



SCIENTIFIC COUNCIL MEETING – JUNE 2022

Effect in survey indices of removing stations in the NAFO closed Areas in the design of the EU surveys including the 2021 closed areas

by

Diana González Troncoso¹, Irene Garrido² and Fernando González-Costas¹

¹ Instituto Español de Oceanografía, Vigo, Spain

² Sinerxia Plus Consultora, Vigo, Spain

Abstract

In 2009, the Fisheries Commission established several coral and sponges protection closures areas to bottom fisheries within the NAFO Regulatory Area that started to be applied in 2010. Three random bottom trawl surveys are performed by the EU yearly in the NAFO Regulatory Area: Spanish Div. 3NO (Spring), Spanish and Portuguese in Div. 3M (Summer) and Spanish Div. 3L (Summer). The surveys are currently carried out by the R/V *Vizconde de Eza* and covers the closed areas. A study of the survey indices of the species assessed in NAFO (except shrimp) have been performed to know the impact of removing the hauls in the closed areas from the survey.

The results of the analysis show that there are two species, Greenland halibut and roughhead grenadier, in which their biomass and/or age/length indices are affected in all the surveys analyzed. This is due to the fact that these two species are distributed at greater depths and that the closed areas are mainly found in deep areas, so the suppression of survey hauls in closed areas has a greater impact on the indices of these two species. The best way to know the impact in the assessment results of these changes in the Greenland halibut and roughhead grenadier indices would be to run the assessment with both indices, the base case ones and the new case ones, and compare the results.

There are other species in which their global biomass indices do not change very much, but their age or length indices change appreciably when hauls from closed areas are removed from the calculations. In one case, the results of the assessment are compromised and it would be better to rerun the assessment with the new case indices to see the differences. In other cases, although the length distribution is not directly used in the assessment models, some recruitment and spawning stock biomass indices are derived from them, so changes in the perception of the stock could be encountered. These changes in the age/length indices should be considered in future assessments of these stocks if the prohibition of the surveys trawls in closed areas is approved.

If more close areas are added in the future to the existing ones, this study should be redone, which implies a big amount of work. It is not worth to rerun this study each time the closed areas change.



Introduction

In 2008, the WGESA (formerly WGEAFM), was created with the aim to help Scientific Council in conducting NAFO into an Ecosystem Approach (EA) to Fisheries following the guidelines made by the FAO in 2003 (FAO, 2003). The purpose of an ecosystem approach to fisheries is to plan, develop and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems. In 2009, the Fisheries Commission established several coral and sponges protection closures areas to bottom fisheries within the NAFO Regulatory Area that started to be applied in 2010. Currently, 18 area closures are in force in the NRA (Figure 1), including 4 areas added in September 2021 after a reassessment of the closures requested by the Commission to the Scientific Council by 2020, being performed by the WGESA in November 2020. A previous work was submitted as SCR in September 2021 without those last 4 areas (González-Troncoso *et al.*, 2021). This study is the update of that work with the 18 closures.

EU (Portugal and Spain) have performed a series of trawl surveys in NAFO Regulatory Area Divs. 3NO (since 1995), in Div. 3L (since 2003) and in Div. 3M (since 1988). These surveys have a stratified design over the total area of the Divisions and the number of random hauls in each stratum is proportional to the stratum area. The location of the survey hauls can eventually be inside of the closed areas. They were designed prior to implementation of any closed area and provide crucial data for several fish stock assessments, as well as have provided significant if not the bulk of the information for the knowledge and definition of the closed areas. In the last years, mostly since 2018, it has been tried not to perform hauls inside the closed areas to avoid harm to the VMEs.

During its 2015 meeting, EAFFM WG recommended that *SC considers options to expedite risk assessment of scientific trawl surveys impact on VME in closed areas, and the effect of excluding surveys from these areas on stock assessments*. In this paper, the consequences in the different survey indices of removing the closed areas from the design of the surveys are investigated.

Material and Methods

The EU surveys time series in the NAFO Regulatory Area (NRA) Div. 3LMNO were used in this study. A summary of the main characteristics of the surveys is in Table 1. Figure 1 shows the stratification of the NRA used during the surveys (Bishop, 1994). Figure 2 presents the position of the valid hauls during the whole time series (starting point of each haul). In 2020, only the 3M survey was carried out due to the COVID-19 pandemic. In 2021, the 3L survey was not performed for the same reason. In 2005, the 3L survey was not carried out due to technical problems with the vessel. Between 2004 and 2008, strata 526 and 527 of Division 3M were surveyed, but not after 2009 because of a high presence of sponges in the hauls performed in those strata. The hauls in those strata were omitted in this study.

In the case of the Div. 3NO and Div. 3M surveys, the vessel and/or the gear was changed in 2002 and 2004, respectively. The indices of the main species were transformed in both surveys to the new series (REFERENCES). For those surveys, all the years have been used for this analysis, but it was decided to work with the original series and not with the transformed series since the purpose of the study is to compare the series with and without closed areas. The indices before and after the change of the vessel are depicted separately in the Figures to avoid confusion in which indices are shown. In the case of the 3NO, in 2001 the data of the former vessel were used as the basis of the indices. In the 3L survey, all the years have been included although the coverage of the first two years (2003-2004) was very poor.

The hauls with the starting or ending point inside a closed area were considered to be performed inside the closed areas. New survey indices were estimated removing those hauls inside the closed areas. In Table 2, the stratification scheme and the area of each stratum, with and without the closed areas (calculated with the library *sf* of the R software) is presented by survey and Division. The potential impacts of excluding the closed areas from the surveys design were evaluated by comparing the time series of biomass with (base case) and without (new case) the hauls inside the closed areas. The new indices calculations were made for the species assessed by the NAFO Scientific Council (except shrimp, Table 3), and compared with the results with all the

hauls (González-Troncoso *et al.*, 2022; Garrido *et al.*, 2022; Román Marcote *et al.*, 2020a; Román Marcote *et al.*, 2020b).

In all the surveys, during the normal operations, there are some strata with only one valid haul (Tables 4A, 5A and 6A). This is normally due to lack of time, mainly because several hauls were performed but just one was valid and there was no time available for trying more locations. There are some cases, mainly at the beginning of the series, where some strata have no hauls (strata not surveyed). In the case of 3M and 3L (in this last case taking out the two first years), very few cases are presented, but in the 3NO it is more usual, mainly due to the characteristics of those Divisions, with several strata in the cliffs that are more difficult to trawl. In the case of the strata without hauls, no data is used to calculate the indices of those strata. In the case of the strata with one haul, the biomass and the length/age distribution were calculated with the available data of that haul. It must be noted that, in this case, the SD of that strata could not be calculated, so the total SD by year may be underestimated.

Potential time-varying biases created by the exclusion of data within the protected areas was explored by examining trends in the annual log of the ratio between the two time series (ratio = without the hauls in the closed area / with all the hauls, i.e. a value of 0 in the log ratio would mean that the indices with and without the closed areas are identical, negative values would indicate that removing the hauls in the closed areas renders lower index values than keeping all the hauls, and viceversa). We were particularly interested in the potential for time-varying biases as these may compromise the scientific advice produced from the surveys (see Benoît *et al.*, 2020; Rideout *et al.*, 2021). To that end, a generalized additive model (GAM) was fitted to the time series of log-ratio values. Significant results for the smoother for the covariate 'year' indicated the potential for a time varying bias. The p-value of the fit is presented in Table 2, indicating if the fit is or not significative, as well as the maximum difference in the biomass of both cases in percentage:

$$\text{Max Diff Biomass (\%)} = 100 - \frac{\text{biomass new case}}{\text{biomass old case}} * 100$$

Positive values of the maximum difference in the biomass means that the maximum biomass was in the new case, while negative values indicate that the maximum biomass was in the base case.

A study of the age distribution (or length distribution if ages are not available) was made for the species in Table 3, calculating the indices by age with and without the hauls inside the closed areas. When age distribution is presented, all the ages are displayed, except in the case of the redfish, for which the ages were grouped by 2. When only length distribution is available, the lengths were grouped in 16 groups in order to allow depicting properly the Tables and the Figures. Age/length distribution is presented only when obvious differences are presented in the biomass and/or if the bias of the gam fit is significant.

Results

The results are given by species and survey since they are the survey indexes that are used in the different stocks assessments.

Number of hauls

33 of the 95 strata of the NRA included in the surveys have some surface belonging to some closed area (Table 2).

Division 3M survey

18 out of 32 strata surveyed during the Div. 3M survey intersect with closed areas. In 1 of them, the closed area represents less than 1% and in 7 more than the 30% of the total area, reaching the 50% in one stratum (Table 2). As the closed areas are all in the deeper depths, none of the shallower strata (less than 549 meters depth) are affected, except for two strata (513 and 514), which have only 0-ish% and 2% affected areas, respectively.

Table 4A shows the number of valid hauls by strata during 1988-2021 in the 3M survey. These are the hauls considered to calculate the indices in the base case. Between 1988 and 2003, only the shallower strata (less than 730 meters depth) were prospected. It can be observed that the minimum number of valid hauls by stratum is 2, except in the strata 517 in two years (1993 and 2011), in which only 1 haul was performed. And in 1993 there were two strata not surveyed, 514 and 518. Figure 2 presents the initial position of the hauls during the whole time series. It can be seen that there are some areas barely or never prospected as the bottom is not appropriate.

Tables 4B and 4C, as well as Figure 3 (left panel) present the number and the percentage of valid hauls in the closed areas during the period 1988-2021 in the 3M survey. In percentage, there are five strata with more of 30% of the hauls inside the closed areas, and only one with less than 10%. There are some strata in which all the hauls made in a particular year are in the closed areas, some cases in which the hauls are more than 65%, and many cases in which the hauls in closed areas are the 50% of the total. By year, the maximum percentage of hauls in close areas is 12.35%. This percentage could have more or less impact in the total results depending on the total number of hauls made and the distribution of the analyzed species. In Figure 4 the position of the valid hauls inside the closed areas is shown.

Table 4D presents the subtraction between Table 4A and Table 4B, so the number of hauls in the area that remains after removing the hauls in the closed areas. These are the hauls considered to calculate the indices in the new case. There are 5 cases with 0 hauls (in red in the table, there is no biomass in those cases), and 42 cases with 1 haul (in yellow in the table, the standard error can not be calculated).

Divisions 3NO survey

7 out of 39 strata surveyed during the Div. 3NO survey intersect with closed areas. In 3 of them, the closed area represents more than the 35% of the total area, reaching the 89% in stratum 755 (Table 2). As the closed areas are all in the deeper depths, none of the shallower strata (less than 549 meters depth) are affected.

Table 5A shows the number of valid hauls by strata during 1995-2021 in the 3NO survey. These are the hauls considered to calculate the indices in the base case. It can be observed that there are several cases with only 1 haul performed by strata, and with strata not surveyed. Figure 2 presents the position of the hauls during the whole time series. It can be seen that there are some areas barely or never prospected as the bottom is not appropriate.

Tables 5B and 5C, as well as Figure 3 (middle panel) present the number and the percentage of valid hauls in the closed areas during the period 1995-2021 in the 3NO survey. In percentage, the most affected strata are the 755 (95.8%) and the 759 (57.1%). The less affected are 753 (3%), 758 and 765 (4% each). In strata 755 and 759 all the hauls made in several years are in the closed areas. By year, the maximum percentage of hauls in close areas is 6.6%. This percentage could have more or less impact in the total results depending on the total number of hauls made and the distribution of the analyzed species. In Figure 4 the position of the valid hauls inside the closed areas is shown.

Table 5D presents the subtraction between Table 5A and Table 5B, so the number of hauls in the area that remains after removing the hauls in the closed areas. These are the hauls considered to calculate the indices in the new case. Stratum 755 remains without hauls except in years 2000 and 2005, when 1 haul remains. So, this stratum is almost totally absent in the calculation of the indices. In stratum 759 only 4 years have more than 1 haul. The cases in which only one valid haul remains, and so we have no way to calculate standard error, are 39 (in yellow in the table).

Division 3L survey

8 out of 24 strata surveyed during the Div. 3L survey intersect with closed areas. In 5 of them, the closed area represents more than the 37% of the total area, reaching the 78% in stratum 748 (Table 2). As the closed areas are all in the deeper depths, none of the shallower strata (less than 549 meters depth) are affected except strata 729 with 2% of the area.

Table 6A shows the number of valid hauls by strata during 2003-2019 in the 3L survey. These are the hauls considered to calculate the indices in the base case. It can be observed that from year 2006 the minimum number of valid hauls by stratum is 2, except in the strata 749 in 2007, where only 1 haul was performed. Figure 2 presents the position of the hauls during the whole time series.

Tables 6B and 6C, as well as Figure 3 (right panel) present the number and the percentage of valid hauls in the closed areas during the period 2003-2019 in the 3L survey. In percentage, there are four strata with more than 44.2% of the hauls inside the closed areas (reaching 91% in stratum 730), and two with less than 6.9%. By year, the maximum percentage of hauls in close areas is 14%. In Figure 4 the position of the valid hauls inside the closed areas is shown.

Table 6D presents the subtraction between Table 6A and Table 6B, so the number of hauls in the area that remains after removing the hauls in the closed areas. These are the hauls considered to calculate the indices in the new case. Stratum 748 and 749 have zero or one haul each year (except 749 in 2019, with 2 hauls). The cases in which only one valid haul remains, and so we have no way to calculate standard error, are 33 (in yellow in the table).

Indices of the species

Division 3M survey

Cod (stock in Division 3M)

Table 7a presents the biomass of the 3M cod during the EU 3M survey (1988-2021), and Table 7b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. No biomass is presented in the strata of more than 700m, so only the indices until 700 meters are presented in Figure 5. As expected, minor changes occur in the biomass of this species that prefers depths less than 600 m (Table 7b, Figure 5 top panel). There are some differences in 12 cases that does not affect the total biomass or SD. Bias is not significant for this stock (Figure 5 bottom left panel, Table 3), and the CV is the same in the base and in the new cases (Figure 5 bottom right panel).

Due to these results, no age distribution is shown. In any case, no major differences in the age distribution were encountered.

Greenland halibut (stock in Subarea 2 + Divisions 3KLMNO)

Indices for depths up to 700m and for depths up to 1400m are presented separately for this species, as its distribution is in the whole water column.

For the shallower strata (less than 700m, since 1988), differences of no more than 14% can be seen in the total biomass year by year except in 1992 with a 26% of difference (Table 8b, Figure 6a top panel). Except that year, the trends in biomass are quite similar, but in some strata in some years the differences are very high, up to 249%. In general, in the new case the biomass is underestimated in the first years and overestimated in the last years. The bias has an increasing trend and is significant (Figure 6a bottom left panel, Table 3). Overall, the CV is quite similar between years although in some cases the difference is quite important (Figure 6a bottom right panel). So, it seems that removing the closed areas in these strata can affect the perception of the stock.

With regard the age distribution in the shallower strata, there are more differences in the very first years and since 2010, quite important in some cases (Table 9b, Figure 6b). Although the total number of individuals is not deeply affected except in a few years, the distribution by age change in some years. Note that the ALK for Greenland halibut in the 3M survey is only available since 1991.

For all the strata (less than 1400m, since 2004), the differences are very scarce and in general low, being overall the biomass higher in the new case (Table 8b, Figure 7a top panel). The bias shows a marked decreasing trend,

being the ratios positive in the first years and negative afterwards, although the magnitude is much lower than in the case of the shallower strata. The change in the bias is significative (Figure 7a bottom left panel, Table 3). A notably increase in the SD and the CV of the new series can be seen (Table 8b, Figure 7a bottom right panel). Noted that the y-axis of the bias Figures for less than 700m and for less than 1400m (Figures 6a and 7a) are different.

The age distribution for the whole depth range reflects the same impression as in the shallower strata, with the total abundance quite similar between both scenarios but some important changes in the number distribution by age (Table 10b, Figure 7b).

So, the indices of the Greenland halibut in the EU 3M survey seem to change if the hauls in the closed areas are removed. This is not unexpected as this species inhabits preferably the deeper strata. This could affect the results of the assessment of this stock, that is performed via an analytical assessment model.

American plaice (stock in Division 3M)

Table 11a presents the biomass of the 3M American plaice during the EU 3M survey (1988-2021), and Table 11b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. No biomass is presented in the strata of more than 700 meters, so only the indices until 700 meters are presented in Figure 8. As expected, minor changes occur in this species that prefers shallower depths (Table 11b, Figure 8 top panel). There are some differences in a few cases that does not affect the total biomass or SD. Bias is not significative for this stock (Figure 8 bottom left panel, Table 3), and the CV is the same in the base and in the new cases (Figure 8 bottom right panel).

Due to these results, no age distribution is shown. In any case, no differences in the age distribution were encountered.

Golden redfish (stock in Division 3M)

Table 12a presents the biomass of the 3M golden redfish during the EU 3M survey (1988-2021), and Table 12b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. No biomass is presented in the strata of more than 700 meters, so only the indices until 700 meters are presented in Figure 9. As expected, minor changes occur in this species that prefers shallower depths (Table 12b, Figure 9 top panel). There are some differences in a few cases that does not affect the total biomass or SD except in 1988. Bias is not significative for this stock (Figure 9 bottom left panel, Table 3), and the CV is the same in the base and in the new cases (Figure 9 bottom right panel).

Due to these results, no age distribution is shown. In any case, no differences in the age distribution were encountered.

Deepwater redfish (stock in Division 3M together with Acadian redfish as beaked redfish)

The deepwater redfish is assessed together with the Acadian redfish as beaked redfish due to the difficulties in separating both species. In the EU 3M survey these two species have been systematically identified since 1991, from when separated indices are available for both species.

Table 13a presents the biomass of the 3M deepwater redfish during the EU 3M survey (1991-2021), and Table 13b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Little amount of biomass is presented in the strata of more than 700 meters, and although in some cases the differences are quite important, there are no differences in the results until 700 meters and until 1400 meters, so only the indices until 700 meters are presented in Figure 10.

There are a few important changes in the biomass of this stock when the hauls in the closed areas are removed, especially in strata 518. As in that stratum the catches of redfish are not too high, they do not affect too much the total biomass (Table 13b, Figure 10 top panel). The bias presents a clear decreasing trend and the fit is

significant (Figure 10 bottom left panel, Table 3). The CV is virtually the same between both series (Figure 10 bottom right panel).

Despite the small differences in the biomass, some differences have been found in the age distribution of this stock, especially in 2013 (Table 14a, Figure 10b), although the total abundance is not affected (Table 14b). Note that no ALK is available before 1992 for this stock, and that due to technical problems with the database, no ALK was available for this study in some years.

So, although the biomass index of this stock is not deeply affected in the new case, the bias and the change in the age distribution could be a concern. This could affect the results of the assessment of this stock, that is performed via an analytical assessment model.

Acadian redfish (stock in Division 3M together with deepwater redfish as beaked redfish)

Table 15a presents the biomass of the 3M Acadian redfish during the EU 3M survey (1991-2021), and Table 15b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Little amount of biomass is presented in the strata of more than 700 meters, so only the indices until 700 meters are presented in Figure 11.

There are a few changes in the biomass of this stock when the hauls in the closed areas are removed, some of them being quite important, although the total biomass is not affected (Table 15b, Figure 11 top panel). In fact, the bias is not important and not significant (Figure 11 bottom left panel, Table 3). The CV is the virtually the same between both series (Figure 11 bottom right panel).

Due to these results, no age distribution is shown. In any case, no differences in the age distribution were encountered in general.

Roughhead grenadier (stock in Subareas 2 and 3)

Indices for depths up to 700m and for depths up to 1400m are presented separately for this species, as its distribution is in the whole water column.

For the shallower strata (less than 700m, since 1988), differences up to more than 52% can be seen in the total biomass year by year (Table 16b, Figure 12a top panel). The biomass is in general underestimated in the new case, but the bias is not significant (Figure 12a bottom left panel, Table 3). In general, the CV is lower in the base case in the first years and higher in the last years, and the differences are quite important in some years (Figure 12a bottom right panel). So, it seems that removing the closed areas in these strata can affect the perception of the stock.

With regard the age distribution in the shallower strata, there are differences in all years, quite important in some cases (Table 17b, Figure 12b). Both the distribution of the ages and the total abundance are quite different in some year. Note that the ALK for roughhead grenadier in the 3M survey is only available since 1994.

For all the strata (less than 1400m, since 2004), the differences are very important in some cases, being overall the biomass higher in the base case (Table 16b, Figure 13a top panel). The gam gives a quite stable bias and the fit is not significant (Figure 13a bottom left panel, Table 3). In general, there is an increase in the SD and the CV of the new series (Table 16b, Figure 13a bottom right panel). Noted that the y-axis of the bias Figures for less than 700m and for less than 1400m (Figures 12a and 13a) are different.

The age distribution for the whole depth range reflects some important changes in some of the ages, although in this case the different in the total abundance are less important than in the shallower case (Table 18b, Figure 13b).

So, the indices of the roughhead grenadier in the EU 3M survey seem to change if the hauls in the closed areas are removed. This is not unexpected as this species inhabits preferably the deeper strata. This could affect the results of the assessment of this stock, that is performed via an analytical assessment model when made.

Squid (stock in Subareas 3 and 4)

Table 19a presents the biomass of the 3M squid during the EU 3M survey (1988-2021), and Table 19b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Little amount of biomass is presented in the strata of more than 700 meters, and although in some cases the differences are quite important, there are no differences in the results until 700 meters and until 1400 meters, so only the indices until 700 meters are presented in Figure 14. There are some important differences in the biomass by strata in some years, but the total biomass is in general not affected (Table 19b, Figure 14 top panel). Bias is not significative for this stock (Figure 14 bottom left panel, Table 3), and the CV is the same in almost all the years (Figure 14 bottom right panel).

Some differences were encountered in the lengths of this stock between the base and the new case, so the length distribution is presented. Please note that no ALK is available for this species in this survey, so age distribution is not available. It is remarkable the difference in the numbers at lengths between 3 cm and 17 cm between 1996 and 2008, although it that does not affect significantly the total abundance as they are not the most abundant lengths (Table 20b, Figure 15).

So, although the biomass index of this stock is not deeply affected in the new case, the change in the length distribution could be a concern. This is something to consider if sometime the length distribution is used in the assessments of this stock and the hauls in the closed areas are removed.

Division 3NO survey

Cod (stock in Divisions 3NO)

Table 21a presents the biomass of the 3NO cod during the Spain-3NO survey (1995-2021), and Table 21b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. As expected, no changes occur in the biomass of this species that prefers depths less than 600 m (Table 21b, Figure 16 top panel). It does not exist bias for this stock (Figure 16 bottom left panel, Table 3), and the CV is the same in the base and in the new cases (Figure 16 bottom right panel).

Due to these results, no age distribution is shown. In any case, no differences in the age distribution were encountered.

Greenland halibut (stock in Subarea 2 + Divisions 3KLMNO)

Differences up to 33% in the total biomass can be seen in the total biomass year by year (Table 22b, Figure 17 top panel). Biomass in strata 755 almost disappears in the new case. The biomass is underestimated in the new case in almost all years and the bias is significative (Figure 17 bottom left panel, Table 3). The SD is always higher and the CV in general too in the new case (Figure 17 bottom right panel). So, it seems that removing the closed areas in these strata can affect the perception of the stock.

With regard the age distribution, differences can be seen along all the years, being more important since 2008 and in general lower in the new case (Table 23b, Figure 18). The distribution by age are affected in many years, although the total number of individuals is quite similar.

So, the indices of the Greenland halibut in the EU-Spain 3NO survey seem to change if the hauls in the closed areas are removed. This is not unexpected as this species inhabits preferably the deeper strata. This could affect the results of the assessment of this stock, that is performed via an analytical assessment model.

