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Results of the Spanish survey in NAFO Division 3NO

by

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Abstract

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.

Material and Methods

Since 1995, Spain carries out a Spring-Summer (May/June) survey in the NAFO Regulatory Area of Divisions 3NO. From 1995 to 2000, the survey was conducted on board the C/V *Playa de Menduíña* with a net trawl type *Pedreira*. In 2001 this vessel was replaced by the R/V *Vizconde de Eza*, using a trawl net type *Campelen*. 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 pair 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 for the last five years. Note that the survey was not carried out in 2020 due to the COVID pandemic situation. Figure 1 contains the map with the strata and location of the hauls of the survey conducted in 2021.
Table 3 presents by year the total survey mean catch per tow (total catches/number hauls) as well as the main species and groups catch composition in percentage. Figure 2 shows the catch composition of the index, with the percentage by year of each species presented in the catches.

Table 4 contains the length-weight relationship parameters *a* and *b* by year 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 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).

Results

Greenland halibut

The series are presented since 1997. Indices between 1997 and 2001 are presented transformed after the calibration. From 2002 onwards, indices presented are no-transformed.

Figure 3 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. Figure 4 shows the total biomass and abundance indices by year.

The indices showed a downward trend since the beginning until 2006 and an upward trend from then until 2009-2010, where it reached levels similar to those at the beginning of the series. They decreased again until 2014. Since 2015, the index has 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 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 5 (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 Age-Length Key (ALK) to transform the length distribution in age distribution. In table 8 and Figure 5 (b), the abundance by age and total by year are presented.

With the exception of the first years of the series, it is not easy to track the different cohorts of this species in the length and in the age plots. The good recruitment observed in some years disappears in later years and years with good abundances of intermediate sizes/ages are not observed at younger ages.

American plaice

The series are presented since 1997. Indices between 1997 and 2001 are presented transformed and non-transformed since 2002.

Figure 6 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 whole period, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 7 presents the estimated total biomass and abundance indices by year.

The American plaice biomass and abundance indices increased from a low value in 1997 to a relative high value in 2000. Trends were more or less stable since then to 2016, when a decline was observed. Following years have been more or less stable at 2016 level, being 2019 the lowest value of the entire series.

Length and Age Distribution

Table 10 shows the abundance by length and total by year for the entire period, 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. In table 11, the abundance by age and total by year are presented. The Canadian ALK, used to transform the length in age distribution, was no available in 2017, so the 2016 ALK was used. Since 2020, no 3NO Canadian survey has been carried out, so no ALK is available. Figure 8 shows the total length (a) and age (b) distribution by year.

According to the figure, three cohorts can be followed at different ages. Since 2012, with the exception of 2015, no large abundances of ages less than 5 years have been observed.

Atlantic cod

Atlantic cod indices are presented since 1997. The indices are presented transformed between 1997 and 2001 and non-transformed since then.

Figure 9 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 12 shows the biomass per swept area by stratum for Atlantic cod for the whole period, as well as total biomass, mean catch per tow and abundance and their variance per year. Figure 10 presents the estimated total biomass and abundance indices by year.

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 2015, biomass has decreased reaching in 2019 low values at the level of 2005. 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 13, 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. Figure 11 (a) shows the length distribution by

year for the whole series, where the evolution along the years can be followed. Table 14 ALKs transform length distribution in age distribution. In table 15 and Figure 11 (b), the abundance by age and total by year are presented.

In general, all lengths and ages presence was very low until 2006, except in 2001, even it is very difficult to follow the modal values. But between 2006 and 2008 there are three good cohorts that can be followed (2005-2007 cohorts). With the 2006 cohort the series reaches the maximum number of its historical values at five years in 2011. But it seems that no new good recruitments have occurred since 2009, although a discrete presence of individuals of age 3 can be seen since 2015.

Yellowtail flounder

The indices for yellowtail flounder are presented since 1995, and they are presented transformed until 2001 and non-transformed since then.

Figure 12 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 16 shows the biomass per swept area by stratum for yellowtail flounder for the whole period, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 13 presents the total biomass and abundance indices by year.

Yellowtail flounder indices increased substantially from 1995 to 1999, and they remained almost constant until 2013, when they started to decline until 2021. Since 2019 the values are at a similar level than those before 1998.

Length Distribution

Table 17 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. Figure 14 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.

Redfish

Redfish indices are presented since 1995. The indices are presented transformed until 2001 and non-transformed since then.

Figure 15 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 18 shows the biomass per swept area by stratum for redfish for the whole period, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 16 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. In 2021 both indices are at levels previous to 2009.

Length Distribution

Table 19 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. Figure 17 shows the length distribution by year.

No good recruitment can be observed in the series. The last good year class was recorded in 2004 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

Witch flounder indices are presented since 2001, given that the calibration has not been done yet. For that reason, the indices are presented non-transformed.

Figure 18 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 20 shows the biomass per swept area by stratum for witch flounder for the period, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 19 presents the total biomass and abundance indices by year.

Witch flounder indices follow a downward trend with some fluctuation throughout the entire period, reaching the lowest level in 2019 (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 21 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. Figure 20 shows the length distribution by year.

The best recruitment occurred in the period 2002-2005 and has been very poor since 2008. Some modes can be tracked in Figure 20, probably due to the recruitments at the beginning of the series. In 2012 and 2013 there was a quite good presence of individuals of lengths 34-42 cm, poorly found in 2014, but that can be followed in 2015-2017. Since 2018, the presence of all the length ranges is small.

Roughhead grenadier

Roughhead grenadier indices are presented since 1997, transformed until 2001 and non-transformed since then.

Figure 21 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 22 shows the biomass per swept area by stratum for roughhead grenadier for the whole period, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 22 presents the total biomass and abundance indices by year.

The roughhead grenadier biomass and abundance indices follow an oscillating upward trend from 1997 to 2004. Since 2004, the indices have fluctuated in a slightly decreasing trend, reaching the minimum of the series in 2019.

Length Distribution

Table 23 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. Figure 23 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. In 2017 and 2018 a quite good presence of small and medium lengths (1.5-19.5 cm) could be seen, but in 2019 all the length ranges were very poor, following the drop of the biomass and abundance.

Thorny skate

Thorny skate indices are presented since 1997, transformed until 2001 and non-transformed since then.

Figure 24 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 24 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. Figure 25 presents the total biomass and abundance indices by year.

Thorny skate indices oscillate during the entire series. From maximum values in 2000 and 2006, biomass dropped in 2007 and has been since then more or less stables at a low level, reaching the minimum of the series in 2019. In 2021, the indices recover to intermediate of the series.

Length Distribution

Table 25 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. Figure 26 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 recover from the low values of 2019, when all the length ranges were very poor, following the drop of the biomass and abundance.

White hake

The white hake indices are presented since 2001 and they are non-transformed.

Figure 27 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 26 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. Figure 28 presents the total biomass and abundance indices by year.

Biomass index for white hake presented the highest value in 2001, dropping in 2002. Since then until 2008, it showed an overall decreasing trend with low values, generally increasing since then with some fluctuations. The 2019 biomass is the second lowest of the period studied, reaching a medium value in 2021. Abundance index follows a similar trend.

Length Distribution

Table 27 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. Figure 29 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

Squid indices are presented since 1995 and non-transformed. In some years, no catch of this species was recorded during the survey.

Figure 30 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 28 shows the biomass per swept area by stratum for squid for the whole period, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 31 presents the total biomass and abundance indices by year.

Squid biomass and abundance indices are inconstant and very low in general. In 2018 and 2019 a sharped 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.

Length Distribution

Table 29 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 Figure 32 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

Capelin indices are presented since 2001, given that the calibration has not been done yet. For that reason, the indices are presented non-transformed.

Figure 33 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 30 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. Figure 34 presents the total biomass and abundance indices by year.

With the exception of some years, the biomass of this species showed an increasing trend until 2012, when the maximum of the series was reached. From 2015 to 2017, biomass sharply declined. In 2018 the index increased to a level similar to that in the early 2000s, decreasing slightly in 2019 and 2021. The abundance index is similar, although the maximum was reached in 2009.

Length Distribution

Table 31 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 Figure 35 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.

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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*	C/V Playa de Menduiña	121	40-1500	May 05-May 23
	R/V Vizconde de Eza	83	36-1156	May 03-May 04
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

(*) 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 Menduíña* (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.

			2017		2018		2019		2020		2021	
Stratum	Division	Area	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	3O	269	3	0.036	3	0.0338	3	0.0386			3	0.0398
354	3O	246	3	0.0356	3	0.0341	3	0.0382			3	0.0386
355	3O	74	2	0.0225	2	0.0232	2	0.0262			2	0.0251
356	3O	47	2	0.0232	2	0.0225	2	0.0248			2	0.0262
357	3N	164	2	0.0232	2	0.0236	2	0.0251			2	0.0247
358	3N	225	3	0.0364	3	0.0345	3	0.0382			3	0.0379
359	3N	421	5	0.0596	5	0.0589	5	0.0634			5	0.0638
360	3N	2783	17	0.2044	17	0.1939	17	0.2212			17	0.2156
374	3N	214	2	0.0236	2	0.0225	2	0.0255			2	0.027
375	3N	271	3	0.0364	3	0.0356	3	0.0382			3	0.0401
376	3N	1334	8	0.0975	8	0.0907	8	0.1042			8	0.1042
377	3N	100	2	0.0251	2	0.0232	2	0.0262			2	0.0255
378	3N	139	2	0.0236	2	0.0229	2	0.0259			2	0.0259
379	3N	106	2	0.0244	2	0.0225	2	0.0262			2	0.024
380	3N	96	2	0.0236	2	0.0225	2	0.0262			2	0.0247
381	3N	144	2	0.0229	2	0.0225	2	0.0255			2	0.0262
382	3N	343	3	0.036	4	0.045	5	0.0645			4	0.0517
721	3O	65	2	0.0229	2	0.0229	2	0.0262			2	0.0251
722	3O	84	2	0.0232	2	0.0236	2	0.0255			2	0.0251
723	3N	155	2	0.0229	2	0.024	2	0.0248			2	0.0247
724	3N	124	2	0.024	2	0.0232	2	0.0244			2	0.0229
725	3N	105	2	0.0244	2	0.0232	2	0.0255			2	0.0244
726	3N	72	2	0.0232	2	0.0225	2	0.0259			2	0.024
727	3N	96	2	0.0229	2	0.0225	2	0.0248			2	0.0262
728	3N	78	2	0.0229	2	0.0225	2	0.0248			2	0.0259
752	3N	131	2	0.0236	2	0.0232	2	0.0266			2	0.0251
753	3N	138	2	0.0232	2	0.0236	2	0.0247			2	0.0225
754	3N	180	2	0.0217	2	0.0225	2	0.024			2	0.0225
755	3N	385	3	0.0338	3	0.0338	3	0.0356			2	0.0225
756	3N	101	2	0.0229	2	0.0229	2	0.0251			2	0.024
757	3N	102	2	0.0225	2	0.0225	2	0.0262			2	0.0232
758	3N	99	2	0.0229	2	0.0225	2	0.0259			2	0.024
759	3N	127	2	0.0225	2	0.0225	2	0.0251			2	0.0236
760	3N	154	2	0.0236	3	0.0356	2	0.0255			2	0.0247
761	3N	171	2	0.0236	1	0.0124	2	0.0236			2	0.0255
762	3N	212	2	0.0229	2	0.0225	2	0.0255			2	0.0232
763	3N	261	3	0.0352	3	0.0345	3	0.0382			3	0.0367
764	3O	100	2	0.0229	2	0.0225	2	0.0248			2	0.0251
765	3O	124	2	0.0225	2	0.0232	2	0.0251			2	0.0232
766	3O	144	2	0.0225	2	0.0229	2	0.0248			2	0.024
767	3O	158	2	0.0229	2	0.0236	2	0.0244			2	0.0232

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

	Greenland halibut	American plaice	Atlantic cod	Yellowtail flounder	Redfish	Witch flounder	Roughhead grenadier	Thorny skate	White hake	Squid	Capelin	Other fish	Crustacea	Other molusca	Human Rests	Other	Mean catch per tow (Kg)	Total catch (tons)
1995	1.72	26.48	4.4	13.52	41.67	1.94	0.18	7.91	0	0	0.27	1.88	0.02	0	0	0	342	26
1996	9.71	28.91	3.03	29.56	7.5	2.89	1.26	13.83	0	0	0.02	3.28	0	0	0	0	515	58
1997	20.86	20.85	2.39	22.93	2.79	1.87	5.65	9.99	0	0	0.29	12.38	0	0	0	0	502	64
1998	14.42	19.49	6.57	25.98	13.17	1.8	3.72	7.78	0	0.02	0.08	6.86	0.08	0.02	0	0	1136	141
1999	11.44	19.01	0.98	28.73	20.89	1.5	2.14	8.35	0	0	0.02	6.37	0.52	0.04	0	0.01	1568	179
2000	7.36	23.76	1.73	18.13	17.67	2.18	3.02	9.81	0	0	0.16	10.95	5.04	0.02	0	0.18	1782	210
2001	0.57	19.7	5.98	27.7	30.72	1.06	0.2	5.86	1.27	0	2.72	3.41	0.79	0.03	0	0	702	58
2002	0.96	20.64	6.29	32.27	6.27	0.9	1.97	9.58	1.41	0	5.05	6.93	2.4	0.33	0	4.99	357	45
2003	1.47	27.61	1.67	22.32	6.85	1.24	1.96	5.25	0.41	0	9.27	8.63	1.47	0.37	0	11.47	428	51
2004	0.98	21.6	0.87	23.75	11.44	0.81	3.23	7.35	0.25	0.4	3.62	19.1	2.1	0.28	0	4.2	530	64
2005	0.69	16.46	0.99	17.81	35.69	0.49	2.21	5.3	0.46	0.01	0.32	11.68	1.02	0.27	0	6.6	673	80
2006	0.59	21.9	5.05	19.49	26.82	0.44	2.25	6.64	0.24	0.1	0.31	7.91	1.02	0.17	0	7.07	660	79
2007	0.85	16.83	2.99	20.82	30.45	0.35	1.38	3.51	0.1	0.03	4.02	13.78	0.72	0.06	0	4.12	664	73
2008	1.44	21.22	4.64	17.46	17.67	0.41	1.44	3.37	0.03	0.01	7.71	9.73	0.41	0.11	0	14.36	690	84
2009	1.12	6.55	5.35	9.45	58.27	0.23	0.55	1.41	0.07	0.03	5.14	4	0.35	0.03	0.02	7.44	1572	171
2010	1.55	6.81	9.16	9.2	60.7	0.3	0.69	1.16	0.05	0.01	3.68	3.06	0.3	0.05	0.06	3.21	1425	135
2011	0.69	8.91	9.35	12.48	59.05	0.14	0.65	0.86	0.1	0.36	0.62	4.83	0.41	0.09	0.05	1.42	1327	162
2012	0.92	10.73	10.39	14.14	38.63	0.31	1.03	2.26	0.17	0	10.64	7.07	0.25	0.03	0	3.44	1065	130
2013	0.62	10.21	3.81	12.27	54.86	0.25	0.62	1.58	0.19	0	2.39	7.54	0.25	0.03	0	5.39	1170	143
2014	0.86	8.53	21.49	12.59	37.73	0.17	0.56	0.85	0.1	0	8.07	6.64	0.26	0.05	0	2.11	913	111
2015	0.93	7.64	8.11	8.08	60.89	0.22	0.67	1.35	0.14	0	2.27	6.36	0.23	0.04	0	3.08	1261	154
2016	2.15	5.96	8.93	18.86	37.55	0.74	0.92	3.48	0.63	0	1.35	11.76	0.47	0.07	0.02	7.11	518	60
2017	3.33	3.35	6.41	8.91	59.48	0.64	1.34	2.22	0.22	0.09	0.68	10.18	0.29	0.09	0	2.77	708	80
2018	1.47	5.03	1.92	9.17	60.43	0.22	0.64	1.81	0.1	2.4	3.11	10.76	1.04	0.05	0.05	1.79	726	83
2019	2.38	3.17	1.35	5.82	57.32	0.14	0.3	0.61	0.05	6.05	4.53	15.61	0.76	0.12	0.01	1.79	517	59
2020																	0	
2021	3.09	8.89	5.69	8.58	35.62	0.35	1.35	6.71	0.49	0.04	2.18	21.33	0.74	0.33	0.04	4.56	346	39
Mean percentage	3.55	15.01	5.37	17.31	34.24	0.83	1.54	4.96	0.25	0.37	3.02	8.92	0.81	0.10	0.01	3.74		

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

		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Greenland halibut	a			0.0035	0.0041	0.0036	0.0020	0.0034	0.0026	0.0027	0.0024	0.0036	0.0033	0.0033	0.0037	0.0027	0.0045	0.0037	0.0051	0.0043	0.0037	0.0031	0.0031	0.0032	0.0035	0.0034		0.0039
	b			3.2050	3.1794	3.2178	3.3703	3.2201	3.3080	3.2964	3.3112	3.2093	3.2298	3.2358	3.1986	3.2795	3.1470	3.1963	3.1130	3.1540	3.2024	3.2434	3.2454	3.2292	3.2128	3.2187		3.1742
	R^2			0.99	0.99	0.99	0.99	0.98	0.99	0.99	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	0.99	0.99	0.99		0.99
	N			2383	1105	679	966	44	776	1243	1105	990	941	1095	1206	662	925	1401	1309	1109	1161	1239	1086	1184	1447	1917		1323
American plaice	a			0.0022	0.0025	0.0053	0.0020	0.0049	0.0032	0.0030	0.0044	0.0024	0.0042	0.0040	0.0030	0.0033	0.0037	0.0036	0.0036	0.0064	0.0038	0.0040	0.0038	0.0033	0.0032	0.0036		0.0042
	b			3.3727	3.3389	3.1388	3.4055	3.1607	3.2683	3.2857	3.1864	3.3620	3.2004	3.2105	3.2844	3.2627	3.2401	3.2370	3.2445	3.0775	3.2346	3.2176	3.2178	3.2529	3.2784	3.2254		3.1913
	R^2			0.98	0.99	0.97	0.99	0.99	0.99	0.99	0.98	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99		0.99
	N			2446	1513	386	726	573	1087	1587	1226	884	1213	1696	1212	876	1091	1597	1141	1695	1334	1861	1365	912	1059	1084		1208
Atlantic cod	a			0.0074	0.0059	0.0054	0.0065	0.0054	0.0052	0.0050	0.0047	0.0054	0.0069	0.0053	0.0065	0.0048	0.0061	0.0050	0.0061	0.0061	0.0052	0.0058	0.0046	0.0045	0.0053	0.0064		0.0061
	b			3.0034	3.0708	3.0970	3.0521	3.0836	3.0929	3.1099	3.1385	3.1115	3.0426	3.1040	3.0376	3.1045	3.0664	3.1096	3.0573	3.0626	3.1044	3.0828	3.1301	3.1313	3.1107	3.0626		3.0699
	R^2			0.96	0.99	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.98	0.99	0.99	0.99	1.00	0.99	0.99	0.98		0.99
	N			431	687	430	877	488	678	516	656	612	1129	1010	1266	795	1007	1541	1557	1853	2523	2733	1375	942	1110	822		912
Yellowtail flounder	a	0.0069	0.0054	0.0055	0.0056	0.0066	0.0029	0.0066	0.0059	0.0080	0.0036	0.0044	0.0068	0.0051	0.0062	0.0046	0.0058	0.0074	0.0070	0.0063	0.0112	0.0061	0.0098	0.0071	0.0041	0.0050		0.0057
	b	3.0818	3.156	3.1401	3.1275	3.0832	3.3055	3.0779	3.0987	3.0225	3.2384	3.1897	3.0515	3.1301	3.0641	3.1491	3.0907	3.0170	3.0284	3.0623	2.9233	3.0975	2.9615	3.0434	3.2178	3.1647		3.1082
	R^2	0.9786	0.9803	0.98	0.98	0.97	0.99	0.98	0.99	0.98	0.98	0.99	0.98	0.98	0.99	0.97	0.98	0.96	0.96	0.95	0.96	0.99	0.99	0.99	0.98	0.97		0.99
	N	391	1181	1466	1211	118	614	703	620	833	969	606	887	1312	1074	648	759	1015	914	1039	861	1144	756	689	794	937		990
Redfish	a	0	0	0.0095	0.0164	0.0000	0.0068	0.0000	0.0083	0.0118	0.0076	0.0064	0.0127	0.0182	0.0075	0.0120	0.0107	0.0057	0.0134	0.0106	0.0127	0.0086	0.0077	0.0093	0.0091	0.0098		0.0093
	b	0	0	3.0689	2.9201	0.0000	3.1999	0.0000	3.1218	3.0177	3.1573	3.2126	3.0041	2.9062	3.1630	3.0078	3.0658	3.2569	2.9972	3.0481	3.0078	3.1250	3.1517	3.0892	3.1003	3.0896		3.1071
	R^2	0	0	0.90	0.97	0.00	0.99	0.00	0.97	0.99	0.97	0.98	0.98	0.98	0.98	0.99	0.99	0.98	0.97	0.99	0.99	0.99	0.99	0.99	0.99	0.98		0.98
	N	0	0	40	5	0	50	0	374	844	466	616	781	1126	770	532	585	1235	759	1017	814	1095	751	668	1105	1083		1240
Witch flounder	a							0.0030	0.0004	0.0018	0.0016	0.0011	0.0016	0.0010	0.0012	0.0015	0.0015	0.0015	0.0015	0.0020	0.0012	0.0021	0.0019	0.0011	0.0015	0.0014		0.0024
	b							3.1898	3.7117	3.3431	3.3730	3.4823	3.3727	3.5248	3.4728	3.3908	3.4048	3.4113	3.4013	3.3219	3.4767	3.3222	3.3320	3.4687	3.4048	3.4199		3.2727
	R^2							0.96	0.99	0.99	0.97	0.98	0.97	0.98	0.98	0.96	0.97	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		0.98
	N							482	522	666	607	546	632	555	546	397	520	529	487	864	412	762	584	595	430	196		312
Roughhead grenadier	a			0.0853	0.0932	0.0898	0.0764	0.1519	0.0865	0.1048	0.0728	0.0666	0.0981	0.1079	0.0973	0.0998	0.1199	0.1180	0.1873	0.1116	0.1394	0.1258	0.1267	0.1094	0.1064	0.0847		0.1028
	b			2.9681	2.9486	2.9529	3.0320	2.7562	2.9726	2.9053	3.0294	3.0610	2.9338	2.9021	2.9266	2.9257	2.8588	2.8799	2.7194	2.8814	2.8259	2.8503	2.8537	2.9071	2.9011	2.9864		2.9083
	R^2			0.98	0.99	0.96	0.98	0.97	0.99	0.99	0.99	0.99	0.97	0.99	0.98	0.98	0.98	0.98	0.97	0.99	0.99	0.99	0.99	0.98	0.99	0.99		0.99
	N			67	655	338	820	292	787	1288	1379	1078	1218	1401	1263	710	665	1210	1614	1580	1034	1652	947	1181	893	296		935
Thorny skate	a			0.0077	0.0092	0.0251	0.0317	0.0064	0.0066	0.0079	0.0068	0.0048	0.0090	0.0083	0.0097	0.0094	0.0071	0.0059	0.0072	0.0097	0.0147	0.0136	0.0100	0.0098	0.0099	0.0082		0.0052
	b			3.0726	3.0147	2.7780	2.7142	3.0807	3.0956	3.0477	3.0868	3.1716	3.0146	3.0384	3.0010	3.0014	3.0797	3.1144	3.0662	2.9904	2.8993	2.9245	2.9890	2.9921	2.9997	3.0418		3.1487
	R^2			0.98	0.98	0.97	0.96	1.00	0.99	0.98	0.98	0.98	0.97	0.99	0.98	0.98	0.99	0.96	0.98	0.98	0.99	0.98	0.99	0.99	0.98	0.99		0.99
	N			220	156	86	444	181	800	903	810	756	1075	769	718	378	555	362	716	716	361	661	504	594	404	109		990
White hake	a							0.0000	0.0018	0.0030	0.0043	0.0038	0.0039	0.0034	0.0038	0.0035	0.0022	0.0030	0.0027	0.0024	0.0029	0.0021	0.0026	0.0025	0.0061	0.0045		0.0038
	b							0.0000	3.3577	3.2191	3.1430	3.1817	3.1702	3.2271	3.1856	3.1947	3.3285	3.2466	3.2593	3.2833	3.2467	3.3300	3.2702	3.2828	3.0565	3.1166		3.1534
	R^2							0.00	0.98	0.96	0.99	0.99	0.98	0.99	0.99	0.99	1.00	0.98	0.98	0.99	0.97	0.99	0.99	0.99	0.97	0.99		0.99
	N							0	168	125	91	188	102	32	11	49	29	122	69	210	67	89	161	150	74	57		168
Squid	a				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2653	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0597		0.0438
	b				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.5724		2.6797
	R^2				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91		0.90
	N				0	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	779		314
Capelin	a	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0004	0.0005	0.0011	0.0003	0.0094	0.0005	0.0007	0.0056	0.0008	0.0036	0.0020	0.0035	0.0010	0.0010	0.0004	0.0006	0.0009		0.0010
	b	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	3.7092	3.8091	3.7852	3.5812	4.0640	2.7881	3.8074	3.6923	2.9634	3.6875	3.1052	3.3371	3.1076	3.5837	3.5412	3.9535	3.7361	3.5916		3.6070
	R^2	0	0	0.00	0.00	0.00	0.00	0.00	0.87	0.72	0.74	0.87	0.73	0.63	0.84	0.91	0.74	0.92	0.76	0.89	0.88	0.92	0.95	0.89	0.87	0.93		0.94
	N	0	0	0	0	0	0	0	77	224	45	40	64	143	311	309	142	220	452	688	223	762	175	386	532	1359		1043

Table 5. Biomass (t) of Greenland halibut by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	1	32	14	4	1	5	0	34	44	31	1	2	1	1	18	9	65	5	2	1	1	83	27		174
354	15	49	19	2	70	18	1	32	66	16	99	17	0	18	2	7	3	2	12	4	23	6	12		67
355	26	2	1	1	106	3	16	26	9	20	12	78	0	33	16	5	1	1	28	1	4	9	49		3
356	17	18	1	2	0	6	12	14	4	19	7	1	0	14	6	1	1	1	4	1	0	1	7		12
357	16	115	23	1	36	16	96	22	17	4	100	40	24	26	3	2	0	5	7	2	9	1	3		26
358	28	46	79	10	165	63	69	19	37	1	8	109	0	165	5	0	2	2	0	0	0	10	9		52
359	24	8	75	49	72	10	11	44	13	0	1	9	0	7	2	2	1	11	0	1	7	16	8		45
360	10	9	70	30	38	1	4	27	68	31	0	7	4	8	1	0	3	3	1	1	6	13	12		186
374	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0		0
375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
376	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	1	0	0		0
377	0	0	4	1	4	0	14	1	12	3	0	2	1	0	0	0	0	0	1	1	0	6	0		2
378	10	8	13	13	67	22	37	5	0	6	5	17	0	14	0	0	0	2	0	0	20	10	1		1
379	23	17	9	12	43	54	71	22	33	5	18	7	3	5	22	43	5	10	0	0	0	1	0		11
380	24	21	32	20	38	43	36	89	286	180	45	103	12	21	38	28	64	7	20	10	130	91	418		246
381	3	9	36	17	11	7	13	70	77	244	9	36	1	1	8	0	0	0	11	6	20	1	319		254
382	0	1	0	3	1	12	1	2	15	109	0	1	0	0	0	0	0	0	4	2	4	1	8		65
721	17	76	3	3	2	0	1	11	6	3	4	10	91	40	101	22	18	1	13	5	22	37	6		13
722	12	195	98	151	8	19	13	186	168	12	96	132	85	335	165	248	139	83	157	48	69	113	93		263
723	76	71	150	36	17	17	54	52	36	90	43	23	105	100	100	107	89	14	74	0	39	41	63		115
724	21	101	50	62	36	53	78	144	132	240	124	52	274	339	148	165	76	116	217	106	36	15	131		44
725	80	25	46	100	24	69	97	183	154	107	100	0	28	102	50	57	18	11	23	3	41	47	108		45
726	n.s.	195	186	84	22	22	0	94	78	15	56	40	1342	232	130	165	71	46	144	67	141	53	186		109
727	53	64	85	24	32	17	163	169	162	75	176	564	34	581	224	312	340	159	83	60	486	275	663		110
728	265	433	418	222	59	54	277	49	6	30	132	153	225	718	323	128	102	94	140	183	924	144	250		248
752	444	621	642	296	329	151	456	57	63	71	62	216	1500	664	267	252	191	324	587	689	1022	268	282		344
753	419	423	775	632	293	30	201	55	110	50	86	234	535	n.s.	326	348	155	432	257	559	493	172	180		157
754	306	297	299	862	758	275	316	54	74	10	335	405	1810	1046	334	381	471	319	358	922	977	576	556		219
755	n.s.	712	591	1276	1005	14	65	96	192	141	250	958	914	1489	512	487	414	883	880	945	1214	554	905		806
756	635	1976	1125	605	266	93	211	139	62	58	149	359	169	1158	228	309	143	311	394	180	908	240	286		330
757	350	942	935	357	371	90	23	43	62	51	317	315	519	445	107	441	296	260	462	538	1358	351	252		198
758	365	478	488	534	383	151	0	90	99	118	194	407	543	636	95	247	286	304	319	303	1376	657	109		100
759	n.s.	573	522	356	874	24	244	53	100	5	n.s.	612	1581	756	213	254	370	137	496	463	852	197	234		252
760	153	474	616	448	127	64	274	204	64	123	216	367	539	743	439	439	377	234	520	376	603	428	368		433
761	1008	763	617	558	123	253	201	45	102	76	210	218	673	817	525	516	230	525	726	569	337	453	407		374
762	949	786	1279	762	424	40	658	154	249	302	n.s.	541	1015	1263	785	277	140	355	1089	700	1483	627	213		379
763	n.s.	840	539	643	750	17	44	499	119	164	n.s.	497	n.s.	n.s.	403	652	218	237	655	725	1223	549	305		322
764	200	196	256	156	447	59	256	295	35	116	166	175	149	n.s.	292	307	224	168	231	127	325	279	106		150
765	426	270	352	455	402	482	351	231	200	136	265	302	585	348	154	225	134	113	248	168	171	525	159		255
766	883	314	415	226	233	118	114	108	117	46	n.s.	170	133	337	193	327	205	165	206	112	373	135	460		380
767	n.s.	146	383	319	83	12	220	18	0	11	n.s.	95	n.s.	n.s.	245	69	105	142	149	124	322	112	119		104
Biomass	6859	11305	11246	9331	7721	2382	4701	3437	3071	2720	3286	7272	12904	12462	6483	6830	4959	5482	8519	8002	15026	7099	7316		6893
SD	546	860	973	707	790	410	575	373	325	379	363	708	1506	1197	593	631	606	465	664	700	1728	658	811		527
Biomass 5+	4303	6284	6367	8785	6700	2017	3409	2330	2597	2154	3063	6901	11992	12049	6087	6272	4696	5326	8395	7780	14522	6651	5883		6344
Biomass 10+	406	504	660	1111	741	291	512	297	381	170	348	766	1115	1157	1172	1576	1346	1533	1755	1871	2416	1161	1527		1644
MWPT	7.73	11.73	12.00	9.48	8.17	2.64	5.1	3.68	3.39	3.03	3.98	7.66	14.78	14.8	7.09	7.36	5.46	6.24	9.49	8.8	16.63	7.88	8.82		8.09
SD	0.62	0.89	1.00	0.75	0.84	0.45	0.62	0.4	0.36	0.42	0.44	0.74	1.73	1.4	0.63	0.69	0.69	0.53	0.73	0.78	1.92	0.72	0.95		0.64
Abundance	25732	33246	34487	17474	24484	7161	12123	14042	7893	7531	6472	10565	20115	17821	10172	9494	6205	6724	8983	8798	19976	12209	18483		16490
SD	2106	3158	3675	1567	9175	957	1542	2317	1202	1000	937	1057	5912	1961	862	1520	920	602	663	856	2260	959	2319		2384
Area	9339	10342	10342	10342	10342	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

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

Length (cm)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
6	0	0	141	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	15	0	4	0	0		7
8	0	0	0	0	0	38	97	15	0	0	4	8	0	0	0	0	0	4	28	0	30	14	28		0
10	377	34	462	446	971	374	751	228	29	130	83	193	154	70	58	0	38	127	330	507	678	431	936		20
12	2176	110	1344	1352	3611	1307	1568	1514	169	922	396	321	243	151	431	38	184	232	400	479	1721	1146	1460		392
14	718	377	1112	855	3595	880	897	3341	636	1273	628	81	120	99	1185	34	29	62	92	27	493	669	308		1094
16	140	63	299	279	594	66	91	1640	363	518	366	38	12	40	373	6	98	90	39	19	230	348	451		729
18	1785	188	440	272	236	28	42	135	61	101	44	73	503	158	73	40	142	170	128	87	294	435	820		837
20	3736	1033	1910	73	1572	159	192	131	219	18	28	323	1536	850	200	125	112	308	201	206	574	631	1152		1627
22	2322	1733	2097	170	2878	382	827	362	895	38	124	481	1062	712	491	358	102	527	174	172	547	501	1009		2384
24	911	1620	852	345	1247	447	739	620	740	159	389	491	520	590	420	823	54	250	63	88	327	291	918		1267
26	1546	2627	1084	213	227	232	352	481	426	139	321	292	506	264	248	926	4	48	28	60	204	232	1070		483
28	1947	4298	1837	178	69	114	294	337	207	173	88	195	902	136	130	476	90	36	76	139	356	298	1140		279
30	1575	4226	3039	330	134	189	530	559	265	232	49	140	734	300	259	157	204	20	121	161	534	321	1159		324
32	1034	3149	4370	519	330	308	660	786	383	307	90	326	787	401	295	219	312	61	108	228	508	353	949		417
34	1073	3098	4720	850	404	302	674	710	472	428	236	325	688	468	244	259	344	101	75	149	490	255	1047		454
36	1095	2962	3726	1465	604	280	506	600	461	426	311	374	445	743	197	322	241	119	89	146	467	467	844		572
38	1012	2432	2235	1802	831	287	646	520	534	407	384	278	543	1101	348	450	390	229	134	317	518	486	744		604
40	963	1454	1666	2311	1298	339	665	395	473	475	446	547	1074	1572	421	588	286	224	289	303	704	390	600		707
42	763	1029	1034	1958	1269	344	485	329	309	496	373	795	1270	1746	566	631	486	441	370	273	951	428	488		628
44	647	792	696	1403	1424	286	377	244	219	358	438	857	1493	1678	541	650	420	459	530	502	1162	579	388		621
46	527	589	415	870	1181	203	379	275	193	153	416	1001	1694	1407	592	572	488	548	682	540	1327	561	449		586
48	398	454	298	516	790	148	293	163	166	204	371	979	1635	1468	673	580	402	452	1009	613	1193	555	324		499
50	291	316	180	317	429	185	294	207	120	177	334	705	1551	1305	625	442	287	594	962	709	1245	496	410		402
52	192	192	147	244	226	56	253	120	121	118	175	597	1110	844	502	395	367	342	876	832	1284	428	254		244
54	134	116	84	179	165	97	116	112	127	73	107	350	528	612	399	350	291	330	665	822	1142	439	307		344
56	101	114	76	142	80	34	135	45	65	74	87	312	391	413	266	286	193	247	607	486	1082	463	379		184
58	68	68	41	75	75	8	86	62	98	49	58	230	239	307	215	223	107	153	297	278	757	337	254		189
60	60	49	35	75	36	15	32	29	34	37	36	89	128	152	161	190	165	133	178	194	320	275	192		248
62	28	25	31	38	46	0	34	25	18	14	15	68	45	76	93	109	134	86	127	130	238	147	118		56
64	31	29	21	39	26	12	25	11	24	17	23	29	52	72	48	60	66	66	79	61	204	76	124		135
66	24	15	17	25	29	4	0	6	6	0	18	5	36	29	21	23	45	61	39	89	100	55	51		58
68	12	8	13	28	10	8	0	0	15	0	14	17	10	14	12	31	28	56	27	32	114	24	46		19
70	10	9	12	19	10	0	20	4	14	0	5	18	6	23	4	24	14	22	44	20	75	21	22		7
72	12	6	11	14	12	0	21	4	0	4	6	0	0	5	9	39	20	51	38	28	23	4	12		7
74	4	6	8	13	8	0	15	15	16	0	0	0	68	5	4	23	23	25	7	16	14	12	0		10
76	4	6	8	6	13	0	7	6	0	6	0	7	9	0	25	19	6	35	14	28	24	9	19		15
78	4	7	12	21	32	5	0	0	6	0	0	0	0	0	20	4	0	14	13	18	21	12	4		6
80	5	5	5	10	4	4	0	6	7	0	0	0	0	0	7	0	22	0	6	6	22	4	0		3
82	2	4	3	7	6	0	11	0	0	0	0	0	21	0	0	0	0	0	6	13	0	0	0		5
84	0	0	1	7	7	0	0	0	0	0	8	17	0	6	0	15	0	0	10	0	0	0	0		7
86	0	2	3	6	2	11	0	0	0	4	0	0	0	0	8	0	0	0	8	6	0	0	5		0
88	2	2	2	1	1	8	0	0	0	0	0	5	0	0	7	5	0	0	0	0	0	4	0		0
90	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	6	0	0	8	0	0	0		0
92	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
94	0	1	0	1	0	0	9	0	0	0	0	0	0	4	0	0	0	0	0	5	0	11	0		3
96	0	0	2	0	1	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		17
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
104	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Total	25732	33246	34487	17474	24484	7161	12123	14042	7893	7531	6472	10565	20115	17821	10172	9494	6205	6724	8983	8798	19976	12209	18483		16490
Biomass(t)	6859	11305	11246	9331	7721	2382	4701	3437	3071	2720	3286	7272	12904	12462	6483	6830	4959	5482	8519	8002	15026	7099	7316		6893
B/SOP(%)	100	100	100	100	100	101	101	101	101	101	98	99	103	100	101	103	101	99	100	99	100	98	100		103
Nsamples	75	84	78	81	44	76	79	79	78	71	68	83	57	63	77	67	67	77	73	80	96	90	90		86
Nindiv	9049	11564	10551	9166	1264	1334	2212	2759	1506	1385	1285	1885	2009	3041	1927	1624	1142	1328	1571	1527	3457	2164	3629		2840
Range	10-92	11-94	7-104	11-94	10-78	9-89	8-95	9-96	11-81	10-87	9-84	9-88	10-83	10-94	10-89	12-89	7-90	9-79	7-87	10-95	7-81	9-95	8-86		7-101
Sampledcatch(kg)	4198	5873	5643	6845	291	429	742	624	550	460	623	1215	1424	2062	1082	1149	857	954	1421	1273	2499	1211	1311		1207
Totalcatch(kg)	13393	20305	20451	15477	332	429	743	624	550	467	623	1215	1918	2095	1112	1191	885	957	1426	1278	2669	1215	1415		1207

Table 7. Age-Length Key of Greenland halibut in 2021 Spanish Spring survey in NAFO Div. 3NO.

