	297
755	1214	554	905	806	779
756	908	240	286	330	516
757	1358	351	252	198	1003
758	1376	657	109	100	377
759	852	197	234	252	625
760	603	428	368	433	511
761	337	453	407	374	874
762	1483	627	213	379	300
763	1223	549	305	322	609
764	325	279	106	150	284
765	171	525	159	255	136
766	373	135	460	380	289
767	322	112	119	104	68
<b>Biomass</b>	15026	7099	7316	6893	9258
<b>SD_B</b>	1728	658	811	542	1196
<b>MWPT</b>	16.66	7.91	8.86	8.49	11.22
<b>SD_MWPT</b>	1.92	0.72	0.95	0.66	1.33
<b>Abundance</b>	19976	12209	18483	16490	17023
<b>SD_A</b>	2262	970	2341	2781	2790

**Table 6.** Greenland halibut abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
6	4.0	0.0	0.0	7.0	0.0
8	30.0	14.0	28.0	0.0	0.0
10	678.0	431.0	936.0	20.0	16.0
12	1,721.0	1,146.0	1,460.0	392.0	303.0
14	493.0	669.0	308.0	1,094.0	809.0
16	230.0	348.0	451.0	729.0	293.0
18	294.0	435.0	820.0	837.0	227.0
20	574.0	631.0	1,152.0	1,627.0	330.0
22	547.0	501.0	1,009.0	2,384.0	389.0
24	327.0	291.0	918.0	1,267.0	905.0
26	204.0	232.0	1,070.0	483.0	993.0
28	356.0	298.0	1,140.0	279.0	642.0
30	534.0	321.0	1,159.0	324.0	822.0
32	508.0	353.0	949.0	417.0	1,028.0
34	490.0	255.0	1,047.0	454.0	1,077.0
36	467.0	467.0	844.0	572.0	816.0
38	518.0	486.0	744.0	604.0	1,040.0
40	704.0	390.0	600.0	707.0	1,174.0
42	951.0	428.0	488.0	628.0	1,011.0
44	1,162.0	579.0	388.0	621.0	1,119.0
46	1,327.0	561.0	449.0	586.0	913.0
48	1,193.0	555.0	324.0	499.0	581.0
50	1,245.0	496.0	410.0	402.0	575.0
52	1,284.0	428.0	254.0	244.0	437.0
54	1,142.0	439.0	307.0	344.0	430.0
56	1,082.0	463.0	379.0	184.0	254.0
58	757.0	337.0	254.0	189.0	233.0
60	320.0	275.0	192.0	248.0	196.0
62	238.0	147.0	118.0	56.0	99.0
64	204.0	76.0	124.0	135.0	123.0
66	100.0	55.0	51.0	58.0	49.0
68	114.0	24.0	46.0	19.0	62.0
70	75.0	21.0	22.0	7.0	10.0
72	23.0	4.0	12.0	7.0	13.0
74	14.0	12.0	0.0	10.0	15.0
76	24.0	9.0	19.0	15.0	12.0
78	21.0	12.0	4.0	6.0	22.0
80	22.0	4.0	0.0	3.0	0.0
82	0.0	0.0	0.0	5.0	0.0
84	0.0	0.0	0.0	7.0	7.0
86	0.0	0.0	5.0	0.0	0.0
88	0.0	4.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0
92	0.0	0.0	0.0	0.0	0.0
94	0.0	11.0	0.0	3.0	0.0
96	0.0	0.0	0.0	0.0	0.0
98	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	17.0	0.0
102	0.0	0.0	0.0	0.0	0.0
104	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>19,976.0</b>	<b>12,209.0</b>	<b>18,483.0</b>	<b>16,490.0</b>	<b>17,023.0</b>
<b>Biomass(t)</b>	<b>15,026.0</b>	<b>7,099.0</b>	<b>7,316.0</b>	<b>6,893.0</b>	<b>9,258.0</b>
<b>B/SOP(%)</b>	<b>100.0</b>	<b>98.0</b>	<b>100.0</b>	<b>103.0</b>	<b>101.0</b>
<b>Nsamples</b>	<b>96.0</b>	<b>90.0</b>	<b>90.0</b>	<b>86.0</b>	<b>83.0</b>
<b>Nindiv</b>	<b>3,457.0</b>	<b>2,164.0</b>	<b>3,629.0</b>	<b>2,840.0</b>	<b>3,187.0</b>
<b>Minlen</b>	<b>7.0</b>	<b>9.0</b>	<b>8.0</b>	<b>7.0</b>	<b>11.0</b>
<b>Maxlen</b>	<b>81.0</b>	<b>95.0</b>	<b>86.0</b>	<b>101.0</b>	<b>84.0</b>
<b>Sampledcatch(kg)</b>	<b>2,499.0</b>	<b>1,211.0</b>	<b>1,311.0</b>	<b>1,207.0</b>	<b>1,591.0</b>
<b>Totalcatch(kg)</b>	<b>2,669.0</b>	<b>1,215.0</b>	<b>1,415.0</b>	<b>1,207.0</b>	<b>1,591.0</b>

**Table 7.** Age-Length Key of Greenland halibut in 2022 Spanish Spring survey in NAFO Div. 3NO.

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	
6																							
8																							
10		2																					2
12		13																					13
14		15																					15
16		10	4																				14
18		1	15																				16
20			18																				18
22			11	8																			19
24			10	6																			16
26			4	14																			18
28			1	12	3																		16
30				4	11																		15
32				2	18																		20
34					10	7																	17
36					5	14	2																21
38					2	15	5																22
40						8	10																18
42						4	12																16
44							17	3															20
46							19	6															25
48							6	10															16
50							2	15	1														18
52								11	2	2													15
54								4	13	4													21
56								2	5	4													11
58									3	4													10
60										3													9
62										1	4	3	1										7
64											4	2	1										7
66											3	4											7
68											2	1	2	1									6
70												4	2				1						7
72																1							2
74															1								1
76															1	1							2
78																1	1						2
80																		1	1				
82																							
84																					1		1
86																							
88																							
90																							
92																							
94																							
96																							
98																							
100																							
<b>Total</b>	0	41	63	46	49	48	73	51	24	15	16	14	6	4	2	2	2	2	1	1			458



**Table 8.** Abundance (thousands) of Greenland halibut by age and total by year. Spanish Spring survey in NAFO Div. 3NO.

<b>Age</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
0	0	0	0	0	0
1	3116	2211	2812	2041	1354
2	1538	1881	3538	5868	1685
3	813	914	3453	1262	2008
4	1013	756	2336	945	2530
5	2196	1537	2206	1921	2415
6	4047	1770	1671	2146	3767
7	4267	1512	1057	1119	1647
8	1550	882	541	332	558
9	471	274	201	238	407
10	355	208	436	210	283
11	212	127	120	265	201
12	202	42	64	40	73
13	101	39	19	36	30
14	50	4	7	18	17
15	10	21	6	14	14
16	23	12	4	8	24
17	12	4	6	10	4
18	0	16	5	0	7
19	0	0	0	0	0
20	0	0	0	17	0
<b>Total</b>	<b>19976</b>	<b>12209</b>	<b>18483</b>	<b>16490</b>	<b>17023</b>



**Table 9.** Biomass (t) of American plaice by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
<b>353</b>	335	1173	20	276	186
<b>354</b>	1743	133	128	82	18
<b>355</b>	162	10	16	4	6
<b>356</b>	13	5		5	6
<b>357</b>	10			33	
<b>358</b>	1730	111	2236	329	28
<b>359</b>	3414	3585	1927	2209	842
<b>360</b>	13224	27037	2022	10877	3594
<b>374</b>	19	1638	199	607	259
<b>375</b>	132	642	71	172	436
<b>376</b>	1944	3898	612	687	144
<b>377</b>	71	932	1273	1598	690
<b>378</b>	989	582	108	107	292
<b>379</b>	366	6		2	
<b>380</b>	410	2175	118	30	9
<b>381</b>	55	805	1309	350	776
<b>382</b>	97	839	1660	10100	942
<b>721</b>	1			5	
<b>722</b>					
<b>723</b>					
<b>724</b>					
<b>725</b>	5	0		3	
<b>726</b>	4				
<b>727</b>	141	25	51		
<b>728</b>		9			
<b>752</b>	19				
<b>753</b>					
<b>754</b>					
<b>755</b>					
<b>756</b>					
<b>757</b>					
<b>758</b>					
<b>759</b>					
<b>760</b>					
<b>761</b>					
<b>762</b>					
<b>763</b>					
<b>764</b>					
<b>765</b>					
<b>766</b>					
<b>767</b>					
<b>Biomass</b>	24885	43607	11751	27475	8228
<b>SD_B</b>	5700	6971	2655	8940	1284
<b>MWPT</b>	29.33	48.18	14.79	34.1	10.6
<b>SD_MWPT</b>	6.36	7.92	3.31	10.98	1.59
<b>Abundance</b>	80476	138800	30153	93318	37036
<b>SD_A</b>	18305	24010	5360	19049	7739

**Table 10.** American plaice abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
2	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	94.0	0.0
6	0.0	0.0	0.0	2,739.0	7.0
8	44.0	16.0	44.0	6,892.0	0.0
10	131.0	49.0	23.0	1,094.0	734.0
12	211.0	22.0	27.0	155.0	4,082.0
14	543.0	375.0	90.0	771.0	5,296.0
16	1,110.0	674.0	287.0	873.0	3,755.0
18	1,954.0	1,380.0	223.0	1,215.0	1,025.0
20	3,407.0	3,066.0	382.0	3,683.0	374.0
22	4,430.0	5,996.0	1,001.0	10,769.0	697.0
24	5,842.0	8,440.0	1,324.0	10,001.0	1,438.0
26	4,753.0	11,264.0	2,192.0	4,144.0	2,513.0
28	5,903.0	12,700.0	2,234.0	3,308.0	2,466.0
30	10,506.0	22,183.0	3,146.0	5,405.0	2,638.0
32	12,381.0	21,807.0	3,983.0	8,908.0	2,487.0
34	9,915.0	16,421.0	3,789.0	9,356.0	2,487.0
36	5,295.0	9,668.0	2,581.0	7,076.0	2,123.0
38	3,820.0	7,698.0	1,865.0	4,430.0	1,307.0
40	3,557.0	7,247.0	2,103.0	2,850.0	889.0
42	2,400.0	4,429.0	2,091.0	3,189.0	736.0
44	1,343.0	2,726.0	1,548.0	3,025.0	760.0
46	1,189.0	1,080.0	566.0	1,941.0	567.0
48	624.0	544.0	319.0	738.0	319.0
50	403.0	439.0	101.0	429.0	156.0
52	220.0	150.0	87.0	33.0	74.0
54	133.0	77.0	61.0	40.0	18.0
56	83.0	51.0	0.0	23.0	44.0
58	88.0	98.0	49.0	34.0	16.0
60	25.0	115.0	0.0	20.0	11.0
62	143.0	41.0	25.0	63.0	13.0
64	18.0	41.0	13.0	0.0	0.0
66	0.0	0.0	0.0	21.0	0.0
68	7.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0
72	0.0	0.0	0.0	0.0	0.0
74	0.0	0.0	0.0	0.0	0.0
76	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>80,476.0</b>	<b>138,800.0</b>	<b>30,153.0</b>	<b>93,318.0</b>	<b>37,036.0</b>
<b>Biomass(t)</b>	<b>24,885.0</b>	<b>43,607.0</b>	<b>11,751.0</b>	<b>27,475.0</b>	<b>8,228.0</b>
<b>B/SOP(%)</b>	<b>100.0</b>	<b>96.0</b>	<b>102.0</b>	<b>104.0</b>	<b>101.0</b>
<b>Nsamples</b>	<b>68.0</b>	<b>65.0</b>	<b>59.0</b>	<b>64.0</b>	<b>56.0</b>
<b>Nindiv</b>	<b>5,051.0</b>	<b>6,726.0</b>	<b>3,355.0</b>	<b>6,332.0</b>	<b>3,752.0</b>
<b>Minlen</b>	<b>8.0</b>	<b>8.0</b>	<b>8.0</b>	<b>5.0</b>	<b>7.0</b>
<b>Maxlen</b>	<b>69.0</b>	<b>64.0</b>	<b>64.0</b>	<b>67.0</b>	<b>63.0</b>
<b>Sampledcatch(kg)</b>	<b>1,518.0</b>	<b>2,120.0</b>	<b>1,211.0</b>	<b>1,744.0</b>	<b>1,055.0</b>
<b>Totalcatch(kg)</b>	<b>2,680.0</b>	<b>4,163.0</b>	<b>1,885.0</b>	<b>3,477.0</b>	<b>1,072.0</b>

**Table 11.** Biomass (t) of Atlantic cod by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
<b>353</b>	535	187		1	
<b>354</b>	591	24		1	
<b>355</b>	91		2		
<b>356</b>	124	6		7	2
<b>357</b>	381	443	134	12	
<b>358</b>	22217	115	339	3363	73
<b>359</b>	618	111	110	39	699
<b>360</b>	9157	3124	507	592	19
<b>374</b>				24	14
<b>375</b>	2	85	81	114	22
<b>376</b>	28	331	448	168	18
<b>377</b>	5	2573	1075	666	134
<b>378</b>	1614	1422	64	175	186
<b>379</b>	422	40	7	12	119
<b>380</b>	314	422	62	9	1
<b>381</b>	33	1524	1216	7294	445
<b>382</b>		214	441	209	468
<b>721</b>					
<b>722</b>					
<b>723</b>		35	42		
<b>724</b>					
<b>725</b>	94				
<b>726</b>					
<b>727</b>	15		12		
<b>728</b>					
<b>752</b>					
<b>756</b>					
<b>757</b>					
<b>758</b>					
<b>761</b>					
<b>762</b>					
<b>763</b>					
<b>Biomass</b>	36241	10655	4541	12685	2198
<b>SD_B</b>	18537	2373	675	7144	821
<b>MWPT</b>	49.91	13.84	10.14	16.59	4.47
<b>SD_MWPT</b>	22.03	2.61	0.85	9.29	1.05
<b>Abundance</b>	29840	10232	4166	19904	3093
<b>SD_A</b>	11416	2972	485	9852	843

**Table 12.** Atlantic cod abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
6	0.0	0.0	0.0	13.0	0.0
8	0.0	0.0	0.0	13.0	0.0
10	14.0	14.0	26.0	128.0	0.0
12	43.0	52.0	25.0	269.0	13.0
14	123.0	100.0	19.0	971.0	13.0
16	113.0	173.0	59.0	1,218.0	0.0
18	140.0	88.0	66.0	462.0	29.0
20	136.0	53.0	73.0	135.0	24.0
22	233.0	47.0	109.0	35.0	36.0
24	906.0	152.0	97.0	117.0	24.0
26	1,541.0	374.0	134.0	320.0	29.0
28	1,597.0	463.0	119.0	507.0	131.0
30	1,347.0	445.0	81.0	589.0	246.0
32	1,176.0	611.0	80.0	890.0	347.0
34	1,285.0	682.0	134.0	1,583.0	426.0
36	2,112.0	850.0	229.0	1,847.0	320.0
38	2,005.0	798.0	291.0	1,876.0	304.0
40	2,011.0	750.0	274.0	2,004.0	264.0
42	1,648.0	723.0	292.0	1,284.0	116.0
44	1,379.0	536.0	376.0	1,303.0	158.0
46	1,202.0	473.0	217.0	573.0	112.0
48	1,185.0	382.0	263.0	638.0	81.0
50	1,725.0	251.0	219.0	561.0	45.0
52	749.0	246.0	214.0	387.0	48.0
54	633.0	179.0	126.0	424.0	33.0
56	655.0	172.0	126.0	399.0	22.0
58	413.0	126.0	51.0	423.0	6.0
60	247.0	172.0	49.0	148.0	31.0
62	587.0	72.0	42.0	173.0	27.0
64	353.0	103.0	45.0	104.0	27.0
66	730.0	83.0	22.0	161.0	37.0
68	494.0	85.0	28.0	68.0	13.0
70	264.0	75.0	22.0	76.0	4.0
72	374.0	83.0	20.0	66.0	31.0
74	215.0	112.0	13.0	39.0	4.0
76	257.0	97.0	17.0	22.0	37.0
78	232.0	70.0	27.0	16.0	0.0
80	136.0	64.0	24.0	0.0	22.0
82	283.0	109.0	23.0	4.0	0.0
84	256.0	100.0	38.0	20.0	13.0
86	208.0	114.0	7.0	0.0	4.0
88	186.0	27.0	13.0	0.0	7.0
90	119.0	0.0	13.0	0.0	0.0
92	91.0	29.0	19.0	0.0	0.0
94	134.0	19.0	0.0	26.0	7.0
96	123.0	29.0	13.0	0.0	0.0
98	21.0	0.0	7.0	0.0	4.0
100	52.0	29.0	13.0	0.0	0.0
102	21.0	0.0	0.0	0.0	0.0
104	35.0	14.0	0.0	0.0	0.0
106	21.0	0.0	0.0	0.0	0.0
108	7.0	0.0	0.0	0.0	0.0
110	0.0	8.0	0.0	0.0	0.0
112	7.0	0.0	0.0	0.0	0.0
114	0.0	0.0	0.0	0.0	0.0
116	0.0	0.0	13.0	0.0	0.0
118	0.0	0.0	0.0	13.0	0.0
120	14.0	0.0	0.0	0.0	0.0
122	0.0	0.0	0.0	0.0	0.0
124	0.0	0.0	0.0	0.0	0.0
126	0.0	0.0	0.0	0.0	0.0
128	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0
132	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>29,840.0</b>	<b>10,232.0</b>	<b>4,166.0</b>	<b>19,904.0</b>	<b>3,093.0</b>
<b>Biomass(t)</b>	<b>36,241.0</b>	<b>10,655.0</b>	<b>4,541.0</b>	<b>12,685.0</b>	<b>2,198.0</b>
<b>B/SOP(%)</b>	<b>110.0</b>	<b>99.0</b>	<b>104.0</b>	<b>103.0</b>	<b>102.0</b>
<b>Nsamples</b>	<b>47.0</b>	<b>47.0</b>	<b>33.0</b>	<b>46.0</b>	<b>27.0</b>
<b>Nindiv</b>	<b>1,709.0</b>	<b>1,747.0</b>	<b>822.0</b>	<b>1,821.0</b>	<b>512.0</b>
<b>Minlen</b>	<b>10.0</b>	<b>10.0</b>	<b>11.0</b>	<b>7.0</b>	<b>13.0</b>
<b>Maxlen</b>	<b>121.0</b>	<b>110.0</b>	<b>117.0</b>	<b>118.0</b>	<b>98.0</b>
<b>Sampledcatch(kg)</b>	<b>2,001.0</b>	<b>1,553.0</b>	<b>787.0</b>	<b>1,223.0</b>	<b>372.0</b>
<b>Totalcatch(kg)</b>	<b>5,135.0</b>	<b>1,589.0</b>	<b>803.0</b>	<b>2,225.0</b>	<b>375.0</b>

**Table 13.** Age-Length Key of Atlantic cod in 2021 Spanish Spring survey in NAFO Div. 3NO.

Length	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total		
6																						0	
8																							0
10																							0
12	1																						1
14	1																						1
16																							0
18			3																				3
20			3																				3
22			5																				5
24			3																				3
26			4	2																			6
28			8	7																			15
30			6	9																			15
32			2	13																			15
34				15	1																		16
36				11	2																		13
38				5	11																		16
40				2	13																		15
42				1	10	1																	12
44				1	10	4																	15
46					12	3																	15
48					8	5																	13
50					4	4																	8
52					1	5	1																7
54					2	1	2																5
56					2	1	1																4
58							1																1
60					1	1	2	1															5
62						3	1																4
64						2	2	1															5
66					1	1	4																6
68							2																2
70								1															1
72							2	2															4
74									1														1
76							3	2		2													7
78																							0
80							1	3															4
82																							0
84							1	1															2
86									1														1
88									1														1
90																							0
92																							0
94											1												1
96																							0
98																		1					1
100																							0
<b>Total</b>	2	34	66	74	27	10	21	11	3	2	1	0	0	0	0	0	0	1	0	0	0	252	

