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Results of the Spanish survey in NAFO Div. 3NO

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

Methods

Since 1995, Spain carries out a Spring-Summer (May/June) survey in the Divisions 3NO of the NAFO Regulatory Area. 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 45-1 460 m according to a stratified random design. The current gear is a *Campelen* otter trawl with 20 mm mesh size in the cod-end. For more details about the technical specifications of the survey, see Walsh *et al.* (2001) and González Troncoso *et al.* (2004).

In each haul, all the individuals caught were sorted by species and weighted. Random samples of the catch of each species were length measured (total length) to the nearest lower cm, except for roughhead grenadier, for which pre-anal length in 0.5 cm intervals to the inferior 0.5 cm is taken, and squid, for which length measures are of the total body in 0.5 cm intervals to the inferior 0.5 cm. For editorial reasons, in this document the length distributions are presented aggregated into 2 cm

intervals (beginning with the even number) and raised to the catch of each species; except in the cases of roughhead grenadier and squid, aggregated into 1 cm intervals. To know more results details about the survey, please contact the authors.

The number of valid tows, the depth strata covered and the dates of the survey by year are presented in Table 1. Note that the survey was not carried out in 2020 due to the COVID pandemic situation. In 2024, 3 hauls were not valid, resulting in 110 valid tows.

Table 2 shows the swept area and number of hauls by stratum of the last five years of survey. Figure 1 contains the map with the location of the hauls of the survey conducted in 2024. Table 3 presents by year the total survey mean catch per tow (total catches/number of hauls) as well as the main species and groups catch composition in percentage. Figure 2 shows the percentage by year of each species presented in the catches and the total stratified mean catch per tow.

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

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

Most of the tables present the last five years of survey, while most of the figures include the whole series of data. Information from previous years is available in Garrido et al. (2024).

Results

Greenland halibut

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 for the last five years of survey. Figure 4 shows the total biomass and abundance indices by year.

Since 2017, the indices have remained more or less stable with annual fluctuations around values of 7 500 tons.

Length and Age Distribution

In Table 6, the abundance by length and total by year for the last five years of survey is presented with the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species. Figure 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 total 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.

In recent years, it is not easy to track the different cohorts of this species in the length and in the age distribution plots.

American plaice

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 last five years of survey, 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 present more or less stable trends until 2015, when a sharped decline was observed. Biomass and abundance remain at low level since then, being 2022 the lowest biomass value of the entire series and 2019 the lowest abundance value. In 2024, both indices increase but remain at low levels.

Length and Age Distribution

Table 10 shows the abundance by length and total by year for the last five years of survey, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species. Figure 8 shows the total length distribution by year.

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

Atlantic cod

Figure 9 presents the maps with the distribution of the catches by haul of Atlantic cod during the Spanish 3NO survey for the last four years.

Biomass and abundance

Table 11 shows the biomass per swept area by stratum for Atlantic cod, as well as total biomass, mean catch per tow and abundance and their variance per year of the last five years of survey. Figure 10 presents the estimated total biomass and abundance indices by year for the whole period.

Biomass of cod presented poor values between 1997 and 2008 with some fluctuations and a great deviation due to a few hauls in which the catches of that species were very high (e.g., 2001). Since then, an increasing trend in the biomass of this species could be seen, also with many fluctuations, reaching the maximum of the series in 2014. Since then, biomass has decreased reaching in 2022 the minimum of the series, at the level of 1997. Abundance follows a similar trend, despite the maximum of the series is placed in 2009 and 2011, instead of 2014. Both indices in 2024 remain at very low levels.

Length and Age Distribution

In table 12, the abundance by length and total by year is presented with the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 11 (a) shows the length distribution by year for the whole series, where the

evolution along the years can be followed. Table 13 ALKs transform length distribution in age distribution. In table 14 and Figure 11 (b), the abundance by age and total by year are presented.

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

Yellowtail flounder

Figure 12 presents the maps with the distribution of the catches by haul of yellowtail flounder during the Spanish 3NO survey for the last four years.

Biomass and abundance

Table 15 shows the biomass per swept area by stratum for yellowtail flounder for the last five years of survey, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 13 presents the total biomass and abundance indices by year.

Yellowtail flounder indices increased substantially from 1995 to 1999, and they remained almost constant at high levels until 2013. This decline hit the minimum in 2022, with values similar to those at the beginning of the series. Since then, an increasing trend is observed, being in 2024 at intermediate levels.

Length Distribution

Table 16 presents the abundance of yellowtail flounder by length and total by year, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 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. The mode at intermediate lengths is also very low since 2019, despite its level in 2024 is considerably higher.

Redfish

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 17 shows the biomass per swept area by stratum for redfish, as well as the total biomass, mean weight per tow and abundance and their variance per year of the last five years of survey. 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. Since then, the indices followed an oscillating downward trend, reaching the levels previous to 2009 in 2021, and remaining quite stable since then.

Length Distribution

Table 18 presents the abundance by length and total by year, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch

and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 17 shows the length distribution by year.

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

Witch flounder

Figure 18 presents the maps with the distribution of the catches by haul of witch flounder in the Spanish 3NO survey for the last four years.

Biomass and abundance

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

Witch flounder indices follow a fluctuating downward trend throughout the entire period, reaching the lowest level in 2022 and the maximum in 2004.

Length Distribution

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

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

Roughhead grenadier

Figure 21 presents the maps with the distribution of the catches by haul of roughhead grenadier in the Spanish 3NO survey for the last four years.

Biomass and abundance

Table 21 shows the biomass per swept area by stratum for roughhead grenadier for the last five years of survey, as well as the total biomass, mean weight per tow and abundance and their variance per year. Figure 22 presents the total biomass and abundance indices by year.

The roughhead grenadier biomass and abundance indices follow an oscillating decreasing trend since 2004-2006, reaching the minimum of the series in 2019. In recent years both indices remained at intermediate levels. Nevertheless, in 2024 a steep increase has been observed, reaching the values of the maximum of the series in 2004.

Length Distribution

Table 22 presents the abundance of roughhead grenadier by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 23 shows the length distribution by year.

The cohort being 10-11 cm in 1998 is easily followed until 2009. Since then, all the length classes were poor, specially the largest, and some signals of the smallest length ranges appear, except in 2024, when levels at small and intermediate lengths are moderate.

Thorny skate

Figure 24 presents the maps with the distribution of the catches by haul of thorny skate in the Spanish 3NO survey for the last four years.

Biomass and abundance

Table 23 shows the biomass per swept area by stratum for thorny skate, the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 25 presents the total biomass and abundance indices by year.

Thorny skate biomass and abundance indices oscillate during the entire series. High values of the indices were observed during the period 2000 to 2006, showing since then a general downward trend and reaching the minimum of the series in 2019 and 2022. In 2024, the values of both, biomass and abundance hit the maximum of the series, well above those levels reached in year 2000.

Length Distribution

Table 24 presents the abundance of thorny skate by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 26 shows the length distribution by year.

The recruitment was good in 1997, 2002, 2010 and quite good in 2021 and 2023. In 2019 and 2022, all the length ranges were very poorly represented, following the drop of the biomass and abundance. In 2024, both recruitment and abundance across all age classes are at high levels.

White hake

Figure 27 presents the maps with the distribution of the catches by haul of white hake in the Spanish 3NO survey for the last four years.

Biomass and abundance

Table 25 shows the biomass per swept area by stratum for white hake for the whole period, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 28 presents the total biomass and abundance indices by year.

Biomass and abundance indices have been at low levels since 2001, when the maximums of the series were reached. Nevertheless, in 2024 both indices have reached the second highest value in the series.

Length Distribution

Table 26 presents the abundance of white hake by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 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. The increase in abundance observed in

2024 is also translated into the abundance by length classes, reaching levels not observed since the beginning of the series.

Squid

Figure 30 presents the maps with the distribution of the catches by haul of squid in the Spanish 3NO survey for the last four years.

Biomass and abundance

Table 27 shows the biomass per swept area by stratum for squid, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 31 presents the total biomass and abundance indices by year.

Squid biomass and abundance indices are 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, and the situation remains the same since then.

Length Distribution

Table 28 presents the abundance of squid by length and total by year besides the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 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

Figure 33 presents the maps with the distribution of the catches by haul of capelin in the Spanish 3NO survey for the last four years.

Biomass and abundance

Table 29 shows the biomass per swept area by stratum for capelin, as well as the total biomass, mean weight per tow and abundance and their variance per year for the last five years of survey. Figure 34 presents the total biomass and abundance indices by year.

The biomass of this species showed an increasing trend from 2007 to 2012, when the maximum of the series was reached. Since then, the biomass declined until 2021, reaching intermediate levels in 2022 but decreasing again in 2023. The abundance index is similar, although the maximum was reached in 2009. In 2024, both indices increase again to intermediate-high levels.

Length Distribution

Table 30 presents the abundance of capelin by length and total by year, the number of samples in which there were length measures, the total number of individuals measured in these samples, the sampled catch and the observed length range, as well as the total catch of this species for the last five years of survey. Figure 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 until 2022, when a signal of

abundance at intermediate lengths was observed. This signal was not observed in 2023, but is observed again in 2024 at smaller lengths.

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References

Garrido, I., González Troncoso. D., González Costas, F., E. Román and L. Ramilo, 2024. Results of the Spanish survey in NAFO Division 3NO. NAFO SCR Doc. 24/007, Serial No. N7506.

González Troncoso. D. and X. Paz, 2003. Testing Methods for Estimating the Factor Power Correction Obtained from the Comparative Fishing Trial: C/V Playa de Menduíña Versus R/V Vizconde de Eza. NAFO SCR Doc. 03/5, Serial No. N4811.

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

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

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-May26
1999	C/V Playa de Menduiña	114	41-1381	April 07-May 26
2000	C/V Playa de Menduiña	118	42-1401	May 07-May 28
2001	R/V Vizconde de Eza	83	36-1156	May 03-May 04
2001	C/V Playa de Menduiña	121	40-1500	May 05-May 23
2002	R/V Vizconde de Eza	125	38-1540	April 29-May 19
2003	R/V Vizconde de Eza	118	38-1666	May 11-June 02
2004	R/V Vizconde de Eza	120	43-1539	June 06-June 24
2005	R/V Vizconde de Eza	119	47-1438	June 10-June 29
2006	R/V Vizconde de Eza	120	45-1480	June 07-June 27
2007	R/V Vizconde de Eza	110	45-1374	May 29-June 19
2008	R/V Vizconde de Eza	122	38-1460	May 27-June 16
2009	R/V Vizconde de Eza	109	41-1424	May 31-June 18
2010	R/V Vizconde de Eza	95	40-1395	May 30-June 18
2011	R/V Vizconde de Eza	122	44-1450	June 05-June 24
2012	R/V Vizconde de Eza	122	45-1462	June 03-June 21
2013	R/V Vizconde de Eza	122	42-1459	June 01-June 21
2014	R/V Vizconde de Eza	122	42-1334	June 02-June 21
2015	R/V Vizconde de Eza	122	43-1482	May 31-June 19
2016	R/V Vizconde de Eza	115	44-1761	May 30-June 18
2017	R/V Vizconde de Eza	113	41-1439	May 23-June 11
2018	R/V Vizconde de Eza	114	47-1410	June 02-June 21
2019	R/V Vizconde de Eza	115	43-1438	June 08-June 24
2020	No survey was carried out			
2021	R/V Vizconde de Eza	113	42-1394	June 5-June 24
2022	R/V Vizconde de Eza	113	40-1460	June 13-July 01
2023	R/V Vizconde de Eza	103	41-1461	June 15-July 01
2024	R/V Vizconde de Eza	113	40-1460	June 13-July 01

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

Stratum	Division	Area	2019		2021		2022		2023		2024	
			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	0.0386	3	0.0398	3	0.039	2	0.0225	3	0.0338
354	**3O**	**246**	3	0.0382	3	0.0386	3	0.0386	2	0.0225	3	0.033
355	**3O**	**74**	2	0.0262	2	0.0251	2	0.0251	2	0.0229	2	0.0225
356	**3O**	**47**	2	0.0248	2	0.0262	2	0.0251	2	0.0229	2	0.0225
357	**3N**	**164**	2	0.0251	2	0.0247	2	0.0244	2	0.0225	2	0.0112
358	**3N**	**225**	3	0.0382	3	0.0379	3	0.039	3	0.0349	3	0.0345
359	**3N**	**421**	5	0.0634	5	0.0638	5	0.0641	5	0.0566	5	0.057
360	**3N**	**2,783**	17	0.2212	17	0.2156	17	0.2201	13	0.1481	17	0.1954
374	**3N**	**214**	2	0.0255	2	0.027	2	0.0259	2	0.0259	2	0.0232
375	**3N**	**271**	3	0.0382	3	0.0401	3	0.0386	2	0.0244	3	0.0349
376	**3N**	**1,334**	8	0.1042	8	0.1042	8	0.1009	6	0.0701	8	0.093
377	**3N**	**100**	2	0.0262	2	0.0255	2	0.0255	2	0.0232	2	0.0232
378	**3N**	**139**	2	0.0259	2	0.0259	2	0.0255	2	0.0236	2	0.0221
379	**3N**	**106**	2	0.0262	2	0.024	2	0.0244	2	0.0225	2	0.0225
380	**3N**	**96**	2	0.0262	2	0.0247	2	0.0251	2	0.0232	2	0.0225
381	**3N**	**144**	2	0.0255	2	0.0262	2	0.0259	2	0.0247	2	0.0232
382	**3N**	**343**	5	0.0645	4	0.0517	4	0.0525	3	0.0375	4	0.0454
721	**3O**	**65**	2	0.0262	2	0.0251	2	0.0225	2	0.0236	2	0.0232
722	**3O**	**84**	2	0.0255	2	0.0251	2	0.024	2	0.0229	2	0.0229
723	**3N**	**155**	2	0.0248	2	0.0247	2	0.0251	2	0.0229	2	0.0221
724	**3N**	**124**	2	0.0244	2	0.0229	2	0.0255	2	0.0225	2	0.0225
725	**3N**	**105**	2	0.0255	2	0.0244	2	0.024	2	0.0236	2	0.0225
726	**3N**	**72**	2	0.0259	2	0.024	2	0.024	2	0.024	2	0.0221
727	**3N**	**96**	2	0.0248	2	0.0262	2	0.0259	2	0.0232	2	0.0229
728	**3N**	**78**	2	0.0248	2	0.0259	2	0.0236	2	0.0232	2	0.0225
752	**3N**	**131**	2	0.0266	2	0.0251	2	0.0217	2	0.0236	2	0.0229
753	**3N**	**138**	2	0.0247	2	0.0225	2	0.0247	2	0.0221	2	0.0203
754	**3N**	**180**	2	0.024	2	0.0225	2	0.0214	2	0.0229	2	0.0203
755	**3N**	**385**	3	0.0356	2	0.0225	2	0.0225	2	0.0225	2	0.0214
756	**3N**	**101**	2	0.0251	2	0.024	2	0.0225	2	0.024	2	0.0221
757	**3N**	**102**	2	0.0262	2	0.0232	2	0.0217	2	0.0236	2	0.0225
758	**3N**	**99**	2	0.0259	2	0.024	2	0.0221	2	0.0248	2	0.0229
759	**3N**	**127**	2	0.0251	2	0.0236	2	0.0236	2	0.0236	2	0.0206
760	**3N**	**154**	2	0.0255	2	0.0247	2	0.0221	2	0.0229	2	0.0221
761	**3N**	**171**	2	0.0236	2	0.0255	2	0.0244	2	0.0221	2	0.0229
762	**3N**	**212**	2	0.0255	2	0.0232	2	0.0221	2	0.0232	2	0.0229
763	**3N**	**261**	3	0.0382	3	0.0367	3	0.0334	3	0.0341	3	0.0334
764	**3O**	**100**	2	0.0248	2	0.0251	2	0.0229	2	0.0229	2	0.0229
765	**3O**	**124**	2	0.0251	2	0.0232	2	0.0229	2	0.0232	2	0.0221
766	**3O**	**144**	2	0.0248	2	0.024	2	0.0225	2	0.0225	2	0.0229
767	**3O**	**158**	2	0.0244	2	0.0232	2	0.0229	2	0.0225	2	0.0225

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

	GHL	PLA	COD	YEL	RED	WIT	RHG	SKA	HKW	SQU	CAP	Fish	Crustacea	Mollusca	Human Rests	Other	MCPT (kg)	Total catch (t)
1995	1.7	26	4.4	14	42	1.9	0.2	7.9	0	0	0.3	1.88	0.02	0	0	0	342	26
1996	9.7	29	3	30	7.5	2.9	1.3	14	0	0	0	3.28	0	0	0	0	515	58
1997	21	21	2.4	23	2.8	1.9	5.7	10	0	0	0.3	12.38	0	0	0	0	502	64
1998	14	19	6.6	26	13	1.8	3.7	7.8	0	0	0.1	6.86	0.08	0.02	0	0	1,136	141
1999	11	19	1	29	21	1.5	2.1	8.4	0	0	0	6.37	0.52	0.04	0	0.01	1,568	179
2000	7.4	24	1.7	18	18	2.2	3	9.8	0	0	0.2	10.95	5.04	0.02	0	0.18	1,782	210
2001	0.6	20	6	28	31	1.1	0.2	5.9	1.27	0	2.7	3.41	0.79	0.03	0	0	702	58
2002	1	21	6.3	32	6.3	0.9	2	9.6	1.41	0	5.1	6.93	2.4	0.33	0	4.99	357	45
2003	1.5	28	1.7	22	6.9	1.2	2	5.3	0.41	0	9.3	8.63	1.47	0.37	0	11.47	428	51
2004	1	22	0.9	24	11	0.8	3.2	7.4	0.25	0.4	3.6	19.1	2.1	0.28	0	4.2	530	64
2005	0.7	16	1	18	36	0.5	2.2	5.3	0.46	0	0.3	11.68	1.02	0.27	0	6.6	673	80
2006	0.6	22	5.1	19	27	0.4	2.3	6.6	0.24	0.1	0.3	7.91	1.02	0.17	0	7.07	660	79
2007	0.9	17	3	21	30	0.4	1.4	3.5	0.1	0	4	13.78	0.72	0.06	0	4.12	664	73
2008	1.4	21	4.6	17	18	0.4	1.4	3.4	0.03	0	7.7	9.73	0.41	0.11	0	14.36	690	84
2009	1.1	6.6	5.4	9.5	58	0.2	0.6	1.4	0.07	0	5.1	4	0.35	0.03	0.02	7.44	1,572	171
2010	1.6	6.8	9.2	9.2	61	0.3	0.7	1.2	0.05	0	3.7	3.06	0.3	0.05	0.06	3.21	1,425	135
2011	0.7	8.9	9.4	12	59	0.1	0.7	0.9	0.1	0.4	0.6	4.83	0.41	0.09	0.05	1.42	1,327	162
2012	0.9	11	10	14	39	0.3	1	2.3	0.17	0	11	7.07	0.25	0.03	0	3.44	1,065	130
2013	0.6	10	3.8	12	55	0.3	0.6	1.6	0.19	0	2.4	7.54	0.25	0.03	0	5.39	1,170	143
2014	0.9	8.5	21	13	38	0.2	0.6	0.9	0.1	0	8.1	6.64	0.26	0.05	0	2.11	913	111
2015	0.9	7.6	8.1	8.1	61	0.2	0.7	1.4	0.14	0	2.3	6.36	0.23	0.04	0	3.08	1,261	154
2016	2.2	6	8.9	19	38	0.7	0.9	3.5	0.63	0	1.4	11.76	0.47	0.07	0.02	7.11	518	60
2017	3.3	3.4	6.4	8.9	59	0.6	1.3	2.2	0.22	0.1	0.7	10.18	0.29	0.09	0	2.77	708	80
2018	1.5	5	1.9	9.2	60	0.2	0.6	1.8	0.1	2.4	3.1	10.76	1.04	0.05	0.05	1.79	726	83
2019	2.4	3.2	1.4	5.8	57	0.1	0.3	0.6	0.05	6.1	4.5	15.61	0.76	0.12	0.01	1.79	517	59
2021	3.1	8.9	5.7	8.6	36	0.4	1.4	6.7	0.49	0	2.2	21.33	0.74	0.33	0.04	4.56	346	39
2022	3.2	2.2	0.8	2.6	52	0.1	0.4	0.6	0.1	0	13	20.83	0.98	0.11	0	3.67	434	49
2023	4	8	1.9	11	36	0.3	1.6	2.4	0.67	0	1.4	29.54	0.5	0.23	0	3.14	386	40
2024	1.9	6.1	4.2	9.1	27	0.3	3	12	0.79	0	11	18.65	0.76	0.17	0.92	5.15	604	68
Mean Percentage	**3.5**	**14**	**5.1**	**16**	**35**	**0.8**	**1.6**	**4.9**	**0.28**	**0.3**	**3.6**	**10.38**	**0.8**	**0.11**	**0.04**	**3.76**		

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

		2019	2021	2022	2023	2024
American plaice	**a**	**0.0036**	**0.0042**	**0.0043**	**0.0032**	**0.0038**
	b	**3.2253**	**3.1912**	**3.1801**	**3.2620**	**3.2215**
	R^2	0.98	0.99	0.98	0.98	0.97
	N	1084	1208	1208	970	2341
Atlantic cod	**a**	**0.0064**	**0.0061**	**0.0053**	**0.0059**	**0.0077**
	b	**3.0626**	**3.0699**	**3.1041**	**3.0862**	**3.0099**
	R^2	0.98	0.99	0.98	0.98	0.98
	N	822	912	490	691	1463
Capelin	**a**	**0.0009**	**0.0009**	**0.0006**	**0.0007**	**0.0028**
	b	**3.5916**	**3.6069**	**3.7037**	**3.7060**	**3.1966**
	R2	0.92	0.94	0.86	0.94	0.68
	N	1359	1043	1333	513	1497
Greenland halibut	**a**	**0.0034**	**0.0038**	**0.0040**	**0.0036**	**0.0049**
	b	**3.2187**	**3.1742**	**3.1697**	**3.1943**	**3.1097**
	R^2	0.99	0.99	0.99	0.99	0.97
	N	1917	1323	1585	1024	1570
Redfish	**a**	**0.0098**	**0.0093**	**0.0083**	**0.0100**	**0.0097**
	b	**3.0896**	**3.1071**	**3.1419**	**3.0826**	**3.0804**
	R^2	0.98	0.98	0.99	0.98	0.97
	N	1083	1240	1045	824	1356
Roughhead grenadier	**a**	**0.0847**	**0.1028**	**0.0884**	**0.0936**	**0.1306**
	b	**2.9864**	**2.9083**	**2.9621**	**2.9484**	**2.8531**
	R^2	0.99	0.988	0.991	0.989	0.983
	N	296	935	445	982	1858
Squid	**a**	**0.05**	**0.0361**	**0.0000**	**0**	**0**
	b	**2.624**	**2.7336**	**0.0000**	**0**	**0**
	R^2	0.9	0.89	0.00	0	0
	N	779	314	0	0	0
Thorny skate	**a**	**0.0082**	**0.0052**	**0.0054**	**0.0050**	**0.0084**
	b	**3.0418**	**3.1487**	**3.1389**	**3.1621**	**3.0404**
	R^2	0.99	0.99	0.99	0.99	0.98
	N	109	990	98	394	1683
White hake	**a**	**0.0045**	**0.0038**	**0.0039**	**0.0021**	**0.0026**
	b	**3.1166**	**3.1534**	**3.1536**	**3.3029**	**3.2578**
	R^2	0.99	0.9865	0.9936	0.9780	0.9798
	N	57	168	63	156	219
Witch flounder	**a**	**0.0014**	**0.0024**	**0.0015**	**0.0008**	**0.0009**
	b	**3.4199**	**3.2727**	**3.3991**	**3.5371**	**3.5104**
	R^2	0.98	0.98	0.98	0.97	0.96
	N	196	312	141	274	582
Yellowtail flounder	**a**	**0.0050**	**0.0057**	**0.0046**	**0.0050**	**0.0043**
	b	**3.1647**	**3.1082**	**3.1732**	**3.1345**	**3.1761**
	R^2	0.97	0.99	0.98	0.98	0.92
	N	937	990	983	670	1488