Total	Age																			
Length	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
6	1																				1
8																					
10	2																				2
12	18																				18
14	21	1																			22
16	17	7																			24
18	2	25																			27
20		34																			34
22		23	4																		27
24		18	5																		23
26		5	14	1																	20
28			12	3																	15
30			8	14																	22
32				20	2																22
34				11	12																23
36				3	26																29
38					35	6															41
40					22	15															37
42					13	33															46
44					4	31															35
46						23	4														27
48						13	22														35
50						2	22	1													25
52							27	5													32
54							10	15	1												26
56							3	5	6	4											18
58							2	2	7	4											15
60									3	7	6										16
62										3	5										8
64										3	8	1	1								13
66											3	3									6
68											1		2								3
70													2								2
72													1								1
74														2							2
76														1	1						2
78															1						1
80																1					1
82																1					1
84																	1				1
86																					
88																					
90																					
92																					
94																	1				1
96																					
98																					
100																				1	1
Total	61	113	43	52	114	123	90	28	17	21	23	4	6	3	2	2	2			1	705

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

age	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	8853	2100	4330	2841	8493	2602	3303	2140	1092	2448	1456	526	491	334	2090	88	255	463	827	885	3161	2360	3007		2404
2	4901	5052	4504	482	5577	568	2189	6392	873	996	539	962	2644	1905	1227	1695	416	1156	565	515	1538	1881	3538		5868
3	3271	8112	5756	691	1735	934	1351	1928	1549	325	569	1023	1675	1061	493	1469	157	306	174	268	786	918	3338		1514
4	3649	9015	7913	961	749	476	1725	1847	1106	1061	161	544	2197	407	511	455	486	52	222	435	865	733	2559		826
5	2202	6269	8134	2274	1853	950	1621	1417	1044	1283	853	822	1989	1855	711	771	1066	330	271	360	1837	1349	2612		1668
6	2413	4774	5631	4398	3607	930	1177	1094	1579	1026	1096	1635	2878	3827	1498	1233	1242	866	788	1218	3052	1585	2229		2187
7	1982	2463	2123	4558	3332	618	1077	783	1000	925	1179	2630	5297	5409	2241	2295	1432	1726	2376	1807	4293	1590	1300		1724
8	1186	1751	1576	2163	958	478	439	387	263	330	711	1416	2256	2448	689	775	488	645	1308	1008	1923	1048	584		551
9	188	694	834	1082	281	66	215	104	100	155	270	1056	1750	1034	465	566	355	448	817	481	1126	296	264		365
10	153	344	382	303	175	23	92	67	165	36	336	612	1035	914	609	713	475	443	1068	697	1606	523	656		460
11	173	182	124	217	172	38	25	37	92	55	100	633	1074	1343	226	347	246	398	924	618	1254	481	296		447
12	98	159	157	188	199	26	107	53	36	37	59	329	226	291	411	212	190	312	684	1032	1233	238	315		105
13	37	67	81	185	158	4	0	21	83	12	0	185	131	277	81	358	114	117	147	636	616	421	225		277
14	51	74	69	212	93	0	0	21	18	0	8	91	94	228	365	312	207	49	282	348	530	107	33		92
15	32	48	53	99	18	0	0	0	2	0	0	40	66	198	43	33	15	76	119	116	143	212	35		73
16	6	14	16	67	14	0	0	0	3	0	5	3	0	0	0	171	38	103	234	102	102	92	55		50
17	4	7	9	30	15	0	0	0	0	0	0	0	0	0	4	30	15	0	56	48	81	0	30		22
18	11	7	6	9	0	0	0	0	0	0	0	0	9	0	0	13	23	0	0	11	0	48	22		0
19	0	0	0	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
20	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0		5
Total	29209	41136	41697	20771	27430	7713	13322	16292	9005	8688	7344	12506	23812	21532	11662	11535	7219	7490	10863	10603	24146	13882	21097		18640

Table 9. Biomass (t) of American plaice by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	1075	6200	8719	9651	10666	14245	11385	10009	5143	6987	2557	7967	2918	1833	4077	1152	5009	1183	1481	526	335	1173	20		276
354	723	7903	4165	3054	3766	4302	17632	4720	4616	2729	1495	2204	2120	2011	698	1506	1286	1063	1492	912	1743	133	128		82
355	89	901	393	382	1275	631	726	152	483	196	152	137	85	54	179	62	68	30	22	55	162	10	16		4
356	34	60	129	117	327	218	668	3	34	17	2	4	5	0	0	2	5	0	4	0	13	5	0		5
357	28	32	43	7	1034	71	852	12	0	92	8	24	11	21	0	0	0	8	3	0	10	0	0		33
358	89	130	175	5907	700	541	530	567	513	428	642	771	432	322	175	64	525	324	977	2912	1730	111	2236		329
359	1103	7192	16836	23702	12775	6530	17099	16424	13445	11393	13753	13871	16345	9704	3489	4668	5065	1993	7683	1803	3414	3585	1927		2209
360	6203	25808	59988	75434	60151	34903	56586	68313	70333	127046	69585	110908	42774	73604	111356	94879	113616	56766	61846	15147	13224	27037	2022		10877
374	153	73	773	100	267	64	292	1656	2366	2185	3818	8592	2592	2866	15468	10250	17537	11279	5637	590	19	1638	199		607
375	43	140	968	670	115	32	245	1761	1316	1249	1239	3898	3150	2009	3401	1385	1482	2468	1356	321	132	642	71		172
376	1479	9578	13124	27901	5422	5612	7461	22347	20164	14890	13794	17041	10349	9888	7078	3880	5317	4655	5919	3387	1944	3898	612		687
377	180	413	718	236	184	298	432	774	2731	2054	2296	5488	4337	1715	1029	3201	1268	1586	1784	583	71	932	1273		1598
378	25	62	87	236	32	97	116	424	125	251	374	239	957	1523	232	36	47	153	834	984	989	582	108		107
379	18	24	7	22	8	53	32	6	12	1	9	2	101	0	3	0	0	0	0	17	366	6	0		2
380	13	14	18	14	28	62	56	17	3	0	14	193	80	3025	71	75	15	57	7	2193	410	2175	118		30
381	20	106	7	25	29	48	97	379	708	81	1867	691	48	154	889	1988	1457	1603	6180	1099	55	805	1309		350
382	18	131	64	53	88	33	64	1659	1104	1297	445	641	19	3038	3008	14517	2567	2525	11039	343	97	839	1660		10100
721	79	49	107	23	605	102	1287	0	0	0	0	0	3	0	1	0	0	0	0	0	1	0	0		5
722	367	16	18	9	219	214	109	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
723	130	134	461	134	467	96	28	9	0	0	0	11	2	0	0	1	0	0	0	0	0	0	0		0
724	147	130	109	131	279	519	77	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0		0
725	13	8	23	86	30	33	31	180	48	9	25	2	6	2	0	0	0	0	2	8	5	0	0		3
726	n.s.	21	256	54	11	19	0	0	0	1	1	0	323	0	0	0	0	0	0	0	4	0	0		0
727	96	74	61	42	72	24	378	3	0	0	0	24	4670	480	6	288	0	1	0	524	141	25	51		0
728	234	118	255	170	40	65	280	0	0	0	0	0	1682	0	0	9	0	0	0	101	0	9	0		0
752	1358	572	402	1628	197	143	310	0	0	1	8	0	1	0	0	0	0	0	0	0	19	0	0		0
753	733	1865	178	2157	775	43	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
754	90	46	0	0	23	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
755	n.s.	15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
756	703	1793	1116	316	102	104	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
757	6307	813	150	49	923	282	48	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0		0
758	6	37	3	12	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
759	n.s.	0	4	24	3	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
760	252	116	278	639	509	64	0	0	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
761	20	57	0	3	4	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
762	0	0	373	0	0	6	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
763	n.s.	2	0	8	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
764	2	2	0	0	3	4	6	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
765	0	0	0	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
766	0	0	0	0	6	0	0	0	0	0	n.s.	0	2	0	0	0	0	0	0	0	0	0	0		0
767	n.s.	0	0	2	0	1	0	8	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
Biomass	21827	64635	110010	152997	101137	69511	116842	129432	123227	170910	112086	172735	93014	112247	151160	137964	155264	85691	106267	31506	24885	43607	11751		27475
SD	4495	5946	5825	16740	10841	7097	9777	12335	11396	24806	11896	17696	10258	18089	29753	27395	29284	14019	13432	5257	5713	6971	2655		8940
MWPT	25.80	72.25	128.72	175.49	115.95	77.79	127.17	143.93	138.77	202.84	141.82	193.67	106.37	134.33	172.05	155.11	176.26	108.5	121.19	35.55	28.88	48.14	14.62		34.08
SD	5.09	6.51	6.85	19.24	12.31	7.74	10.79	13.03	12.92	29.01	15.31	20.39	11.83	22.27	34.95	30.53	31.6	17.41	14.89	5.84	6.38	7.92	3.31		10.98
Abundance	67116	147617	269576	507347	453103	277115	431509	458117	490805	694769	383998	643267	274772	455218	619126	542119	585809	267310	372093	107962	80476	138800	30153		93318
SD	12616	12762	14747	63228	81080	24570	41665	55710	65273	141502	65212	102182	32949	92289	162089	120682	114302	40245	49428	20927	18328	24011	5362		19049
Area	9339	10342	10342	10342	10342	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

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

Length (cm)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
2	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0		0
4	0	0	0	0	39	0	0	0	0	0	123	0	71	0	0	0	232	7	23	0	0	0	0		94
6	0	0	0	0	2113	45	464	7921	466	106	2350	369	1073	195	0	71	1504	149	161	0	0	0	0		2739
8	0	0	0	0	1087	129	567	46014	2135	94	1846	1570	2035	128	71	122	625	271	708	22	44	16	44		6892
10	0	0	19570	9687	2154	2020	251	5917	2400	100	213	33191	1591	10102	118	324	183	784	2691	370	131	49	23		1094
12	0	13	7301	19883	7474	9929	1524	2122	45928	4042	438	26692	1664	23488	382	240	244	6390	11037	906	211	22	27		155
14	103	8	1834	56305	12032	5780	2308	9947	80153	12920	495	5545	5395	16120	3980	334	798	5323	9258	2032	543	375	90		771
16	320	724	3600	117840	18484	3239	11095	6136	37300	26669	1749	3248	11806	9818	23778	793	1609	1563	17120	4401	1110	674	287		873
18	1165	170	943	57223	76101	11462	28427	2805	11717	95602	11539	3488	6197	17780	35392	4406	1507	381	20901	4457	1954	1380	223		1215
20	1663	477	774	8562	110434	16799	13617	6462	10122	145952	23029	14897	4418	27792	23230	25743	5825	1388	9551	6381	3407	3066	382		3683
22	3137	1562	1386	4535	63332	38103	20682	24339	5800	54588	54666	46897	7705	23628	32326	47393	23422	2745	3222	5511	4430	5996	1001		10769
24	3797	5174	2882	2979	18217	58245	41919	29518	9818	22681	68155	83361	16290	29748	60717	50034	69981	9882	4175	3130	5842	8440	1324		10001
26	6029	8010	10424	3005	5783	43146	74937	33497	21190	23820	38736	106860	30701	42469	68956	69623	95548	29925	16841	3816	4753	11264	2192		4144
28	9315	12273	22492	7741	5788	18037	78186	54486	39666	34441	25733	74032	38286	63890	82270	94732	92464	44018	46953	7616	5903	12700	2234		3308
30	9307	15493	35317	19390	11215	8875	53728	54105	52595	58409	25257	50528	35698	56550	80071	77226	96507	42340	62921	15335	10506	22183	3146		5405
32	8374	16468	29871	28110	18335	8113	28433	55160	42680	57344	25444	40215	24457	44652	65612	55586	64327	33526	58428	16022	12381	21807	3983		8908
34	6779	18654	22766	25893	17195	7647	17538	47116	35791	38210	21528	27498	17482	28161	55304	40045	45967	24215	37585	11196	9915	16421	3789		9356
36	5475	18139	23558	22938	16223	5955	10549	23789	37650	32218	16592	23941	12053	12867	32652	29739	26631	20381	24675	9073	5295	9668	2581		7076
38	4102	15764	21435	20392	12988	5780	6678	9446	24091	32632	17280	21700	11414	8780	15149	16230	22949	17975	17269	6807	3820	7698	1865		4430
40	2860	11988	21640	25246	12601	6599	5508	5714	9642	23913	17863	25110	13905	8851	10699	8700	12655	11051	10995	4670	3557	7247	2103		2850
42	1839	8460	15945	23390	12127	7257	7272	5346	4279	10267	12196	19997	11628	7899	9836	7034	7850	5898	8958	2906	2400	4429	2091		3189
44	1108	5715	10680	17789	10180	6048	6148	6103	3035	5351	5534	12969	7902	6574	6497	4583	6251	3877	2791	1232	1343	2726	1548		3025
46	596	3418	5918	12205	7567	5021	6184	6538	3140	2830	3223	6774	3700	4129	4175	3279	3312	1440	2134	570	1189	1080	566		1941
48	371	2161	3827	7690	4858	3254	5054	4526	2689	2830	2354	3901	2410	2471	2247	2238	1847	1073	1358	430	624	544	319		738
50	329	1013	2902	5460	3020	1887	3144	3177	2076	2736	1525	2205	1495	1809	1365	1090	1326	704	696	270	403	439	101		429
52	134	426	1493	3299	891	1423	2816	2611	1469	1617	1418	1886	1272	2438	1135	982	406	667	400	240	220	150	87		33
54	104	361	1162	2999	1086	984	2032	2076	1336	1103	1380	1416	1202	1356	586	530	257	595	366	91	133	77	61		40
56	40	269	801	1022	667	615	1036	1485	1349	1870	1140	1556	1053	1197	788	568	278	175	228	149	83	51	0		23
58	31	281	370	1124	477	300	719	951	790	1280	824	1290	723	906	853	109	534	355	189	174	88	98	49		34
60	29	274	342	976	292	198	400	242	657	580	547	823	630	511	432	241	213	95	91	58	25	115	0		20
62	46	92	41	1018	218	119	65	263	355	305	368	747	222	458	314	80	267	81	103	37	143	41	25		63
64	48	109	255	555	39	17	198	144	152	152	348	431	217	417	135	24	172	17	215	36	18	41	13		0
66	7	40	0	0	68	86	28	118	264	67	52	79	60	0	32	19	86	7	12	14	0	0	0		21
68	9	81	0	0	4	6	0	43	71	14	30	27	5	0	23	0	10	10	28	8	7	0	0		0
70	0	0	0	75	14	0	0	0	0	12	11	0	0	7	0	0	17	0	12	0	0	0	0		0
72	0	0	0	15	0	0	0	0	0	11	0	0	0	11	0	0	4	0	0	0	0	0	0		0
74	0	0	0	0	0	0	0	0	0	0	11	0	0	17	0	0	0	0	0	0	0	0	0		0
76	0	0	46	0	0	0	0	0	0	4	0	25	0	0	0	0	0	0	0	0	0	0	0		0
Total	67116	147617	269576	507347	453103	277115	431509	458117	490805	694769	383998	643267	274772	455218	619126	542119	585809	267310	372093	107962	80476	138800	30153		93318
Biomass(t)	21827	64635	110010	152997	101137	69511	116842	129432	123227	170910	112086	172735	93014	112247	151160	137964	155264	85691	106267	31506	24885	43607	11751		27475
B/SOP(%)	100	100	100	100	100	106	104	102	101	107	106	102	105	96	97	100	101	99	101	101	100	96	102		104
Nsamples	116	108	93	96	81	108	91	75	70	73	75	75	76	57	70	68	66	65	68	67	68	65	59		64
Nindiv	14029	12030	12287	11458	13015	13119	13464	13990	14653	13992	12514	13547	11285	9442	12912	10644	14035	9811	13188	6585	5051	6726	3355		6332
Range	14-68	13-68	10-77	11-72	5-70	7-68	6-66	6-68	6-69	6-77	5-75	6-77	3-69	6-74	8-69	6-67	5-72	4-68	4-70	8-68	8-69	8-64	8-64		5-67
Sampledcatch(kg)	4579	5189	5974	5457	3388	3675	3885	4694	4556	4820	4480	4318	3964	2836	3668	3067	4027	3316	4013	1970	1518	2120	1211		1744
Totalcatch(kg)	13388	27453	33977	49954	11477	9201	13955	13729	13193	17334	12282	17867	11219	9215	14415	13937	14575	9503	11756	3552	2680	4163	1885		3477

Table 11. American plaice abundance (thousands) by age class and year. Spanish Spring survey in NAFO 3NO.

age	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	0	0	0	0	1573	40	584	50507	1496	74	3824	3382	2208	284	71	620	2308	262	377	0	0	0	0		
2	81	134	18626	44048	22263	9207	3749	18293	66499	10497	927	57776	3004	36970	5915	290	661	2218	5662	22	44	137	144		
3	1660	399	12283	165076	224100	21391	31604	11663	113543	122990	8165	9449	26194	24790	77587	3587	977	11466	53200	4272	1854	1057	140		
4	4062	5248	3536	59158	68125	141215	51832	31266	14899	165570	122929	29928	5696	59782	65322	52873	11108	7815	17237	17651	10550	3825	761		
5	5198	7678	11016	9587	4201	32802	210235	68546	35461	80495	75591	250629	42706	38326	107556	64696	121288	7881	12167	6136	5666	15645	3518		
6	16850	12750	32409	17127	9981	9740	50447	182701	79829	65278	26031	108191	82158	95934	126333	152203	146758	49557	67670	10037	8949	32716	6375		
7	21774	26828	27474	43341	26695	8579	20141	42069	105733	70612	47330	32766	29660	124236	117983	113454	167186	54892	138221	26465	20788	36699	8592		
8	11574	43383	36350	34429	24874	16091	15117	11453	36984	59822	34906	66608	16614	26179	75902	76532	59268	60692	34234	19998	14225	21448	2768		
9	3846	30268	51720	45252	23707	12194	17366	9971	15550	44017	43968	34504	14519	12036	13664	44876	38354	34370	24356	10023	7584	8751	2568		
10	1065	12241	42833	40960	17839	7570	7252	10668	5330	19469	8451	28886	19558	8420	9186	15986	19911	18222	9645	6885	4594	10486	2430		
11	409	4820	17488	25360	18502	9115	7599	5750	3828	9025	2905	7901	17366	8319	8066	6326	7466	12085	5311	3001	2446	4835	1094		
12	336	1761	7853	11819	7212	6362	9308	7048	3746	4916	2377	4157	6780	9788	5855	4621	4779	2960	1840	1792	1807	1973	576		
13	103	849	4277	5558	1984	1572	3464	3921	2876	2637	1734	1501	1267	3083	2004	2417	2399	1391	622	583	719	659	868		
14	89	919	1599	848	839	880	1549	3394	2079	1734	1754	2165	936	1179	830	1499	1194	1532	333	654	834	167	89		
15	26	173	1023	2891	667	74	701	591	1536	1128	1487	2096	1954	1223	323	351	555	908	202	80	104	42	79		
16	33	77	412	1385	193	231	427	184	718	574	611	2180	1646	2275	697	716	479	307	89	47	79	187	77		
17	0	0	333	418	175	40	100	0	76	233	319	644	1368	1367	834	578	292	428	324	211	135	26	17		
18	6	49	299	0	145	0	33	70	549	165	508	13	724	461	270	185	435	188	63	12	48	25	12		
19	5	41	0	0	20	11	0	22	73	32	4	216	315	432	517	67	116	88	144	0	0	52	0		
20	0	0	46	90	9	0	0	0	0	23	178	12	168	6	149	73	99	30	60	66	50	14	34		
21	0	0	0	0	0	0	0	0	0	0	0	261	0	0	0	8	175	15	209	0	0	41	0		
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63	0	0	0	57	14	0	14	0		
23	0	0	0	0	0	0	0	0	0	0	0	0	0	129	0	0	0	0	0	0	0	0	0		
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	12	0	0	0		
Total	67116	147617	269576	507347	453103	277115	431509	458117	490805	659289	383998	643267	274841	455218	619126	541959	585809	267309	372093	107962	80476	138800	30153		

Table 12. Biomass (t) of Atlantic cod by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	0	0	140	195	173	0	0	244	96	251	3	1	0	0	254	370	552	109	1424	277	535	187	0		1
354	0	366	111	382	351	0	167	102	141	223	341	1385	550	271	262	140	310	1414	3421	2677	591	24	0		1
355	27	181	41	604	346	6	20	33	13	18	255	15	23	116	90	59	7	0	121	188	91	0	2		0
356	33	26	169	68	586	61	65	13	6	15	4	54	12	21	21	15	0	4	20	20	124	6	0		7
357	1357	102	140	121	366	91	76	191	56	172	19	89	205	416	121	83	69	44	75	14	381	443	134		12
358	35	86	194	3657	67	52	4144	295	440	1597	2091	4883	996	1579	686	394	3284	3693	24557	8606	22217	115	339		3363
359	41	14	252	656	6476	100	39	1111	2076	12863	109	8299	21377	30470	13082	29009	3297	54443	6758	517	618	111	110		39
360	26	53	529	502	2609	199	281	856	591	1660	566	2403	39731	1477	83252	17866	11568	46720	11888	26364	9157	3124	507		592
374	1	0	10	0	0	0	0	0	2	0	0	11	0	0	14348	1995	152	4485	0	0	0	0	0		24
375	0	18	22	0	0	11	12	1	0	302	38	454	0	19	1401	1305	344	1138	115	3	2	85	81		114
376	0	23	67	100	4	0	77	69	86	749	77	1371	79	160	558	194	1317	1147	2145	17	28	331	448		168
377	2	17	2	0	0	0	11	180	526	767	5821	2020	106	114	3961	6637	5792	5835	4729	231	5	2573	1075		666
378	31	41	95	127	141	17	237	219	106	1046	1028	2472	8620	41129	891	265	837	21065	15897	2205	1614	1422	64		175
379	38	74	47	387	88	230	40	205	51	57	28	21	506	360	165	28	42	83	15	267	422	40	7		12
380	3	20	314	67	56	3	9	67	231	73	34	186	34	496	245	3147	0	348	194	1636	314	422	62		9
381	1	3	11	21	8	1	0	70	45	106	26	56	0	19	636	5664	2534	2412	4887	4295	33	1524	1216		7294
382	0	10	1	20	4	1	0	14	29	22	0	4	0	92	17315	20152	7786	318	5505	1	0	214	441		209
721	123	4	471	156	25	6	54	13	0	0	0	7	6	0	0	28	0	0	28	0	0	0	0		0
722	2	0	0	7	0	0	13	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0		0
723	146	59	229	276	8734	741	9	26	0	0	41	76	238	0	74	61	53	36	0	0	0	35	42		0
724	14	17902	0	8	65	549	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
725	239	376	125	43	12347	86	20	3	13	0	111	6	20	105	14	24	0	0	0	34	94	0	0		0
726	n.s.	33	5	58	11	7565	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0		0
727	1	22	75	84	89	23	66	0	0	0	0	3	43	11	0	0	0	0	0	75	15	0	12		0
728	9	12	0	7	0	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
752	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0		0
753	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
754	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
755	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
756	0	3	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
757	0	0	0	0	0	584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
758	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
759	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
760	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
761	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
762	0	0	0	0	0	3	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
763	n.s.	0	0	27	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
764	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
765	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
766	0	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
767	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
Biomass	2131	19444	3054	7576	32548	10502	5455	3712	4509	19921	10592	23817	72558	76856	137378	87436	37945	143299	81780	47429	36241	10655	4541		12685
SD	1322	18206	655	2566	15903	7971	3016	848	1984	8109	5853	5221	40466	37369	54393	30292	5114	54386	28297	19188	17444	2307	802		7139
MWPT	2.50	19.47	3.50	8.46	36.96	11.07	5.93	4.09	5.06	23.35	13.47	26.55	83.13	90.96	155.16	97.02	43.33	180.81	92.64	53.13	42.27	11.8	5.67		15.88
SD	1.54	17.82	0.75	2.58	17.97	7.82	3.29	0.95	2.16	9.39	7.44	5.71	47.26	43.41	64.42	32.9	5.9	67.34	32.3	21.51	20.79	2.54	1.01		9.29
Abundance	1702	12362	7720	8256	36361	11749	4230	8156	7802	35463	25828	46044	126177	102562	126096	76656	24020	67320	75256	20516	29840	10232	4166		19904
SD	737	11135	2057	3305	23817	8093	1922	2976	1681	14989	7261	10339	61245	51250	50583	30548	3321	25441	40380	5551	11375	2971	546		9845
Area	9339	10342	10342	10342	10342	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 13. Atlantic cod abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
6	0	0	0	0	0	0	0	0	0	12	0	0	0	0
8	0	0	11	0	7	10	0	0	0	0	12	0	0	17
10	0	0	9	0	0	36	0	369	76	12	330	0	8	82
12	0	10	9	5	0	27	49	1933	626	7	3295	0	106	214
14	0	25	179	18	0	0	59	1392	978	12	6477	12	127	278
16	0	11	647	111	18	36	25	748	558	11	3874	53	183	85
18	0	7	675	103	17	6	33	168	212	6	808	842	53	71
20	0	4	251	189	91	0	55	57	31	36	56	4636	217	20
22	0	2	417	255	162	76	56	68	81	320	19	7571	431	58
24	1	5	1023	216	154	87	68	108	194	826	6	7902	815	209
26	2	9	1518	286	171	126	136	197	447	3131	0	5606	2063	581
28	11	27	1092	345	190	139	171	127	905	4627	32	1809	5522	1272
30	11	37	458	374	116	258	219	146	998	3356	68	1030	12413	1438
32	43	27	150	293	142	284	79	134	477	1489	251	278	18359	1640
34	75	30	84	392	335	476	60	297	341	959	350	141	14709	4168
36	121	21	61	501	813	542	64	380	164	1967	577	163	15462	10450
38	157	26	79	930	1573	520	109	380	112	4787	733	499	8202	13639
40	92	105	75	922	2961	626	73	196	117	4621	698	891	4642	20404
42	56	75	27	803	3050	913	71	224	98	3487	701	1238	2231	15808
44	90	364	41	423	3729	1036	106	91	84	2018	624	1497	2670	9229
46	62	602	21	275	4428	1348	101	99	118	918	1293	1559	4131	6381
48	78	930	39	164	5007	991	158	69	150	424	1612	1229	3759	2526
50	37	962	38	122	4367	962	204	54	88	243	1384	1357	6806	1421
52	63	923	55	89	3609	1010	269	80	111	241	1118	1441	3695	890
54	74	1497	93	98	2814	813	352	65	23	197	516	1621	3568	1788
56	121	1535	70	62	1078	628	386	58	25	201	318	1423	5396	1456
58	106	1762	98	122	610	203	291	99	11	223	208	1023	3731	1958
60	166	1024	113	90	469	336	277	67	48	200	74	578	2252	1454
62	98	540	86	58	159	115	165	84	68	178	43	322	2081	1002
64	75	504	63	136	28	5	205	94	80	99	63	259	674	571
66	95	163	43	120	41	51	89	57	77	86	44	223	441	453
68	12	271	59	90	13	0	84	64	66	80	76	70	833	762
70	25	157	16	123	13	55	77	38	81	64	29	70	118	549
72	3	193	12	93	25	7	24	28	72	84	23	112	125	429
74	11	136	15	127	11	0	10	30	67	62	10	80	124	107
76	2	86	9	60	15	2	14	27	69	105	33	52	58	323
78	2	80	7	30	20	0	9	15	48	44	23	29	11	118
80	5	79	13	65	35	0	25	33	40	90	6	35	28	112
82	1	38	5	28	11	0	0	8	16	50	28	47	74	56
84	2	0	3	39	0	10	23	3	5	36	0	80	14	100
86	1	48	10	23	18	0	7	0	19	36	0	53	18	91
88	0	42	8	19	3	6	2	20	12	12	0	28	12	159
90	1	0	0	14	10	0	0	7	12	34	12	22	7	44
92	0	3	17	18	0	0	0	8	0	4	0	0	0	0
94	0	0	0	4	3	0	0	12	0	0	0	24	0	37
96	0	0	5	3	11	0	7	0	0	23	0	53	0	14
98	0	0	5	3	7	0	0	0	0	22	0	0	0	0
100	0	0	5	0	0	0	0	0	0	0	0	18	7	11
102	0	0	0	9	0	0	7	0	0	12	0	17	0	17
104	0	1	0	0	0	10	0	24	0	12	0	24	0	17
106	0	0	0	4	0	0	12	0	0	0	0	12	0	17
108	0	0	0	0	10	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	7	0	0	0	0	0	0	0	0	17
114	1	0	0	0	0	0	0	0	0	0	3	0	0	17
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	2	0	0	3	0	0	0	0	0	0	0	15	0	0
120	0	0	5	0	0	0	0	0	0	0	0	0	0	0
122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	7	0	0	0	0	0	0	0	0	0
Total	1702	12362	7720	8256	36361	11749	4230	8156	7802	35463	25828	46044	126177	102562
Biomass(t)	2131	19444	3054	7576	32548	10502	5455	3712	4509	19921	10592	23817	72558	76856
B/SOP(%)	100	100	100	100	100	107	105	100	103	101	100	102	97	101
Nsamples	42	55	72	70	32	41	42	58	59	64	58	66	55	40
Nindiv	761	967	2770	2753	1591	1030	539	939	1126	2909	2301	4404	2746	1814
Range	24-118	12-104	9-121	13-118	8-132	9-104	12-106	10-105	11-91	7-104	9-114	14-118	11-100	9-114
Sampledcatch(kg)	709	1172	1505	2149	1156	776	654	553	794	2026	1115	3394	1417	1875
Totalcatch(kg)	1535	9256	1752	3642	3487	2806	846	553	794	3994	2182	3907	9165	12406

Table 13 (cont.). Atlantic cod abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
6	0	0	0	0	35	0	0	0	0		13
8	0	0	12	0	12	0	0	0	0		13
10	23	0	0	22	24	0	14	14	26		128
12	23	12	130	48	82	21	43	52	25		269
14	12	36	150	39	207	134	123	100	19		971
16	23	47	197	86	324	399	113	173	59		1218
18	0	23	81	134	162	282	140	88	66		462
20	23	12	50	165	129	363	136	53	73		135
22	54	32	18	251	644	723	233	47	109		35
24	99	18	49	190	2567	1066	906	152	97		117
26	151	57	74	430	3854	970	1541	374	134		320
28	216	86	108	404	3474	647	1597	463	119		507
30	107	254	159	426	2463	563	1347	445	81		589
32	659	534	233	409	3012	564	1176	611	80		890
34	1815	771	293	791	4809	564	1285	682	134		1583
36	3190	1007	370	925	6452	408	2112	850	229		1847
38	4537	2564	780	922	4147	275	2005	798	291		1876
40	4910	4725	1087	1291	4320	394	2011	750	274		2004
42	6359	6179	1357	1283	3978	351	1648	723	292		1284
44	15075	5828	1626	1709	3715	299	1379	536	376		1303
46	18721	5057	1604	1937	3083	286	1202	473	217		573
48	17362	6796	1590	2621	1974	294	1185	382	263		638
50	16036	7514	1513	2653	2733	257	1725	251	219		561
52	11676	6997	1609	3139	2226	336	749	246	214		387
54	6423	7295	1532	3736	2441	492	633	179	126		424
56	4382	6540	1384	3755	2294	587	655	172	126		399
58	2976	4990	1439	3530	2225	578	413	126	51		423
60	1554	3278	1218	4049	2050	702	247	172	49		148
62	2085	1817	1115	4380	1518	520	587	72	42		173
64	1207	1064	735	4766	1768	605	353	103	45		104
66	1117	615	642	4347	1258	510	730	83	22		161
68	1149	589	406	3255	992	609	494	85	28		68
70	1224	474	248	3549	981	478	264	75	22		76
72	671	200	335	2626	995	473	374	83	20		66
74	311	339	228	2056	728	480	215	112	13		39
76	349	240	159	2005	513	357	257	97	17		22
78	336	140	146	1176	454	507	232	70	27		16
80	282	61	180	792	497	506	136	64	24		0
82	255	53	121	773	450	694	283	109	23		4
84	156	57	177	781	369	650	256	100	38		20
86	122	52	130	286	300	521	208	114	7		0
88	103	61	114	384	214	503	186	27	13		0
90	81	87	100	353	104	322	119	0	13		0
92	35	58	104	183	180	228	91	29	19		0
94	65	12	79	153	179	350	134	19	0		26
96	23	20	76	270	113	191	123	29	13		0
98	22	35	55	69	40	28	21	0	7		0
100	12	0	83	64	79	139	52	29	13		0
102	12	20	45	42	23	49	21	0	0		0
104	0	5	35	21	25	75	35	14	0		0
106	11	0	0	0	0	36	21	0	0		0
108	0	0	4	11	28	33	7	0	0		0
110	12	8	25	10	12	89	0	8	0		0
112	0	0	0	0	0	7	7	0	0		0
114	39	0	0	0	0	0	0	0	0		0
116	12	0	0	0	0	0	0	0	13		0
118	0	0	0	0	0	0	0	0	0		13
120	0	0	12	11	0	0	14	0	0		0
122	0	0	0	10	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
Total	126096	76656	24020	67320	75256	20516	29840	10232	4166		19904
Biomass(t)	137378	87436	37945	143299	81780	47429	36241	10655	4541		12685
B/SOP(%)	103	101	104	104	101	103	110	99	104		103
Nsamples	64	57	57	56	61	49	47	47	33		46
Nindiv	5197	5107	3571	4694	4728	2255	1709	1747	822		1821
Range	10-116	13-110	9-120	10-122	6-110	13-113	10-121	10-110	11-117		7-118
Sampledcatch(kg)	6381	6371	5251	8974	7607	3959	2001	1553	787		1223
Totalcatch(kg)	15136	13497	5434	23952	12477	5317	5135	1589	803		2225

Table 14. Age-Length Key of Atlantic cod in 2021 Spanish Spring survey in NAFO Div. 3NO.