**Table 14.** Abundance (thousands) of Atlantic cod by age and total year. Spanish Spring survey in NAFO Div. 3NO.

<b>Age</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
<b>1</b>	228	426	153	3011	25
<b>2</b>	4202	1074	610	1413	332
<b>3</b>	6875	3556	558	7949	1354
<b>4</b>	6525	1389	1372	3739	900
<b>5</b>	4562	1591	533	1271	191
<b>6</b>	1573	532	446	1621	65
<b>7</b>	843	427	159	470	125
<b>8</b>	1455	134	39	220	65
<b>9</b>	1482	284	51	126	15
<b>10</b>	130	355	52	28	10
<b>11</b>	1675	57	59	10	7
<b>12</b>	61	350	25	10	0
<b>13</b>	156	43	74	39	0
<b>14</b>	66	14	34	0	0
<b>15</b>	7	0	0	0	0
<b>16</b>	0	0	0	0	0
<b>17</b>	0	0	0	0	4
<b>18</b>	0	0	0	0	0
<b>19</b>	0	0	0	0	0
<b>20</b>	0	0	0	0	0
<b>Total</b>	29840	10232	4166	19904	3093

**Table 15.** Biomass (t) of yellowtail flounder by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353	616	81		729	91
354				4	
355					
356					
357					
358				13	
359	2	16		6	
360	60296	43872	20839	18223	9786
374	63	3199	1372	3185	1013
375	1010	1014	792	1587	606
376	33908	59513	19562	15298	3628
377	3		4		
378					
379					
380					
381					
382	7			8	
721					
722					
723					
724					
725					
726					
727					
728					
752					
753					
754					
755					
756					
757					
758					
759					
760					
761					
762					
763					
764					
765					
766					
767					
<b>Biomass</b>	95905	107695	42569	39052	15123
<b>SD_B</b>	23147	15055	8886	5529	2662
<b>MWPT</b>	116.44	118.46	59.17	50.3	19.58
<b>SD_MWPT</b>	25.48	16.47	11.15	6.78	3.26
<b>Abundance</b>	281337	321756	117209	135272	47993
<b>SD_A</b>	69074	47148	24370	19524	9078

**Table 16.** Yellowtail flounder abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
<b>4</b>	0.0	0.0	0.0	67.0	0.0
<b>6</b>	0.0	0.0	0.0	385.0	0.0
<b>8</b>	66.0	0.0	0.0	425.0	7.0
<b>10</b>	17.0	265.0	0.0	1,835.0	13.0
<b>12</b>	452.0	716.0	20.0	3,680.0	13.0
<b>14</b>	1,102.0	903.0	179.0	3,689.0	74.0
<b>16</b>	1,923.0	414.0	110.0	6,074.0	171.0
<b>18</b>	2,502.0	2,428.0	625.0	7,324.0	453.0
<b>20</b>	7,165.0	8,285.0	906.0	5,185.0	1,041.0
<b>22</b>	3,621.0	8,911.0	1,649.0	1,946.0	1,837.0
<b>24</b>	2,759.0	12,481.0	3,899.0	1,950.0	2,790.0
<b>26</b>	6,391.0	6,940.0	6,790.0	4,963.0	1,863.0
<b>28</b>	14,339.0	13,215.0	6,379.0	8,414.0	2,357.0
<b>30</b>	36,493.0	33,225.0	9,964.0	12,386.0	5,344.0
<b>32</b>	68,735.0	67,467.0	21,693.0	18,946.0	9,421.0
<b>34</b>	60,543.0	70,339.0	25,977.0	22,195.0	10,416.0
<b>36</b>	39,261.0	54,823.0	19,137.0	16,774.0	5,986.0
<b>38</b>	20,564.0	25,392.0	12,118.0	11,145.0	3,385.0
<b>40</b>	9,247.0	9,598.0	5,055.0	4,879.0	1,734.0
<b>42</b>	4,332.0	3,549.0	2,055.0	2,029.0	724.0
<b>44</b>	1,382.0	2,133.0	524.0	657.0	227.0
<b>46</b>	363.0	559.0	83.0	218.0	77.0
<b>48</b>	24.0	106.0	45.0	79.0	61.0
<b>50</b>	56.0	8.0	0.0	26.0	0.0
<b>52</b>	0.0	0.0	0.0	0.0	0.0
<b>54</b>	0.0	0.0	0.0	0.0	0.0
<b>56</b>	0.0	0.0	0.0	0.0	0.0
<b>58</b>	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>281,337.0</b>	<b>321,756.0</b>	<b>117,209.0</b>	<b>135,272.0</b>	<b>47,993.0</b>
<b>Biomass(t)</b>	95,905.0	107,695.0	42,569.0	39,052.0	15,123.0
<b>B/SOP(%)</b>	104.0	95.0	98.0	100.0	97.0
<b>Nsamples</b>	35.0	35.0	28.0	36.0	32.0
<b>Nindiv</b>	3,911.0	4,950.0	3,882.0	7,064.0	3,536.0
<b>Minlen</b>	9.0	10.0	12.0	5.0	9.0
<b>Maxlen</b>	51.0	50.0	49.0	50.0	49.0
<b>Sampledcatch(kg)</b>	1,387.0	1,844.0	1,512.0	2,193.0	1,142.0
<b>Totalcatch(kg)</b>	7,133.0	7,587.0	3,462.0	3,357.0	1,270.0



**Table 17.** Biomass (t) of redfish by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353		1			1
354	11187	27	15	20	4
355	4663	224	93	102	80
356	4635	1258	1633	769	173
357	35309	81583	67030	19562	28454
358	111435	106337	35402	28835	14463
359	48706	4274	97	3222	38545
360		17		332	
374	48				
375					
376					
377	10	27	1371	6	
378	40857	9860	21438	269	2343
379	2774	54151	33835	4041	14157
380	32	9067	6173	6638	11946
381	4	7	0	65	180
382	0		14		86
721	846	2061	1832	1301	6028
722	43	149	343	0	755
723	20930	21101	7649	5873	18345
724	414	2357	95	280	535
725	3374	2291	1150	3699	1932
726	315	137	184	42	43
727	1639	998	73	50	61
728	29	573	68	210	23
752	19	18		4	
753			27		5
754					
755					
756		21			
757	4				
758					13
759					
760	5		4	38	
761					
762					
763	2		30	6	
764	1				
765	4				
766		7			
767					
<b>Biomass</b>	287284	296546	178556	75364	138170
<b>SD_B</b>	93972	97610	51166	19245	66695
<b>MWPT</b>	374.44	333.33	222.58	92.85	239.75
<b>SD_MWPT</b>	108.69	106.5	65.64	23.25	80
<b>Abundance</b>	1557720	1587417	779745	320592	504652
<b>SD_A</b>	534724	581943	193687	74566	249955

**Table 18.** Redfish abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
4	444.0	21.0	77.0	0.0	0.0
6	1,202.0	727.0	126.0	867.0	330.0
8	2,020.0	1,285.0	151.0	715.0	693.0
10	4,131.0	407.0	97.0	1,238.0	1,252.0
12	3,238.0	942.0	2,779.0	2,681.0	365.0
14	8,284.0	2,734.0	9,897.0	1,068.0	1,902.0
16	4,147.0	967.0	9,853.0	874.0	1,354.0
18	16,632.0	6,650.0	5,524.0	4,375.0	2,225.0
20	244,427.0	112,523.0	19,789.0	15,074.0	5,538.0
22	671,516.0	658,188.0	159,598.0	80,689.0	45,082.0
24	433,596.0	490,376.0	220,766.0	89,264.0	151,513.0
26	125,357.0	222,556.0	210,903.0	64,717.0	141,831.0
28	30,023.0	55,821.0	97,528.0	39,802.0	104,599.0
30	8,270.0	20,678.0	30,360.0	12,989.0	31,224.0
32	2,497.0	9,565.0	10,756.0	4,058.0	11,610.0
34	971.0	2,575.0	471.0	1,373.0	3,956.0
36	438.0	910.0	434.0	432.0	714.0
38	325.0	407.0	309.0	180.0	365.0
40	128.0	49.0	219.0	132.0	42.0
42	62.0	3.0	92.0	49.0	51.0
44	12.0	0.0	11.0	9.0	6.0
46	0.0	0.0	0.0	0.0	0.0
48	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0
54	0.0	0.0	0.0	0.0	0.0
56	0.0	0.0	0.0	0.0	0.0
58	0.0	0.0	0.0	0.0	0.0
60	0.0	18.0	0.0	0.0	0.0
62	0.0	15.0	0.0	0.0	0.0
64	0.0	0.0	3.0	0.0	0.0
66	0.0	0.0	0.0	3.0	0.0
68	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	4.0	0.0
<b>Total</b>	<b>1,557,720.0</b>	<b>1,587,417.0</b>	<b>779,745.0</b>	<b>320,592.0</b>	<b>504,652.0</b>
<b>Biomass(t)</b>	<b>287,284.0</b>	<b>296,546.0</b>	<b>178,556.0</b>	<b>75,364.0</b>	<b>138,170.0</b>
<b>B/SOP(%)</b>	<b>109.0</b>	<b>99.0</b>	<b>99.0</b>	<b>104.0</b>	<b>106.0</b>
<b>Nsamples</b>	<b>46.0</b>	<b>46.0</b>	<b>42.0</b>	<b>47.0</b>	<b>39.0</b>
<b>Nindiv</b>	<b>6,536.0</b>	<b>5,726.0</b>	<b>5,217.0</b>	<b>5,001.0</b>	<b>6,290.0</b>
<b>Minlen</b>	<b>5.0</b>	<b>5.0</b>	<b>5.0</b>	<b>6.0</b>	<b>6.0</b>
<b>Maxlen</b>	<b>45.0</b>	<b>63.0</b>	<b>64.0</b>	<b>70.0</b>	<b>44.0</b>
<b>Sampledcatch(kg)</b>	<b>1,460.0</b>	<b>1,298.0</b>	<b>1,279.0</b>	<b>1,232.0</b>	<b>1,639.0</b>
<b>Totalcatch(kg)</b>	<b>47,617.0</b>	<b>50,017.0</b>	<b>34,097.0</b>	<b>13,933.0</b>	<b>25,454.0</b>

**Table 19.** Biomass (t) of witch flounder by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353		125		29	1
354	576	18	7	9	
355	43	0	2		1
356	8	1		1	
357	27	10	8	13	1
358	154	6	53	19	
359	1322	183	128	85	26
360		68		977	25
374					
375					
376		36		8	
377			7		
378	38		4		3
379	15	2	5		9
380			2	4	
381			12	4	
382	7			3	
721	3	4	0	2	1
722	4	4	1	3	2
723	58	88	26	8	4
724	19	36	16	24	28
725	59	1	27	16	13
726	16	34	10	1	4
727	286	55	21	13	17
728	69	45	23	6	2
752	95	152	2	28	53
753	13	14			
754					0
755					
756	52	11	24	19	15
757	45	35	2	11	
758					
759					
760	67	52	1	25	22
761	33	114	36	11	30
762		2			
763					
764	13	12	3	3	2
765	11	22	3		4
766		1	2	3	
767	1				
<b>Biomass</b>	3033	1132	426	1324	262
<b>SD_B</b>	1312	182	61	557	57
<b>MWPT</b>	3.92	2.05	0.65	2.45	0.66
<b>SD_MWPT</b>	1.48	0.2	0.07	0.73	0.07
<b>Abundance</b>	6358	3061	1048	3330	758
<b>SD_A</b>	2830	409	137	1657	122

**Table 20.** Witch flounder abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
<b>4</b>	0.0	0.0	0.0	0.0	0.0
<b>6</b>	0.0	5.0	3.0	7.0	4.0
<b>8</b>	7.0	0.0	7.0	16.0	8.0
<b>10</b>	17.0	6.0	0.0	0.0	0.0
<b>12</b>	0.0	36.0	0.0	14.0	0.0
<b>14</b>	6.0	70.0	3.0	15.0	0.0
<b>16</b>	9.0	39.0	0.0	29.0	16.0
<b>18</b>	19.0	4.0	4.0	53.0	11.0
<b>20</b>	31.0	40.0	6.0	50.0	11.0
<b>22</b>	24.0	33.0	8.0	39.0	19.0
<b>24</b>	31.0	57.0	6.0	21.0	27.0
<b>26</b>	59.0	67.0	18.0	151.0	14.0
<b>28</b>	135.0	218.0	63.0	249.0	34.0
<b>30</b>	206.0	336.0	94.0	188.0	50.0
<b>32</b>	199.0	362.0	110.0	177.0	93.0
<b>34</b>	269.0	295.0	88.0	228.0	89.0
<b>36</b>	399.0	187.0	73.0	206.0	64.0
<b>38</b>	972.0	268.0	89.0	288.0	112.0
<b>40</b>	1,421.0	212.0	123.0	378.0	58.0
<b>42</b>	1,080.0	206.0	136.0	400.0	35.0
<b>44</b>	633.0	169.0	106.0	489.0	39.0
<b>46</b>	411.0	215.0	43.0	191.0	19.0
<b>48</b>	237.0	148.0	35.0	94.0	24.0
<b>50</b>	123.0	33.0	26.0	43.0	17.0
<b>52</b>	41.0	22.0	7.0	0.0	13.0
<b>54</b>	28.0	12.0	0.0	0.0	0.0
<b>56</b>	0.0	20.0	0.0	0.0	0.0
<b>58</b>	0.0	0.0	0.0	0.0	0.0
<b>60</b>	0.0	0.0	0.0	0.0	0.0
<b>62</b>	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>6,358.0</b>	<b>3,061.0</b>	<b>1,048.0</b>	<b>3,330.0</b>	<b>758.0</b>
<b>Biomass(t)</b>	3,033.0	1,132.0	426.0	1,324.0	262.0
<b>B/SOP(%)</b>	102.0	102.0	101.0	101.0	102.0
<b>Nsamples</b>	51.0	50.0	42.0	53.0	35.0
<b>Nindiv</b>	821.0	476.0	196.0	377.0	141.0
<b>Minlen</b>	8.0	7.0	7.0	6.0	7.0
<b>Maxlen</b>	55.0	57.0	53.0	51.0	52.0
<b>Sampledcatch(kg)</b>	387.0	180.0	81.0	138.0	47.0
<b>Totalcatch(kg)</b>	509.0	181.0	82.0	138.0	47.0

**Table 21.** Biomass (t) of roughhead grenadier by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353					
354					
355	10				6
356		8			
357	49			20	
358				1	4
359					
360					
374	9				
375		1			
376					
377		2			
378	7				
379	71	45	14	39	21
380	39	6	9	312	13
381		1	1	37	10
382	0				
721					5
722	58	8	8	2	6
723	69	76	27	27	7
724	133	86	26	72	30
725	76	30	62	60	22
726	217	21	87	66	34
727	374	84	31	251	13
728	223	28	23	223	14
752	302	120	20	155	32
753	601	140	61	41	75
754	323	235	165	425	65
755	639	642	37	495	308
756	93	255	24	115	30
757	422	430	58	68	91
758	279	203	2	52	48
759	195	75	41	89	60
760	229	75	18	65	51
761	1006	113	43	17	4
762	210	104	26	45	76
763	401	298	94	94	42
764	12	10	0	22	0
765	90	83	1	9	21
766	25	3	0	20	0
767	25	44		10	43
<b>Biomass</b>	6187	3227	879	2833	1132
<b>SD_B</b>	748	487	97	580	267
<b>MWPT</b>	6.99	3.59	1.16	3.35	1.42
<b>SD_MWPT</b>	0.83	0.54	0.12	0.65	0.28
<b>Abundance</b>	15253	7714	1565	7255	2906
<b>SD_A</b>	1531	655	187	1613	587

**Table 22.** Roughhead grenadier abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
1	7.0	0.0	0.0	0.0	0.0
2	143.0	31.0	0.0	65.0	22.0
3	406.0	153.0	67.0	387.0	467.0
4	231.0	43.0	0.0	17.0	22.0
5	719.0	381.0	39.0	140.0	119.0
6	588.0	731.0	67.0	487.0	121.0
7	582.0	234.0	25.0	105.0	65.0
8	925.0	293.0	125.0	143.0	112.0
9	462.0	201.0	56.0	144.0	82.0
10	859.0	399.0	88.0	118.0	86.0
11	954.0	310.0	78.0	299.0	91.0
12	1,087.0	230.0	53.0	504.0	125.0
13	906.0	465.0	46.0	446.0	196.0
14	693.0	391.0	126.0	517.0	154.0
15	892.0	403.0	74.0	657.0	151.0
16	744.0	411.0	81.0	478.0	156.0
17	876.0	493.0	101.0	444.0	141.0
18	749.0	547.0	55.0	528.0	142.0
19	571.0	365.0	39.0	530.0	168.0
20	368.0	356.0	78.0	299.0	28.0
21	317.0	225.0	18.0	218.0	54.0
22	320.0	185.0	32.0	162.0	76.0
23	415.0	96.0	57.0	118.0	70.0
24	343.0	149.0	47.0	112.0	45.0
25	230.0	96.0	62.0	71.0	40.0
26	233.0	158.0	30.0	61.0	21.0
27	178.0	83.0	7.0	63.0	33.0
28	162.0	74.0	24.0	60.0	41.0
29	69.0	72.0	17.0	25.0	39.0
30	92.0	51.0	25.0	20.0	5.0
31	51.0	14.0	9.0	9.0	6.0
32	8.0	35.0	8.0	18.0	8.0
33	37.0	7.0	13.0	4.0	7.0
34	12.0	11.0	7.0	0.0	13.0
35	0.0	6.0	5.0	0.0	0.0
36	7.0	6.0	0.0	8.0	0.0
37	0.0	6.0	0.0	0.0	0.0
38	0.0	0.0	0.0	0.0	0.0
39	4.0	0.0	8.0	0.0	0.0
40	11.0	0.0	0.0	0.0	0.0
41	0.0	0.0	0.0	0.0	0.0
42	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	15,253.0	7,714.0	1,565.0	7,255.0	2,906.0
<b>Biomass(t)</b>	6,187.0	3,227.0	879.0	2,833.0	1,132.0
<b>B/SOP(%)</b>	103.0	100.0	102.0	104.0	105.0
<b>Nsamples</b>	57.0	54.0	44.0	53.0	48.0
<b>Nindiv</b>	2,490.0	1,132.0	296.0	1,281.0	440.0
<b>Minlen</b>	1.5	2.0	3.0	2.0	2.0
<b>Maxlen</b>	40.5	37.5	39.0	36.0	34.5
<b>Sampledcatch(kg)</b>	985.0	526.0	176.0	530.0	171.0
<b>Totalcatch(kg)</b>	1,074.0	531.0	176.0	530.0	171.0

**Table 23.** Biomass (t) of skate by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353	759	942	5	686	74
354	793	273	165	263	84
355	13	8	8	23	
356	167	67		141	
357	170	98	179	296	
358	1820	33	512	2074	
359	616	4165	175	738	190
360	2402	3459	87	12338	1138
374		86		77	
375	53	42	52	191	21
376	227	3003	376	5757	197
377		15	63		14
378	1504	77	158	0	7
379	346	38	51	13	
380	25	29	131	760	340
381	9	85	13	499	8
382	121	127	52	274	17
721	159	77	28	152	22
722	70	62		22	
723	30	49	123	182	
724	38	24	12		
725	56	19			
726	58	15			
727	1147	387	34	28	
728	122	26		7	
752	168	74			24
753					
754					
755		37			
756	74	19			
757					
758					
759					
760	36				
761	18			29	
762					
763					
764	103			17	
765	16				
766					
767					
<b>Biomass</b>	11121	13334	2225	24567	2135
<b>SD_B</b>	2334	3231	377	3534	459
<b>MWPT</b>	16.61	16.66	4.73	32.11	4.36
<b>SD_MWPT</b>	2.75	3.59	0.47	4.42	0.56
<b>Abundance</b>	6267	4779	788	10307	764
<b>SD_A</b>	1870	1173	131	1449	135