American plaice (stock in Divisions 3LNO)

Table 24a presents the biomass of the 3NO American plaice during the Spain-EU 3NO survey (1995-2021), and Table 24b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. As expected, minor changes occur in this species that prefers shallower depths (Table 24b, Figure 19 top panel). There are some differences in some cases that does not affect the total biomass or SD. Bias is no significative for this stock (Figure 19 bottom left panel, Table 3). The CV is the same in the base and in the new cases (Figure 19 bottom right panel).

Due to these results, no age distribution is shown. In any case, no differences in the age distribution were encountered.

Redfish (stocks in Divisions 3LN and 3O)

The three redfish species (golden redfish, deepwater redfish and Acadian redfish) are not separated during the EU-Spain 3NO survey, so global indices for all of them are presented.

Table 25a presents the biomass of the 3NO redfish during the Spain-EU 3NO survey (1995-2021), and Table 25b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Minor changes occur in this species that prefers shallower depths (Table 25b, Figure 20 top panel). There are some differences in a few cases, that does not affect the total biomass or SD. Bias is no significative for this stock (Figure 20 bottom left panel, Table 3). The CV is the same in the base and in the new cases (Figure 20 bottom right panel).

Due to these results, no length distribution is shown. In any case, no major differences in the length distribution were encountered. No ALK is available for this species in this survey.

Roughhead grenadier (stock in Subareas 2 and 3)

Differences up to 40% are found for roughhead grenadier in the total biomass year by year (Table 26b, Figure 12a top panel). The ratios are negative in all years except 2 (so, the biomass is underestimated in the new case) and the bias is significative (Figure 21 bottom left panel, Table 3). In general, the SD is higher and the CV lower in the base case and the differences are quite important in some years (Figure 21 bottom right panel). So, it seems that removing the closed areas in these strata can affect the perception of the stock.

For roughhead grenadier ALK is not available for this survey, so length distribution is presented. The differences are quite important all the years of the series presented, both for the distribution by age as for the total abundance, having in general a smaller number of individuals in the new case (Table 27b, Figure 22).

So, the indices of the roughhead grenadier in the Spain-EU 3NO survey seem to change if the hauls in the closed areas are removed. This is not unexpected as this species inhabits preferably the deeper strata. This could affect the results of the assessment of this stock, that is performed via an analytical assessment model when made.

Witch flounder (stock in Divisions 3NO)

Table 28a presents the biomass of the 3NO witch flounder during the Spain-EU 3NO survey (1995-2021), and Table 28b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Minor changes occur in the total biomass of this species (Table 28b, Figure 23 top panel). There are some differences in a few cases, some of them quite significative, but do not affect the total biomass or SD. Bias is not significative for this stock (Figure 23 bottom left panel, Table 3), and the CV is the same in the base and in the new cases (Figure 23 bottom right panel).

Despite the results in biomass found, some differences were encountered in the lengths of this stock between the base and the new case, so the length distribution is presented. It is remarkable the difference in the numbers at lengths between 8 cm and 35 cm in 2017 and 2018, although it that does not affect the total abundance as

they are not the most abundant lengths (Table 29b, Figure 24). This is something to consider if sometime the length distribution is used in the assessment of this stock and the hauls in the closed areas are removed. No ALK is available for this species in this survey.

So, although the biomass index of this stock is not deeply affected in the new case, the change in the length distribution could be a concern. Currently a production model is used for this stock, but length distribution is used to derive a recruitment index, especially the more affected lengths (lengths < 21 cm).

Yellowtail flounder (stock in Divisions 3LNO)

Table 30a presents the biomass of the 3NO yellowtail plaice during the Spain-EU 3NO survey (1995-2021), and Table 30b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. As expected, no changes occur in this species that prefers shallower depths (Table 29b, Figure 25 top panel). Bias does not exist for this stock (Figure 25 bottom left panel, Table 3), and the CV is the same in the base and in the new cases (Figure 25 bottom right panel).

Due to these results, no length distribution is shown. In any case, no differences in the length distribution were encountered. No ALK is available for this species in this survey.

Capelin (stock in Divisions 3LNO)

Table 31a presents the biomass of the 3NO capelin during the Spain-EU 3NO survey (1995-2021), and Table 31b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. As expected, minor changes occur in this species that prefers shallower depths (Table 31b, Figure 26 top panel). Bias has a slightly increase trend but it is due to only two small ratios, being the rest of them very close or equal to 1, and it is not significant (Figure 26 bottom left panel, Table 3). The CV is the same in the base and in the new cases (Figure 26 bottom right panel).

Due to these results, no length distribution is shown. In any case, no differences in the length distribution were encountered. No ALK is available for this species in this survey.

Thorny skate (stock in Divisions 3LNO and Subdivision 3Ps)

Table 32a presents the biomass of the 3NO thorny skate during the Spain-EU 3NO survey (1995-2021), and Table 32b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Minor changes occur in this species except in 1998 and 2002, when an increase in the biomass and a decrease in the SD occurs in the new case (Table 32b, Figure 27 top panel). In the rest of the years, total biomass is not affected for removing the hauls in the closed areas. Bias is not significant for this species in this survey, although a slight decreasing trend is presented (Figure 27 bottom left panel, Table 3). The CV is the same in the base and in the new cases except in 2018 and 2022 (Figure 27 bottom right panel).

Due to the difference in biomass in years 1998 and 2002, some differences can be seen in the length distribution of this species. In general, the numbers at length in those years are higher in the new case, although in 1998 we “loose” some lengths. Note that there are some differences in 1997, too, to lower numbers (Table 33b, Figure 28). This is something to consider if sometime the length distribution is used in the assessment of this stock and the hauls in the closed areas are removed. No ALK is available for this species in this survey.

So, although the changes are no deep in the new case, they are something to be considered in this stock. Currently no analytical or production assessment model is applied to this stock, and the 3NO survey indices are not considered in the state of the stock, but if this change in the future these changes must be taken into account.

White hake (stock in Divisions 3NO and Subdivision 3Ps)

Table 34a presents the biomass of the 3NO white hake during the Spain-EU 3NO survey (1995-2021), and Table 34b the percentage of difference of that biomass when we remove the hauls in the closed areas from the

calculation. No changes occur in this species except in 2019, but in a very small amount of biomass (Table 34b, Figure 29 top panel). Bias is not significant for this species in this survey, (Figure 29 bottom left panel, Table 3). The CV is the same in the base and in the new cases (Figure 29 bottom right panel).

Due to these results, no length distribution is shown. In any case, no differences in the length distribution were encountered (except length group 6 in 2019). No ALK is available for this species in this survey.

Squid (stock in Subareas 3 and 4)

Table 35a presents the biomass of the 3NO squid during the Spain-EU 3NO survey (1995-2021), and Table 35b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. There are some differences in the biomass by strata in some years, but the total biomass is not affected except in year 2012 (Table 35b, Figure 30 top panel). Bias is not significant for this stock, but all the ratios are under or equal to 1 and an increasing trend is displayed (Figure 30 bottom left panel, Table 3). The CV is the same in almost all the years (Figure 30 bottom right panel).

Due to these results, no length distribution is shown. In any case, no differences in the length distribution were encountered. No ALK is available for this species in this survey.

Division 3L survey

Cod (stock in Divisions 2J3KL)

This stock is not assessed by NAFO but by DFO, although the results are presented regularly to the Scientific Council of NAFO, as well as the results of this survey for this species.

Table 36a presents the biomass of the 3L cod during the Spain-3NO survey (2003-2019), and Table 36b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. As expected, no changes occur in the biomass of this species that prefers depths less than 600 m (Table 36b, Figure 31 top panel). It does not exist bias for this stock (Figure 31 bottom left panel, Table 3), and the CV is the same in the base and in the new cases (Figure 31 bottom right panel).

Due to these results, no age distribution is shown. In any case, no differences in the age distribution were encountered.

Greenland halibut (stock in Subarea 2 + Divisions 3KLMNO)

Differences up to 369% in the biomass by strata can be seen, although in the total biomass the difference is never more than 7% and it is in general higher in the new case. In strata 730, the biomass almost disappears in the new case (Table 37b, Figure 32 top panel). The ratios are positive in most of the years, so the new case overestimates the biomass, but the bias is not significant (Figure 32 bottom left panel, Table 3). There are quite important differences both in the SD and in the CV (Figure 32 bottom right panel). SD seems to be more variable between years in the new base case. So, it seems that removing the closed areas in these strata can affect the perception of the stock.

With regard the length distribution, differences can be seen along all the years (Table 38b, Figure 33), but total number of individuals by year are not affected significantly (more than 10% of differences).

So, the indices of the Greenland halibut in the EU-Spain 3L survey seem to change if the hauls in the closed areas are removed. This is not unexpected as this species inhabits preferably the deeper strata. This could affect the results of the assessment of this stock, that is performed via an analytical assessment model.

American plaice (stock in Divisions 3LNO)

Table 39a presents the biomass of the 3L American plaice during the Spain-EU 3L survey (2003-2019), and Table 39b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. As expected, minor changes occur in this species that prefers shallower depths (Table 39b, Figure 34 top panel). The major differences are encountered in 2003, due to strata 730 biomass. Bias is significative for this stock due to the 2003 ratio, but the rest of the years the ratios are very close to 1, so it seems not to be dangerous (Figure 34 bottom left panel, Table 3). The CV is the same in the base and in the new cases except in 2003 (Figure 34 bottom right panel).

Due to these results, no length distribution is shown. Some differences are encountered in 2003, but as the indices of these year are not used in the assessment, they seem not to be dangerous.

Redfish (stocks in Divisions 3LN and 3O)

As in the EU-Spain 3NO survey, the three redfish species (golden redfish, deepwater redfish and Acadian redfish) are not separated during the EU-Spain 3L survey, so global indices for all of them are presented.

Table 40a presents the biomass of the 3L redfish during the Spain-EU 3L survey (2003-2019), and Table 40b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Some important changes occur in some strata, mainly in the 730, in which the biomass of this species almost disappears, although the total biomass by year is rarely affected (Table 40b, Figure 35 top panel). Bias is not significative for this stock, but all the ratios are negative and a positive trend can be seen (Figure 35 bottom left panel, Table 3). The CV is very close in both cases (Figure 35 bottom right panel).

Some differences were encountered in the lengths of this stock between the base and the new case, so the length distribution is presented. It is remarkable the difference in the numbers at lengths between 28 cm and 43 cm, although it that does not affect the total abundance as they are not the most abundant lengths (Table 41b, Figure 36). This is something to consider if sometime the length distribution is used in the assessment of this stock and the hauls in the closed areas are removed. No ALK is available for this species in this survey.

So, although the biomass index of this stock is not deeply affected in the new case, the change in the length distribution could be a concern. Currently a production model is used for this stock, but length distribution is used to derive a recruitment index and a female spawning stock biomass.

Roughhead grenadier (stock in Subareas 2 and 3)

Very important differences can be seen in the roughhead grenadier biomass by strata, and differences up to 44% are found for in the total biomass year by year, being always higher in the base case except for 2004 (Table 42b, Figure 37 top panel). The ratios are always negative but 2004 and although the bias is not significative, it presents a clear decreasing trend (Figure 37 bottom left panel, Table 3). In general, the SD is higher and the CV lower in the base case and the differences are quite important in some years (Figure 37 bottom right panel). So, it seems that removing the closed areas in these strata can affect the perception of the stock.

For roughhead grenadier ALK is not available for this survey, so length distribution is presented. The differences are quite important all the years of the series presented, both for the distribution by age as for the total abundance, that is always lower in the new case (Table 43b, Figure 38).

So, the indices of the roughhead grenadier in the Spain-EU 3L survey seem to change dramatically if the hauls in the closed areas are removed. This is not unexpected as this species inhabits preferably the deeper strata. This could affect the results of the assessment of this stock, that is performed via an analytical assessment model when made.

Witch flounder (stock in Divisions 2J3KL)

Table 44a presents the biomass of the 3L witch flounder during the Spain-EU 3L survey (2003-2019), and Table 44b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Minor changes occur in the total biomass of this species (Table 44b, Figure 39 top panel). There are some differences in some cases, some of them quite significative, but do not affect the total biomass except in 2003. The SD has some differences in some years. It is remarkable that the biomass in stratum 730 is quite different several years. Bias is significative for this stock due to the 2003 ratio, but the rest of the years the ratios are close to 1, so it seems not to be dangerous (Figure 39 bottom left panel, Table 3). The CV is in general quite similar in the base and in the new cases (Figure 39 bottom right panel).

Length distribution is presented for this stock despite the results found in biomass, as some differences were encountered in the lengths of this stock between the base and the new case, although they do not affect the total abundance except in year 2003 (Table 45b, Figure 40). But this is something to consider if sometime the length distribution is used in the assessment of this stock and the hauls in the closed areas are removed. No ALK is available for this species in this survey.

The changes in length distribution could be a concern in the future.

Thorny skate (stock in Divisions 3LNO and Subdivision 3Ps)

Table 46a presents the biomass of the 3L thorny skate during the Spain-EU 3L survey (2003-2019), and Table 46b the percentage of difference of that biomass when we remove the hauls in the closed areas from the calculation. Minor changes occur in this species in the total biomass except in 2003, although in some strata the difference is quite high but they are over small amount of biomass (Table 46b, Figure 41 top panel). Bias is significative for this stock due to the 2003 ratio, but the rest of the years the ratios are close to 1, so it seems not to be dangerous (Figure 41 bottom left panel, Table 3). The CV is almost the same in the base and in the new cases (Figure 41 bottom right panel).

Due to these results, no length distribution is shown. In any case, no great differences in the length distribution were encountered (except for 2003). No ALK is available for this species in this survey.

Discussion

The three EU surveys conducted by Spain and Portugal are analysed in the present document to study the impact in the survey indices of removing the hauls in the closed areas in the historic series. Since 2018 hauls in the closed areas have been tried to be omitted in the design of the survey. For that, in the previous study done (González-Troncoso *et al.*, 2021), most differences came from the previous years. But the addition of new closed areas in September 2021 by the Commission extended the differences in this study to all the years.

Most of the closed areas are in deeper waters, so the species that inhabit the shallower strata are barely or nothing affected by removing the hauls in the closed areas.

Eight species survey indices were analysed in the 3M survey. From them, six have no major changes in the survey index biomass. The other two, Greenland halibut and roughhead grenadier, are known to live mainly in the deeper waters, so it is not surprising that their indices are affected by removing the hauls in the closed areas. In the case of these two species, both biomass and age structure are affected by the removal, which can lead the assessment to give different results if the hauls in the closed areas are removed.

Moreover, two species, deepwater redfish and squid, whose biomass are barely affected, have changed their age/length distributions in the new case. In the case of the redfish, an XSA is used to perform the assessment (of the beaked redfish), so changes in the age distribution could lead to changes in assessment results. In the case of the squid, currently the length distribution is not used in the assessment.

Eleven species survey indices were analysed in the 3NO survey, carried out since 1995. From them, nine survey indices have no major changes in the biomass. The other two indices, the same as in the 3M survey, Greenland halibut and roughhead grenadier are affected by removing the hauls in the closed areas. In the case of these two species, both biomass and age structure are affected by the removal, which can lead the assessment to give different results if the hauls in the closed areas are removing.

Moreover, two species, witch flounder and thorny skate, whose biomasses are barely affected, have changed its length distribution in the new case. In the case of witch flounder, a production model is performed to assess the stock, but the length distribution is used to derive a recruitment index of the survey. In the case of the thorny skate no analytical or production model is performed, and only the Canadian survey indices are taken for the state of the stock, but if the future the assessment model changes this could be a matter of concern.

Seven species survey indices were analysed in the 3L survey, carried out since 2003. From them, five have no major changes in the biomass. The other two, Greenland halibut and roughhead grenadier are affected by removing the hauls in the closed areas. In the case of these two species, both biomass and age structure are affected by the removal, which can lead the assessment to give different results if the hauls in the closed areas are removing.

Furthermore, two species, redfish and witch flounder, whose biomass are barely affected, have changed their length distributions in the new case. In the case of the redfish, although a production model is performed to assess the stock, the length distribution is used to derive recruitment index and female stock spawning biomass indices of the survey.

In summary, there are two species, Greenland halibut and roughhead grenadier, in which their biomass and/or age/length indices are affected in all the surveys analyzed. This is due to the fact that these two species are distributed at greater depths and that the closed areas are mainly found in deep areas, so the suppression of survey hauls in closed areas has a greater impact on the indices of these two species. The best way to know the impact in the assessment results of these changes in the Greenland halibut and roughhead grenadier indices would be to run the assessment with both indices, the base case ones and the new case ones, and compare the results.

Trends in the bias of the biomass in some species could be a matter of concern too. Although the biomass does not change noticeably, bias in the indices could lead to changes in the results of the assessment models.

There are other species in which their global biomass indices do not change very much, but their age or length indices change appreciably when hauls from closed areas are removed from the calculations. In one case, the results of the assessment are compromised and it would be better to rerun the assessment with the new case indices to see the differences. In other cases, although the length distribution is not directly used in the assessment models, some recruitment and spawning stock biomass indices are derived from them, so changes in the perception of the stock could be encountered. These changes in the age/length indices should be considered in future assessments of these stocks if the prohibition of the surveys trawls in closed areas is approved.

The NAFO Commission established coral and sponges protection closures areas to bottom fisheries within the NAFO Regulatory Area that started to be applied in 2010 after an assessment made by the Scientific Council. Currently, 18 area closures are in force in the NRA after a reassessment of the closures that lead to new closures during the 2021 NAFO Annual meeting. For that, this study has to be rewritten to fit the new closures since then submitted to NAFO in September 2021. The addition of the new close areas does not change substantially the view of most of the species, but for the species with differences now they are more noticeable. If more close areas are added in the future to the existing ones, this study should be redone, which implies a big amount of work. It is not worth to rerun this study each time the closed areas change.

Acknowledges

The authors would like to thank to all the people that make possible this type of works: onboard observers in survey vessels who obtain the data, and lab people who process them.

This study has been carried out under a project funded by European Union NextGenerationEU. These surveys have been co-funded by the EU through the European Maritime, Fisheries and Aquaculture Fund (EMFAF) within the Spain Work Plan for data collection in the fisheries and aquaculture sectors regarding the Common Fisheries Policy.

References

- Bishop, C A., 1994. Revisions and additions to stratification schemes used during research vessel surveys in NAFO subareas 2 and 3. NAFO SCR Doc. 94/43, Serial n° N2413.
- Benoît, H.P., Dunham, A., Macnab, P., Rideout, R., Wareham, V., Clark, D., Duprey, N., Maldemay, É.-P., Richard, M., Clark, C., Wilson, B. 2020a. Elements of a framework to support decisions on authorizing scientific surveys with bottom contacting gears in protected areas with defined benthic conservation objectives. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/011, ix + 98 p.
- González-Troncoso, D., I. Garrido, S. Rábade, M. Fabeiro, E. Román, C. Tarrío, J.M. Casas Sánchez and R. Alpoim, 2022. Results from Bottom Trawl Survey on Flemish Cap of June/July 2021. NAFO SCR Doc. 22/004. Serial No. N7268.
- Garrido, I., D. González-Troncoso, F. González-Costas, E. Román and L. Ramilo, 2022. Results of the Spanish survey in NAFO Division 3NO. NAFO SCR Doc. 22/0045 Serial No. N7269.
- González-Troncoso, D., I. Garrido and F. González-Costas, 2021. Effect in survey indices of removing stations in the NAFO closed Areas in the design of the EU surveys. NAFO SCR Doc. 21/039. Serial No. N7215.
- Rideout, R.M., M. Warren, K. Skanes, J. Pantin, B. Neves, V. Wareham-Hayes, H. Munro, F. Cyr, C. Pretty, B. Rogers, M. Koen-Alonso, 2020. Reviewing Impacts and Benefits of Scientific Surveys with Bottom-Contacting Gears Inside Protected Areas in the Newfoundland and Labrador Region. Canadian Science Advisory Secretariat (CSAS) Research Document 2020/nnn.
- Román-Marcote, E., C. González-Iglesias and D. González-Troncoso, 2020a. Results for the Spanish Survey in the NAFO Regulatory Area of Division 3L for the period 2003-2019. NAFO SCR Doc. 20/013. Serial No. N7057.
- Román-Marcote, E., D. González-Troncoso and M., 2020b. Results for the Atlantic cod, roughhead grenadier, redfish, thorny skate and black dogfish of the Spanish Survey in the NAFO Div. 3L for the period 2003-2019. NAFO SCR Doc. 20/014. Serial No. N7059.

Table 1. Main characteristics of the EU surveys in the NRA.

Survey	Divisions	Series	Vessel	Number of yearly hauls	Depth	Gear	Month
EU-Spain 3NO	3NO	1995-2001	<i>C/V Playa de Mendiña</i>	120	40-1450	<i>Pedreira</i>	May-June
		2002-2021 (-2020)	<i>R/V Vizconde de Eza</i>	120	40-1450	<i>Campelen</i>	May-June
EU Flemish Cap	3M	1988-2002	<i>R/V Cornide de Saavedra</i>	120	40-700	<i>Lofoten</i>	June-July
		2003-2021	<i>R/V Vizconde de Eza</i>	180	40-1450	<i>Lofoten</i>	June-July
EU-Spain 3L	3L	2003-2019 (-2005)	<i>R/V Vizconde de Eza</i>	100	40-1450	<i>Campelen</i>	August

Table 2. Stratification of the Divisions 3LMNO.

Div	Stratum	Area (sq nautical miles)			Depth (m)	
		Total	Closed areas	%Closed areas	Min	Max
3L	385	118			93	183
	387	256			275	366
	388	357			275	366
	389	509			185	274
	390	815			93	183
	391	282			185	274
	392	145			275	366
	729	186	4	2	367	549
	730	170	118	69	550	731
	731	216			367	549
	732	231			550	731
	733	234			367	549
	734	153			550	731
	741	100			732	914
	742	64			915	1097
	743	51			1098	1280
	744	66	6	8	1281	1463
	745	348			732	914
	746	392			915	1097
	747	724	101	14	1098	1280
	748	159	125	78	732	914
	749	126	85	67	915	1097
	750	556	263	47	1098	1280
	751	229	84	37	1281	1463
Div	Stratum	Area (sq nautical miles)			Depth (m)	
		Total	Closed areas	%Closed areas	Min	Max
3M	501	342			128	146
	502	838			146	183
	503	628			183	256
	504	348			183	256
	505	703			183	256
	506	496			183	256
	507	822			256	366
	508	646			256	366
	509	314			256	366
	510	951			256	366
	511	806			256	366
	512	670			366	549
	513	249	0	0	366	549
	514	602	9.0902	2	366	549
	515	666			366	549
	516	634	147.722	23	549	732
	517	216	20.1744	9	549	732
	518	210	67.137	32	549	732
	519	414	77.8734	19	549	732
	520	525	127.365	24	733	914
	521	517	90.5267	18	916	1097
	522	533	188.682	35	1099	1280
	523	284	110.8452	39	1282	1463
	524	253	78.3541	31	733	914
	525	226	107.7568	48	916	1097
	528	530	12.826	2	733	914
	529	488	201.6904	41	916	1097
	530	1134	170.7804	15	1099	1280
	531	203	100.9722	50	1282	1463
	532	238			916	1097
	533	98	1.7836	2	733	914
	534	486	11.5182	2	916	1097
Div	Stratum	Area (sq nautical miles)			Depth (m)	
		Total	Closed areas	%Closed areas	Min	Max
3N	357	164			275	366
	358	225			185	274
	359	421			93	183
	360	2783			57	91
	374	214			57	91
	375	271			0	56
	376	1334			0	56
	377	100			93	183
	378	139			185	274
	379	106			275	366
	380	96			275	366
	381	144			185	274
	382	343			93	183
	723	155			367	549
	724	124			550	731
	725	105			367	549
	726	72			550	731
	727	96			367	549
	728	78			550	731
	752	131	0	0	732	914
	753	138	11	8	915	1097
	754	180	105	58	1098	1280
	755	385	343	89	1281	1463
3O	756	101			732	914
	757	102			915	1097
	758	99	4	4	1098	1280
	759	127	45	35	1281	1463
	760	154			732	914
	761	171			915	1097
	762	212			1098	1280
	763	261			1281	1463
	353	269			57	91
	354	246			93	183
	355	74			185	274
	356	47			275	366
	721	65			367	549
	722	84			550	731
	764	100			732	914
	765	124	2	2	915	1097



Table 3. Species and stocks studied in the present document. If age or length distribution is presented is pointed out in the table. The p-value of the gam of the bias (until 700 m and until 1400 m) is presented, and the significant fits (<0.05) are highlighted in red. The maximum difference in percentage of the biomass is presented; if it is positive, the maximum is in the new case; if it is negative, the maximum is in the base case.