Total	Age																		
Length	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
6	1																			1
8																				
10	9																			9
12	20																			20
14	59																			59
16	66	2																		68
18	31	8																		39
20	5	8																		13
22	1	4																		5
24		13																		13
26		21	1																	22
28		13	4																	17
30		11	18																	29
32		5	22																	27
34			28																	28
36			26	3																29
38			33	11																44
40			19	23																42
42			14	22	1															37
44			9	23	4															36
46			5	11	3	1														20
48			2	6	10	4														22
50				5	12	16	2													35
52					11	11		1												23
54					8	13	3													24
56					5	19	3	1												28
58					5	19	4		1											29
60					2	5	5	2	1											15
62					1	7		2	1											11
64						2	6	2												10
66						3	4	1	2											10
68							8		1											9
70							3	2		1										6
72						1		2	1	1										5
74							1	3	2	1										7
76									1											1
78							1		1											2
80																				
82										1										1
84											1	1								2
86																				
88																				
90																				
92																				
94													2							2
96																				
98																				
100																				
102																				
104																				
106																				
108																				
110																				
112																				
114																				
116																				
118													1							1
Total	192	85	181	104	62	101	40	16	11	4	1	1	3							801

Table 15. Abundance (thousands) of Atlantic cod by age and total year. Spanish Spring survey in NAFO Div. 3NO.

age	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	0	50	1236	392	11	105	115	4552	2418	59	13817	12	368	730	143	133	608	124	865	639	228	426	153		3011
2	251	90	4333	1345	766	320	711	665	1781	8463	1101	20498	1342	3391	941	560	417	2072	12572	4087	4202	1074	610		1413
3	381	321	1098	3782	8636	2021	278	1423	1985	18308	2541	9337	72722	7138	15536	9373	1692	4083	21432	2027	6875	3556	558		7949
4	221	4984	179	1274	22263	5791	430	501	606	5935	5588	7992	12043	77030	12221	18317	6482	6597	12931	1372	6525	1389	1372		3739
5	192	4766	490	269	3564	3039	1600	258	150	1499	2093	6951	27206	3485	83030	4628	3815	25434	4561	1259	4562	1591	533		1271
6	409	896	227	675	651	443	975	368	147	282	388	283	11229	6625	2700	37177	967	9919	9615	668	1573	532	446		1621
7	174	649	75	354	329	0	76	310	285	269	92	412	999	3723	8092	4027	8416	1243	4024	4022	843	427	159		470
8	69	445	17	59	106	21	4	29	387	313	117	101	166	106	3046	1790	205	13599	1139	2337	1455	134	39		220
9	0	127	15	9	3	5	32	17	42	272	50	169	18	200	194	525	827	1573	7500	236	1482	284	51		126
10	0	34	40	46	4	0	11	20	2	40	29	204	16	17	22	58	531	2069	191	3423	130	355	52		28
11	0	1	5	44	4	5	0	12	0	0	9	85	15	0	32	36	43	576	328	217	1675	57	59		10
12	0	0	0	7	18	0	0	0	0	24	0	0	43	102	80	8	4	10	86	67	61	350	25		10
13	4	0	0	0	0	0	0	0	0	0	3	0	10	14	50	17	0	10	12	107	156	43	74		39
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5	12	11	0	55	66	14	34		0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0		0
16	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
19	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Total	1702	12362	7720	8256	36361	11749	4230	8156	7802	35463	25828	46044	126177	102562	126096	76656	24020	67320	75256	20516	29840	10232	4166		19904

Table 16. Biomass(t) of yellowtail flounder by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	133	1628	281	282	3367	1537	1452	1697	270	210	1347	1565	14	440	4	17	2366	214	806	23	688	177	616	81	0		729
354	37	26	30	25	2	37	7	3	0	13	4	4	3	22	0	15	16	15	17	0	43	0	0	0	0		4
355	n.s.	2	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0		0
356	n.s.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
357	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
358	0	3	0	0	0	0	0	0	0	5	0	0	0	0	0	0	8	7	0	0	0	0	0	0	0		13
359	49	35	3	6	12	85	52	4	0	931	3604	5849	3538	974	473	443	6767	4384	6466	1305	78	9	2	16	0		6
360	4950	32593	19198	89742	123989	90863	123341	82622	89057	97150	81907	81579	81869	80657	87779	79998	90856	115943	114639	48586	67463	65826	60296	43872	20839		18223
374	0	0	0	0	1302	365	4258	596	307	3561	5622	11051	18861	12817	26496	9184	26552	16220	8549	8098	4118	4190	63	3199	1372		3185
375	36	981	5	291	7964	3410	2417	1121	701	13081	6729	6429	3257	13982	8001	7388	11857	4858	8038	8355	4655	1911	1010	1014	792		1587
376	4059	8082	19160	32255	60376	48388	51175	62443	46435	55026	56887	53613	51811	49761	60659	81971	55789	48374	48457	70031	63736	81580	33908	59513	19562		15298
377	0	0	0	0	0	0	0	0	6	0	368	52	1378	1492	1	1054	2802	3549	639	84	65	6	3	0	4		0
378	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0		0
379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
380	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
381	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	0	0	0	0	0	0		0
382	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9617	6819	2038	207	0	0	10	7	0	0		8
721	n.s.	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
722	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
723	n.s.	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0		0
724	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
725	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
726	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
727	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
728	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
752	n.s.	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
753	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
754	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
755	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
756	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
757	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
758	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
759	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
760	n.s.	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
761	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
762	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
763	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
764	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
765	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
766	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
767	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
Biomass	9264	43349	38697	122601	197012	144685	182704	148487	136775	169978	156472	160145	160731	160146	183412	189687	203833	195606	187969	136484	140845	153708	95905	107695	42569		39052
SD	2484	6032	8527	31359	22938	19097	25847	23368	19287	18869	15271	16458	18852	17297	25736	22611	30743	23679	22493	29519	18915	34788	22868	15055	8578		5566
MWPT	16.22	59.54	47.74	137.32	232.41	167.76	210.84	164.28	148.92	190.05	176.42	189.32	202.64	178.27	209.5	224.54	231.22	221.33	214.17	173.79	159.25	175.03	112.03	118.41	53.55		48.81
SD	4.37	8.41	10.69	34.70	27.41	22.21	30.58	25.7	20.84	21.27	17.06	19.83	23.61	19	29.75	26.3	35.18	26.27	25.35	38.52	21.37	40.46	25.2	16.47	10.75		6.82
Abundance	48328	200344	229254	557821	892533	610980	661669	519668	447855	566575	515094	534583	552446	591827	595376	674784	657693	703615	627513	405782	420194	447457	281337	321756	117209		135272
SD	12788	30051	57885	145286	92486	81999	119447	80292	63865	65269	57442	62229	64993	70743	74204	88303	83675	81445	70594	78004	58125	102645	68351	47148	23645		19598
Area	6573	8776	9339	10342	10342	10342	10342	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 17. Yellowtail flounder abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
4	0	0	0	0	0	0	0	0	8	99	0	50	0	51	0	0	0	0	0	0	0	0	0	0	0		67
6	0	0	0	0	0	0	281	542	371	289	181	67	83	0	42	0	0	0	271	0	81	0	0	0	0		385
8	106	0	0	0	1285	0	1678	1163	395	772	300	499	0	12	49	0	0	61	108	21	0	0	66	0	0		425
10	261	363	0	63	9719	684	2002	1784	1430	1000	1978	1131	81	71	133	521	0	90	69	91	79	64	17	265	0		1835
12	1898	638	1553	1373	18410	4297	2380	1139	1994	3074	3730	3158	797	344	370	1385	0	443	71	42	503	358	452	716	20		3680
14	3335	2009	790	248	30464	16979	3070	2295	1693	5266	6861	6305	1396	586	82	679	81	1105	286	724	459	371	1102	903	179		3689
16	3371	6267	3857	2709	24884	17954	7363	3540	1132	7028	7323	9899	3861	1601	1210	513	1189	983	417	1020	823	98	1923	414	110		6074
18	3449	15129	7693	12048	16657	26513	18013	4981	3078	7031	5893	9689	8366	5011	3170	1947	4168	1675	515	970	873	580	2502	2428	625		7324
20	3539	24062	23436	17089	21199	30836	37013	12348	3603	9973	8600	15050	13199	12913	6217	5141	5099	4619	1724	1912	3187	1694	7165	8285	906		5185
22	6181	29718	41619	41434	47533	30955	43740	25714	8089	9716	13908	17875	22225	23846	16303	12510	4215	13151	5351	3191	3170	2969	3621	8911	1649		1946
24	6221	31427	47933	73542	85418	36549	41676	38697	18445	13702	14192	20201	29464	34264	26909	29559	12531	20074	14335	5925	4337	6526	2759	12481	3899		1950
26	2734	19241	41328	118651	134005	69945	46551	45372	43437	36172	21560	22306	31387	46468	46779	60027	35614	45847	36315	14353	11162	10005	6391	6940	6790		4963
28	2997	15101	28507	107013	162764	91775	79326	55089	61068	73477	46163	34995	43944	56660	53208	91171	78613	103794	75420	39993	32420	25170	14339	13215	6379		8414
30	4184	12466	13381	79234	140024	94025	101836	80964	74883	119867	96220	74957	81195	84589	73289	120387	110524	135281	113648	84889	81924	74168	36493	33225	9964		12386
32	3492	9133	7174	42729	88176	77505	93788	85914	78748	114490	114139	106289	102391	109286	99339	124810	119908	120432	123919	91439	109470	114391	68735	67467	21693		18946
34	2491	9096	3808	25403	50357	45421	75424	66577	65934	76766	80282	89133	89608	91643	100986	92533	108370	100070	96173	69896	77906	92894	60543	70339	25977		22195
36	1404	9938	3143	13412	28788	27914	47920	46393	42488	46193	50072	62768	60201	60068	81690	69348	79469	71008	71275	43189	46739	61070	39261	54823	19137		16774
38	1068	6386	2344	9744	15786	16622	31722	24788	23650	24590	25145	36054	37057	37170	50542	37476	49945	48762	47711	23687	26016	37152	20564	25392	12118		11145
40	748	4181	1595	7826	8518	10900	13058	11978	9427	10856	11117	15518	18078	16054	19810	16266	30002	22436	24738	15292	13223	12968	9247	9598	5055		4879
42	370	2912	729	2968	4730	6114	7491	6049	3808	3639	4337	4863	5746	6579	9797	7242	13594	8830	10032	6796	5738	4921	4332	3549	2055		2029
44	271	1192	252	1551	2315	3466	4514	2405	2477	1769	1825	1900	1985	2929	3902	1539	2754	3629	4267	1741	1446	1622	1382	2133	524		657
46	49	765	40	536	861	1557	1897	1034	1021	493	995	1127	901	1030	1010	1289	1213	962	679	551	477	405	363	559	83		218
48	109	222	42	247	493	731	671	720	481	260	176	470	297	578	147	293	363	226	104	59	138	33	24	106	45		79
50	15	33	15	0	118	212	209	149	185	8	26	194	87	72	392	29	40	47	29	0	25	0	56	8	0		26
52	29	38	15	0	27	0	44	34	8	47	0	10	97	0	0	120	0	0	0	0	0	0	0	0	0		0
54	3	28	0	0	0	28	0	0	0	0	69	76	0	0	0	0	0	0	56	0	0	0	0	0	0		0
56	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	0	0	0	0	0		0
Total	48328	200344	229254	557821	892533	610980	661669	519668	447855	566575	515094	534583	552446	591827	595376	674784	657693	703615	627513	405782	420194	447457	281337	321756	117209		135272
Biomass(t)	9264	43349	38697	122601	197012	144685	182704	148487	136775	169978	156472	160145	160731	160146	183412	189687	203833	195606	187969	136484	140845	153708	95905	107695	42569		39052
B/SOP(%)	100	100	100	100	100	100	100	104	102	106	102	102	100	98	103	99	101	98	99	103	99	100	104	95	98		100
Nsamples	43	33	54	48	39	42	43	43	37	45	48	45	47	50	38	36	51	52	48	45	44	34	35	35	28		36
Nindiv	4960	6670	8104	6544	9698	7423	8122	8002	5690	7953	11352	10426	10617	9945	8656	6700	11767	10683	11917	6980	8669	4062	3911	4950	3882		7064
Range	9-56	10-55	12-53	11-49	8-52	11-54	6-53	6-52	5-52	5-53	6-55	5-54	7-52	5-51	7-50	10-52	15-50	8-58	6-54	8-48	6-50	10-48	9-51	10-50	12-49		5-50
Sampledcatch(kg)	1123	1647	1749	1601	2381	2144	2298	2417	1864	2587	3784	3407	3125	2759	2604	2024	3535	3104	3504	2285	3023	1489	1387	1844	1512		2193
Totalcatch(kg)	3557	17053	14722	36580	51346	38108	16141	14385	11280	15094	14275	15424	15200	14697	16201	12449	20193	18359	17513	14027	12430	11234	7133	7587	3462		3357

Table 18. Biomass (t) of redfish by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	0	0	0	0	0	0	0	0	1	0	1	27	0	0	3	0	0	17	0	0	0	0	0	1	0		0
354	0	0	3	9080	121	0	1313	10	0	1033	447	1623	202	16	58	641	12568	13552	9444	478	18412	10318	11187	27	15		20
355	n.s.	1155	11	3214	7001	5643	994	1544	2750	2177	4328	8535	6313	4043	5420	34178	12456	10505	7269	1708	11017	3271	4663	224	93		102
356	n.s.	574	32	4841	11032	5323	4187	1606	1057	3229	4239	4405	3727	1677	4560	36069	39873	3107	9523	6972	2607	880	4635	1258	1633		769
357	1534	62	376	324	1062	10641	812	679	1805	7334	44022	20641	11555	3915	185611	35827	16336	26596	41850	5441	54832	11793	35309	81583	67030		19562
358	38130	73	35	331	1150	26878	77	70	3621	2930	10078	15897	23322	20995	93155	160486	262502	78425	122562	40393	324502	74125	111435	106337	35402		28835
359	0	0	0	0	2	3	1102	21	3	44	36	77	18	13	18	30907	11103	1438	17272	38361	12297	55	48706	4274	97		3222
360	0	0	0	0	1	0	57	15	1	86	19	0	0	47	48	11	0	0	30	7	0	87	0	17	0		332
374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0		0
375	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0		0
376	0	0	2	0	0	0	0	0	0	0	67	0	0	24	0	0	1	0	0	0	0	56	0	0	0		0
377	0	8	0	0	5	2	0	14	5	0	0	4	0	0	0	0	0	0	69	0	0	0	10	27	1371		6
378	40	18	23	5	19	27	10	25	42	1860	45233	16126	376	5289	12177	16055	62648	93021	198482	47113	76300	2033	40857	9860	21438		269
379	248	24	209	99	284	666	279	170	193	1161	22862	18021	39116	25902	118121	69163	5892	14649	5409	21861	29023	5669	2774	54151	33835		4041
380	n.s.	21	1	12	47	0	21	10	13	1299	3276	3453	2899	3347	182	21582	37169	14288	11264	13034	9864	4938	32	9067	6173		6638
381	n.s.	3	1	0	0	0	1	2	1	11	25	87	5	20	1	3	409	8239	40	0	308	0	4	7	0		65
382	n.s.	0	0	0	0	3	2	14	0	0	12	3	17	23	0	0	0	0	0	0	0	0	0	0	14		0
721	n.s.	2153	999	921	11482	17169	2450	245	607	1615	1377	595	943	303	18172	849	4384	1568	2926	3359	2414	617	846	2061	1832		1301
722	n.s.	982	136	148	469	2099	397	41	213	206	377	14	20	72	19	24	43	47	22	261	33	108	43	149	343		0
723	n.s.	2201	553	1431	5677	20734	2619	1753	2191	8271	15213	7813	2671	2972	136596	10296	19564	24386	23352	10113	7685	6024	20930	21101	7649		5873
724	5332	787	248	777	1553	6709	45323	2623	1042	1028	917	186	1864	1848	1845	1360	786	1114	1249	694	759	18	414	2357	95		280
725	419	398	474	216	23683	126	337	483	470	1526	3681	4523	4705	2625	3658	11487	1031	2688	4739	712	5818	10450	3374	2291	1150		3699
726	381	258	n.s.	16049	1244	0	637	268	0	752	462	465	750	640	1901	1617	292	161	102	37	223	118	315	137	184		42
727	n.s.	92	39	97	246	51	49	30	277	526	151	100	76	125	2382	506	367	135	2840	237	1769	1778	1639	998	73		50
728	n.s.	290	262	464	726	0	417	133	574	87	527	45	62	52	209	174	28	86	208	37	70	64	29	573	68		210
752	n.s.	72	92	1926	2661	0	329	105	503	31	2	7	6	25	70	21	9	8	25	1	0	3	19	18	0		4
753	n.s.	0	2	12	88	0	21	3	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	27		0
754	n.s.	n.s.	3	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0		0
755	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6	0	0	0	0	0	0		0
756	n.s.	436	40	77	3943	0	348	179	30	14	10	2	87	172	36	8	1	6	0	5	6	14	0	21	0		0
757	n.s.	8	0	14	751	0	6	602	77	0	6	0	0	1	2	0	0	0	3	4	3	16	4	0	0		0
758	n.s.	n.s.	0	0	3	17	0	80	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0		0
759	n.s.	n.s.	n.s.	0	33	0	0	1	0	0	2	4	n.s.	0	0	0	0	0	0	0	0	27	0	0	0		0
760	n.s.	1808	2390	631	2936	163	1334	52	183	47	300	341	73	8	107	30	148	0	21	6	0	1	5	0	4		38
761	n.s.	0	5	73	0	7	72	176	0	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
762	n.s.	n.s.	0	0	345	0	0	93	0	0	0	4	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
763	n.s.	n.s.	n.s.	0	0	2903	0	0	0	3	10	0	n.s.	17	n.s.	n.s.	16	0	0	0	0	0	2	0	30		6
764	n.s.	26	13	0	0	0	124	9	50	0	15	0	0	0	5	n.s.	26	0	0	1	0	0	1	0	0		0
765	n.s.	0	0	163	0	63	18	97	0	0	0	0	0	0	0	0	0	0	0	0	11	0	4	0	0		0
766	n.s.	n.s.	0	0	0	0	11	0	6	0	14	0	n.s.	1	0	0	0	0	0	0	0	42	0	7	0		0
767	n.s.	n.s.	n.s.	2	0	0	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
Biomass	46085	11447	5947	40909	76564	99226	63350	11172	15714	35275	157716	103029	98805	74172	584357	431296	487655	294033	458716	190832	557954	132505	287284	296546	178556		75364
SD	26520	2305	988	20512	27740	33453	41460	2374	3224	7332	52646	23332	15893	26168	152365	69575	107982	62954	76825	54478	143611	44195	84550	97593	51184		19231
Biomass 3N	46084	6558	4753	22540	46459	68928	53855	7620	11031	27016	146918	87830	87602	68059	735743	359536	418305	265238	429532	178055	523461	117270	265904	292819	174641		73172
Biomass 3O	0	4888	1194	18369	30105	30298	9494	3552	4684	8259	10797	15199	11203	6113	28238	71760	69350	28795	29184	12778	34493	15235	21379	3727	3916		2192
MWPT	74.50	13.90	6.79	43.25	85.45	112.71	73.14	12.43	17.21	38.6	175.79	118.76	125.66	82.2	670.47	506.43	543.17	320.52	502.58	240.24	628.14	145.51	330.49	331.74	220.53		90.88
SD	42.42	7.56	1.15	19.50	29.56	40.03	48.13	2.6	3.55	8.05	58.86	27.83	20.19	29.14	172.93	81.06	124.68	72.27	79.94	69.17	164.37	46.9	98.46	106.48	65.66		23.24
Abundance	400805	59601	32681	210428	443917	743978	380589	78772	102179	204344	913508	779175	550550	530274	5187686	3115333	3808715	2003645	3143891	1070785	3249385	770420	1557720	1587417	779745		320592
SD	258776	33853	9383	133277	163076	265961	327701	20388	22080	45072	342835	272464	122781	163994	1207681	522631	883913	454608	502484	308301	808341	284224	474530	581865	193828		74513
Area	6573	8776	9339	10342	10342	10342	7860	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 19. Redfish abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
4	0	0	0	0	0	0	0	29	42	0	0	0	0	48	31	106	0	0	0	17	146	44	444	21	77		0
6	0	0	0	0	0	0	631	769	428	1581	1013	1595	3781	546	188	89	154	36	288	116	7665	59	1202	727	126		867
8	0	0	0	0	338	207	395	143	163	13394	10798	6511	3193	211	1247	27	137	169	424	98	1689	595	2020	1285	151		715
10	1073	501	163	0	191	484	282	61	150	2873	53509	15628	555	438	13252	12	222	71	217	164	118	2210	4131	407	97		1238
12	0	216	51	52	2424	10078	1297	125	123	4143	10595	122921	10248	1527	27855	18	2427	53	182	33	64	3140	3238	942	2779		2681
14	364	389	718	1293	4063	25285	3276	757	838	3773	12983	99372	51909	18198	83135	150	24688	2932	289	114	697	112	8284	2734	9897		1068
16	31805	1151	1371	5520	21519	53614	9148	4892	3736	9754	39352	50708	74532	152863	800111	110457	111466	26831	5130	3971	1049	955	4147	967	9853		874
18	220559	11759	3844	6191	37738	142575	35861	13895	17629	19975	174244	50862	49655	91770	2462363	1115134	1002768	245694	174619	58144	107099	12498	16632	6650	5524		4375
20	101342	23162	9414	41683	118330	170661	115403	21759	29551	34791	141733	139995	53250	41250	758804	1072677	1954907	1026213	1597911	372062	1056110	195582	244427	112523	19789		15074
22	23873	7047	5607	74484	132488	199138	106231	19514	25256	40012	170042	137859	95057	68030	402626	354580	468963	436497	1058086	383051	1241443	331650	671516	658188	159598		80689
24	8040	1366	2755	42270	63613	104898	70154	8621	13586	28105	150802	70460	95502	79870	350320	249495	140168	121602	188732	154277	506205	145737	433596	490376	220766		89264
26	3544	626	2203	21059	30936	27424	26967	2664	5269	18116	71174	42388	54128	44591	173973	119331	50309	59407	60174	47535	189494	47023	125357	222556	210903		64717
28	7053	3100	1315	9608	15762	6018	5252	2105	2152	12940	44047	20674	26120	16010	70854	47779	29314	46643	23781	25850	68822	17510	30023	55821	97528		39802
30	2496	6137	2174	3402	8653	2442	2568	1423	1066	7703	18009	10286	17845	5687	26661	23488	15646	22724	19884	15296	40974	7787	8270	20678	30360		12989
32	281	3471	2225	3026	5244	740	1726	1248	1075	3770	8045	5591	9542	4459	6460	11056	4198	6697	5773	6885	18460	3460	2497	9565	10756		4058
34	21	550	364	1065	1723	386	829	501	640	2504	3509	2653	2958	3016	4261	6270	1811	3866	3040	1788	5272	1160	971	2575	471		1373
36	109	127	129	238	367	28	483	221	231	649	2479	971	1346	1045	4917	2341	990	2441	4555	993	2144	490	438	910	434		432
38	99	0	250	279	473	0	42	36	114	132	605	360	656	442	371	1180	382	798	513	246	1278	229	325	407	309		180
40	48	0	84	159	11	0	40	3	75	118	324	277	172	181	99	786	127	162	172	101	497	151	128	49	219		132
42	19	0	0	98	38	0	3	6	36	0	224	62	90	66	121	193	32	12	115	25	115	28	62	3	92		49
44	43	0	15	0	4	0	0	0	16	9	21	0	11	16	37	164	6	0	7	0	45	0	12	0	11		9
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
48	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	796	0	0	0	0	0	0	0		0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0		0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0		0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0		0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0		0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0		0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3		0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		3
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		4
Total	400805	59601	32681	210428	443917	743978	380589	78772	102179	204344	913508	779175	550550	530274	5187686	3115333	3808715	2003645	3143891	1070785	3249385	770420	1557720	1587417	779745		320592
Biomass(t)	46085	11447	5947	40909	76564	99226	63350	11172	15714	35275	157716	103029	98805	74172	584357	431296	487655	294033	458716	190832	557954	132505	287284	296546	178556		75364
B/SOP(%)	100	100	100	100	100	100	100	98	103	105	113	106	107	100	105	104	103	100	103	110	104	104	109	100	99		104
Nsamples	11	2	19	23	48	21	36	58	45	45	55	55	42	52	39	42	44	44	51	46	43	49	46	46	42		47
Nindiv	1691	505	1861	3044	5915	3668	4586	4087	4953	6746	9115	8523	6916	6971	6249	5669	7719	8059	8426	5878	9154	3744	6536	5726	5217		5001
Range	11-48	11-36	11-45	12-42	8-45	9-37	6-42	5-43	5-44	6-44	6-45	6-43	6-44	5-52	5-44	5-45	6-45	7-49	6-45	5-54	5-44	5-43	5-45	5-63	5-64		6-70
Sampledcatch(kg)	244	183	370	634	1403	578	815	685	908	1324	1967	1785	1623	1453	1034	1305	1524	1517	1726	1340	1977	1162	1460	1298	1279		1232
Totalcatch(kg)	10964	4324	1791	18553	37339	37160	17897	2794	3463	7270	28602	21223	22229	14874	99847	82169	95569	50173	78332	42046	93699	22361	47617	50017	34097		13933

Table 20. Biomass (t) of witch flounder by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	117	88	16	353	164	394	67	193	8	955	56	406	255	86	77	205	0	125	0		29
354	550	142	670	506	829	209	127	161	264	108	110	88	204	35	41	151	576	18	7		9
355	650	427	235	48	36	17	11	14	35	14	21	20	0	4	12	11	43	0	2		0
356	81	104	327	35	28	14	5	3	17	3	2	2	4	2	14	5	8	1	0		1
357	197	0	249	139	24	31	12	46	41	19	29	15	6	8	13	72	27	10	8		13
358	115	52	110	123	181	63	139	220	82	185	60	150	52	69	89	1000	154	6	53		19
359	247	26	64	400	44	209	54	434	42	78	157	386	388	62	630	142	1322	183	128		85
360	23	38	75	598	456	1014	242	256	0	745	280	933	323	36	82	0	0	68	0		977
374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
375	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0		0
376	0	4	0	30	31	40	6	0	0	0	0	1	12	0	0	0	0	36	0		8
377	0	1	0	5	0	4	0	2	0	0	0	0	4	0	7	0	0	0	7		0
378	0	0	0	8	0	3	5	9	0	0	0	2	6	11	35	3	38	0	4		0
379	0	12	0	0	3	1	1	4	6	7	2	6	0	8	3	5	15	2	5		0
380	n.s.	2	0	3	1	1	2	0	0	7	2	6	3	10	6	10	0	0	2		4
381	n.s.	0	0	0	5	0	0	0	0	0	22	44	13	0	15	0	0	0	12		4
382	n.s.	0	0	0	5	0	0	0	0	0	0	0	16	6	0	0	7	0	0		3
721	153	40	87	17	11	7	7	2	64	18	11	4	5	3	4	7	3	4	0		2
722	52	27	86	22	45	3	20	20	24	15	5	5	20	11	8	9	4	4	1		3
723	54	25	106	55	24	83	37	46	79	158	84	21	33	64	63	38	58	88	26		8
724	106	56	133	223	67	40	258	224	167	109	88	165	95	41	86	77	19	36	16		24
725	7	6	2	173	67	33	60	16	45	29	18	14	46	21	65	93	59	1	27		16
726	17	19	0	64	28	22	46	36	408	36	48	23	120	28	19	40	16	34	10		1
727	n.s.	0	0	41	29	6	12	53	29	94	30	53	86	22	7	101	286	55	21		13
728	n.s.	8	37	18	8	8	67	11	77	142	55	119	56	75	81	156	69	45	23		6
752	n.s.	5	59	4	0	0	0	0	8	2	14	21	55	86	115	160	95	152	2		28
753	n.s.	9	4	0	0	0	0	0	0	n.s.	13	0	8	14	10	0	13	14	0		0
754	n.s.	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
755	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
756	194	10	40	33	25	31	41	77	154	228	76	43	46	82	46	152	52	11	24		19
757	n.s.	50	16	0	0	0	0	0	22	36	15	15	45	50	29	4	45	35	2		11
758	n.s.	2	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0		0
759	n.s.	8	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
760	119	134	267	127	223	104	170	227	188	48	125	107	89	43	221	41	67	52	1		25
761	48	284	91	23	81	99	1	0	17	146	81	93	35	13	37	14	33	114	36		11
762	0	0	88	141	82	14	n.s.	0	0	20	0	0	0	0	8	17	0	2	0		0
763	n.s.	0	0	13	0	0	n.s.	2	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
764	66	16	86	52	16	17	22	13	6	n.s.	12	9	48	4	5	10	13	12	3		3
765	19	184	289	43	52	35	69	41	37	20	8	2	3	8	4	2	11	22	3		0
766	n.s.	4	3	50	68	68	n.s.	9	9	11	4	3	0	1	3	0	0	1	2		3
767	n.s.	1	4	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	1	0	0		0
Biomass	2815	1784	3145	3348	2633	2570	1480	2118	1831	3239	1428	2762	2078	903	1834	2526	3033	1132	426		1324
SD	382	426	690	523	488	629	229	481	424	777	248	648	367	134	376	737	1199	251	74		476
MWPT	4.18	2	3.42	3.66	2.95	3.01	1.84	2.32	2.1	3.82	1.58	3.05	2.32	1.09	2.11	2.79	3.47	1.27	0.52		1.62
SD	0.55	0.49	0.75	0.56	0.56	0.73	0.28	0.52	0.48	0.91	0.28	0.74	0.41	0.16	0.42	0.78	1.35	0.28	0.09		0.62
Abundance	8656	6123	9703	9691	9232	6944	4069	4959	5335	7375	3501	6376	5366	1929	4197	5269	6358	3061	1048		3330
SD	1189	1715	1620	1448	1613	1300	509	973	981	1575	514	1384	760	232	907	1372	2571	490	178		1377
Area	7860	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 21. Witch flounder abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
4	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
6	0	116	0	5	14	0	5	12	4	0	20	4	47	0	55	25	0	5	3		7
8	4	313	0	154	448	18	58	9	17	0	15	0	44	3	37	6	7	0	7		16
10	0	3	26	36	307	0	5	6	7	7	0	12	7	0	0	30	17	6	0		0
12	0	5	222	0	128	52	0	16	2	38	0	9	11	2	7	22	0	36	0		14
14	0	6	71	12	321	192	0	10	55	34	4	17	15	0	8	2	6	70	3		15
16	0	10	18	60	64	138	3	0	70	12	32	18	28	3	6	7	9	39	0		29
18	24	13	25	107	63	124	28	3	38	13	41	6	66	7	34	13	19	4	4		53
20	58	23	17	143	81	35	27	35	40	22	26	22	37	14	5	21	31	40	6		50
22	246	69	42	60	141	54	59	57	70	48	19	34	77	8	26	36	24	33	8		39
24	274	110	144	44	131	93	89	94	172	61	21	46	127	17	31	17	31	57	6		21
26	199	234	433	192	282	91	138	98	160	116	32	78	120	37	36	55	59	67	18		151
28	364	408	810	464	525	341	242	180	353	190	71	205	205	66	99	117	135	218	63		249
30	521	463	1259	847	876	521	224	256	421	257	179	341	287	86	200	229	206	336	94		188
32	946	628	991	1159	978	624	321	267	586	342	299	483	461	124	239	194	199	362	110		177
34	1126	730	908	1327	1015	529	498	484	628	554	384	643	543	184	383	257	269	295	88		228
36	1111	725	872	1149	1026	727	588	530	657	1061	441	680	564	186	526	410	399	187	73		206
38	1054	660	1117	1313	858	758	489	701	607	1270	475	846	561	243	523	597	972	268	89		288
40	1075	472	836	832	642	883	503	633	455	1032	438	924	579	255	672	851	1421	212	123		378
42	675	494	716	631	601	746	327	587	362	1130	374	825	586	208	428	883	1080	206	136		400
44	418	287	548	494	379	500	230	415	373	503	357	622	446	201	366	843	633	169	106		489
46	266	137	249	303	145	371	149	262	112	358	154	379	340	149	247	350	411	215	43		191
48	125	111	188	205	93	73	32	127	91	187	59	124	143	53	169	145	237	148	35		94
50	89	33	90	75	58	31	31	51	43	103	52	45	41	56	54	80	123	33	26		43
52	39	27	76	19	27	12	17	74	0	27	6	5	25	17	36	43	41	22	7		0
54	21	12	25	32	12	3	8	22	12	4	0	7	0	4	11	31	28	12	0		0
56	18	21	20	5	5	6	0	11	0	5	0	0	0	5	0	0	0	20	0		0
58	2	9	0	23	0	12	0	0	0	0	0	0	6	0	0	6	0	0	0		0
60	0	0	0	0	11	11	0	17	0	0	0	0	0	0	0	0	0	0	0		0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Total	8656	6123	9703	9691	9232	6944	4069	4959	5335	7375	3501	6376	5366	1929	4197	5269	6358	3061	1048		3330
Biomass(t)	2815	1784	3145	3348	2633	2570	1480	2118	1831	3239	1428	2762	2078	903	1834	2526	3033	1132	426		1324
B/SOP(%)	100	96	100	102	102	104	100	100	105	103	100	103	100	102	100	101	102	102	101		101
Nsamples	36	55	52	65	68	69	56	53	44	48	64	67	69	54	69	50	51	50	42		53
Nindiv	1488	1142	1619	1601	1407	1063	736	817	1055	959	575	944	935	408	768	851	821	476	196		377
Range	8-59	6-58	10-57	7-59	5-61	8-60	7-55	7-61	6-55	11-56	7-52	7-55	6-58	8-57	7-54	6-59	8-55	7-57	7-53		6-51
Sampledcatch(kg)	491	344	560	517	370	351	256	337	350	399	220	398	330	185	336	401	387	180	81		138
Totalcatch(kg)	616	403	625	517	390	352	256	343	401	410	235	398	356	189	346	442	509	181	82		138