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

Stratum	2019	2021	2022	2023	2024
353	27	174	42	86	110
354	12	67	8	7	10
355	49	3	7	4	81
356	7	12	0	4	5
357	3	26	18	37	1
358	9	52	10	212	112
359	8	45	145	79	37
360	12	186	148	438	43
374	0				
375			0		
376	0				
377	0	2	0	19	0
378	1	1	2	5	
379	0	11	9	3	2
380	418	246	180	237	139
381	319	254	54	513	203
382	8	65	1	0	0
721	6	13	5	13	22
722	93	263	3	222	126
723	63	115	23	24	50
724	131	44	100	153	232
725	108	45	21	80	71
726	186	109	113	151	194
727	663	110	354	618	430
728	250	248	223	231	303
752	282	344	959	345	251
753	180	157	165	195	94
754	556	219	297	425	636
755	905	806	779	1485	629
756	286	330	516	221	190
757	252	198	1003	606	495
758	109	100	377	242	183
759	234	252	625	460	270
760	368	433	511	507	521
761	407	374	874	751	158
762	213	379	300	251	277
763	305	322	609	232	514
764	106	150	284	419	305
765	159	255	136	215	183
766	460	380	289	137	297
767	119	104	68	161	217
Biomass	7316	6893	9258	9789	7390
SD_B	811	542	1196	1150	666
MWPT	8.82	8.09	10.28	10.93	7.92
SD_MWPT	0.95	0.64	1.29	1.15	0.68
Abundance	18483	16490	17023	17916	11191
SD_A	2341	2781	2790	3288	1099

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

Length (cm)	2019	2021	2022	2023	2024
6	0	7	0	0	0
8	28	0	0	0	0
10	936	20	16	18	62
12	1,460	392	303	198	232
14	308	1,094	809	255	296
16	451	729	293	61	24
18	820	837	227	254	33
20	1,152	1,627	330	1,038	87
22	1,009	2,384	389	1,226	143
24	918	1,267	905	665	110
26	1,070	483	993	576	122
28	1,140	279	642	637	221
30	1,159	324	822	1,181	493
32	949	417	1,028	1,282	664
34	1,047	454	1,077	1,282	778
36	844	572	816	1,116	1029
38	744	604	1,040	1,135	1084
40	600	707	1,174	1,170	1007
42	488	628	1,011	999	820
44	388	621	1,119	1,038	744
46	449	586	913	722	686
48	324	499	581	625	475
50	410	402	575	625	509
52	254	244	437	313	302
54	307	344	430	301	311
56	379	184	254	254	225
58	254	189	233	223	162
60	192	248	196	208	136
62	118	56	99	175	113
64	124	135	123	67	80
66	51	58	49	42	64
68	46	19	62	101	61
70	22	7	10	36	42
72	12	7	13	19	36
74	0	10	15	32	17
76	19	15	12	7	0
78	4	6	22	5	0
80	0	3	0	0	0
82	0	5	0	4	5
84	0	7	7	0	6
86	5	0	0	10	0
88	0	0	0	17	0
90	0	0	0	0	0
92	0	0	0	0	0
94	0	3	0	0	8
96	0	0	0	0	0
98	0	0	0	0	0
100	0	17	0	0	0
102	0	0	0	0	0
104	0	0	0	0	0
Total	18,483	16,490	17,023	17,916	11,191
Biomass(t)	7,316	6,893	9,258	9,789	7,390
B/SOP(%)	100	103	101	104	103
Nsamples	90	86	83	78	73
Nindiv	3,629	2,840	3,187	3,012	2,030
Minlen	8	7	11	11	10
Maxlen	86	101	84	88	94
Sampledcatch(kg)	1,311	1,207	1,591	1,602	1,262
Totalcatch(kg)	1,415	1,207	1,591	1,602	1,262

Table 7. Age-Length Key of Greenland halibut in 2024 Spanish Spring survey in NAFO Div. 3NO.

Length	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
6																						
8																						
10		1																				1
12		11																				11
14		9																				9
16		1	2																			3
18			3																			3
20			5																			5
22			7	1																		8
24			9	1																		10
26			3	5	1																	9
28			1	7	5																	13
30				4	10																	14
32					10	3																13
34					8	7																15
36					1	12																13
38						12	2															14
40						4	11															15
42						1	13	1														15
44						1	12	1														14
46							12	1														13
48							3	9														12
50							1	10	1	1												13
52								9	3													12
54								4	5	3	1											13
56								1	2	4	3											10
58									2	4	1											7
60											5	2	2	1								10
62											1	2	2	1								6
64												3		1		1						5
66												1	3	1	1							6
68											1	2	1		1							5
70														3		2						5
72												1		2	1		1					5
74																	3					3
76																						0
78																						0
80																						
82																	1					1
84																				1		1
86																						
88																						
90																						
92																						
94																				1		1
96																						
98																						
100																						
Total	0	22	30	18	35	40	54	36	13	12	12	11	8	9	3	3	5	0	0	2	0	313

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

Age	2019	2021	2022	2023	2024
0	0	0	0	0	0
1	2812	2041	1354	503	603
2	3538	5868	1685	2625	428
3	3453	1262	2008	1897	315
4	2336	945	2530	3280	1370
5	2206	1921	2415	3439	2930
6	1671	2146	3767	3300	3002
7	1057	1119	1647	1289	1207
8	541	332	558	542	343
9	201	238	407	295	286
10	436	210	283	228	220
11	120	265	201	113	184
12	64	40	73	177	110
13	19	36	30	49	87
14	7	18	17	65	31
15	6	14	14	23	31
16	4	8	24	23	28
17	6	10	4	9	0
18	5	0	7	4	0
19	0	0	0	17	14
20	0	17	0	0	0
Total	18483	16490	17023	17879	11191

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

Stratum	2019	2021	2022	2023	2024
353	20	276	186	474	901
354	128	82	18	224	433
355	16	4	6	0	28
356		5	6	2	14
357		33			281
358	2236	329	28	387	496
359	1927	2209	842	3308	5396
360	2022	10877	3594	16571	22247
374	199	607	259	7202	996
375	71	172	436	486	721
376	612	687	144	934	1018
377	1273	1598	690	996	846
378	108	107	292	278	406
379		2		0	1
380	118	30	9		
381	1309	350	776	391	2953
382	1660	10100	942	3934	4509
721		5			
722					
723					30
724					
725		3			
726					
727	51				
728					
752					
753					
754					
755					
756					2
757					
758					
759					
760					
761					
762					
763					
764					
765					
766					
767					
Biomass	11751	27475	8228	35187	41277
SD_B	2655	8940	1284	4467	4912
MWPT	14.62	34.08	10.28	40.37	45.62
SD_MWPT	3.31	10.98	1.59	5.09	5.47
Abundance	30153	93318	37036	147875	175966
SD_A	5360	19049	7739	18705	33003

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

Length (cm)	2019	2021	2022	2023	2024
2	0	0	0	0	0
4	0	94	0	0	0
6	0	2,739	7	19	17
8	44	6,892	0	408	227
10	23	1,094	734	601	1672
12	27	155	4,082	2,494	5599
14	90	771	5,296	8,030	3273
16	287	873	3,755	16,182	3348
18	223	1,215	1,025	23,440	11,657
20	382	3,683	374	17,910	22,411
22	1,001	10,769	697	7,859	34,167
24	1,324	10,001	1,438	3,987	23,647
26	2,192	4,144	2,513	5,763	9,604
28	2,234	3,308	2,466	7,258	7,415
30	3,146	5,405	2,638	7,311	7,060
32	3,983	8,908	2,487	8,688	7,470
34	3,789	9,356	2,487	9,300	7,943
36	2,581	7,076	2,123	6,854	7,940
38	1,865	4,430	1,307	4,361	6,630
40	2,103	2,850	889	3,305	3,379
42	2,091	3,189	736	3,195	3,314
44	1,548	3,025	760	4,026	2,727
46	566	1,941	567	3,193	2,322
48	319	738	319	2,048	1711
50	101	429	156	755	1050
52	87	33	74	418	644
54	61	40	18	239	432
56	0	23	44	130	142
58	49	34	16	59	58
60	0	20	11	0	47
62	25	63	13	41	44
64	13	0	0	0	18
66	0	21	0	0	0
68	0	0	0	0	0
70	0	0	0	0	0
72	0	0	0	0	0
74	0	0	0	0	0
76	0	0	0	0	0
Total	30,153	93,318	37,036	147,875	175,966
Biomass(t)	11,751	27,475	8,228	35,187	41,277
B/SOP(%)	102	104	101	103	105
Nsamples	59	64	56	47	63
Nindiv	3,355	6,332	3,752	6,912	8,222
Minlen	8	5	7	6	6
Maxlen	64	67	63	63	65
Sampledcatch(kg)	1,211	1,744	1,055	1,651	2,299
Totalcatch(kg)	1,885	3,477	1,072	3,188	4,185

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

Stratum	2019	2021	2022	2023	2024
353		1		13	
354		1		10	47
355	2			2	310
356		7	2		7
357	134	12			53
358	339	3363	73	232	2427
359	110	39	699	268	2366
360	507	592	19	218	503
374		24	14	2	1
375	81	114	22	607	64
376	448	168	18	1635	210
377	1075	666	134	245	1179
378	64	175	186	101	2107
379	7	12	119	19	32
380	62	9	1		18
381	1216	7294	445	938	5412
382	441	209	468	2590	3947
721					
722					
723	42				21
724					
725					
726					
727	12				
728					
752					
753					
754					
755					
756					
757					
758					
759					
760					
761					
762					
763					
764					
765					
766					
767					
Biomass	4541	12685	2198	6880	18705
SD_B	802	7139	680	1746	4087
MWPT	5.67	15.88	2.74	8.05	20.67
SD_MWPT	1.01	9.29	0.86	2.00	4.53
Abundance	4166	19904	3093	9110	20499
SD_A	485	9852	843	1736	4519

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

Length (cm)	2019	2021	2022	2023	2024
6	0	13	0	0	0
8	0	13	0	0	0
10	26	128	0	25	29
12	25	269	13	0	85
14	19	971	13	132	504
16	59	1,218	0	74	462
18	66	462	29	12	114
20	73	135	24	64	28
22	109	35	36	95	172
24	97	117	24	267	263
26	134	320	29	551	332
28	119	507	131	738	309
30	81	589	246	1,036	305
32	80	890	347	966	449
34	134	1,583	426	593	698
36	229	1,847	320	611	1217
38	291	1,876	304	577	1377
40	274	2,004	264	687	1452
42	292	1,284	116	449	1148
44	376	1,303	158	351	1362
46	217	573	112	279	1757
48	263	638	81	220	1633
50	219	561	45	158	1822
52	214	387	48	171	1317
54	126	424	33	122	1060
56	126	399	22	191	647
58	51	423	6	82	434
60	49	148	31	70	380
62	42	173	27	54	353
64	45	104	27	71	177
66	22	161	37	81	208
68	28	68	13	0	98
70	22	76	4	21	96
72	20	66	31	55	69
74	13	39	4	30	32
76	17	22	37	5	22
78	27	16	0	56	12
80	24	0	22	39	25
82	23	4	0	19	0
84	38	20	13	0	14
86	7	0	4	0	28
88	13	0	7	38	0
90	13	0	0	19	8
92	19	0	0	26	0
94	0	26	7	38	0
96	13	0	0	0	0
98	7	0	4	0	0
100	13	0	0	19	0
102	0	0	0	19	0
104	0	0	0	0	0
106	0	0	0	0	0
108	0	0	0	0	0
110	0	0	0	0	0
112	0	0	0	0	0
114	0	0	0	0	0
116	13	0	0	0	0
118	0	13	0	0	0
120	0	0	0	0	0
122	0	0	0	0	0
124	0	0	0	0	0
126	0	0	0	0	0
128	0	0	0	0	0
130	0	0	0	0	0
132	0	0	0	0	0
Total	4,166	19,904	3,093	9,110	20,499
Biomass(t)	4,541	12,685	2,198	6,880	18,705
B/SOP(%)	104	103	102	105	106
Nsamples	33	46	27	33	44
Nindiv	822	1,821	512	1,153	2,418
Minlen	11	7	13	11	10
Maxlen	117	118	98	102	91
Sampledcatch(kg)	787	1,223	372	749	2248
Totalcatch(kg)	803	2,225	375	749	2878

Table 13. Age-Length Key of Atlantic cod in 2024 Spanish Spring survey in NAFO Div. 3NO.

Length	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
6																					
8																					
10	2																				
12	2																				
14	2	1																			3
16	2																				2
18	1	2																			3
20		2																			2
22	1	7																			8
24		11	1																		12
26		12	1																		13
28		6	4																		10
30		1	9																		10
32			14																		14
34			12	2																	14
36			11	4																	15
38			12	5																	17
40			9	6	1																16
42			3	14	1																18
44				9	3	1															13
46				15	4	1															20
48			1	13	5																19
50				10	3	2															15
52				7	5	2	1														15
54				5	7	4															16
56				2	11	5															18
58				2	7	8	2														19
60						9	3	1													13
62					1	14	1														16
64					2	5	4	2	1												14
66					1	11	3	1	1												17
68						11	1		1												13
70						4	3	1	2	1											11
72						4	4	1	1												10
74							2	2													4
76						1			2	2											5
78							1	1													2
80								1	1	1											3
82																					0
84								1													1
86							1	1	1		1	1									5
88																					0
90								1													1
92																					
94																					
96																					
98																					
100																					
102																					
Total	10	42	77	94	51	82	26	13	10	4	1	1									411

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

Age	2019	2021	2022	2023	2024
1	153	3011	25	224	1028
2	610	1413	332	1869	1106
3	558	7949	1354	3922	4416
4	1372	3739	900	1360	7789
5	533	1271	191	1009	3313
6	446	1621	65	233	2190
7	159	470	125	108	420
8	39	220	65	178	139
9	51	126	15	119	60
10	52	28	10	21	23
11	59	10	7	9	7
12	25	10	0	38	7
13	74	39	0	0	0
14	34	0	0	0	0
15	0	0	0	19	0
16	0	0	0	0	0
17	0	0	4	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
Total	4166	19904	3093	9110	20499

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

Stratum	2019	2021	2022	2023	2024
353		729	91	175	873
354		4			
355					
356					
357					
358		13			
359		6		2	
360	20839	18223	9786	37311	47723
374	1372	3185	1013	7415	2368
375	792	1587	606	2274	2617
376	19562	15298	3628	21905	30669
377	4				
378					
379					
380					
381					
382		8			
721					
722					
723					
724					
725					
726					
727					
728					
752					
753					
754					
755					
756					
757					
758					
759					
760					
761					
762					
763					
764					
765					
766					
767					
Biomass	42569	39052	15123	69083	84250
SD_B	8578	5566	2672	16214	13709
MWPT	53.55	48.84	18.81	78.01	94.06
SD_MWPT	10.75	6.82	3.27	18.97	15.15
Abundance	117209	135272	47993	241805	354062
SD_A	24370	19524	9078	55110	70597

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

Length (cm)	2019	2021	2022	2023	2024
2	0	0	0	35	0
4	0	67	0	0	0
6	0	385	0	11	20
8	0	425	7	198	217
10	0	1,835	13	1,130	500
12	20	3,680	13	295	705
14	179	3,689	74	928	645
16	110	6,074	171	1,659	2,363
18	625	7,324	453	4,866	4,029
20	906	5,185	1,041	10,081	10,964
22	1,649	1,946	1,837	15,073	23,446
24	3,899	1,950	2,790	21,009	45,193
26	6,790	4,963	1,863	30,511	50,651
28	6,379	8,414	2,357	20,828	55,052
30	9,964	12,386	5,344	18,565	45,244
32	21,693	18,946	9,421	30,249	35,931
34	25,977	22,195	10,416	31,564	29,706
36	19,137	16,774	5,986	24,413	24,133
38	12,118	11,145	3,385	16,666	14,160
40	5,055	4,879	1,734	7,609	6,560
42	2,055	2,029	724	4,243	3,066
44	524	657	227	1,501	976
46	83	218	77	247	355
48	45	79	61	124	69
50	0	26	0	0	78
52	0	0	0	0	0
54	0	0	0	0	0
56	0	0	0	0	0
58	0	0	0	0	0
Total	117,209	135,272	47,993	241,805	354,062
Biomass(t)	42,569	39,052	15,123	69,083	84,250
B/SOP(%)	98	100	97	107	103
Nsamples	28	36	32	26	33
Nindiv	3,882	7,064	3,536	3,991	6,470
Minlen	12	5	9	3	6
Maxlen	49	50	49	48	50
Sampledcatch(kg)	1,512	2,193	1,142	1,169	1,793
Totalcatch(kg)	3,462	3,357	1,270	4,253	6,192

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

Stratum	2019	2021	2022	2023	2024
353			1		
354	15	20	4	5	12
355	93	102	80	305	1124
356	1633	769	173	3060	2605
357	67030	19562	28454	17759	43862
358	35402	28835	14463	20166	30315
359	97	3222	38545	57	
360		332			
374					
375					
376					
377	1371	6		41	
378	21438	269	2343	6076	3597
379	33835	4041	14157	4023	16772
380	6173	6638	11946	6654	9026
381	0	65	180	35	174
382	14		86		3
721	1832	1301	6028	3032	1318
722	343	0	755	20	35
723	7649	5873	18345	8347	10726
724	95	280	535	523	264
725	1150	3699	1932	4103	2501
726	184	42	43	225	23
727	73	50	61	26	127
728	68	210	23	16	54
752		4			26
753	27		5		
754					
755					
756					4
757					
758			13		
759				18	
760	4	38			
761					
762					
763	30	6			
764					
765					
766					
767					
Biomass	178556	75364	138170	74492	122569
SD_B	51166	19245	66695	16019	18695
MWPT	220.53	90.88	167.03	82.96	110.06
SD_MWPT	65.66	23.24	54.53	17.84	23.09
Abundance	779745	320592	504652	285497	522711
SD_A	193687	74566	249955	80304	105917

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

Length (cm)	2019	2021	2022	2023	2024
4	77	0	0	0	0
6	126	867	330	226	735
8	151	715	693	366	7838
10	97	1,238	1,252	295	1561
12	2,779	2,681	365	2,431	1,078
14	9,897	1,068	1,902	688	4558
16	9,853	874	1,354	3,053	11,369
18	5,524	4,375	2,225	10,587	28,428
20	19,789	15,074	5,538	34,302	50,735
22	159,598	80,689	45,082	45,658	76,013
24	220,766	89,264	151,513	52,920	117,265
26	210,903	64,717	141,831	44,161	94,835
28	97,528	39,802	104,599	53,496	79,144
30	30,360	12,989	31,224	24,928	32,975
32	10,756	4,058	11,610	8,545	10,391
34	471	1,373	3,956	2,737	2,752
36	434	432	714	763	1418
38	309	180	365	188	962
40	219	132	42	86	476
42	92	49	51	53	122
44	11	9	6	9	24
46	0	0	0	3	0
48	0	0	0	0	6
50	0	0	0	0	0
52	0	0	0	0	8
54	0	0	0	0	0
56	0	0	0	0	0
58	0	0	0	0	16
60	0	0	0	0	0
62	0	0	0	0	0
64	3	0	0	3	0
66	0	3	0	0	0
68	0	0	0	0	3
70	0	4	0	0	0
Total	779,745	320,592	504,652	285,497	522,711
Biomass(t)	178,556	75,364	138,170	74,492	122,569
B/SOP(%)	99	104	106	109	108
Nsamples	42	47	39	38	38
Nindiv	5,217	5,001	6,290	5,067	6,190
Minlen	5	6	6	6	6
Maxlen	64	70	44	65	68
Sampledcatch(kg)	1242	1,232	1557	1,422	1,443
Totalcatch(kg)	34,097	13,933	25,454	14,115	18,179

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

Stratum	2019	2021	2022	2023	2024
353		29	1	163	14
354	7	9		2	5
355	2		1		7
356		1		3	3
357	8	13	1	5	45
358	53	19		42	67
359	128	85	26	50	110
360		977	25	432	474
374					10
375					6
376		8		22	222
377	7			16	12
378	4		3	3	2
379	5		9	2	1
380	2	4		10	
381	12	4			6
382		3		12	
721	0	2	1	9	19
722	1	3	2	1	15
723	26	8	4		17
724	16	24	28	12	9
725	27	16	13	6	30
726	10	1	4	70	24
727	21	13	17	5	76
728	23	6	2	14	56
752	2	28	53	26	9
753					19
754			0		
755					
756	24	19	15	2	75
757	2	11		54	89
758				4	
759				2	
760	1	25	22	12	44
761	36	11	30	34	11
762					
763					
764	3	3	2	3	28
765	3		4	22	
766	2	3			
767					
Biomass	426	1324	262	1038	1504
SD_B	74	476	60	244	250
MWPT	0.52	1.62	0.30	1.15	1.63
SD_MWPT	0.09	0.62	0.07	0.28	0.27
Abundance	1048	3330	758	2325	3796
SD_A	137	1657	122	435	603

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

Length (cm)	2019	2021	2022	2023	2024
4	0	0	0	0	0
6	3	7	4	0	0
8	7	16	8	0	0
10	0	0	0	7	3
12	0	14	0	9	16
14	3	15	0	4	20
16	0	29	16	7	34
18	4	53	11	0	29
20	6	50	11	17	53
22	8	39	19	34	7
24	6	21	27	56	74
26	18	151	14	109	154
28	63	249	34	123	280
30	94	188	50	132	342
32	110	177	93	158	476
34	88	228	89	187	272
36	73	206	64	132	290
38	89	288	112	123	376
40	123	378	58	309	230
42	136	400	35	351	295
44	106	489	39	182	277
46	43	191	19	221	227
48	35	94	24	102	167
50	26	43	17	57	84
52	7	0	13	3	77
54	0	0	0	0	13
56	0	0	0	0	0
58	0	0	0	0	0
60	0	0	0	0	0
62	0	0	0	0	0
Total	1,048	3,330	758	2325	3,796
Biomass(t)	426	1324	262	1038	1,504
B/SOP(%)	101	101	102	105	102
Nsamples	42	53	35	53	63
Nindiv	196	377	141	312	589
Minlen	7	6	7	11	10
Maxlen	53	51	52	52	55
Sampledcatch(kg)	81	138	47	128	206
Totalcatch(kg)	82	138	47	128	206