Survey	Species	Scientific name	Stock	Age/Length	Bias p-value 700	Max Diff Biomass (%) 700	Bias p-value 1400	Max Diff Biomass (%) 1400
3M	Atlantic cod	<i>Gadus morhua</i>	Div. 3M	Age	0.454	0.628	0.976	0.628
	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	Sub. 2 + Div. 3KLMNO	Age	0.038	-20.804	0.002	-20.804
	American plaice	<i>Hippoglossoides platessoides</i>	Div. 3M	Age	0.605	-0.096	NA	-0.096
	Golden redfish	<i>Sebastes norvegicus</i>	Div. 3M	Age	0.570	0.326	0.246	0.326
	Deepwater redfish	<i>Sebastes mentella</i>	Div. 3M	Age	0.007	3.824	0.437	3.824
	Acadian redfish	<i>Sebastes fasciatus</i>	Div. 3M	Age	0.528	1.146	0.777	1.146
	Roughhead grenadier	<i>Macrourus berglax</i>	Sub. 2 + 3	Age	0.063	-51.801	0.490	-22.424
	Squid	<i>Illex illecebrosus</i>	Sub. 3 + 4	Length	0.622	12.051	0.704	12.051
3NO	Atlantic cod	<i>Gadus morhua</i>	Div. 3NO	Age			NA	0.000
	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	Sub. 2 + Div. 3KLMNO	Age			0.017	-33.362
	American plaice	<i>Hippoglossoides platessoides</i>	Div. 3LNO	Age			0.107	0.212
	Redfish	<i>Sebastes spp</i>	Div. 3LN / Div. 3O	Length			0.385	-0.125
	Roughhead grenadier	<i>Macrourus berglax</i>	Sub. 2 + 3	Length			0.032	-40.800
	Witch flounder	<i>Glyptocephalus cynoglossus</i>	Div. 3NO	Length			0.947	-1.369
	Yellowtail flounder	<i>Limanda ferruginea</i>	Div. 3LNO	Length			NA	0.000
	Capelin	<i>Mallotus villosus</i>	Div. 3LNO	Length			0.376	0.361
	Thorny skate	<i>Raja radiata</i>	Div. 3LNO + Subdiv. 3Ps	Length			0.239	29.456
	White hake	<i>Urophycis tenuis</i>	Div. 3NO + Subdiv. 3Ps	Length			NA	0.000
	Squid	<i>Illex illecebrosus</i>	Sub. 3 + 4	Length			0.272	-3.774
3L	Atlantic cod	<i>Gadus morhua</i>	Div. 2J3KL	Length			NA	0.000
	Greenland halibut	<i>Reinhardtius hippoglossoides</i>	Sub. 2 + Div. 3KLMNO	Length			0.133	11.300
	American plaice	<i>Hippoglossoides platessoides</i>	Div. 3LNO	Length			0.000	-21.148
	Redfish	<i>Sebastes spp</i>	Div. 3LN	Length			0.405	-17.641
	Roughhead grenadier	<i>Macrourus berglax</i>	Sub. 2 + 3	Length			0.413	-30.724
	Witch flounder	<i>Glyptocephalus cynoglossus</i>	Div. 2J3KL	Length			0.003	-22.420
	Thorny skate	<i>Raja radiata</i>	Div. 3LNO + Subdiv. 3Ps	Length			0.005	0.005

Table 4. Number of valid hauls by strata during the 3M survey (1988-2021). n.s. means stratum not surveyed. The strata with closed areas are marked in red. In blue, the cases with just 1 valid haul made during the normal operations of the survey. In red, the cases with 0 valid hauls after removing the hauls in the closed areas. In yellow, the cases with 1 valid haul after removing the hauls in the closed areas. A: Number of valid hauls. B: Number of valid hauls inside the closed areas. C: Percentage of hauls inside the closed areas. D: Number of hauls left after removing the hauls in the closed areas.

Table 4A. 3M: all hauls																																						
Stratum	1988	1989	1990	1991	1992	1993	1994	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	Total	Min	Max	Mean
501	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	5	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	135	3	5	4	
502	10	10	9	10	10	10	10	10	10	10	10	10	10	10	10	9	14	10	10	10	9	10	7	7	10	10	10	10	10	10	10	10	10	10	335	7	14	10
503	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	5	7	5	7	7	7	7	7	7	7	7	7	234	5	7	7
504	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	3	4	4	3	4	4	4	4	5	4	4	4	4	4	136	3	5	4
505	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	5	8	8	8	8	7	8	8	8	8	8	265	5	8	8
506	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	203	5	6	6
507	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	9	8	6	9	9	9	9	9	9	9	9	9	9	303	6	10	9
508	7	7	7	7	7	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	7	7	7	7	7	7	7	7	7	232	5	7	7
509	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	99	2	3	3
510	9	11	11	11	11	8	11	11	11	11	11	11	11	11	11	11	12	11	11	10	9	11	7	5	10	11	11	11	11	11	11	11	11	11	356	5	12	10
511	9	8	9	9	9	9	9	9	9	9	9	9	9	9	9	8	10	9	7	9	9	9	7	6	9	9	9	9	9	9	9	9	9	9	298	6	10	9
512	8	8	7	8	8	7	7	9	8	7	7	7	8	8	8	7	8	8	8	8	8	8	8	5	8	8	8	8	8	8	8	8	8	8	263	5	9	8
513	3	3	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	94	2	3	3
514	6	6	6	7	8	n.s.	6	7	6	7	7	6	7	7	7	4	7	7	7	5	6	6	5	4	7	7	7	7	7	7	7	7	7	7	214	4	8	6
515	6	6	8	7	6	6	8	8	7	7	8	8	8	8	8	8	9	8	6	7	8	6	8	6	5	8	8	8	8	8	8	8	8	8	252	5	9	7
516	7	7	7	7	7	7	7	7	6	7	7	6	7	7	7	7	7	7	6	7	7	7	5	5	7	7	7	7	7	7	7	7	7	7	231	5	7	7
517	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	66	1	2	2
518	2	2	2	2	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	66	2	2	2
519	5	5	2	5	5	4	4	5	5	4	5	5	5	5	5	5	3	5	5	5	4	5	4	3	4	5	5	5	5	5	5	5	5	5	157	2	5	5
520																	5	6	6	4	6	6	5	5	6	6	6	6	6	6	6	6	6	103	4	6	6	
521																	4	4	6	4	5	6	5	6	5	6	6	6	6	6	6	6	6	99	4	6	6	
522																	6	6	6	4	3	5	4	5	3	6	6	6	6	6	6	6	6	96	3	6	5	
523																	3	2	2	3	3	2	2	2	2	3	3	3	3	3	2	3	3	47	2	3	3	
524																	3	2	3	2	3	3	3	2	3	3	3	3	3	3	3	3	3	51	2	3	3	
525																	2	2	2	2	2	3	3	2	3	3	3	3	3	3	3	3	3	48	2	3	3	
528																	6	6	6	6	6	6	5	4	6	6	6	6	6	6	6	6	6	105	4	6	6	
529																	5	6	6	6	6	6	5	4	6	6	6	6	6	6	6	6	6	104	4	6	6	
530																	10	11	11	11	11	11	12	10	11	11	11	11	11	11	11	11	11	197	10	12	11	
531																	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	2	2	2
532																	2	2	2	2	3	2	3	2	2	2	2	2	2	2	2	2	2	2	38	2	3	2
533																	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	2	2	2
534																	3	3	5	5	4	5	4	3	5	5	5	5	5	5	5	5	5	5	82	3	5	5
Total	115	116	113	117	117	101	115	121	117	117	119	117	120	120	120	114	178	172	174	170	167	178	153	128	174	181	181	181	181	181	181	180	181	181	4981	101	181	147

Table 4B. 3M: Hauls inside closed areas																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Stratum	1988	1989	1990	1991	1992	1993	1994	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	Total	Min	Max	Mean																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
513																																					2	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
514																																					1	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
516	2	2	3	3	1	1	1	3	2	1	1	2	1	1	3	3	2	1	2	2	3	3	3	1	3	3	1	3	2	3	4	2	2	3	73	1	4	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
517																																					10	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
518	2	1				2				1	1				1				1	1	1	1	1				1				20	1	2	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
519	2					1	2	2	1	1	2	2	2	2	2	1	3			2	1	1	2			1	1	1	1	2	1	1	1	1	1	41	1	3	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
520																																					32	1	3	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
521																																					15	1	3	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
522																																					21	1	3	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
523																																					5	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
524																																					14	1	2	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
525																																					18	1	2	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
528																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
529																																					50	1	5	3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
530																																					23	1	3	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
531																																					4	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
533																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
534																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Total	4	5	4	5	5	3	3	4	4	4	4	4	4	4	5	5	6	13	18	19	21	17	17	16	11	17	18	19	17	14	13	8	7	5	9	328	3	21	10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Table 4C. 3M: Percentage of hauls inside closed areas																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Stratum	1988	1989	1990	1991	1992	1993	1994	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	Total	Min	Max	Mean																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
513																																					0.93	14	20	17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
514																																					20				14.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			



Stratum	1988	1989	1990	1991	1992	1993	1994	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	Total	Min	Max	Mean
501	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	5	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	135	3	5	4	
502	10	10	9	10	10	10	10	10	10	10	10	10	10	10	10	9	14	10	10	10	9	10	7	7	10	10	10	10	10	10	10	10	10	335	7	14	10	
503	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	5	5	7	7	7	7	7	7	7	7	7	234	5	7	7	
504	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	3	4	4	3	4	4	4	4	5	4	4	4	4	136	3	5	4	
505	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8	6	5	8	8	8	8	8	7	8	8	8	8	265	5	8	8
506	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	203	5	6	6	
507	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	10	9	8	6	9	9	9	9	9	9	9	9	9	303	6	10	9	
508	7	7	7	7	7	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	6	5	7	7	7	7	7	7	7	7	7	232	5	7	7	
509	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	99	2	3	3	
510	9	11	11	11	11	8	11	11	11	11	11	11	11	11	11	11	12	11	11	10	9	11	7	5	10	11	11	11	11	11	11	11	11	356	5	12	10	
511	9	8	9	9	9	9	9	9	9	9	9	9	9	9	9	8	10	9	7	9	9	9	7	6	9	9	9	9	9	9	9	9	9	298	6	10	9	
512	8	8	7	8	8	7	7	9	8	7	7	7	8	8	8	7	8	8	8	8	8	8	8	5	8	8	8	8	8	8	8	8	8	8	263	5	9	8
513	3	3	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3	3	2	3	3	3	3	3	3	3	3	3	94	2	3	3	
514	6	6	6	7	8	n.s.	6	7	6	7	7	7	6	7	7	7	4	7	7	4	6	6	5	4	6	7	7	7	7	7	7	7	7	212	4	8	6	
515	6	6	8	7	6	6	8	8	7	7	8	8	8	8	8	9	8	6	7	8	6	8	6	5	8	8	8	8	8	8	8	8	8	8	252	5	9	7
516	5	5	4	4	6	6	6	4	4	6	6	4	6	6	4	4	5	6	4	5	4	4	2	4	4	4	6	4	5	4	3	5	5	4	158	2	6	5
517	2	2	1	1	2	1	2	2	2	1	2	2	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	1	2	2	2	2	2	56	1	2	2
518	0	1	2	2	0	n.s.	1	2	2	1	1	2	2	1	2	2	2	1	2	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	46	0	2	1
519	5	3	2	4	3	2	3	4	3	3	3	3	3	3	4	2	3	3	5	4	3	3	4	2	3	4	4	3	4	4	4	4	4	5	116	2	5	3
520																	4	3	4	1	4	4	3	3	5	5	3	4	5	5	5	5	5	3	71	1	5	4
521																	3	3	3	2	5	4	4	5	5	6	4	6	5	6	5	6	6	6	84	2	6	5
522																	3	3	3	3	1	5	3	5	3	4	4	4	4	6	6	6	6	6	75	1	6	4
523																	2	2	2	2	3	2	2	2	1	3	2	3	2	3	3	2	3	3	42	1	3	2
524																	2	1	2	2	2	2	1	2	2	2	1	2	3	1	3	3	3	3	37	1	3	2
525																	2	2	1	0	0	2	1	0	1	1	3	2	2	2	3	2	3	3	30	0	3	2
528																	6	6	6	6	6	5	4	6	6	6	6	6	6	6	6	6	6	6	105	4	6	6
529																	4	2	2	1	2	2	4	2	2	2	2	4	3	3	5	5	5	4	54	1	5	3
530																	7	10	9	10	10	10	11	9	10	9	9	9	9	10	11	10	11	10	174	7	11	10
531																	2	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	32	1	2	2
532																	2	2	2	2	3	2	3	2	2	2	2	2	2	2	2	2	2	2	38	2	3	2
533																	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	2	2	2
534																	3	3	5	5	4	5	4	3	5	5	5	5	5	5	5	5	5	5	82	3	5	5
Total	111	111	109	112	112	98	112	117	113	113	115	113	116	115	115	108	165	154	155	149	150	161	137	117	157	163	162	164	167	168	173	173	176	172	4653	98	176	137



Table 5. Number of valid hauls by strata during the 3NO survey (1995-2021). n.s. means stratum not surveyed. The strata with closed areas are marked in red. In blue, the cases with just 1 valid haul made during the normal operations of the survey. In red, the cases with 0 valid hauls after removing the hauls in the closed areas. In yellow, the cases with 1 valid haul after removing the hauls in the closed areas. A: Number of valid hauls. B: Number of valid hauls inside the closed areas. C: Percentage of hauls inside the closed areas. D: Number of hauls left after removing the hauls in the closed areas.

Table 5A. 3NO: all hauls																																
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	Total	Min	Max	Mean	
353	3	3	4	4	3	3	3	4	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	n.s.	3	80	2	4	3	
354	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	n.s.	3	75	2	3	3	
355	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
356	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
357	1	2	4	2	2	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	53	1	4	2	
358	3	3	5	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	n.s.	3	79	2	5	3	
359	3	5	6	6	3	4	7	6	7	7	7	8	7	7	7	6	7	7	7	7	7	5	5	5	5	n.s.	5	156	3	8	6	
360	31	31	32	25	19	20	20	25	20	20	20	19	20	20	20	14	20	20	19	20	20	17	17	17	17	n.s.	17	540	14	32	21	
374	2	2	3	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	55	2	3	2	
375	2	2	1	3	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	n.s.	3	71	1	3	3	
376	15	14	14	10	10	10	10	10	10	10	10	10	10	10	10	7	10	10	11	10	10	8	8	8	8	n.s.	8	261	7	15	10	
377	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	1	2	2	
378	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	55	2	4	2	
379	2	1	2	3	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	1	3	2	
380	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
381	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
382	n.s.	3	4	3	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	5	n.s.	4	95	2	5	4	
721	n.s.	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
722	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
723	n.s.	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
724	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	1	2	2	
725	3	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	52	1	3	2	
726	2	2	n.s.	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
727	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	n.s.	2	48	1	2	2	
728	n.s.	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
752	n.s.	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
753	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	1	n.s.	2	2	2	2	2	2	2	2	2	n.s.	2	47	1	2	2	
754	n.s.	n.s.	3	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	n.s.	2	48	1	3	2	
755	n.s.	n.s.	n.s.	2	3	4	4	3	2	3	4	3	3	4	1	1	4	4	4	4	4	4	3	3	3	n.s.	2	72	1	4	3	
756	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
757	n.s.	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	2	3	2	
758	n.s.	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	48	2	2	2	
759	n.s.	n.s.	n.s.	2	2	2	2	2	1	2	2	2	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	n.s.	2	42	1	2	2	
760	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3	2	n.s.	2	51	1	3	2	
761	n.s.	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	n.s.	2	50	1	3	2	
762	n.s.	n.s.	3	2	2	2	2	2	2	2	2	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	47	2	3	2	
763	n.s.	n.s.	n.s.	2	3	4	3	2	3	3	3	2	n.s.	3	n.s.	n.s.	3	3	3	2	3	3	3	3	3	n.s.	3	57	2	4	3	
764	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	1	n.s.	2	2	2	2	2	2	2	2	2	n.s.	2	47	1	2	2	
765	n.s.	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
766	n.s.	n.s.	3	2	2	2	2	2	2	2	2	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	47	2	3	2	
767	n.s.	n.s.	n.s.	2	2	2	2	2	2	2	1	2	n.s.	2	n.s.	n.s.	2	2	2	2	2	2	2	2	2	n.s.	2	39	1	2	2	
Total	77	112	128	124	114	118	121	125	118	120	119	120	110	122	109	95	122	122	122	122	122	115	113	114	115	n.s.	113	3012	77	128	116	



Table 5B. 3NO: Hauls inside closed areas																															
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	Total	Min	Max	Mean
752	n.s.																									n.s.					
753	n.s.										1	n.s.										n.s.	1	1	1	1					
754	n.s.	n.s.	1	1	1			1	1		1		1		1		1			1	1	1	1		n.s.	13	1	1	1		
755	n.s.	n.s.	n.s.	2	3	3	4	3	2	3	3	3	3	4	1	1	4	4	4	4	4	4	3	3	3	n.s.	1	69	1	4	3
758	n.s.	n.s.		1													1			1						n.s.	3	1	1	1	
759	n.s.	n.s.	n.s.	1	1			1		2	2		n.s.	2	1	2	1	1	2	2	1	1	1	2		n.s.	1	24	1	2	1
765	n.s.													1	1	n.s.										2	1	1	1		
766	n.s.	n.s.	1		1								n.s.													n.s.	2	1	1	1	
767	n.s.	n.s.			1	1		1	1	1			n.s.	1		n.s.	1		1		1					n.s.	9	1	1	1	
Total	0	0	2	5	7	4	4	6	4	6	7	3	5	8	3	3	8	5	7	7	7	6	5	6	3	n.s.	2	123	0	8	5
Table 5C. 3NO: Percentage of hauls inside closed areas																															
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	Total	Min	Max	Mean
752	n.s.																									n.s.					
753	n.s.										50.0	n.s.										n.s.	2.1	50.0	50.0	50.0					
754	n.s.	n.s.	33.3	50.0	50.0			50.0	50.0		50.0		50.0		100.0		50.0				50.0	50.0	50.0	50.0		n.s.	27.1	33.3	100.0	52.6	
755	n.s.	n.s.	n.s.	100.0	100.0	75.0	100.0	100.0	100.0	100.0	75.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	n.s.	50.0	95.8	50.0	100.0	95.7
758	n.s.	n.s.		50.0														50.0			50.0					n.s.	6.3	50.0	50.0	50.0	
759	n.s.	n.s.	n.s.	50.0	50.0			50.0		100.0	100.0		n.s.	100.0	100.0	100.0	50.0	50.0	100.0	100.0	50.0	50.0	50.0	100.0		n.s.	50.0	57.1	50.0	100.0	73.5
765	n.s.													50.0	50.0	n.s.										4.1	50.0	50.0	50.0		
766	n.s.	n.s.	33.3		50.0								n.s.													n.s.	4.3	33.3	50.0	41.7	
767	n.s.	n.s.			50.0	50.0		50.0	50.0	50.0			n.s.	50.0		n.s.	50.0		50.0		50.0					n.s.	23.1	50.0	50.0	50.0	
Total	0.0	0.0	1.6	4.0	6.1	3.4	3.3	4.8	3.4	5.0	5.9	2.5	4.5	6.6	2.8	3.2	6.6	4.1	5.7	5.7	5.7	5.2	4.4	5.3	2.6	n.s.	1.8	4.1	0.0	6.6	4.0



Table 5D. 3NO: Number of hauls outside closed areas																																
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	Total	Min	Max	Mean	
353	3	3	4	4	3	3	3	4	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	n.s.	3	80	2	4	3	
354	3	3	2	3	2	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	n.s.	3	75	2	3	3	
355	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
356	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
357	1	2	4	2	2	1	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	53	1	4	2	
358	3	3	5	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	n.s.	3	79	2	5	3	
359	3	5	6	6	3	4	7	6	7	7	7	8	7	7	7	6	7	7	7	7	7	5	5	5	5	n.s.	5	156	3	8	6	
360	31	31	32	25	19	20	20	25	20	20	20	19	20	20	20	14	20	20	19	20	20	17	17	17	17	n.s.	17	540	14	32	21	
374	2	2	3	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	55	2	3	2	
375	2	2	1	3	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	n.s.	3	71	1	3	3	
376	15	14	14	10	10	10	10	10	10	10	10	10	10	10	10	7	10	10	11	10	10	8	8	8	8	n.s.	8	261	7	15	10	
377	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	1	2	2	
378	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	55	2	4	2	
379	2	1	2	3	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	1	3	2	
380	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
381	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
382	n.s.	3	4	3	4	4	4	3	4	4	4	4	4	4	4	2	4	4	4	4	4	4	3	4	5	n.s.	4	95	2	5	4	
721	n.s.	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
722	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	50	2	2	2	
723	n.s.	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
724	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	1	2	2	
725	3	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	52	1	3	2	
726	2	2	n.s.	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
727	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	48	1	2	2	
728	n.s.	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
752	n.s.	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
753	n.s.	2	2	2	2	2	2	2	2	2	1	2	2	2	1	n.s.	2	2	2	2	2	2	2	2	2	n.s.	2	46	1	2	2	
754	n.s.	n.s.	2	1	1	2	2	1	1	2	1	2	1	2	0	2	1	2	2	2	1	1	1	1	1	2	n.s.	2	35	0	2	1
755	n.s.	n.s.	n.s.	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	1	3	0	1	0	
756	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	49	1	2	2	
757	n.s.	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	51	2	3	2	
758	n.s.	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	n.s.	2	45	1	2	2	
759	n.s.	n.s.	n.s.	1	1	2	2	1	1	0	0	2	n.s.	0	0	0	1	1	0	0	1	1	1	1	0	2	n.s.	1	18	0	2	1
760	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3	2	n.s.	2	51	1	3	2	
761	n.s.	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	n.s.	2	50	1	3	2	
762	n.s.	n.s.	3	2	2	2	2	2	2	2	2	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	47	2	3	2	
763	n.s.	n.s.	n.s.	2	3	4	3	2	3	3	3	2	n.s.	3	n.s.	n.s.	3	3	3	2	3	3	3	3	3	n.s.	3	57	2	4	3	
764	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	1	n.s.	2	2	2	2	2	2	2	2	2	n.s.	2	47	1	2	2	
765	n.s.	2	2	2	2	2	2	2	1	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	47	1	2	2	
766	n.s.	n.s.	2	2	1	2	2	2	2	2	2	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	2	45	1	2	2	
767	n.s.	n.s.	n.s.	2	1	1	2	1	1	1	1	2	n.s.	1	n.s.	n.s.	1	2	1	2	1	2	2	2	2	n.s.	2	30	1	2	2	
Total	77	112	126	119	107	114	117	119	114	114	112	117	105	114	106	92	114	117	115	115	115	109	108	108	112	n.s.	111	2889	77	126	111	

Table 6. Number of valid hauls by strata during the 3L survey (2003-2019). n.s. means stratum not surveyed. The strata with closed areas are marked in red. In blue, the cases with just 1 valid haul made during the normal operations of the survey. In red, the cases with 0 valid hauls after removing the hauls in the closed areas. In yellow, the cases with 1 valid haul after removing the hauls in the closed areas. A: Number of valid hauls. B: Number of valid hauls inside the closed areas. C: Percentage of hauls inside the closed areas. D: Number of hauls left after removing the hauls in the closed areas.