Table 22. Biomass (t) of roughhead grenadier by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
355	0	0	0	1	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	10	0	0		0
356	0	2	0	0	0	0	0	5	1	1	0	0	0	0	0	0	0	0	8	0	0	8	0		0
357	1	0	3	6	2	14	20	0	223	573	26	12	228	56	105	120	32	0	0	2	49	0	0		20
358	0	0	5	0	0	10	0	0	0	0	5	6	0	0	6	30	18	0	46	3	0	0	0		1
359	0	0	0	0	0	2	0	18	4	0	0	0	3	0	0	0	0	0	0	5	0	0	0		0
360	0	0	0	0	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0		0
375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		0
376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
377	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0		0
378	6	0	4	2	0	0	0	0	8	3	0	0	0	15	5	29	0	0	0	0	7	0	0		0
379	0	0	0	5	4	2	1	34	242	1006	57	27	66	159	18	77	121	25	213	2	71	45	14		39
380	2	0	0	1	0	0	1	2418	1635	1094	180	147	63	208	452	70	79	56	303	53	39	6	9		312
381	0	0	0	1	0	0	0	53	216	1278	0	0	0	2	1482	32	64	0	0	0	0	1	1		37
382	0	0	0	0	0	0	0	2	7	6	5	0	0	0	228	8	0	0	0	0	0	0	0		0
721	0	5	13	4	1	7	0	20	7	17	5	5	24	6	5	11	2	0	0	1	0	0	0		0
722	0	31	28	37	18	78	33	35	39	6	29	23	6	26	14	66	59	4	3	32	58	8	8		2
723	0	3	32	36	22	9	113	136	287	273	57	53	248	57	52	144	73	31	106	39	69	76	27		27
724	6	13	41	44	79	110	55	125	105	50	93	92	106	56	36	59	114	18	69	54	133	86	26		72
725	0	1	34	126	13	25	3	863	928	434	119	45	54	99	78	126	51	32	85	23	76	30	62		60
726	0	15	47	96	25	18	0	383	223	135	257	260	217	258	140	200	179	71	160	113	217	21	87		66
727	4	2	5	23	2	5	193	138	157	125	81	61	68	100	58	67	188	25	150	124	374	84	31		251
728	6	7	121	54	7	4	226	136	254	175	120	58	50	128	43	71	109	155	82	62	223	28	23		223
752	106	94	102	339	75	22	892	1160	239	293	226	726	350	879	51	128	54	249	160	232	302	120	20		155
753	200	452	343	624	407	65	688	810	777	182	382	1446	1394	n.s.	434	959	360	113	537	191	601	140	61		41
754	1149	1041	460	1233	1395	1549	1086	562	223	81	854	728	2328	1105	183	693	897	335	1230	264	323	235	165		425
755	n.s.	1571	871	1007	899	50	633	531	1171	762	981	980	374	335	494	1804	819	638	581	936	639	642	37		495
756	30	62	266	178	113	104	65	91	206	237	764	312	353	82	395	520	180	539	187	194	93	255	24		115
757	210	389	78	847	179	147	79	121	161	67	416	237	167	109	369	1493	239	57	336	196	422	430	58		68
758	434	701	428	522	629	1246	367	305	300	985	166	396	387	76	109	229	170	229	307	136	279	203	2		52
759	n.s.	789	263	397	679	782	881	475	520	27	n.s.	335	551	161	81	187	460	84	291	55	195	75	41		89
760	57	128	55	260	97	161	576	1065	778	577	366	57	308	91	237	32	80	110	169	19	229	75	18		65
761	313	418	270	178	236	81	194	396	580	270	314	268	154	1347	113	103	72	222	355	291	1006	113	43		17
762	502	618	350	398	54	6	276	287	225	414	n.s.	442	194	450	629	559	242	448	463	119	210	104	26		45
763	n.s.	260	288	364	364	28	68	672	315	677	n.s.	362	n.s.	n.s.	227	141	411	140	245	143	401	298	94		94
764	62	44	36	41	46	170	176	357	10	27	197	106	177	n.s.	85	12	46	14	33	4	12	10	0		22
765	141	80	69	95	49	28	115	59	79	158	59	80	71	20	19	27	43	0	13	3	90	83	1		9
766	109	104	73	43	38	113	73	92	80	44	n.s.	109	25	25	40	16	27	9	9	11	25	3	0		20
767	n.s.	93	72	38	45	129	43	53	65	34	n.s.	146	n.s.	n.s.	33	11	30	19	9	10	25	44	0		10
Biomass	3340	6922	4357	7000	5568	4968	6860	11401	10064	10010	5760	7521	7973	5850	6219	8027	5220	3622	6149	3318	6187	3227	879		2833
SD	290	644	431	807	700	1365	1316	2044	1236	1716	695	1028	348	1773	1508	1073	753	628	1134	496	750	488	105		581
MWPT	3.8	7.1	4.5	7.1	5.7	5.46	7.4	12.09	11.1	11.11	6.93	7.93	9.15	6.97	6.82	8.59	5.81	4.08	6.78	3.65	6.9	3.57	1.06		3.29
SD	0.31	0.61	0.45	0.85	0.77	1.51	1.42	2.17	1.38	1.89	0.83	1.11	0.4	2.1	1.61	1.18	0.85	0.7	1.25	0.54	0.84	0.54	0.13		0.65
Abundance	7754	17281	16648	23502	17445	10288	18557	26538	22339	19714	12170	13317	14709	10058	9994	14596	9895	5901	13416	8183	15253	7714	1565		7255
SD	1345	1271	2325	2110	4245	2577	3379	4679	2536	3305	2245	1403	921	1693	2610	1477	851	667	1468	1001	1533	655	193		1615
Area	9339	10342	10342	10342	10342	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 23. Roughhead grenadier abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	8	0	0	0	0	7	0	0		0
2	0	0	0	0	35	44	31	24	0	0	23	14	13	124	0	75	23	12	41	26	143	31	0		65
3	0	6	0	22	76	166	325	683	298	235	631	139	215	210	145	162	583	166	205	64	406	153	67		387
4	0	0	67	78	99	122	102	161	157	194	105	30	45	18	18	69	81	65	53	89	231	43	0		17
5	37	29	454	578	255	353	668	265	46	114	109	119	102	102	37	319	128	91	315	472	719	381	39		140
6	0	23	269	345	156	141	1174	1114	873	712	460	543	325	650	128	1016	276	231	931	438	588	731	67		487
7	48	86	490	408	108	149	423	384	548	602	144	128	192	144	87	316	104	37	453	258	582	234	25		105
8	137	347	427	342	247	201	802	1069	633	307	406	330	433	156	276	477	515	159	1233	325	925	293	125		143
9	52	438	607	729	241	125	438	1331	921	599	435	420	341	178	259	568	497	156	711	479	462	201	56		144
10	133	1313	1401	871	392	178	603	1041	914	452	460	501	503	379	123	827	399	289	382	477	859	399	88		118
11	268	1205	2576	1952	671	251	564	1271	1776	698	651	523	626	329	168	668	401	227	489	330	954	310	78		299
12	306	854	2633	3123	997	378	598	1223	1426	988	567	638	666	299	227	503	470	196	501	363	1087	230	53		504
13	498	988	1473	4414	2081	565	921	1277	1231	1310	643	631	847	492	505	673	421	288	608	395	906	465	46		446
14	1024	1548	1026	2837	2977	985	1447	1480	1173	1231	826	886	1256	568	587	783	489	278	657	590	693	391	126		517
15	1346	2214	1243	1830	3016	1305	2171	1784	1248	1432	767	1090	1193	709	742	957	442	329	788	506	892	403	74		657
16	899	2126	1309	1464	1946	1313	2620	2283	1235	1057	787	1132	1453	862	993	959	682	439	771	544	744	411	81		478
17	548	1828	1001	1399	1361	915	1913	2473	1922	1289	535	822	1165	826	934	934	703	371	652	531	876	493	101		444
18	494	1141	541	1005	1079	636	1070	2404	1835	1482	603	621	623	644	982	684	565	356	803	486	749	547	55		528
19	483	794	319	596	583	603	800	1657	1724	1505	787	676	540	409	711	694	496	348	657	341	571	365	39		530
20	451	529	190	304	419	428	474	1108	1186	1338	570	414	430	305	632	459	435	177	545	279	368	356	78		299
21	314	468	133	299	169	322	236	768	670	1082	500	444	428	265	321	498	334	253	413	202	317	225	18		218
22	222	267	83	172	93	269	277	571	526	829	409	512	497	237	220	397	251	234	391	182	320	185	32		162
23	164	243	71	123	79	137	175	427	484	656	382	593	376	275	259	296	201	185	271	122	415	96	57		118
24	102	201	72	142	59	90	97	375	430	423	370	491	571	317	262	333	220	118	309	141	343	149	47		112
25	74	184	56	96	58	60	99	244	232	334	262	489	468	389	322	327	175	174	267	119	230	96	62		71
26	40	78	45	93	43	97	98	247	155	230	219	277	467	357	282	374	171	93	252	87	233	158	30		61
27	12	78	36	73	25	127	90	163	204	90	183	308	430	283	247	351	180	128	174	78	178	83	7		63
28	29	64	31	56	40	73	93	141	92	108	84	161	138	165	190	344	132	142	153	107	162	74	24		60
29	26	56	34	34	26	53	74	174	103	97	96	129	159	164	150	190	194	124	116	25	69	72	17		25
30	13	53	12	36	31	50	65	133	104	90	75	55	78	78	94	100	100	112	91	27	92	51	25		20
31	11	44	13	24	28	53	17	79	72	92	26	33	47	50	38	93	83	46	79	45	51	14	9		9
32	10	22	9	18	20	20	36	54	26	69	14	35	21	35	26	63	47	50	59	14	8	35	8		18
33	7	16	13	4	8	29	14	57	22	51	28	38	26	23	13	33	48	19	12	19	37	7	13		4
34	0	15	4	11	8	0	4	37	40	0	12	12	0	7	7	39	31	9	12	14	12	11	7		0
35	1	10	3	2	8	35	27	17	14	13	0	33	0	0	0	0	4	0	6	0	0	6	5		0
36	4	7	1	19	4	16	9	12	14	3	0	18	8	0	0	0	0	0	6	0	7	6	0		8
37	2	3	1	0	3	0	0	0	0	0	0	15	0	9	7	6	6	0	8	8	0	6	0		0
38	0	0	1	2	0	0	0	0	0	0	0	9	21	0	0	0	0	0	0	0	0	0	0		0
39	0	2	0	0	0	0	0	8	8	0	0	0	0	0	0	0	8	0	0	0	4	0	8		0
40	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0		0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
42	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0		0
Total	7754	17281	16648	23502	17445	10288	18557	26538	22339	19714	12170	13317	14709	10058	9994	14596	9895	5901	13416	8183	15253	7714	1565		7255
Biomass(t)	3340	6922	4357	7000	5568	4968	6860	11401	10064	10010	5760	7521	7973	5850	6219	8027	5220	3622	6149	3318	6187	3227	879		2833
B/SOP(%)	100	100	100	100	100	107	105	102	104	102	99	103	99	104	101	105	103	100	100	99	99	97	99		100
Nsamples	14	47	53	57	22	48	43	59	61	57	46	57	46	48	62	57	58	50	52	56	57	54	44		53
Nindiv	1025	4076	6020	4928	367	1640	2610	3940	3335	3090	1903	2173	1415	1658	1356	2400	1717	1039	2312	1374	2490	1132	296		1281
Range	5.5-37	3.5-39.5	4-38	3-40.5	2.5-29	2-36.5	2.5-36	2.5-39	3-39	3-36	2.5-34.5	2.5-42.5	1.5-38.5	2-37.5	3-37	1.5-37.5	2.5-39	2.5-34.5	2-37.5	2.5-37	1.5-40.5	2-37.5	3-39		2-36
Sampledcatch(kg)	521	1984	2224	1867	109	754	931	1742	1499	1629	1009	1213	723	930	862	1281	883	620	1013	546	985	526	176		530
Totalcatch(kg)	3628	5239	3817	6343	117	877	989	2055	1773	1779	1009	1213	945	940	1049	1332	885	630	1035	549	1074	531	176		530

Table 24. Biomass (t) of thorny skate by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	139	603	7159	3397	8321	8050	1895	1284	938	1049	515	1301	922	781	503	388	578	600	544	958	759	942	5		686
354	25	1413	457	1708	1479	1860	882	3154	1009	1264	1074	2721	1174	437	486	1098	1268	151	1107	909	793	273	165		263
355	173	23	80	211	127	17	126	162	117	9	126	40	69	168	180	71	38	18	62	48	13	8	8		23
356	11	3	6	9	1	6	22	69	44	75	16	41	126	90	93	187	206	210	169	265	167	67	0		141
357	20	23	41	0	32	27	32	660	732	381	96	149	663	31	118	58	70	271	119	46	170	98	179		296
358	31	19	54	306	79	224	423	864	1396	111	1396	348	344	432	305	137	566	126	1021	1681	1820	33	512		2074
359	273	287	460	2577	567	2663	963	1734	1634	1564	965	1007	1347	887	803	816	1095	145	1367	153	616	4165	175		738
360	2399	4307	15392	30696	15548	5010	8775	22537	14197	16855	10867	9680	6666	8293	4271	13707	9483	1831	5262	4920	2402	3459	87		12338
374	42	7	104	13	13	6	0	35	50	178	0	33	0	36	108	0	315	8	42	0	0	86	0		77
375	20	46	151	77	12	32	56	249	287	768	800	220	125	32	26	423	595	0	445	27	53	42	52		191
376	1789	2779	8312	7653	2618	1473	1277	10257	17559	20092	4583	8279	4852	4782	1334	10587	4058	2425	3165	944	227	3003	376		5757
377	11	3	9	5	50	10	4	67	253	520	9	278	22	61	67	138	75	0	83	14	0	15	63		0
378	27	25	101	66	2	0	37	324	75	68	89	366	144	336	224	241	122	75	798	135	1504	77	158		0
379	6	15	7	10	0	51	0	117	293	1627	298	108	142	39	195	62	17	47	24	72	346	38	51		13
380	12	38	32	10	13	38	34	1035	560	926	617	791	87	466	934	257	152	133	41	23	25	29	131		760
381	80	96	13	48	9	9	43	904	648	912	61	208	0	2	252	99	108	279	279	34	9	85	13		499
382	19	31	126	147	52	20	0	187	152	100	0	14	0	200	195	3	247	28	1066	19	121	127	52		274
721	13	52	6	36	0	0	61	16	35	0	0	0	663	161	41	97	310	77	0	81	159	77	28		152
722	59	301	79	107	73	0	7	0	50	0	26	114	14	19	42	43	40	40	28	42	70	62	0		22
723	93	35	51	51	31	8	70	66	0	71	171	73	266	75	43	169	114	0	0	0	30	49	123		182
724	23	148	108	25	711	285	290	0	46	0	77	48	36	111	31	0	0	0	0	42	38	24	12		0
725	3	47	33	41	17	17	12	413	275	659	185	18	30	42	21	0	17	18	0	45	56	19	0		0
726	n.s.	2	6	63	8	22	0	0	0	23	13	4	245	45	13	0	22	0	14	14	58	15	0		0
727	35	50	23	5	5	25	853	84	63	0	84	74	951	231	79	46	23	86	234	3283	1147	387	34		28
728	11	35	33	14	11	46	119	23	0	9	89	11	367	36	0	82	76	27	65	127	122	26	0		7
752	51	671	25	15	111	6	2100	0	0	8	0	0	0	0	0	0	0	0	0	54	168	74	0		0
753	175	51	207	38	169	156	96	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
754	742	1924	291	1015	1822	9374	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
755	n.s.	293	0	98	5	0	0	46	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0		0
756	129	571	145	37	62	83	1216	0	0	0	0	0	22	16	0	0	0	0	0	116	74	19	0		0
757	329	666	94	530	132	14	64	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0		0
758	487	2148	1088	527	1679	286	38	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0		0
759	n.s.	1356	5	506	57	42	44	0	0	0	n.s.	0	0	0	0	35	0	0	0	0	0	0	0		0
760	0	97	126	190	87	25	434	0	60	0	22	0	39	37	0	0	0	29	29	0	36	0	0		0
761	965	292	12	158	1012	181	0	42	0	0	0	0	0	42	0	74	0	0	0	0	18	0	0		29
762	1050	108	167	116	0	0	56	21	0	26	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
763	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
764	144	115	0	0	20	0	380	38	0	68	0	0	0	n.s.	0	60	45	0	62	74	103	0	0		17
765	179	143	0	17	12	7	25	0	0	46	43	20	0	0	0	10	0	0	38	0	16	0	0		0
766	214	8	0	0	0	0	0	9	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
767	n.s.	40	0	0	0	0	16	35	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
Biomass	9779	18875	35004	50521	34948	30072	20508	44429	40473	47415	22223	25946	19317	17887	10365	28889	19640	6624	16085	14126	11121	13334	2225		24567
SD	1544	3114	3736	7991	10687	9699	2371	5281	6171	9207	2898	2641	2788	3539	1193	3014	2280	1008	1777	2894	2283	3217	394		3529
MWPT	11.57	20.41	40.79	57.86	39.23	33.69	22.27	49.46	45.69	55.81	28.1	28.82	22.11	21.22	11.71	32.67	22.24	8.39	18.45	15.76	12.79	14.82	2.76		30.37
SD	1.74	3.26	4.32	9.12	6.99	10.91	2.57	5.82	7	11.22	3.57	2.92	3.16	4.11	1.32	3.38	2.63	1.26	2.02	3.21	2.68	3.58	0.49		4.41
Abundance	9039	13694	19284	24401	17432	18611	11099	22092	21040	21947	9008	10045	6849	9835	3124	10003	7051	2856	5896	6138	6267	4779	788		10307
SD	552	3957	2226	3566	4109	7205	1379	2959	3746	4257	1147	1007	1056	3015	380	829	807	480	663	1242	1837	1166	150		1451
Area	9339	10342	10342	10342	7860	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 25. Thorny skate abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	345	13	16	11	10	49	6	49	41	12	0	5	4	89
14	404	31	80	73	136	247	62	144	63	48	27	12	12	258
16	328	32	127	329	102	265	24	82	42	22	9	39	32	142
18	139	310	167	91	34	360	67	104	140	29	5	33	8	125
20	374	179	179	318	38	126	60	120	88	104	19	34	34	307
22	786	1131	177	168	45	94	94	117	117	139	35	86	25	209
24	1103	1304	214	308	33	35	24	124	210	126	64	60	59	342
26	1012	511	467	433	57	61	24	110	196	85	36	90	5	244
28	292	449	398	342	62	57	53	96	219	181	98	101	68	150
30	68	152	87	58	56	100	54	227	237	191	100	82	68	200
32	60	210	168	89	95	142	213	302	365	285	83	163	63	426
34	130	377	238	196	192	363	155	385	285	290	145	153	97	378
36	167	420	380	240	337	287	278	501	521	340	217	154	146	300
38	192	437	570	431	386	588	340	653	469	321	130	291	109	453
40	153	380	784	543	799	1172	618	672	534	532	179	209	148	319
42	160	457	1124	793	637	1496	606	1203	908	600	215	211	83	267
44	254	445	1251	1018	865	1432	697	1302	889	719	211	204	148	308
46	224	442	1153	1214	935	1535	608	1080	1021	805	292	258	111	345
48	109	545	986	1506	958	1453	691	1223	1142	876	332	241	140	246
50	207	505	1107	1288	909	1277	588	949	1252	1085	224	225	199	120
52	236	414	1090	1374	1069	1095	561	1251	1173	1710	367	359	134	186
54	154	359	733	1157	920	810	639	862	1001	1532	329	280	210	228
56	183	586	707	1452	938	549	482	1210	1294	1350	453	454	215	342
58	107	367	650	1139	735	705	558	1119	991	1126	492	487	245	197
60	257	473	898	998	691	326	514	956	1003	1151	375	370	412	307
62	248	384	638	943	487	405	394	1025	915	1090	397	515	249	289
64	154	628	634	1066	695	375	305	899	777	1030	480	477	316	420
66	272	500	539	1012	707	438	347	788	887	920	492	607	239	258
68	169	416	718	880	720	355	431	659	825	914	643	475	575	280
70	161	298	623	1045	602	461	325	861	681	1059	478	576	469	427
72	101	289	552	858	585	503	262	611	694	872	492	568	499	283
74	165	289	384	820	595	434	363	651	568	650	472	586	440	345
76	83	133	412	680	727	257	214	599	386	557	366	512	479	324
78	141	74	457	523	466	212	185	366	389	393	297	376	292	279
80	23	53	217	329	327	173	101	296	334	320	165	364	246	110
82	50	55	192	212	176	254	78	168	175	192	119	199	143	169
84	4	9	80	130	107	54	47	159	87	154	101	95	73	56
86	24	29	48	133	140	20	20	81	85	75	31	54	30	20
88	0	0	8	110	37	47	0	60	23	47	31	0	7	60
90	0	0	13	41	8	0	8	24	0	4	5	23	0	21
92	0	0	17	20	10	0	0	0	0	0	0	12	14	0
94	0	0	0	10	0	0	0	4	8	0	0	0	0	3
96	0	0	0	19	0	0	0	0	4	0	0	4	0	0
98	0	0	0	1	7	0	0	0	0	10	0	0	0	0
100	0	4	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	0	3	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	3	0	0	0	0	0	0	0	0	0	0	0	0
126	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total	9039	13694	19284	24401	17432	18611	11099	22092	21040	21947	9008	10045	6849	9835
Biomass(t)	9779	18875	35004	50521	34948	30072	20508	44429	40473	47415	22223	25946	19317	17887
B/SOP(%)	100	100	100	100	100	101	102	102	97	102	100	99	104	100
Nsamples	33	33	88	83	66	78	88	83	78	78	73	72	66	62
Nindiv	829	1535	4286	4826	1261	1817	1554	2440	2114	2126	1028	1082	723	758
Range	12-87	13-131	13-93	13-99	13-99	12-89	13-90	12-95	12-96	13-99	14-90	13-96	12-93	12-94
Sampledcatch(kg)	863	1873	6202	9301	2777	2974	2627	4666	4194	4595	2564	2805	2053	1464
Totalcatch(kg)	6418	10955	14922	20627	3413	4271	2656	4674	4249	5258	2564	2837	2410	1576

Table 25 (cont.). Thorny skate abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
10	0	0	4	0	0	0	0	8	0		2
12	0	6	26	0	0	7	8	3	2		7
14	23	19	14	13	18	16	79	11	5		286
16	0	46	0	6	0	23	149	20	0		143
18	4	12	0	13	8	37	51	4	0		71
20	0	6	5	0	0	22	0	14	0		122
22	0	30	220	0	27	55	0	30	19		34
24	20	24	0	15	34	43	61	24	4		122
26	15	24	4	11	17	44	209	26	0		47
28	5	8	25	41	32	39	236	40	4		165
30	10	98	49	54	40	96	310	35	4		111
32	45	87	69	77	47	88	357	64	19		103
34	11	89	26	18	35	152	228	106	0		131
36	0	198	95	102	34	144	199	77	7		176
38	18	191	211	37	126	136	188	121	4		191
40	76	343	249	78	157	139	206	104	7		319
42	19	391	231	127	223	290	142	96	14		243
44	29	300	291	159	239	162	177	75	24		412
46	44	248	273	130	181	306	220	64	16		337
48	17	269	229	132	283	299	211	111	6		364
50	62	288	187	124	225	263	264	260	46		285
52	70	282	135	75	293	290	163	147	43		258
54	29	351	140	109	334	261	244	248	17		270
56	48	329	292	166	210	195	207	193	11		403
58	56	306	154	53	202	228	207	180	63		380
60	101	188	93	67	209	221	199	192	16		422
62	124	302	173	116	142	234	181	176	16		324
64	125	416	154	161	201	226	127	209	54		393
66	255	408	249	58	219	276	191	180	53		483
68	161	478	297	129	183	170	217	208	33		488
70	207	566	418	104	347	206	151	236	54		668
72	325	646	412	130	286	289	176	328	33		566
74	397	551	365	115	335	248	159	315	40		465
76	206	759	416	128	351	210	210	144	32		460
78	226	572	389	94	254	214	172	215	33		296
80	159	317	292	54	192	169	99	184	38		221
82	94	352	326	70	191	85	87	150	10		196
84	34	242	156	31	72	85	58	74	20		169
86	87	86	129	31	48	79	26	23	0		84
88	12	63	129	0	73	64	41	70	26		32
90	0	21	77	25	12	17	31	2	0		19
92	0	51	13	2	7	2	12	8	0		33
94	7	12	10	3	7	0	0	0	7		0
96	6	18	8	0	0	0	10	0	6		0
98	0	0	11	0	4	7	0	0	0		0
100	0	12	0	0	0	0	4	0	0		0
102	0	0	0	0	0	0	0	0	0		0
104	0	0	5	0	0	0	0	0	0		0
106	0	0	0	0	0	4	0	0	0		0
108	0	0	0	0	0	0	0	0	0		0
110	0	0	0	0	0	0	0	0	0		6
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
Total	3124	10003	7051	2856	5896	6138	6267	4779	788		10307
Biomass(t)	10365	28889	19640	6624	16085	14126	11121	13334	2225		24567
B/SOP(%)	99	102	99	101	101	102	98	103	98		100
Nsamples	72	74	79	55	74	58	61	63	35		65
Nindiv	363	976	719	360	660	738	638	532	126		1117
Range	14-96	13-100	11-104	14-94	14-99	12-107	13-100	10-92	13-96		10-110
Sampledcatch(kg)	1216	2912	2150	926	1907	1789	1322	1441	348		2623
Totalcatch(kg)	1398	2940	2253	948	2075	2074	1774	1497	363		2623

Table 26. Biomass (t) of white hake by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	25	1	0	0	0	41	0	0	0	0	1	37	0	0	0	0	0	11	0		0
354	1677	1	0	495	1137	702	299	0	203	0	437	3	992	46	90	280	114	100	39		34
355	814	982	202	97	275	13	0	39	156	32	153	307	175	119	45	176	176	31	20		209
356	94	347	62	18	50	3	0	24	25	33	39	125	72	42	64	242	23	22	3		72
357	24	0	32	13	0	0	55	10	87	87	0	0	18	57	377	837	63	126	0		117
358	8	3	8	246	593	26	28	0	43	47	78	0	44	35	212	0	0	28	12		65
359	606	0	0	0	0	217	1	0	0	0	54	222	144	35	0	0	0	17	0		14
360	1	0	0	17	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0		1
374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
376	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
378	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0		0
379	0	0	0	0	1	1	0	0	0	0	0	3	0	0	0	0	1	0	0		0
380	0	0	0	0	4	1	0	0	0	0	0	6	5	0	1	0	0	0	1		0
381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
721	57	280	137	21	0	34	34	0	10	66	0	3	26	15	126	71	134	37	12		38
722	157	129	213	10	0	0	19	0	0	0	13	0	5	7	13	38	70	0	0		0
723	21	0	0	14	20	24	1	0	0	28	43	52	23	33	16	49	126	31	52		182
724	15	23	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0		0
725	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	11	6	0	0		0
726	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8	0	0		0
727	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0		0
728	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
753	0	0	0	9	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
754	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
755	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
756	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
757	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
758	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
759	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
760	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
761	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
762	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
763	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
764	0	0	34	0	0	0	0	0	0	n.s.	3	0	0	0	0	0	0	23	0		0
765	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
766	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
767	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
Biomass	3498	1784	688	940	2082	1067	440	74	526	293	822	783	1503	389	965	1704	722	427	140		733
SD	1715	389	224	464	1270	407	94	46	75	117	361	308	613	131	182	425	199	136	59		227
MWPT	5.13	2.03	0.75	1.03	2.34	1.25	0.56	0.08	0.61	0.34	0.91	0.86	1.64	0.49	1.12	1.9	0.8	0.48	0.17		0.89
SD	2.47	0.43	0.24	0.52	1.44	0.48	0.12	0.05	0.08	0.14	0.4	0.34	0.67	0.17	0.19	0.47	0.22	0.15	0.07		0.27
Abundance	6897	2191	589	1169	1365	576	217	34	370	136	787	1027	1651	298	443	1001	813	422	266		894
SD	2952	515	190	316	844	224	58	18	67	28	284	409	290	107	69	295	401	139	80		296
Area	7860	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 27. White hake abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
6	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
10	11	0	0	0	0	0	0	0	0	0
12	0	6	0	0	0	0	0	0	0	0
14	20	0	0	21	36	0	0	0	0	0
16	29	12	0	127	8	0	0	0	0	0
18	50	22	0	290	8	0	0	0	0	0
20	89	0	0	106	38	0	5	0	0	6
22	82	0	3	78	7	11	5	5	9	14
24	88	0	0	28	24	0	7	0	12	3
26	76	0	13	4	45	4	0	0	7	0
28	263	0	6	0	11	11	7	0	13	0
30	404	0	0	0	15	9	6	0	0	6
32	1209	7	6	0	14	0	25	0	0	0
34	1302	9	3	0	40	9	7	0	14	0
36	922	45	4	7	34	11	0	0	0	0
38	554	118	3	0	41	10	0	0	7	6
40	179	334	0	0	14	13	7	0	14	0
42	182	465	22	0	24	20	0	0	10	0
44	142	354	32	0	13	0	0	0	6	3
46	143	215	80	0	6	14	0	0	17	5
48	122	108	92	39	7	14	27	0	13	3
50	149	109	71	42	14	17	0	0	14	7
52	212	73	77	69	64	24	0	3	23	0
54	114	80	37	40	125	13	7	2	18	2
56	116	45	36	64	93	30	0	9	18	5
58	69	29	29	43	160	26	7	0	16	3
60	97	59	14	38	96	74	7	2	42	6
62	55	15	7	36	109	55	14	2	13	0
64	39	32	11	35	46	63	11	2	51	26
66	37	8	10	60	71	20	7	0	13	7
68	45	23	11	14	51	18	11	0	18	0
70	31	12	8	21	72	20	7	0	3	0
72	0	9	0	0	28	31	7	2	5	0
74	11	0	7	7	10	4	7	0	15	9
76	11	0	0	0	13	29	13	0	0	3
78	11	0	4	0	20	17	9	3	0	6
80	11	3	3	0	0	11	9	0	0	0
82	14	0	0	0	0	0	7	0	0	0
84	4	0	0	0	7	0	0	0	0	15
86	0	0	0	0	0	0	0	3	0	0
88	4	0	0	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	0	0	0	0	0	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	0	0	0	0
Total	6897	2191	589	1169	1365	576	217	34	370	136
Biomass(t)	3498	1784	688	940	2082	1067	440	74	526	293
B/SOP(%)		105	108	106	100	100	99	100	100	102
Nsamples	12	11	9	14	14	15	11	4	11	10
Nindiv	756	551	181	136	228	102	35	11	73	30
Range	10-89	13-80	22-80	15-75	15-85	22-80	21-83	22-86	22-75	20-84
Sampledcatch(kg)	401	458	195	144	367	187	73	25	100	56
Totalcatch(kg)	738	630	209	160	367	187	73	25	112	69

Table 27 (cont.). White hake abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
6	0	0	0	0	0	0	0	0	10		3
8	0	0	0	0	0	0	0	14	25		24
10	0	0	0	0	0	0	0	4	5		0
12	0	0	7	0	0	0	0	0	0		0
14	0	0	15	0	3	0	0	0	6		0
16	0	0	22	0	7	16	7	0	0		13
18	0	0	44	0	0	33	21	14	6		13
20	16	44	73	0	3	41	103	4	24		3
22	19	8	114	0	6	36	185	14	18		21
24	23	24	147	0	4	7	89	21	22		15
26	40	16	63	0	4	3	27	33	9		6
28	33	4	8	0	0	16	17	25	4		38
30	42	5	23	0	3	8	18	14	12		15
32	53	18	7	3	0	46	23	21	6		18
34	62	27	15	12	3	13	13	54	6		12
36	68	69	29	6	16	0	20	34	8		6
38	41	114	57	0	17	18	16	24	13		44
40	66	130	26	22	15	15	25	3	18		117
42	32	152	84	19	0	21	16	15	5		65
44	4	124	94	14	19	39	26	7	21		67
46	19	36	89	20	14	34	5	25	13		57
48	6	69	76	26	21	24	16	14	6		80
50	10	28	121	24	12	36	12	3	0		61
52	18	16	116	13	13	67	7	0	6		36
54	3	14	90	18	13	51	18	0	0		31
56	17	22	58	27	14	61	5	7	0		30
58	26	14	57	16	12	40	23	0	6		21
60	43	12	43	27	58	51	0	0	0		22
62	25	14	24	0	38	56	10	7	0		3
64	13	15	25	28	22	21	7	2	9		13
66	25	5	21	18	7	34	7	10	2		18
68	9	6	16	2	11	16	16	0	0		9
70	22	14	0	2	21	9	6	0	0		6
72	18	7	16	0	11	25	6	0	0		13
74	7	9	3	2	21	10	16	25	0		6
76	7	0	11	0	3	0	0	0	0		0
78	0	2	15	0	7	19	2	7	0		0
80	0	2	0	0	3	56	14	0	0		0
82	7	0	22	0	17	52	6	9	0		0
84	13	0	7	0	3	16	14	0	6		6
86	0	0	7	0	0	0	0	0	0		0
88	0	7	7	0	7	0	0	0	0		0
90	0	0	0	0	3	2	3	10	0		0
92	0	0	0	0	0	0	10	0	0		0
94	0	0	0	0	0	0	0	3	0		0
96	0	0	0	0	0	0	0	0	0		0
98	0	0	0	0	2	7	3	0	0		0
100	0	0	0	0	13	0	0	0	0		0
Total	787	1027	1651	298	443	1001	813	422	266		894
Biomass(t)	822	783	1503	389	965	1704	722	427	140		733
B/SOP(%)	101	97	100	103	99	98	103	103	101		102
Nsamples	14	16	21	12	18	15	16	19	18		21
Nindiv	156	259	285	74	93	216	181	74	57		249
Range	20-84	20-89	13-89	33-74	15-100	16-98	17-98	9-95	7-84		7-84
Sampledcatch(kg)	149	217	274	107	192	369	180	77	31		191
Totalcatch(kg)	161	217	276	110	208	373	180	83	31		191