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

Stratum	2019	2021	2022	2023	2024
353					
354					
355			6		
356				0	1
357		20		18	291
358		1	4	5	
359					
360					
374					
375					
376					
377					
378					74
379	14	39	21	41	38
380	9	312	13	159	1387
381	1	37	10	184	655
382					
721			5	13	12
722	8	2	6	13	91
723	27	27	7	17	54
724	26	72	30	18	290
725	62	60	22	29	280
726	87	66	34	22	405
727	31	251	13	47	303
728	23	223	14	21	232
752	20	155	32	421	568
753	61	41	75	102	966
754	165	425	65	532	653
755	37	495	308	442	1050
756	24	115	30	795	150
757	58	68	91	158	675
758	2	52	48	89	1422
759	41	89	60	234	223
760	18	65	51	20	238
761	43	17	4	9	724
762	26	45	76	4	337
763	94	94	42	24	251
764	0	22	0	45	62
765	1	9	21	49	73
766	0	20	0	18	26
767		10	43		24
Biomass	879	2833	1132	3527	11554
SD_B	105	581	274	555	1800
MWPT	1.06	3.29	1.25	3.99	12.22
SD_MWPT	0.13	0.65	0.29	0.63	1.98
Abundance	1565	7255	2906	9217	22928
SD_A	187	1613	587	1190	2564

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

Length (cm)	2019	2021	2022	2023	2024
1	0	0	0	0	0
2	0	65	22	31	106
3	67	387	467	315	913
4	0	17	22	30	197
5	39	140	119	531	743
6	67	487	121	1,694	536
7	25	105	65	156	720
8	125	143	112	272	773
9	56	144	82	206	381
10	88	118	86	378	526
11	78	299	91	241	869
12	53	504	125	212	1113
13	46	446	196	360	1419
14	126	517	154	435	1298
15	74	657	151	611	1765
16	81	478	156	608	1984
17	101	444	141	523	1949
18	55	528	142	449	1606
19	39	530	168	392	1205
20	78	299	28	324	737
21	18	218	54	207	558
22	32	162	76	282	542
23	57	118	70	137	469
24	47	112	45	181	518
25	62	71	40	165	505
26	30	61	21	108	384
27	7	63	33	127	289
28	24	60	41	77	210
29	17	25	39	52	275
30	25	20	5	49	134
31	9	9	6	24	76
32	8	18	8	5	55
33	13	4	7	32	48
34	7	0	13	4	9
35	5	0	0	0	15
36	0	8	0	0	0
37	0	0	0	0	0
38	0	0	0	0	0
39	8	0	0	0	0
40	0	0	0	0	0
41	0	0	0	0	0
42	0	0	0	0	0
Total	1,565	7,255	2,906	9,217	22,928
Biomass(t)	879	2,833	1,132	3,527	11,554
B/SOP(%)	102	104	105	102	107
Nsamples	44	53	48	55	59
Nindiv	296	1,281	440	1,277	3,197
Minlen	3	2	2	2.5	2
Maxlen	39	36	34.5	34	35.5
Sampledcatch(kg)	176	530	171	577	1727
Totalcatch(kg)	176	530	171	634	2037

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

Stratum	2019	2021	2022	2023	2024
353	5	686	74	389	2364
354	165	263	84	310	2259
355	8	23		41	4007
356		141		29	424
357	179	296		31	2097
358	512	2074		351	3911
359	175	738	190	212	872
360	87	12338	1138	4172	15032
374		77		43	340
375	52	191	21	734	1230
376	376	5757	197	4933	31288
377	63		14	84	296
378	158	0	7		671
379	51	13		23	57
380	131	760	340	325	3450
381	13	499	8	150	1962
382	52	274	17	607	858
721	28	152	22	51	132
722		22			128
723	123	182			56
724	12			53	
725				40	88
726					40
727	34	28		22	87
728		7			
752			24		
753					
754					
755					
756					
757					
758					
759					
760				0	0
761		29			
762					
763					
764		17			35
765					
766					
767					
Biomass	2225	24567	2135	12601	71684
SD_B	394	3529	460	2349	15853
MWPT	2.76	30.37	2.64	14.17	78.52
SD_MWPT	0.49	4.41	0.56	2.72	17.79
Abundance	788	10307	764	5129	31106
SD_A	131	1449	135	892	7955

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

Length (cm)	2019	2021	2022	2023	2024
10	0	2	0	6	22
12	2	7	0	0	111
14	5	286	13	326	393
16	0	143	38	184	275
18	0	71	13	4	183
20	0	122	0	12	74
22	19	34	0	6	62
24	4	122	0	6	171
26	0	47	0	16	285
28	4	165	0	27	333
30	4	111	7	44	354
32	19	103	0	89	607
34	0	131	21	133	578
36	7	176	21	82	606
38	4	191	0	117	551
40	7	319	11	66	983
42	14	243	23	109	1102
44	24	412	20	140	1028
46	16	337	16	106	1247
48	6	364	15	92	1430
50	46	285	31	116	1252
52	43	258	4	320	1050
54	17	270	13	214	1660
56	11	403	36	106	1847
58	63	380	29	164	707
60	16	422	0	130	925
62	16	324	40	236	1275
64	54	393	29	191	1470
66	53	483	21	179	1224
68	33	488	23	157	1259
70	54	668	48	332	1373
72	33	566	34	414	1182
74	40	465	66	236	1159
76	32	460	96	160	1220
78	33	296	25	140	911
80	38	221	0	144	678
82	10	196	39	68	779
84	20	169	19	134	303
86	0	84	0	41	189
88	26	32	13	3	97
90	0	19	0	19	33
92	0	33	0	40	43
94	7	0	0	0	24
96	6	0	0	0	4
98	0	0	0	21	4
100	0	0	0	0	3
102	0	0	0	0	0
104	0	0	0	0	0
106	0	0	0	0	25
108	0	0	0	0	14
110	0	6	0	0	0
112	0	0	0	0	0
114	0	0	0	0	0
116	0	0	0	0	0
118	0	0	0	0	0
120	0	0	0	0	0
122	0	0	0	0	0
124	0	0	0	0	0
126	0	0	0	0	0
128	0	0	0	0	0
130	0	0	0	0	0
Total	788	10307	764	5129	31,106
Biomass(t)	2,225	24,567	2,135	12,601	71,684
B/SOP(%)	98	100	99	98	100
Nsamples	35	65	31	53	74
Nindiv	126	1117	98	384	2224
Minlen	13	10	14	10	10
Maxlen	96	110	88	99	108
Sampledcatch(kg)	348	2623	270	947	5543
Totalcatch(kg)	363	2623	270	965	7891

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

Stratum	2019	2021	2022	2023	2024
353			4	229	
354	39	34	8	16	7
355	20	209	36	8	982
356	3	72		198	128
357		117	14	79	115
358	12	65	122	53	663
359		14	2	4	
360		1	2		
374					
375					
376					
377					
378			1		
379					
380	1		1	2	0
381					
382					
721	12	38	27	281	97
722		0		31	2
723	52	182	4	69	168
724				7	17
725				4	39
726				0	
727					
728					
752					
753					
754					
755	0				
756					
757	0				
758					
759	0				
760					
761					
762		0			
763					
764		0	3		
765	0	0			
766	0			17	
767					
Biomass	140	733	223	998	2219
SD_B	59	227	86	249	786
MWPT	0.17	0.89	0.27	1.11	2.37
SD_MWPT	0.07	0.27	0.11	0.27	0.86
Abundance	266	894	348	696	3656
SD_A	33	305	133	67	2499

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

Length (cm)	2019	2021	2022	2023	2024
6	10	3	0	0	0
8	25	24	0	0	0
10	5	0	0	0	0
12	0	0	0	0	0
14	6	0	0	0	0
16	0	13	7	0	12
18	6	13	21	0	0
20	24	3	39	0	37
22	18	21	0	15	86
24	22	15	19	0	207
26	9	6	0	0	187
28	4	38	11	0	248
30	12	15	22	0	512
32	6	18	31	23	467
34	6	12	24	37	345
36	8	6	6	24	298
38	13	44	0	48	270
40	18	117	6	12	225
42	5	65	6	24	168
44	21	67	21	12	69
46	13	57	45	4	36
48	6	80	14	27	30
50	0	61	14	17	45
52	6	36	22	83	31
54	0	31	12	40	18
56	0	30	0	54	39
58	6	21	3	64	14
60	0	22	0	19	7
62	0	3	0	32	10
64	9	13	6	24	7
66	2	18	0	42	13
68	0	9	14	6	54
70	0	6	0	19	32
72	0	13	0	18	38
74	0	6	0	24	54
76	0	0	3	15	20
78	0	0	0	0	12
80	0	0	3	3	7
82	0	0	0	8	16
84	6	6	0	0	8
86	0	0	0	0	18
88	0	0	0	0	3
90	0	0	0	0	0
92	0	0	0	3	7
94	0	0	0	0	0
96	0	0	0	0	0
98	0	0	0	0	0
100	0	0	0	0	0
102	0	0	0	0	0
104	0	0	0	0	0
106	0	0	0	0	7
Total	266	894	348	696	3656
Biomass(t)	140	733	223	998	2219
B/SOP(%)	101	102	101	102	102
Nsamples	18	21	16	21	16
Nindiv	57	249	63	157	481
Minlen	7	7	17	22	17
Maxlen	84	84	80	92	106
Sampledcatch(kg)	31	191	48	265	361
Totalcatch(kg)	31	191	49	265	541

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

Stratum	2019	2021	2022	2023	2024
353	22	1		0	0
354	1006				0
355	45	4	1		
356	42	4			
357	36	2			
358	53	2			1
359	13551	11			0
360	9762	35		1	1
374	209	1			
375	1961				
376	3	27		3	0
377	134	1			
378	225	6			
379	23	2			
380	117	1			
381	20	2			
382	604	17			
721	9	1			0
722	2				1
723	96	1			0
724	1	1			1
725	7				
726	3	0			0
727	3	0			0
728	3		0		0
752	3		0		1
753	3				1
754	2				1
755	20				3
756	2				1
757	3				3
758	2	0			1
759	1				3
760	0				3
761	2			0	0
762	2	0			2
763	4	1			1
764	18				1
765					2
766	1			0	2
767	2	0			2
Biomass	28000	123	1	4	32
SD_B	15869	23	0	2	5
MWPT	34.69	0.15	0.00	0.00	0.03
SD_MWPT	19.77	0.03	0.00	0.00	0.00
Abundance	678370	2442	0	0	0
SD_A	476560	476	0	0	0

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

Length (cm)	2019	2021	2022	2023	2024
3	9	0	0	0	0
4	3	0	0	0	0
5	17	2	0	0	0
6	20	8	0	0	0
7	64	12	0	0	0
8	75905	30	0	0	0
9	104104	38	0	0	0
10	79631	153	0	0	0
11	31268	300	0	0	0
12	91084	253	0	0	0
13	82938	640	0	0	0
14	116291	440	0	0	0
15	72712	242	0	0	0
16	18879	166	0	0	0
17	4997	115	0	0	0
18	307	26	0	0	0
19	141	16	0	0	0
Total	678370	2,442	0	0	0
Biomass(t)	28,000	123	1	4	32
B/SOP(%)	106	104	0	0	0
Nsamples	89	47	0	0	0
Nindiv	3366	315	0	0	0
Minlen	3.5	5.5	0	0	0
Maxlen	19	19	0	0	0
Sampledcatch(kg)	189	17	0	0	0
Totalcatch(kg)	3,597	17	0	0	5

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

Stratum	2019	2021	2022	2023	2024
353	836	126	1	2	15519
354		440		17	14517
355		11			167
356	0				
357					
358			186		6
359	97	1388	9739	187	3436
360	449	3782	56594	6027	33955
374	2	2	0	81	774
375	4	2	1	109	290
376	1769	3236	2518	3761	5785
377	18	21	110		9
378					15
379					0
380	0				
381	2				1
382	12672	0	0		256
721					
722					
723					
724					
725					
726					
727					
728					
752					
753					
754					
755					
756					
757					
758					
759					
760					
761					
762					
763			0		
764					
765					
766					
767					
Biomass	15849	9008	69149	10185	74730
SD_B	8508	2291	28383	3122	8532
MWPT	19.79	11.18	86.38	11.35	82.04
SD_MWPT	10.53	2.82	35.10	3.43	9.56
Abundance	1018328	713765	3384475	755167	5247037
SD_A	561478	188074	1302367	284416	659813

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

Length (cm)	2019	2021	2022	2023	2024
6	1,277	0	0	4,999	0
8	52,666	79,602	2,928	299,469	140444
10	12,943	251,013	181,977	19,022	206,847
12	212,344	70,181	142,052	27,900	2,281,587
14	541,668	188,396	1,551,411	229,506	2,201,996
16	187,374	121,568	1,395,511	165,284	411,497
18	10,056	3,004	110,595	8,988	4,664
20	0	0	0	0	0
22	0	0	0	0	0
Total	1,018,328	713,765	3,384,475	755,167	5,247,037
Biomass(t)	15,849	9,008	69,149	10,185	74,730
B/SOP(%)	101	102	106	100	103
Nsamples	42	39	40	25	46
Nindiv	2,460	2,653	3,286	1,669	3,845
Minlen	7	8	8	7	8
Maxlen	19	19	19	19	18
Sampledcatch(kg)	36	42	60	27	57
Totalcatch(kg)	2,697	853	6,211	565	7,358

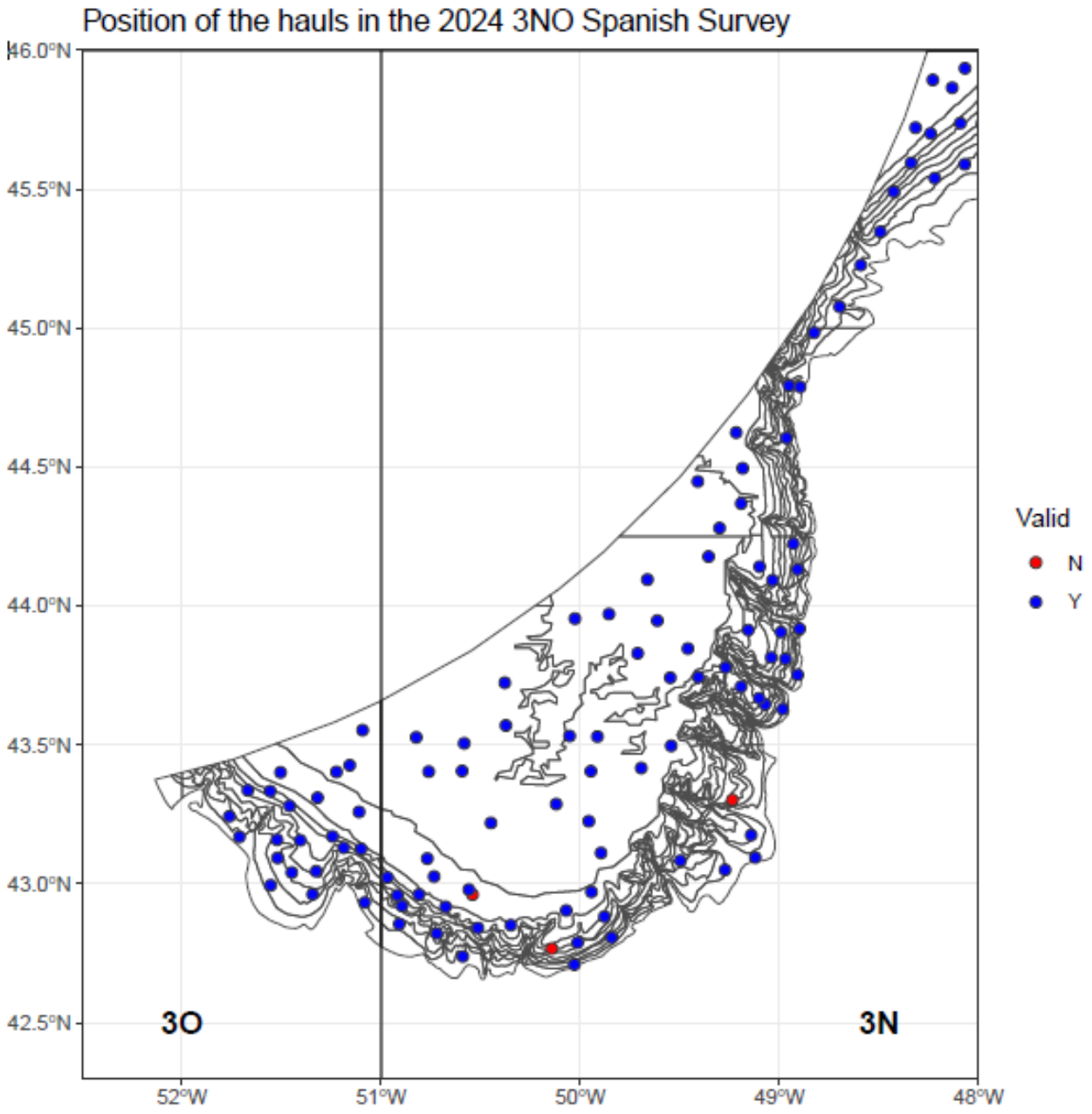

Figure 1. Position of the hauls in the 2024 3NO Spanish survey.

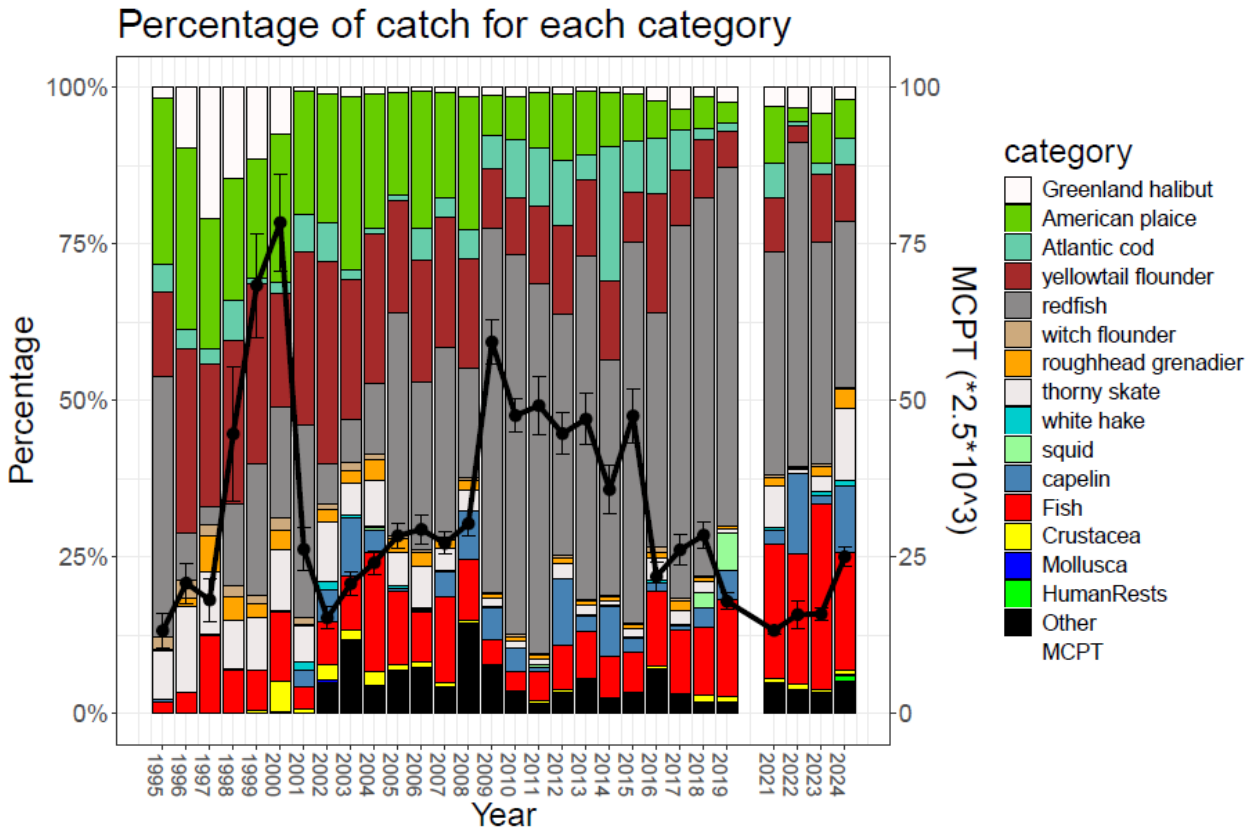

Figure 2. Percentage of the total catch for each species and group. Spanish Spring survey in NAFO Div. 3NO. Black line represents Mean Catch per Tow of the survey.