Table 6A. 3L: all hauls																							
Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Min	Max	Mean
385	2	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	32	2	2	2
387	2	2	n.s.	2	2	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	56	2	4	4
388	3	1	n.s.	5	5	5	5	5	5	5	5	5	5	5	5	5	5	n.s.	n.s.	74	1	5	5
389	4	2	n.s.	7	8	7	7	7	6	7	7	7	7	7	7	7	7	n.s.	n.s.	104	2	8	7
390	5	3	n.s.	11	12	12	12	11	9	12	12	12	11	12	12	12	10	n.s.	n.s.	168	3	12	11
391	3	2	n.s.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	61	2	4	4
392	1	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	31	1	2	2
729	2	2	n.s.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	n.s.	n.s.	46	2	3	3
730	2	2	n.s.	3	2	3	3	3	3	3	3	3	3	2	3	3	3	n.s.	n.s.	44	2	3	3
731	2	2	n.s.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	n.s.	n.s.	46	2	3	3
732	1	2	n.s.	3	3	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	57	1	4	4
733	n.s.	3	n.s.	4	3	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	58	3	4	4
734	n.s.	3	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	31	2	3	2
741	1	3	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	32	1	3	2
742	1	1	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	30	1	2	2
743	n.s.	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	30	2	2	2
744	n.s.	1	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	29	1	2	2
745	3	3	n.s.	6	6	5	5	5	4	5	5	5	5	5	5	5	5	n.s.	n.s.	77	3	6	5
746	4	3	n.s.	6	6	6	6	6	5	6	6	6	6	6	6	6	6	n.s.	n.s.	90	3	6	6
747	n.s.	3	n.s.	11	11	10	10	10	8	10	10	10	9	10	10	10	10	n.s.	n.s.	142	3	11	9
748	1	2	n.s.	3	3	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	33	1	3	2
749	2	2	n.s.	2	1	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	31	1	2	2
750	n.s.	2	n.s.	9	6	8	7	8	6	8	8	8	8	8	8	8	7	n.s.	n.s.	109	2	9	7
751	n.s.	n.s.	n.s.	4	2	4	3	2	3	2	4	3	3	3	3	4	3	n.s.	n.s.	43	2	4	3
Total	39	50	n.s.	100	94	100	98	97	89	98	100	99	97	98	99	100	96	n.s.	n.s.	1454	39	100	91

Table 6B. 3L: Hauls inside closed areas																							
Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Min	Max	Mean
729			n.s.					1										n.s.	n.s.	1	1	1	1
730	2	2	n.s.	3	2	1	3	3	3	3	3	2	3	2	3	3	2	n.s.	n.s.	40	1	3	3
744	n.s.		n.s.	1							1							n.s.	n.s.	2	1	1	1
747	n.s.	1	n.s.	2	3	2	1	1	1	1	3	1	2	2	1	1		n.s.	n.s.	22	1	3	2
748		1	n.s.	2	2	1	1	2	1	1	2	2	2	2	1	2	2	n.s.	n.s.	24	1	2	2
749	1	1	n.s.	1		1	1	1	1	1	1	1	1	2	1	1		n.s.	n.s.	15	1	2	1
750	n.s.	1	n.s.	3	3	5	3	3	1	1	3	3	2	3	4	3		n.s.	n.s.	38	1	5	3
751	n.s.	n.s.	n.s.	1	1	1	1	1	1	1	2	2	2	2	1	1	2	n.s.	n.s.	19	1	2	1
Total	3	6	n.s.	13	11	11	10	12	8	8	14	12	12	13	11	11	6	n.s.	n.s.	161	3	14	10
Table 6C. 3L: Percentage of hauls inside closed areas																							
Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Min	Max	Mean
729			n.s.					33.3										n.s.	n.s.	2.2	33.3	33.3	33.3
730	100.0	100.0	n.s.	100.0	100.0	33.3	100.0	100.0	100.0	100.0	100.0	66.7	100.0	100.0	100.0	100.0	66.7	n.s.	n.s.	90.9	33.3	100.0	91.7
744	n.s.		n.s.	50.0								50.0						n.s.	n.s.	6.9	50.0	50.0	50.0
747	n.s.	33.3	n.s.	18.2	27.3	20.0	10.0	10.0	12.5	10.0	30.0	10.0	22.2	20.0	10.0	10.0		n.s.	n.s.	15.5	10.0	33.3	17.4
748		50.0	n.s.	66.7	66.7	50.0	50.0	100.0	50.0	50.0	100.0	100.0	100.0	100.0	50.0	100.0	100.0	n.s.	n.s.	72.7	50.0	100.0	75.6
749	50.0	50.0	n.s.	50.0		50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	100.0	50.0	50.0		n.s.	n.s.	48.4	50.0	100.0	53.6
750	n.s.	50.0	n.s.	33.3	50.0	62.5	42.9	37.5	16.7	12.5	37.5	37.5	25.0	37.5	50.0	37.5		n.s.	n.s.	34.9	12.5	62.5	37.9
751	n.s.	n.s.	n.s.	25.0	50.0	25.0	33.3	50.0	33.3	50.0	50.0	66.7	66.7	66.7	33.3	25.0	66.7	n.s.	n.s.	44.2	25.0	66.7	45.8
Total	7.7	12.0	n.s.	13.0	11.7	11.0	10.2	12.4	9.0	8.2	14.0	12.1	12.4	13.3	11.1	11.0	6.3	n.s.	n.s.	11.1	6.3	14.0	11.0



Table 6D. 3L: Number of hauls outside closed areas																							
Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	Min	Max	Mean
385	2	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	32	2	2	2
387	2	2	n.s.	2	2	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	56	2	4	4
388	3	1	n.s.	5	5	5	5	5	5	5	5	5	5	5	5	5	5	n.s.	n.s.	74	1	5	5
389	4	2	n.s.	7	8	7	7	7	6	7	7	7	7	7	7	7	7	n.s.	n.s.	104	2	8	7
390	5	3	n.s.	11	12	12	12	11	9	12	12	12	11	12	12	12	10	n.s.	n.s.	168	3	12	11
391	3	2	n.s.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	61	2	4	4
392	1	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	31	1	2	2
729	2	2	n.s.	3	3	3	3	2	3	3	3	3	3	3	3	3	3	n.s.	n.s.	45	2	3	3
730	0	0	n.s.	0	0	2	0	0	0	0	0	1	0	0	0	0	1	n.s.	n.s.	4	0	2	0
731	2	2	n.s.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	n.s.	n.s.	46	2	3	3
732	1	2	n.s.	3	3	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	57	1	4	4
733	n.s.	3	n.s.	4	3	4	4	4	4	4	4	4	4	4	4	4	4	n.s.	n.s.	58	3	4	4
734	n.s.	3	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	31	2	3	2
741	1	3	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	32	1	3	2
742	1	1	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	30	1	2	2
743	n.s.	2	n.s.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	n.s.	n.s.	30	2	2	2
744	n.s.	1	n.s.	1	2	2	2	2	2	2	2	1	2	2	2	2	2	n.s.	n.s.	27	1	2	2
745	3	3	n.s.	6	6	5	5	5	4	5	5	5	5	5	5	5	5	n.s.	n.s.	77	3	6	5
746	4	3	n.s.	6	6	6	6	6	5	6	6	6	6	6	6	6	6	n.s.	n.s.	90	3	6	6
747	n.s.	2	n.s.	9	8	8	9	9	7	9	7	9	7	8	9	9	10	n.s.	n.s.	120	2	10	8
748	1	1	n.s.	1	1	1	1	0	1	1	0	0	0	0	1	0	0	n.s.	n.s.	9	0	1	1
749	1	1	n.s.	1	1	1	1	1	1	1	1	1	1	0	1	1	2	n.s.	n.s.	16	0	2	1
750	n.s.	1	n.s.	6	3	3	4	5	5	7	5	5	6	5	4	5	7	n.s.	n.s.	71	1	7	5
751	n.s.	n.s.	n.s.	3	1	3	2	1	2	1	2	1	1	1	2	3	1	n.s.	n.s.	24	1	3	2
Total	36	44	n.s.	87	83	89	88	85	81	90	86	87	85	85	88	89	90	n.s.	n.s.	1293	36	90	81



Table 7a. Atlantic cod biomass by strata (tons), as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1988-2021.

Stratum	1988	1989	1990	1991	1992	1993	1994	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	
501	1223	590	697	5078	69	469	1969	1421	915	221	114	90	227	78	434	173	1996	1091	2433	4420	4224	2253	11815	4694	1567	1931	4688	17410	3195	5589	15884	11385	959	3943	
502	9229	9386	1878	4988	4683	8223	7443	3040	3629	1863	1727	1366	673	446	669	102	1779	1888	4145	1775	5346	6627	23368	22989	13861	10230	27320	6326	8348	18068	15592	3691	7608	8928	
503	4065	9344	2174	2236	7704	7670	5539	1042	958	1029	639	132	327	209	410	90	9	1791	1948	11466	4129	7630	4512	16922	17743	12291	22585	8861	21702	10439	8556	5364	3002	3389	
504	2846	4404	2224	2637	3131	12885	1714	659	971	779	127	23	403	444	60	136	168	152	466	1132	771	5190	1716	10114	2903	7106	3081	5086	11268	5305	2466	2389	971	1429	
505	1937	9166	7681	9685	4155	6205	840	1158	851	1045	887	233	386	236	133	303	19	30	643	548	1129	6947	3600	10947	11639	5528	5090	5778	3499	11273	4189	5000	3639	1817	
506	2937	6173	2988	1392	866	3837	1284	1191	564	977	557	341	465	681	477	24	155	206	1224	3214	12487	10734	2303	9510	9991	3849	11494	12215	2298	8027	8814	4312	2145	5119	
507	2022	14571	3987	2308	859	5595	779	111	50	970	71	47	5	11	22	107	18	0	473	140	4692	12659	4667	2586	6824	5872	37607	10958	7099	8053	4630	2292	38851	5045	
508	8121	14943	14524	4644	2136	7241	3287	317	85	1464	70	21	67	112	34	111	5	0	347	475	3471	2814	4204	10921	7739	4641	9335	12937	5284	2708	2260	1342	2265	5658	
509	167	4784	5765	171	130	907	217	8	94	158	0	18	37	0	13	376	0	0	64	151	81	503	2048	1997	5963	970	9040	887	9058	2334	2670	653	1086	530	
510	1217	4218	3813	1417	297	851	460	53	42	274	181	93	97	74	2	24	0	28	304	246	2625	5071	4275	5247	16988	5153	6655	21403	1676	3217	1005	1780	981	3690	
511	2278	12020	3509	1625	204	1526	529	71	37	282	160	232	96	159	16	57	33	56	381	272	3699	4336	4458	4557	5701	4205	9585	2636	2457	7350	1929	1778	1747	6821	
512	305	2245	1443	115	0	22	0	0	0	0	0	0	0	0	0	71	0	0	0	0	42	339	588	1135	2538	1323	927	2462	974	1974	1475	1334	2319	1529	
513	8	2304	667	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	135	124	419	875	940	529	759	846	213	513	120	17	1382	
514	97	1019	496	119	61	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	76	0	160	9795	1056	3186	3663	6094	8331	3722	1092	1297	3355	175	220	772	
515	680	7671	2131	98	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	47	805	195	475	926	5133	1961	3532	3218	1787	3567	2375	815	1630	1229	
516	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	82	142	131	0	0	0	0	0	17	
517	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	0	0	0	0	80	0	0	0	
518	2	0	0	0	0	n.s.	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
519	0	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	0	0	113	0	17	0	0	0	32	0	204	
520																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
521																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
522																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
523																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
524																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
525																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
528																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
529																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
530																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
531																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
532																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
534																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B<1400m	37133	102994	53977	36597	24295	55431	24062	9072	8196	9063	4532	2596	2782	2451	2270	1593	4182	5241	12504	23886	43675	75228	69273	106151	113227	72289	159939	114807	80583	89414	75795	42460	67442	51501	
SD<1400m	5256	10982	7364	6096	5310	15816	6698	1963	1328	1569	586	407	535	343	361	273	757	1625	1959	9051	11014	16217	16269	11805	12293	8904	25425	19966	14715	11056	16599	6846	13801	6639	
B<700m	37133	102994	53977	36597	24295	55431	24062	9072	8196	9063	4532	2596	2782	2451	2270	1593	4182	5241	12504	23886	43675	75228	69273	106151	113227	72289	159939	114807	80583	89414	75795	42460	67442	51501	
SD<700m	5256	10982	7364	6096	5310	15816	6698	1963	1328	1569	586	407	535	343	361	273	757	1625	1959	9051	11014	16217	16269	11805	12293	8904	25425	19966	14715	11056	16599	6846	13801	6639	

Table 7b. Difference in percentage between the Atlantic cod biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1988-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
514	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	86	100	100	100	100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
516	100	71	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	86	57	100	100	100	100	100	57
517	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
518	0	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	50	100	100	100	100	100	100	100	100	100
519	100	63	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	80	100	60	100	100	100	80	100	100
520																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
521																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
522																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
523																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
524																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
525																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
528																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
529																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
530																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
531																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
532																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
533																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
534																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<1400m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100	100
SD<1400m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<700m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100	100
SD<700m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 8a. Greenland halibut biomass by strata, as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1988-2021.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	0	0	0	0	0	0	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	0	0	
502	0	3	6	0	0	0	0	0	0	2	6	3	0	15	10	0	14	7	9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
503	26	31	8	8	18	3	0	21	106	89	361	342	240	378	138	55	852	416	325	22	0	4	6	0	0	0	0	0	0	1	4	5	0	3
504	142	20	0	15	27	10	0	5	0	23	40	194	204	155	57	105	347	91	182	8	0	0	0	0	0	0	0	0	0	0	12	0	0	0
505	73	84	0	28	41	1	2	21	35	96	170	403	302	264	65	92	254	280	231	92	15	7	0	6	0	0	0	6	0	2	4	0	0	0
506	31	18	15	12	8	15	0	31	104	224	355	322	175	261	102	21	466	332	61	75	8	0	0	0	0	0	2	1	8	0	3	6	12	8
507	84	62	57	186	242	93	211	890	1130	1401	2566	2319	1545	967	422	414	1032	595	778	729	524	11	15	4	0	4	8	12	21	9	18	39	47	4
508	149	219	61	177	373	138	45	328	353	1048	973	1962	1296	1106	864	507	811	934	910	432	226	31	0	0	0	0	0	0	15	2	20	12	16	0
509	177	162	52	75	318	30	42	175	157	250	464	348	241	349	136	140	464	91	550	487	401	31	0	0	0	9	0	0	0	0	0	6	47	0
510	106	89	57	169	356	31	231	518	705	848	1348	1504	1577	1716	732	286	753	1059	850	560	777	25	19	5	0	0	0	1	1	23	11	26	15	0
511	44	60	22	104	225	230	232	484	660	617	1208	1299	1071	1005	333	277	631	1062	290	503	563	21	32	2	8	2	3	0	17	8	17	11	18	6
512	399	637	283	749	609	918	1200	1119	2091	2213	3029	3604	2140	1557	1069	673	902	1020	978	1246	1393	1217	743	126	332	140	239	522	133	282	218	363	999	491
513	63	122	215	43	24	141	150	125	293	476	545	963	376	286	513	61	447	310	219	392	431	217	273	33	19	0	0	80	26	9	98	129	378	4
514	362	297	280	775	834	n.s.	610	404	803	1538	1438	1063	483	1148	1064	885	1658	618	573	878	1023	742	62	35	256	28	22	22	89	121	131	169	285	190
515	428	166	517	958	633	1356	1469	1740	1425	2647	3991	2940	2645	1591	1214	607	1084	1569	1783	3041	1621	771	1224	112	111	89	119	241	49	171	81	476	1136	167
516	1352	1342	2503	2487	1798	2141	1500	1832	2065	1742	3303	1208	1984	1511	2148	633	1166	1357	1752	2263	2000	2186	2079	1892	1911	1038	2165	3049	2188	3921	1772	2179	1762	2773
517	262	118	125	408	39	105	730	730	254	517	725	594	490	167	201	148	223	429	639	407	411	558	446	248	401	170	298	395	682	562	369	208	625	788
518	104	49	498	348	57	n.s.	380	943	188	548	763	917	176	565	683	1062	578	434	606	865	711	540	526	562	325	395	696	687	277	74	308	249	497	171
519	3016	919	1010	1498	2988	1321	1108	1211	956	1539	2562	999	1808	1102	2160	248	608	914	971	1042	2035	1414	1165	3700	927	924	1615	1560	2633	2447	2199	1398	812	1268
520																	1647	1061	666	2041	4119	1855	1490	2471	2381	1858	3556	2536	1904	4109	3498	1490	1081	1027
521																	906	203	359	742	2161	1569	1367	1258	1496	1952	1210	4577	1058	3080	1809	714	796	784
522																	607	74	845	551	883	1970	2410	1226	714	1220	1201	4707	1901	3530	1741	730	188	859
523																	407	0	130	495	888	475	715	464	280	534	576	1623	677	1579	956	392	294	361
524																	208	170	555	588	1082	1185	461	1749	652	379	541	846	1082	796	430	813	455	476
525																	2377	0	322	436	512	732	473	593	459	392	968	450	506	1127	380	352	478	396
528																	1728	893	1239	2857	3920	3153	1994	4188	2244	2150	1956	5627	2920	7414	4914	1629	890	1703
529																	2300	1204	674	1488	3335	2618	2281	2044	2237	2060	4603	7198	3038	6525	4561	1956	684	2260
530																	2024	118	2772	4719	5066	7692	5381	5060	4738	4685	3915	14974	5662	8756	7340	3933	2438	2418
531																	546	0	354	347	385	944	319	414	82	461	754	1631	659	1393	563	374	32	279
532																	599	279	1357	1040	1755	2391	1539	1916	1097	1244	2610	4308	2588	2597	2101	1375	1208	2102
533																	358	147	608	166	698	309	408	707	320	594	475	542	678	597	250	333	425	248
534																	2675	1460	1886	2222	2627	3377	1790	3454	2514	3063	1756	2585	5831	3101	2362	1085	575	1185
B<1400m	6818	4394	5708	8038	8588	6533	7910	10577	11324	15820	23849	20986	16751	14143	11912	6213	28676	17128	23475	30731	39572	36047	27221	32268	23505	23391	29288	58180	34642	52237	36171	20454	16194	19969
SD<1400m	758	383	797	804	1371	940	670	1194	855	1120	1324	1497	925	750	654	612	2666	845	1240	2512	2640	3075	1794	3851	1416	1847	1880	4046	3454	3263	2150	1302	1145	1036
B<700m	6818	4394	5708	8038	8588	6533	7910	10577	11324	15820	23849	20986	16751	14143	11912	6213	12294	11519	11708	13040	12140	7777	6591	6723	4291	2799	5168	6577	6139	7633	5267	5277	6649	5872
SD<700m	758	383	797	804	1371	940	670	1194	855	1120	1324	1497	925	750	654	612	799	623	609	1572	1202	725	731	2727	338	345	542	1248	802	812	683	500	790	553



Table 8b. Difference in percentage between the Greenland halibut biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1988-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
514	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	104	100	100	100	100	173	100	100	100	100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
516	106	94	108	97	97	95	95	107	154	96	102	105	87	101	102	120	100	96	85	86	88	90	99	90	99	122	96	111	120	100	79	97	109	110
517	100	100	85	85	100	100	100	100	100	93	100	100	71	183	140	100	100	100	100	100	100	100	62	100	110	134	100	79	100	100	100	100	100	100
518	0	50	100	100	0	n.s.	113	100	100	84	78	100	100	58	100	100	100	76	100	52	88	61	68	137	88	64	71	53	100	0	100	100	100	100
519	100	143	100	163	249	245	92	105	106	97	74	85	105	149	97	174	100	85	100	96	183	87	100	78	117	113	114	116	101	99	91	97	92	100
520																	108	120	129	113	94	94	110	80	100	103	136	106	135	93	104	109	103	131
521																	86	75	151	80	100	90	89	87	100	100	122	100	111	100	153	100	100	100
522																	110	50	77	86	81	100	95	100	100	92	85	88	110	100	100	100	100	100
523																	123	100	100	82	100	100	100	100	90	100	115	100	79	100	100	100	100	100
524																	91	50	96	100	79	79	130	100	86	108	71	98	100	79	100	100	100	100
525																	100	100	64	0	0	82	80	0	217	105	100	102	130	141	100	87	100	100
528																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
529																	161	88	82	112	73	102	90	123	109	116	99	125	86	217	106	101	115	102
530																	78	105	122	92	93	94	106	93	97	93	97	101	104	93	100	101	100	98
531																	100	100	53	102	100	100	77	100	100	100	100	100	100	100	100	100	100	100
532																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
533																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
534																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<1400m	103	103	103	105	126	111	98	102	107	98	96	99	98	100	100	104	101	96	98	96	97	95	97	96	102	100	102	101	102	106	101	100	101	103
SD<1400m	94	103	79	133	132	106	96	89	112	97	109	99	107	135	86	98	103	97	93	101	63	87	89	75	93	98	49	95	99	117	98	90	101	93
B<700m	103	103	103	105	126	111	98	102	107	98	96	99	98	100	100	104	100	97	97	92	105	91	92	86	105	104	97	97	107	101	89	98	101	104
SD<700m	94	103	79	133	132	106	96	89	112	97	109	99	107	135	86	98	100	91	103	108	125	111	121	63	137	123	111	69	100	79	88	88	103	111

Table 9a. Greenland halibut total age distribution until 700 m, with all the hauls in the EU 3M survey during years 1991-2021. Before 1991, the ALK is not available.

Age	1991	1992	1993	1994	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
1	13	777	889	599	4581	2806	1069	966	287	930	2920	1227	1183	2897	202	342	179	59	0	9	0	0	0	6	7	0	453	185	304	75	0
2	0	675	1213	814	1674	5489	4347	3073	1279	190	1099	2783	802	1464	992	234	241	35	0	14	0	0	0	0	0	0	7	137	182	295	0
3	381	277	554	1735	1778	2028	6735	10684	5705	1269	1694	1231	984	3828	3372	796	340	102	90	7	0	80	10	13	7	0	35	194	282	430	155
4	1639	1477	654	1731	2090	3272	5976	10575	12362	4373	2353	2443	1824	2833	3273	2257	1040	411	131	201	123	248	299	423	153	13	302	199	824	1330	970
5	2633	1986	1164	1524	2581	3447	4704	7518	8636	9270	4288	3987	2129	6813	6826	5848	5349	3329	1700	2151	2280	1601	1280	2061	1786	788	2565	2129	2481	3157	2993
6	963	2099	1755	2051	3332	3267	4150	5164	4946	7982	5791	3997	1942	4256	3959	4786	5890	5745	3860	2623	3280	1823	1473	2262	3759	2786	3317	2518	2039	2599	2610
7	1341	1505	1470	1509	1789	966	2076	3134	1691	1460	2713	2236	757	1021	916	1212	2246	2797	1850	1602	1481	712	257	696	907	1600	1631	856	739	650	623
8	368	648	794	758	925	504	802	900	522	532	1014	366	122	274	162	295	471	330	273	265	162	154	60	73	154	225	269	201	182	150	119
9	296	270	418	360	483	133	228	219	129	107	28	34	20	93	35	89	89	96	70	75	25	54	15	28	50	64	66	46	55	90	55
10	191	118	108	116	99	22	77	46	17	21	11	7	19	23	43	54	31	77	84	42	16	37	27	29	31	52	56	30	46	46	38
11	64	31	32	40	21	3	5	10	1	9	0	3	8	11	18	27	24	28	24	17	1	17	3	13	7	21	20	10	9	20	15
12	0	32	14	24	7	9	7	1	0	0	0	0	0	6	0	11	14	13	13	4	4	9	5	5	1	15	2	10	3	9	10
13	0	7	2	1	0	0	2	0	0	0	0	0	0	7	0	0	5	7	6	2	5	5	2	6	0	6	4	4	1	3	2
14	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8	2	0	0	2	0	0	3	1	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2	0	0
16	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
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	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
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	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	0	0	0	0	0	0	0
21	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
22	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
Total	7889	9909	9066	11261	19360	21946	30179	42290	35576	26142	21911	18314	9789	23526	19798	15952	15918	13027	8100	7011	7378	4749	3433	5619	6862	5571	8727	6517	7150	8854	7589

Table 9b. Difference in percentage between the Greenland halibut age distribution with and without the hauls in the closed areas in the EU 3M survey during years 1988-2021 until 700 m. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case. Before 1991, the ALK is not available.