Table 28. Biomass (t) of squid by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	0	0	0	0	0	0	0	0	0	3	1	0	0	2	0	0	4	0	0	0	0	0	0	3	22		1
354	0	0	0	0	0	0	0	0	0	124	3	34	15	1	21	22	3476	0	0	0	0	0	26	60	1006		0
355	n.s.	0	0	0	0	0	0	0	0	21	6	6	0	0	22	1	17	0	0	0	0	0	81	607	45		4
356	n.s.	0	0	0	0	0	0	0	0	1	1	7	1	0	0	4	9	0	0	0	0	0	5	112	42		4
357	0	0	0	12	0	0	0	0	0	283	1	3	1	0	142	1	7	0	0	0	0	0	1	18	36		2
358	0	0	0	3	0	0	0	0	0	15	4	27	0	1	38	0	19	0	0	0	0	0	12	242	53		2
359	0	0	0	1	0	0	0	0	0	37	2	222	0	0	11	0	418	0	0	0	0	0	71	3221	13551		11
360	0	0	0	0	0	0	0	0	0	285	6	57	2	0	0	19	9	1	0	0	0	0	102	17695	9762		35
374	0	0	0	0	0	0	0	0	0	5	0	0	1	1	0	5	0	0	0	0	0	0	6	2	209		1
375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1961		0
376	0	0	0	0	0	0	0	0	0	7	6	0	0	0	0	0	4	0	0	0	0	0	0	37	3		27
377	0	0	0	1	0	0	0	0	0	546	3	0	0	0	0	3	0	0	0	0	0	0	4	0	134		1
378	0	0	0	49	0	0	0	0	0	158	2	27	49	17	10	6	4	0	0	0	0	0	3	1	225		6
379	0	0	0	9	0	0	0	0	0	0	2	1	18	12	14	3	2	0	0	0	0	0	1	0	23		2
380	n.s.	0	0	0	0	0	n.s.	0	0	2	0	1	1	3	2	5	1	0	0	0	0	0	0	0	117		1
381	n.s.	0	0	0	0	0	n.s.	0	0	0	2	1	2	3	0	16	4	0	0	0	0	0	0	0	20		2
382	n.s.	0	0	0	0	0	n.s.	0	0	1	1	1	6	2	0	9	0	0	0	0	0	0	0	5	604		17
721	n.s.	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	8	9		1
722	n.s.	0	0	0	0	0	0	0	0	2	1	1	1	0	0	0	1	0	0	0	0	0	2	2	2		0
723	n.s.	0	0	10	0	0	0	0	0	31	1	3	0	0	1	0	3	0	0	0	0	0	0	4	96		1
724	0	0	0	0	0	0	0	0	0	5	1	0	1	0	1	0	0	0	0	0	0	0	2	3	1		1
725	0	0	0	5	0	0	0	0	0	0	1	0	1	3	3	6	0	0	0	0	0	0	0	4	7		0
726	0	0	n.s.	22	0	0	0	0	0	1	1	0	1	0	0	4	0	0	0	0	0	0	1	1	3		0
727	n.s.	0	0	1	0	0	n.s.	0	0	4	1	0	0	2	0	2	0	0	0	0	0	0	44	0	3		0
728	n.s.	0	0	0	0	0	n.s.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	3		0
752	n.s.	0	0	0	0	0	n.s.	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	3		0
753	n.s.	0	0	0	0	0	n.s.	0	0	0	0	0	0	1	0	n.s.	0	0	0	0	0	0	1	0	3		0
754	n.s.	n.s.	0	0	0	0	n.s.	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	2		0
755	n.s.	n.s.	n.s.	1	0	0	n.s.	0	0	0	0	0	3	2	2	0	0	0	0	0	0	0	6	1	20		0
756	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	2		0
757	n.s.	0	0	0	0	0	n.s.	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	2	0	3		0
758	n.s.	n.s.	0	0	0	0	n.s.	0	0	1	0	0	1	1	2	0	0	0	0	0	0	0	0	1	2		0
759	n.s.	n.s.	n.s.	0	0	0	n.s.	0	0	0	1	0	n.s.	0	2	2	1	0	0	0	0	0	1	0	1		0
760	n.s.	0	0	1	0	0	0	0	0	3	0	0	2	1	1	0	0	0	0	0	0	0	13	0	0		0
761	n.s.	0	0	1	0	0	0	0	0	2	0	1	3	1	0	1	0	0	0	0	0	0	4	0	2		0
762	n.s.	n.s.	0	2	0	0	0	0	0	9	2	2	n.s.	0	1	0	2	0	0	0	0	0	1	1	2		0
763	n.s.	n.s.	n.s.	3	0	0	n.s.	0	0	1	2	1	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	8	1	4		1
764	n.s.	0	0	1	0	0	0	0	0	2	0	6	1	0	0	n.s.	1	0	0	0	0	0	3	3	18		0
765	n.s.	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1	0	0	0	0	0	0	2	4	0		0
766	n.s.	n.s.	0	0	0	0	n.s.	0	0	2	0	4	n.s.	0	0	1	2	0	0	0	0	0	5	0	1		0
767	n.s.	n.s.	n.s.	0	0	0	n.s.	0	0	6	0	2	n.s.	0	n.s.	n.s.	1	0	0	0	0	0	6	0	2		0
Biomass	0	0	0	122	0	0	0	0	0	1561	53	409	111	60	280	114	3985	2	0	0	0	0	418	22040	28000		123
SD	0	0	0	54	0	0	0	0	0	635	8	221	47	8	109	27	3540	1	0	0	0	0	135	17359	15869		23
MWPT	0	0	0	0.13	0	0	0	0	0	1.7	0.06	0.48	0.14	0.07	0.32	0.14	4.43	0	0	0	0	0	0.47	24.43	34.69		0.15
SD	0	0	0	0.06	0	0	0	0	0	0.68	0.01	0.26	0.06	0.01	0.12	0.03	3.85	0	0	0	0	0	0.16	19.53	19.77		0.03
Abundance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66875	0	0	0	0	0	3073	0	678370		2442
SD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58177	0	0	0	0	0	2373	0	415880		477
Area	6573	8776	9339	10342	10342	10342	7860	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 29. Squid abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9		0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3		0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17		2
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20		8
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64		12
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75905		30
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0	104104		38
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	816	0	0	0	0	0	252	0	79631		153
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3693	0	0	0	0	0	751	0	31268		300
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4673	0	0	0	0	0	1283	0	91084		253
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13347	0	0	0	0	0	485	0	82938		640
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20847	0	0	0	0	0	252	0	116291		440
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13549	0	0	0	0	0	12	0	72712		242
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6218	0	0	0	0	0	0	0	18879		166
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3109	0	0	0	0	0	0	0	4997		115
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	622	0	0	0	0	0	0	0	307		26
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141		16
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66875	0	0	0	0	0	3073	0	678370		2442
Biomass(t)	0	0	0	122	0	0	0	0	0	1561	53	409	111	60	280	114	3985	2	0	0	0	0	418	22040	28000		123
B/SOP(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215	0	0	0	0	0	0	0	177		197
Nsamples	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	89		47
Nindiv	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	0	0	0	0	0	125	0	3366		315
Range	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	10-18	0-0	0-0	0-0	0-0	0-0	9-15.5	0-0	3.5-19		5.5-19
Sampledcatch(kg)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	4	0	189		17
Totalcatch(kg)	23	0	0	23	0	0	0	0	0	255	9	81	20	11	46	17	587	0	0	0	0	0	73	1988	3597		17

Table 30. Biomass (t) of capelin by stratum and year. Spanish Spring survey in NAFO Div. 3NO. n.s. means stratum not surveyed.

Stratum	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
353	1878	557	7015	6460	32	317	6383	1675	22566	2094	5755	8182	1138	21575	5766	5108	284	472	836		126
354	27	581	5171	0	7	0	139	11998	17331	14684	0	9073	9	16063	1102	326	1616	0	0		440
355	0	1	8	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0		11
356	0	1	6	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0		0
357	1	5	4	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0		0
358	254	715	2181	0	0	0	0	0	1	0	0	0	0	0	0	8	0	0	0		0
359	2120	3721	1326	117	1	0	2502	1817	7860	669	140	12671	16	373	2045	56	406	913	97		1388
360	4250	10934	20252	17562	1995	1588	13432	6771	24323	33371	2345	53594	34222	23330	18756	557	1477	13233	449		3782
374	23	2	246	0	13	3	10	3	13	123	0	3	11	7	20	1	7	348	2		2
375	2	3	355	7	0	34	150	4	27	1	1	3012	95	9	52	1	9	57	4		2
376	107	242	713	119	12	667	22	13	308	5382	302	47659	5077	399	2067	17	148	566	1769		3236
377	1664	454	161	1	1	0	3	0	78	881	5	0	0	0	0	84	144	3	18		21
378	687	39	4003	0	0	0	1	0	2	33	0	0	0	0	0	8	4	0	0		0
379	30	4	5	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0		0
380	n.s.	3	102	0	1	0	36	7	8	0	0	0	0	0	0	12	8	6	0		0
381	n.s.	230	246	0	1	0	2062	1579	39	3828	0	0	0	2686	716	1	235	3483	2		0
382	n.s.	6	30	5	612	4	109	25647	2	3138	11	0	0	3759	946	55	145	6395	12672		0
721	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
722	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
723	10	46	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0		0
724	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
725	70	1	4	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0		0
726	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
727	n.s.	140	0	0	0	0	2	0	0	0	0	0	0	0	0	10	0	0	0		0
728	n.s.	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
752	n.s.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
753	n.s.	0	0	0	2	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
754	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
755	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
756	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
757	n.s.	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
758	n.s.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
759	n.s.	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	117	0	0	0	0		0
760	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
761	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
762	2	1	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
763	n.s.	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
764	0	1	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0		0
765	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
766	n.s.	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0		0
767	n.s.	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0		0
Biomass	11152	17734	41835	24272	2678	2613	24851	49523	72557	64209	8559	134193	40573	68202	31588	6246	4486	25476	15849		9008
SD	3316	5842	9877	5996	1098	872	11067	18706	21867	23007	3057	30327	14083	18289	8752	4039	1762	8842	8508		2291
MWPT	16.62	19.69	45.46	26.92	3	3.1	31.58	55	83.19	76.44	9.68	151.43	46.12	85.47	37.07	7.15	5.18	27.97	19.79		11.18
SD	4.87	6.52	10.72	6.45	1.24	1.06	14.07	21.08	24.76	26.79	3.44	34.44	15.65	23.02	10.87	4.69	2.06	9.71	10.53		2.82
Abundance	0	1575355	2585596	1240623	151595	314857	7604610	4379613	10712945	4095724	2277424	8339890	2305422	4443827	3173255	409781	413787	1317744	1018328		713765
SD	0	559605	509046	326313	53001	152613	5102438	2092776	2649456	1530556	986927	1735793	679144	1104268	993241	240074	142488	451106	561478		188074
Area	7860	10342	10342	10342	10342	10342	9440	10342	9923	9685	10342	10342	10342	10342	10342	10342	10342	10342	10342		10342

Table 31. Capelin abundance (thousands) by length class and year. Spanish Spring survey in NAFO 3NO.

Length (cm)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
6	0	3366	0	0	0	0	595370	0	331055	0	28705	0	64	5899	0	1866	0	0	1277		0
8	0	29459	0	0	0	99200	6169808	0	3204299	25142	1789931	27081	262371	310630	92188	12523	1474	0	52666		79602
10	0	197537	27976	11483	361	122067	283044	153583	2813200	41296	389908	215382	56536	151962	1245192	3434	47268	9202	12943		251013
12	0	530721	783336	485447	25758	38469	265306	2567758	3047523	1601805	2658	3035131	332621	1288123	1299518	122368	230814	183550	212344		70181
14	0	705472	1202329	640158	92723	38011	210763	1220153	1259638	2134135	28159	3931851	1025422	1770886	428885	250070	128035	667765	541668		188396
16	0	107713	567995	97561	26876	16909	80170	431547	57203	293347	37933	1123351	511021	832130	100927	18946	5887	449294	187374		121568
18	0	1087	3960	5975	5876	202	149	6572	27	0	130	7094	117387	80655	6545	559	308	6901	10056		3004
20	0	0	0	0	0	0	0	0	0	0	0	0	0	3541	0	0	0	0	0		0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	1031	0		0
Total	0	1575355	2585596	1240623	151595	314857	7604610	4379613	10712945	4095724	2277424	8339890	2305422	4443827	3173255	409781	413787	1317744	1018328		713765
Biomass(t)	11152	17734	41835	24272	2678	2613	24851	49523	72557	64209	8559	134193	40573	68202	31588	6246	4486	25476	15849		9008
B/SOP(%)	0	103	131	171	97	113	66	94	99	104	105	110	104	103	107	114	101	111	101		102
Nsamples	0	19	13	8	16	21	21	21	28	30	34	46	39	44	48	54	49	42	42		39
Nindiv	0	2096	1130	646	1530	1515	1978	2213	2160	2236	2042	5447	3579	2314	4129	1186	2642	2655	2460		2653
Range	0-0	6-18	10-18	10-18	11-19	8-18	7-18	10-19	6-18	9-17	6-18	8-18	7-19	6-20	8-19	7-22	8-19	10-22	7-19		8-19
Sampledcatch(kg)	0	24	15	9	25	23	23	32	18	34	19	80	56	35	51	16	27	48	36		42
Totalcatch(kg)	1584	2249	4686	2303	257	244	2932	6488	8800	4984	1002	13820	3407	8989	3495	807	543	2577	2697		853

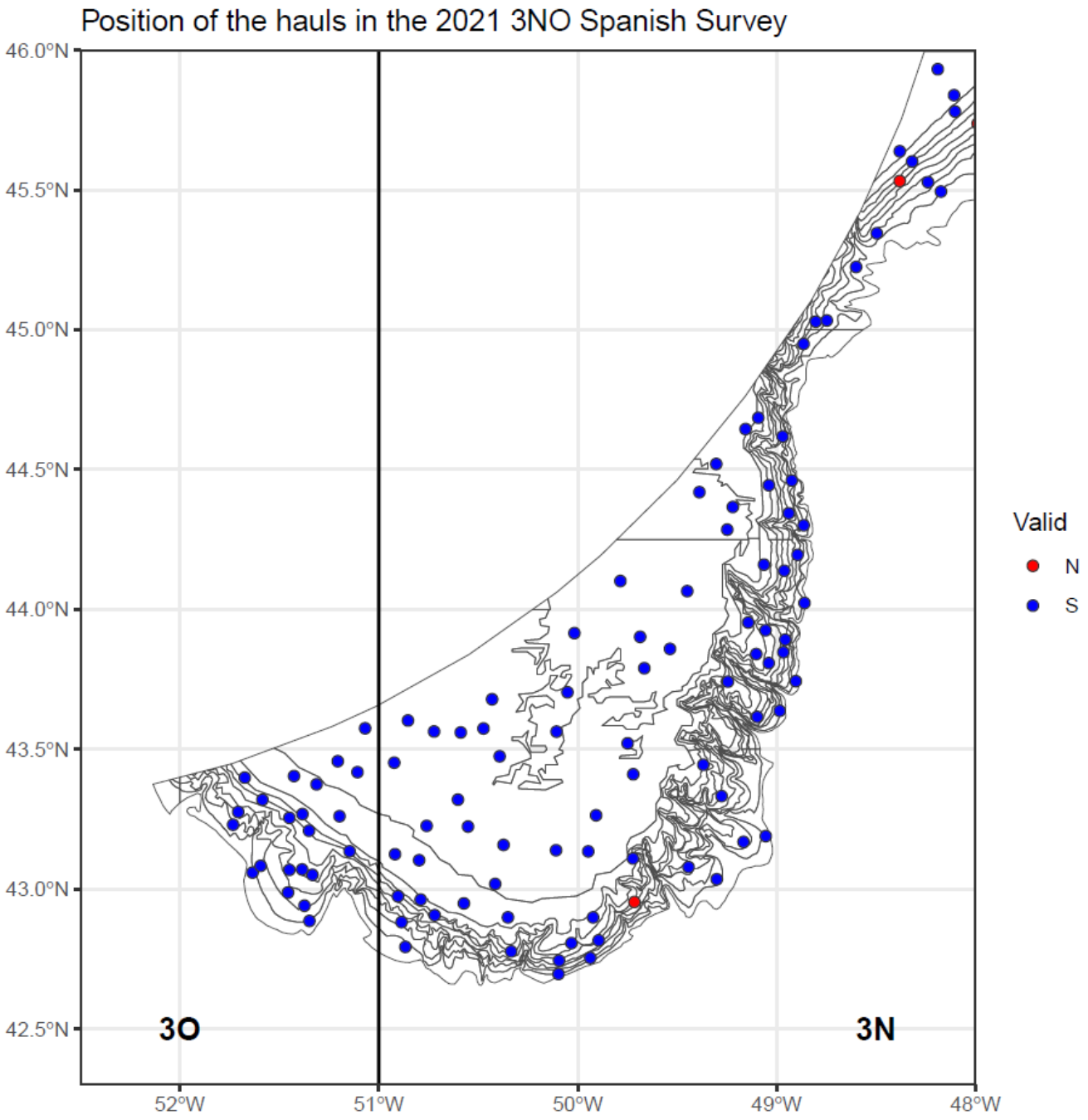


Figure 1. Position of the hauls in the 2021 3NO Spanish survey.

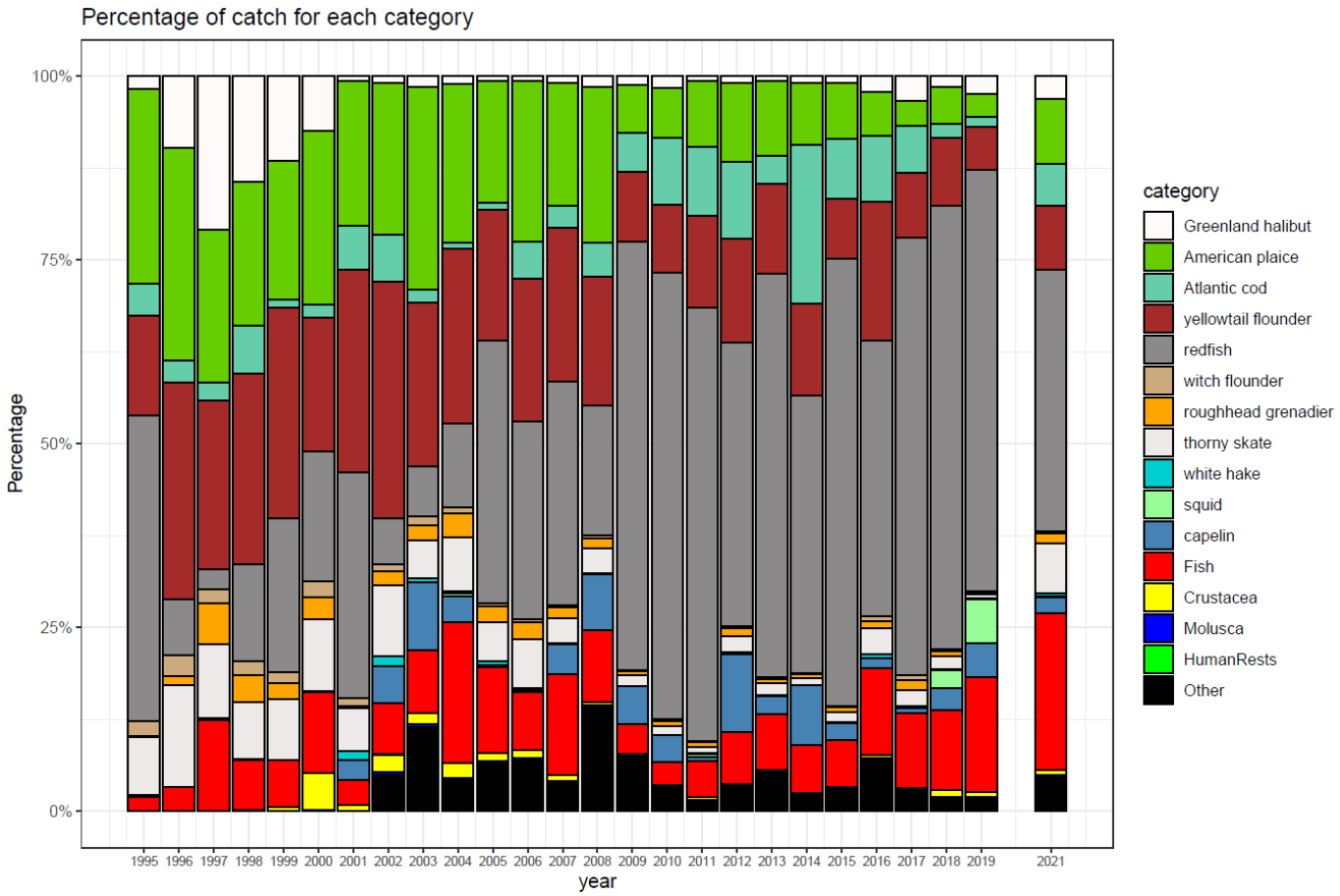


Figure 2. Percentage of the total catch for each species and group. Spanish Spring survey in NAFO Div. 3NO.

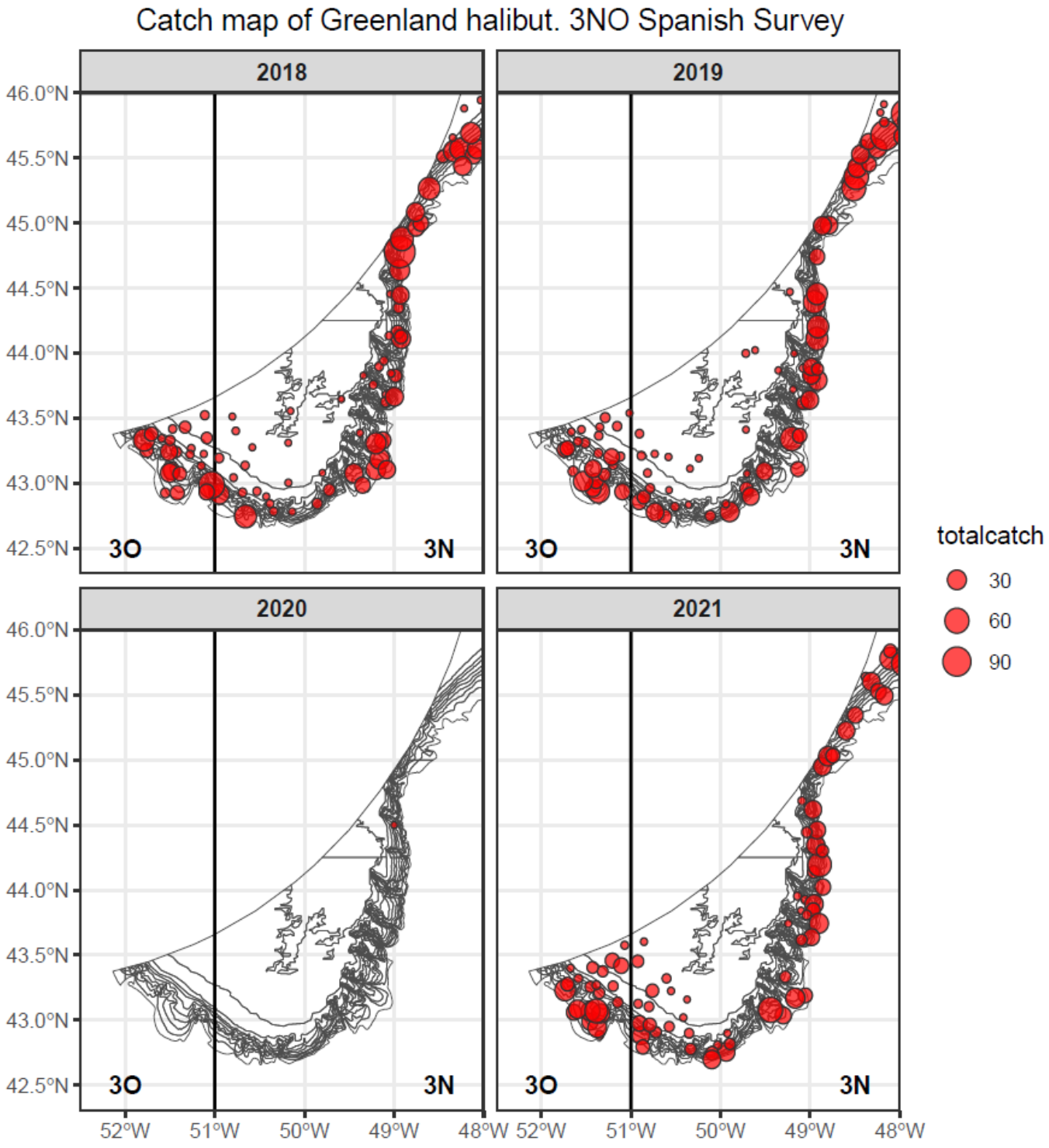


Figure 3. Greenland halibut. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

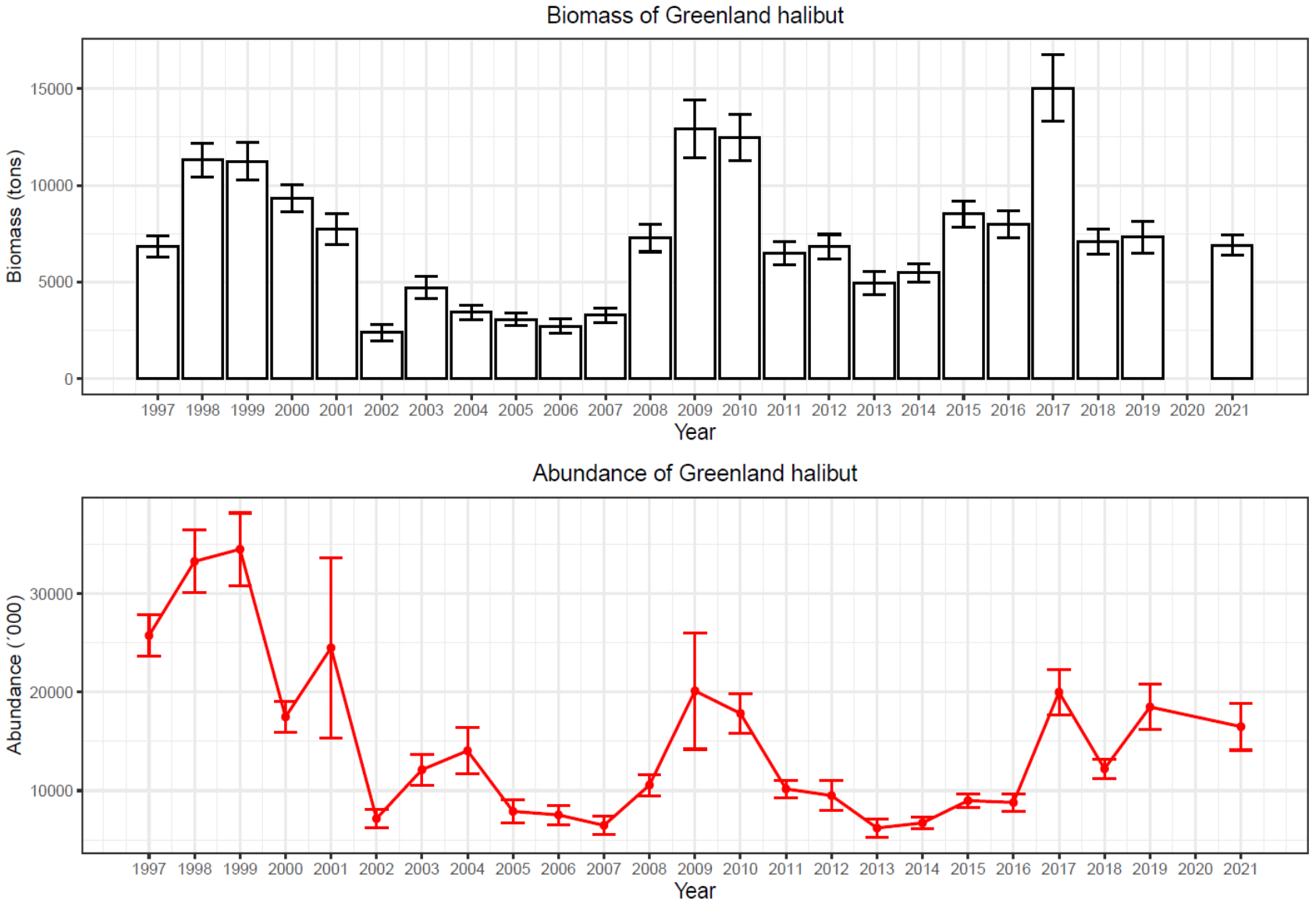


Figure 4. Greenland halibut total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

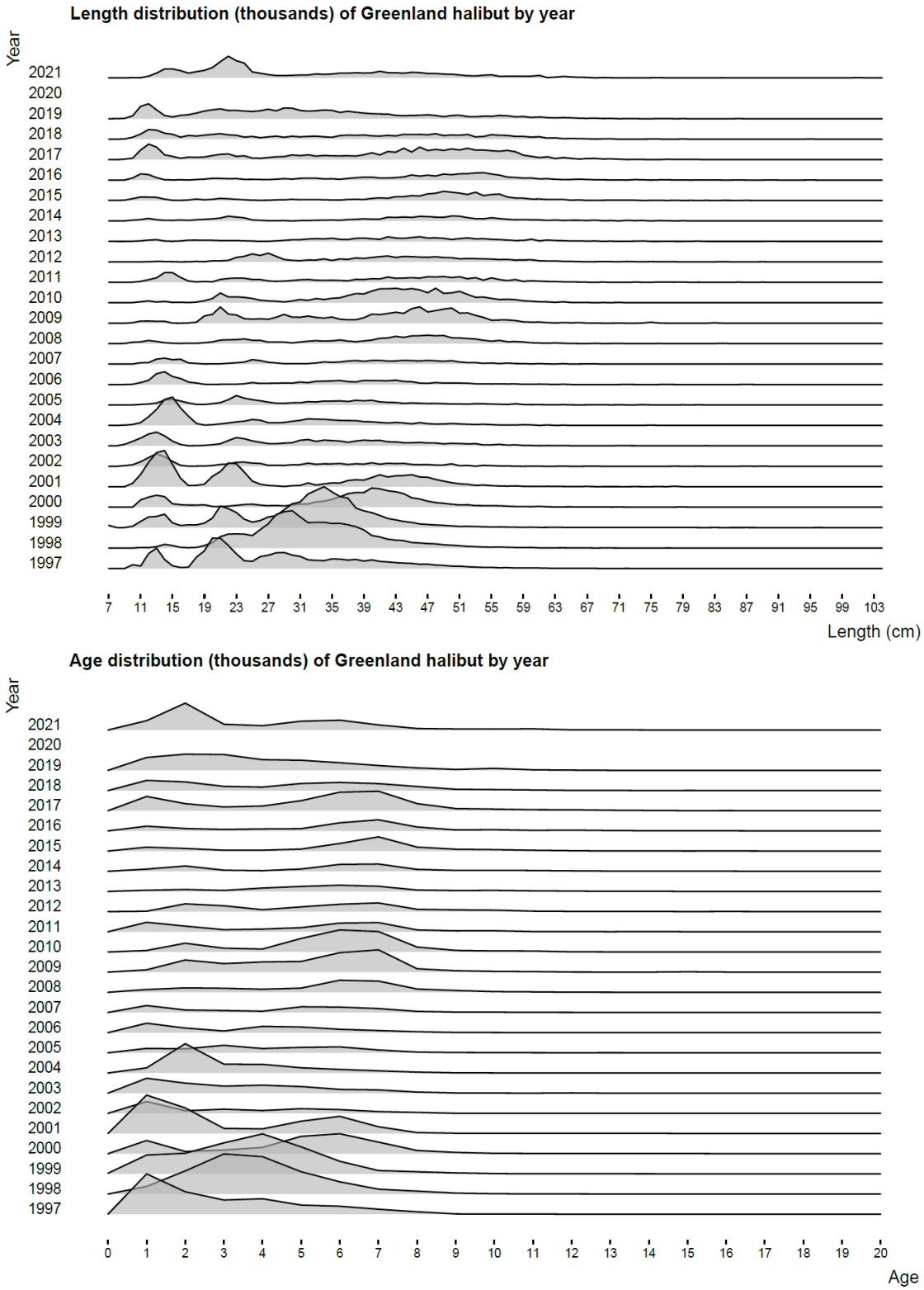


Figure 5. Greenland halibut total length (cm) (a) and age (b) distribution. Spanish Spring survey in NAFO Div. 3NO.