**Table 24.** Skate abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
10	0.0	8.0	0.0	2.0	0.0
12	8.0	3.0	2.0	7.0	0.0
14	79.0	11.0	5.0	286.0	13.0
16	149.0	20.0	0.0	143.0	38.0
18	51.0	4.0	0.0	71.0	13.0
20	0.0	14.0	0.0	122.0	0.0
22	0.0	30.0	19.0	34.0	0.0
24	61.0	24.0	4.0	122.0	0.0
26	209.0	26.0	0.0	47.0	0.0
28	236.0	40.0	4.0	165.0	0.0
30	310.0	35.0	4.0	111.0	7.0
32	357.0	64.0	19.0	103.0	0.0
34	228.0	106.0	0.0	131.0	21.0
36	199.0	77.0	7.0	176.0	21.0
38	188.0	121.0	4.0	191.0	0.0
40	206.0	104.0	7.0	319.0	11.0
42	142.0	96.0	14.0	243.0	23.0
44	177.0	75.0	24.0	412.0	20.0
46	220.0	64.0	16.0	337.0	16.0
48	211.0	111.0	6.0	364.0	15.0
50	264.0	260.0	46.0	285.0	31.0
52	163.0	147.0	43.0	258.0	4.0
54	244.0	248.0	17.0	270.0	13.0
56	207.0	193.0	11.0	403.0	36.0
58	207.0	180.0	63.0	380.0	29.0
60	199.0	192.0	16.0	422.0	0.0
62	181.0	176.0	16.0	324.0	40.0
64	127.0	209.0	54.0	393.0	29.0
66	191.0	180.0	53.0	483.0	21.0
68	217.0	208.0	33.0	488.0	23.0
70	151.0	236.0	54.0	668.0	48.0
72	176.0	328.0	33.0	566.0	34.0
74	159.0	315.0	40.0	465.0	66.0
76	210.0	144.0	32.0	460.0	96.0
78	172.0	215.0	33.0	296.0	25.0
80	99.0	184.0	38.0	221.0	0.0
82	87.0	150.0	10.0	196.0	39.0
84	58.0	74.0	20.0	169.0	19.0
86	26.0	23.0	0.0	84.0	0.0
88	41.0	70.0	26.0	32.0	13.0
90	31.0	2.0	0.0	19.0	0.0
92	12.0	8.0	0.0	33.0	0.0
94	0.0	0.0	7.0	0.0	0.0
96	10.0	0.0	6.0	0.0	0.0
98	0.0	0.0	0.0	0.0	0.0
100	4.0	0.0	0.0	0.0	0.0
102	0.0	0.0	0.0	0.0	0.0
104	0.0	0.0	0.0	0.0	0.0
106	0.0	0.0	0.0	0.0	0.0
108	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	6.0	0.0
112	0.0	0.0	0.0	0.0	0.0
114	0.0	0.0	0.0	0.0	0.0
116	0.0	0.0	0.0	0.0	0.0
118	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0
122	0.0	0.0	0.0	0.0	0.0
124	0.0	0.0	0.0	0.0	0.0
126	0.0	0.0	0.0	0.0	0.0
128	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>6,267.0</b>	<b>4,779.0</b>	<b>788.0</b>	<b>10,307.0</b>	<b>764.0</b>
<b>Biomass(t)</b>	<b>11,121.0</b>	<b>13,334.0</b>	<b>2,225.0</b>	<b>24,567.0</b>	<b>2,135.0</b>
<b>B/SOP(%)</b>	<b>98.0</b>	<b>103.0</b>	<b>98.0</b>	<b>100.0</b>	<b>99.0</b>
<b>Nsamples</b>	<b>61.0</b>	<b>63.0</b>	<b>35.0</b>	<b>65.0</b>	<b>31.0</b>
<b>Nindiv</b>	<b>638.0</b>	<b>532.0</b>	<b>126.0</b>	<b>1,117.0</b>	<b>98.0</b>
<b>Minlen</b>	<b>13.0</b>	<b>10.0</b>	<b>13.0</b>	<b>10.0</b>	<b>14.0</b>
<b>Maxlen</b>	<b>100.0</b>	<b>92.0</b>	<b>96.0</b>	<b>110.0</b>	<b>88.0</b>
<b>Sampledcatch(kg)</b>	<b>1,322.0</b>	<b>1,441.0</b>	<b>348.0</b>	<b>2,623.0</b>	<b>270.0</b>
<b>Totalcatch(kg)</b>	<b>1,774.0</b>	<b>1,497.0</b>	<b>363.0</b>	<b>2,623.0</b>	<b>270.0</b>



**Table 25.** Biomass (t) of white hake by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353		11			4
354	114	100	39	34	8
355	176	31	20	209	36
356	23	22	3	72	
357	63	126		117	14
358		28	12	65	122
359		17		14	2
360				1	2
374					
375					
376					
377					
378					1
379	1				
380			1		1
381					
382					
721	134	37	12	38	27
722	70			0	
723	126	31	52	182	4
724					
725	6				
726	8				
727	1	0			
728					
752					
753					
754					
755			0		
756		0			
757			0		
758					
759			0		
760					
761		0			
762				0	
763					
764		23		0	3
765			0	0	
766			0		
767					
<b>Biomass</b>	722	427	140	733	223
<b>SD_B</b>	194	114	56	229	76
<b>MWPT</b>	1.04	0.7	0.22	1.03	0.46
<b>SD_MWPT</b>	0.21	0.13	0.06	0.27	0.1
<b>Abundance</b>	813	422	266	894	348
<b>SD_A</b>	482	114	33	305	133

**Table 26.** White hake abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
6	0.0	0.0	10.0	3.0	0.0
8	0.0	14.0	25.0	24.0	0.0
10	0.0	4.0	5.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	6.0	0.0	0.0
16	7.0	0.0	0.0	13.0	7.0
18	21.0	14.0	6.0	13.0	21.0
20	103.0	4.0	24.0	3.0	39.0
22	185.0	14.0	18.0	21.0	0.0
24	89.0	21.0	22.0	15.0	19.0
26	27.0	33.0	9.0	6.0	0.0
28	17.0	25.0	4.0	38.0	11.0
30	18.0	14.0	12.0	15.0	22.0
32	23.0	21.0	6.0	18.0	31.0
34	13.0	54.0	6.0	12.0	24.0
36	20.0	34.0	8.0	6.0	6.0
38	16.0	24.0	13.0	44.0	0.0
40	25.0	3.0	18.0	117.0	6.0
42	16.0	15.0	5.0	65.0	6.0
44	26.0	7.0	21.0	67.0	21.0
46	5.0	25.0	13.0	57.0	45.0
48	16.0	14.0	6.0	80.0	14.0
50	12.0	3.0	0.0	61.0	14.0
52	7.0	0.0	6.0	36.0	22.0
54	18.0	0.0	0.0	31.0	12.0
56	5.0	7.0	0.0	30.0	0.0
58	23.0	0.0	6.0	21.0	3.0
60	0.0	0.0	0.0	22.0	0.0
62	10.0	7.0	0.0	3.0	0.0
64	7.0	2.0	9.0	13.0	6.0
66	7.0	10.0	2.0	18.0	0.0
68	16.0	0.0	0.0	9.0	14.0
70	6.0	0.0	0.0	6.0	0.0
72	6.0	0.0	0.0	13.0	0.0
74	16.0	25.0	0.0	6.0	0.0
76	0.0	0.0	0.0	0.0	3.0
78	2.0	7.0	0.0	0.0	0.0
80	14.0	0.0	0.0	0.0	3.0
82	6.0	9.0	0.0	0.0	0.0
84	14.0	0.0	6.0	6.0	0.0
86	0.0	0.0	0.0	0.0	0.0
88	0.0	0.0	0.0	0.0	0.0
90	3.0	10.0	0.0	0.0	0.0
92	10.0	0.0	0.0	0.0	0.0
94	0.0	3.0	0.0	0.0	0.0
96	0.0	0.0	0.0	0.0	0.0
98	3.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>813.0</b>	<b>422.0</b>	<b>266.0</b>	<b>894.0</b>	<b>348.0</b>
<b>Biomass(t)</b>	<b>722.0</b>	<b>427.0</b>	<b>140.0</b>	<b>733.0</b>	<b>223.0</b>
<b>B/SOP(%)</b>	<b>103.0</b>	<b>103.0</b>	<b>101.0</b>	<b>102.0</b>	<b>101.0</b>
<b>Nsamples</b>	<b>16.0</b>	<b>19.0</b>	<b>18.0</b>	<b>21.0</b>	<b>16.0</b>
<b>Nindiv</b>	<b>181.0</b>	<b>74.0</b>	<b>57.0</b>	<b>249.0</b>	<b>63.0</b>
<b>Minlen</b>	<b>17.0</b>	<b>9.0</b>	<b>7.0</b>	<b>7.0</b>	<b>17.0</b>
<b>Maxlen</b>	<b>98.0</b>	<b>95.0</b>	<b>84.0</b>	<b>84.0</b>	<b>80.0</b>
<b>Sampledcatch(kg)</b>	<b>180.0</b>	<b>77.0</b>	<b>31.0</b>	<b>191.0</b>	<b>48.0</b>
<b>Totalcatch(kg)</b>	<b>180.0</b>	<b>83.0</b>	<b>31.0</b>	<b>191.0</b>	<b>49.0</b>

**Table 27.** Biomass (t) of squid by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353		3	22	1	
354	26	60	1006		
355	81	607	45	4	1
356	5	112	42	4	
357	1	18	36	2	
358	12	242	53	2	
359	71	3221	13551	11	
360	102	17695	9762	35	
374	6	2	209	1	
375			1961		
376		37	3	27	
377	4		134	1	
378	3	1	225	6	
379	1		23	2	
380	0	0	117	1	
381	0	0	20	2	
382		5	604	17	
721	1	8	9	1	
722	2	2	2		
723	0	4	96	1	
724	2	3	1	1	
725	0	4	7		
726	1	1	3	0	
727	44		3	0	
728	0	1	3		0
752	1	0	3		0
753	1	0	3		
754	1		2		
755	6	1	20		
756	0	0	2		
757	2		3		
758	0	1	2	0	
759	1		1		
760	13		0		
761	4		2		
762	1	1	2	0	
763	8	1	4	1	
764	3	3	18		
765	2	4			
766	5	0	1		
767	6		2	0	
<b>Biomass</b>	418	22040	28000	123	1
<b>SD_B</b>	168	19817	16991	23	0
<b>MWPT</b>	0.8	32.12	39.97	0.24	0
<b>SD_MWPT</b>	0.2	22.3	21.22	0.03	0
<b>Abundance</b>	3073	0	678370	2442	0
<b>SD_A</b>	3982	0	476560	476	0

**Table 28.** Squid (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

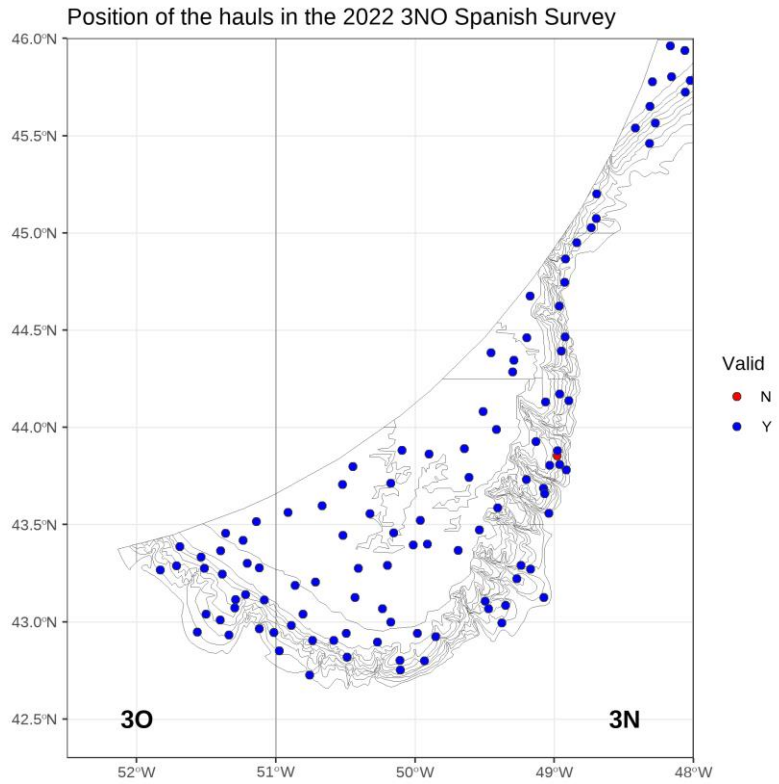
<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
<b>3</b>	0	0.0	9.0	0.0	0.0
<b>4</b>	0	0.0	3.0	0.0	0.0
<b>5</b>	0	0.0	17.0	2.0	0.0
<b>6</b>	0	0.0	20.0	8.0	0.0
<b>7</b>	0	0.0	64.0	12.0	0.0
<b>8</b>	0	0.0	75,905.0	30.0	0.0
<b>9</b>	37	0.0	104,104.0	38.0	0.0
<b>10</b>	252	0.0	79,631.0	153.0	0.0
<b>11</b>	751	0.0	31,268.0	300.0	0.0
<b>12</b>	1283	0.0	91,084.0	253.0	0.0
<b>13</b>	485	0.0	82,938.0	640.0	0.0
<b>14</b>	252	0.0	116,291.0	440.0	0.0
<b>15</b>	12	0.0	72,712.0	242.0	0.0
<b>16</b>	0	0.0	18,879.0	166.0	0.0
<b>17</b>	0	0.0	4,997.0	115.0	0.0
<b>18</b>	0	0.0	307.0	26.0	0.0
<b>19</b>	0	0.0	141.0	16.0	0.0
<b>Total</b>	<b>3073</b>	<b>0.0</b>	<b>678,370.0</b>	<b>2,442.0</b>	<b>0.0</b>
<b>Abundance ('000)</b>	<b>3073</b>	<b>0.0</b>	<b>678,370.0</b>	<b>2,442.0</b>	<b>0.0</b>
<b>SOP(t)</b>	<b>0</b>	<b>0.0</b>	<b>26,389,483.6</b>	<b>118,145.0</b>	<b>0.0</b>
<b>Biomass(t)</b>	<b>418</b>	<b>22,040.0</b>	<b>28,000.0</b>	<b>123.0</b>	<b>1.0</b>
<b>B/SOP(%)</b>		<b>0.0</b>	<b>106.0</b>	<b>104.0</b>	<b>0.0</b>
<b>MCPT(kg)</b>	<b>8229.45</b>	<b>332,134.1</b>	<b>413,363.1</b>	<b>2,497.3</b>	<b>16.4</b>
<b>Nsamples</b>	<b>2</b>	<b>0.0</b>	<b>89.0</b>	<b>47.0</b>	<b>0.0</b>
<b>Nindiv</b>	<b>125</b>	<b>0.0</b>	<b>3,366.0</b>	<b>315.0</b>	<b>0.0</b>
<b>Minlen</b>	<b>9</b>	<b>0.0</b>	<b>3.5</b>	<b>5.5</b>	<b>0.0</b>
<b>Maxlen</b>	<b>15.5</b>	<b>0.0</b>	<b>19.0</b>	<b>19.0</b>	<b>0.0</b>
<b>Sampledcatch(kg)</b>	<b>4</b>	<b>0.0</b>	<b>189.0</b>	<b>17.0</b>	<b>0.0</b>
<b>Totalcatch(kg)</b>	<b>73</b>	<b>1,988.0</b>	<b>3,597.0</b>	<b>17.0</b>	<b>0.0</b>
<b>Validhauls</b>	<b>113</b>	<b>114.0</b>	<b>115.0</b>	<b>113.0</b>	<b>113.0</b>

**Table 29.** Biomass (t) of capelin by stratum and year. Spanish Spring survey in NAFO Div. 3NO.

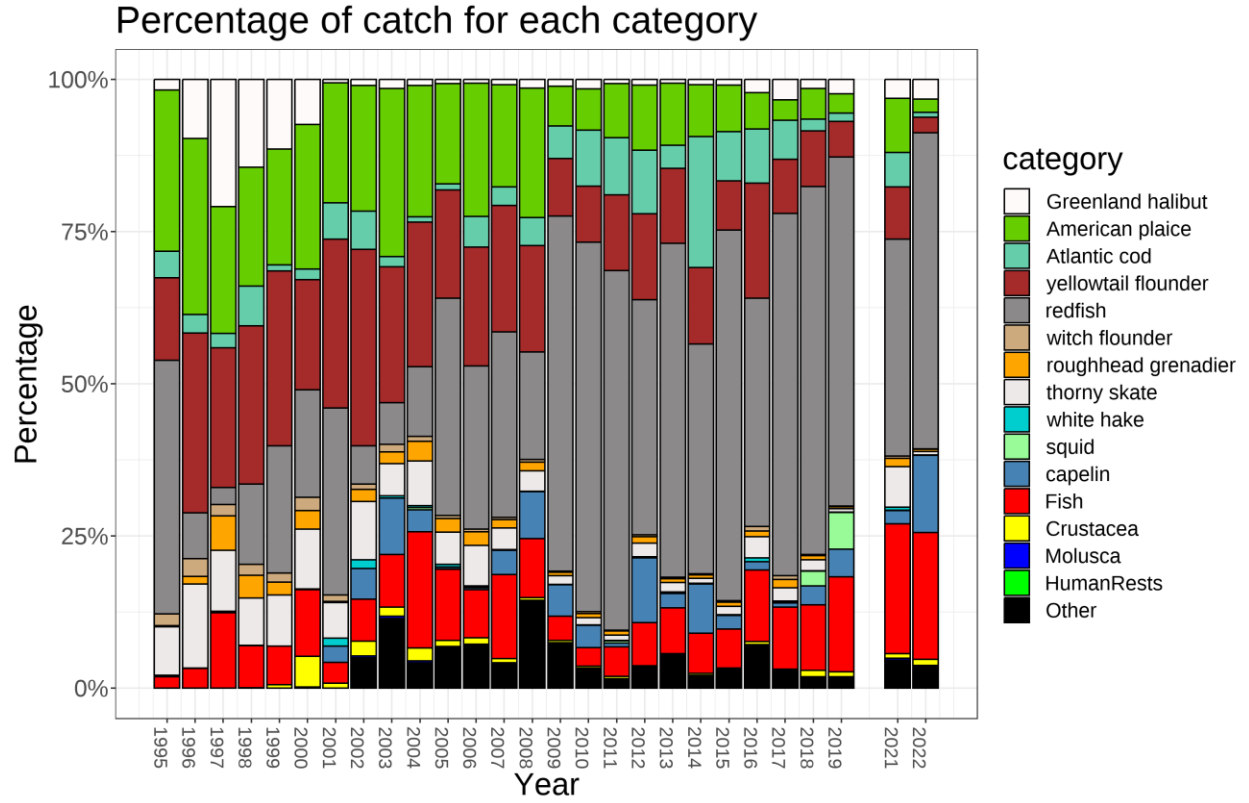
<b>Stratum</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
353	284	472	836	126	1
354	1616			440	
355	1			11	
356			0		
357					
358					186
359	406	913	97	1388	9739
360	1477	13233	449	3782	56594
374	7	348	2	2	0
375	9	57	4	2	1
376	148	566	1769	3236	2518
377	144	3	18	21	110
378	4				
379	0				
380	8	6	0		
381	235	3483	2		
382	145	6395	12672	0	0
721					
722					
723					
724					
725					
726					
727					
728		0			
752					
753					
754					
755					
756					
757					
758					
759					
760					
761					
762					
763					0
764					
765					
766					
767					
<b>Biomass</b>	4486	25476	15849	9008	69149
<b>SD_B</b>	2078	6131	9083	2372	28427
<b>MWPT</b>	6.62	49.36	24.24	12.98	89.65
<b>SD_MWPT</b>	2.42	6.8	11.23	2.91	35.15
<b>Abundance</b>	413787	1317744	1018328	713765	3384475
<b>SD_A</b>	163814	306313	606727	205272	1303234