Age	1991	1992	1993	1994	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
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	98	100	100	100	100	100	100	100	100	100	99	98	102	100	100
2	100	100	100	99	100	100	101	98	99	98	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	89	106	97	100
3	102	110	100	98	98	102	102	96	99	90	99	98	100	100	100	99	97	100	114	100	100	250	102	83	64	100	81	87	85	96	126
4	95	127	94	98	101	115	98	97	100	100	96	97	106	98	99	99	95	91	89	92	62	85	97	95	70	97	83	85	96	106	99
5	113	122	118	98	103	103	97	102	99	96	97	101	109	100	100	100	94	104	88	82	77	92	104	96	84	109	97	87	96	97	101
6	99	123	111	97	102	110	99	97	99	97	104	100	105	101	105	94	92	97	87	89	81	99	95	94	94	101	96	87	96	100	108
7	104	129	117	98	99	113	97	89	100	100	96	101	103	100	109	92	93	113	95	101	97	108	137	104	122	107	93	92	97	104	113
8	133	130	116	98	103	119	100	88	100	108	108	103	113	102	96	104	87	122	103	122	145	126	127	97	155	108	145	107	109	116	100
9	181	133	124	97	94	109	95	91	100	102	104	92	109	102	82	109	75	107	86	131	172	151	161	114	122	147	142	105	92	133	126
10	106	145	127	108	133	106	102	106	127	85	179	68	112	125	65	107	76	127	82	73	171	137	205	69	88	116	109	72	97	102	131
11	173	133	89	87	203	69	77	274	100	100	100	33	0	122	97	102	87	90	78	154	150	228	80	925	55	138	103	73	133	85	138
12	100	176	120	99	167	87	91	0	100	100	100	100	100	86	100	96	92	105	111	152	173	181	110	0	46	155	88	68	100	84	124
13	100	333	47	78	100	100	100	100	100	100	100	100	100	100	100	100	65	98	109	206	83	305	97	0	100	90	0	52	88	80	59
14	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	87	100	50	379	100	100	100	0	100	100	88	0	100
15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
21	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	107	121	109	98	101	105	99	97	99	97	100	100	104	100	101	97	93	102	90	90	83	100	102	96	95	105	97	88	97	100	105

Table 10a. Greenland halibut total age distribution until 1400 m, with all the hauls in the EU 3M survey during years 2004-2021.

Age	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	2917	202	342	179	59	0	9	0	0	0	6	7	6	453	186	304	75	0
2	1464	993	241	255	35	0	14	0	0	0	0	0	0	14	151	189	305	0
3	4067	3397	904	360	107	107	7	0	135	56	23	26	0	98	248	439	479	169
4	3818	3556	2946	1707	761	240	614	297	884	1127	1116	627	33	1543	496	1884	1776	1501
5	11171	8224	9794	9645	7389	4473	5957	5965	6089	5703	7626	8298	2269	11862	5519	5682	5151	5785
6	9708	5733	9219	12225	15489	13419	9390	10448	7511	8968	10910	24922	11273	16049	9361	5090	4957	6563
7	3754	1757	3042	6110	10162	10309	7169	7650	4279	3331	4576	11159	10092	12046	7694	3141	2026	2504
8	1069	443	879	1665	1606	1940	1567	1764	1415	1117	802	2522	1991	3235	2803	1173	588	865
9	397	93	276	365	452	429	526	603	466	368	356	758	622	1044	1005	634	426	512
10	146	139	173	237	445	504	438	630	430	541	425	676	548	803	1268	627	367	511
11	113	69	132	192	250	208	170	227	291	199	220	484	238	325	461	215	223	267
12	82	40	71	93	137	168	133	162	118	167	95	163	123	179	301	97	117	173
13	184	19	35	59	78	141	74	153	64	68	129	95	84	161	161	60	94	111
14	39	4	24	24	43	105	56	59	64	33	71	120	72	84	115	65	74	106
15	20	0	9	12	65	21	9	10	28	71	14	53	26	83	45	60	20	25
16	2	0	0	0	3	6	17	10	26	11	8	22	20	39	25	47	11	3
17	0	0	0	0	6	5	0	10	38	9	2	22	7	15	14	0	6	4
18	0	0	0	0	0	0	0	9	0	0	9	0	9	11	10	8	12	0
19	0	0	0	0	0	0	0	0	0	8	0	9	0	5	0	0	0	9
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	38951	24670	28088	33128	37087	32076	26150	27998	21837	21777	26387	49963	27413	48048	29863	19722	16706	19106

Table 10b. Difference in percentage between the Greenland halibut age distribution with and without the hauls in the closed areas in the EU 3M survey during years 2004-2021 until 1400 m. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Age	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	100	100	100	98	100	100	100	100	100	100	100	100	0	99	98	102	100	100
2	100	100	99	90	100	100	100	100	100	100	100	100	100	100	90	107	96	100
3	101	100	98	91	100	122	100	100	329	99	90	124	100	88	89	88	96	136
4	100	98	98	98	82	90	105	67	88	93	105	77	92	93	89	97	109	100
5	102	99	100	96	99	93	90	89	98	101	102	94	113	109	95	98	98	103
6	103	102	96	95	91	93	96	91	97	96	99	98	100	110	98	97	101	106
7	100	102	91	100	99	95	97	100	102	115	102	110	101	97	103	100	100	103
8	98	109	106	96	106	97	100	116	104	104	100	116	103	121	105	105	102	92
9	95	87	105	82	91	92	107	111	107	102	104	117	125	89	100	101	111	110
10	98	79	96	90	116	97	90	95	93	96	90	110	103	98	100	108	107	105
11	92	109	87	125	89	99	97	101	108	106	110	102	103	101	99	96	94	102
12	96	143	90	135	112	126	115	102	94	100	108	83	95	104	108	92	98	108
13	114	44	83	115	95	124	86	107	127	87	112	74	97	99	111	111	101	104
14	66	47	0	98	104	126	111	85	171	120	103	96	92	97	118	117	113	86
15	544	100	0	150	81	101	90	52	107	109	172	122	133	112	104	91	126	126
16	0	100	100	100	67	100	165	91	99	56	110	128	75	130	96	92	95	67
17	100	100	100	100	211	66	100	0	0	0	0	99	79	91	93	100	100	0
18	100	100	100	100	100	100	100	0	100	100	82	100	82	88	100	89	333	100
19	100	100	100	100	100	100	100	100	100	100	100	82	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	88	100	100
21	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	101	100	98	97	95	94	95	95	99	101	101	101	102	105	99	99	101	104

Table 11a. American plaice biomass by strata, as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1988-2021.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	979	750	379	808	532	809	496	1672	1096	286	117	279	259	782	106	1292	1507	1038	714	284	144	548	716	693	462	329	181	410	219	1014	764	945	1360	1583
502	2133	2701	1031	1997	1285	950	899	1098	707	555	1190	1357	732	626	946	713	716	796	354	209	513	370	1084	1141	1272	1202	1872	1248	1307	4379	1807	831	1793	3603
503	1025	838	1251	935	473	333	244	189	126	371	213	73	16	70	56	17	427	101	74	101	147	74	103	364	468	266	223	462	488	410	534	1042	436	982
504	1649	346	613	240	418	429	640	367	201	152	257	40	75	64	96	0	395	359	109	153	440	36	91	1201	749	671	258	376	178	342	285	801	571	596
505	1949	2108	1372	1055	628	968	922	412	375	464	558	55	42	84	142	82	72	45	63	81	88	72	200	190	716	267	328	443	592	277	421	1602	1107	447
506	359	847	715	376	451	229	606	92	24	10	26	30	19	28	47	29	26	71	61	99	37	57	34	160	185	341	187	309	282	314	751	805	680	534
507	880	398	628	292	479	239	237	187	54	62	35	14	11	21	39	30	84	31	37	20	47	32	28	160	156	166	208	117	253	215	389	289	495	419
508	313	123	197	188	545	365	128	99	42	92	124	2	0	34	32	14	55	175	163	58	128	47	49	65	187	156	249	220	346	114	241	206	119	293
509	77	122	257	0	280	154	15	375	41	27	0	0	0	0	1	9	77	18	0	0	0	77	0	0	30	25	0	2	12	2	0	121	35	0
510	1742	1142	1500	981	1054	1094	1677	531	311	215	27	54	34	71	27	54	45	87	97	24	163	54	115	35	123	153	105	86	325	190	403	336	482	230
511	889	876	987	301	279	219	227	82	51	24	22	28	17	20	44	29	69	35	19	22	50	64	26	33	121	121	185	124	308	188	397	559	462	667
512	7	14	34	13	8	11	25	11	24	5	0	0	0	3	0	11	0	0	0	0	0	11	0	0	11	0	0	0	0	10	16	18	128	7
513	2	0	15	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	20	0	4
514	6	6	5	292	22	n.s.	18	11	3	0	3	7	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	3	3	16	39	28	13	0
515	17	74	2	73	28	82	30	51	17	5	5	0	0	0	0	6	0	4	0	3	7	1	0	10	13	0	5	22	10	4	51	52	72	6
516	4	0	0	3	7	9	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	0	0	0
517	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	0	0
518	0	0	0	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	0	12	0	0	0
519	0	0	0	11	3	4	2	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	0	0
520																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
521																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
522																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
523																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
524																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
525																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
528																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
529																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
530																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
531																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
532																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
533																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
534																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B<1400m	12029	10346	8986	7565	6492	5896	6169	5185	3073	2268	2577	1940	1204	1803	1536	2286	3473	2759	1691	1053	1766	1442	2446	4084	4491	3698	3800	3821	4325	7475	6109	7654	7752	9372
SD<1400m	1387	1465	957	887	719	778	1028	845	681	528	561	654	252	324	546	751	739	684	342	159	300	327	526	780	534	439	671	556	481	1547	558	852	987	1382
B<700m	12029	10346	8986	7565	6492	5896	6169	5185	3073	2268	2577	1940	1204	1803	1536	2286	3473	2759	1691	1053	1766	1442	2446	4084	4491	3698	3800	3821	4325	7475	6109	7654	7752	9372
SD<700m	1387	1465	957	887	719	778	1028	845	681	528	561	654	252	324	546	751	739	684	342	159	300	327	526	780	534	439	671	556	481	1547	558	852	987	1382

Table 11b. Difference in percentage between the American plaice biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1988-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
514	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
516	71	100	100	0	86	151	86	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
517	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
518	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
519	100	100	100	172	60	50	75	162	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
520																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
521																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
522																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
523																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
524																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
525																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
528																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
529																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
530																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
531																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
532																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
533																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
534																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<1400m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SD<1400m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<700m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SD<700m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 12a. Golden redfish biomass by strata, as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1988-2021.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	31	971	328	336	7	84	74	505	92	1240	494	22	46	88	1285	6851	637	316	1586	1480	49	18	53	40	36	34	3	10	6	134	55	1	18	1
502	13	68	168	178	94	358	109	226	404	688	195	209	532	36	1373	42	6924	5899	1232	44	23	71	127	87	76	482	67	89	691	403	849	15	31	303
503	502	1442	176	269	126	105	697	640	237	197	117	43	350	246	229	0	2984	10492	114214	3536	1156	123	2756	1831	1617	190	950	38	968	520	215	115	100	823
504	323	12	17	37	7	33	39	98	123	2522	65	44	251	159	22	101	1531	748	13043	223	195	1313	2580	237	24	10	24	18	315	293	27	1	82	63
505	1489	1225	66	429	365	131	312	897	519	16583	1537	186	38741	385	375	763	29253	92337	72363	18921	23654	101	2916	834	1240	1967	280	22	324	297	309	143	366	155
506	785	606	746	601	175	191	11915	1226	748	25955	253	1024	285	127	194	0	17796	6537	32658	7602	981	4977	5966	477	8656	1204	1306	566	693	446	1327	196	223	751
507	330	703	559	291	118	253	13721	1094	1345	2072	661	306	387	290	166	110	6027	5794	17414	8249	60266	28403	12181	6435	4940	11934	7984	7269	6371	5067	1414	1083	51311	982
508	85	90	289	164	313	81	41	145	1194	462	226	181	234	69	91	230	957	1987	3874	1621	13727	3863	2474	5502	13414	1098	4355	1516	852	4655	168	650	1299	1026
509	3554	45	186	55	34	177	502	63	1808	389	120	91	761	88	540	633	287	2028	1094	3205	5520	2577	9025	5429	872	2142	7500	1091	9604	978	733	637	3294	993
510	1833	13289	2175	1237	1384	2186	3180	2846	2621	3626	872	2470	2386	5021	3264	15677	12241	17178	7492	35285	62251	10391	4359	2689	11752	6482	5955	14771	5422	7907	3624	17651	11342	2987
511	3531	5480	9360	481	1502	417	2583	1288	2097	10849	1688	4690	697	1322	748	584	6164	3878	31129	7260	67295	18805	4711	4244	12676	5222	7772	4804	9124	2417	1925	1649	1953	7429
512	0	0	5	12	0	0	1	5	25	5	18	77	40	15	34	153	96	85	30	26	1390	261	22	0	0	29	65	26	254	0	64	258	50	125
513	0	0	6	0	0	4	0	9	2	12	30	14	17	6	9	17	29	73	135	30	561	71	23	199	0	768	233	126	0	16	0	0	0	0
514	834	0	4	0	4	n.s.	30	4	41	204	122	48	108	386	1361	103	349	183	1789	62	2525	1093	165	510	33	175	602	236	217	237	20	92	11	78
515	107	0	0	0	0	6	21	9	38	43	25	23	54	332	106	122	125	62	222	529	1185	326	19	543	74	279	69	90	222	0	41	97	58	7
516	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	7	0	7	0	0	0	0	
517	0	0	0	0	0	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	0	0	0	
518	1910	0	0	0	0	n.s.	0	2	0	0	0	0	0	0	0	36	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
519	0	11	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
520																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
521																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
522																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
523																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
524																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
525																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
528																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
529																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
530																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
531																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
532																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
533																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
534																	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B<1400m	15326	23942	14086	4093	4130	4026	33225	9062	11293	64847	6422	9429	44888	8610	9798	25425	85402	147615	298275	88071	240777	72393	47377	29056	55410	32016	37171	30672	35069	23371	10771	22588	70138	15723
SD<1400m	4060	13440	8714	832	1087	1573	17720	1480	2346	30122	1207	4148	37989	4136	2778	14670	17653	65465	95439	20266	59958	16185	9103	7006	12745	6513	7970	8248	8325	6933	2739	12979	49418	5855
B<700m	15326	23942	14086	4093	4130	4026	33225	9062	11293	64847	6422	9429	44888	8610	9798	25425	85402	147615	298275	88071	240777	72393	47377	29056	55410	32016	37171	30672	35069	23371	10771	22588	70138	15723
SD<700m	4060	13440	8714	832	1087	1573	17720	1480	2346	30122	1207	4148	37989	4136	2778	14670	17653	65465	95439	20266	59958	16185	9103	7006	12745	6513	7970	8248	8325	6933	2739	12979	49418	5855



Table 12b. Difference in percentage between the golden redfish biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1988-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
514	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	80	100	100	100	100	86	100	100	100	100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
516	100	100	100	100	100	100	100	57	100	100	100	100	100	100	100	100	100	86	100	100	100	100	100	100	100	86	100	71	100	100	100	100	100	100
517	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
518	0	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	50	100	100	100	100	100	100	100	100	100	100	100
519	100	0	100	100	100	100	100	100	100	100	100	100	100	60	100	100	100	60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
520																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
521																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
522																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
523																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
524																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
525																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
528																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
529																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
530																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
531																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
532																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
533																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
534																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<1400m	114	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SD<1400m	109	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10		

Table 13a. Deepwater redfish biomass by strata, as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1991-2021.

Stratum	1991	1992	1993	1994	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
501	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
502	0	0	0	0	0	0	1	0	0	0	1	24	0	10	1	3	0	0	0	1	1	0	0	0	0	0	3	0	0	0	0
503	0	0	0	0	15	33	14	109	5	46	18	13	0	194	191	470	17	0	0	129	4	1	9	0	1	1	13	18	6	0	743
504	0	5	0	0	13	17	233	50	3	19	56	1	1579	110	589	48	0	6	1	2	0	1	0	0	0	0	0	6	0	0	0
505	0	2	3	0	279	81	9269	18	126	59	43	13	1098	452	2798	228	443	108	0	5	12	18	21	0	1	5	7	60	0	0	76
506	8	0	2	0	78	28	30	27	37	21	6	16	0	939	250	1815	0	0	0	36	1	9	27	0	3	0	1	0	35	3	382
507	9874	2249	716	3959	7578	4572	1536	2668	1256	509	403	458	598	6433	4653	9253	2383	616	19	2945	3472	29348	3178	20	1688	1649	7194	686	734	24726	13344
508	1515	6383	152	173	2120	6534	5597	1440	2506	599	521	1074	1234	3536	6503	5004	1763	259	135	3868	2159	16790	6531	11	1325	1155	528	413	727	1863	4816
509	531	2250	231	10774	4495	20949	11277	11893	34658	51998	15746	8044	2676	6069	52528	22625	5524	3134	172	875	1473	141	1083	7	0	536	205	90	876	1536	613
510	11822	20403	1670	669	11173	21330	13976	5996	9136	10052	9557	5639	4221	8374	13852	21838	21614	13051	20	7014	614	5314	6658	811	329	3800	13129	2870	4687	14474	17370
511	5077	9501	1087	1137	5407	4544	1619	5953	2097	887	1089	537	293	6738	7447	17430	3664	9774	1984	3432	871	4963	3803	3828	106	1369	2491	4050	861	9123	14627
512	5059	8027	5043	3518	5939	2297	3059	2549	4118	2371	2044	3460	2492	3231	1984	2619	2022	1672	15348	16317	52020	38725	25239	17956	7809	15541	10539	3348	6460	3334	1615
513	1324	2788	1350	1726	5083	2649	962	1595	2348	1305	1289	481	903	3027	1460	1176	506	811	9199	5103	11569	13712	5436	3474	935	4103	1053	1579	3786	4148	1746
514	4352	4443	n.s.	3760	5698	10898	5180	10251	5417	18053	5881	18858	5997	5860	11077	18950	5659	10210	62856	10500	9327	24660	14296	41981	21038	28218	41244	19759	11696	21344	12271
515	4117	7605	4648	6658	7249	3198	3032	2236	3120	2523	1500	1231	609	826	1279	3735	7100	2522	21683	10031	21182	31158	31027	26555	11457	15827	12216	19264	19239	13411	5264
516	1930	4286	2015	1208	1205	296	150	228	175	347	213	482	426	111	128	86	406	186	63	112	163	455	82	1345	249	98	17	130	146	327	52
517	2417	2112	5333	495	1665	46	55	123	89	99	3	194	246	29	46	71	8	26	39	66	25	0	4	4	44	53	0	3650	65	14	1657
518	842	572	n.s.	253	176	173	30	12	15	94	104	311	147	0	280	353	23	170	180	446	746	1383	3130	93	660	6750	3420	1437	122	57	2799
519	1204	1185	936	1398	490	252	70	211	174	381	145	153	339	59	42	146	52	54	87	1355	63	15	1978	72	23	37	76	28	25	952	839
520														16	17	21	7	21	0	8	20	0	12	11	9	6	9	6	0	13	11
521														0	1	0	0	0	0	6	6	0	0	0	8	0	0	0	5	0	0
522														0	1	0	0	0	0	0	6	0	0	0	0	4	0	0	0	0	0
523														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
524														7	0	3	8	0	0	3	0	0	5	3	12	0	0	0	8	6	0
525														0	0	0	0	0	0	0	0	0	0	11	0	5	0	0	0	0	0
528														7	10	4	9	15	7	24	4	12	11	5	10	1	0	4	5	28	0
529														0	0	0	0	0	7	0	5	0	0	0	0	1	2	0	0	0	0
530														0	0	0	0	5	0	10	0	0	0	0	0	0	0	0	7	0	0
531														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
532														0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0
533														0	0	0	0	4	0	1	0	0	0	0	0	3	0	7	0	3	0
534														0	0	0	0	6	0	7	0	0	0	2	0	0	0	0	0	10	0
B<1400m	50071	71810	23186	35727	58662	77897	56093	45358	65281	89365	38617	40999	22857	46030	105137	105877	51207	42650	111801	62297	103744	166705	102528	96188	45714	79163	92147	57403	49489	95372	78224
SD<1400m	6668	11019	2613	7741	6812	11714	11476	8361	21241	40668	8476	9542	4931	6140	29212	21572	9454	12411	27034	9917	16861	26213	10708	17866	8787	13096	24732	7513	9339	15977	7939
B<700m	50071	71810	23186	35727	58662	77897	56093	45358	65281	89365	38617	40999	22857	46000	105108	105849	51183	42599	111787	62236	103703	166693	102500	96158	45668	79143	92136	57387	49464	95312	78212
SD<700m	6668	11019	2613	7741	6812	11714	11476	8361	21241	40668	8476	9542	4931	6140	29212	21572	9454	12411	27034	9917	16861	26213	10708	17866	8787	13096	24732	7513	9339	15977	7939

Table 13b. Difference in percentage between the deepwater redfish biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1991-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
514	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	85	100	100	100	100	104	100	100	100	100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
516	95	96	89	109	67	85	87	86	75	87	105	86	70	90	91	87	77	79	72	63	80	58	243	86	63	104	79	1353	79	71	83
517	77	100	100	100	100	100	352	100	100	50	50	54	100	100	100	100	100	100	100	50	100	100	0	100	50	100	100	100	100	100	100
518	100	0	n.s.	57	100	100	125	114	100	100	54	100	100	100	54	100	95	58	0	1106	51	50	2908	165	329	100	99	100	100	100	100
519	87	76	59	76	82	65	88	69	61	68	71	88	51	100	129	100	91	99	125	100	74	107	80	84	60	96	80	80	97	80	100
520														102	69	96	69	67	100	157	110	100	83	58	123	83	112	0	100	83	0
521														100	0	100	100	100	100	80	83	100	100	100	100	100	100	100	100	100	100
522														100	50	100	100	100	100	100	100	100	100	100	100	67	100	100	100	100	100
523														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
524													67	100	67	100	100	100	100	33	100	100	67	0	0	100	100	100	100	100	100
525													100	100	100	100	100	100	100	100	100	100	100	100	0	100	100	100	100	100	
528													100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
529													100	100	100	100	100	100	0	100	50	100	100	100	100	0	50	100	100	100	100
530													100	100	100	100	100	91	100	0	100	100	100	100	100	100	100	100	91	100	100
531													100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
532													100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
533													100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
534													100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<1400m	98	100	96	99	99	100	100	100	100	100	100	99	98	100	100	100	98	100	100	100	99	100	103	100	101	100	100	100	100	100	100
SD<1400m	100	99	96	100	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	103	100	100	100	100	100	100	100	100
B<700m	98	100	96	99	99	100	100	100	100	100	100	99	98	100	100	100	98	100	100	100	99	100	103	100	101	100	100	100	100	100	100
SD<700m	100	99	96	100	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	103	100	100	100	100	100	100	100	100

Table 14a. Deepwater redfish total age distribution until 700 m, with all the hauls in the EU 3M survey during years 1992-2021. Before 1992, the ALK is not available. In 2004, 2010 and 2019 there were no ALK available for this study.