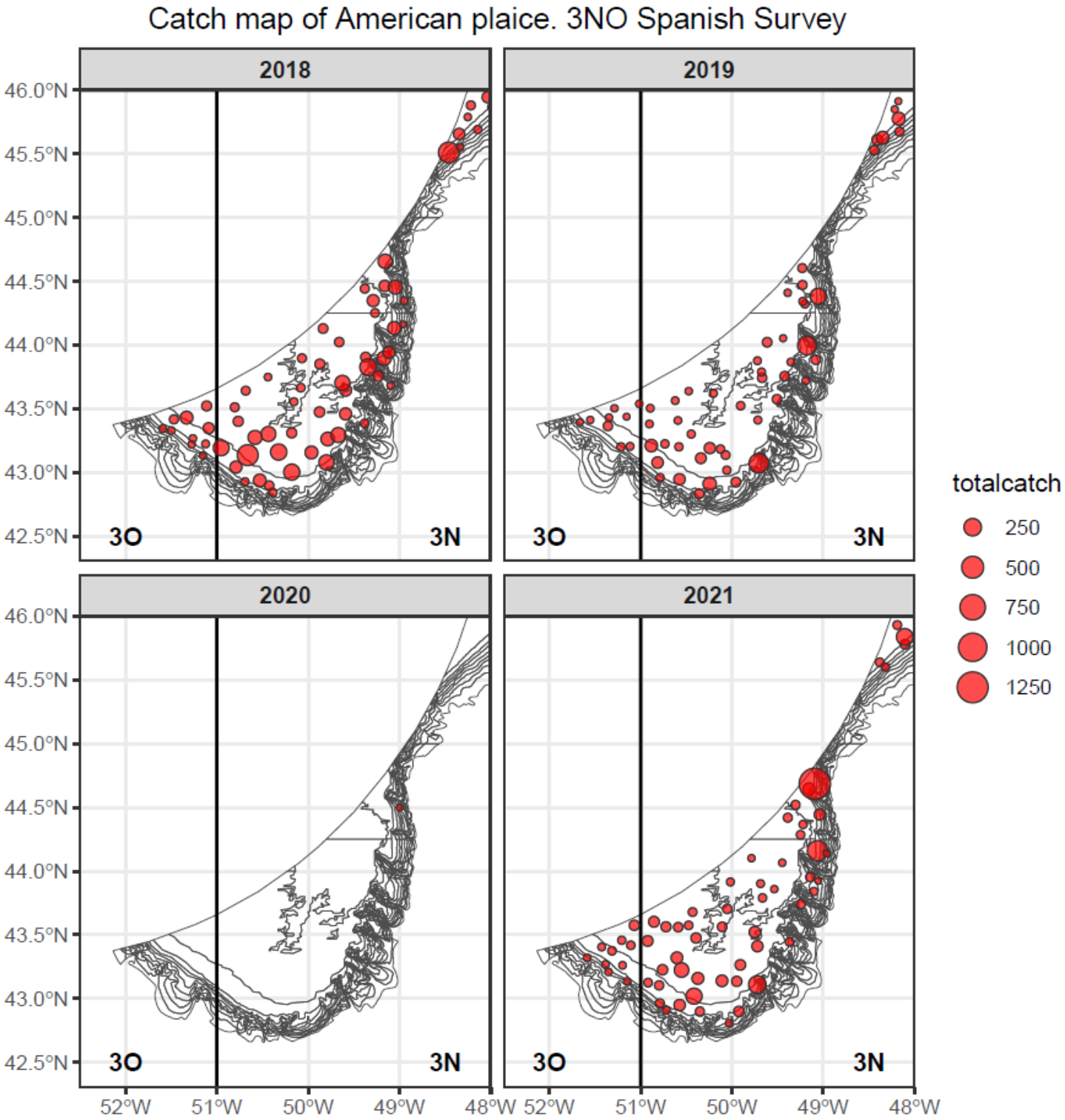


Figure 6. American plaice. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

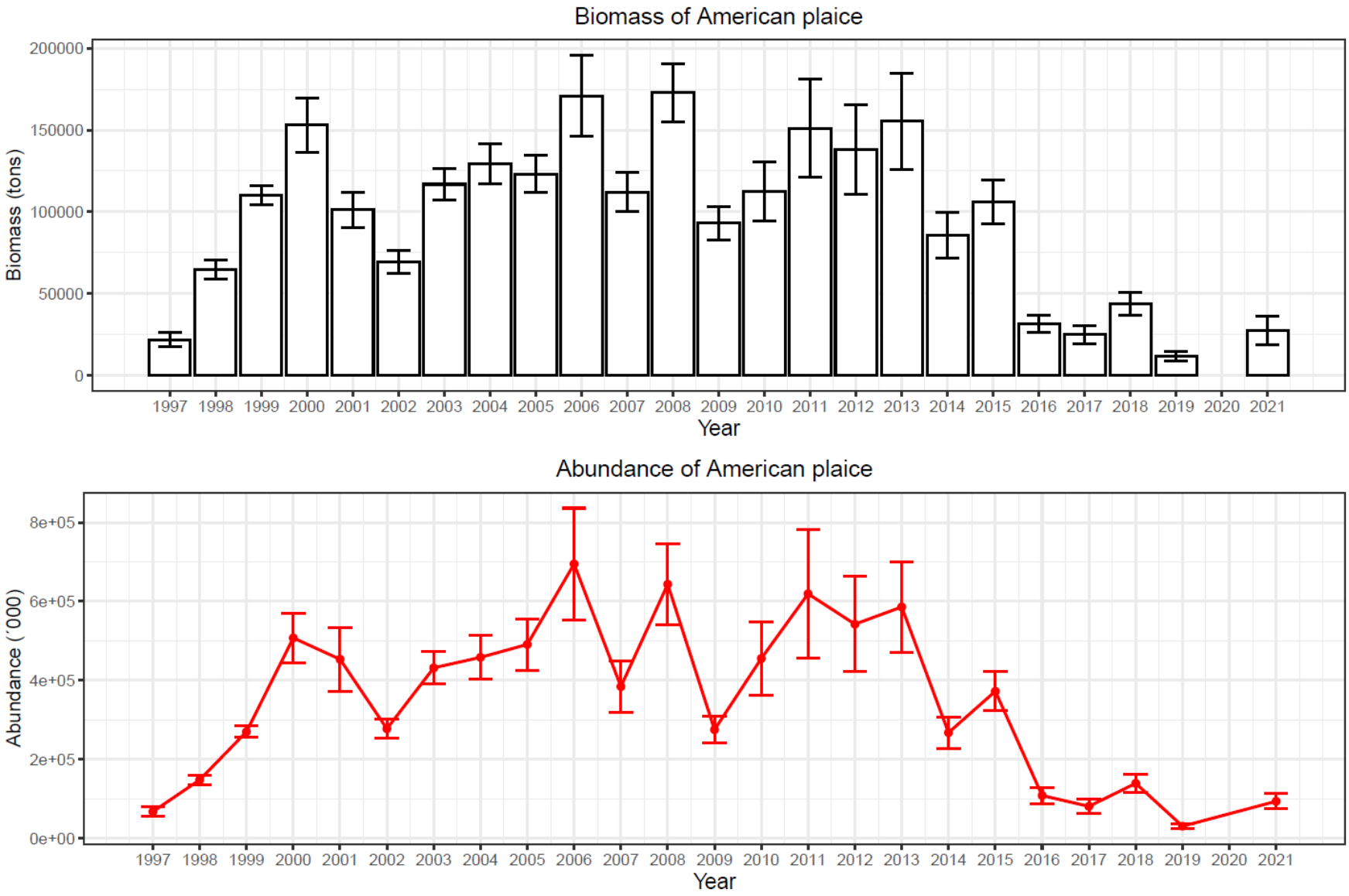
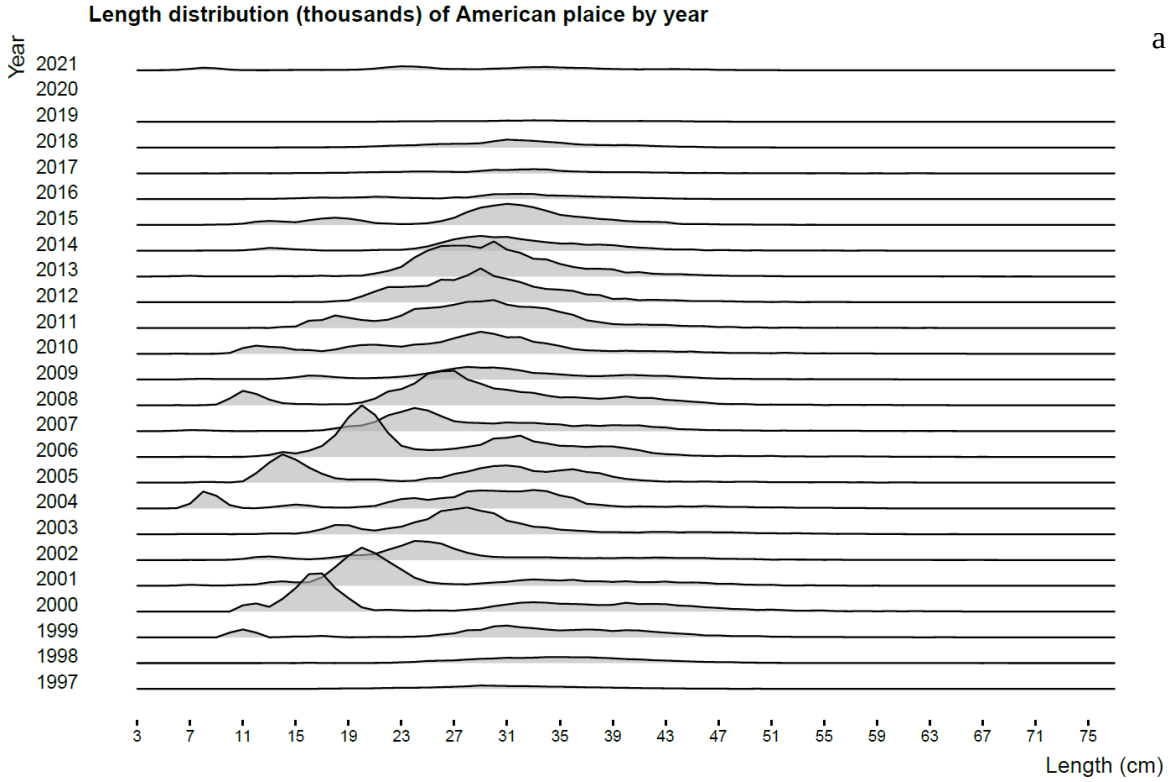


Figure 7. American plaice total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.



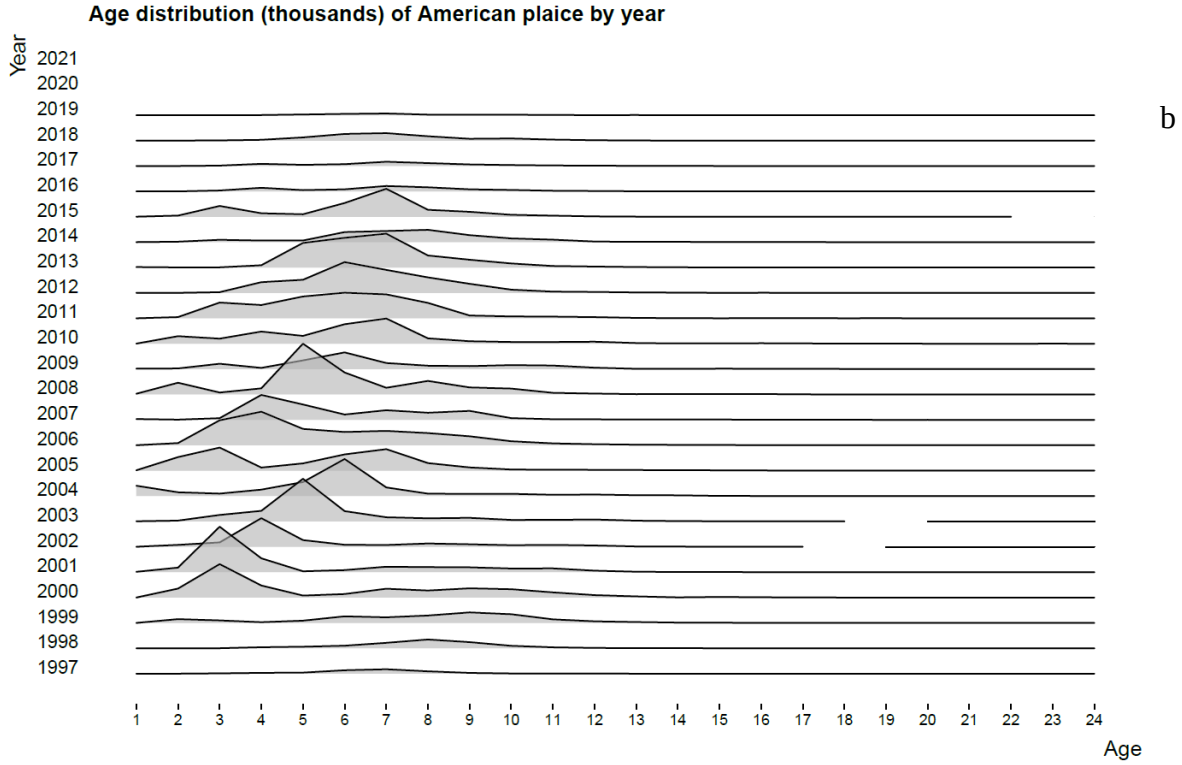


Figure 8. American plaice length (cm) (a) and age (b) distribution. Spanish Spring survey in NAFO Div. 3NO.

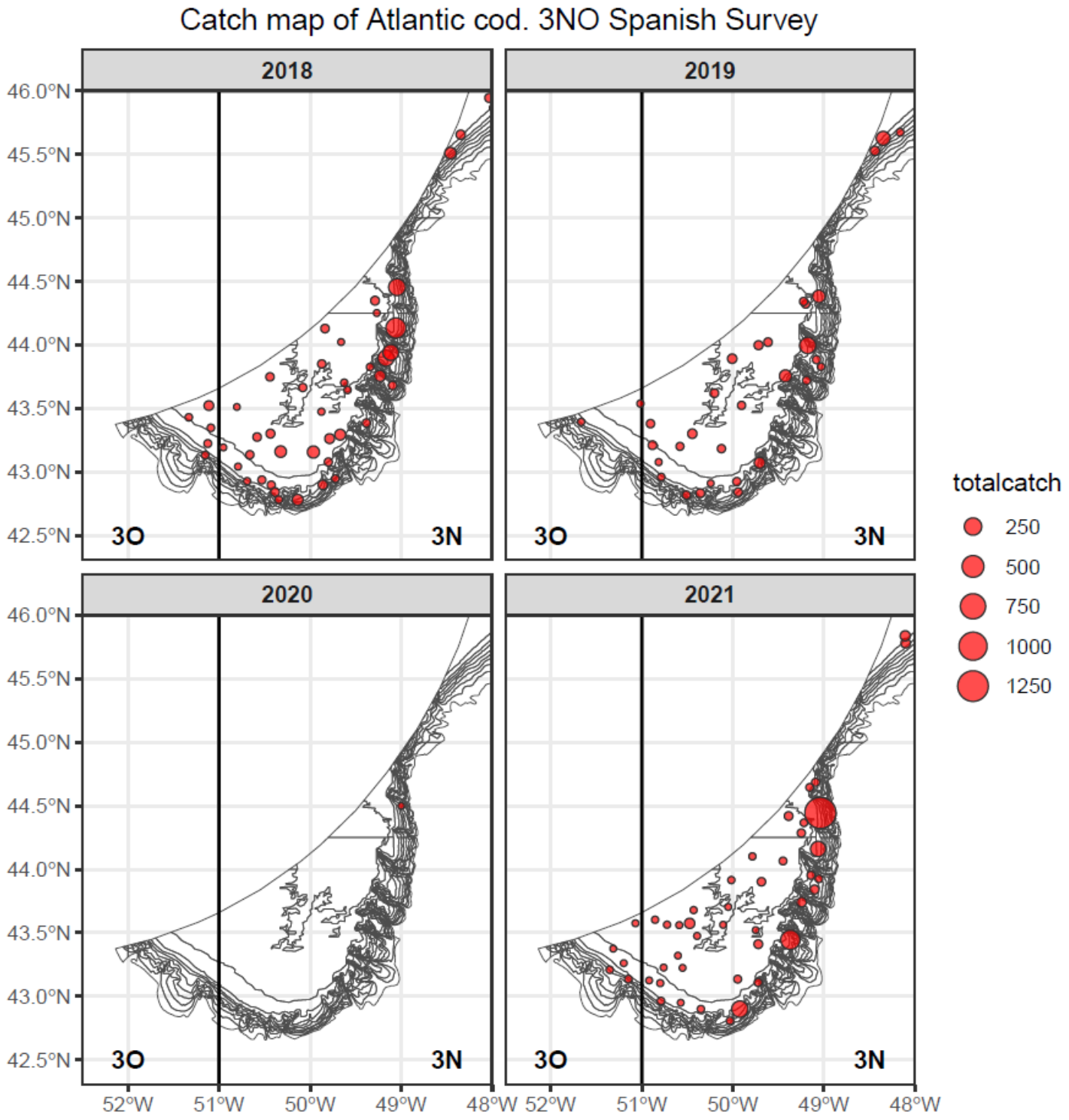


Figure 9. Atlantic cod. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

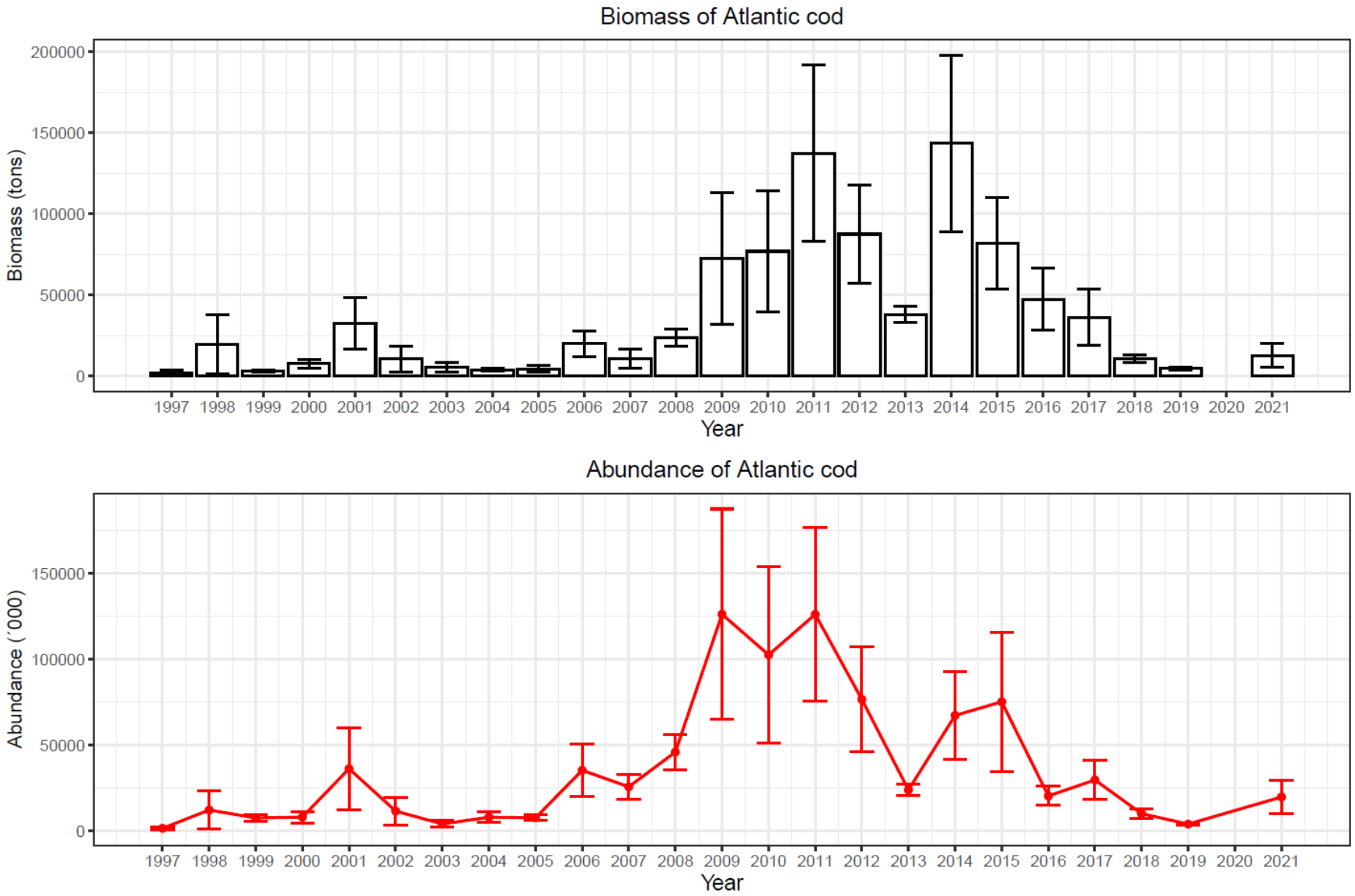


Figure 10. Atlantic cod total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

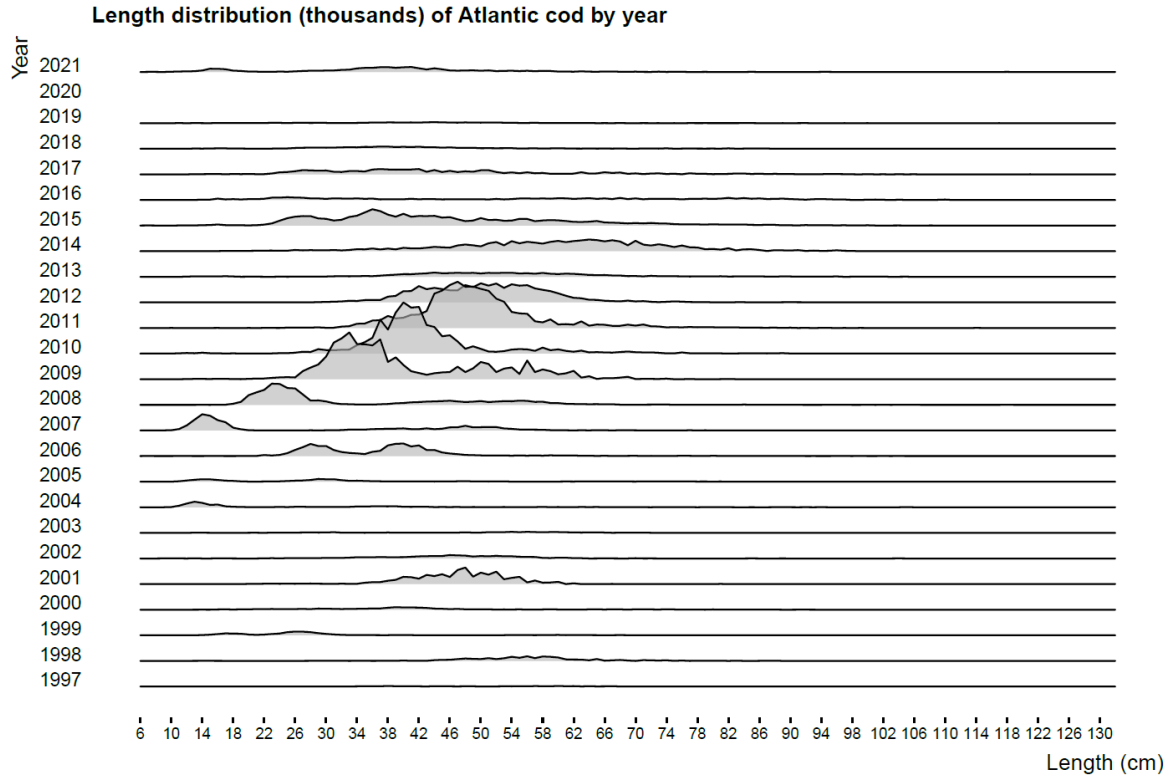


Figure 11. Atlantic cod length (cm) (a) and age (b) distribution. Spanish Spring survey in NAFO Div. 3NO.

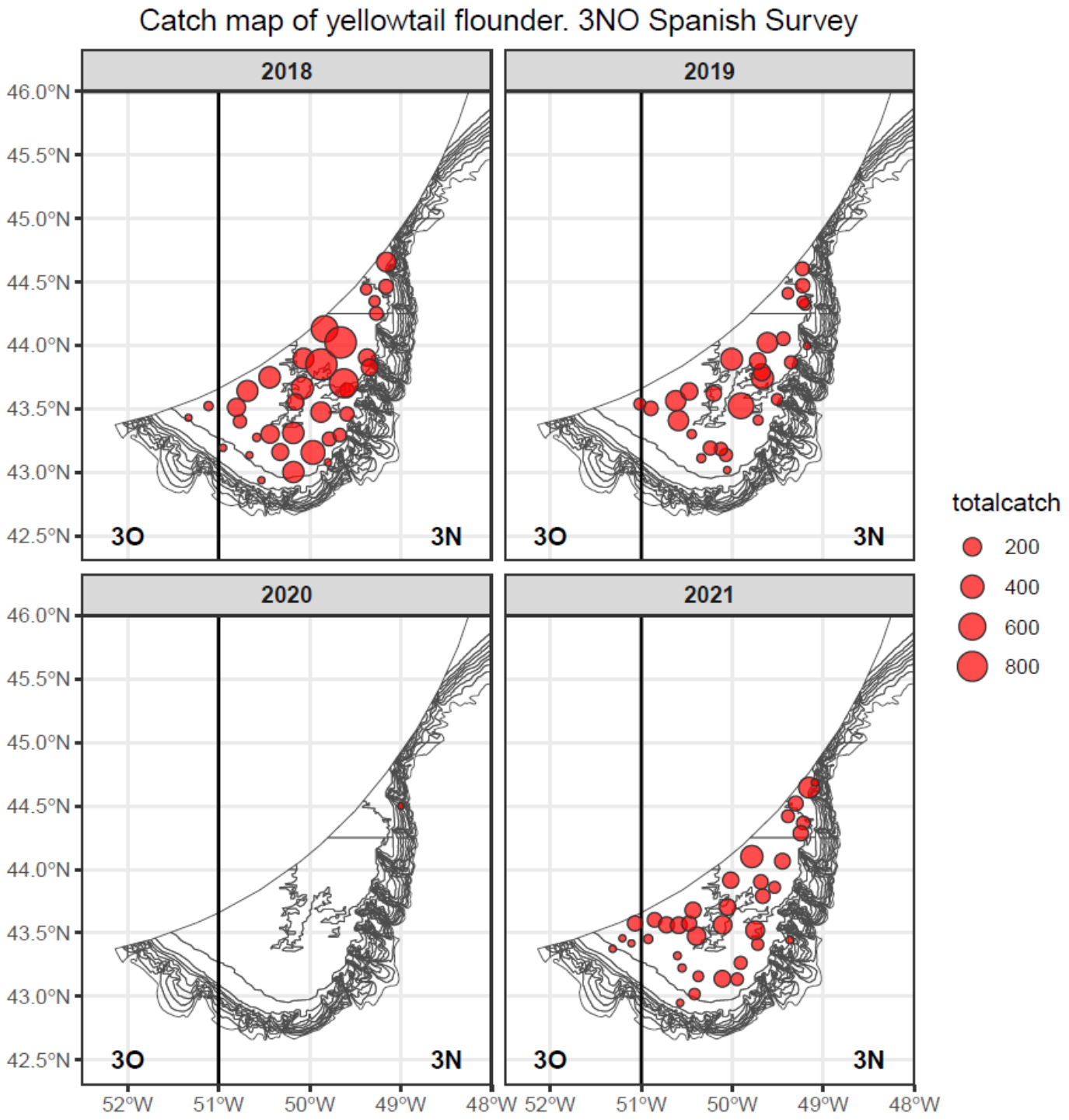


Figure 12. Yellowtail flounder. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

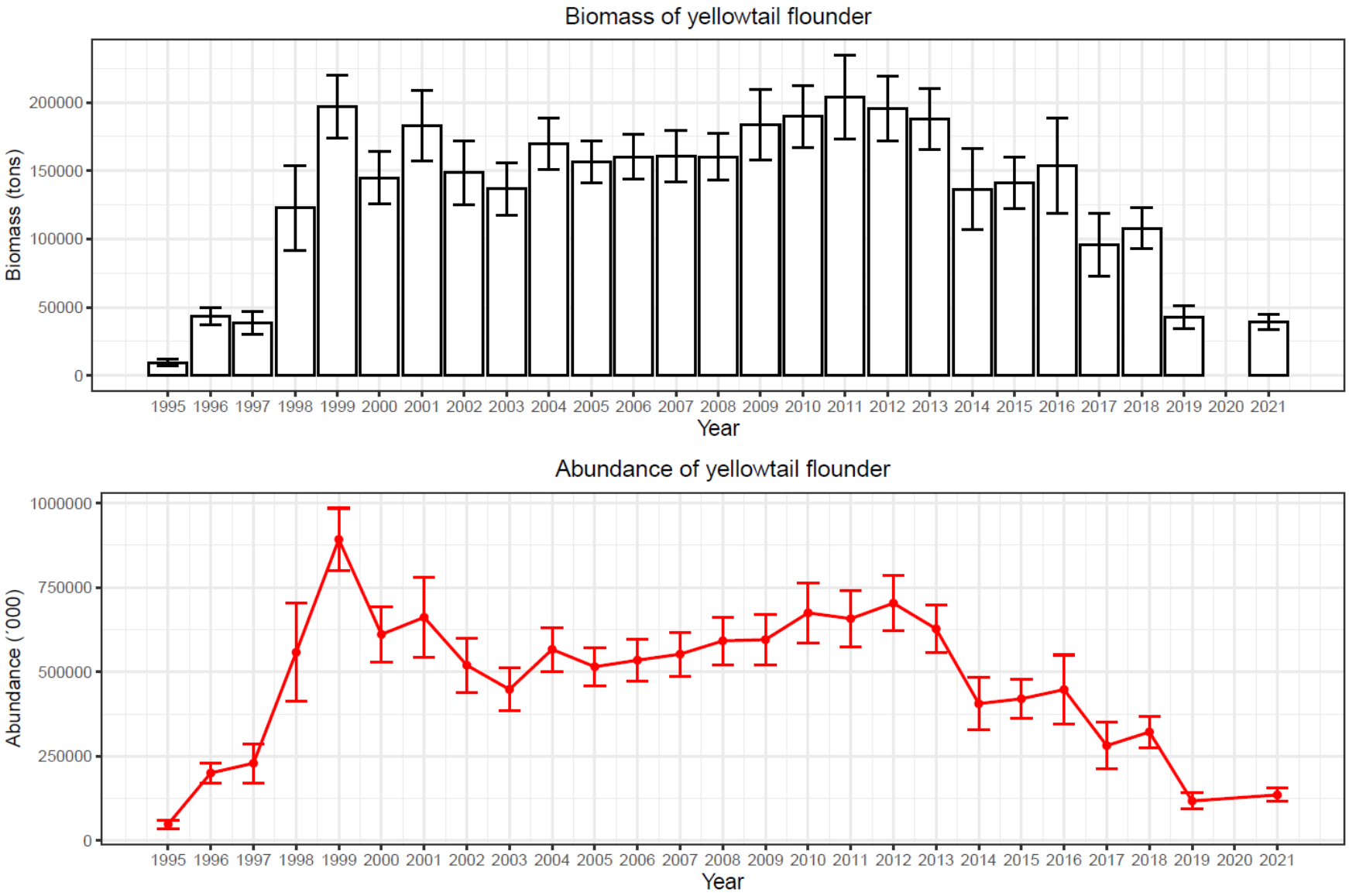


Figure 13.- Yellowtail flounder total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

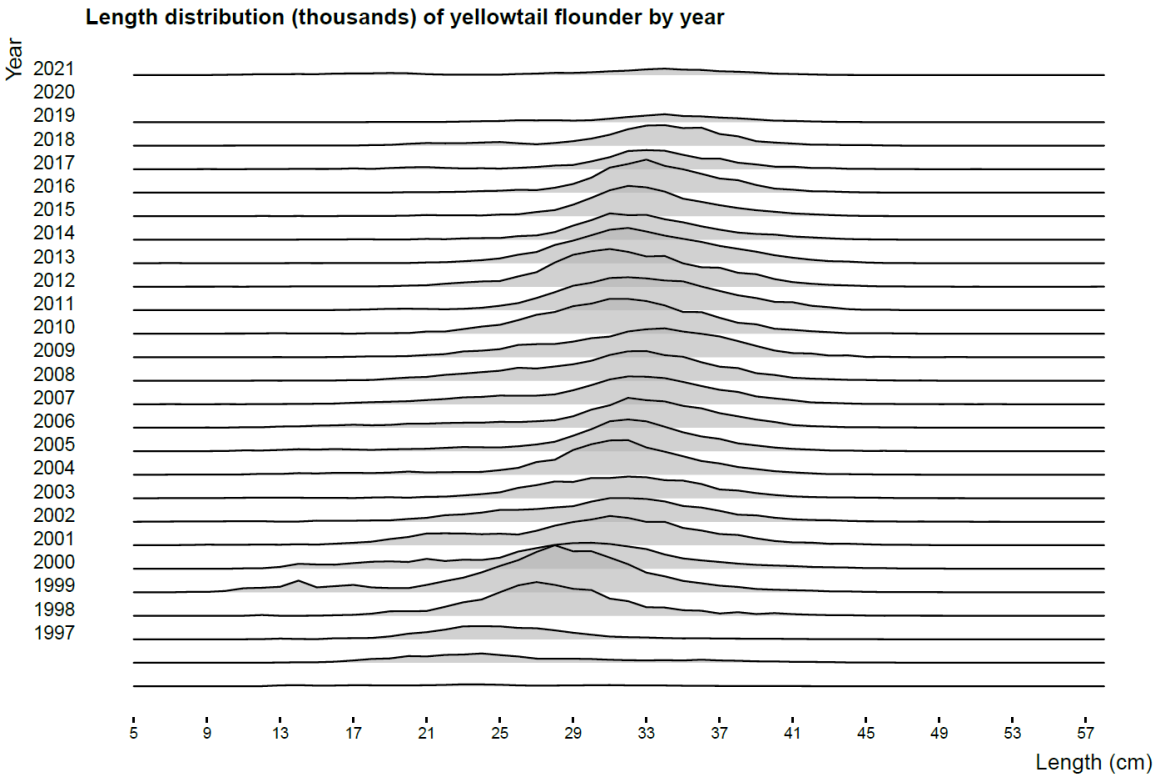


Figure 14. Yellowtail flounder length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.