**Table 30.** Capelin abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

<b>Length (cm)</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2021</b>	<b>2022</b>
<b>6</b>	0.0	0.0	1,277.0	0.0	20.0
<b>8</b>	1,474.0	0.0	52,666.0	79,602.0	2,928.0
<b>10</b>	47,268.0	9,202.0	12,943.0	251,013.0	181,977.0
<b>12</b>	230,814.0	183,550.0	212,344.0	70,181.0	142,052.0
<b>14</b>	128,035.0	667,765.0	541,668.0	188,396.0	1,551,411.0
<b>16</b>	5,887.0	449,294.0	187,374.0	121,568.0	1,395,511.0
<b>18</b>	308.0	6,901.0	10,056.0	3,004.0	110,595.0
<b>20</b>	0.0	0.0	0.0	0.0	0.0
<b>22</b>	0.0	1,031.0	0.0	0.0	0.0
<b>Total</b>	413,787.0	1,317,744.0	1,018,328.0	713,765.0	3,384,475.0
<b>Biomass(t)</b>	4,486.0	25,476.0	15,849.0	9,008.0	69,149.0
<b>B/SOP(%)</b>	101.0	111.0	101.0	102.0	106.0
<b>Nsamples</b>	49.0	42.0	42.0	39.0	40.0
<b>Nindiv</b>	2,642.0	2,655.0	2,460.0	2,653.0	3,286.0
<b>Minlen</b>	8.0	10.0	7.0	8.0	8.0
<b>Maxlen</b>	19.0	22.0	19.0	19.0	19.0
<b>Sampledcatch(kg)</b>	27.0	48.0	36.0	42.0	60.0
<b>Totalcatch(kg)</b>	543.0	2,577.0	2,697.0	853.0	6,211.0

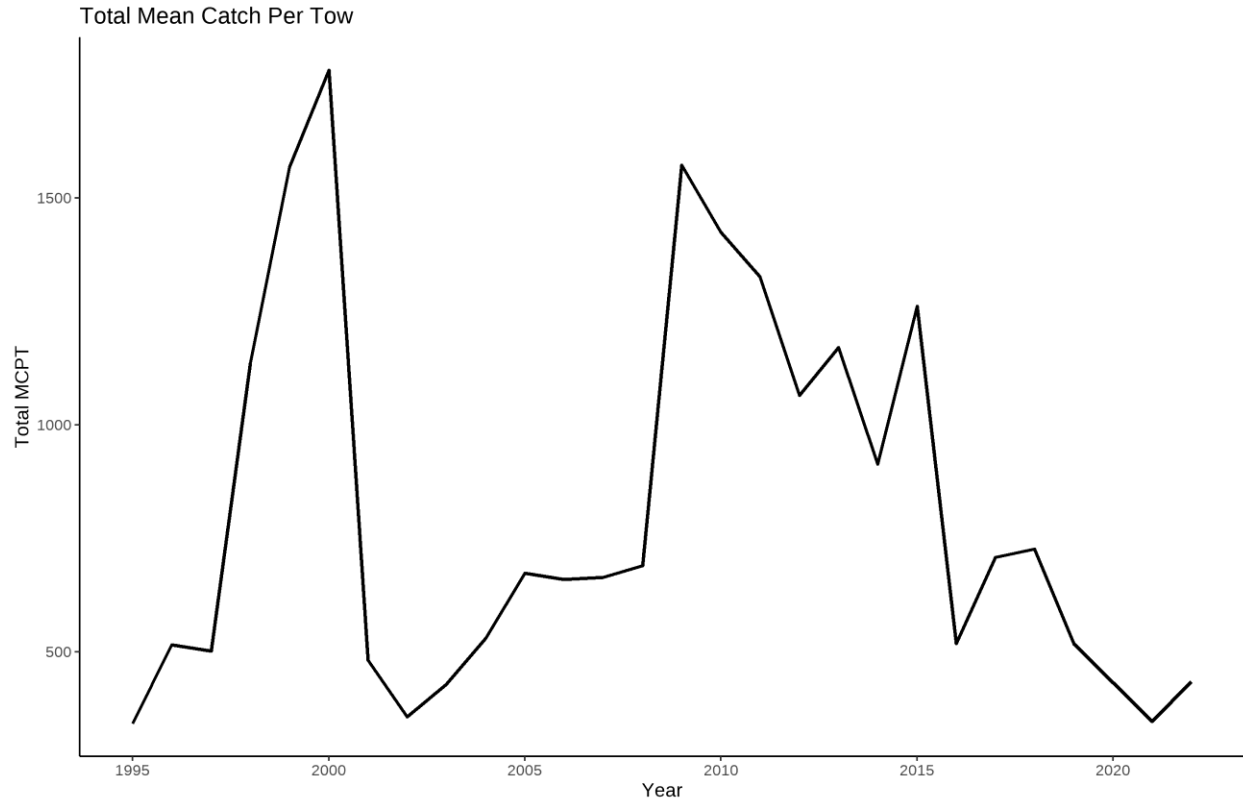


**Figure 1.** Position of the hauls in the 2022 3NO Spanish survey.

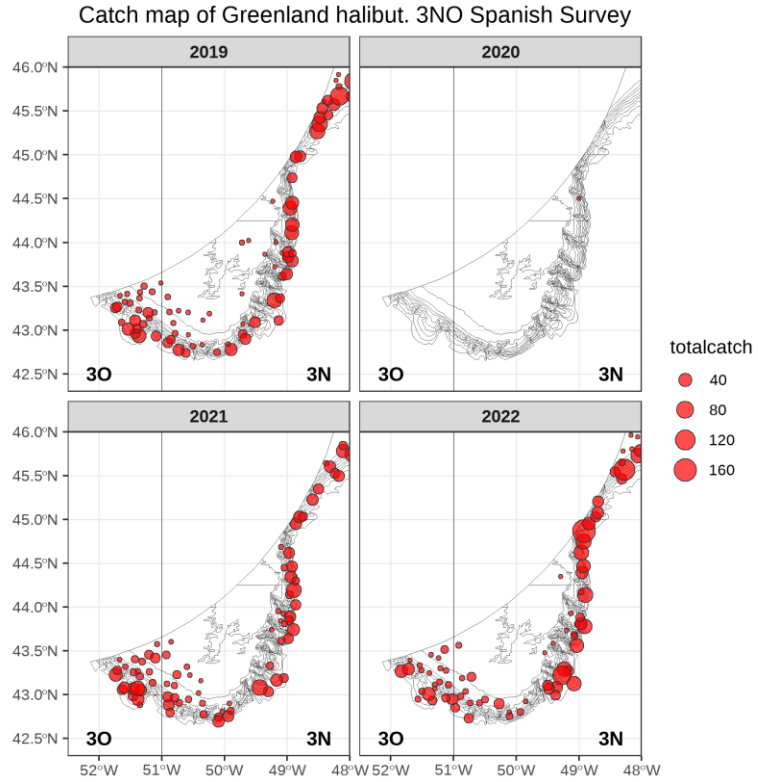


**Figure 2.** Percentage of the total catch for each species and group. Spanish Spring survey in NAFO Div. 3NO.

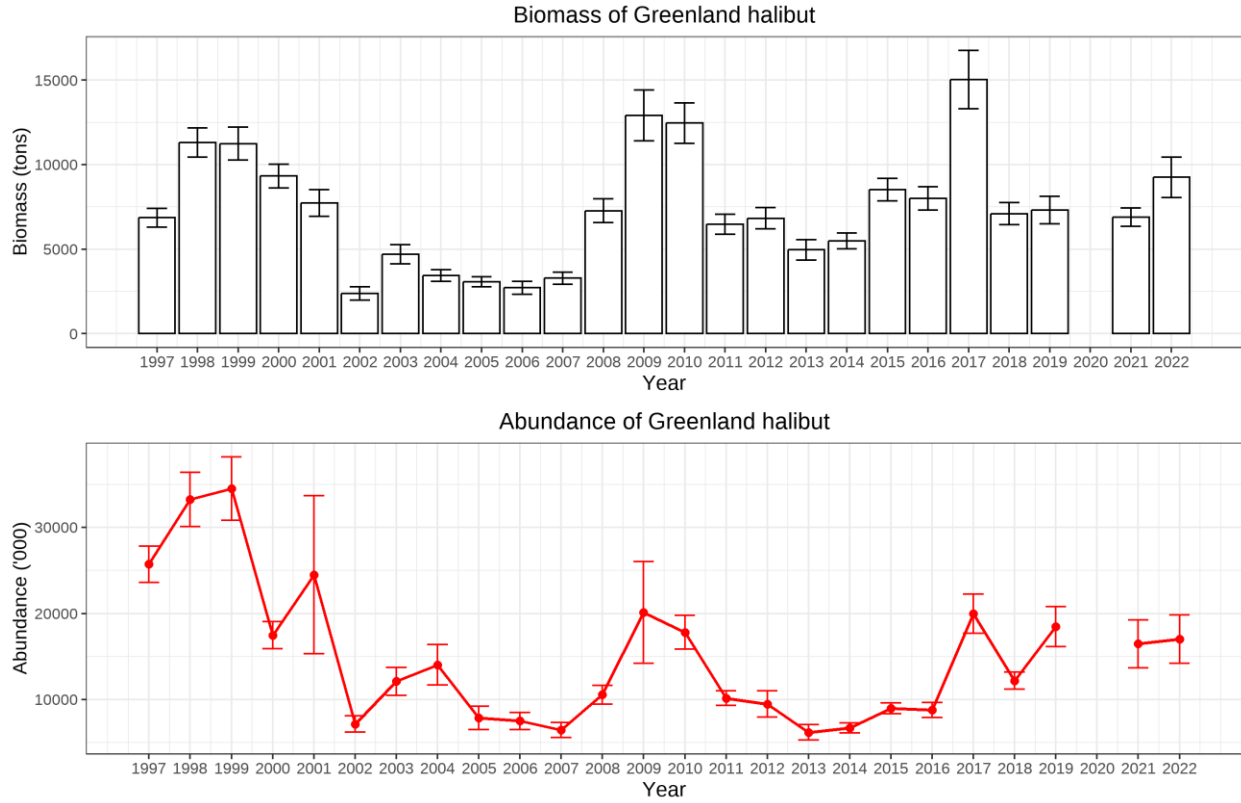




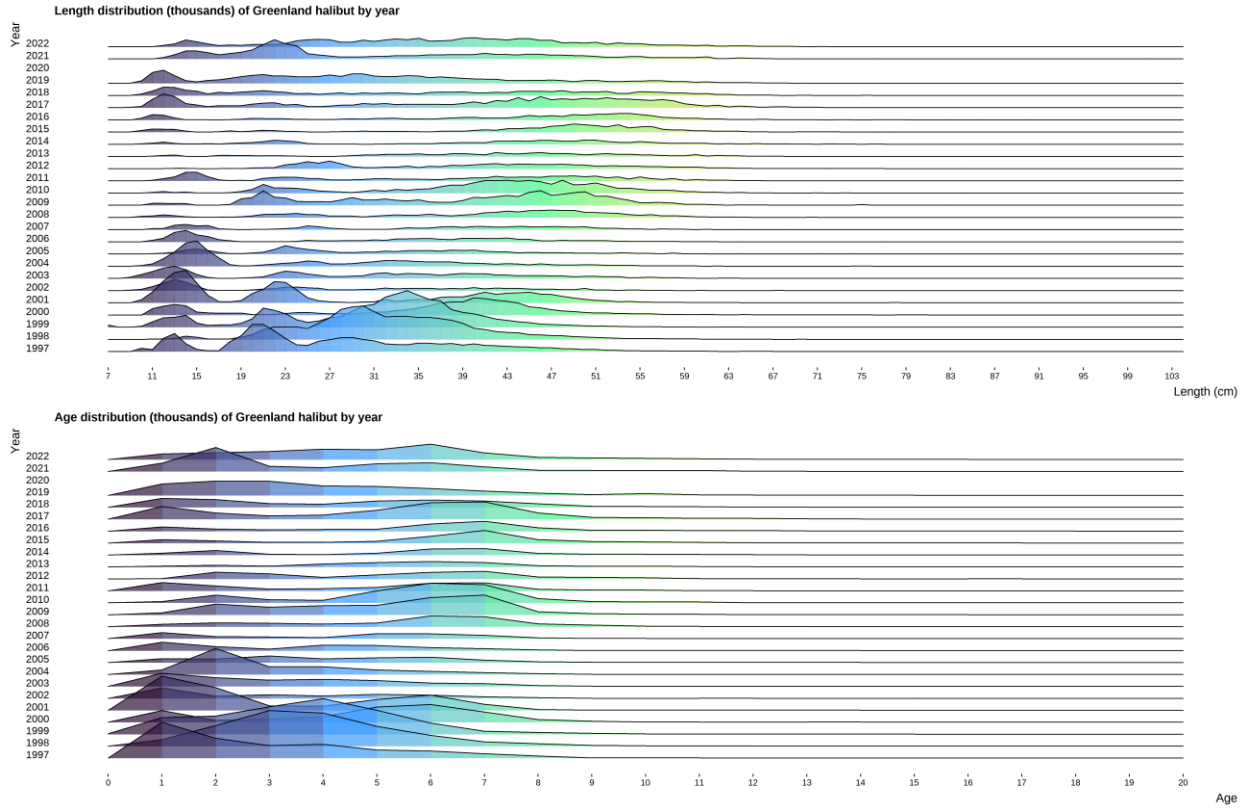
**Figure 3.** Total Mean Catch Per Tow. Spanish Spring survey in NAFO Div. 3NO.



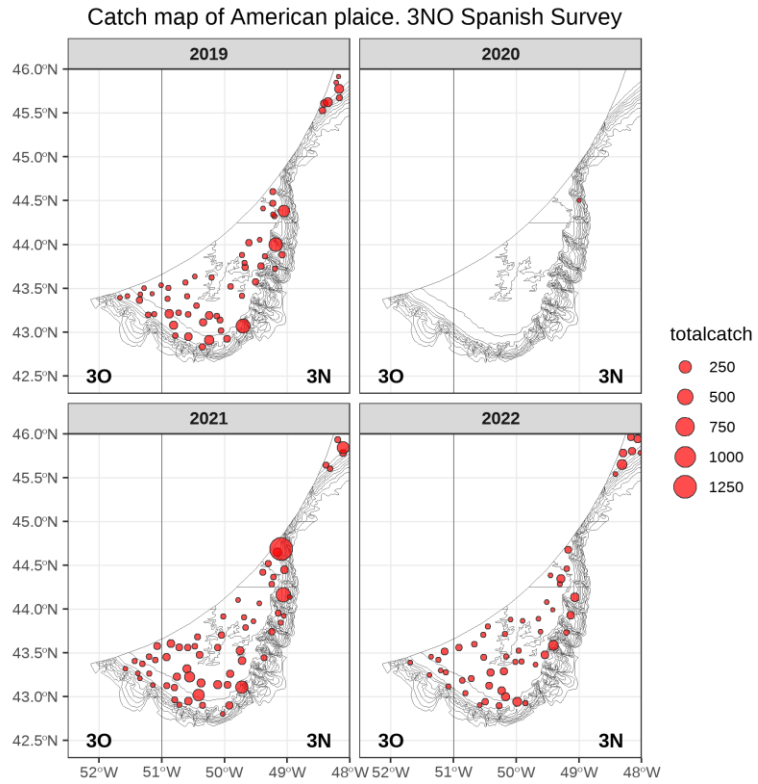
**Figure 4.** Greenland halibut. Position of the hauls with catch in the last four years for the Spanish 3NO survey.



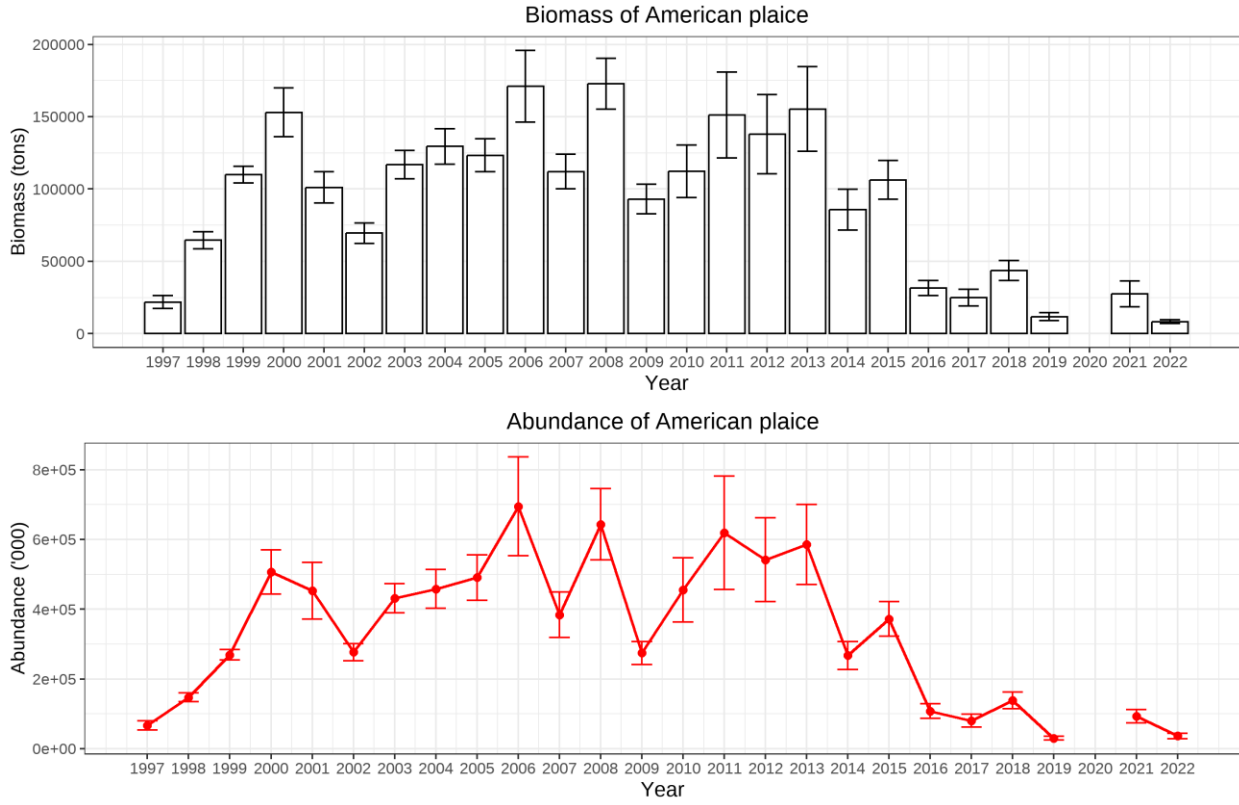
**Figure 5.** Greenland halibut total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.