Age	1992	1993	1994	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
1	0	0	471	6	0	0	95	7	0	0	0	0	0	0	0	0	0	0	5207	927	0	0	0	0	0	0	0	0	0	0
2	0	0	1639	3963	7887	1214	3784	5099	0	4909	995	0	22537	121835	0	108674	31230	33928	15865	755	1343	0	6117	0	130705	0	0	0	0	0
3	1693	0	23295	73044	24855	10477	26724	34361	7078	61023	24308	106375	76121	281590	0	252717	50374	37482	23870	3729	2884	16026	10125	1329	528646	0	0	0	0	0
4	29197	1805	52147	224188	206684	56190	10798	35387	20175	21854	74039	22058	136900	229260	96971	184203	219564	107906	27755	7663	3276	3706	12753	6896	65733	0	0	0	0	0
5	101366	5186	13835	53639	235563	203235	32192	19449	23688	27936	21386	24299	139648	115660	104409	220234	166749	213998	65270	23320	9589	6140	10289	14746	1241	0	0	0	0	0
6	39192	12869	17337	6420	20355	51987	54605	42401	30910	23749	25623	9830	234838	119842	52452	48705	123017	247404	140744	62538	24730	10194	14603	12307	4439	0	0	0	0	0
7	30146	9505	17684	9253	8602	5045	20691	49275	51802	26393	20306	10464	50359	44333	42561	53034	40438	173531	155268	129828	43895	54085	33206	8350	8126	0	0	0	0	0
8	22585	5841	10178	10447	7088	2526	84418	22886	61933	17715	15244	8084	17971	15533	11345	37971	5173	60339	49172	65662	32273	42504	35791	10361	6797	0	0	0	0	0
9	13795	1942	7086	5447	5985	2208	2985	117168	19125	7063	12794	5036	8858	3995	3146	12585	2682	12938	9037	29748	15729	48344	36267	19056	8018	0	0	0	0	0
10	8491	2855	4872	4369	3427	2169	431	2461	133642	3513	3249	3834	5323	1497	322	10695	2760	2096	3926	5909	6361	34280	15850	23478	4988	0	0	0	0	0
11	6256	3080	4106	4914	2588	1230	458	259	1230	19359	1792	1522	2020	1131	269	3793	1300	4640	1666	5964	7283	18303	42830	13712	2025	0	0	0	0	0
12	4688	3720	2810	2920	2229	1130	2192	346	250	711	15594	932	1678	96	194	340	397	3415	1188	3547	2699	15022	35350	7657	3460	0	0	0	0	0
13	4311	2545	1945	2257	1169	677	313	824	141	341	396	8667	961	723	100	2273	1103	4050	989	929	2507	2979	21135	6224	3551	0	0	0	0	0
14	3214	2381	1128	1943	1335	873	306	102	1324	155	141	121	288	116	93	834	0	2461	1164	1924	921	3496	1723	17694	6180	0	0	0	0	0
15	2848	2639	1287	2042	1136	239	94	262	91	178	215	0	1641	90	0	155	225	1221	654	2192	2847	547	9296	12526	8332	0	0	0	0	0
16	1745	824	633	1236	815	332	188	251	39	116	80	44	27	942	55	128	206	553	108	1535	325	2852	1212	3149	9015	0	0	0	0	0
17	1044	865	454	710	511	406	297	172	60	61	349	216	22	152	646	109	0	174	32	413	413	1626	5274	3100	7839	0	0	0	0	0
18	614	458	509	712	457	101	30	357	70	0	7	0	15	0	145	659	0	173	75	197	198	631	1727	2591	6629	0	0	0	0	0
19	650	322	272	342	228	115	104	56	388	19	65	0	10	0	3	298	0	301	41	180	46	11	312	1374	4403	0	0	0	0	0
20	228	250	159	265	265	122	0	73	0	0	48	34	0	19	17	266	0	252	53	542	0	0	775	0	1934	0	0	0	0	0
21	126	157	70	168	128	64	0	74	54	0	0	16	0	0	17	53	0	85	41	31	138	73	0	1730	2511	0	0	0	0	0
22	0	0	98	131	49	21	14	5	80	0	7	44	0	0	0	181	0	553	22	123	0	0	359	634	28	0	0	0	0	0
23	46	52	50	35	77	0	0	31	44	6	48	0	0	0	0	0	0	287	152	0	43	0	0	634	233	0	0	0	0	0
24	56	35	21	35	26	0	16	20	61	0	6	0	0	0	0	22	9	318	77	248	128	0	0	0	781	0	0	0	0	0
25	51	0	0	55	13	0	0	39	0	0	6	0	0	0	0	140	0	0	67	0	202	0	0	56	464	0	0	0	0	0
26	0	0	0	0	23	0	16	0	79	0	0	6	0	0	0	0	0	0	22	0	87	492	173	0	233	0	0	0	0	0
27	0	0	0	42	4	0	0	0	0	0	0	0	0	0	0	29	0	158	0	212	214	0	408	0	0	0	0	0	0	0
28	23	0	0	0	0	0	0	20	11	0	0	0	0	261	0	0	0	0	0	391	0	0	13	0	194	0	0	0	0	0
29	0	0	0	0	13	0	0	0	0	0	0	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	35	5	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	71	0	0	0	109	0	0	0	0	0	0	0	0	142	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	89	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	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
36	0	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	485	0	0	0	0	0	0	0
37	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
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	29	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0	0	0	0	0	0	0	0	0
40	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
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	0	0	0	0	0	0
42	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
43	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
44	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
Total	272381	57331	162087	408634	531515	340362	240751	331402	352276	215102	216698	201750	699216	937075	312764	938290	650434	909279	497260	347578	158180	261796	295618	167603	816860	0	0	0	0	0

Table 14b. Difference in percentage between the deepwater redfish age distribution with and without the hauls in the closed areas in the EU 3M survey during years 1992-2021 until 700 m. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case. Before 1992, the ALK is not available. In 2004, 2010 and 2019 there were no ALK available for this study.

Age	1992	1993	1994	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
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	124	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
3	100	100	100	100	100	100	100	100	100	100	100	88	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	200	100	100	99	100	99	100	99	99	100	100	100	100	100	100	100	100	100	100
5	100	99	100	100	100	100	100	100	100	100	100	109	100	100	99	100	99	100	99	96	97	99	100	100	100	100	100	100	100	100
6	99	97	96	98	100	100	100	100	100	100	100	87	100	100	98	100	98	100	99	103	102	101	100	100	100	102	100	100	100	100
7	102	96	100	98	98	100	100	100	100	100	100	83	100	100	95	100	95	100	99	101	101	98	100	100	100	101	100	100	100	100
8	99	97	105	96	99	101	100	100	100	100	100	99	100	100	95	100	95	100	100	100	103	103	101	100	101	100	100	100	100	100
9	101	95	97	99	99	100	98	100	100	100	100	78	99	100	94	101	94	101	98	96	103	101	102	100	100	100	107	99	99	99
10	101	96	95	96	100	100	97	98	100	99	99	78	99	100	84	101	98	98	98	151	102	98	100	100	100	100	100	100	100	99
11	108	97	99	102	100	100	97	95	96	100	96	87	98	99	114	101	108	99	86	170	93	98	100	100	100	96	99	99	99	99
12	114	97	93	96	97	101	97	96	91	99	99	145	97	100	98	103	97	87	84	201	93	94	100	99	94	99	99	99	99	99
13	92	97	96	96	97	99	97	96	92	93	96	84	97	100	135	101	91	103	126	93	140	100	99	99	93	99	99	99	99	99
14	89	97	94	91	97	99	99	96	93	91	94	92	90	100	289	101	100	97	116	98	115	100	100	100	106	99	99	99	99	99
15	97	96	97	97	102	101	98	96	93	92	94	100	95	93	100	101	122	88	188	95	101	100	101	97	99	99	99	99	99	99
16	96	96	93	90	98	100	103	96	90	95	78	92	79	100	119	101	83	75	0	96	98	100	99	101	99	99	99	99	99	99
17	89	95	100	100	99	100	100	99	91	95	96	85	82	96	128	101	100	80	80	91	94	100	99	95	99	99	99	99	99	99
18	88	96	102	92	103	99	98	97	95	100	66	100	59	100	206	102	100	230	123	94	89	101	101	99	99	99	99	99	99	99
19	94	97	89	104	100	101	96	92	93	92	84	100	58	100	60	100	100	100	90	0	93	101	114	95	89	99	99	99	99	99
20	106	102	283	93	102	101	100	98	100	100	85	93	100	100	79	102	100	0	114	89	100	100	100	100	99	99	99	99	99	99
21	86	83	154	91	101	101	100	96	92	100	100	95	100	100	81	98	100	75	69	82	137	103	100	100	100	99	99	99	99	99
22	100	100	87	113	101	102	100	100	94	100	66	92	100	100	100	100	100	100	263	0	100	100	100	100	101	96	99	99	99	99
23	79	83	84	89	96	100	100	97	91	60	93	100	100	100	100	100	100	100	81	398	100	91	100	100	101	99	99	99	99	99
24	91	94	77	89	100	100	91	96	93	100	75	100	100	100	100	92	120	152	67	89	92	100	100	100	100	99	99	99	99	99
25	95	100	100	87	92	100	100	100	100	100	100	100	100	100	100	103	100	100	0	100	96	100	100	108	99	99	99	99	99	99
26	100	100	100	100	97	100	91	100	90	100	100	100	100	100	100	100	100	100	100	152	100	90	100	98	100	99	99	99	99	99
27	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	105	100	0	100	100	96	100	99	100	100	100	100	100	100	100
28	79	100	100	100	100	100	100	96	86	100	100	100	100	100	99	100	100	100	100	100	96	100	81	100	99	99	99	99	99	99
29	100	100	100	100	104	100	100	100	100	100	100	86	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
30	100	100	100	89	89	100	100	100	100	100	100	100	100	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100
31	97	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
32	100	100	100	100	100	100	100	100	100	100	100	86	100	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100
33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	85	100	100	100	100	100	100	100	100	100	100	100
34	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	102	100	100	100	100	100	100	100	100	100	100	100	100	100	100
35	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
36	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
37	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
38	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	70	100	100	100	100	100	100	100	94	100	100	100	100	100	100
39	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	92	100	100	100	100	100	100	100
40	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
41	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
42	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
43	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
44	100	100	100	100	100	100	100	132	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	100	97	100	100	100	100	100	100	100	100	100	96	100	100	98	100	99	100	101	100	100	100	100	100	100	100	100	100	100	100

Table 15a. Acadian redfish biomass by strata, as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1991-2021.

Stratum	1991	1992	1993	1994	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
501	0	0	0	2	8	1	32	44	0	0	13	3477	2188	656	12	0	18	0	0	0	3	0	0	0	0	0	5	0	0	2	0
502	3	119	0	7	15	6	43	165	50	83	11	1028	31	4974	6372	2600	11	0	0	4	6	4	5	1	2	0	29	21	0	1	8
503	39	124	20	56	414	74	62	122	54	209	211	481	0	840	5637	31102	3831	704	15	1230	207	82	178	20	14	114	21	115	124	95	591
504	53	15	6	27	56	123	612	55	30	26	175	34	1551	1062	2101	12379	24	18	448	59	6	2	0	3	21	12	33	14	0	22	10
505	145	254	37	46	193	202	2113	287	295	497	372	471	1052	16303	31252	37909	27919	5320	89	254	142	51	282	7	6	43	522	156	106	101	281
506	109	92	26	374	301	284	6582	133	441	141	169	247	0	9365	6426	55409	20218	387	3034	1549	115	573	316	29	36	153	141	142	150	604	1577
507	1037	407	211	1718	393	891	627	860	727	1086	925	831	305	7589	9811	43836	15013	18651	3744	10105	10938	31309	18562	482	3453	11227	6627	3299	913	27357	5207
508	542	590	121	149	253	1137	976	801	1204	933	861	1190	1108	5640	5823	35649	14326	65415	4019	5615	6393	9478	14138	231	8003	1946	9424	1760	5377	822	5889
509	653	131	675	2791	587	5142	2545	979	438	3258	896	7641	1468	4863	4470	13902	49126	5692	72312	37718	3265	7464	1525	687	397	3102	2998	746	829	4727	7664
510	1853	1631	2732	921	2081	2105	1675	1005	2688	3786	3784	3018	3041	16499	36385	33842	59263	40394	2362	15306	2285	3675	5038	1210	2438	2196	4136	2461	12193	5361	12827
511	715	1337	269	261	317	629	1704	943	1157	861	2637	1594	463	5134	11088	40348	23342	25711	40484	7407	2821	7925	13265	5811	3698	5608	8516	4135	3874	3390	4464
512	291	200	58	186	74	91	58	168	364	178	187	441	1294	1138	1242	1361	2988	10158	15457	6645	8434	4208	4100	3488	12617	19372	3597	3943	8895	3243	4641
513	55	0	11	38	29	34	58	60	54	46	163	100	234	386	462	1870	623	1408	9381	1473	2885	2757	13719	10343	5781	2447	3339	2747	1827	779	3075
514	60	232	n.s.	457	92	186	221	514	211	1367	393	2030	514	436	989	6330	1136	15512	11155	1880	5151	4530	1896	13877	31005	3602	4395	2557	7239	4176	3523
515	120	157	169	776	201	113	155	268	211	434	711	536	458	959	1135	2649	43749	12738	8294	7761	17004	10298	11718	9819	12378	5566	3677	8201	1647	7454	1930
516	0	0	11	2	8	5	0	9	1	2	4	28	75	16	31	15	161	105	85	13	75	32	9	147	86	7	10	15	30	8	8
517	0	0	0	0	0	1	0	3	0	0	0	2	45	0	0	13	0	6	19	12	8	1	0	2	11	0	0	0	3	0	0
518	0	18	n.s.	0	0	1	0	0	0	0	6	11	31	0	18	146	0	38	25	0	14	121	1	12	547	0	48	69	2	119	20
519	4	2	5	13	4	1	8	22	2	9	15	12	130	13	81	10	38	30	100	28	9	30	49	7	2	0	3	14	13	42	16
520														0	11	0	4	6	11	1	0	1	1	1	0	0	0	0	0	0	2
521														1	0	0	0	2	6	3	0	0	0	0	0	0	0	0	0	0	0
522														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
523														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
524														1	0	0	3	1	1	0	3	0	0	0	0	0	0	0	0	57	0
525														0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
528														0	0	0	4	9	11	1	4	12	0	0	8	0	0	11	10	9	0
529														0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
530														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
531														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
532														2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
533														0	0	0	4	0	0	0	3	2	0	0	0	0	0	1	0	2	0
534														0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
B<1400m	5680	5309	4352	7823	5024	11025	17471	6436	7926	12915	11530	23173	13987	75875	123346	319374	261805	202306	171050	97066	59771	82555	84803	46175	80502	55394	47521	30407	43289	58314	51736
SD<1400m	1169	1051	2334	2314	880	3804	6546	583	1090	3367	1200	6538	3044	17561	26198	61102	51470	58807	72238	27498	10116	15959	17596	10806	12418	12883	7537	3907	10476	23024	9786
B<700m	5680	5309	4352	7823	5024	11025	17471	6436	7926	12915	11530	23173	13987	75871	123335	319372	261788	202286	171022	97060	59761	82539	84801	46174	80494	55394	47521	30394	43222	58304	51733
SD<700m	1169	1051	2334	2314	880	3804	6546	583	1090	3367	1200	6538	3044	17561	26198	61102	51470	58807	72238	27498	10116	15959	17596	10806	12418	12883	7537	3907	10476	23024	9786



Table 15b. Difference in percentage between the Acadian redfish biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1991-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
514	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	85	100	100	100	100	87	100	100	100	100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
516	100	100	133	86	158	97	100	98	0	161	129	70	68	117	126	67	84	143	76	79	84	68	150	86	74	71	0	334	94	71	70
517	100	100	100	100	100	100	100	100	100	100	100	78	100	100	100	100	100	100	100	85	100	50	100	100	77	100	100	100	100	100	100
518	100	0	n.s.	100	100	100	100	100	100	100	50	100	100	100	86	100	100	54	354	100	94	50	50	99	374	100	59	100	100	100	100
519	0	95	50	82	134	94	94	88	112	65	68	111	51	100	105	100	92	88	97	100	404	78	81	215	60	100	80	80	80	85	100
520														100	78	100	0	107	221	60	100	83	83	50	100	100	100	100	100	100	0
521														75	100	100	100	100	67	80	100	100	100	100	100	100	100	100	100	100	100
522														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
523														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
524														67	100	100	100	67	0	100	100	100	100	100	100	100	100	100	100	100	100
525														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
528														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
529														100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	67
530														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
531														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
532														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
533														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
534														100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<1400m	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100	100
SD<1400m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<700m	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100	100
SD<700m	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 16a. Roughhead grenadier biomass by strata, as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1988-2021.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	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	0	
502	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	0	
503	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
504	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
505	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	0	
506	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
507	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
508	0	12	0	1	0	0	0	0	13	3	0	8	0	19	2	13	28	65	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
509	56	5	0	6	33	25	4	25	182	22	48	54	35	35	0	30	282	82	181	17	39	0	0	0	0	0	0	0	0	0	0	0	3	0
510	1	0	0	0	0	0	0	0	7	1	0	21	81	21	0	0	48	38	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
511	0	0	0	0	0	0	0	0	0	0	0	3	9	7	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
512	133	123	47	129	119	491	65	143	55	163	66	227	96	281	183	165	292	207	97	22	92	73	60	0	27	39	17	14	29	34	35	35	50	37
513	25	76	21	21	71	22	38	89	6	22	93	109	60	138	144	123	299	94	154	80	108	25	97	43	6	0	0	2	15	12	20	57	39	
514	238	172	127	101	165	n.s.	87	80	321	92	231	161	123	347	147	346	877	379	362	223	539	1	3	10	67	28	15	27	42	70	19	4	30	79
515	109	6	35	76	62	382	98	214	100	82	120	86	122	71	19	87	259	121	85	55	12	0	132	8	0	34	3	14	20	15	38	85	40	28
516	415	167	252	273	514	1586	622	305	472	251	482	179	268	402	324	352	594	426	1391	242	462	213	79	112	134	122	102	26	80	108	125	62	90	46
517	159	53	37	214	146	156	117	153	32	138	243	114	80	440	452	101	244	124	603	70	385	40	278	4	111	134	52	142	62	77	110	123	89	129
518	370	152	170	423	256	n.s.	900	492	183	267	225	372	260	456	32	877	423	588	435	491	870	194	685	445	235	422	173	202	100	227	195	178	139	172
519	884	270	325	344	510	1089	419	336	223	383	504	153	109	257	138	245	228	366	592	167	683	235	88	73	32	29	37	51	37	70	91	84	126	169
520																	419	182	353	144	269	130	355	78	88	47	100	25	120	94	55	263	199	73
521																	1699	996	763	755	1114	528	1135	1606	768	299	375	198	394	349	399	405	439	319
522																	1384	1115	1547	608	1735	1407	967	1610	945	537	747	658	669	548	376	906	712	490
523																	897	463	342	332	389	305	388	506	325	382	168	251	259	113	264	229	141	175
524																	137	1030	419	165	152	146	207	222	218	97	160	87	53	158	278	135	97	164
525																	344	870	817	197	441	362	149	98	146	260	326	226	100	1093	276	668	125	280
528																	425	695	610	299	360	273	338	137	68	70	29	57	89	184	141	57	90	62
529																	3113	1012	445	527	555	424	576	163	309	200	437	265	154	275	340	347	615	204
530																	3553	2869	1108	2139	3356	2560	2816	2965	1582	1224	836	887	1137	1023	1217	2313	717	883
531																	650	327	235	242	176	225	107	295	137	60	199	270	153	113	123	127	35	168
532																	274	267	132	86	222	197	242	172	63	100	80	117	92	361	94	264	100	98
533																	118	17	122	105	38	12	57	112	54	22	42	39	89	43	28	40	27	72
534																	1131	330	511	305	410	144	419	145	162	191	212	146	154	171	159	155	115	278
B<1400m	2390	1037	1014	1587	1878	3752	2350	1838	1619	1425	2014	1488	1249	2473	1440	2348	17740	12665	11338	7270	12406	7495	9177	8804	5476	4298	4111	3702	3836	5141	4375	6500	4037	3964
SD<1400m	313	172	177	299	319	553	204	266	328	201	290	403	236	335	212	615	1562	1430	1168	812	1322	942	932	1210	678	475	413	300	403	914	356	1318	717	395
B<700m	2390	1037	1014	1587	1878	3752	2350	1838	1619	1425	2014	1488	1249	2473	1440	2348	3597	2492	3933	1367	3190	782	1421	694	612	807	398	478	373	616	625	590	624	699
SD<700m	313	172	177	299	319	553	204	266	328	201	290	403	236	335	212	615	363	300	697	310	617	205	197	409	258	141	110	147	86	143	142	201	187	131

Table 16b. Difference in percentage between the roughhead grenadier biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1988-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
514	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	122	100	100	100	100	123	100	100	100	100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
516	106	100	108	86	90	117	109	88	124	86	97	109	87	87	82	116	98	98	172	117	140	119	145	80	82	135	140	203	107	229	178	81	92	142
517	100	100	65	136	100	100	100	100	100	86	100	100	85	224	152	100	100	100	100	100	100	100	69	100	695	1211	100	2758	100	100	100	100	100	100
518	0	292	100	100	0	n.s.	101	100	100	116	669	100	100	131	100	100	100	78	100	210	168	54	118	968	40059	102	221	89	100	191	100	100	100	100
519	100	86	100	107	153	127	83	112	84	104	143	79	98	115	114	99	100	136	100	99	102	90	100	86	103	103	105	84	109	192	97	83	85	100
520																	118	139	120	50	106	77	77	106	83	114	135	86	99	100	98	102	87	265
521																	111	96	111	62	100	84	87	91	100	100	98	100	99	100	101	100	100	100
522																	129	176	115	115	623	100	91	100	100	105	130	96	88	100	100	100	100	100
523																	102	100	100	81	100	100	100	100	69	100	114	100	89	100	100	100	100	
524																	97	1339	102	100	301	129	1712	100	477	73	212	72	100	275	100	100	100	
525																	100	100	53	0	0	74	51	0	40	50	100	70	69	67	100	70	100	100
528																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
529																	118	84	83	38	98	70	126	248	80	81	61	72	107	77	90	94	275	150
530																	135	118	94	98	109	128	97	98	105	106	101	95	129	108	100	108	100	118
531																	100	223	54	196	100	100	67	100	100	100	100	100	100	100	100	100	100	100
532																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
533																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
534																	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B<1400m	120	106	100	102	125	114	99	100	103	99	119	98	96	115	108	102	112	117	98	89	129	100	96	104	102	98	104	95	103	96	100	97	109	107
SD<1400m	127	89	97	95	98	99	99	95	100	81	133	100	97	160	132	100	108	174	133	78	113	113	89	97	109	105	81	101	82	75	97	92	118	106
B<700m	120	106	100	102	125	114	99	100	103	99	119	98	96	115	108	102	100	97	117	132	119	83	100	207	206	125	146	132	102	149	109	95	95	102
SD<700m	127	89	97	95	98	99	99	95	100	81	133	100	97	160	132	100	95	123	115	152	114	107	180	361	466	264	214	243	98	173	103	100	97	98

Table 17a. Roughhead grenadier total age distribution until 700 m, with all the hauls in the EU 3M survey during years 1994-2021.