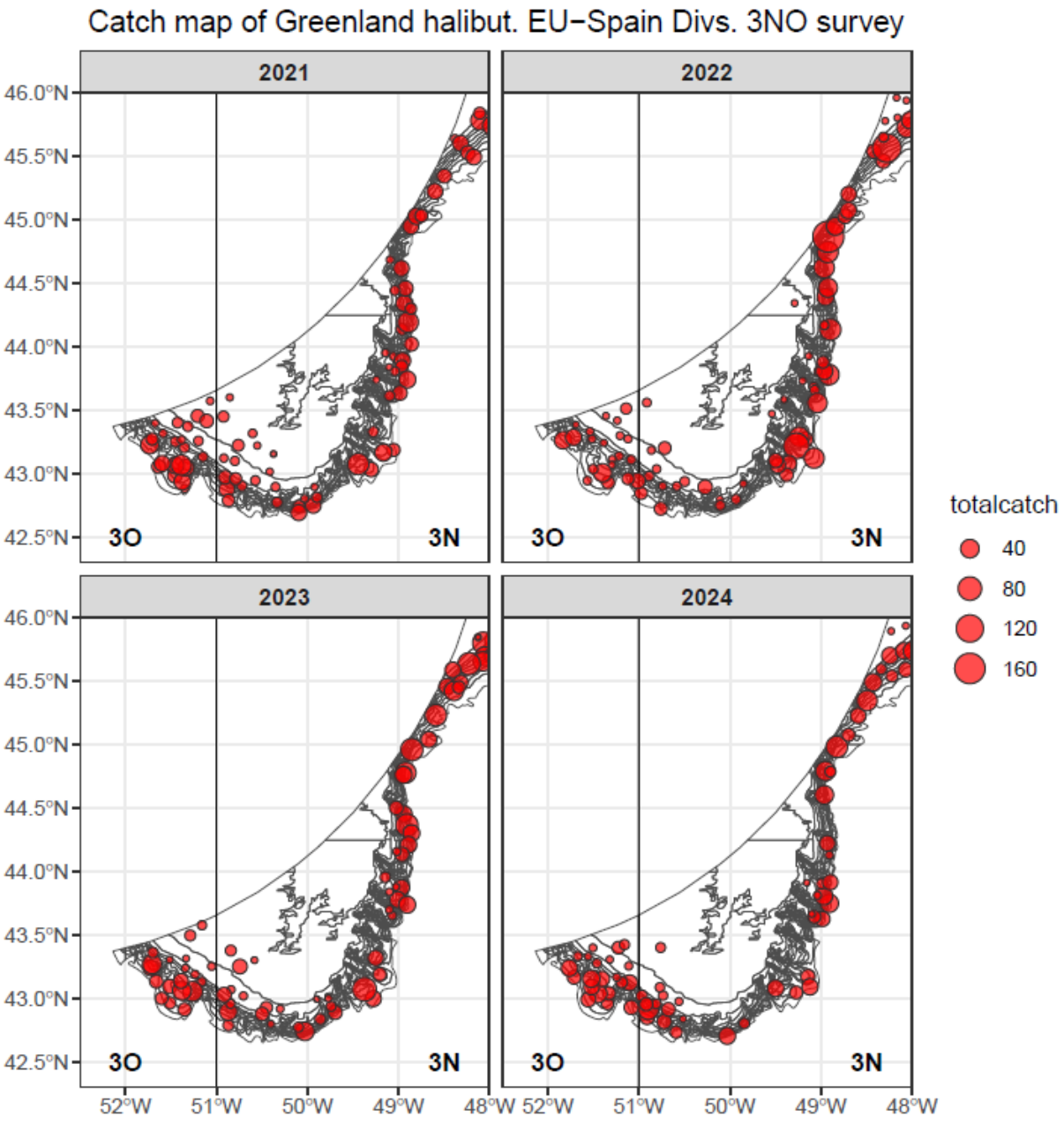

Figure 3. Greenland halibut. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

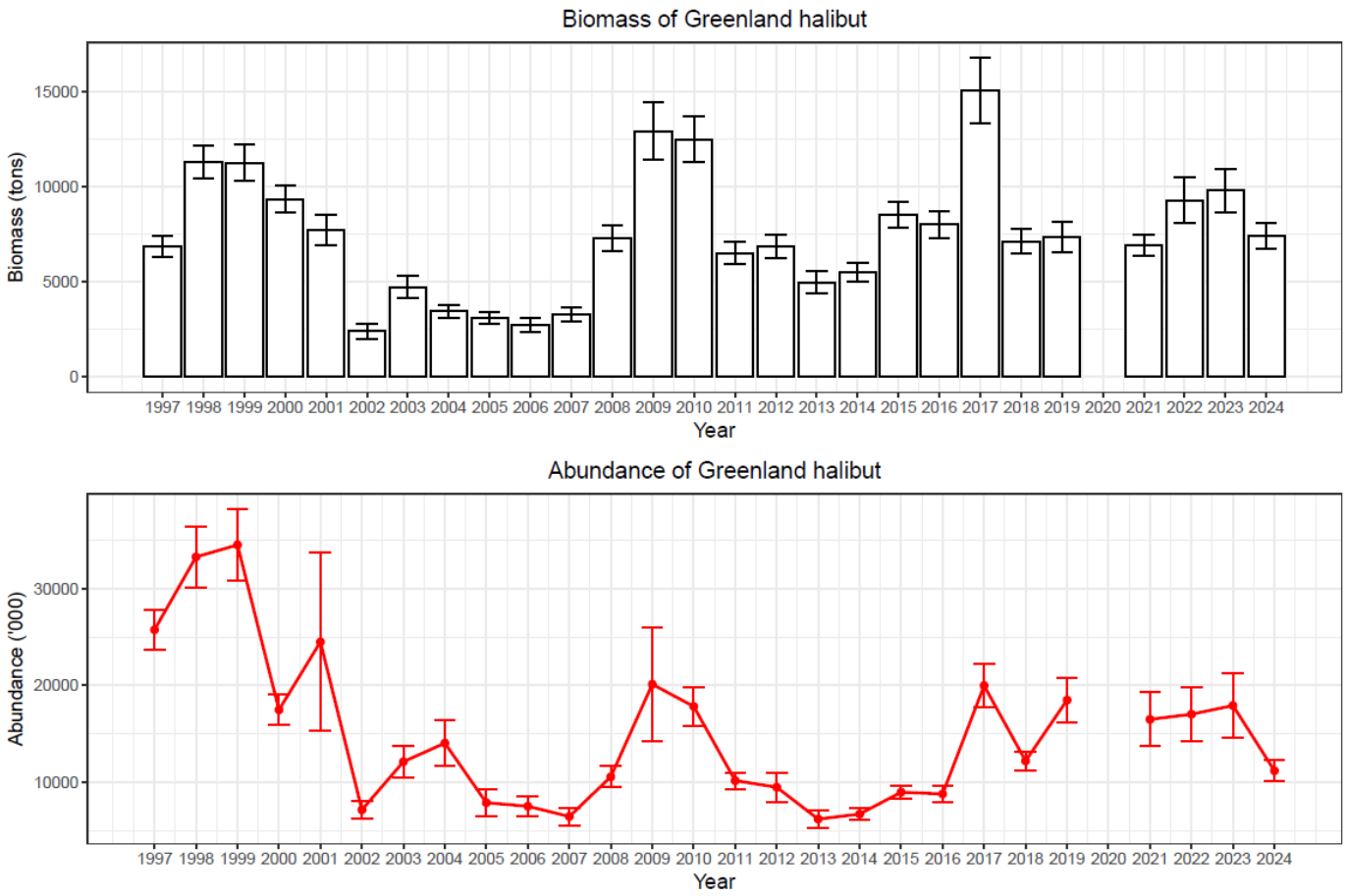

Figure 4. Greenland halibut total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

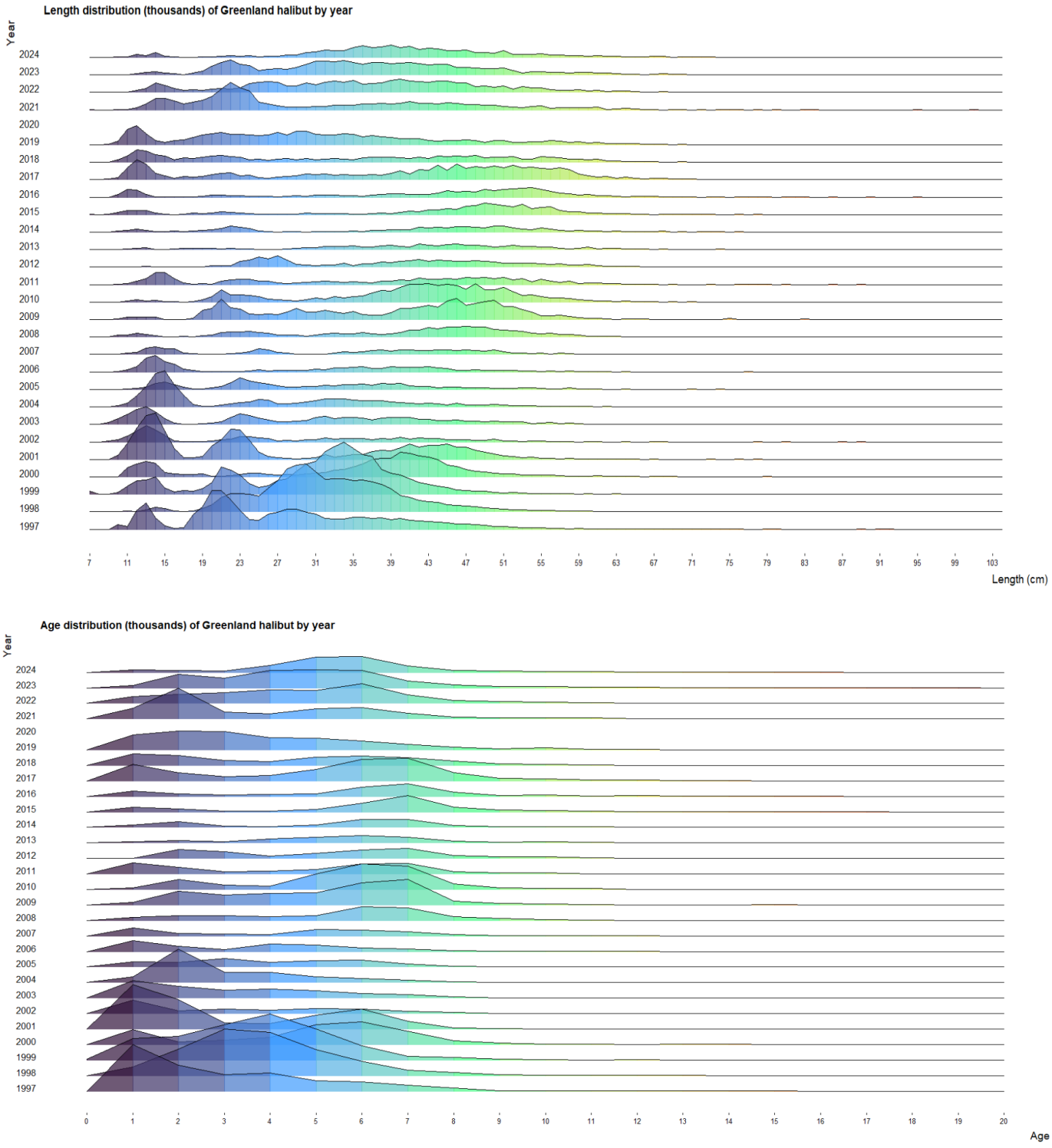

Figure 5. Greenland halibut total length (cm) (a) and age (b) distribution. Spanish Spring survey in NAFO Div. 3NO.

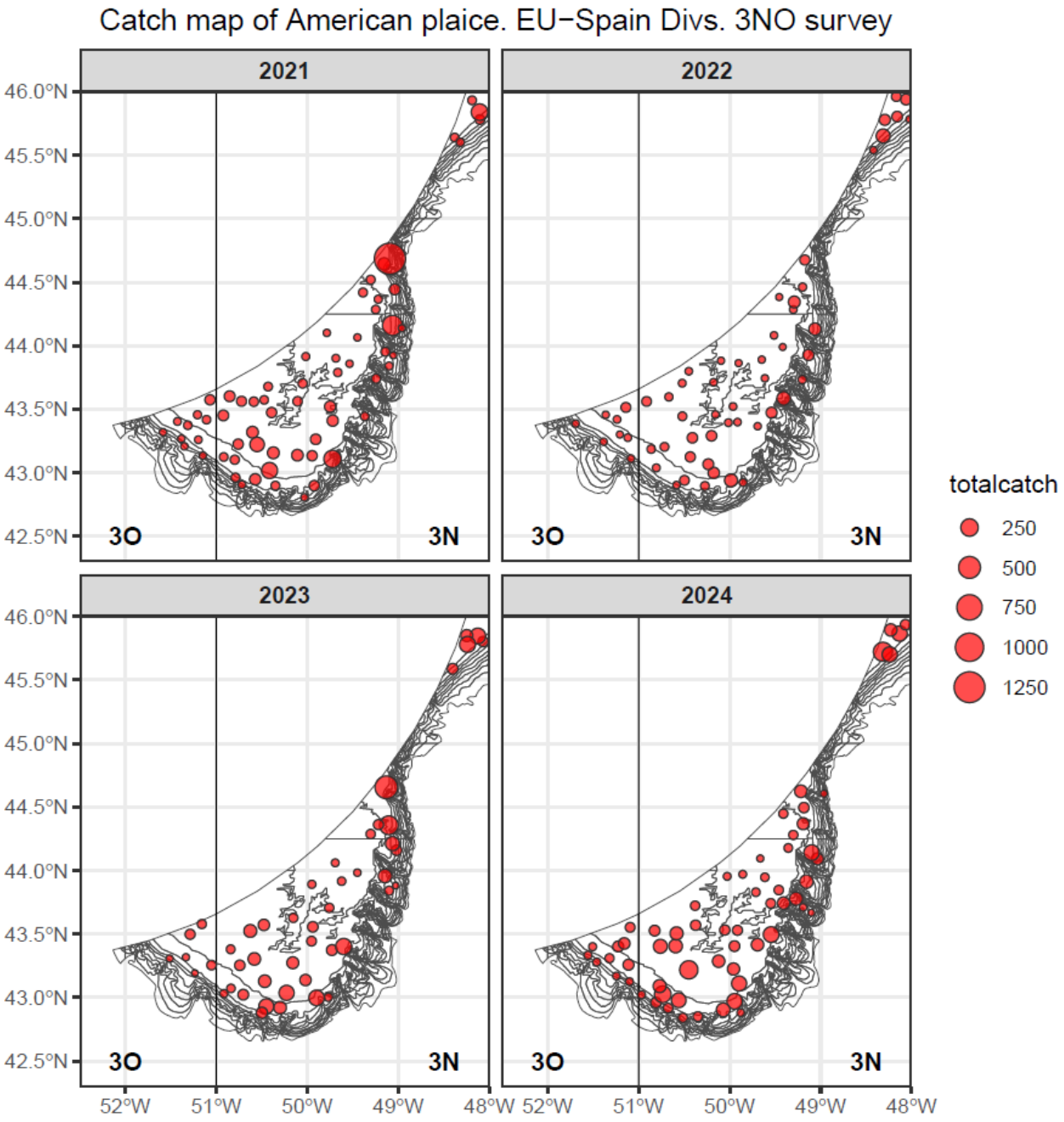

Figure 6. American plaice. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

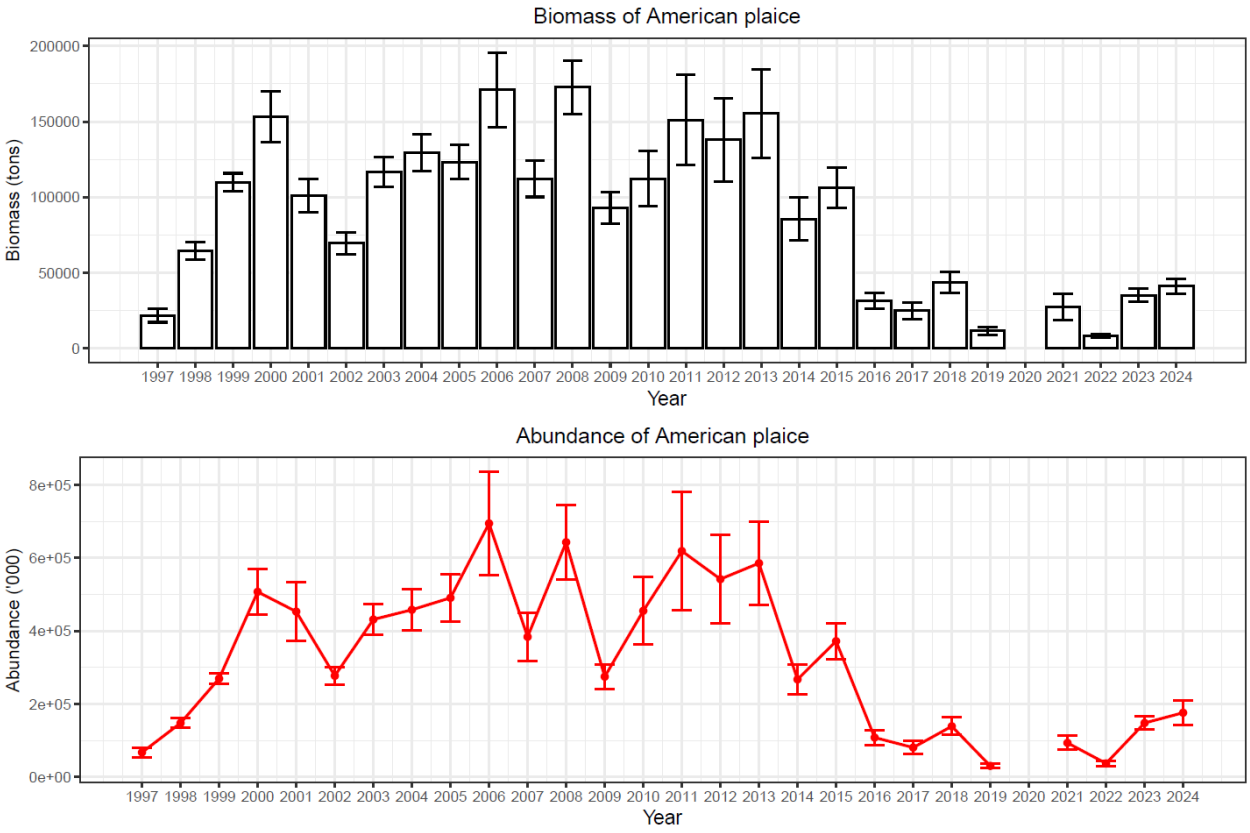

Figure 7. American plaice total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

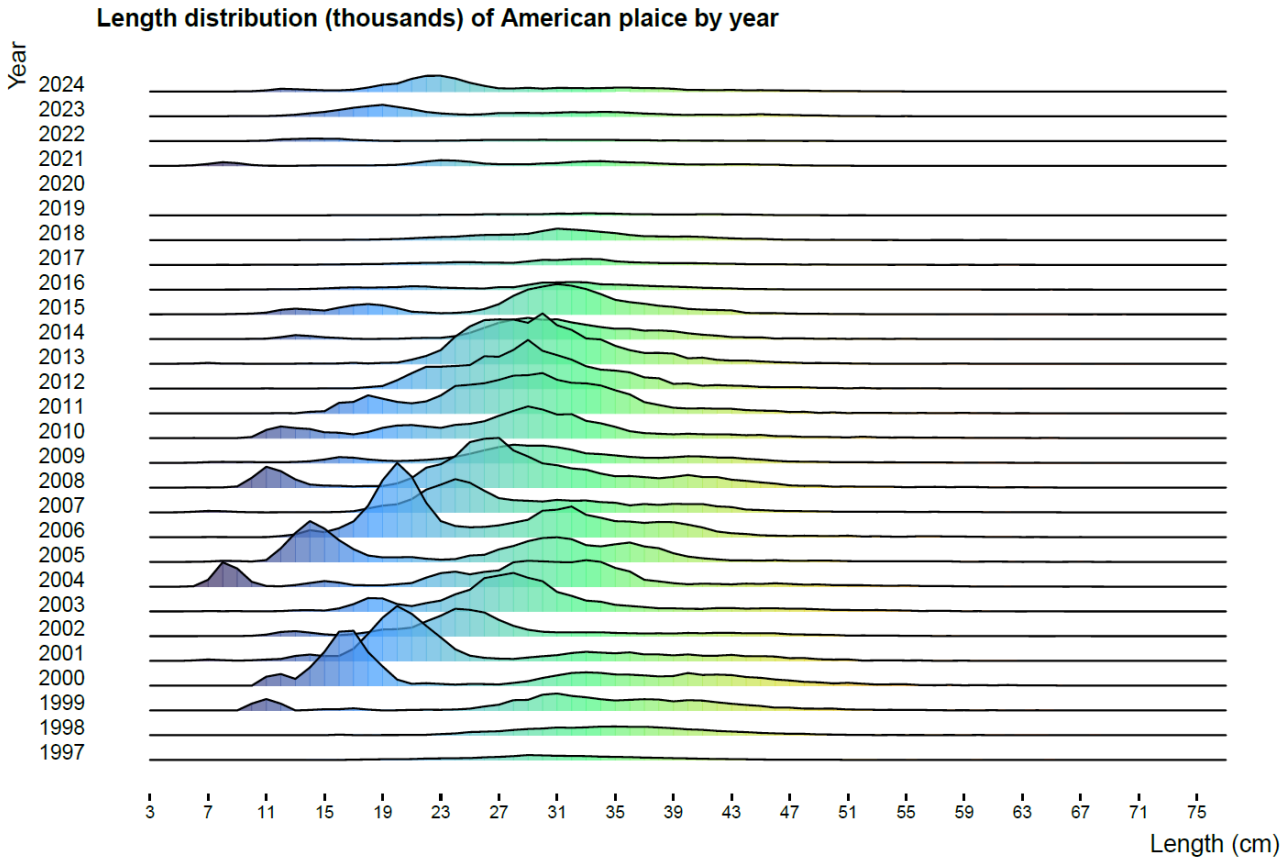

Figure 8. American plaice total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

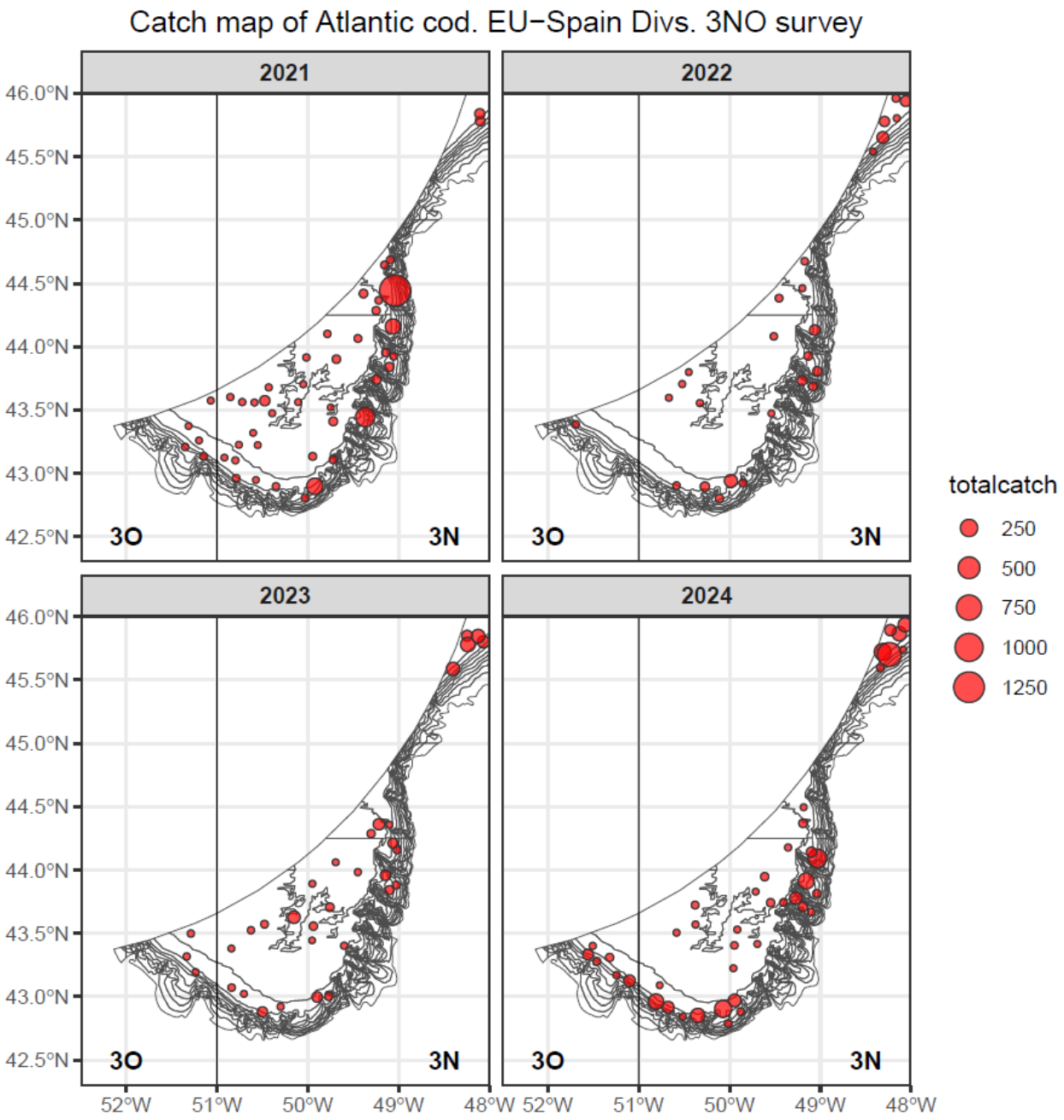

Figure 9. Atlantic cod. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

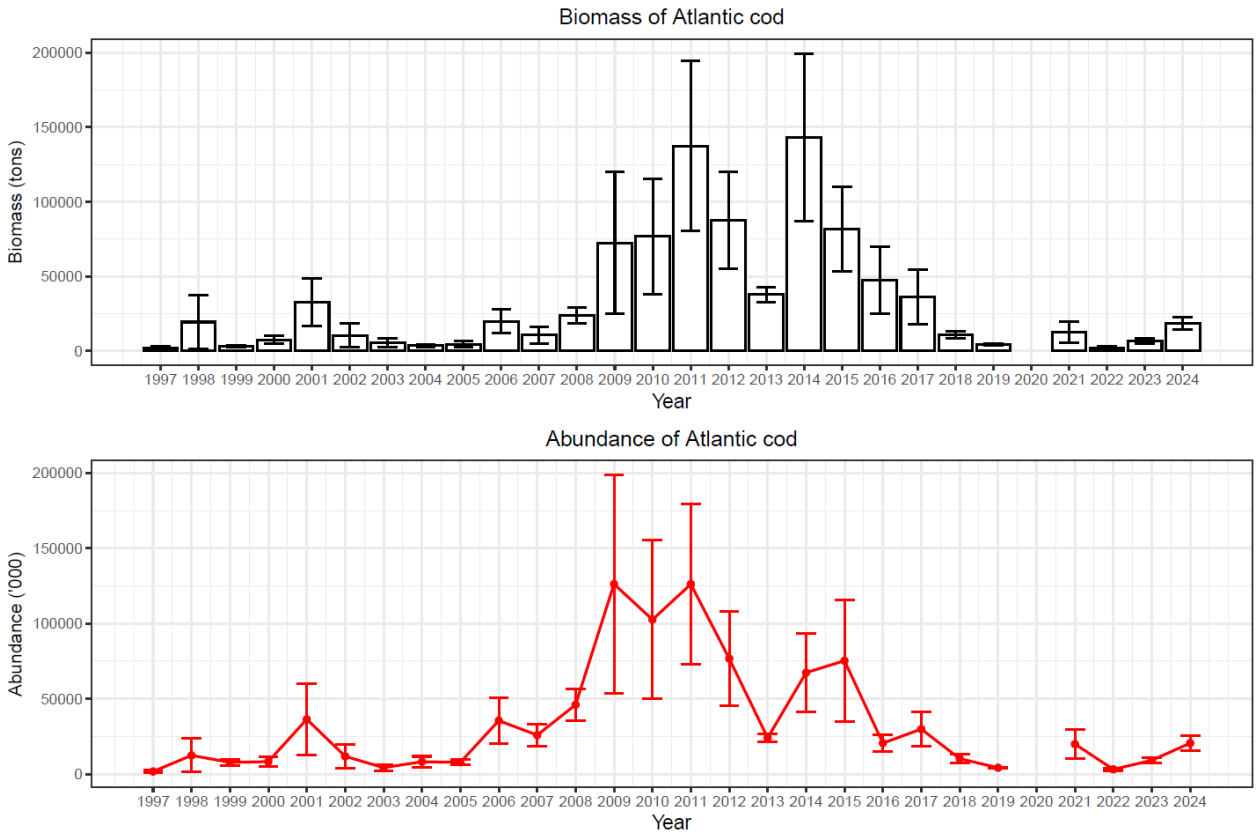

Figure 10. Atlantic cod total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