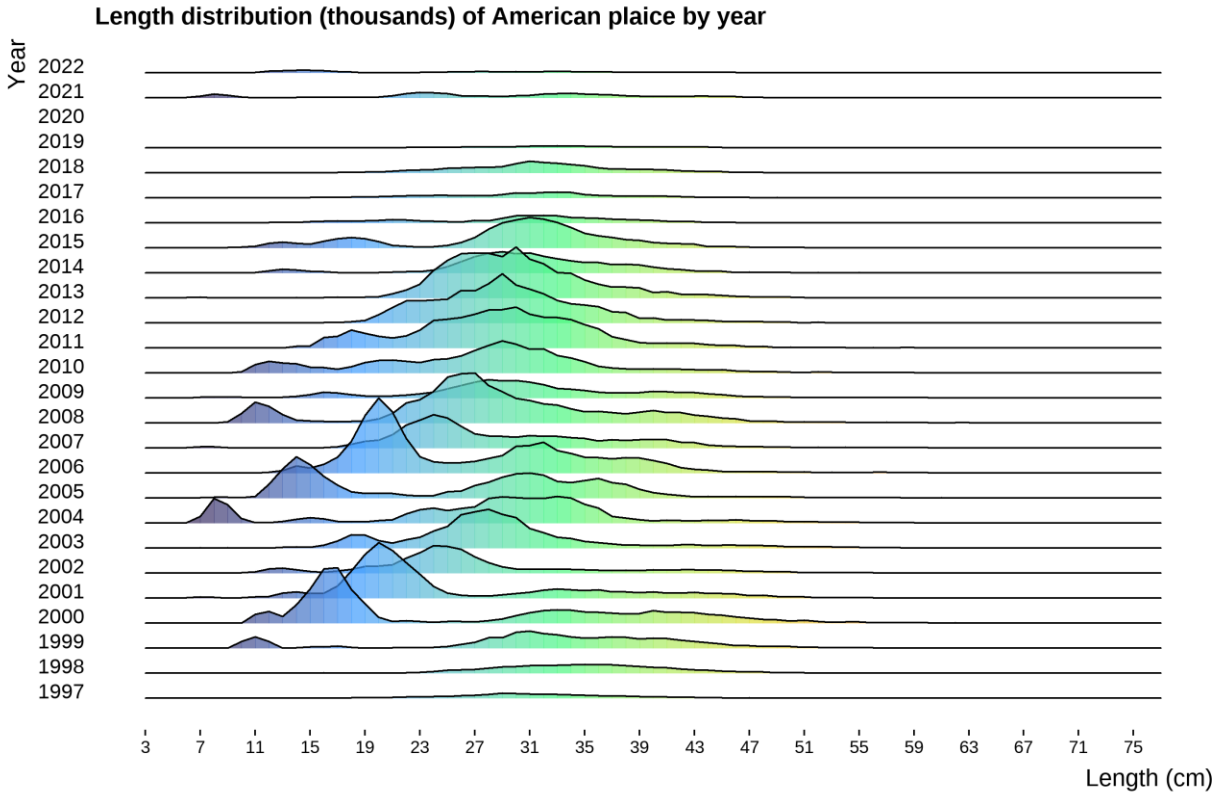
**Figure 6.** Greenland halibut total length (cm) (a) and age (b) distribution. Spanish Spring survey in NAFO Div. 3NO.



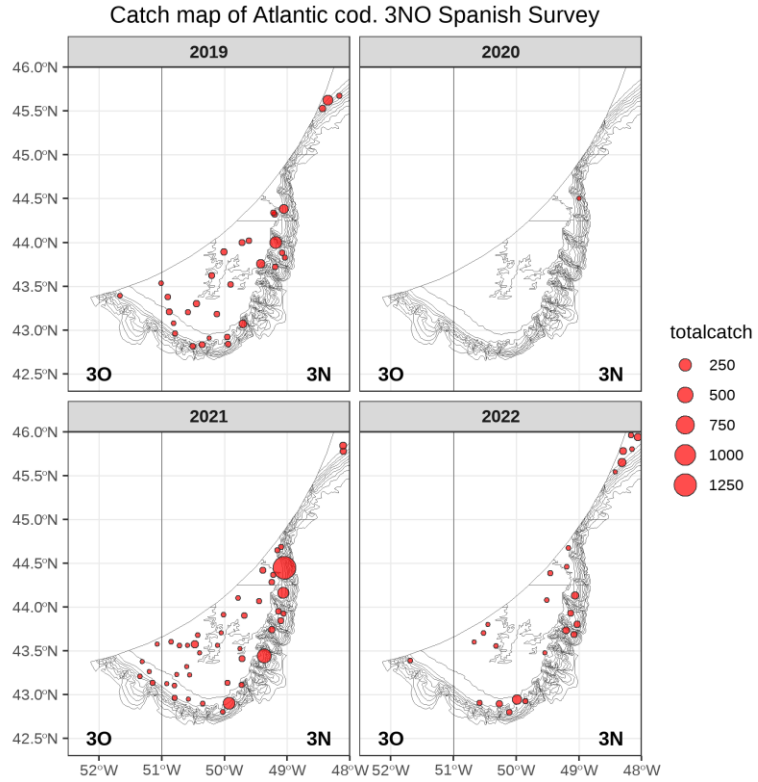
**Figure 7.** American plaice. Position of the hauls with catch in the last four years for the Spanish 3NO survey.



**Figure 8.** American plaice total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

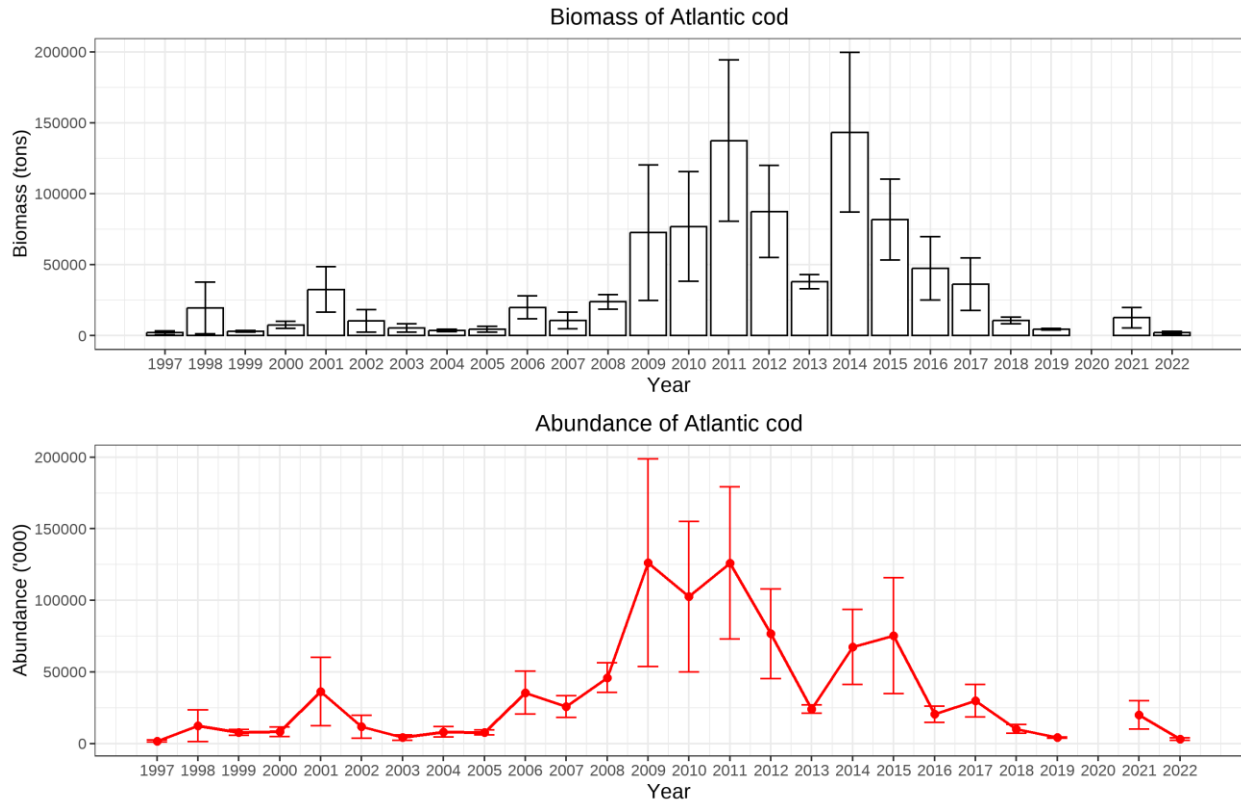


**Figure 9.** American plaice total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

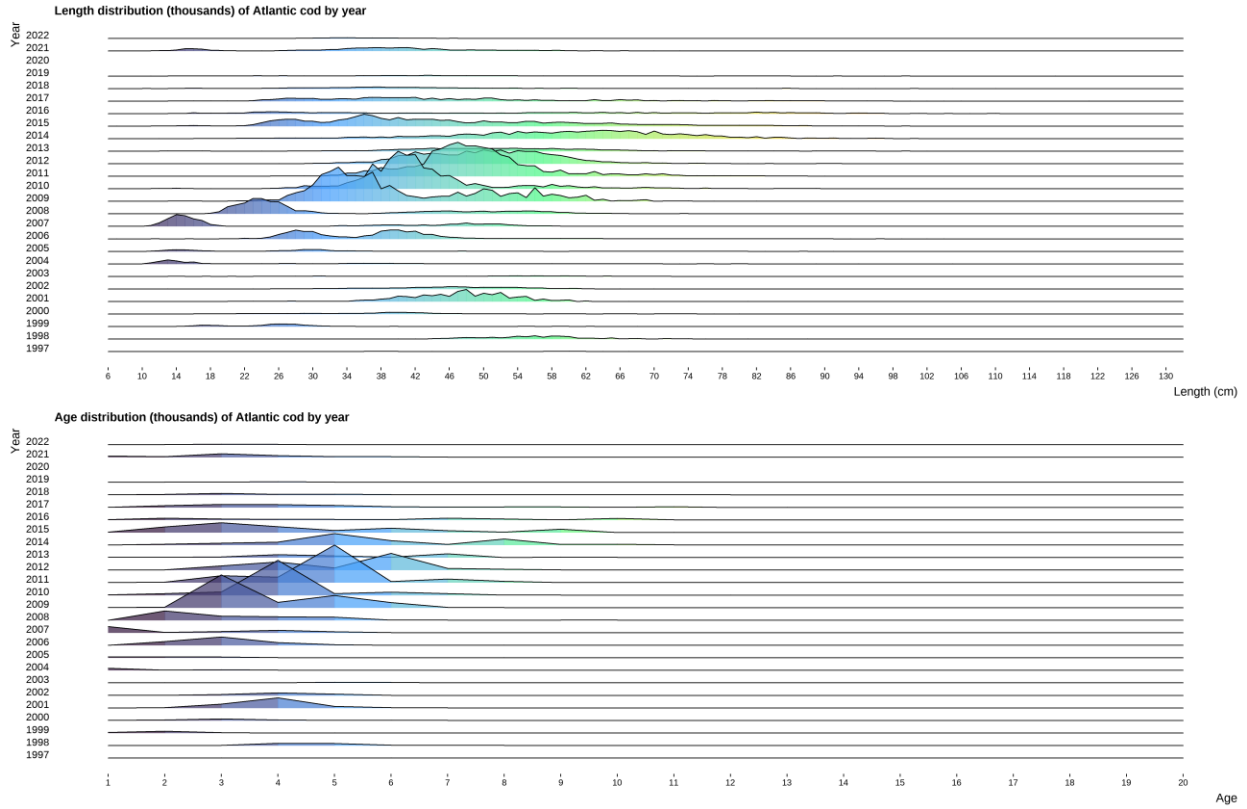


**Figure 10.** Atlantic cod. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

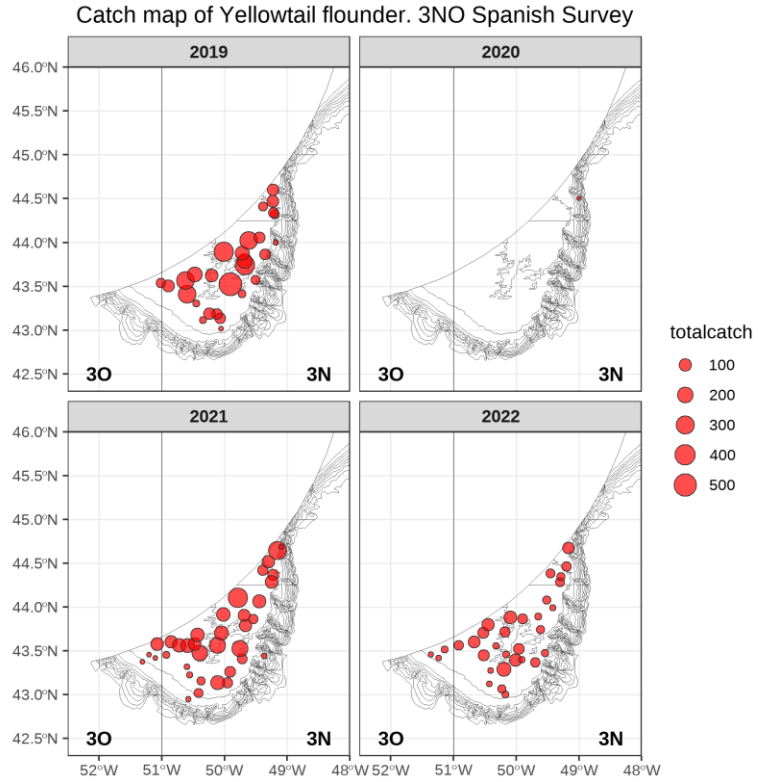




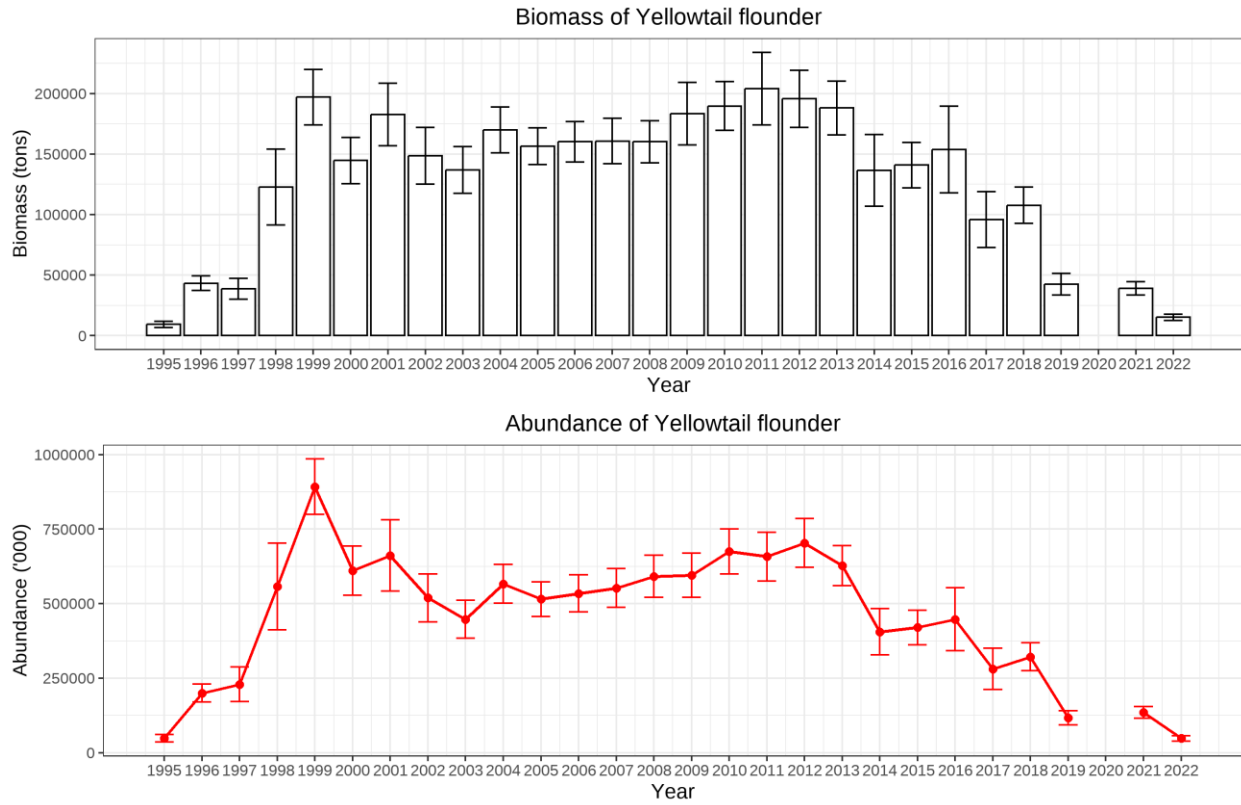
**Figure 11.** Atlantic cod total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.



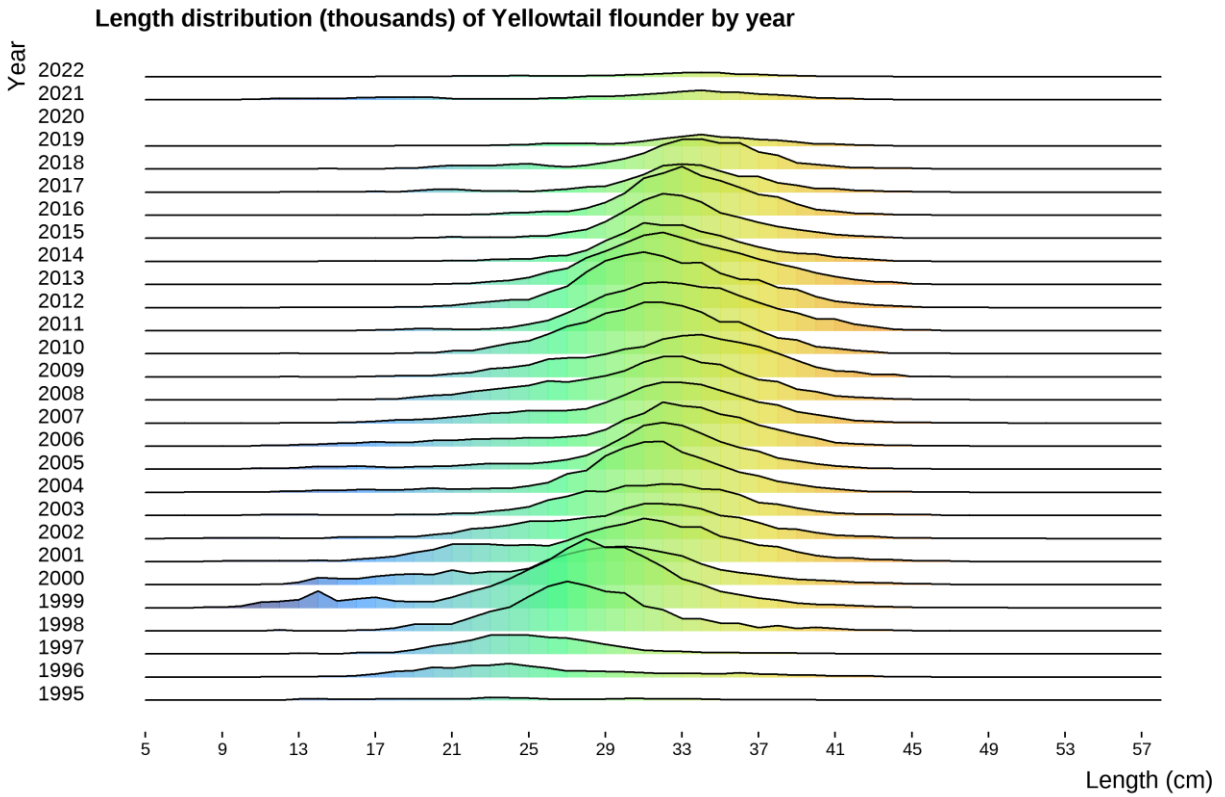
**Figure 12.** Atlantic cod total length (cm) (a) and age (b) distribution. Spanish Spring survey in NAFO Div. 3NO.