Age	1994	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
1	0	0	0	0	72	16	0	46	28	316	0	19	12	7	7	6	29	20	9	7	12	7	7	6	36	0	0	12
2	5	120	170	0	72	39	69	183	154	1165	0	129	185	20	101	8	11	20	21	10	63	61	157	89	88	67	0	32
3	60	129	81	0	107	22	62	152	119	568	0	193	193	19	120	11	125	34	40	25	26	26	33	76	78	98	23	44
4	229	269	76	0	101	117	23	74	24	434	0	281	350	20	161	16	60	18	4	16	14	19	32	31	38	114	20	22
5	231	413	220	0	74	135	125	150	68	319	0	318	199	52	97	3	51	23	9	13	2	12	12	43	58	75	46	44
6	246	277	349	0	150	149	191	214	111	354	0	300	536	130	183	12	32	25	14	13	1	22	21	22	50	51	31	57
7	292	309	214	0	358	272	120	288	133	497	0	243	333	154	274	24	57	31	34	26	4	32	25	32	30	44	63	58
8	324	316	229	0	501	347	146	290	153	437	0	272	235	181	460	53	227	49	54	66	4	36	29	37	51	42	80	77
9	234	230	158	0	119	231	254	301	130	265	0	179	357	85	285	49	302	76	60	71	22	38	14	33	22	15	84	81
10	137	70	248	0	178	109	203	386	91	222	0	430	293	159	187	35	233	106	64	68	31	49	21	52	22	32	65	50
11	86	27	221	0	56	99	52	170	71	265	0	160	374	93	280	61	137	54	64	110	45	51	25	36	17	33	51	73
12	27	12	62	0	125	45	66	78	224	188	0	50	234	56	102	45	62	36	43	59	65	30	21	16	23	25	34	13
13	21	21	28	0	99	32	33	88	21	61	0	110	141	65	317	19	29	28	36	9	28	24	17	26	32	34	21	21
14	0	6	20	0	85	39	17	71	71	31	0	132	88	61	35	27	29	13	16	11	15	12	23	36	20	15	22	23
15	16	15	5	0	24	21	23	39	16	22	0	17	96	38	156	34	8	13	0	3	8	13	15	14	29	15	4	11
16	0	0	14	0	22	0	6	32	28	25	0	11	60	16	25	31	6	8	0	1	5	1	5	7	20	14	7	2
17	0	0	0	0	7	0	0	30	0	12	0	4	9	11	10	5	2	1	0	2	3	1	2	3	18	6	6	5
18	0	0	0	0	0	0	8	8	15	0	0	8	33	3	7	3	0	2	0	0	0	4	0	0	6	0	10	0
19	0	0	0	0	0	0	0	0	0	0	0	0	23	0	6	7	0	0	0	0	0	0	0	7	0	1	1	0
20	0	0	0	0	0	0	0	8	0	0	0	0	25	0	0	5	0	0	0	0	0	0	0	0	0	1	0	9
21	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	5	0	0	0	0	2	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0
23	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
24	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
25	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
26	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
27	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
28	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
29	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
30	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
31	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
32	0	0	0	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
Total	1906	2213	2095	0	2150	1674	1399	2609	1458	5182	0	2857	3800	1169	2812	463	1400	557	468	511	348	440	461	566	639	683	569	633



Table 17b. Difference in percentage between the roughhead grenadier age distribution with and without the hauls in the closed areas in the EU 3M survey during years 1994-2021 until 700 m. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Age	1994	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
1	100	100	100	100	90	98	100	91	61	109	100	87	120	194	75	0	83	0	50	0	130	100	100	100	150	100	100	66
2	90	101	90	100	94	69	101	89	133	83	100	83	92	129	77	192	0	72	155	114	82	86	107	81	109	110	100	103
3	145	94	104	100	101	125	124	100	101	96	100	93	120	102	87	96	105	85	296	66	81	85	96	105	116	101	102	97
4	77	98	96	100	99	103	154	118	64	85	100	95	101	63	107	69	130	68	0	111	178	226	96	78	77	116	96	109
5	105	107	101	100	92	123	87	87	78	132	100	88	312	101	98	36	227	165	135	55	0	0	94	75	103	112	98	106
6	67	95	102	100	105	82	98	110	94	108	100	93	84	115	135	73	91	239	139	148	65	437	126	87	93	92	92	107
7	72	97	94	100	108	79	110	101	93	101	100	85	111	82	100	111	100	135	127	154	95	167	93	72	118	95	97	108
8	79	89	114	100	105	122	120	92	116	85	100	98	126	100	103	81	79	125	87	158	143	108	103	77	110	98	91	104
9	71	112	94	100	100	94	134	88	165	98	100	97	92	114	106	94	78	199	120	236	127	78	90	136	96	110	93	100
10	98	87	105	100	125	109	97	102	105	118	100	85	87	98	120	78	77	290	147	139	144	73	101	136	95	91	100	106
11	239	86	103	100	90	111	76	85	84	113	100	112	134	123	101	80	107	239	123	134	84	101	113	220	95	90	94	103
12	169	88	108	100	126	147	78	90	116	100	100	77	118	152	107	69	124	229	222	138	162	93	122	245	111	96	118	100
13	131	114	93	100	181	82	102	162	47	86	100	94	0	135	129	25	152	206	282	68	321	166	124	272	105	91	113	85
14	100	86	143	100	197	107	79	426	150	150	100	89	87	113	110	158	220	195	118	90	265	0	83	112	109	90	95	104
15	89	75	0	100	136	74	84	123	100	86	100	257	125	548	103	0	416	190	100	160	0	0	79	117	102	86	62	85
16	100	100	72	100	139	100	84	401	81	76	100	155	118	78	633	106	311	114	100	0	0	0	0	106	111	96	77	0
17	100	100	100	100	88	100	100	94	100	76	100	206	163	0	102	36	0	78	100	0	0	0	93	83	126	84	176	271
18	100	100	100	100	100	100	47	0	54	100	100	0	400	75	0	47	100	78	100	100	100	0	100	100	134	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	0	100	67	60	100	100	100	100	100	100	100	0	100	70	0	100
20	100	100	100	100	100	100	100	0	100	100	100	100	137	100	100	0	100	100	100	100	100	100	100	100	100	90	100	100
21	100	100	100	100	100	100	100	100	100	100	100	100	0	100	100	0	100	100	100	100	0	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	47	100	78	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	47	100	100	100	100	100	100	100	100	100	100	100	100
24	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
27	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
28	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
29	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
30	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
31	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
32	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	83	98	101	100	110	99	103	101	103	96	100	92	112	108	107	84	93	168	137	133	124	113	103	103	106	101	97	102

Table 18a. Roughhead grenadier total age distribution until 1400 m, with all the hauls in the EU 3M survey during years 2004-2021.

Age	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	0	101	20	22	40	10	36	27	18	20	35	34	16	6	36	29	8	31
2	0	392	297	62	401	67	41	77	122	51	172	242	415	224	162	139	51	177
3	0	728	499	64	409	119	426	182	184	173	152	224	293	396	400	444	201	173
4	0	1038	1105	181	781	193	310	266	154	157	118	208	356	453	356	936	237	286
5	0	1462	622	280	639	96	460	299	144	181	143	324	309	597	651	1009	600	442
6	0	1379	1596	562	887	484	605	398	140	228	200	379	432	250	527	834	455	496
7	0	980	905	578	1039	589	456	672	341	284	178	381	318	469	472	550	497	444
8	0	1293	664	669	1206	820	1122	810	524	435	323	294	307	393	627	562	395	489
9	0	632	983	289	807	413	836	555	379	341	235	202	169	217	241	178	353	360
10	0	1234	672	486	573	207	500	602	242	248	171	182	188	308	169	289	237	174
11	0	531	756	323	849	516	370	390	281	297	187	171	153	230	137	248	145	217
12	0	270	410	193	333	394	326	395	246	170	295	115	103	172	171	152	106	40
13	0	604	352	321	1059	189	274	324	245	49	208	146	84	207	184	225	93	72
14	0	646	219	303	150	224	277	271	173	127	158	89	120	204	107	129	132	73
15	0	157	291	353	539	330	113	334	57	48	137	166	104	121	144	114	93	44
16	0	123	226	154	143	267	145	232	80	46	58	43	71	91	104	148	99	8
17	0	105	67	152	72	42	58	103	57	64	55	39	38	95	122	106	79	55
18	0	181	110	62	71	76	83	79	20	57	64	41	24	0	42	43	81	46
19	0	67	80	51	89	136	57	21	22	24	14	0	39	32	0	45	8	0
20	0	39	141	41	17	63	11	53	24	31	7	8	18	7	8	34	8	9
21	0	8	37	65	8	41	0	0	9	12	20	0	0	9	29	10	8	8
22	0	7	16	0	26	41	33	29	11	23	8	0	0	0	22	0	0	21
23	0	45	15	8	0	21	19	39	0	10	0	17	0	0	0	9	9	0
24	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	22	10	16	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	12022	10108	5218	10135	5338	6590	6168	3488	3088	2938	3305	3555	4479	4710	6233	3895	3663



Table 18b. Difference in percentage between the roughhead grenadier age distribution with and without the hauls in the closed areas in the EU 3M survey during years 2004-2021 until 1400 m. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Age	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	100	138	171	116	90	250	65	0	67	286	97	94	89	100	150	91	100	105
2	100	105	105	105	140	140	1013	109	146	144	83	84	120	91	114	104	117	115
3	100	119	150	99	112	104	95	121	160	87	95	90	110	99	111	106	104	98
4	100	103	116	112	127	89	120	117	86	83	98	92	124	92	99	100	100	108
5	100	102	297	106	94	80	132	104	106	81	96	100	104	94	100	104	102	103
6	100	107	83	122	180	92	102	117	100	85	112	104	122	91	106	94	97	102
7	100	101	112	87	116	101	101	96	95	101	101	90	109	87	108	95	103	113
8	100	126	132	119	116	102	93	108	94	109	120	100	116	98	101	99	96	106
9	100	125	92	101	114	105	89	111	97	101	104	92	110	123	93	111	101	99
10	100	97	84	89	122	93	86	119	87	115	169	81	117	101	99	97	109	100
11	100	133	102	87	114	120	107	94	103	98	118	88	96	103	97	99	104	100
12	100	102	106	148	97	80	105	103	109	104	135	84	127	90	101	99	112	98
13	100	104	0	84	150	35	95	100	129	87	125	103	120	91	104	90	116	118
14	100	107	76	74	159	95	99	104	101	100	100	112	89	88	104	87	109	127
15	100	182	106	106	101	0	93	108	104	127	96	95	89	90	96	88	115	104
16	100	140	79	53	170	132	89	101	87	91	93	109	123	92	96	105	121	0
17	100	106	77	334	97	69	103	95	96	83	73	79	78	84	103	98	135	117
18	100	267	157	60	382	86	82	96	78	79	97	80	124	100	95	143	105	116
19	100	102	1000	272	141	120	86	86	94	76	67	100	100	386	100	91	100	100
20	100	98	92	89	170	118	91	82	62	172	0	83	81	100	91	99	100	100
21	100	75	311	66	94	223	100	100	90	73	83	100	100	90	92	97	0	96
22	100	0	55	100	90	93	278	143	43	136	0	100	100	100	97	100	100	97
23	100	199	136	62	100	78	171	120	100	100	100	92	100	100	100	90	100	100
24	100	100	100	100	100	100	77	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	81	226	100	100	100	100	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
27	100	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100
28	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
29	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
30	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
31	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
32	100	100	82	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	100	110	109	98	122	100	98	106	100	98	108	93	111	95	102	99	104	105

Table 19a. Squid biomass by strata, as total biomass and SD by year, with all the hauls in the EU 3M survey during years 1988-2021.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	0	0	11	0	0	0	13	0	0	0	6	0	0	0	0	5	42	2	385	1	7	13	0	1	1	0	0		0	18	0	10	0	0
502	1	0	90	14	9	0	15	0	5	6	13	2	0	0	0	29	36	7	1181	10	1736	296	6	14	1	0	0		0	383	4	86	4	10
503	0	0	7	73	1	0	5	0	9	2	4	1	0	1	0	8	19	2	8	62	66	158	1	1	1	0	0		0	630	1	33	2	63
504	0	0	1	2	3	0	6	0	2	1	2	0	0	0	0	2	51	2	130	0	6	17	0	0	1	0	0		0	31	3	41	0	1
505	1	3	831	3	16	0	45	0	20	7	9	2	0	0	0	81	89	5	1457	40	357	285	3	2	3	0	0		0	114	15	22	14	0
506	0	0	359	369	3	0	8	0	5	6	5	1	0	0	0	5	26	4	222	58	37	21	3	3	0	0	0		0	259	2	37	28	16
507	1	0	18	102	1	0	6	0	4	2	1	1	0	0	0	22	39	6	28	38	48	34	3	1	0	0	0		1	294	2	1	10	89
508	0	0	1	23	2	0	6	0	10	2	6	1	0	0	0	8	8	1	7	24	38	36	2	4	0	0	0		0	19	1	43	2	29
509	0	1	18	3	2	0	5	0	2	3	1	0	0	0	0	2	25	0	1	22	16	345	0	5	0	0	0		0	10	8	8	1	0
510	2	3	159	505	13	0	63	0	22	14	16	2	0	1	1	25	52	17	26	56	2560	359	16	24	6	0	0		0	323	5	28	19	26
511	0	0	99	31	9	0	21	0	2	10	3	2	0	1	0	12	36	13	86	88	104	41	3	28	3	0	0		1	227	5	20	57	50
512	0	0	0	1	0	0	0	0	2	1	1	1	1	1	1	6	11	1	3	2	2	23	0	0	0	0	0		0	0	1	16	1	30
513	0	0	0	1	0	0	6	0	0	1	0	0	0	0	0	9	9	1	0	0	0	0	0	0	0	0	0		0	1	0	5	0	0
514	0	0	3	17	3	n.s.	4	0	3	5	3	1	0	1	0	10	15	4	1	6	106	52	5	5	0	0	0		0	17	1	5	1	3
515	0	0	4	10	2	0	3	0	1	1	0	1	0	1	1	6	3	6	4	3	49	2	0	0	0	0	0		0	18	0	5	2	5
516	0	0	0	3	0	0	0	0	0	1	1	1	1	1	1	1	4	4	0	0	2	0	0	0	0	0	0		0	0	0	2	0	6
517	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0		0	4	0	0	0	0
518	0	0	1	0	1	n.s.	3	0	0	0	0	0	0	0	0	1	1	0	0	0	1	3	0	0	1	0	0		0	1	0	0	0	0
519	0	0	0	2	0	0	0	0	1	1	1	1	0	1	1	1	3	2	1	0	0	1	0	0	0	0	0		0	1	0	0	0	1
520																	1	3	0	0	0	0	0	0	0	0	0		0	0	1	0	0	6
521																	0	0	0	0	1	0	0	0	0	0	0		0	0	0	0	0	3
522																	0	0	0	0	0	0	0	0	0	0	0		0	0	1	0	0	9
523																	1	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
524																	1	1	0	0	0	1	0	0	0	0	0		0	0	0	0	0	0
525																	0	0	1	0	1	0	0	0	0	0	0		0	0	0	0	0	0
528																	1	0	5	0	0	0	0	0	0	0	0		0	2	0	0	0	1
529																	0	0	2	0	0	0	0	0	0	0	0		0	3	0	0	0	0
530																	1	0	3	0	1	1	0	0	0	0	0		1	9	0	0	0	2
531																	1	0	0	0	0	2	0	0	0	0	0		0	0	0	0	0	0
532																	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	1
533																	2	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
534																	2	0	0	0	4	1	0	0	2	0	0		0	2	1	1	0	0
B<1400m	5	8	1602	1159	66	1	211	1	87	64	71	18	3	7	7	222	479	82	3551	411	5144	1694	43	90	20	0	2		4	2366	52	365	142	351
SD<1400m	3	3	460	309	14	1	26	0	12	9	9	2	1	1	1	60	55	8	1244	64	2392	346	7	19	4	0	1		1	490	7	50	22	42
B<700m	5	8	1602	1159	66	1	211	1	87	64	71	18	3	7	7	222	470	79	3541	411	5137	1688	43	89	18	0	2		3	2350	49	363	142	329
SD<700m	3	3	460	309	14	1	26	0	12	9	9	2	1	1	1	60	55	8	1244	64	2392	346	7	19	3	0	1		1	490	6	50	22	41



Table 19b. Difference in percentage between the squid biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU 3M survey during years 1988-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	1988	1989	1990	1991	1992	1993	1994	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
501	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
502	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
503	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
504	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
505	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
506	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
507	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
508	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
509	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
510	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
511	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
512	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
513	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
514	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	80	100	100	100	100	100	100	100		100	100	100	100	100	100
515	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
516	100	100	100	240	100	100	100	100	67	86	86	74	86	96	89	124	86	94	100	100	595	101	100	100	100	100	100		100	100	0	83	100	57
517	100	100	100	100	100	100	100	100	100	50	100	100	50	100	56	100	100	100	100	100	100	100	50	100	100	100	100		100	100	100	100	100	100
518	100	50	100	100	0	n.s.	277	100	100	60	0	100	100	0	100	100	100	0	100	100	50	198	100	100	50	100	100		100	50	100	100	100	100
519	100	100	100	108	60	100	75	80	353	75	220	104	0	87	95	44	100	87	100	100	100	60	100	100	100	100	100		100	80	100	80	100	100
520																	90	92	67	100	100	82	100	100	100	100	100		100	100	83	100	100	80
521																	75	100	0	100	100	0	100	100	100	100	100		100	100	100	100	100	100
522																	50	100	50	100	100	100	100	100	100	100	100		100	100	100	100	100	100
523																	67	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
524																	77	50	100	100	100	67	100	100	100	100	100		100	100	100	100	100	100
525																	100	100	0	100	0	67	100	100	100	100	100		100	0	100	67	100	100
528																	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
529																	100	100	124	100	100	33	100	100	100	100	100		100	115	100	100	100	100
530																	588	100	82	100	91	91	100	100	100	100	100		82	123	100	100	100	91
531																	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
532																	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
533																	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
534																	100	100	100	100	100	100	100	100	100	100	100		100	100	100	100	100	100
B<1400m	100	99	100	100	102	100	101	94	100	99	101	98	94	100	89	100	100	99	100	100	100	100	99	100	96	100	100		97	100	100	100	100	98
SD<1400m	100	100	100	100	100	100	100	94	100	100	100	99	125	93	113	100	100	96	100	100	100	100	100	100	103	100	100		97	100	99	100	100	99
B<700m	100	99	100	100	102	100	101	94	100	99	101	98	94	100	89	100	100	100	100	100	100	100	99	100	95	100	100		100	100	100	100	100	99
SD<700m	100	100	100	100	100	100	100	94	100	100	100	99	125	93	113	100	100	99	100	100	100	100	100	100	104	100	100		100	100	100	100	100	100

Table 20a. Squid total length distribution until 1400 m, with all the hauls in the EU 3M survey during years 2004-2021. No ALK is available for this species in this survey.

	1988	1989	1990	1991	1992	1993	1994	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
0-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0							0	0	0	0
3-5	0	0	7	7	7	0	0	0	0	14	83	61	33	96	45	80	133	132	60	0	8	16	0	0	0						9	0	0	0
6-8	7	12	0	0	7	0	0	20	14	65	103	106	21	118	109	29	318	288	87	0	17	132	0	0	38						7	0	0	0
9-11	0	0	0	0	42	17	13	24	54	95	80	92	21	47	80	55	48	85	450	111	104	223	10	0	14						33	29	0	0
12-14	0	0	487	1420	177	0	651	0	488	126	143	93	0	27	26	437	203	90	560	1337	878	2497	94	10	105						59	80	108	0
15-17	0	0	6559	5129	243	0	974	0	501	204	180	34	0	0	8	905	577	153	3967	1278	16001	9030	132	97	25						186	611	560	220
18-20	0	0	1352	444	46	0	134	0	79	134	123	0	0	0	0	7	1048	105	10232	431	10812	1085	22	167	0						81	660	67	1220
21-23	0	0	50	0	0	0	0	0	8	0	0	0	0	0	0	0	207	0	756	0	252	0	0	26	0						7	37	0	62
24-26	0	0	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	0	8
27-29	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
30-32	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	6
33-35	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
36-38	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
39-41	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0	0
Total	7	12	8462	7000	521	17	1772	44	1151	638	712	386	75	287	269	1513	2535	853	16111	3163	28072	12984	259	300	181						382	1417	734	1517

Table 20b. Difference in percentage between the squid age distribution with and without the hauls in the closed areas in the EU 3M survey during years 2004-2021 until 1400 m. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	1988	1989	1990	1991	1992	1993	1994	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
0-2	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100						100	100	100	100
3-5	100	100	100	100	60	100	100	100	100	100	129	93	96	108	102	88	95	76	136	100	0	100	100	100	100						100	100	100	100
6-8	100	100	100	100	100	100	100	92	79	98	112	96	91	92	112	100	98	96	92	100	181	100	100	100	100					0	100	100	100	100
9-11	100	100	100	100	100	100	100	93	93	100	100	100	90	114	95	100	100	92	96	100	100	100	100	100	100					127	100	100	100	100
12-14	100	100	100	100	104	100	104	100	100	95	100	100	100	100	94	100	100	91	103	100	100	100	100	100	100					100	100	100	100	100
15-17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	50	100	99	100	100	99	100	100	100	100	100					100	100	100	97	100
18-20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100	100					100	100	100	96	100
21-23	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					83	100	100	100	100
24-26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					100	100	100	100	100
27-29	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					100	100	100	100	100
30-32	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					100	100	100	100	100
33-35	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					100	100	100	100	100
36-38	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					100	100	100	100	100
39-41	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					100	100	100	100	100
Total	100	100	100	100	101	100	101	93	99	99	104	98	93	101	99	99	99	92	100	100	100	100	100	100	100					103	100	100	97	100

Table 21a. Atlantic cod biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	4	0	0	401	556	1075	0	0	244	96	251	3	1	0	0	254	370	552	109	1424	277	535	187	0	n.s.	1
354	13	171	0	1046	318	1092	418	0	167	102	141	223	341	1385	550	271	262	140	310	1414	3421	2677	591	24	0	n.s.	1
355	n.s.	77	78	517	118	1725	625	6	20	33	13	18	255	15	23	116	90	59	7	0	121	188	91	0	2	n.s.	0
356	n.s.	49	93	76	484	195	8326	61	65	13	6	15	4	54	12	21	21	15	0	4	20	20	124	6	0	n.s.	7
357	108	323	3879	291	401	347	749	91	76	191	56	172	19	89	205	416	121	83	69	44	75	14	381	443	134	n.s.	12
358	5746	685	101	246	555	10451	265	52	4144	295	440	1597	2091	4883	996	1579	686	394	3284	3693	24557	8606	22217	115	339	n.s.	3363
359	0	11	118	40	720	1875	5409	100	39	1111	2076	12863	109	8299	21377	30470	13082	29009	3297	54443	6758	517	618	111	110	n.s.	39
360	125	2293	73	152	1513	1435	2765	199	281	856	591	1660	566	2403	39731	1477	83252	17866	11568	46720	11888	26364	9157	3124	507	n.s.	592
374	2	5	3	0	29	0	0	0	0	0	2	0	0	11	0	0	14348	1995	152	4485	0	0	0	0	0	n.s.	24
375	0	11	0	53	63	0	4	11	12	1	0	302	38	454	0	19	1401	1305	344	1138	115	3	2	85	81	n.s.	114
376	44	103	0	65	193	286	58	0	77	69	86	749	77	1371	79	160	558	194	1317	1147	2145	17	28	331	448	n.s.	168
377	0	45	7	47	5	0	6	0	11	180	526	767	5821	2020	106	114	3961	6637	5792	5835	4729	231	5	2573	1075	n.s.	666
378	198	429	89	118	270	364	1142	17	237	219	106	1046	1028	2472	8620	41129	891	265	837	21065	15897	2205	1614	1422	64	n.s.	175
379	510	188	108	212	134	1107	291	230	40	205	51	57	28	21	506	360	165	28	42	83	15	267	422	40	7	n.s.	12
380	n.s.	37	10	57	896	191	160	3	9	67	231	73	34	186	34	496	245	3147	0	348	194	1636	314	422	62	n.s.	9
381	n.s.	42	3	8	31	61	23	1	0	70	45	106	26	56	0	19	636	5664	2534	2412	4887	4295	33	1524	1216	n.s.	7294
382	n.s.	76	0	27	4	56	10	1	0	14	29	22	0	4	0	92	17315	20152	7786	318	5505	1	0	214	441	n.s.	209
721	n.s.	119	352	11	1346	446	320	6	54	13	0	0	0	7	6	0	0	28	0	0	28	0	0	0	0	n.s.	0
722	n.s.	1509	7	0	0	20	3	0	13	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	n.s.	0
723	n.s.	392	418	167	653	788	57931	741	9	26	0	0	41	76	238	0	74	61	53	36	0	0	0	35	42	n.s.	0
724	0	33	41	51160	1	21	0	549	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
725	449	891	684	1074	358	124	40786	86	20	3	13	0	111	6	20	105	14	24	0	0	0	34	94	0	0	n.s.	0
726	3	489	n.s.	95	15	165	6702	7565	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	n.s.	0
727	n.s.	92	3	63	214	239	254	23	66	0	0	0	0	3	43	11	0	0	0	0	0	75	15	0	12	n.s.	0
728	n.s.	918	24	33	0	19	0	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
752	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	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	n.s.	0
756	n.s.	12	0	8	6	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
757	n.s.	0	0	0	0	0	0	584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
758	n.s.	n.s.	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	0
760	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	n.s.	0
761	n.s.	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
762	n.s.	n.s.	0	0	0	0	0	3	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
763	n.s.	n.s.	n.s.	0	0	78	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	0
Biomass	7199	9004	6090	55567	8727	21650	127323	10502	5455	3712	4509	19921	10592	23817	72558	76856	137378	87436	37945	1E+05	81780	47429	36241	10655	4541	n.s.	12685
SD	5105	2469	3776	52029	1869	7331	64318	7971	3016	848	1984	8109	5853	5221	40466	37369	54393	30292	5089	53040	28287	19188	17443	2305	802	n.s.	7139