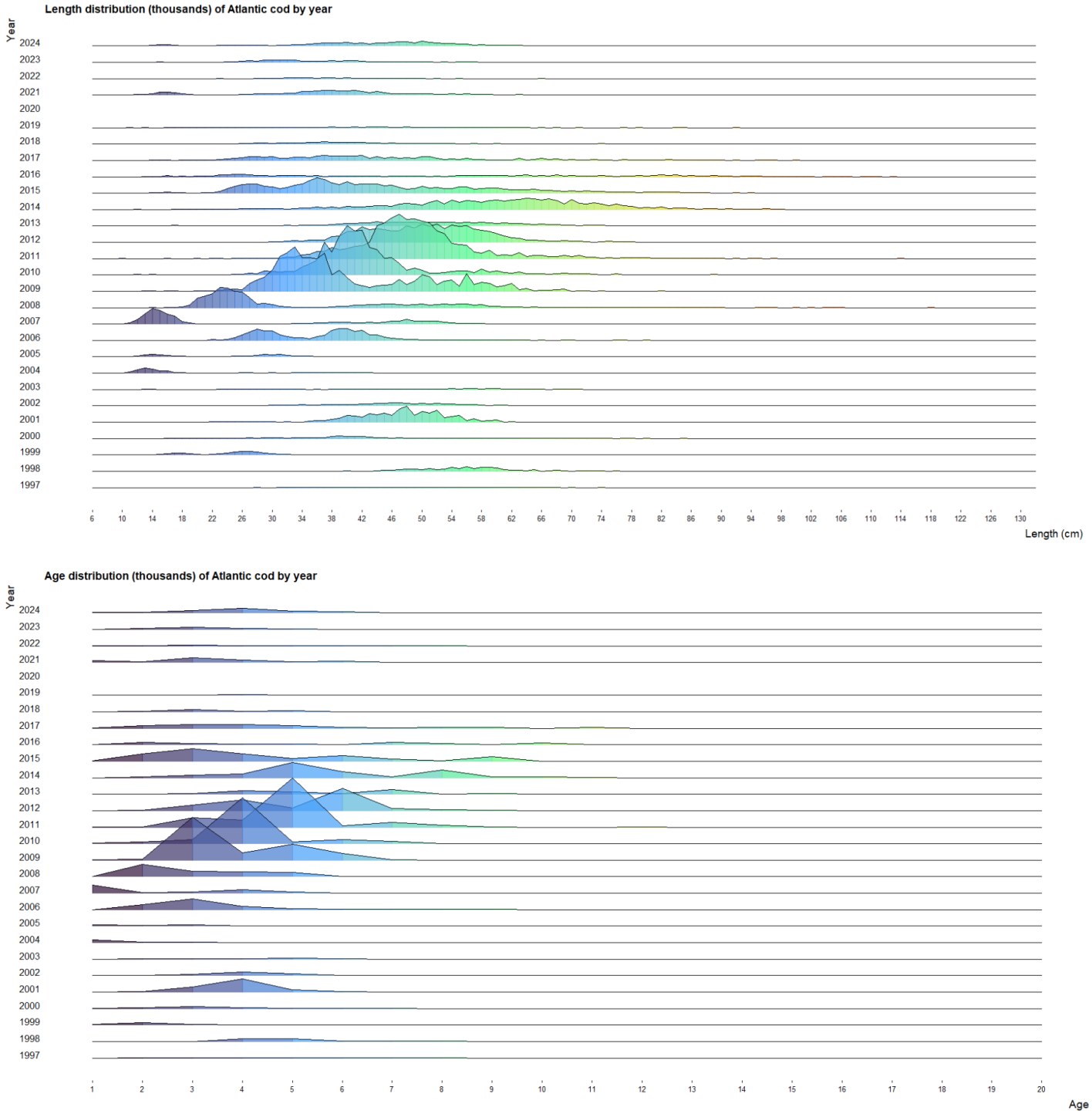

Figure 11. Atlantic cod total length (cm) (a) and age (b) distribution. Spanish Spring survey in NAFO Div. 3NO.

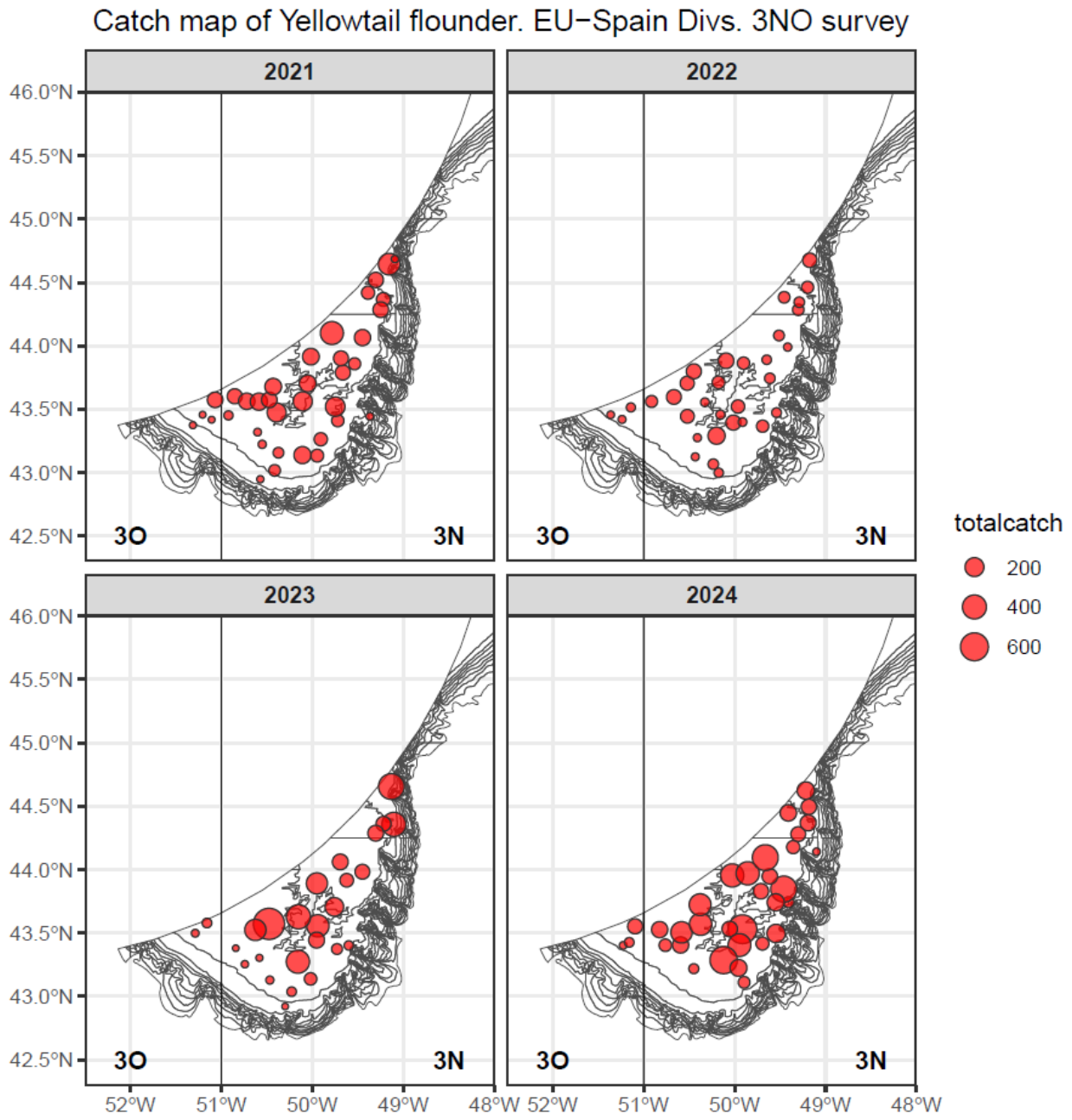

Figure 12. Yellowtail flounder. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

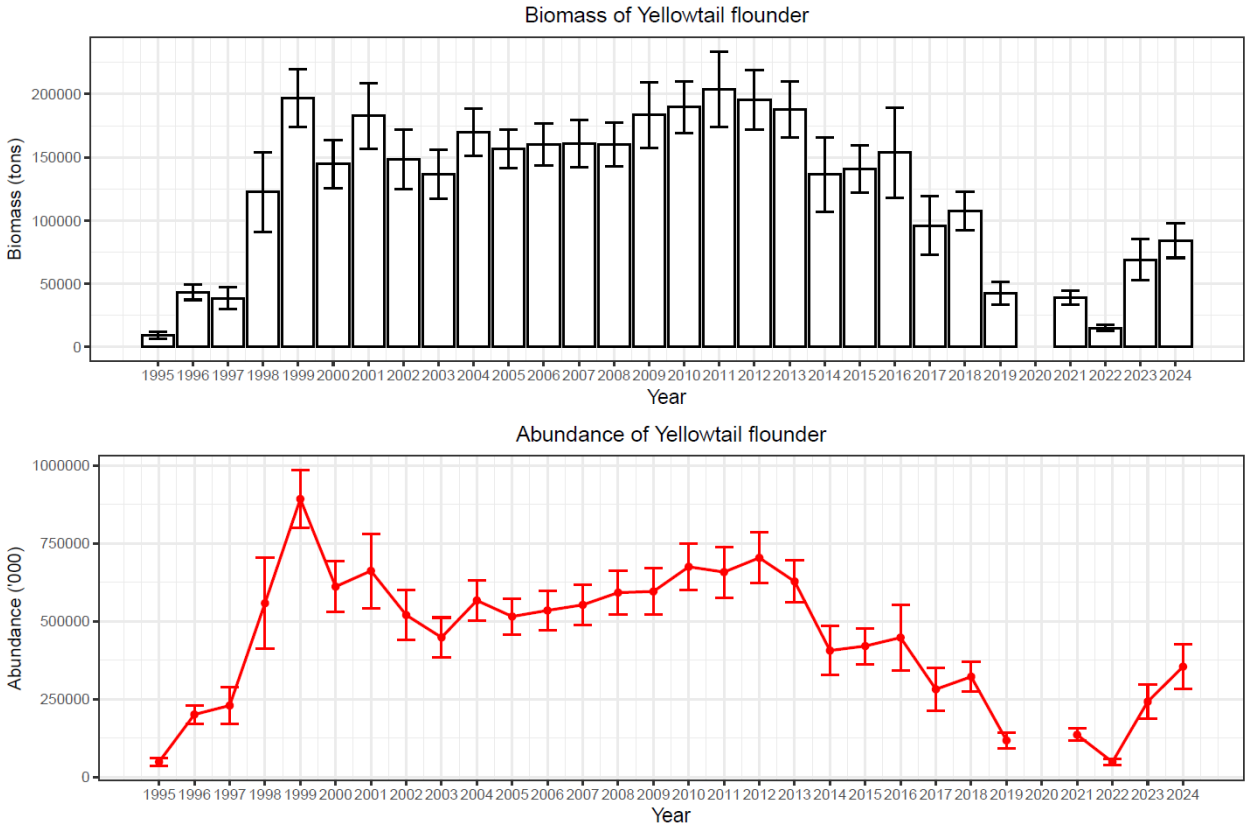

Figure 13. Yellowtail flounder total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

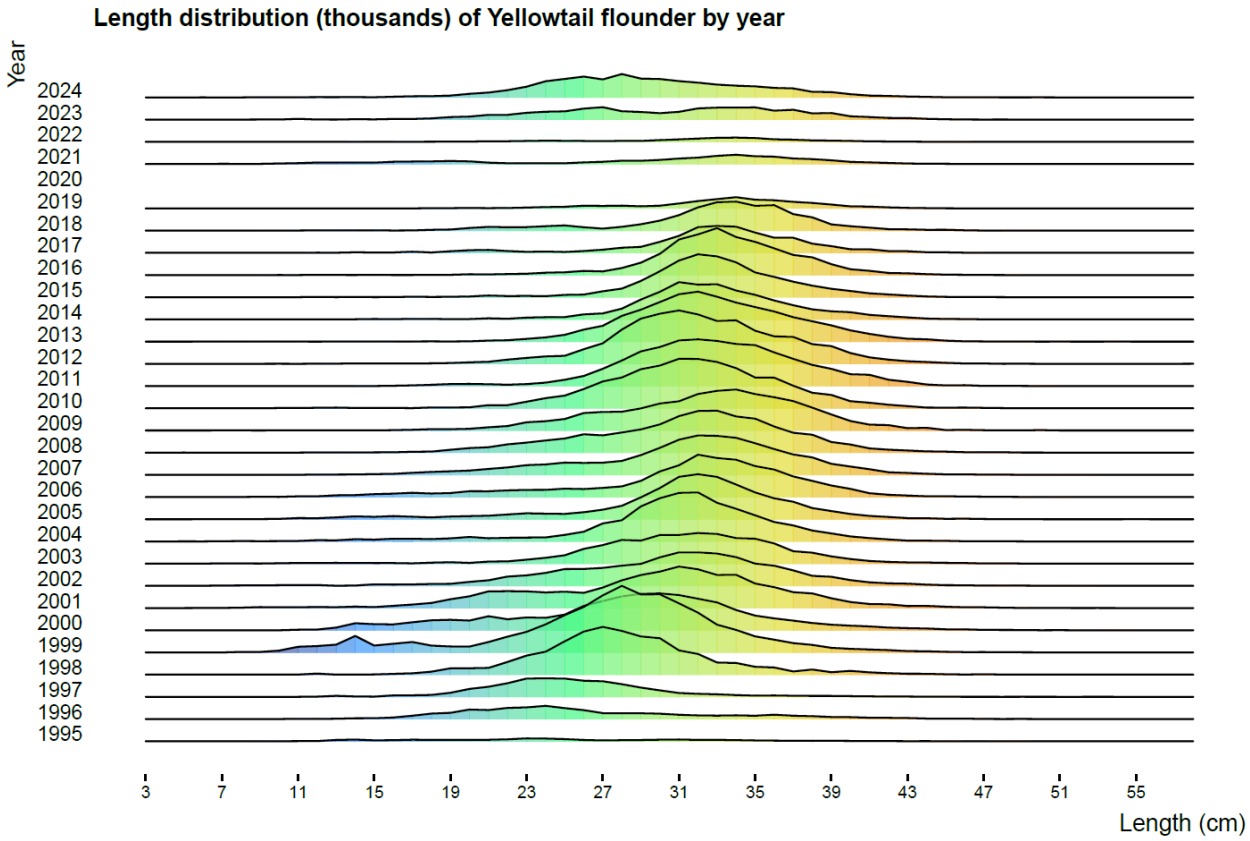

Figure 14. Yellowtail flounder total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