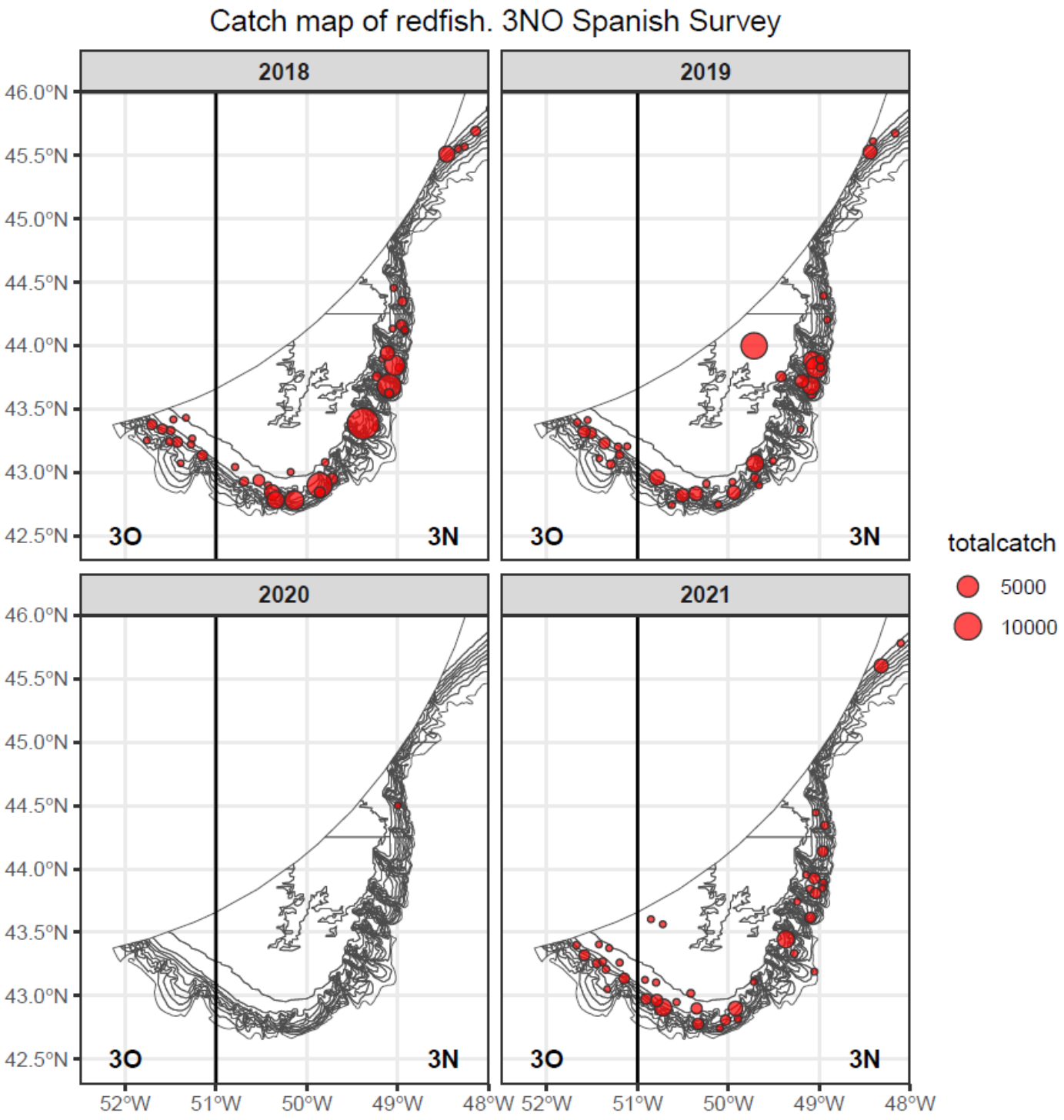


Figure 15. Redfish. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

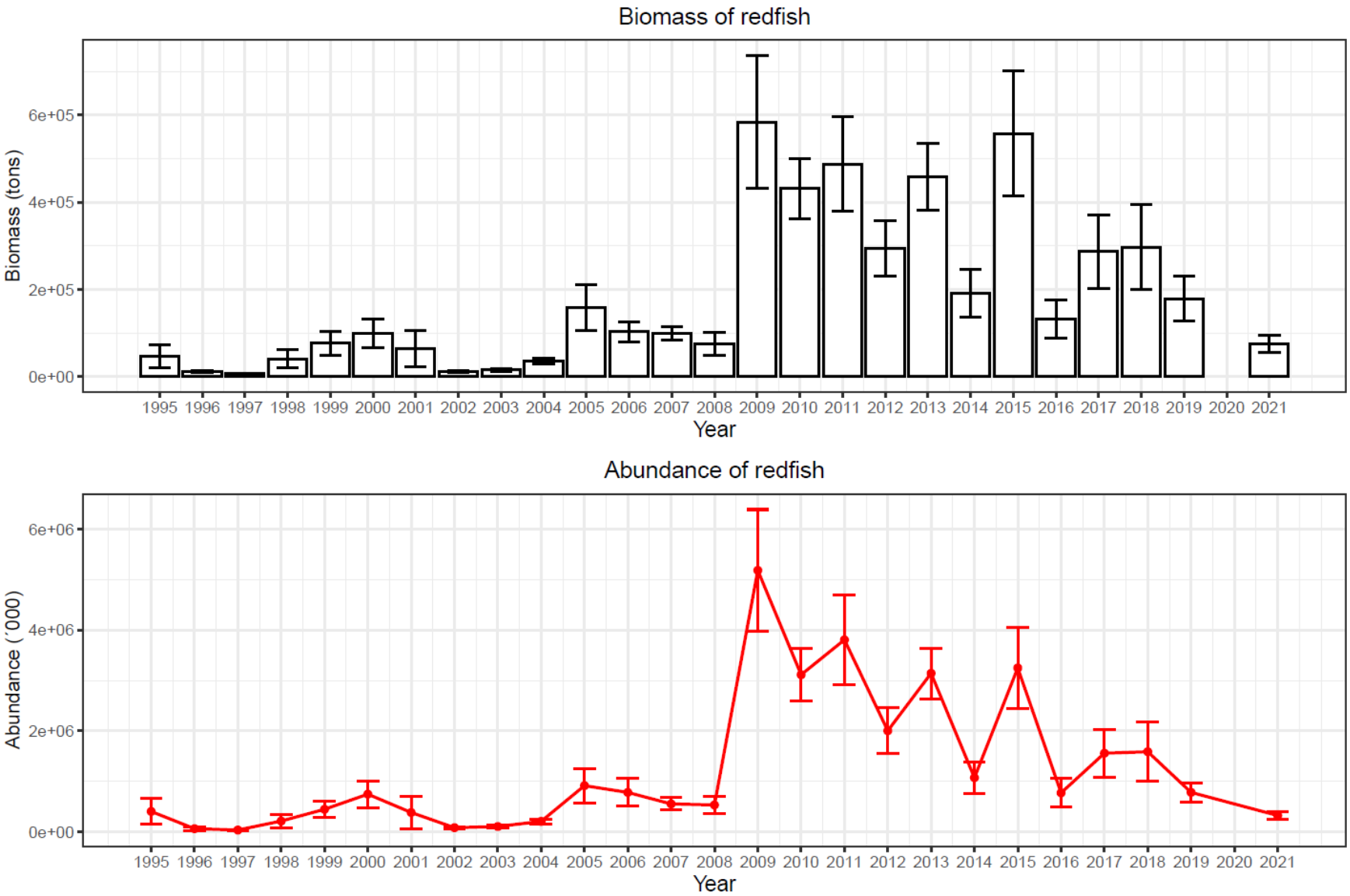


Figure 16. Redfish total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

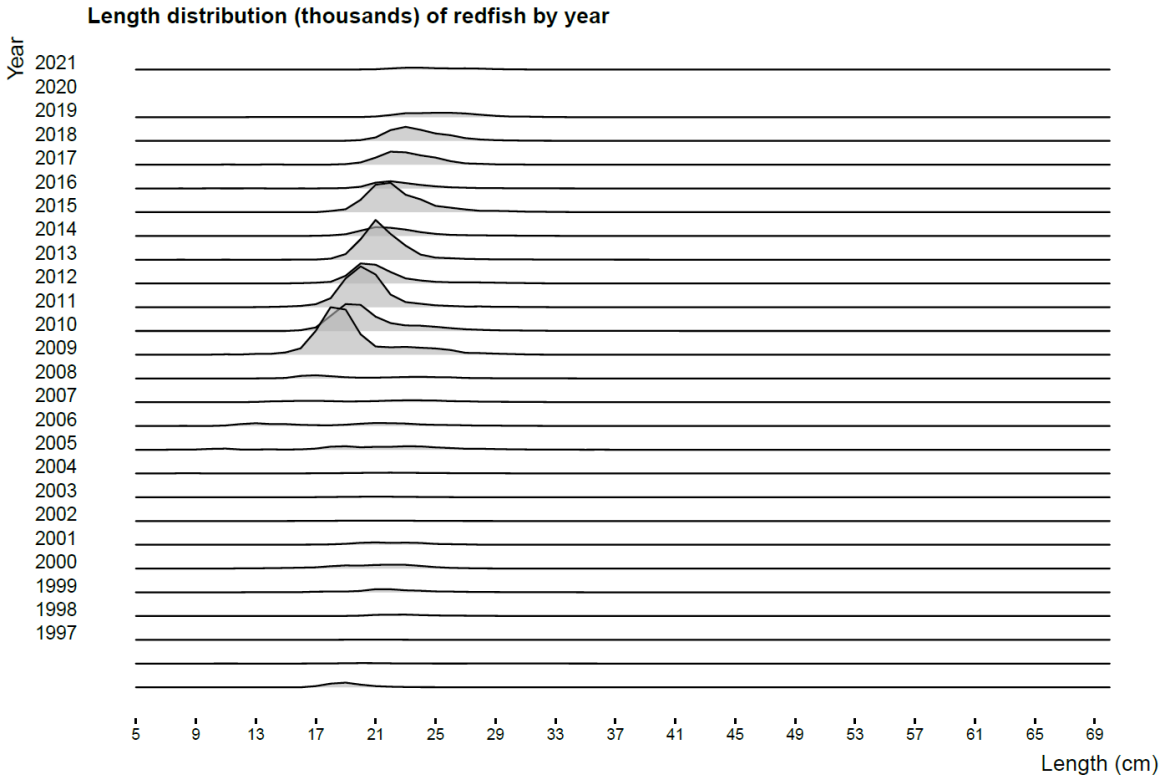


Figure 17. Redfish length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.

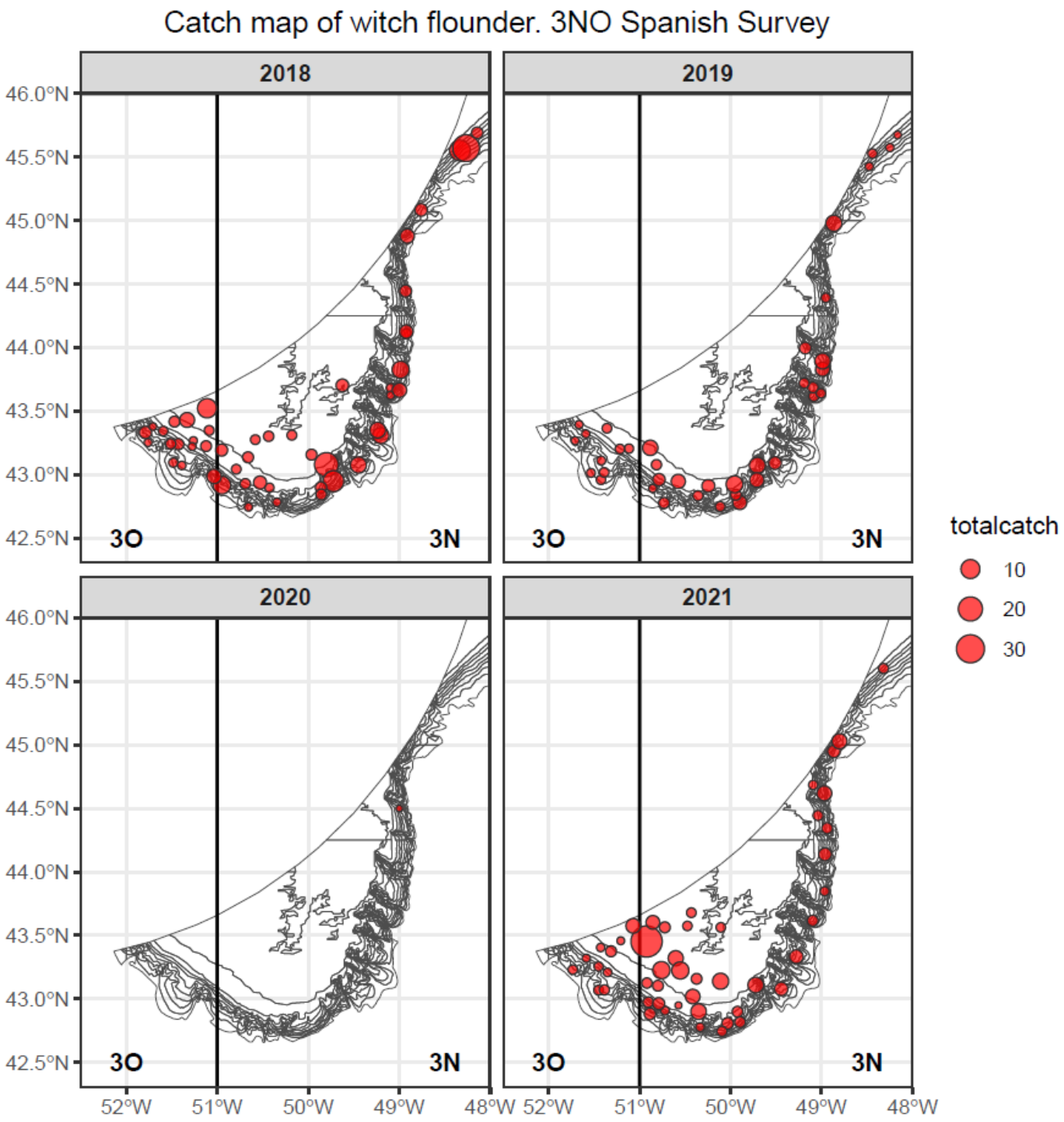


Figure 18. Witch flounder. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

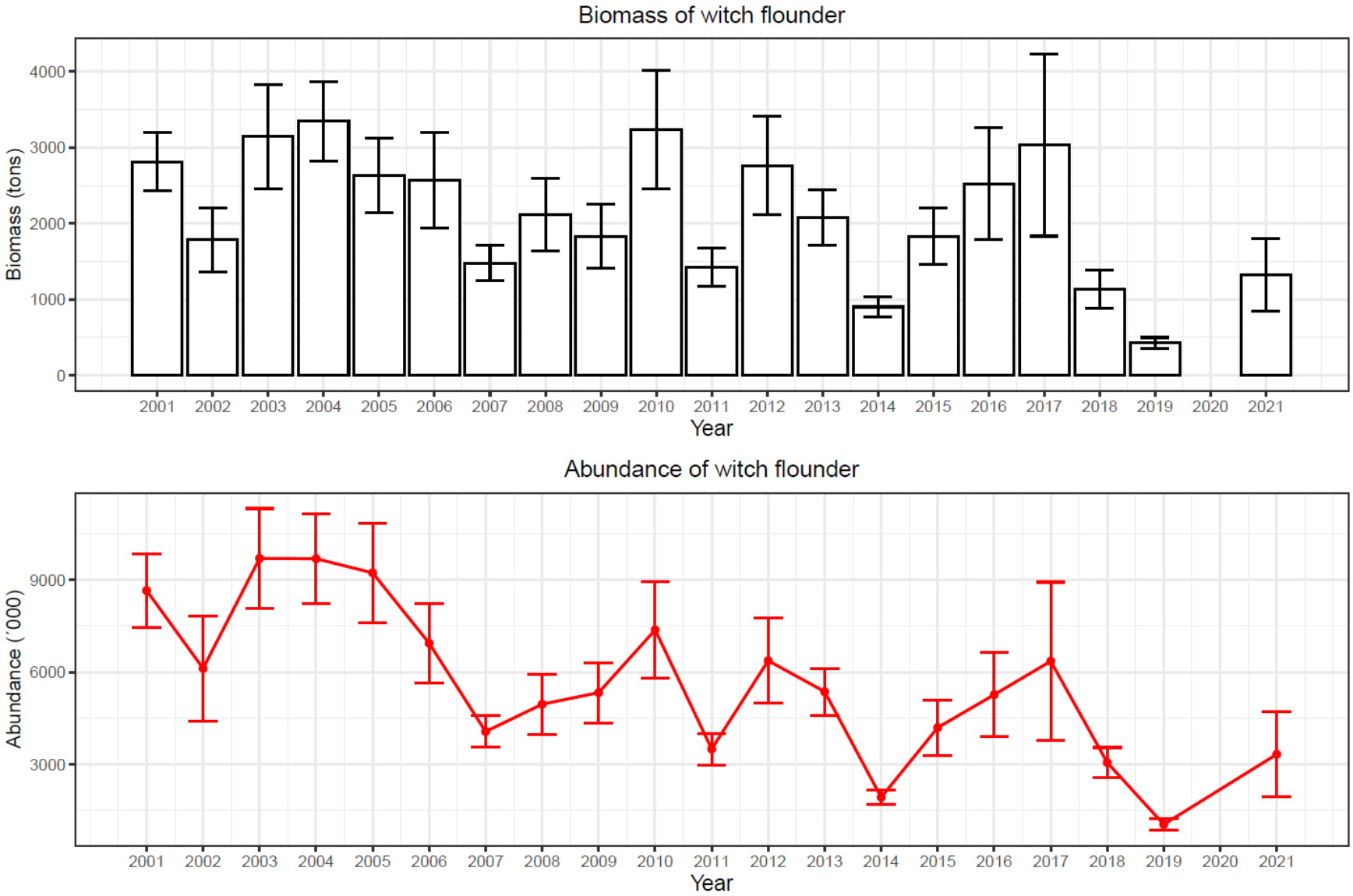


Figure 19. Witch flounder total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

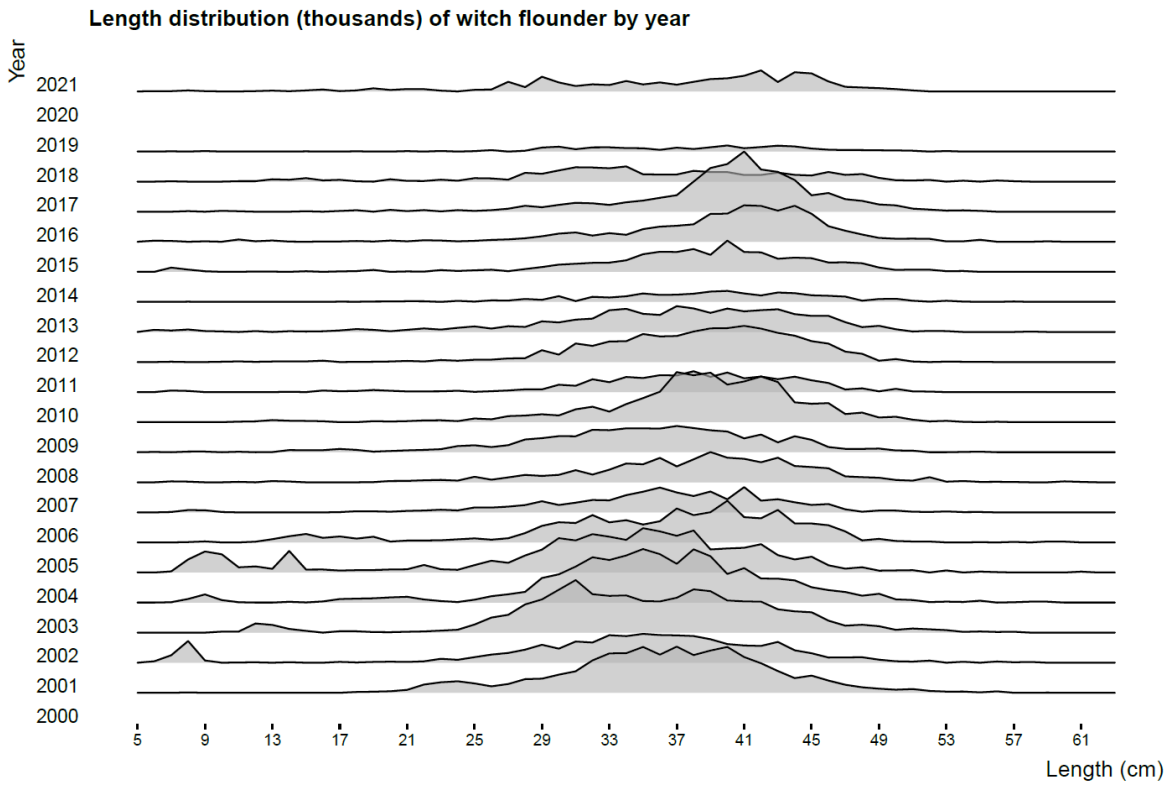


Figure 20. Witch flounder length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.

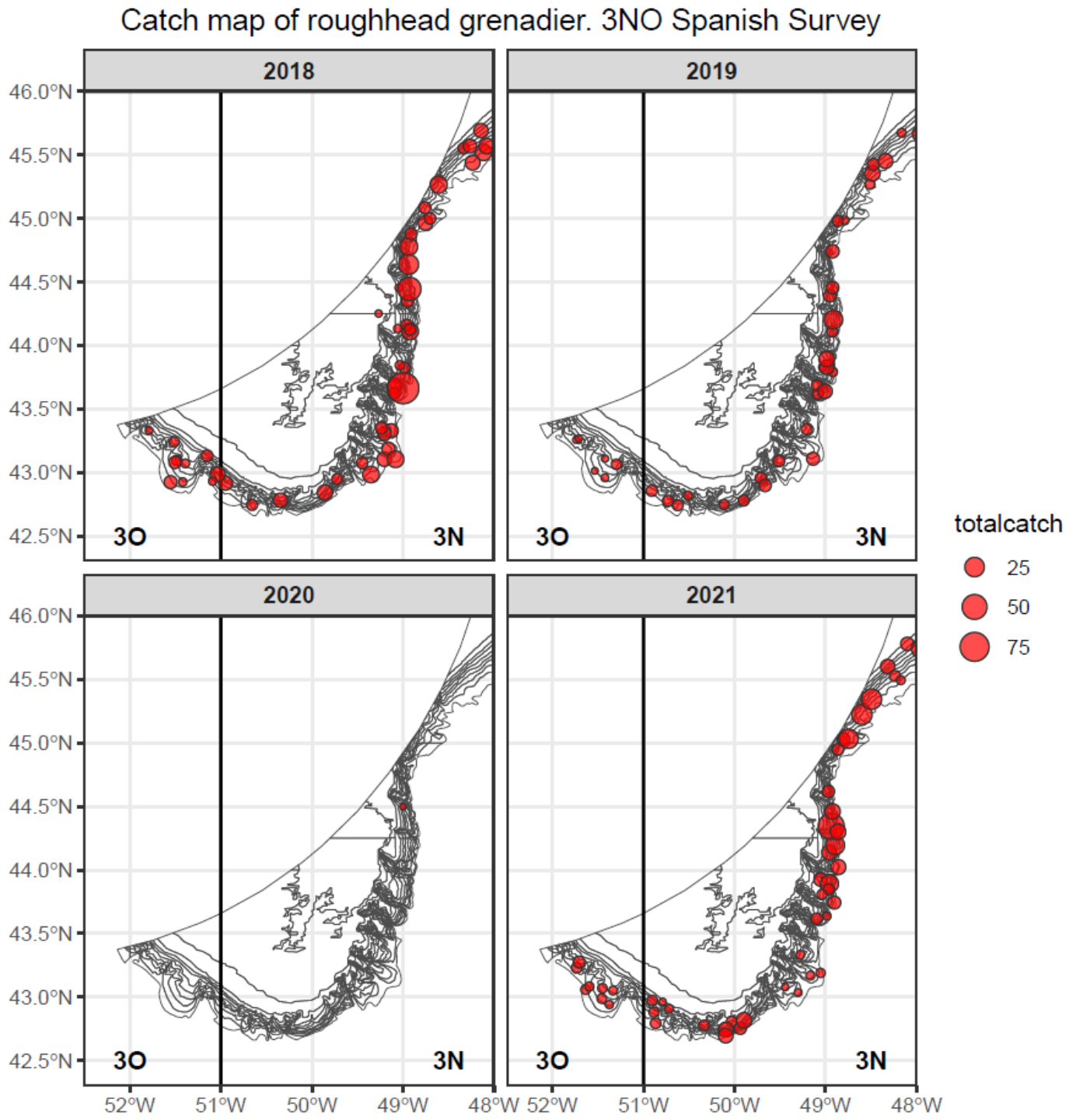


Figure 21. Roughhead grenadier. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

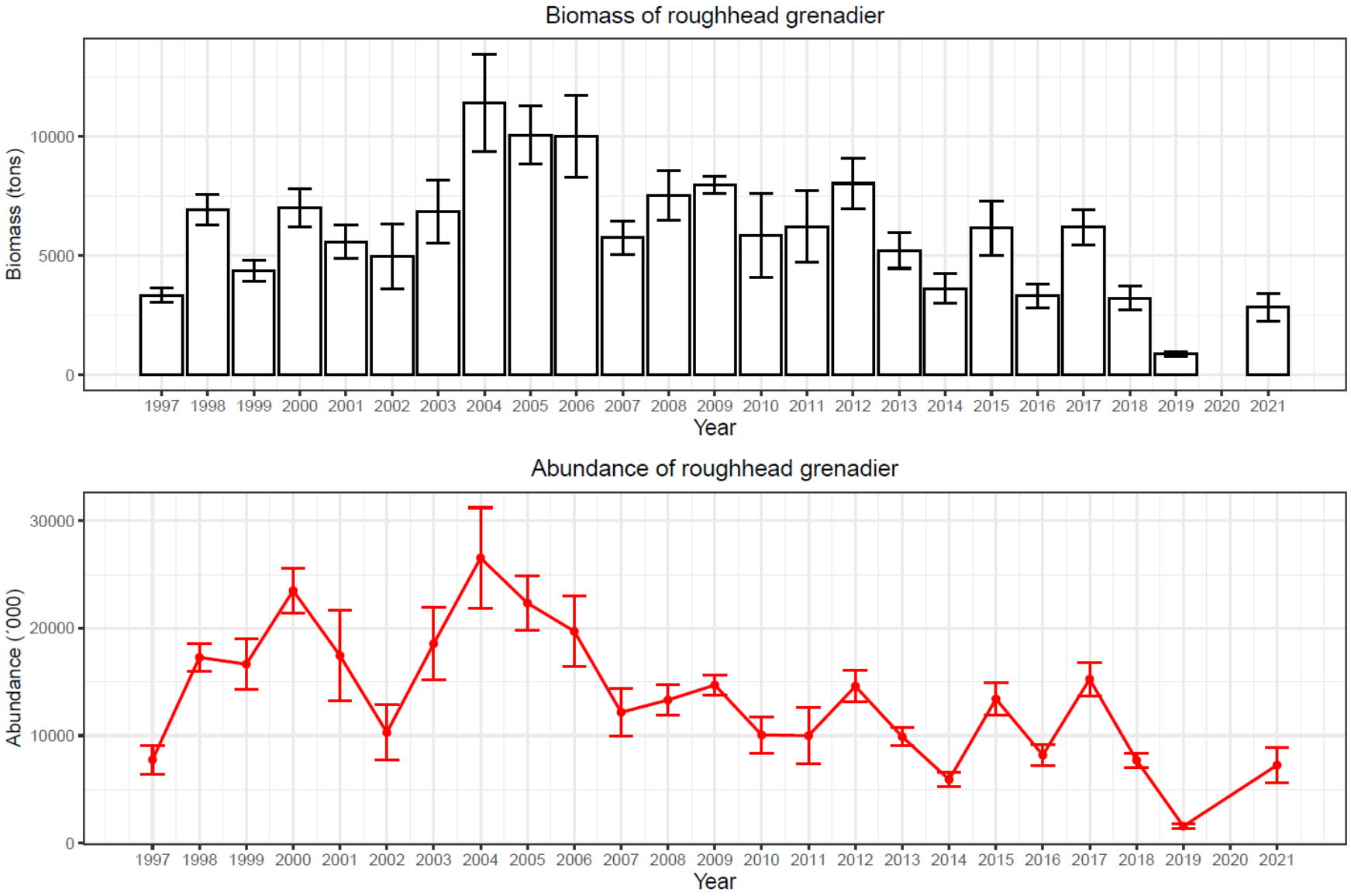


Figure 22. Roughhead grenadier total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

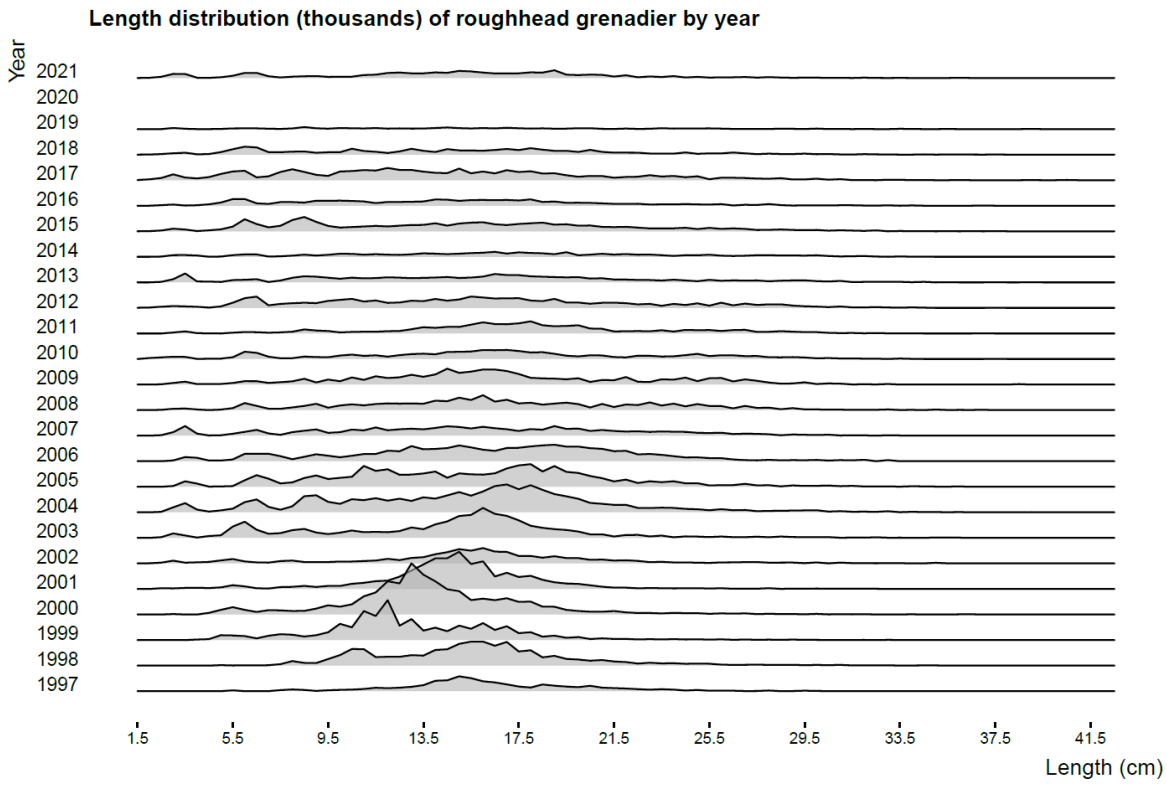


Figure 23. Roughhead grenadier length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.

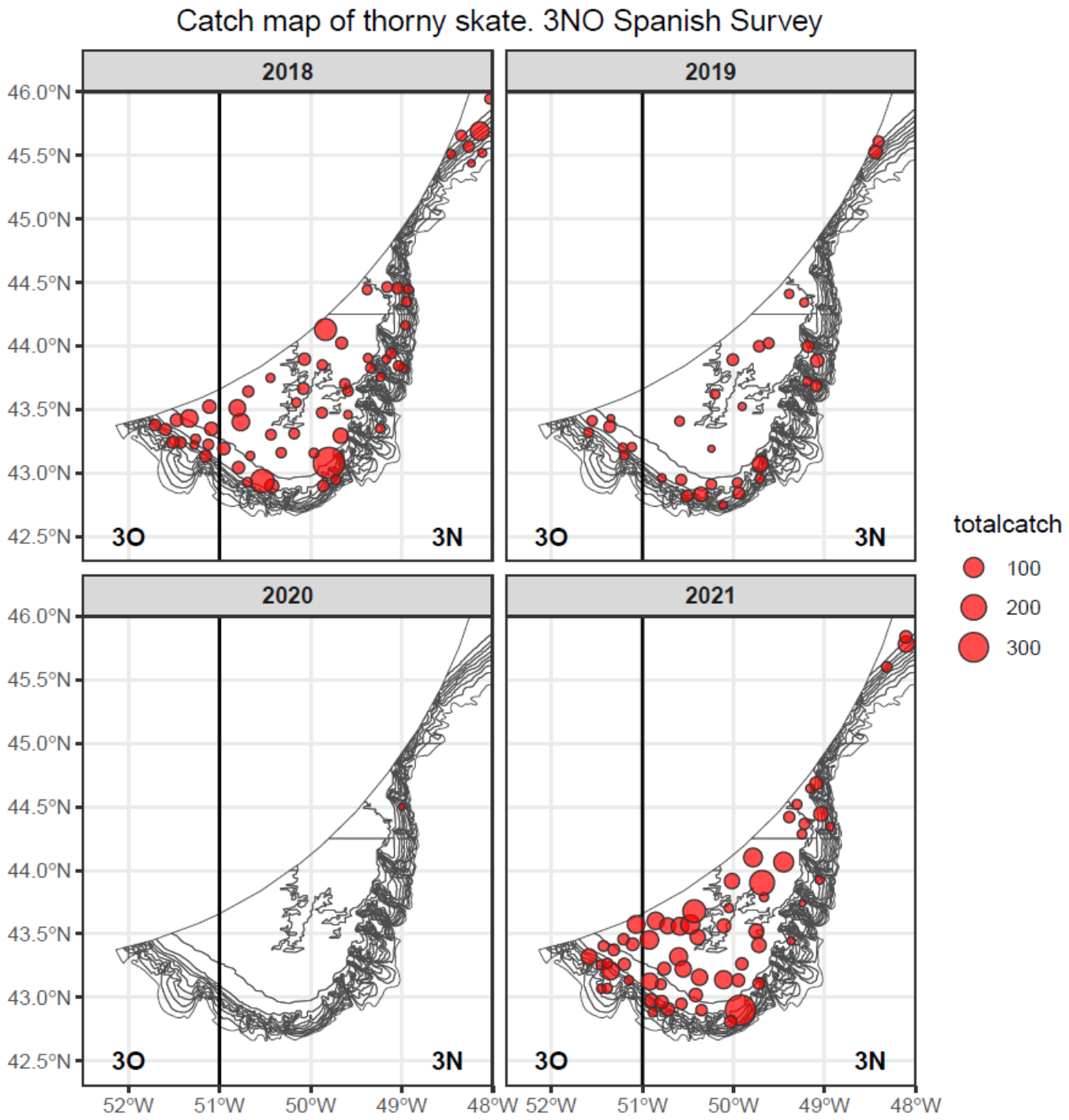


Figure 24. Thorny skate. Position of the hauls and relative catch in the last four years for the Spanish 3NO survey.