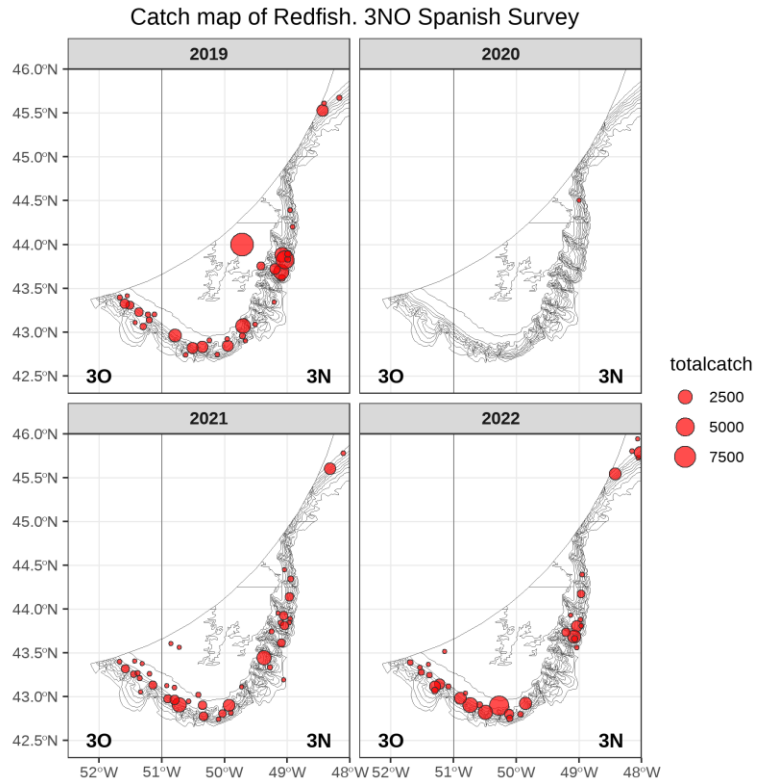
**Figure 13.** Yellowtail flounder. Position of the hauls with catch in the last four years for the Spanish 3NO survey.



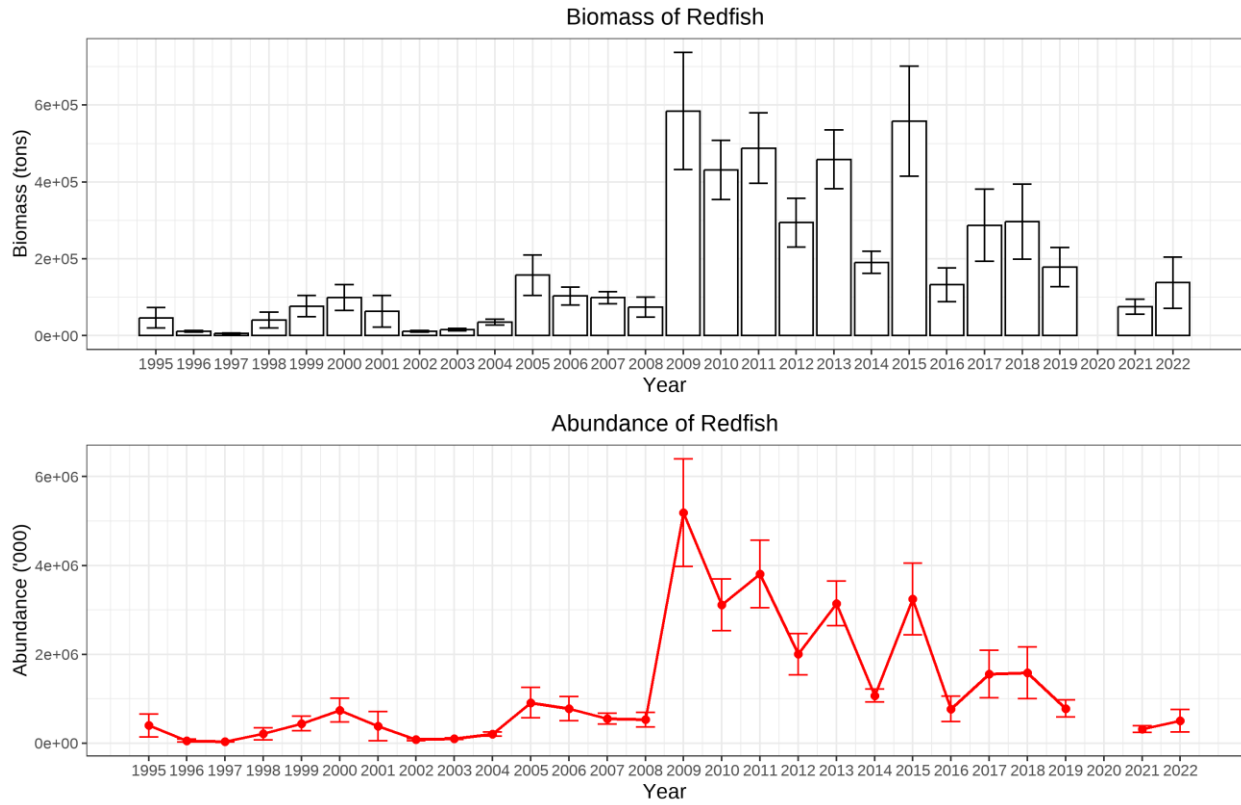
**Figure 14.** Yellowtail flounder total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.



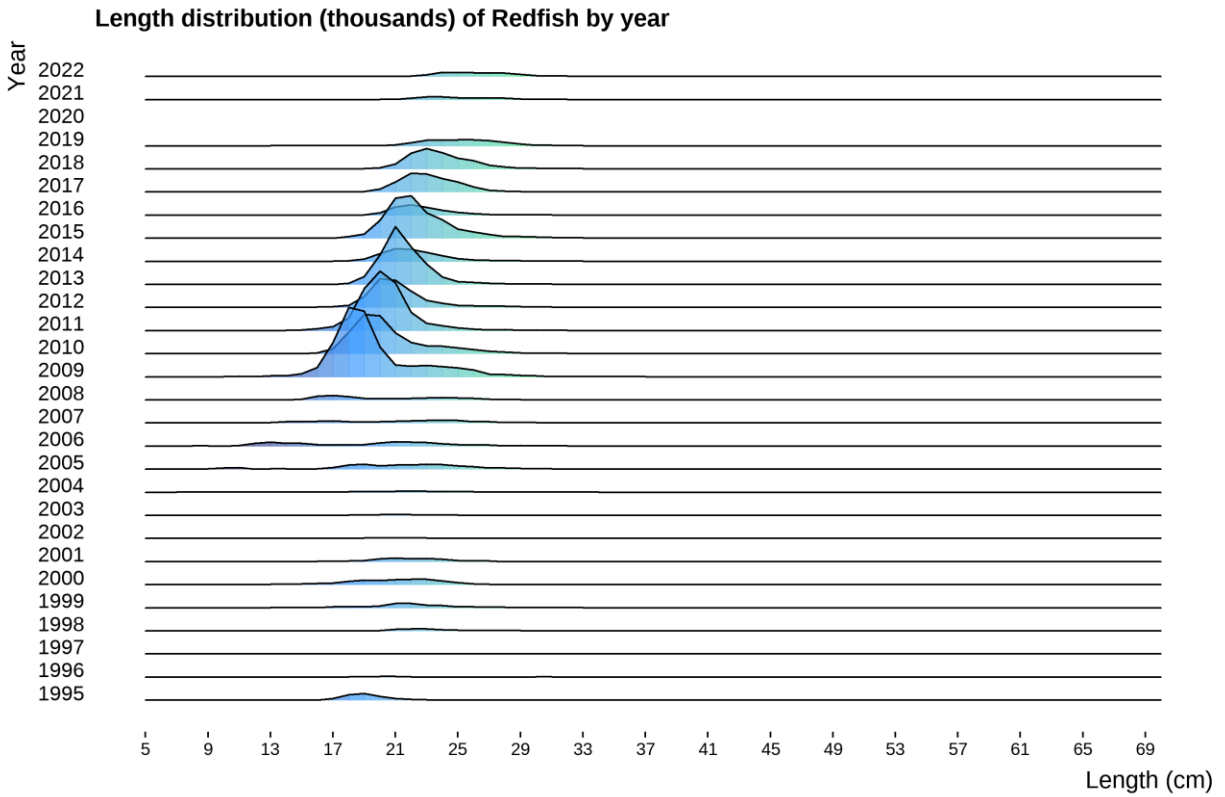
**Figure 15.** Yellowtail flounder total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.



**Figure 16.** Redfish. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

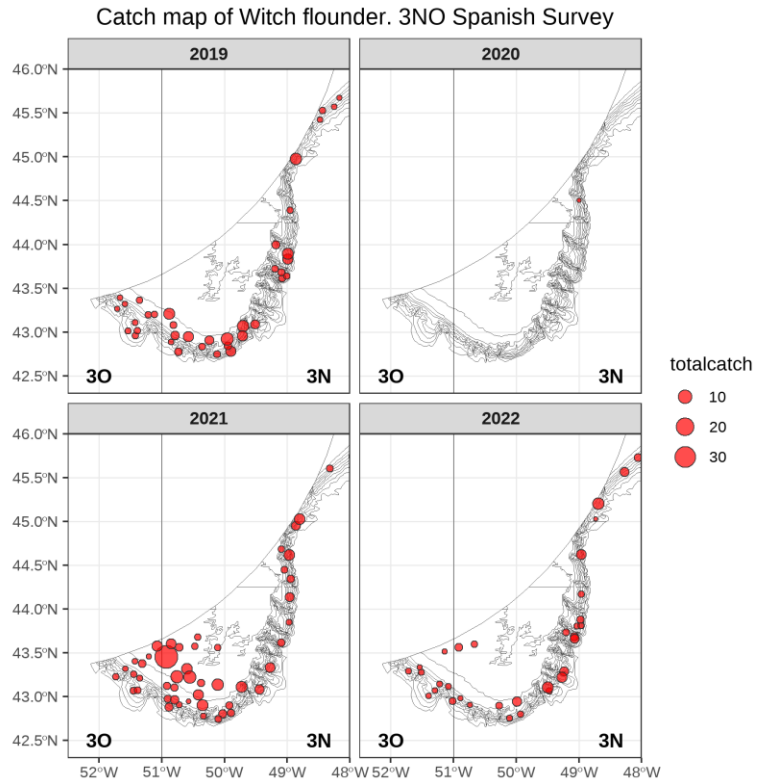


**Figure 17.** Redfish total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

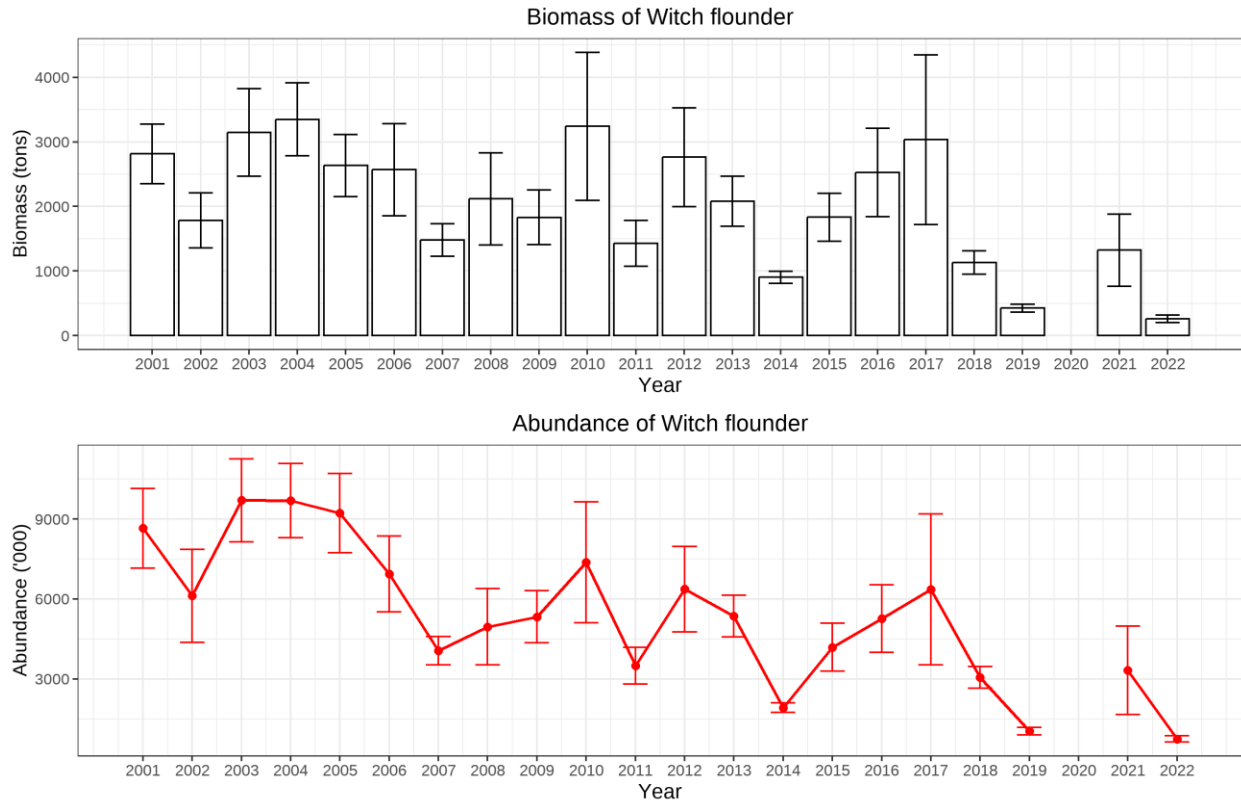


**Figure 18.** Redfish total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

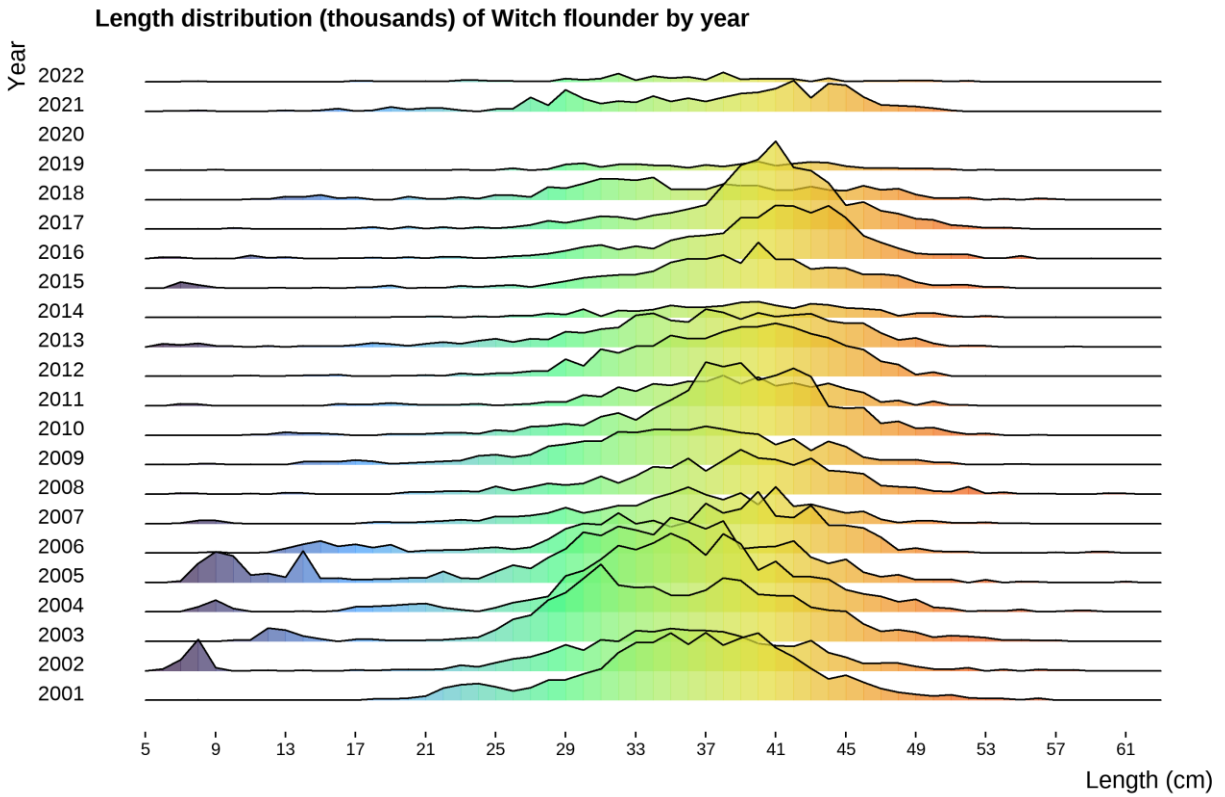




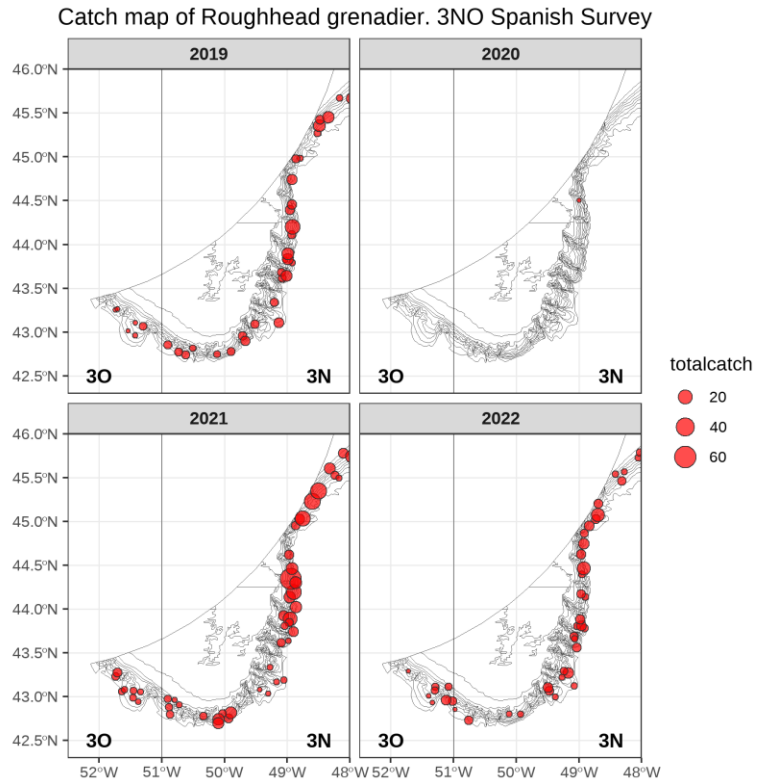
**Figure 19.** Witch flounder. Position of the hauls with catch in the last four years for the Spanish 3NO survey.