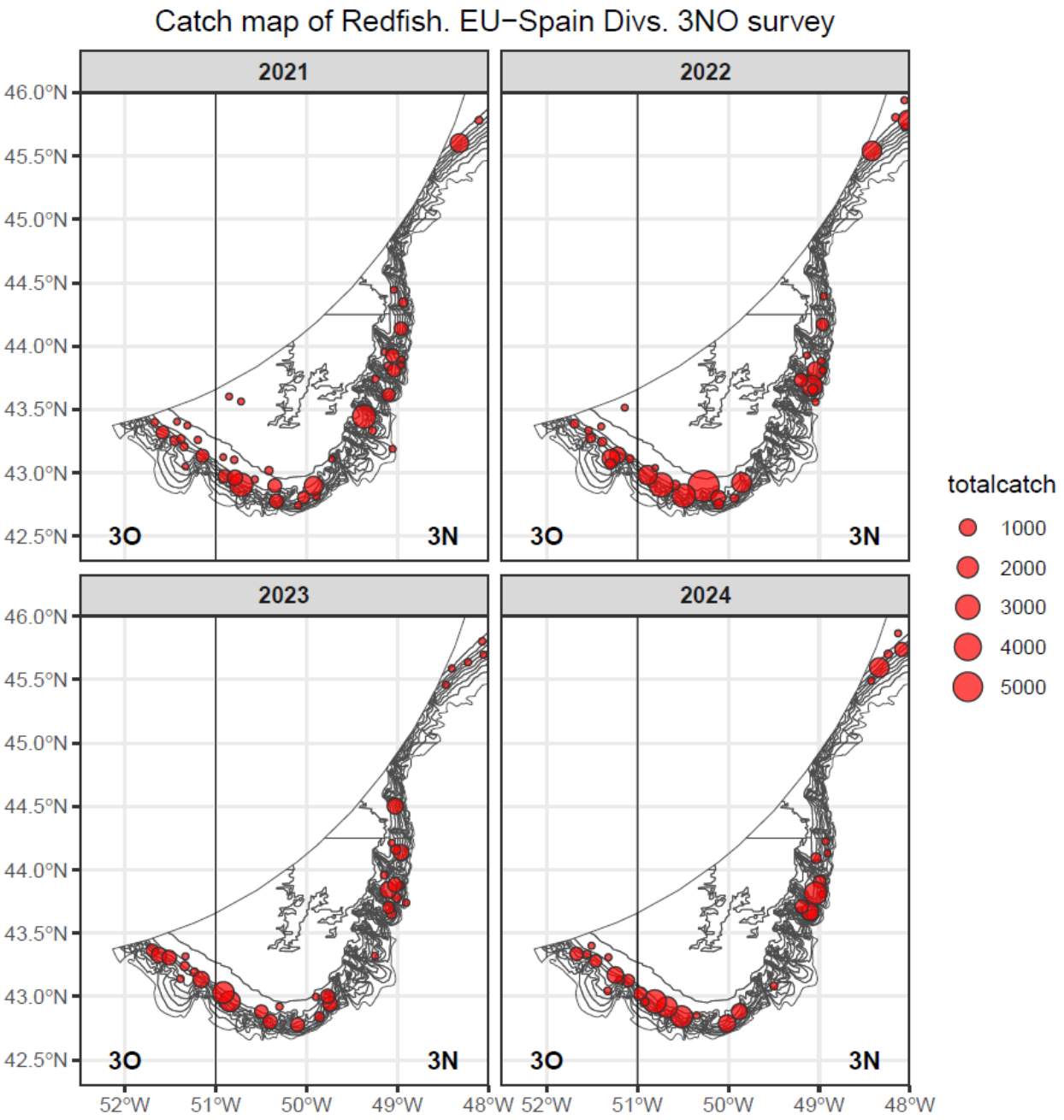

Figure 15. Redfish. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

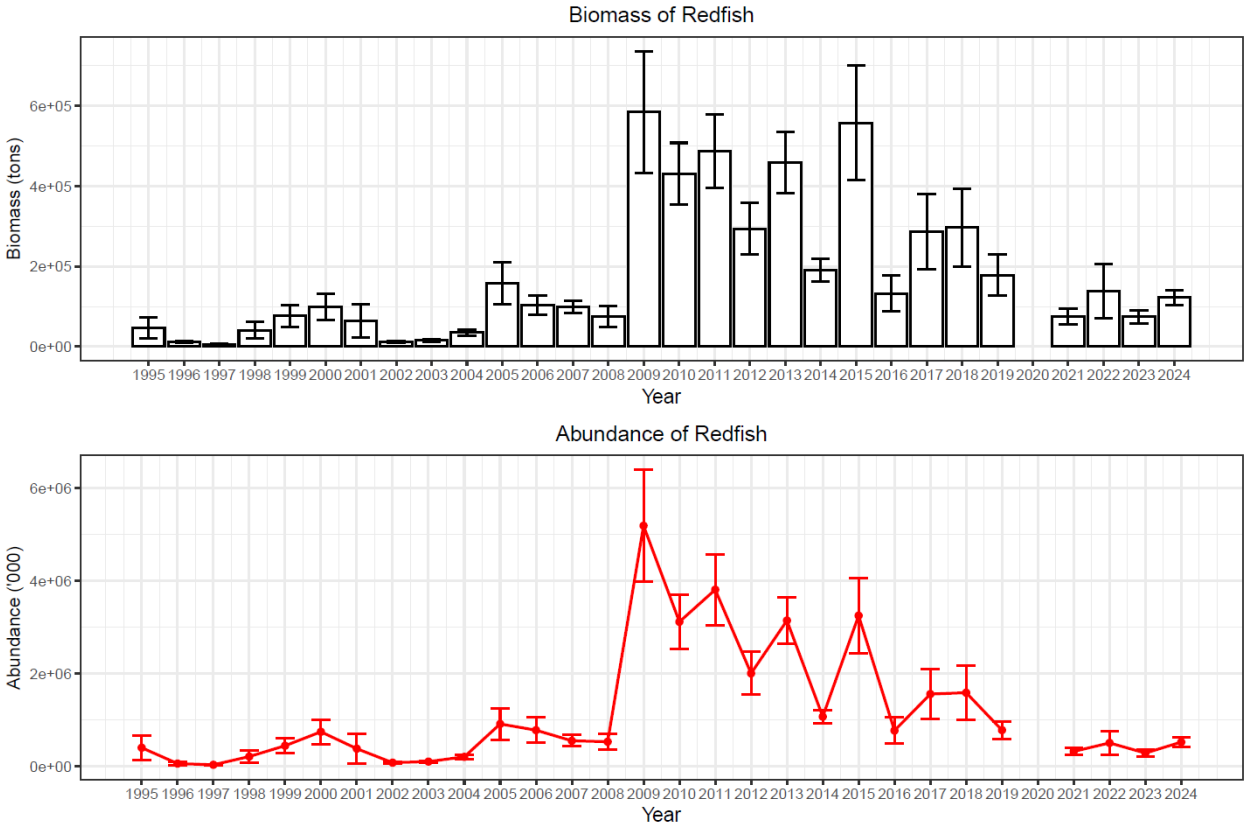

Figure 16. Redfish total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

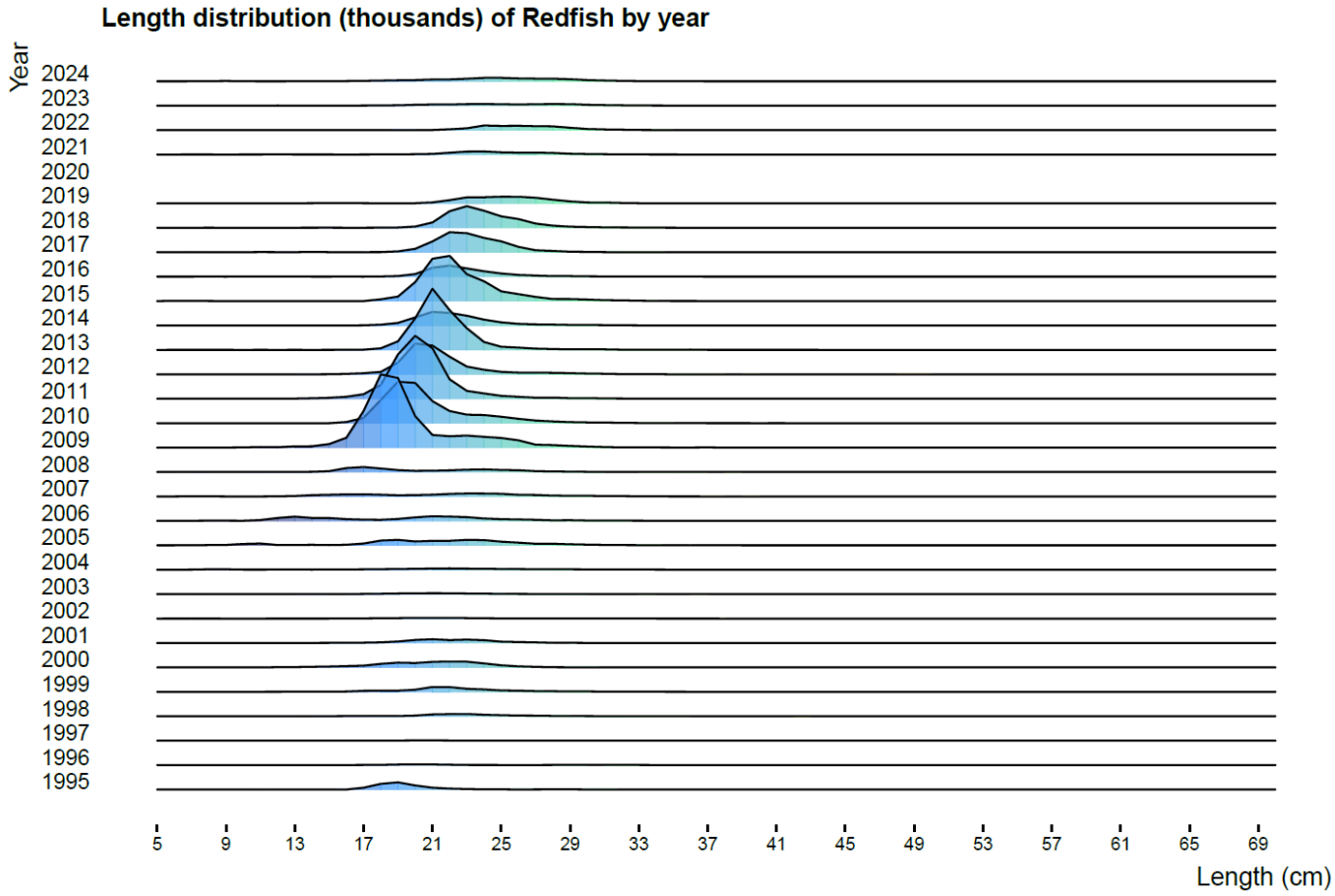

Figure 17. Redfish total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

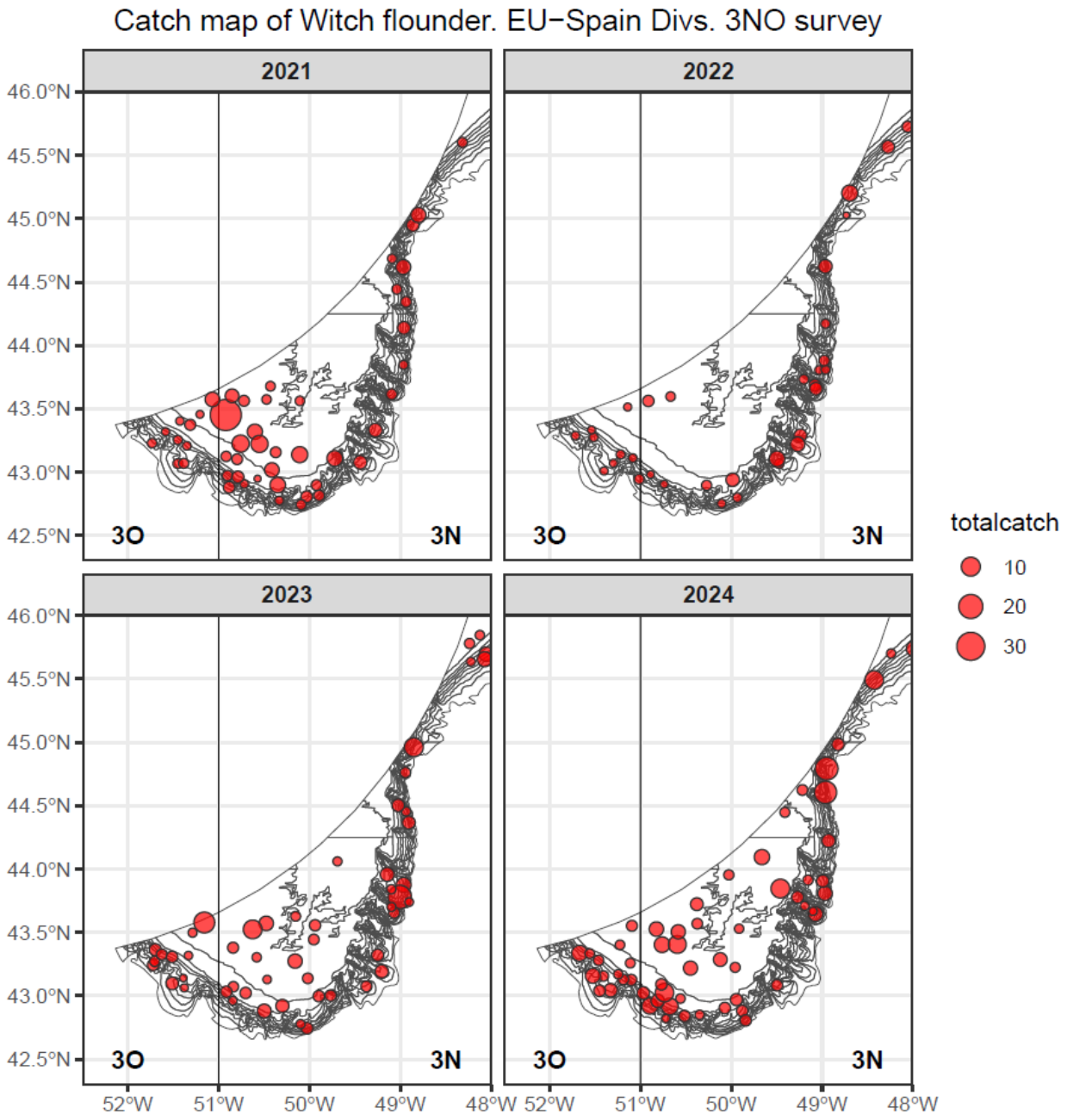

Figure 18. Witch flounder. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

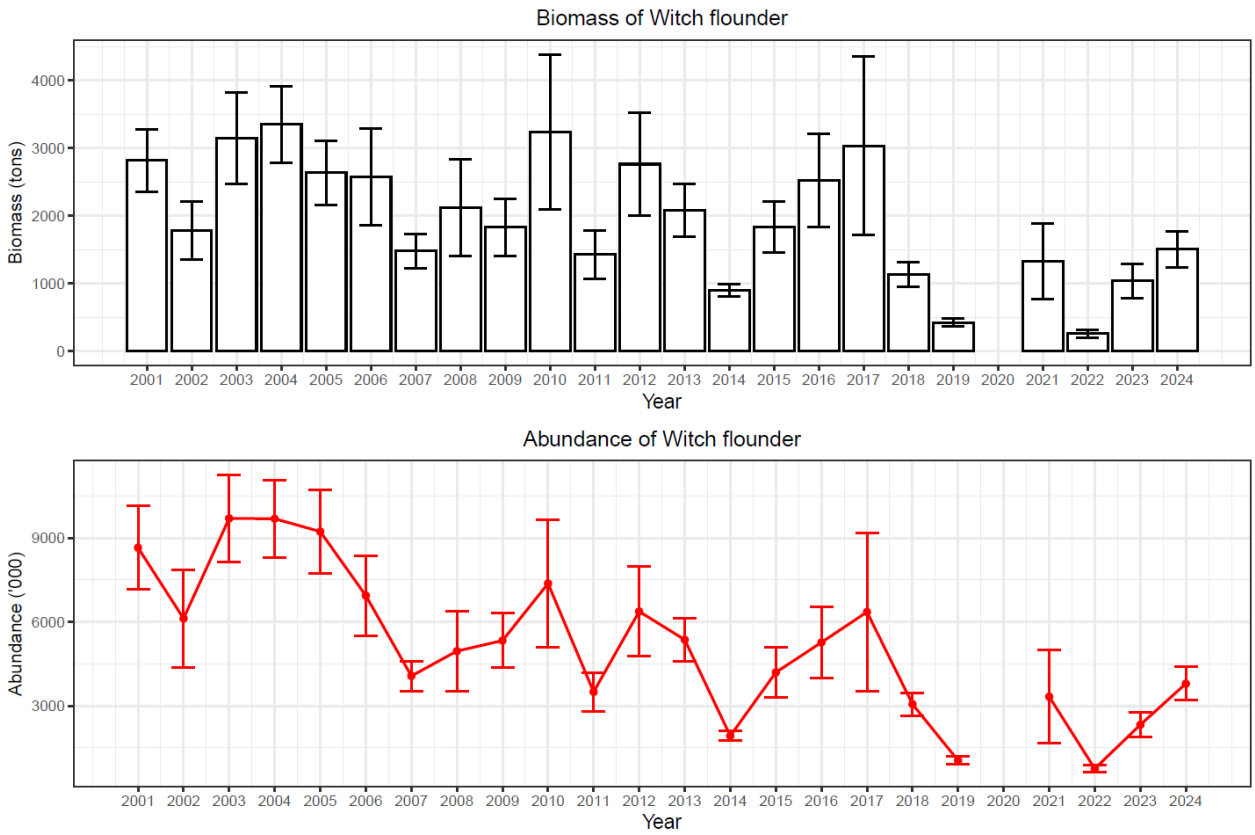

Figure 19. Witch flounder total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

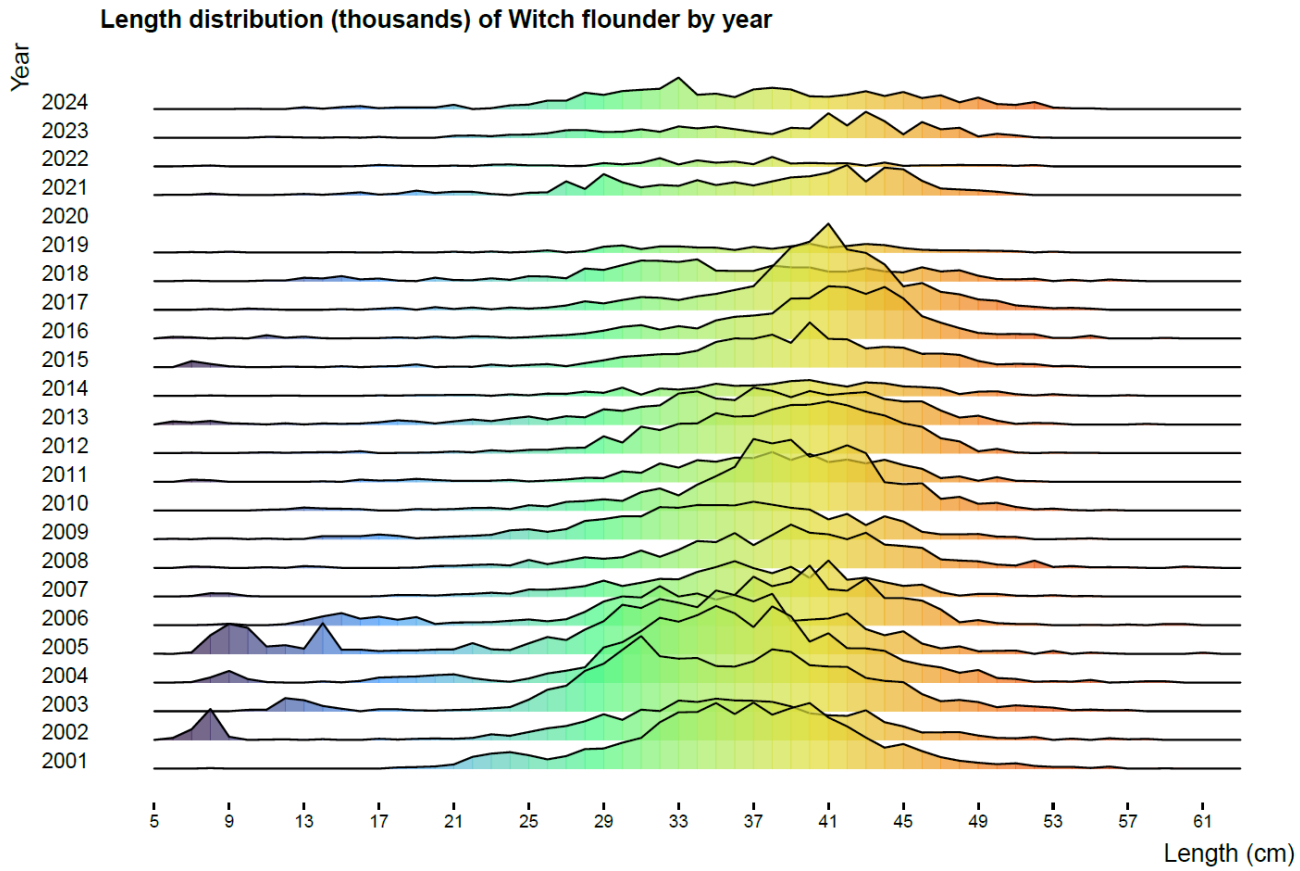

Figure 20. Witch flounder total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

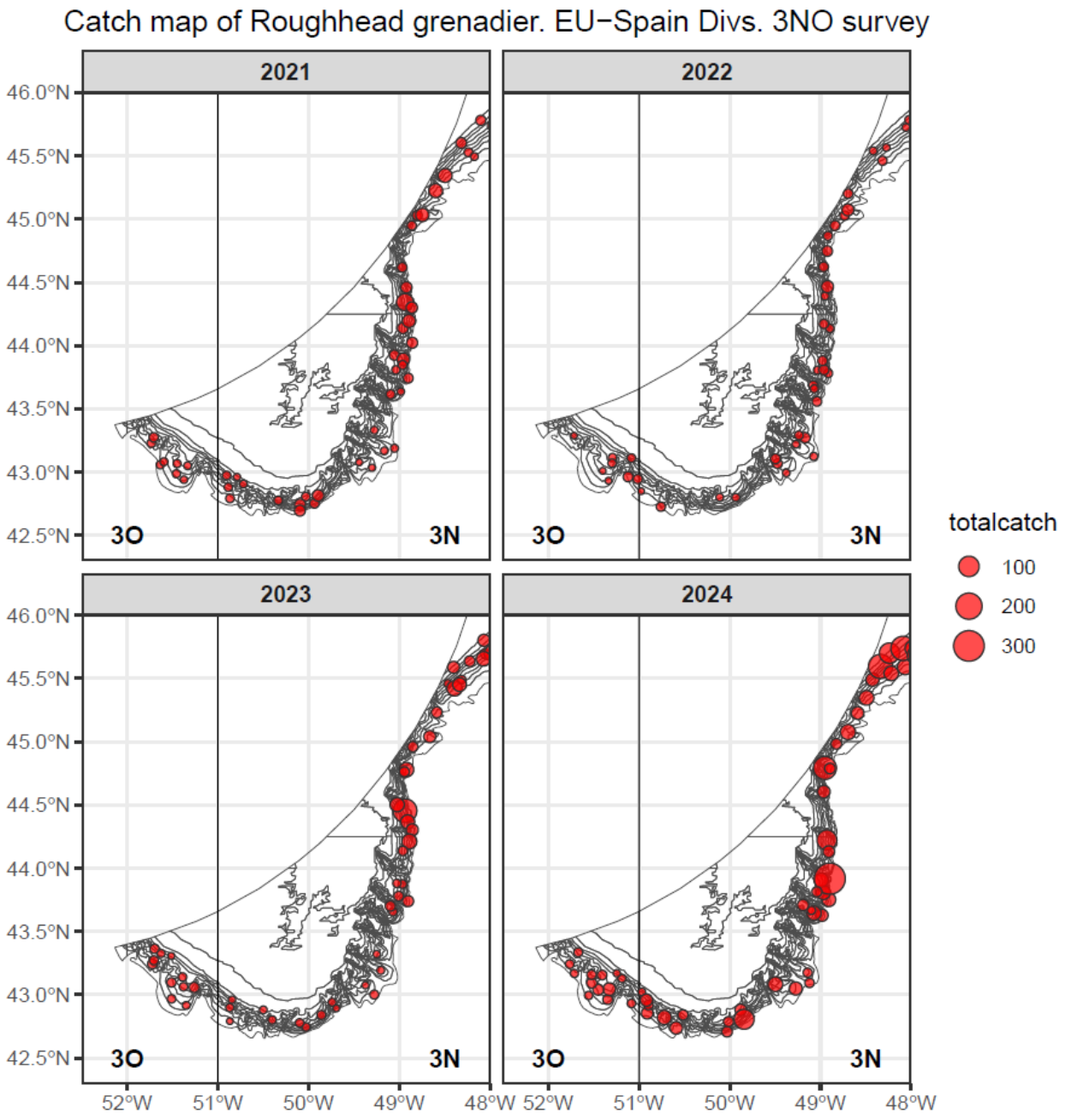

Figure 21. Roughhead grenadier. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

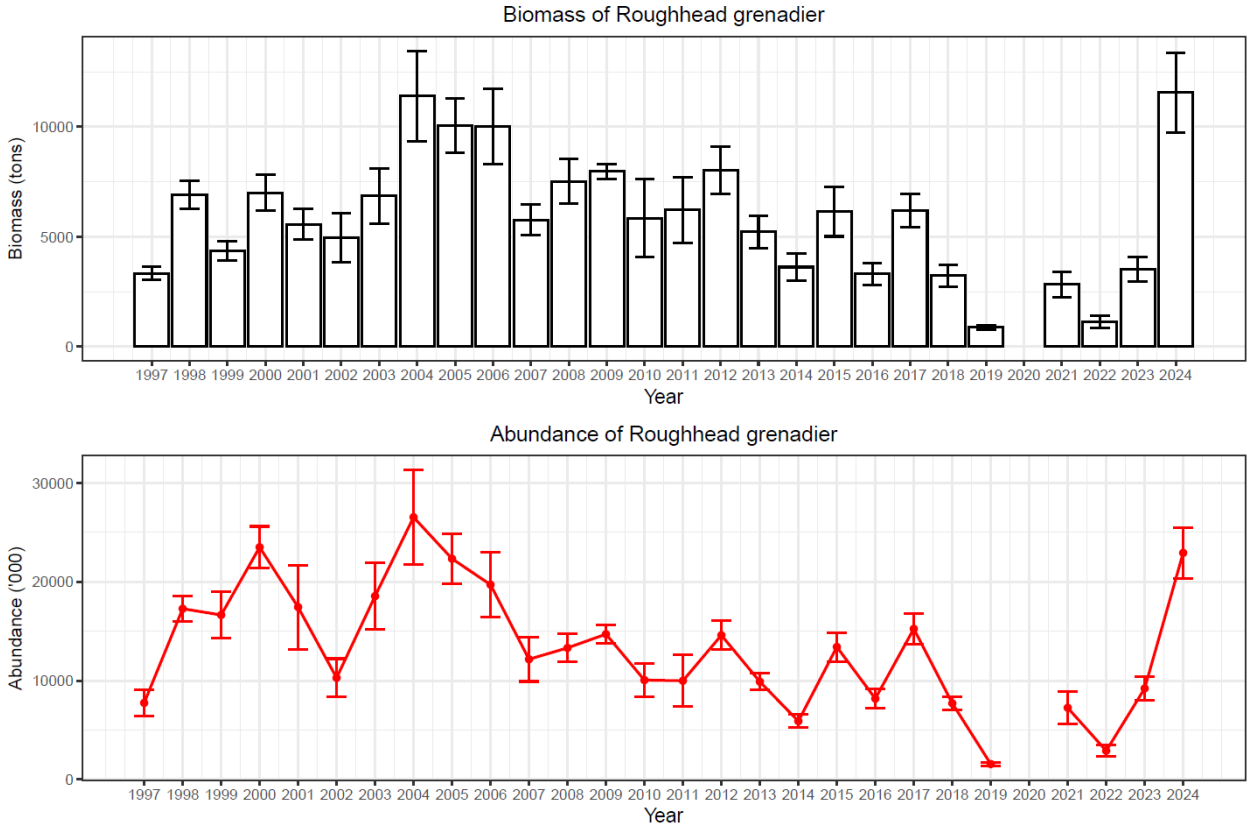

Figure 22. Roughhead grenadier total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