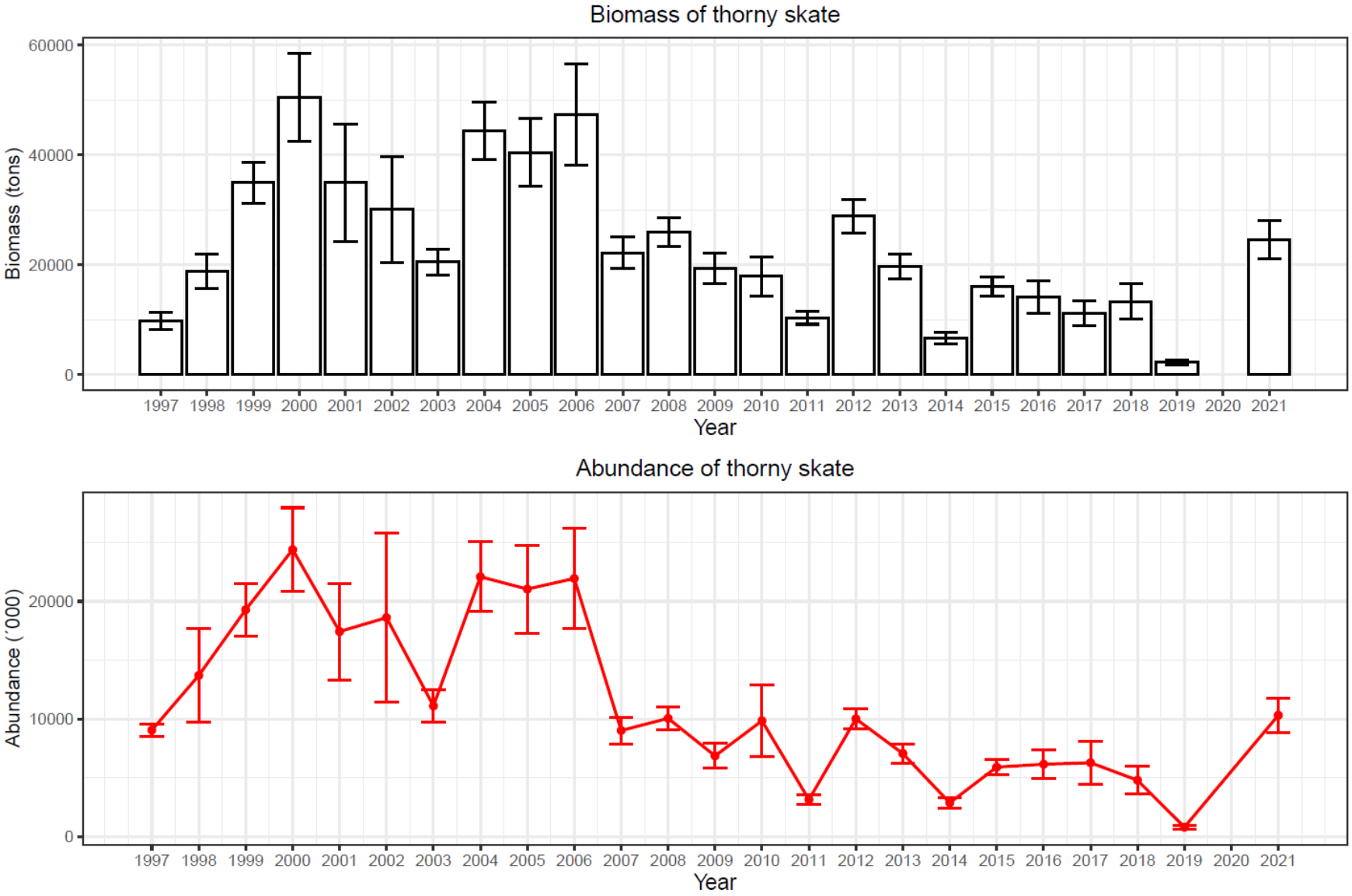


Figure 25. Thorny skate total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

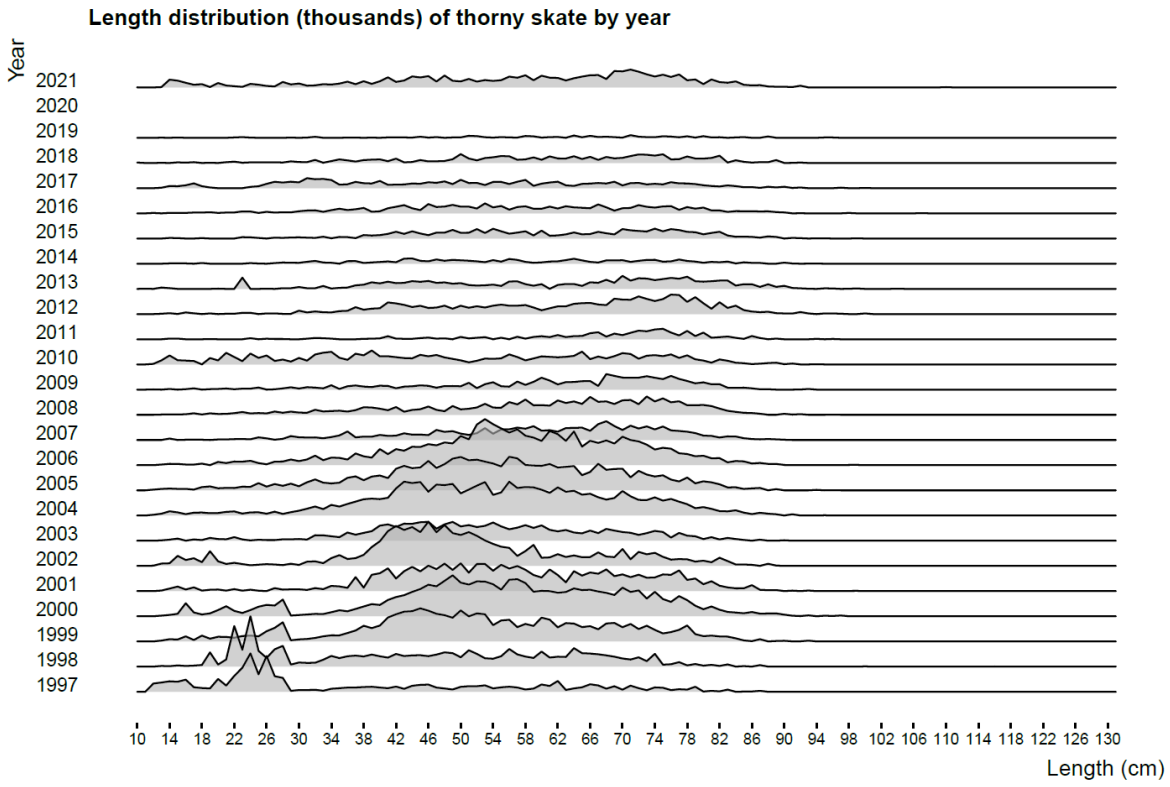


Figure 26. Thorny skate length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.

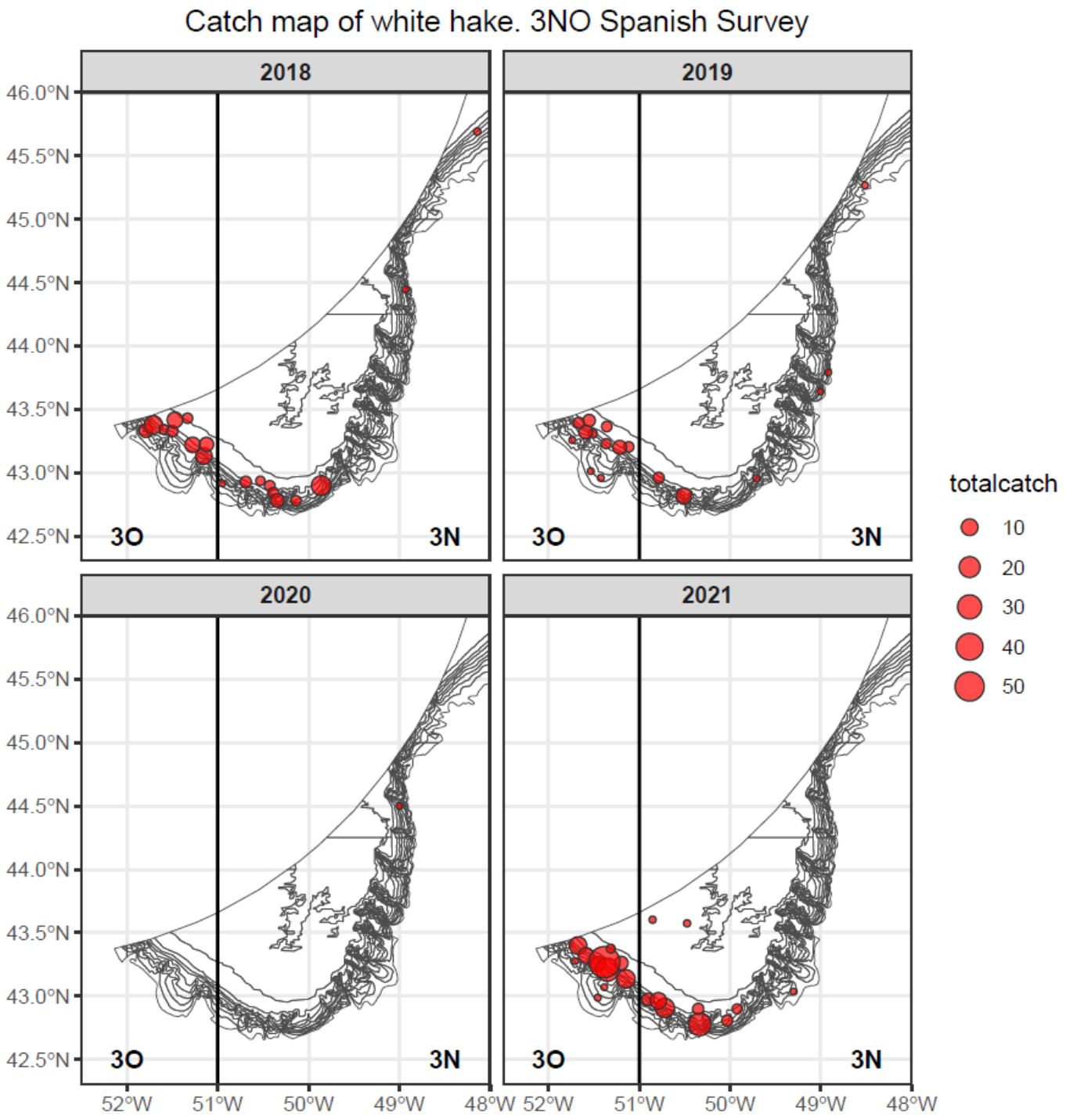


Figure 27. White hake. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

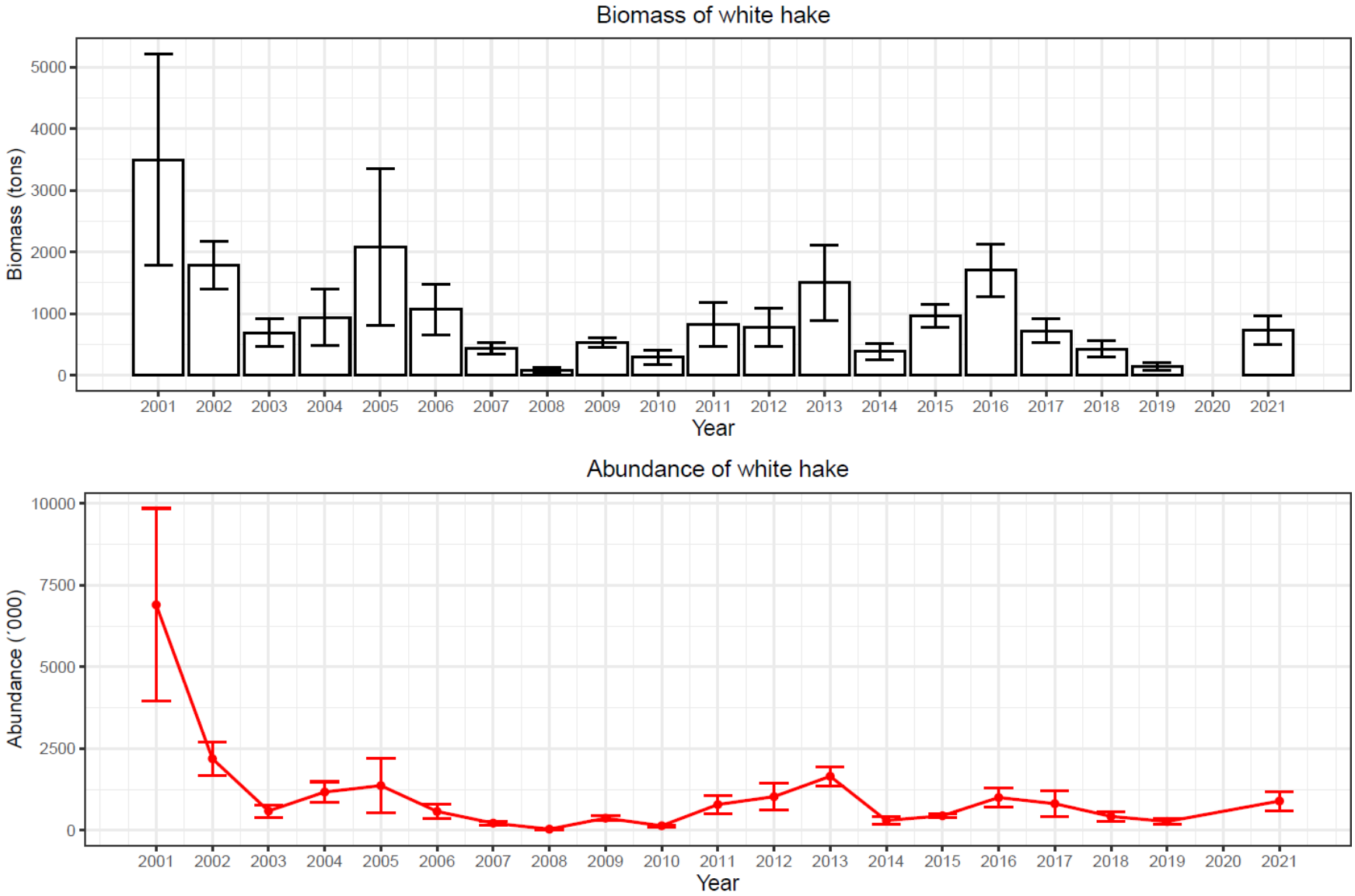


Figure 28. White hake total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

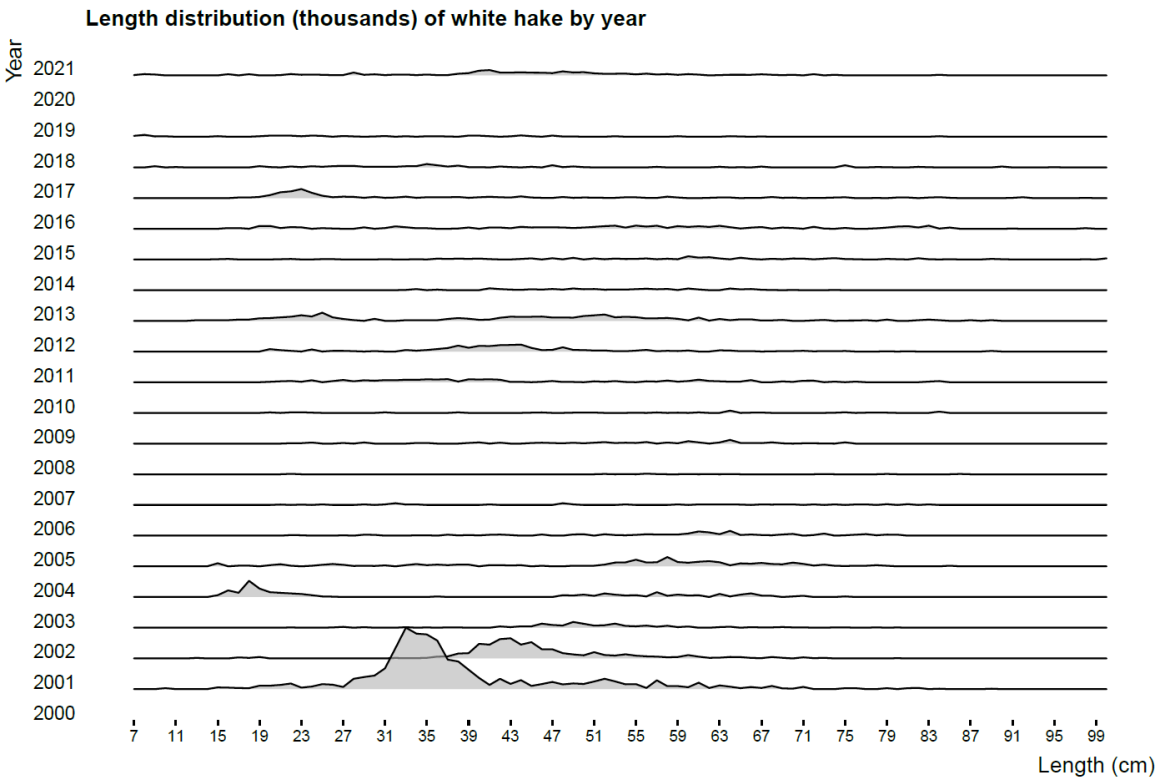


Figure 29. White hake length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.

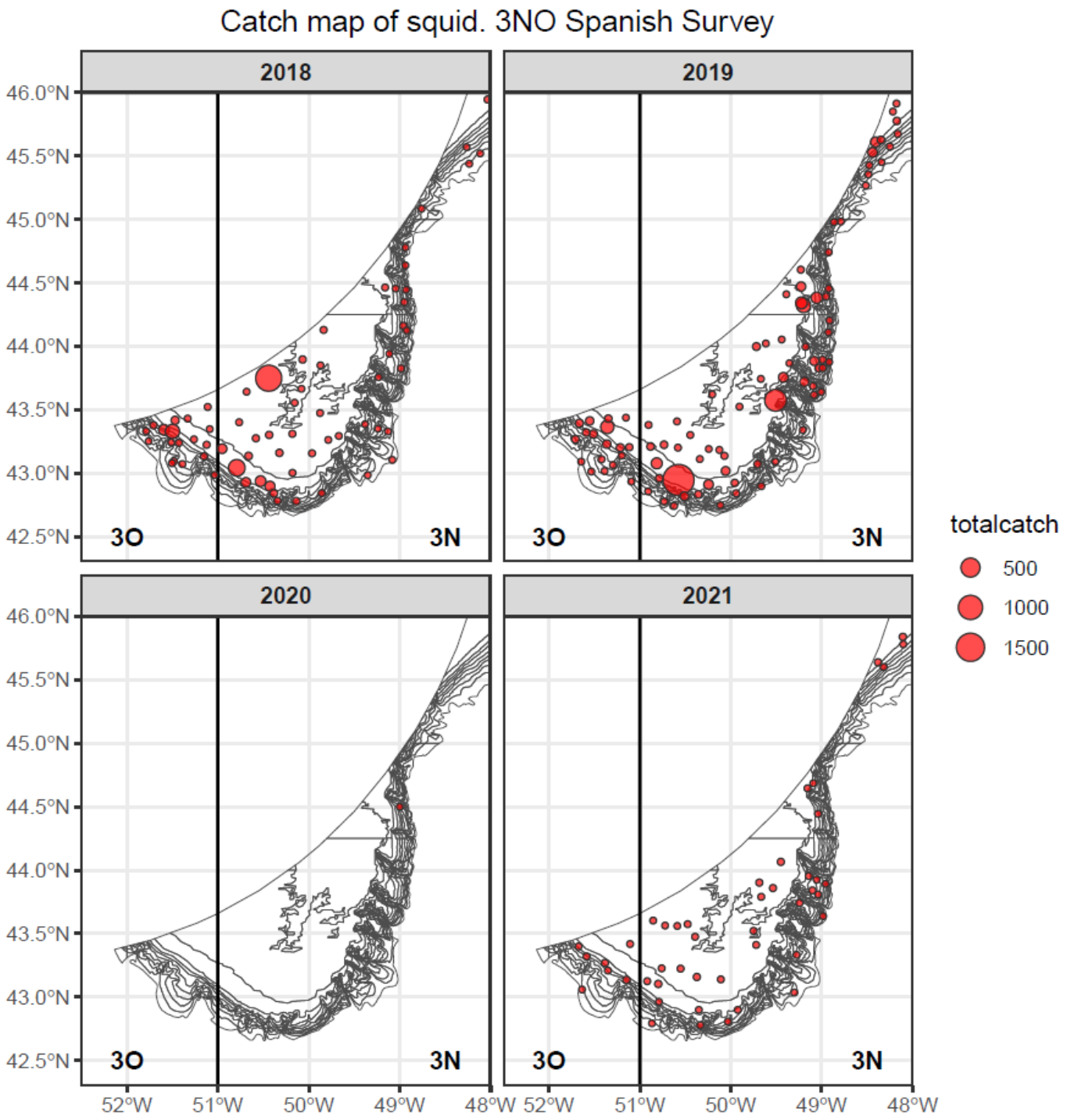


Figure 30. Squid. Position of the hauls and relative catch in the last four years for the Spanish 3NO survey.

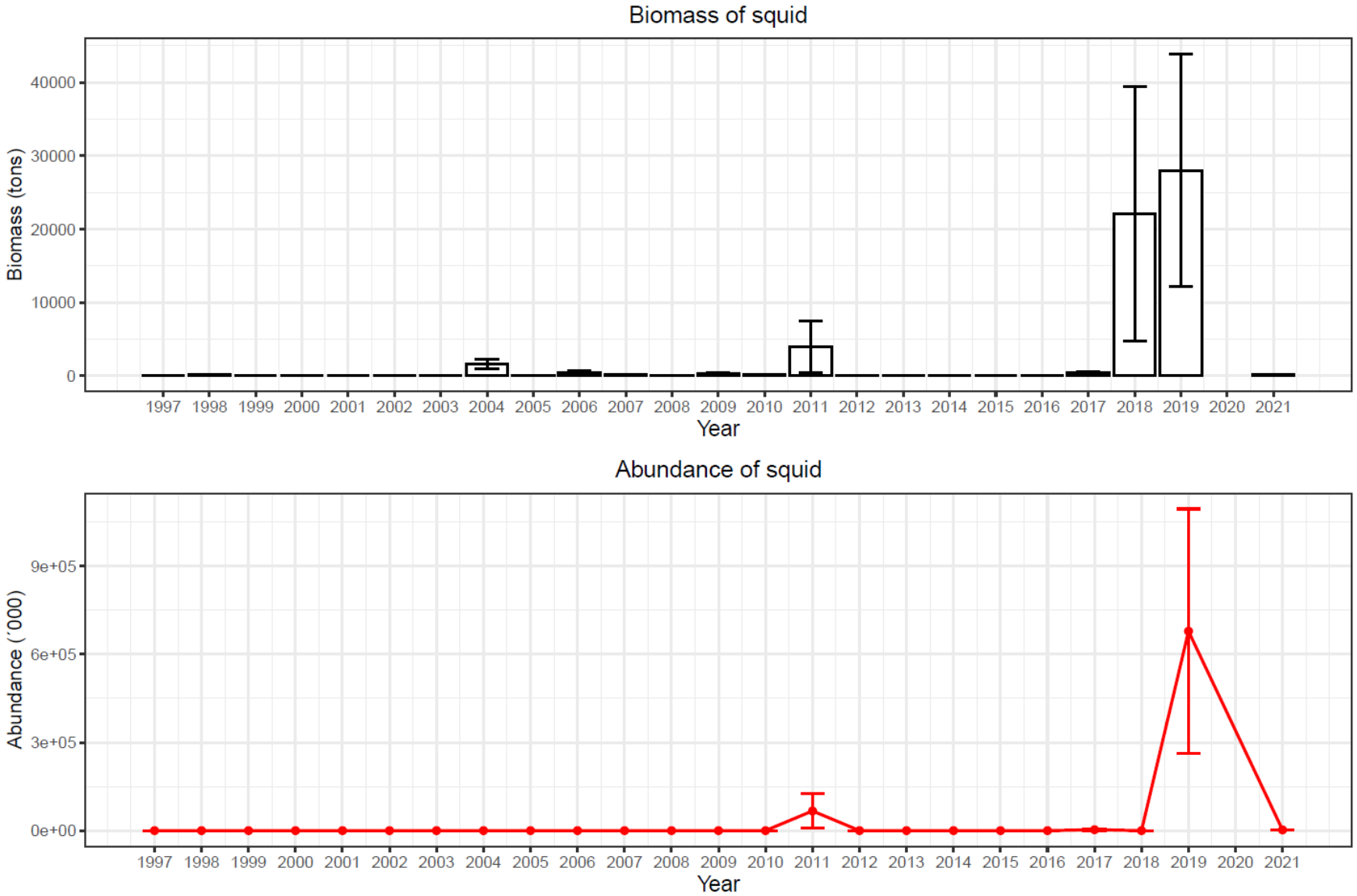


Figure 31. Squid total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

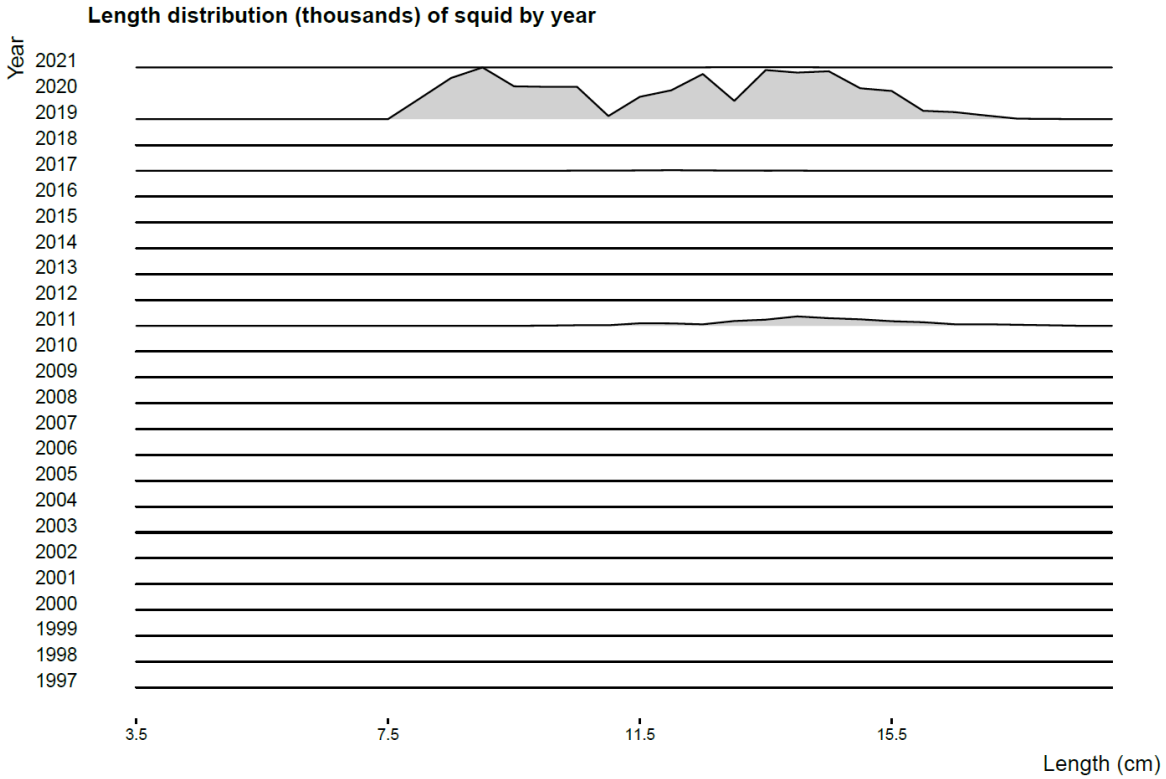


Figure 32. Squid length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.

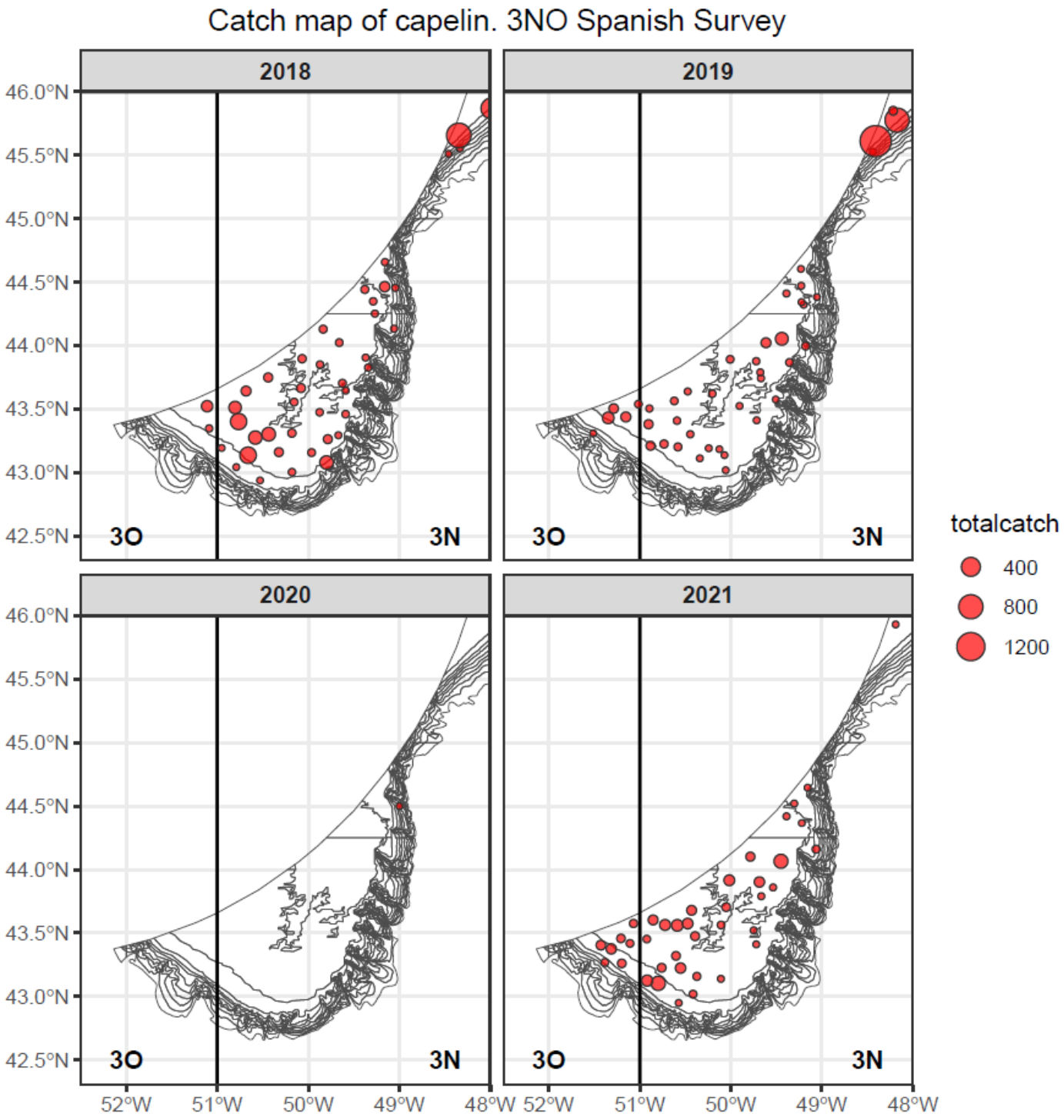


Figure 33. Capelin. Position of the hauls and relative catch in the last four years for the Spanish 3NO survey.

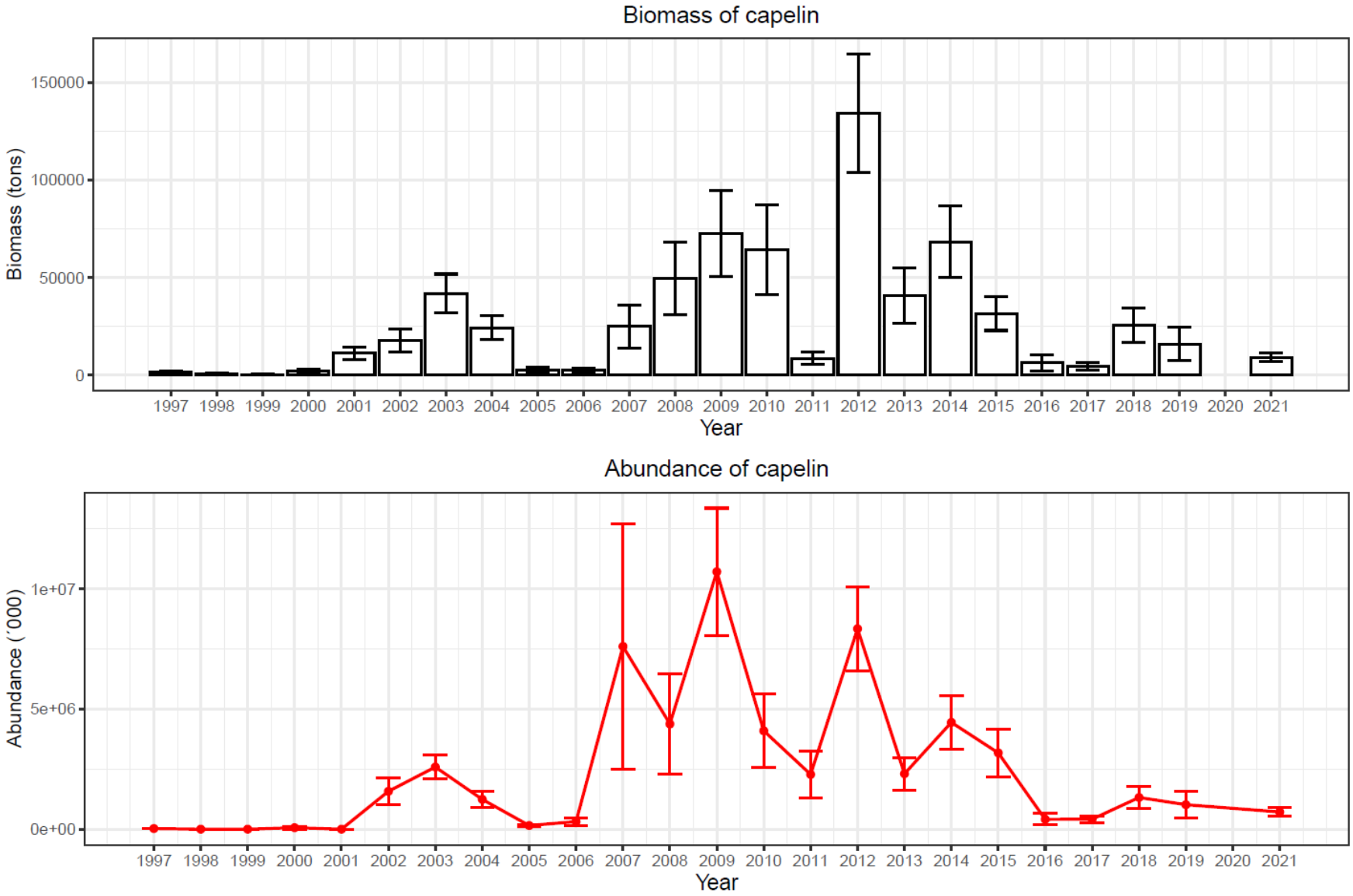


Figure 34. Capelin total biomass (tons) and abundance (thousands) and ±SD by year. Spanish Spring survey in NAFO Div. 3NO.

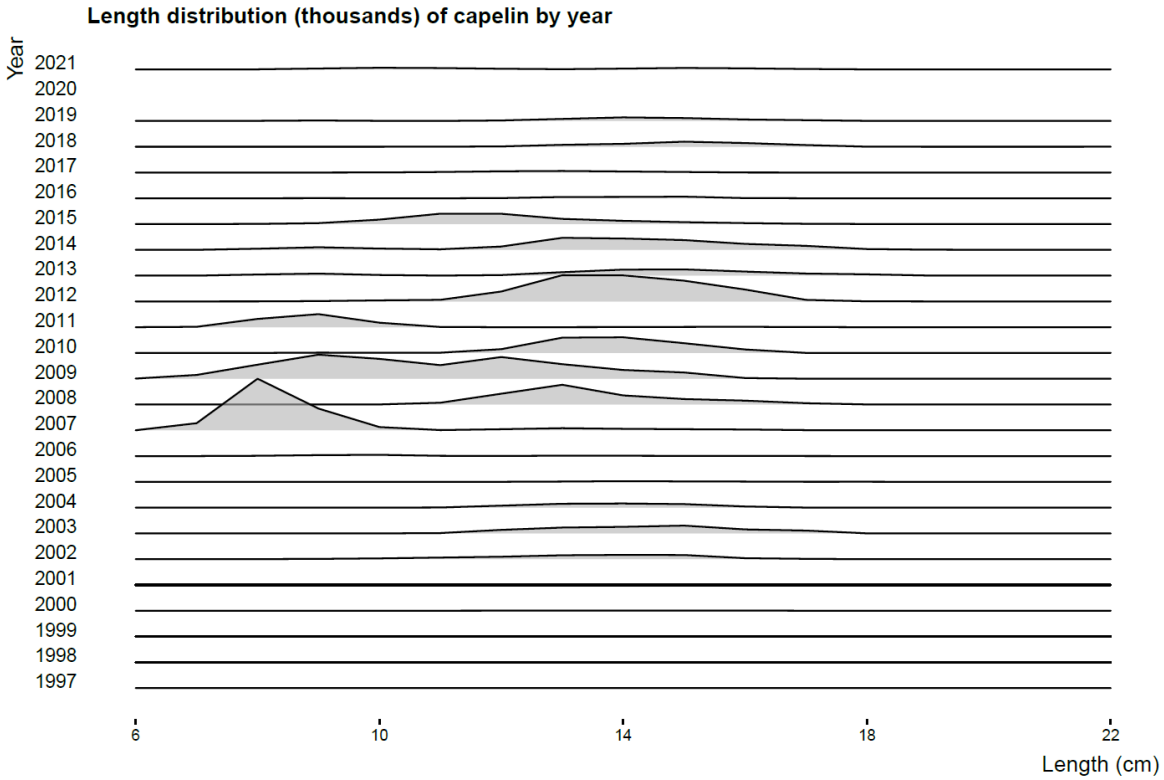


Figure 35. Capelin length distribution (cm). Spanish Spring survey in NAFO Div. 3NO.