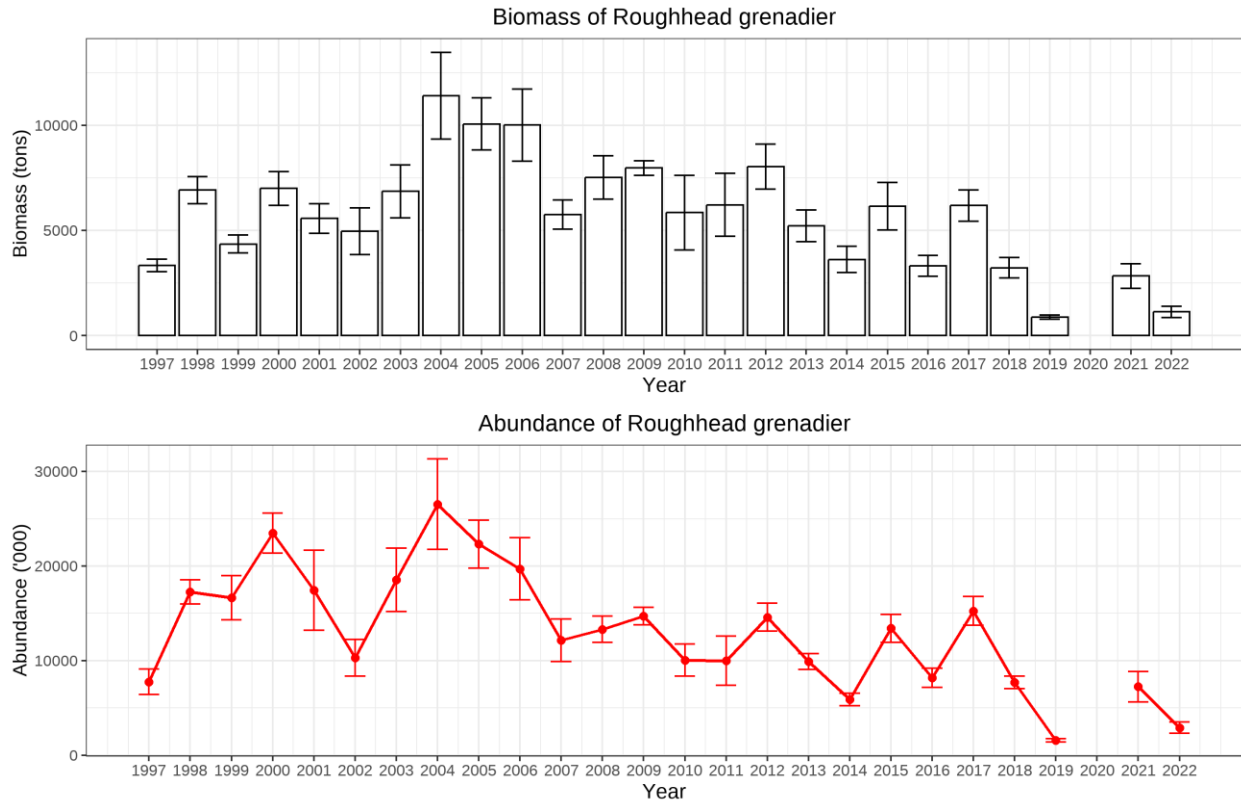
**Figure 20** Witch flounder total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.



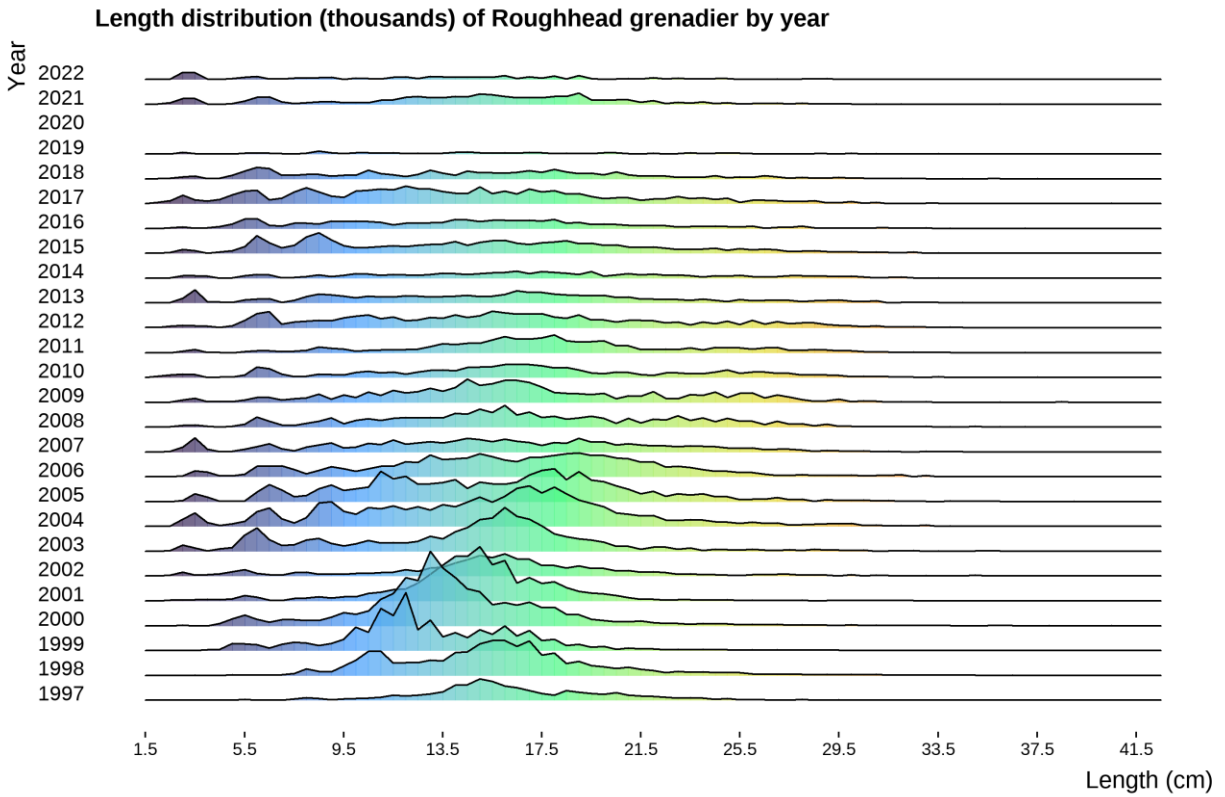
**Figure 21.** Witch flounder total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.



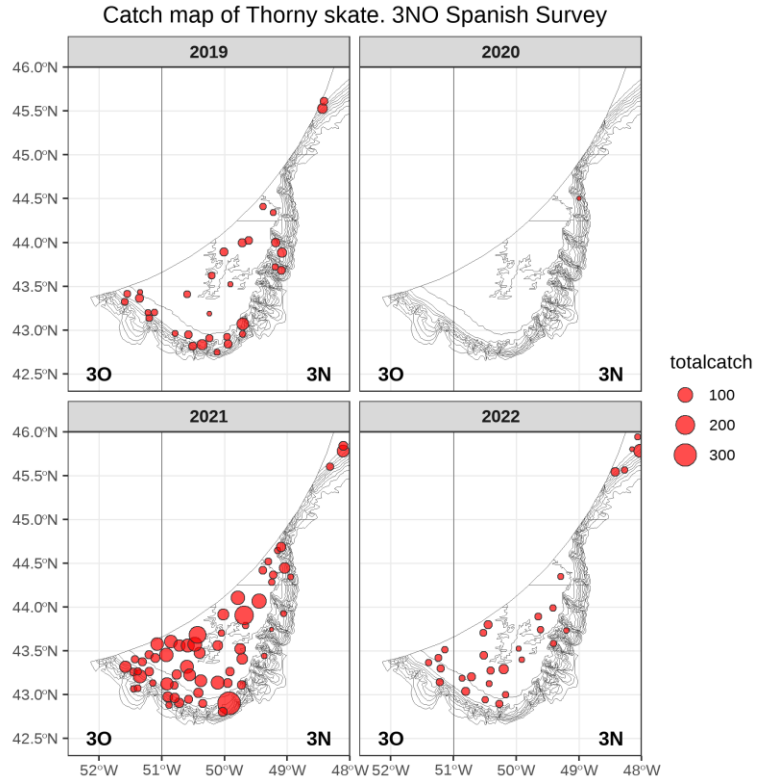
**Figure 22.** Roughhead grenadier. Position of the hauls with catch in the last four years for the Spanish 3NO survey.



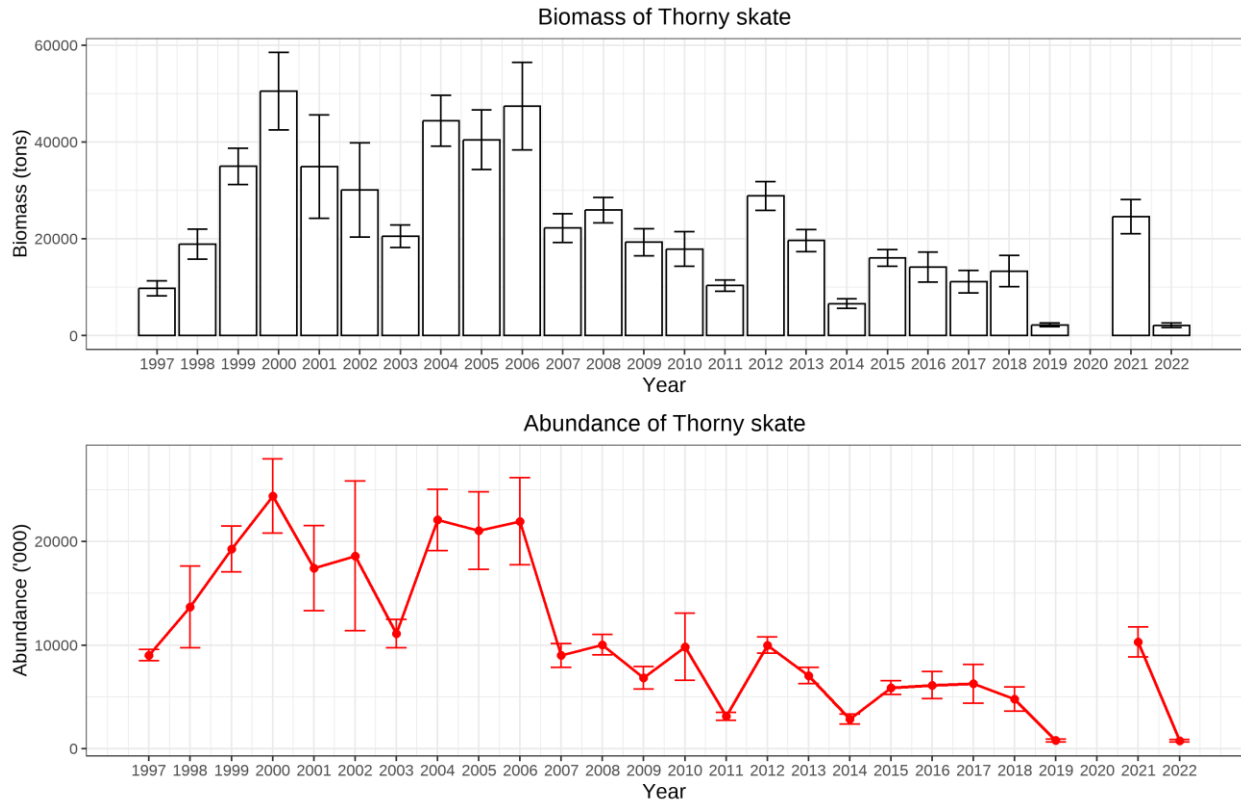
**Figure 23.** Roughhead grenadier total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.