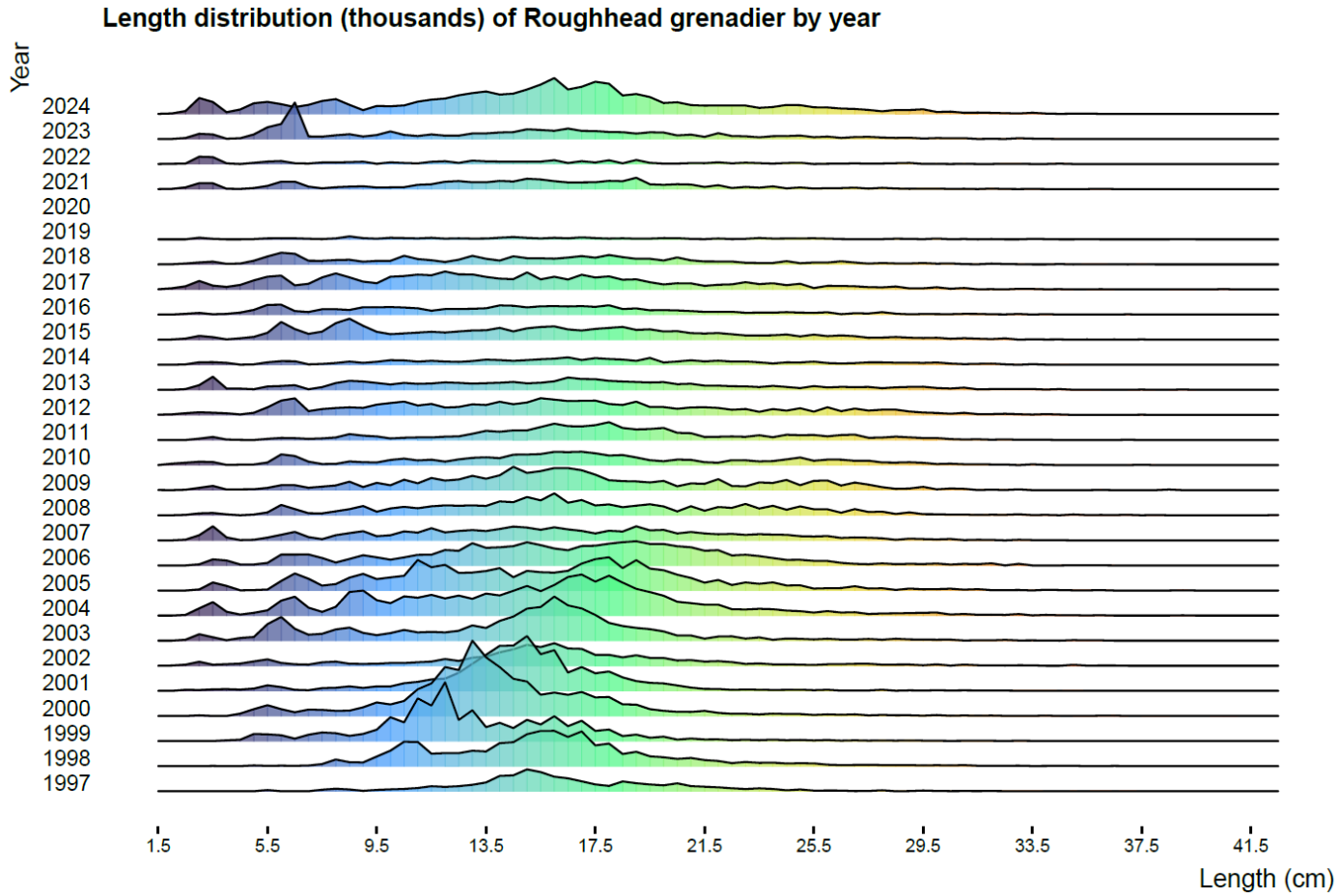

Figure 23. Roughhead grenadier total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

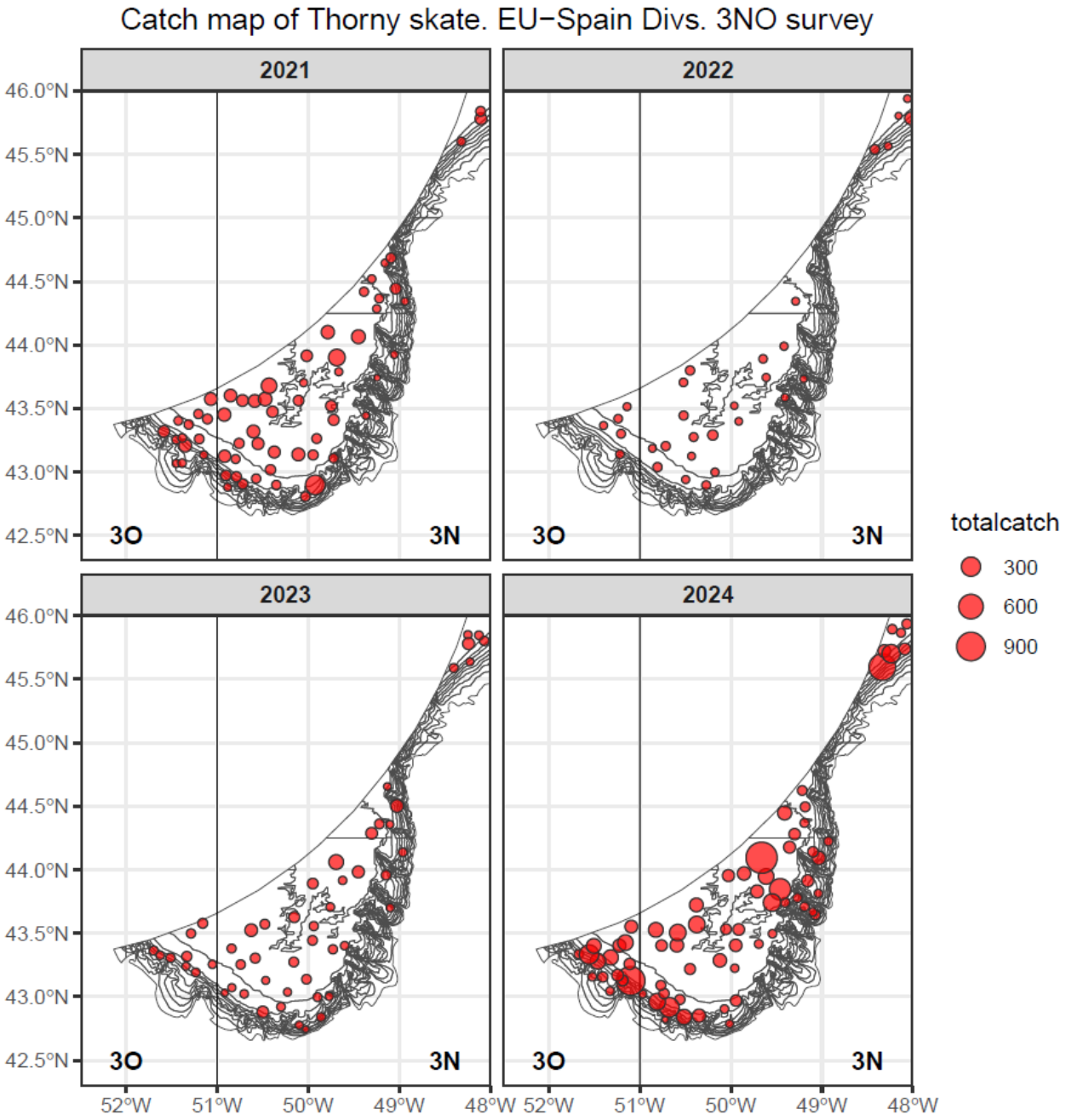

Figure 24. Thorny skate. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

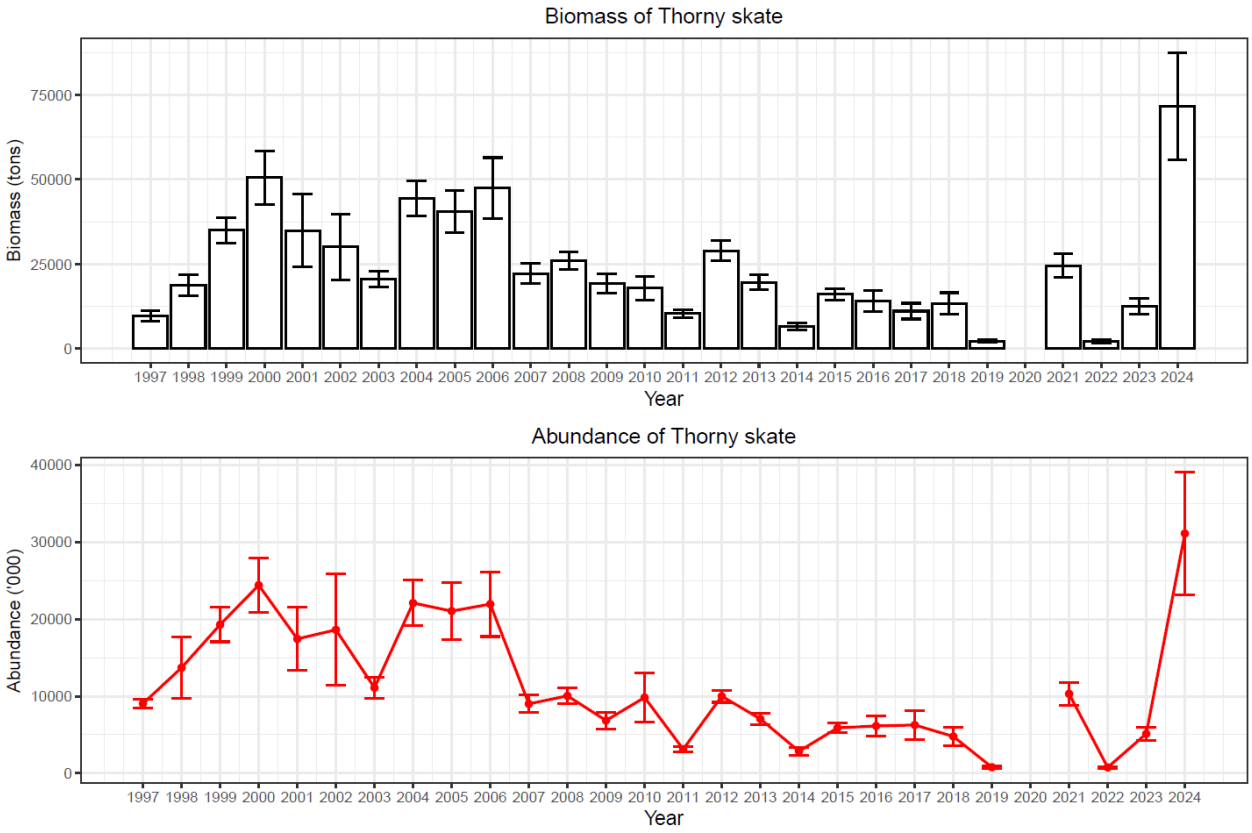

Figure 25. Thorny skate total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

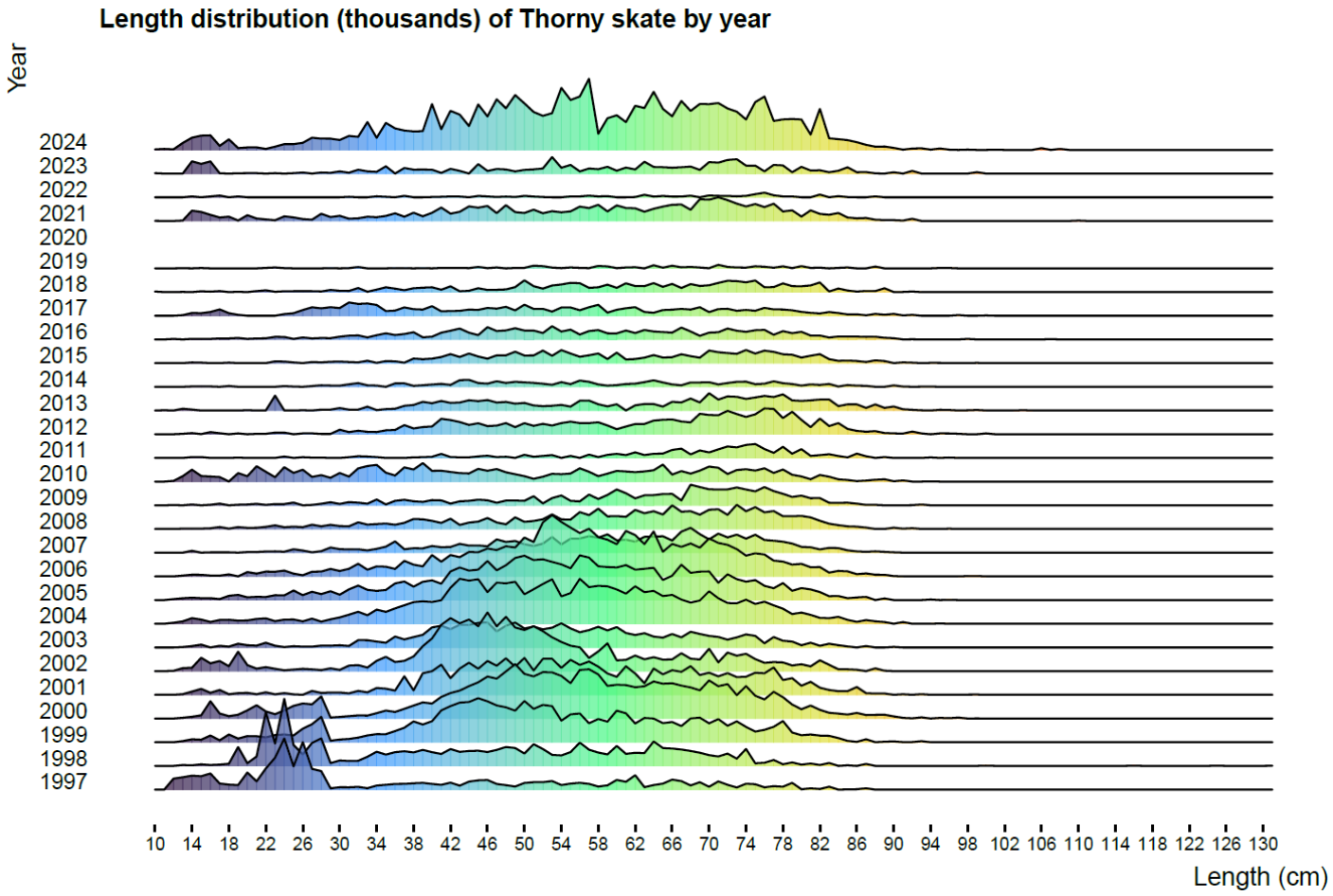

Figure 26. Thorny skate total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

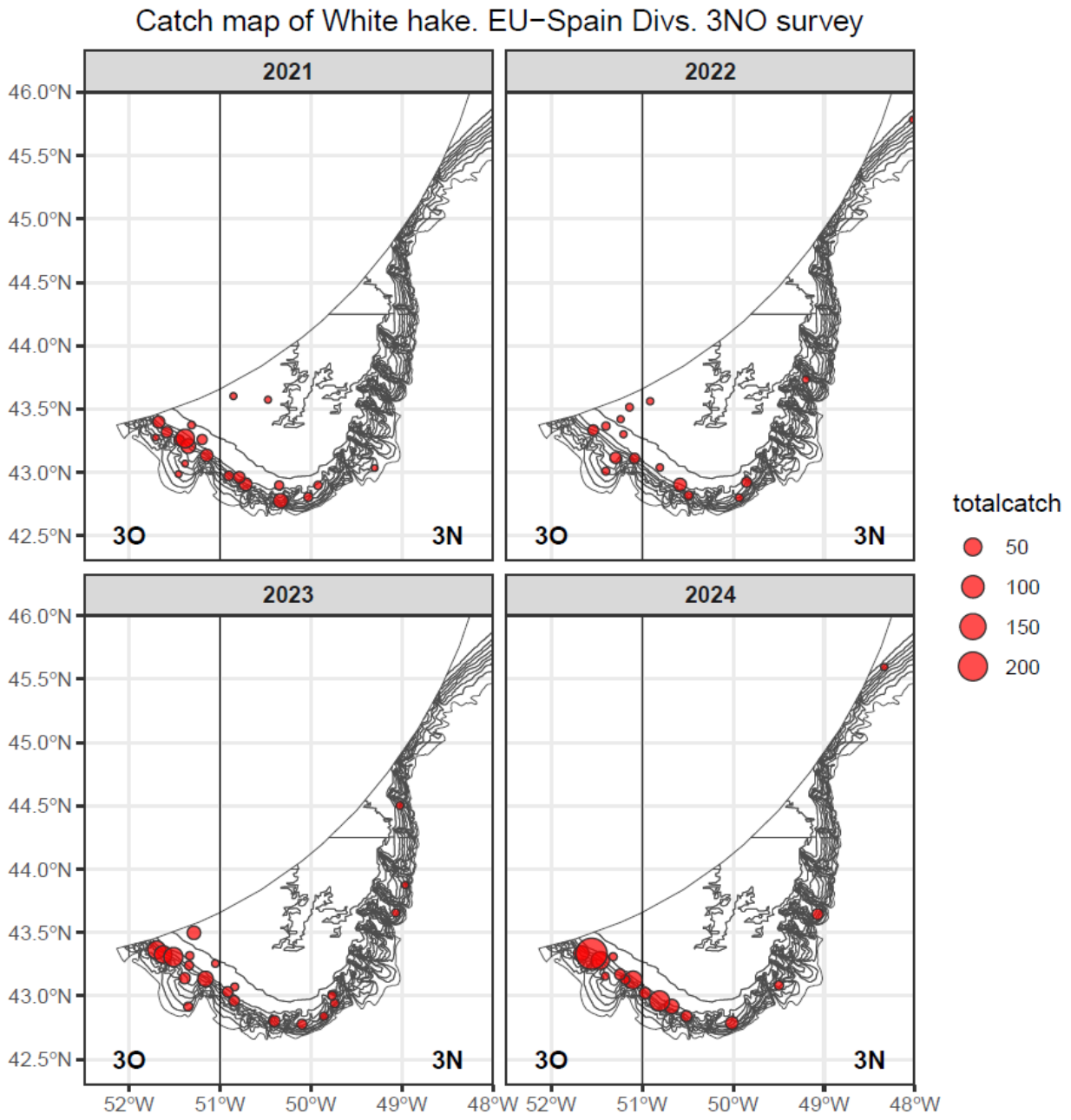

Figure 27. White hake. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

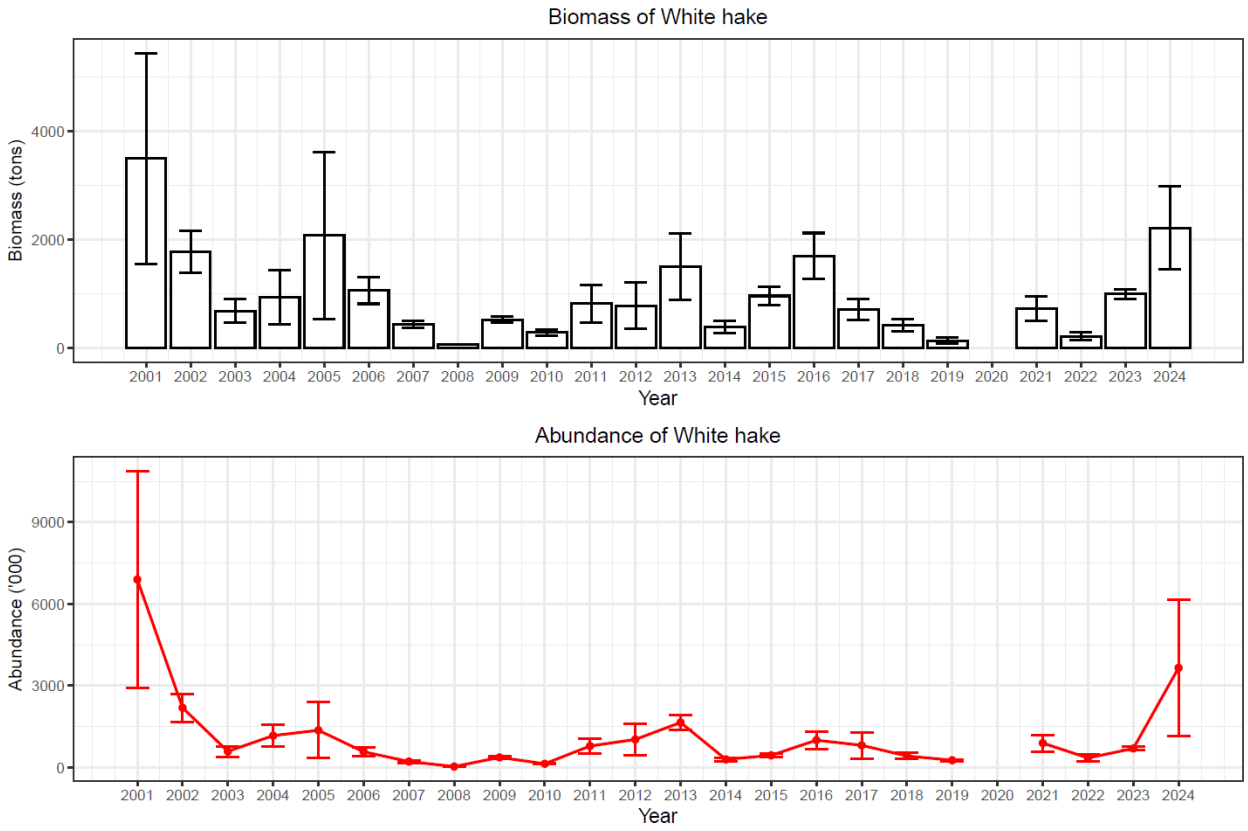

Figure 28. White hake total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

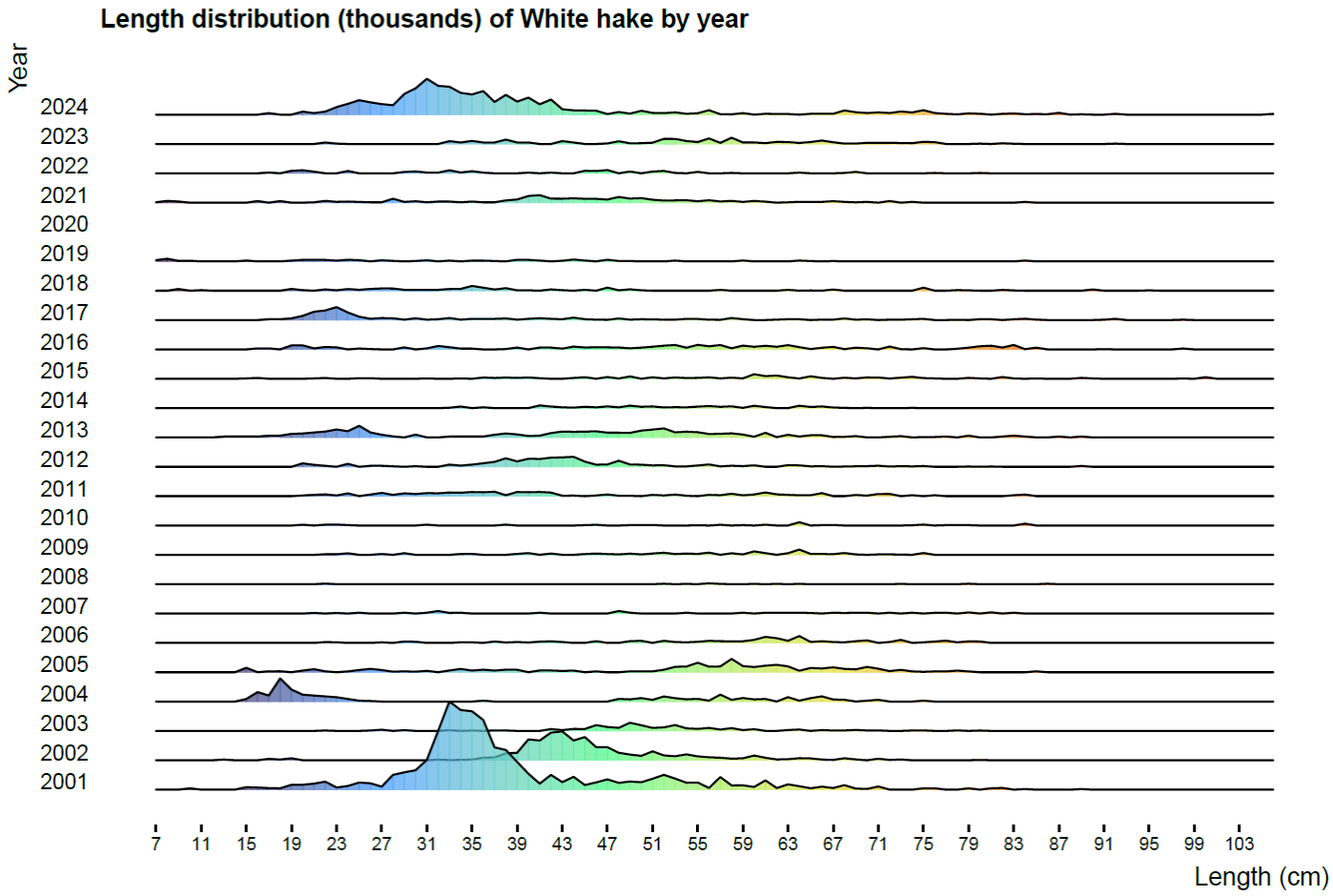

Figure 29. White hake total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

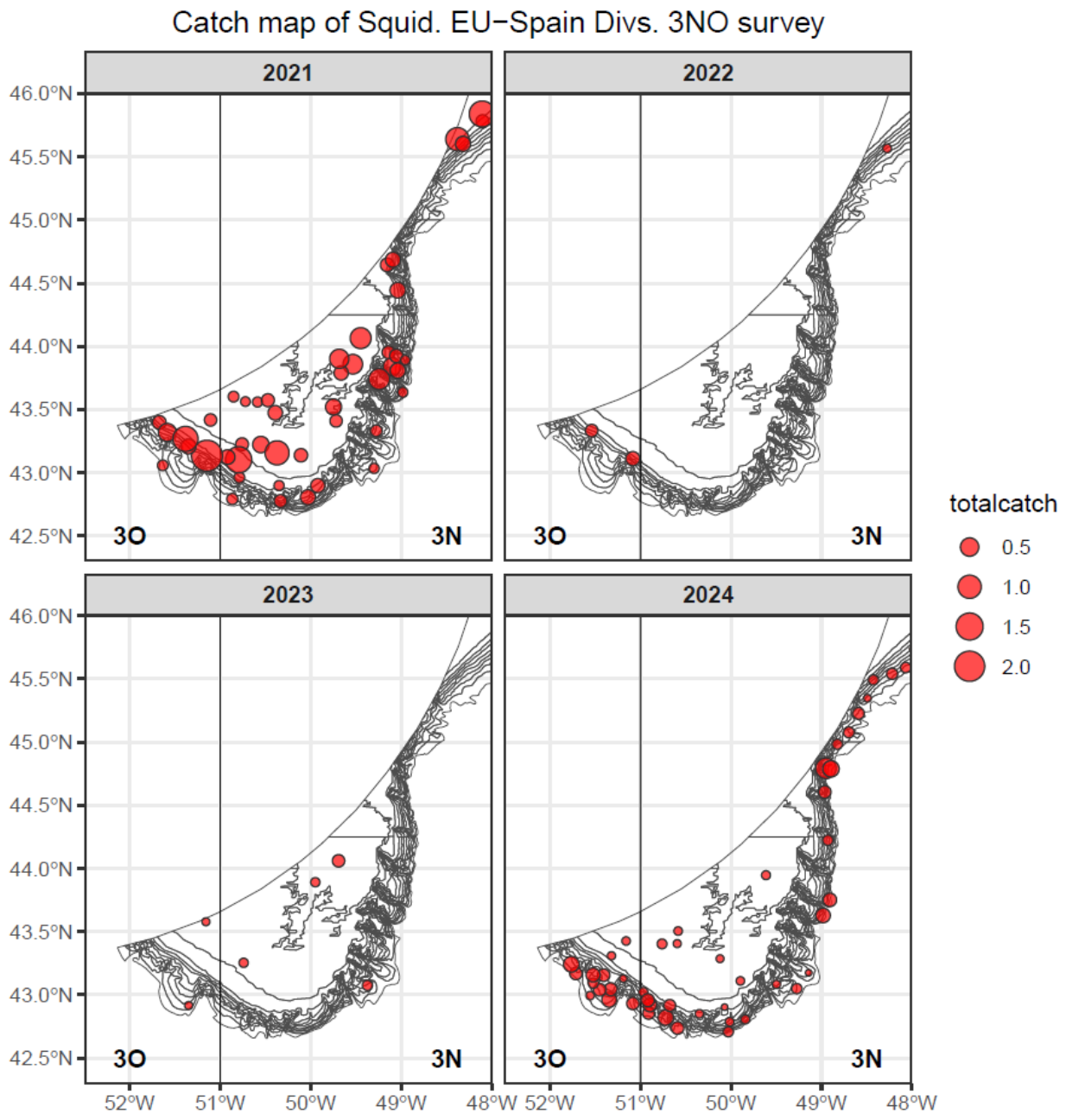

Figure 30. Squid. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

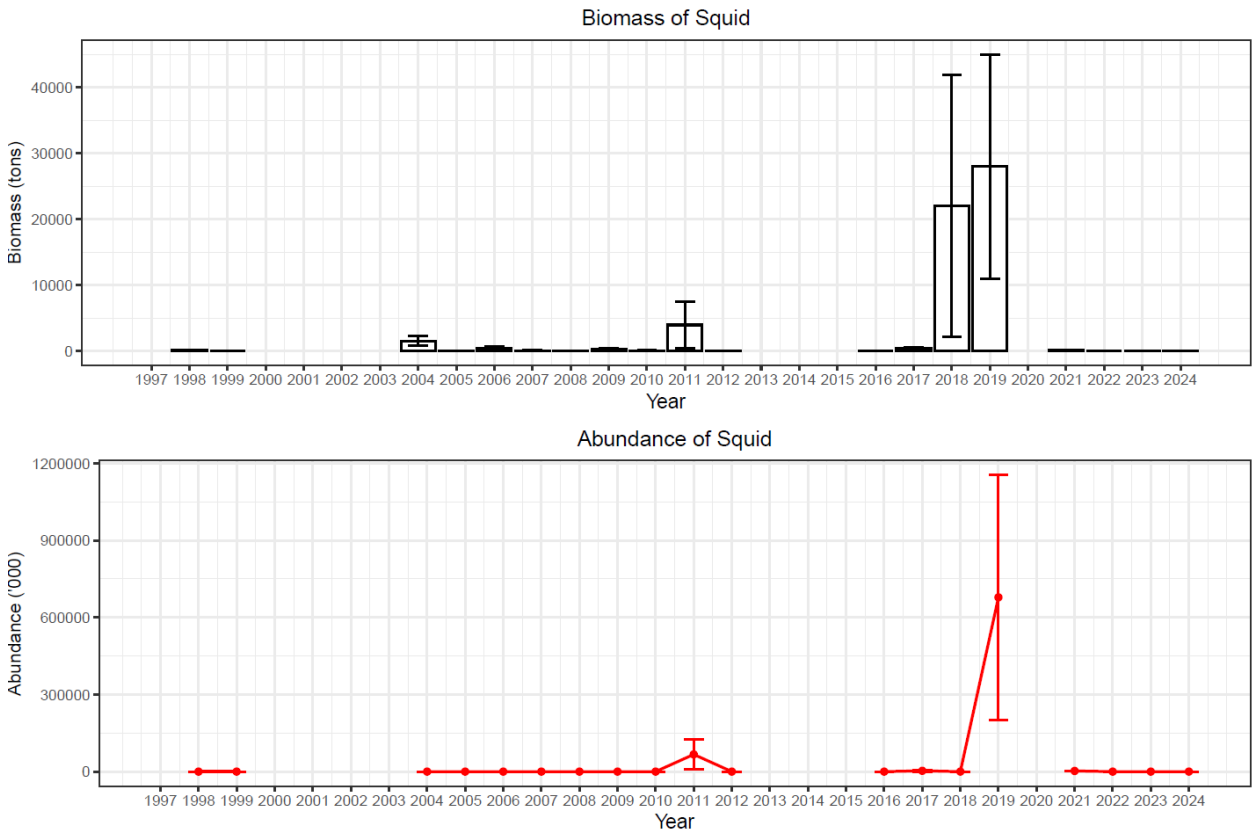

Figure 31. Squid total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

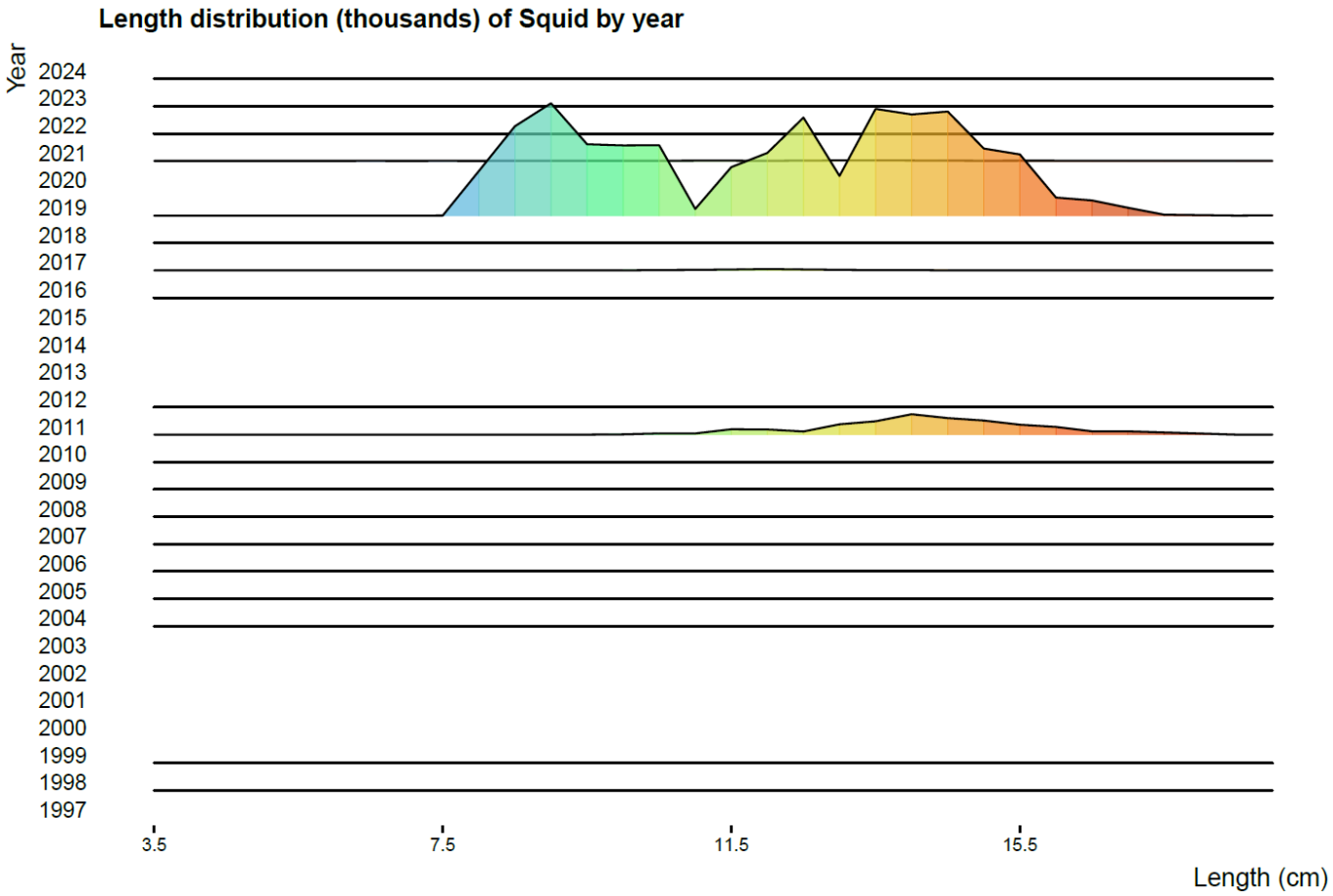

Figure 32. Squid total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.

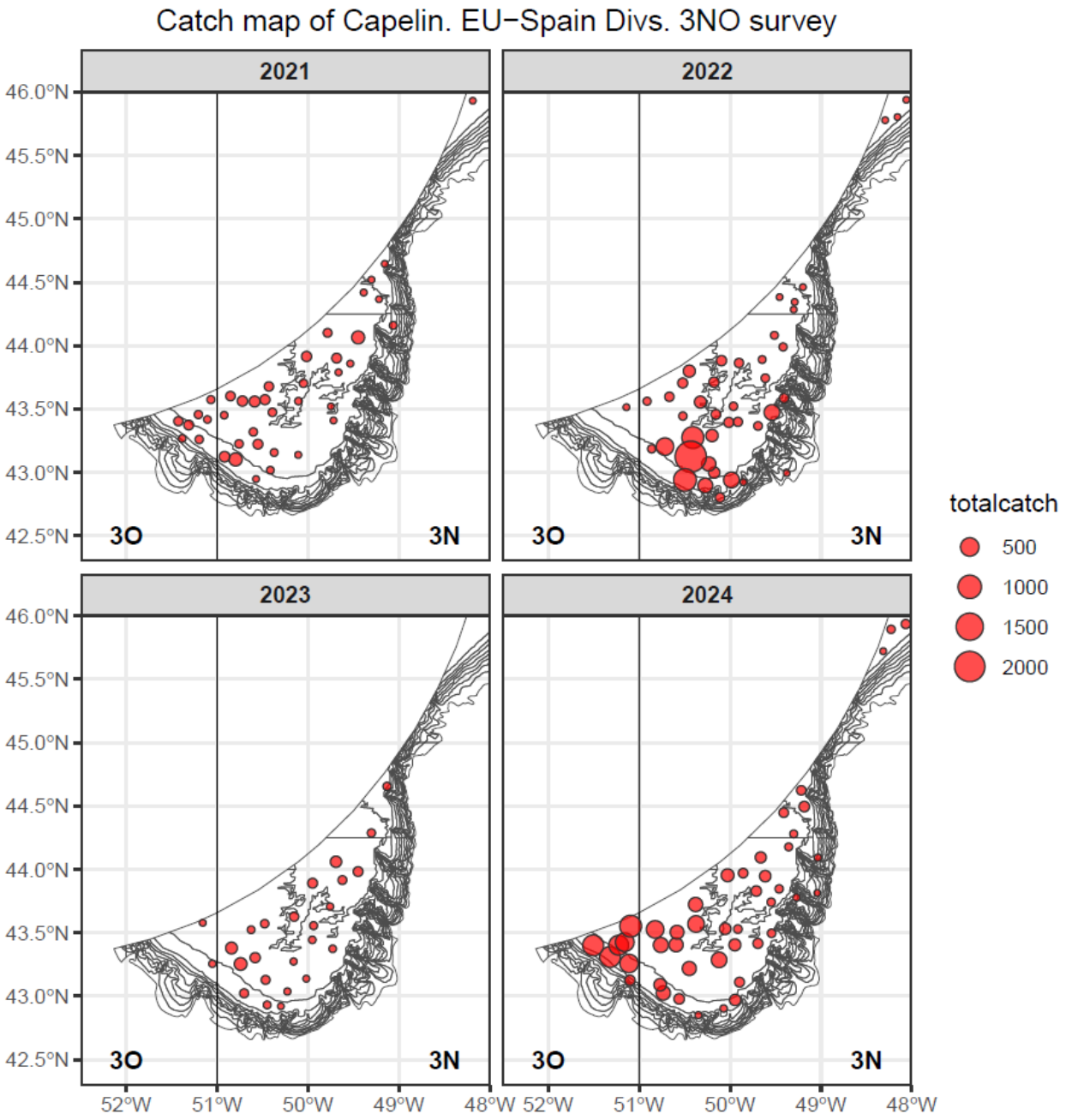

Figure 33. Capelin. Position of the hauls with catch in the last four years for the Spanish 3NO survey.

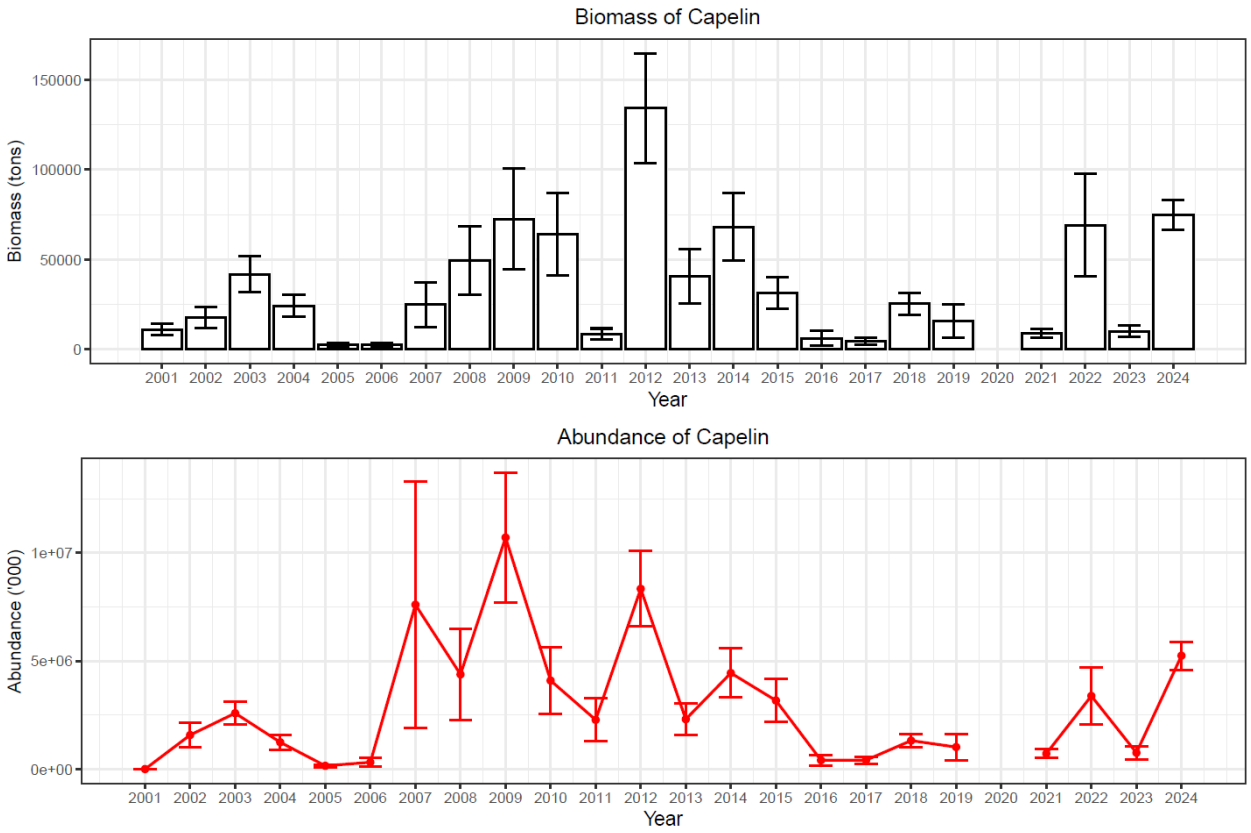

Figure 34. Capelin total biomass (tons) and abundance (thousands) and SD by year. Spanish Spring survey in NAFO Div. 3NO.

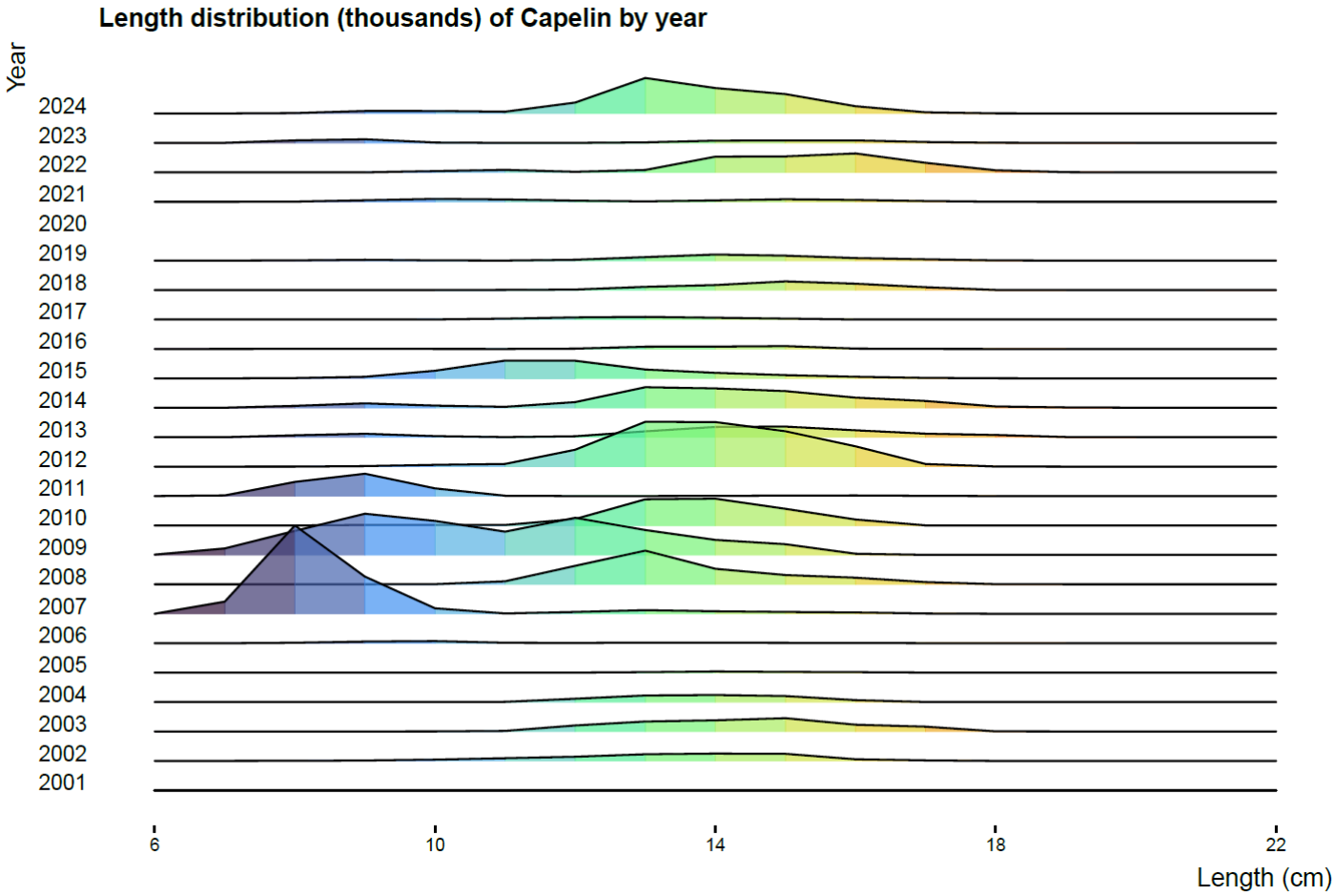

Figure 35. Capelin total length (cm) distribution. Spanish Spring survey in NAFO Div. 3NO.