**Figure 24.** Roughhead grenadier total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

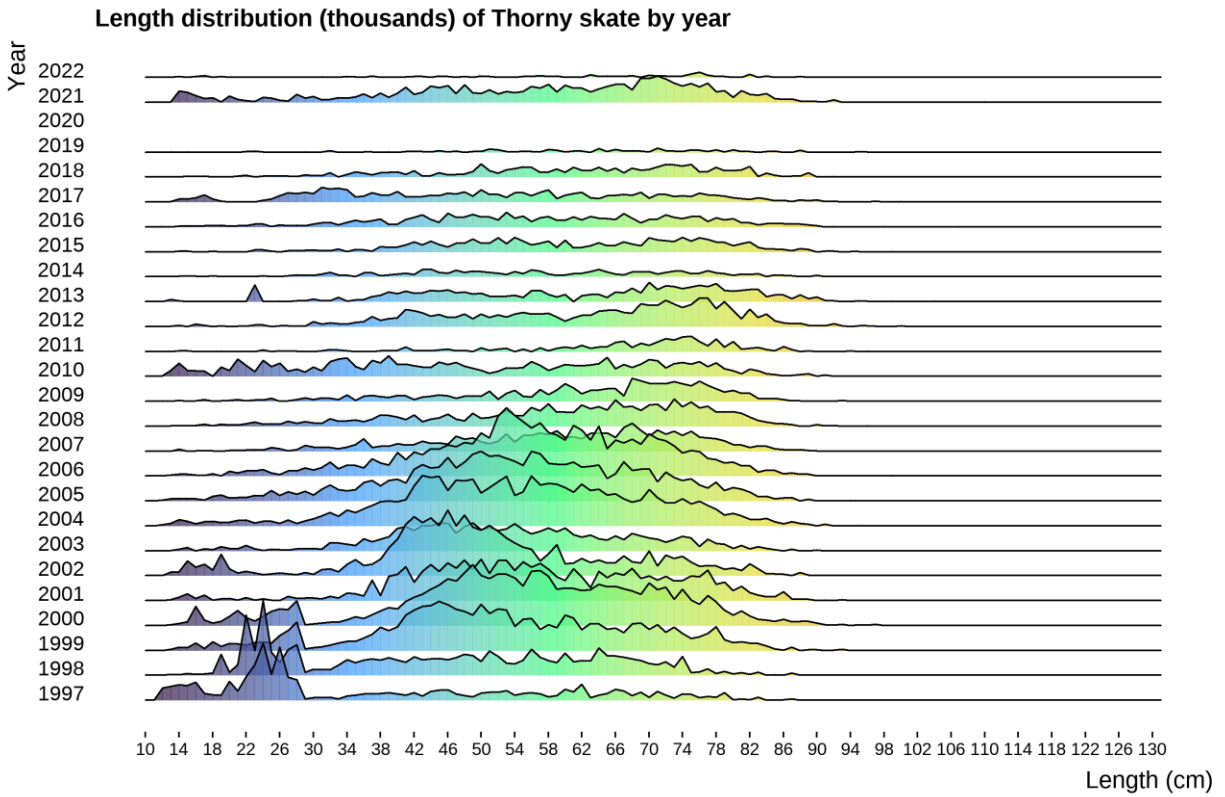


**Figure 25.** Thorny skate. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

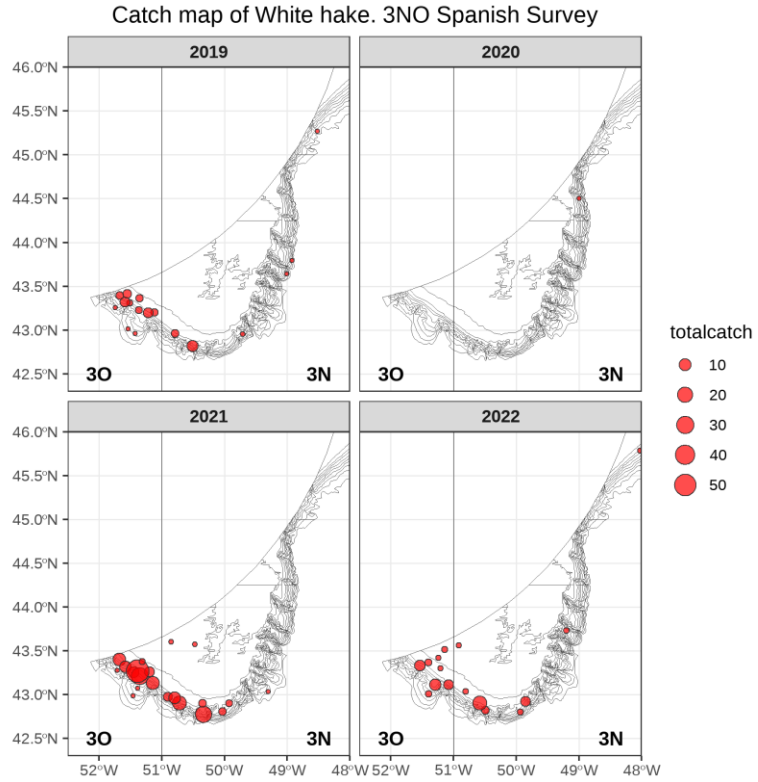


**Figure 26.** Thorny skate total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

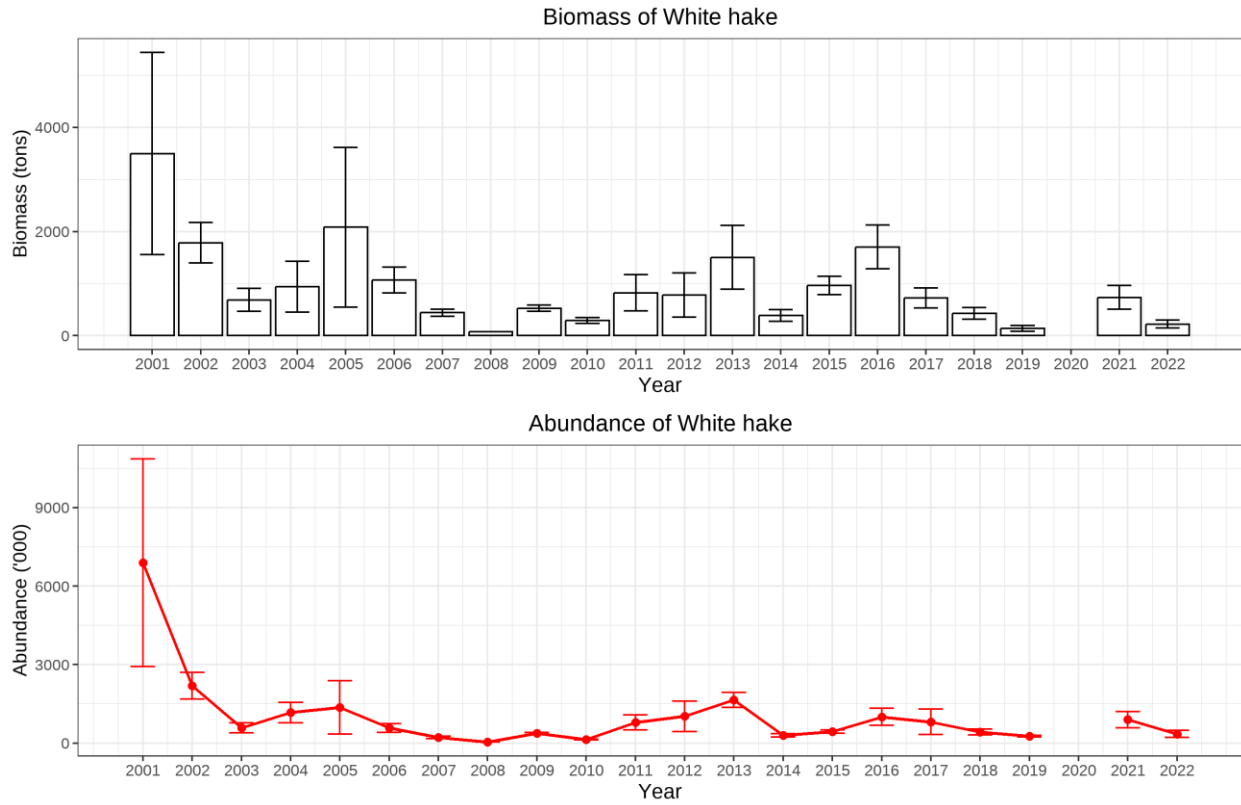




**Figure 27.** Thorny skate total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.



**Figure 28.** White hake. Position of the hauls with catch in the last four years for the Spanish 3NO survey.



**Figure 29.** White hake total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

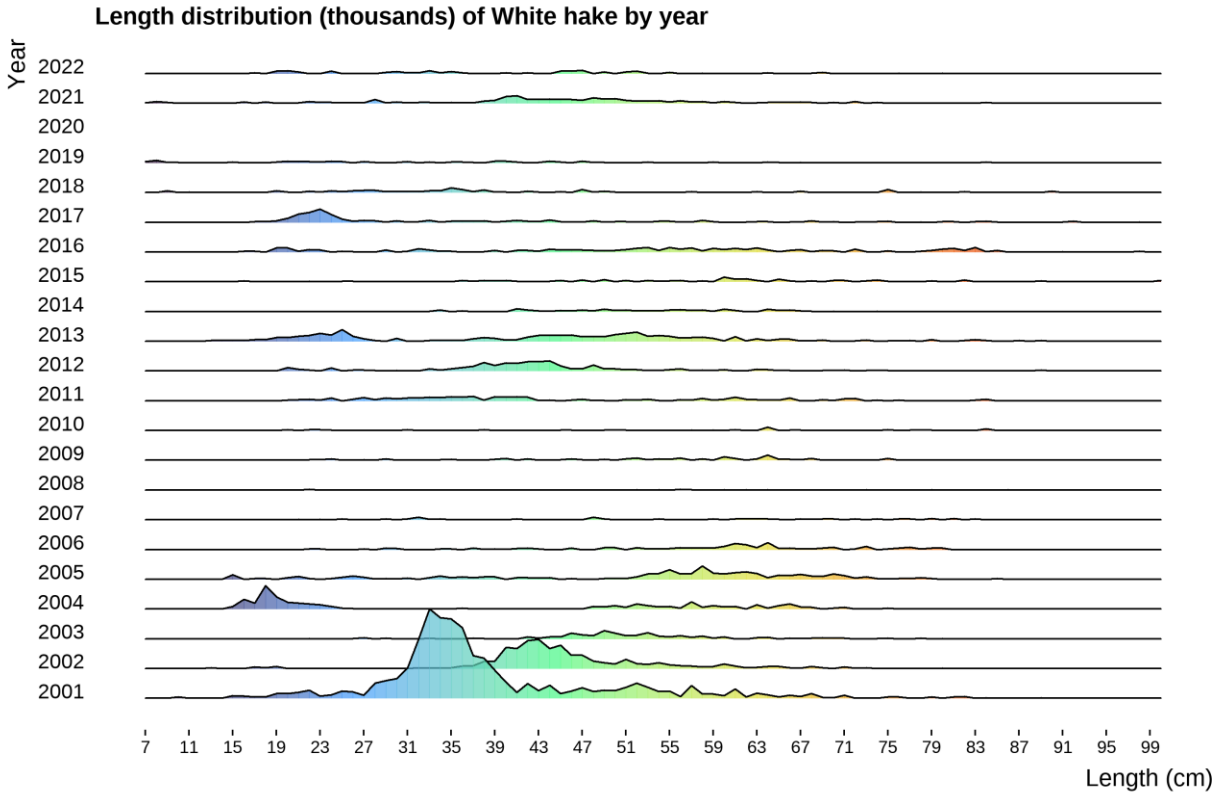
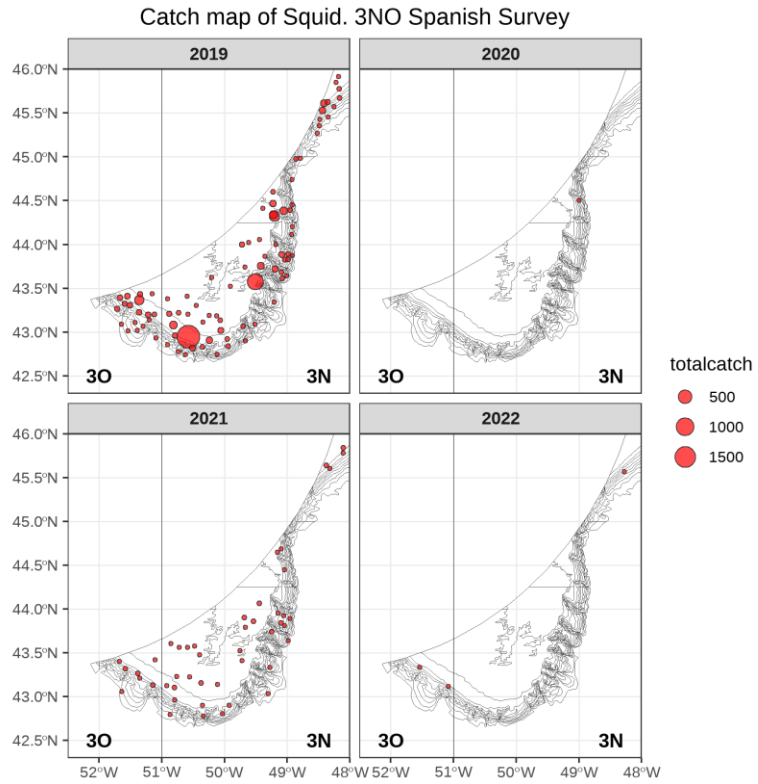
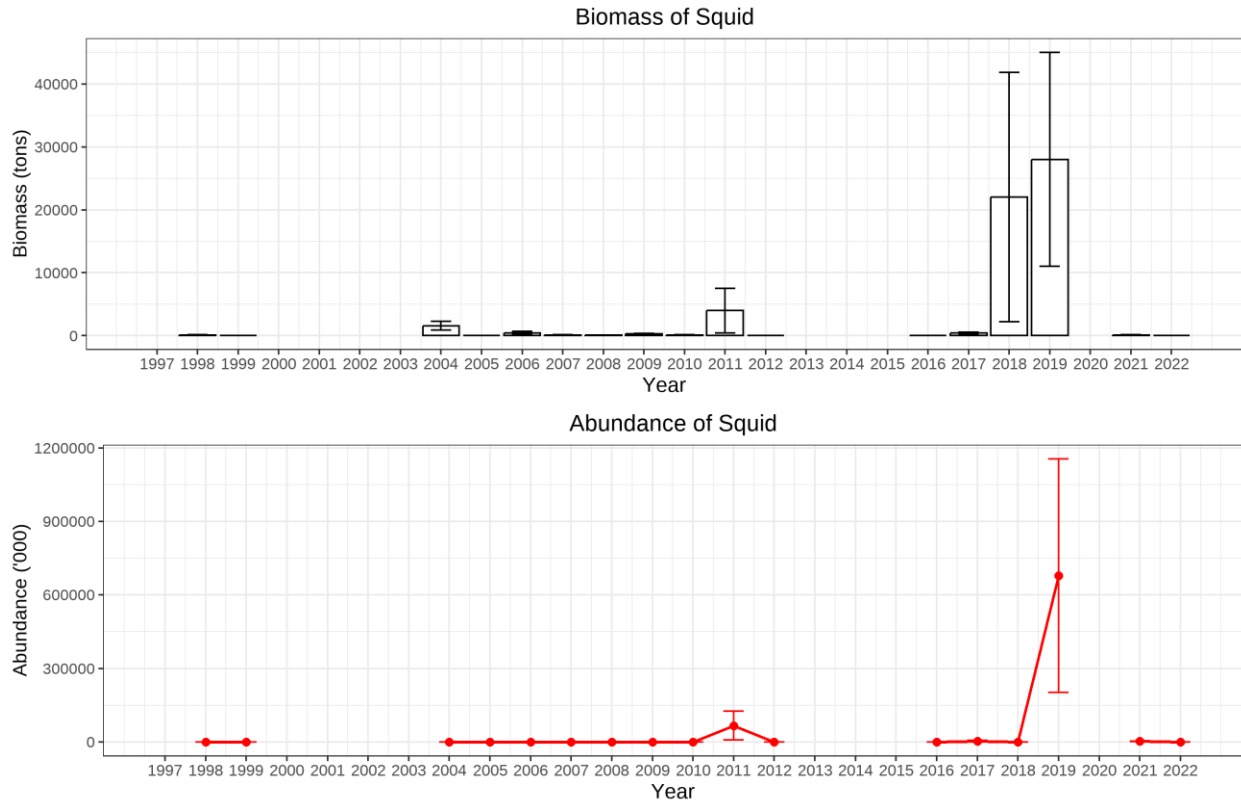


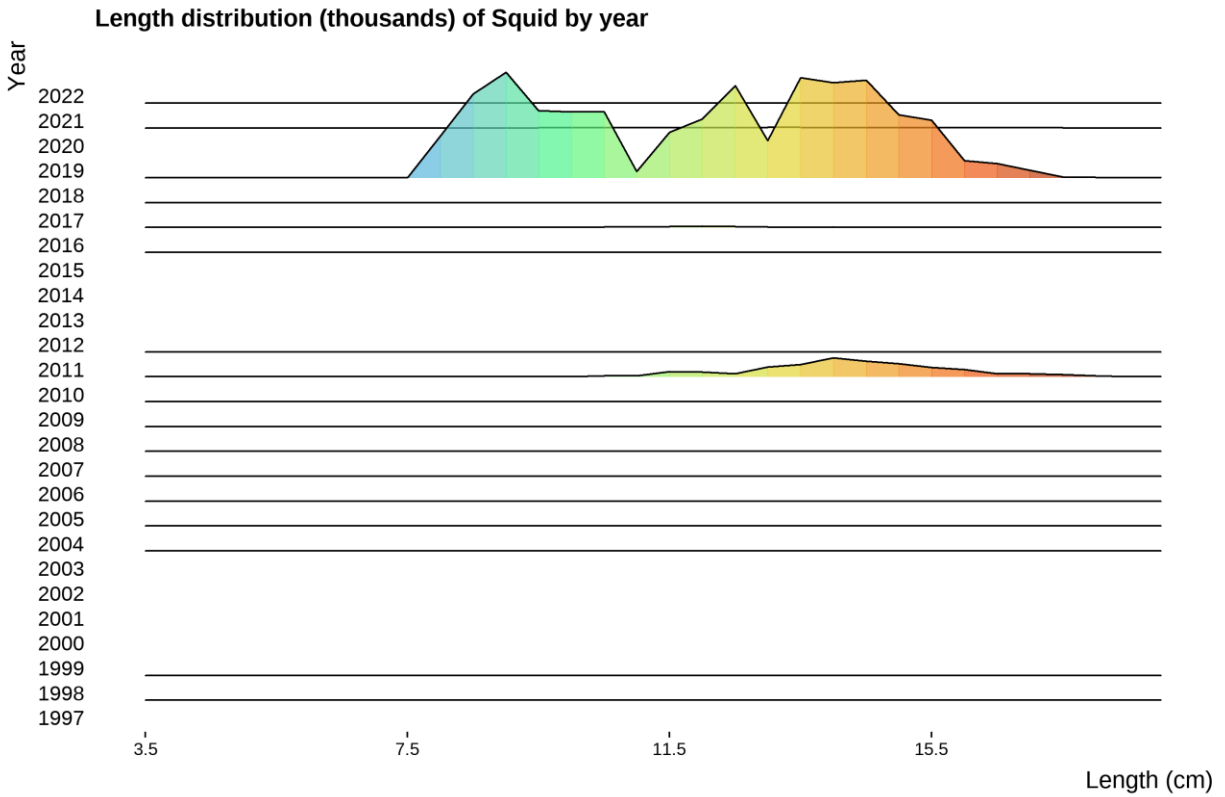
Figure 30. White hake total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.



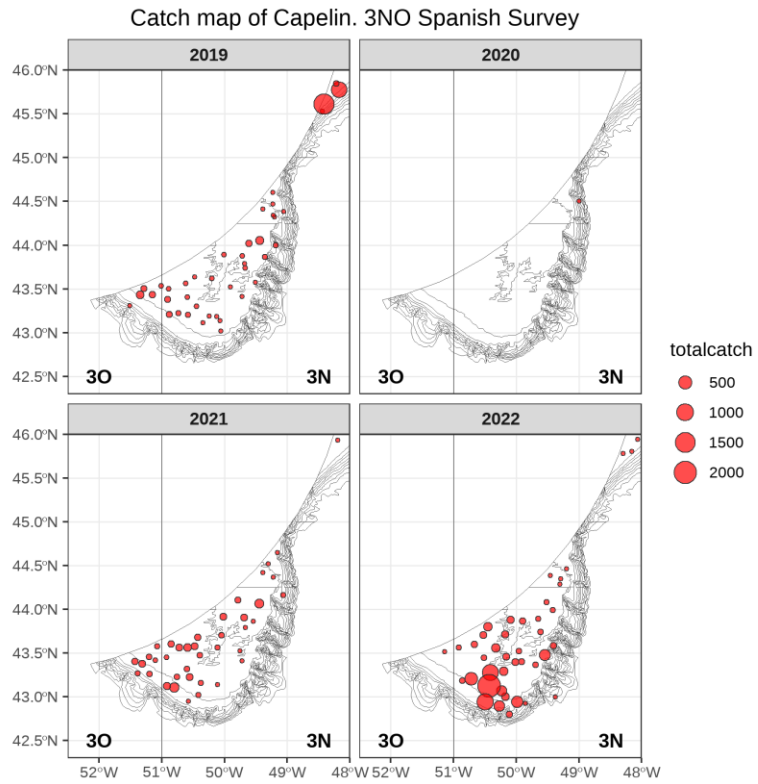
**Figure 31.** Squid. Position of the hauls with catch in the last four years for the Spanish 3NO survey.



**Figure 32.** Squid total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

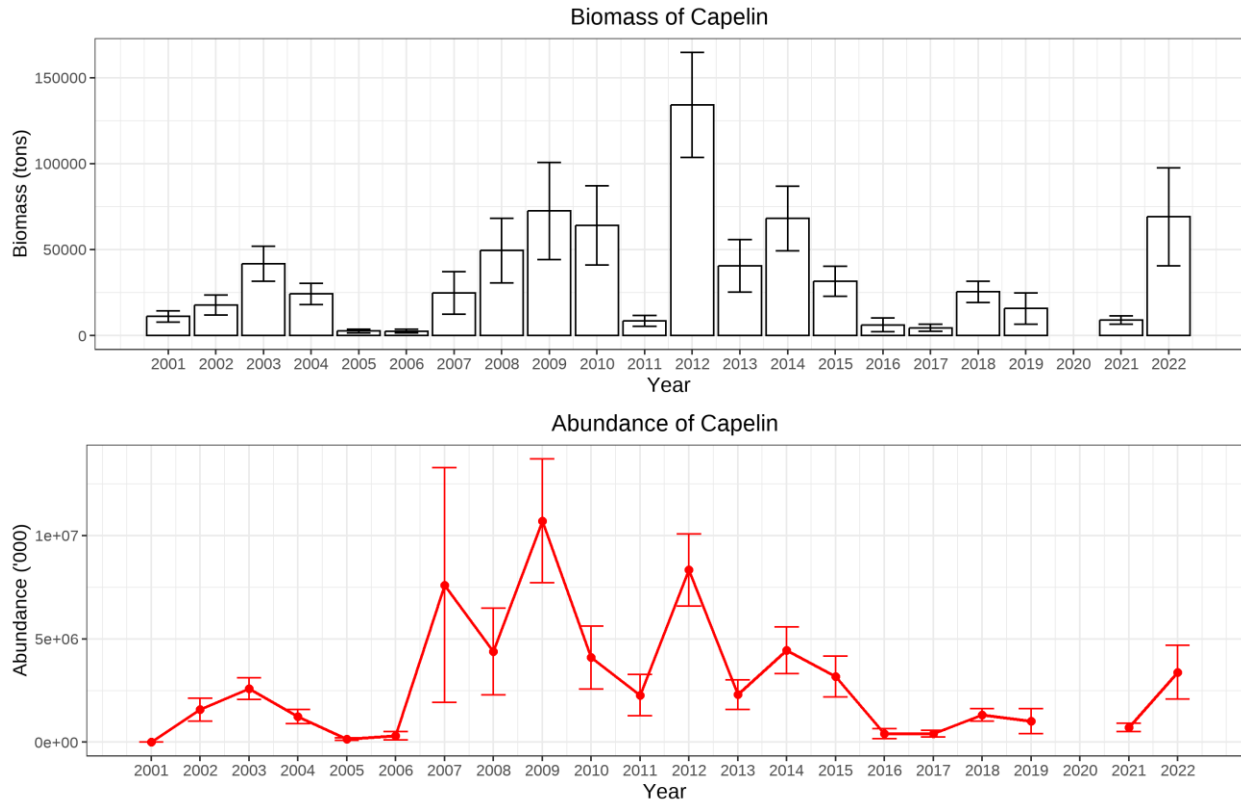


**Figure 33.** Squid total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

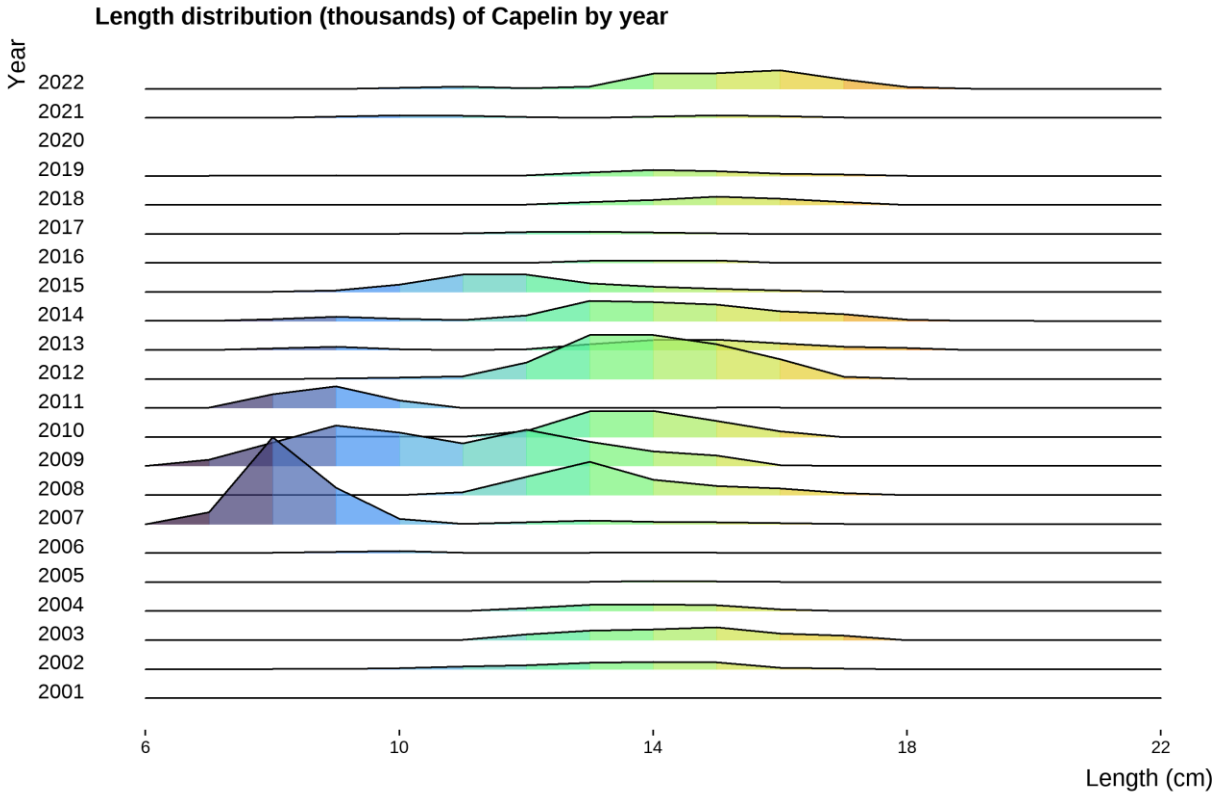


**Figure 34.** Capelin. Position of the hauls with catch in the last four years for the Spanish 3NO survey.





**Figure 35.** Capelin total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.



**Figure 36.** Capelin total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.