Northwest Atlantic Fisheries Organization

www.nafo.int

Table 22a. Greenland halibut biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	47	14	341	148	46	3	5	0	34	44	31	1	2	1	1	18	9	65	5	2	1	1	83	27	n.s.	174	
354	88	308	159	528	209	25	102	18	1	32	66	16	99	17	0	18	2	7	3	2	12	4	23	6	12	n.s.	67	
355	n.s.	404	279	21	15	15	148	3	16	26	9	20	12	78	0	33	16	5	1	1	28	1	4	9	49	n.s.	3	
356	n.s.	73	185	195	10	22	1	6	12	14	4	19	7	1	0	14	6	1	1	1	4	1	0	1	7	n.s.	12	
357	138	731	172	1237	253	16	57	16	96	22	17	4	100	40	24	26	3	2	0	5	7	2	9	1	3	n.s.	26	
358	510	766	297	490	854	103	414	63	69	19	37	1	8	109	0	165	5	0	2	2	0	0	0	10	9	n.s.	52	
359	39	166	262	88	804	523	188	10	11	44	13	0	1	9	0	7	2	2	1	11	0	1	7	16	8	n.s.	45	
360	20	32	111	93	751	322	27	1	4	27	68	31	0	7	4	8	1	0	3	3	1	1	6	13	12	n.s.	186	
374	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	n.s.	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	0	n.s.	0	
376	2	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	1	0	0	n.s.	0	
377	7	126	0	3	43	15	12	0	14	1	12	3	0	2	1	0	0	0	0	0	0	1	1	0	6	0	n.s.	2
378	113	218	111	85	135	140	359	22	37	5	0	6	5	17	0	14	0	0	0	2	0	0	0	20	10	1	n.s.	1
379	292	530	247	181	98	125	145	54	71	22	33	5	18	7	3	5	22	43	5	10	0	0	0	1	0	n.s.	11	
380	n.s.	322	260	228	345	212	407	43	36	89	286	180	45	103	12	21	38	28	64	7	20	10	130	91	418	n.s.	246	
381	n.s.	658	30	94	383	179	118	7	13	70	77	244	9	36	1	1	8	0	0	0	11	6	20	1	319	n.s.	254	
382	n.s.	254	0	12	0	37	15	12	1	2	15	109	0	1	0	0	0	0	0	0	4	2	4	1	8	n.s.	65	
721	n.s.	106	188	817	36	29	3	0	1	11	6	3	4	10	91	40	101	22	18	1	13	5	22	37	6	n.s.	13	
722	n.s.	271	129	2103	1057	1622	20	19	13	186	168	12	96	132	85	335	165	248	139	83	157	48	69	113	93	n.s.	263	
723	n.s.	553	820	764	1616	384	232	17	54	52	36	90	43	23	105	100	100	107	89	14	74	0	39	41	63	n.s.	115	
724	1075	321	228	1088	540	670	394	53	78	144	132	240	124	52	274	339	148	165	76	116	217	106	36	15	131	n.s.	44	
725	162	135	861	271	497	1080	184	69	97	183	154	107	100	0	28	102	50	57	18	11	23	3	41	47	108	n.s.	45	
726	378	109	n.s.	2103	2002	908	712	22	0	94	78	15	56	40	1342	232	130	165	71	46	144	67	141	53	186	n.s.	109	
727	n.s.	400	569	694	918	261	349	17	163	169	162	75	176	564	34	581	224	312	340	159	83	60	486	275	663	n.s.	110	
728	n.s.	1392	2849	4661	4505	2394	634	54	277	49	6	30	132	153	225	718	323	128	102	94	140	183	924	144	250	n.s.	248	
752	n.s.	2055	4788	6690	6911	3191	3544	151	456	57	63	71	62	216	1500	664	267	252	191	324	587	689	1022	268	282	n.s.	344	
753	n.s.	3489	4512	4554	8349	6804	3152	30	201	55	110	50	86	234	535	n.s.	326	348	155	432	257	559	493	172	180	n.s.	157	
754	n.s.	n.s.	3296	3198	3219	9285	8172	275	316	54	74	10	335	405	1810	1046	334	381	471	319	358	922	977	576	556	n.s.	219	
755	n.s.	n.s.	n.s.	7670	6372	13747	10826	14	65	96	192	141	250	958	914	1489	512	487	414	883	880	945	1214	554	905	n.s.	806	
756	n.s.	3049	6839	21290	12116	6513	2813	93	211	139	62	58	149	359	169	1158	228	309	143	311	394	180	908	240	286	n.s.	330	
757	n.s.	5600	3766	10150	10070	3846	3992	90	23	43	62	51	317	315	519	445	107	441	296	260	462	538	1358	351	252	n.s.	198	
758	n.s.	n.s.	3927	5154	5261	5756	4130	151	0	90	99	118	194	407	543	636	95	247	286	304	319	303	1376	657	109	n.s.	100	
759	n.s.	n.s.	n.s.	6168	5627	3835	9413	24	244	53	100	5	n.s.	612	1581	756	213	254	370	137	496	463	852	197	234	n.s.	252	
760	n.s.	1920	1650	5106	6633	4828	4419	64	274	204	64	123	216	367	539	743	439	439	377	234	520	376	603	428	368	n.s.	433	
761	n.s.	5598	10859	8219	6645	6009	4413	253	201	45	102	76	210	218	673	817	525	516	230	525	726	569	337	453	407	n.s.	374	
762	n.s.	n.s.	10224	8465	13777	8205	6655	40	658	154	249	302	n.s.	541	1015	1263	785	277	140	355	1089	700	1483	627	213	n.s.	379	
763	n.s.	n.s.	n.s.	9054	5810	6927	8080	17	44	499	119	164	n.s.	497	n.s.	n.s.	403	652	218	237	655	725	1223	549	305	n.s.	322	
764	n.s.	2267	2155	2111	2759	1680	3599	59	256	295	35	116	166	175	149	n.s.	292	307	224	168	231	127	325	279	106	n.s.	150	
765	n.s.	2344	4589	2903	3795	4899	4785	482	351	231	200	136	265	302	585	348	154	225	134	113	248	168	171	525	159	n.s.	255	
766	n.s.	n.s.	9515	3378	4466	2433	2516	118	114	108	117	46	n.s.	170	133	337	193	327	205	165	206	112	373	135	460	n.s.	380	
767	n.s.	n.s.	n.s.	1571	4125	3438	896	12	220	18	0	11	n.s.	95	n.s.	n.s.	245	69	105	142	149	124	322	112	119	n.s.	104	
Biomass	2823	34245	73894	121789	121155	100522	85927	2382	4701	3437	3071	2720	3286	7272	12904	12462	6483	6830	4959	5482	8519	8002	15026	7099	7316	n.s.	6893	
SD	377	4663	5873	8436	10473	7616	7234	410	574	366	325	379	362	707	1506	1197	561	627	604	462	664	700	1728	658	811	n.s.	524	

Table 22b. Difference in percentage between the Greenland halibut biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	92	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	86	87	70	100	100	103	81	100	0	100	95	100	0	100	252	100	100	100	100	93	83	71	80	100	n.s.	100
755	n.s.	n.s.	n.s.	0	0	62	0	0	0	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	98
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	85	100	100	100	100	100	100	100	100	100	100	100	100	130	100	100	85	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	62	57	100	100	50	100	0	0	100	n.s.	0	0	0	64	135	0	0	133	58	122	0	100	n.s.	80	
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	132	207	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	108	100	189	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	144	85	100	50	52	50	100	100	n.s.	65	n.s.	n.s.	57	100	57	100	55	100	100	100	100	100	n.s.	100
Biomass	100	100	100	102	103	92	114	99	96	104	99	105	110	130	150	122	107	109	117	121	111	106	107	109	114	n.s.	99	
SD	100	100	101	111	117	110	107	100	109	104	111	104	103	135	100	103	129	103	101	143	126	132	106	109	131	n.s.	101	



Table 23a. Greenland halibut total age distribution with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

Age	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
1	4581	2806	1069	966	287	930	2920	1227	1183	2897	202	342	179	59	0	9	0	0	0	6	7	0	453	185	304	75	0
2	1674	5489	4347	3073	1279	190	1099	2783	802	1464	992	234	241	35	0	14	0	0	0	0	0	0	7	137	182	295	0
3	1778	2028	6735	10684	5705	1269	1694	1231	984	3828	3372	796	340	102	90	7	0	80	10	13	7	0	35	194	282	430	155
4	2090	3272	5976	10575	12362	4373	2353	2443	1824	2833	3273	2257	1040	411	131	201	123	248	299	423	153	13	302	199	824	1330	970
5	2581	3447	4704	7518	8636	9270	4288	3987	2129	6813	6826	5848	5349	3329	1700	2151	2280	1601	1280	2061	1786	788	2565	2129	2481	3157	2993
6	3332	3267	4150	5164	4946	7982	5791	3997	1942	4256	3959	4786	5890	5745	3860	2623	3280	1823	1473	2262	3759	2786	3317	2518	2039	2599	2610
7	1789	966	2076	3134	1691	1460	2713	2236	757	1021	916	1212	2246	2797	1850	1602	1481	712	257	696	907	1600	1631	856	739	650	623
8	925	504	802	900	522	532	1014	366	122	274	162	295	471	330	273	265	162	154	60	73	154	225	269	201	182	150	119
9	483	133	228	219	129	107	28	34	20	93	35	89	89	96	70	75	25	54	15	28	50	64	66	46	55	90	55
10	99	22	77	46	17	21	11	7	19	23	43	54	31	77	84	42	16	37	27	29	31	52	56	30	46	46	38
11	21	3	5	10	1	9	0	3	8	11	18	27	24	28	24	17	1	17	3	13	7	21	20	10	9	20	15
12	7	9	7	1	0	0	0	0	0	6	0	11	14	13	13	4	4	9	5	5	1	15	2	10	3	9	10
13	0	0	2	0	0	0	0	0	0	7	0	0	5	7	6	2	5	5	2	6	0	6	4	4	1	3	2
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8	2	0	0	2	0	0	3	1	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	2	0	0
16	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
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	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
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	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	0	0	0
Total	19360	21946	30179	42290	35576	26142	21911	18314	9789	23526	19798	15952	15918	13027	8100	7011	7378	4749	3433	5619	6862	5571	8727	6517	7150	8854	7589

Table 23b. Difference in percentage between the Greenland halibut age distribution with and without the hauls in the closed areas in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Age	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
1	100	100	100	100	100	100	100	100	100	100	100	100	98	100	100	100	100	100	100	100	100	100	99	98	102	100	100
2	100	100	101	98	99	98	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	89	106	97	100
3	98	102	102	96	99	90	99	98	100	100	100	99	97	100	114	100	100	250	102	83	64	100	81	87	85	96	126
4	101	115	98	97	100	100	96	97	106	98	99	99	95	91	89	92	62	85	97	95	70	97	83	85	96	106	99
5	103	103	97	102	99	96	97	101	109	100	100	100	94	104	88	82	77	92	104	96	84	109	97	87	96	97	101
6	102	110	99	97	99	97	104	100	105	101	105	94	92	97	87	89	81	99	95	94	94	101	96	87	96	100	108
7	99	113	97	89	100	100	96	101	103	100	109	92	93	113	95	101	97	108	137	104	122	107	93	92	97	104	113
8	103	119	100	88	100	108	108	103	113	102	96	104	87	122	103	122	145	126	127	97	155	108	145	107	109	116	100
9	94	109	95	91	100	102	104	92	109	102	82	109	75	107	86	131	172	151	161	114	122	147	142	105	92	133	126
10	133	106	102	106	127	85	179	68	112	125	65	107	76	127	82	73	171	137	205	69	88	116	109	72	97	102	131
11	203	69	77	274	100	100	100	33	0	122	97	102	87	90	78	154	150	228	80	925	55	138	103	73	133	85	138
12	167	87	91	0	100	100	100	100	100	86	100	96	92	105	111	152	173	181	110	0	46	155	88	68	100	84	124
13	100	100	100	100	100	100	100	100	100	100	100	100	65	98	109	206	83	305	97	0	100	90	0	52	88	80	59
14	100	100	100	100	100	100	100	100	100	100	100	100	100	100	87	100	50	379	100	100	100	0	100	100	88	0	100
15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	89	0	0	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	33	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	101	105	99	97	99	97	100	100	104	100	101	97	93	102	90	90	83	100	102	96	95	105	97	88	97	100	105

Table 24a. American plaice biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	5230	15107	3458	19941	28042	31037	38665	14245	11385	10009	5143	6987	2557	7967	2918	1833	4077	1152	5009	1183	1481	526	335	1173	20	n.s.	276
354	8394	9655	2325	25416	13395	9823	15340	4302	17632	4720	4616	2729	1495	2204	2120	2011	698	1506	1286	1063	1492	912	1743	133	128	n.s.	82
355	n.s.	1187	287	2897	1266	1229	3962	631	726	152	483	196	152	137	85	54	179	62	68	30	22	55	162	10	16	n.s.	4
356	n.s.	116	109	194	416	378	369	218	668	3	34	17	2	4	5	0	0	2	5	0	4	0	13	5	0	n.s.	5
357	428	311	89	102	137	24	936	71	852	12	0	92	8	24	11	21	0	0	0	8	3	0	10	0	0	n.s.	33
358	1526	497	286	419	564	18998	997	541	530	567	513	428	642	771	432	322	175	64	525	324	977	2912	1730	111	2236	n.s.	329
359	6737	5570	3546	23131	54145	76227	36027	6530	17099	16424	13445	11393	13753	13871	16345	9704	3489	4668	5065	1993	7683	1803	3414	3585	1927	n.s.	2209
360	27465	53120	19950	83002	192927	242603	248816	34903	56586	68313	70333	127046	69585	110908	42774	73604	111356	94879	113616	56766	61846	15147	13224	27037	2022	n.s.	10877
374	201	687	492	234	2485	321	1188	64	292	1656	2366	2185	3818	8592	2592	2866	15468	10250	17537	11279	5637	590	19	1638	199	n.s.	607
375	165	1926	138	449	3114	2154	743	32	245	1761	1316	1249	1239	3898	3150	2009	3401	1385	1482	2468	1356	321	132	642	71	n.s.	172
376	2073	11016	4757	30802	42206	89732	28490	5612	7461	22347	20164	14890	13794	17041	10349	9888	7078	3880	5317	4655	5919	3387	1944	3898	612	n.s.	687
377	231	663	580	1327	2309	760	515	298	432	774	2731	2054	2296	5488	4337	1715	1029	3201	1268	1586	1784	583	71	932	1273	n.s.	1598
378	458	398	79	201	279	759	871	97	116	424	125	251	374	239	957	1523	232	36	47	153	834	984	989	582	108	n.s.	107
379	404	208	59	76	22	70	31	53	32	6	12	1	9	2	101	0	3	0	0	0	0	17	366	6	0	n.s.	2
380	n.s.	191	41	47	58	46	89	62	56	17	3	0	14	193	80	3025	71	75	15	57	7	2193	410	2175	118	n.s.	30
381	n.s.	267	65	341	24	79	92	48	97	379	708	81	1867	691	48	154	889	1988	1457	1603	6180	1099	55	805	1309	n.s.	350
382	n.s.	873	57	422	205	170	285	33	64	1659	1104	1297	445	641	19	3038	3008	14517	2567	2525	11039	343	97	839	1660	n.s.	10100
721	n.s.	289	253	159	344	75	314	102	1287	0	0	0	0	0	3	0	1	0	0	0	0	0	1	0	0	n.s.	5
722	n.s.	191	1179	50	57	30	201	214	109	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
723	n.s.	127	417	431	1484	430	478	96	28	9	0	0	0	11	2	0	0	1	0	0	0	0	0	0	0	n.s.	0
724	398	371	473	419	351	422	889	519	77	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
725	418	25	43	24	73	278	75	33	31	180	48	9	25	2	6	2	0	0	0	0	2	8	5	0	0	n.s.	3
726	57	50	n.s.	66	822	172	76	19	0	0	0	1	1	0	323	0	0	0	0	0	0	0	4	0	0	n.s.	0
727	n.s.	177	309	239	197	135	232	24	378	3	0	0	0	24	4670	480	6	288	0	1	0	524	141	25	51	n.s.	0
728	n.s.	1175	753	379	819	545	128	65	280	0	0	0	0	0	1682	0	0	9	0	0	0	101	0	9	0	n.s.	0
752	n.s.	1124	4366	1840	1293	5235	634	143	310	0	0	1	8	0	1	0	0	0	0	0	0	19	0	0	0	n.s.	0
753	n.s.	9736	2358	5998	572	6936	2492	43	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
754	n.s.	n.s.	289	147	0	0	75	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
755	n.s.	n.s.	n.s.	47	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
756	n.s.	681	2261	5768	3590	1016	572	104	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
757	n.s.	2966	20284	2616	482	157	2968	282	48	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
758	n.s.	n.s.	18	118	9	40	5	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
759	n.s.	n.s.	n.s.	0	13	77	10	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
760	n.s.	721	810	372	894	2056	420	64	0	0	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
761	n.s.	0	63	185	0	9	6	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
762	n.s.	n.s.	0	0	1200	0	0	6	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
763	n.s.	n.s.	n.s.	6	0	24	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
764	n.s.	14	5	7	0	0	5	4	6	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
765	n.s.	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
766	n.s.	n.s.	0	0	0	0	20	0	0	0	0	0	n.s.	0	2	0	0	0	0	0	0	0	0	0	0	n.s.	0
767	n.s.	n.s.	n.s.	0	0	5	0	1	0	8	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
Biomass	54183	119438	70199	207874	353800	492053	387012	69511	116842	129432	123227	170910	112086	172735	93014	112247	151160	137964	155264	85691	106267	31506	24885	43607	11751	n.s.	27475
SD	6278	9994	14443	18803	18724	53426	41586	7075	9777	12334	11396	24806	11896	17696	10258	18089	29753	27395	29278	14013	13269	5257	5713	6971	2655	n.s.	8940

Table 24b. Difference in percentage between the American plaice biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	66	52	100	100	100	51	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
755	n.s.	n.s.	n.s.	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	48	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	100	48	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	100	0	100	0	100	0	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
Biomass	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
SD	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100

Table 25a. Redfish biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	2	0	1	0	1	27	0	0	3	0	0	17	0	0	0	0	0	1	0	n.s.	0
354	1	0	5	15889	212	1	9540	10	0	1033	447	1623	202	16	58	641	12568	13552	9444	478	18412	10318	11187	27	15	n.s.	20
355	n.s.	2020	20	5624	12250	9875	790	1544	2750	2177	4328	8535	6313	4043	5420	34178	12456	10505	7269	1708	11017	3271	4663	224	93	n.s.	102
356	n.s.	1004	56	8471	19303	9315	4217	1606	1057	3229	4239	4405	3727	1677	4560	36069	39873	3107	9523	6972	2607	880	4635	1258	1633	n.s.	769
357	2684	109	658	567	1859	18620	2371	679	1805	7334	44022	20641	11555	3915	185611	35827	16336	26596	41850	5441	54832	11793	35309	81583	67030	n.s.	19562
358	66720	128	60	579	2012	47031	58	70	3621	2930	10078	15897	23322	20995	93155	160486	262502	78425	122562	40393	324502	74125	111435	106337	35402	n.s.	28835
359	0	0	0	0	3	6	5034	21	3	44	36	77	18	13	18	30907	11103	1438	17272	38361	12297	55	48706	4274	97	n.s.	3222
360	0	0	0	0	2	0	0	15	1	86	19	0	0	47	48	11	0	0	30	7	0	87	0	17	0	n.s.	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	n.s.	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	n.s.	0
376	0	0	3	0	0	0	2	0	0	0	67	0	0	24	0	0	1	0	0	0	0	56	0	0	0	n.s.	0
377	0	14	0	0	8	3	2	14	5	0	0	4	0	0	0	0	0	0	69	0	0	0	10	27	1371	n.s.	6
378	71	31	40	9	33	48	41	25	42	1860	45233	16126	376	5289	12177	16055	62648	93021	198482	47113	76300	2033	40857	9860	21438	n.s.	269
379	434	42	365	174	497	1166	2405	170	193	1161	22862	18021	39116	25902	118121	69163	5892	14649	5409	21861	29023	5669	2774	54151	33835	n.s.	4041
380	n.s.	37	1	20	82	0	37	10	13	1299	3276	3453	2899	3347	182	21582	37169	14288	11264	13034	9864	4938	32	9067	6173	n.s.	6638
381	n.s.	5	2	0	1	0	2	2	1	11	25	87	5	20	1	3	409	8239	40	0	308	0	4	7	0	n.s.	65
382	n.s.	0	0	0	0	5	3	14	0	0	12	3	17	23	0	0	0	0	0	0	0	0	0	0	14	n.s.	0
721	n.s.	3767	1747	1612	20091	30042	4097	245	607	1615	1377	595	943	303	18172	849	4384	1568	2926	3359	2414	617	846	2061	1832	n.s.	1301
722	n.s.	1718	238	258	821	3673	431	41	213	206	377	14	20	72	19	24	43	47	22	261	33	108	43	149	343	n.s.	0
723	n.s.	3851	968	2504	9934	36281	2036	1753	2191	8271	15213	7813	2671	2972	136596	10296	19564	24386	23352	10113	7685	6024	20930	21101	7649	n.s.	5873
724	9331	1377	434	1360	2717	11739	1375	2623	1042	1028	917	186	1864	1848	1845	1360	786	1114	1249	694	759	18	414	2357	95	n.s.	280
725	733	697	829	379	41441	220	925	483	470	1526	3681	4523	4705	2625	3658	11487	1031	2688	4739	712	5818	10450	3374	2291	1150	n.s.	3699
726	666	452	n.s.	28083	2178	0	911	268	0	752	462	465	750	640	1901	1617	292	161	102	37	223	118	315	137	184	n.s.	42
727	n.s.	161	69	170	430	89	87	30	277	526	151	100	76	125	2382	506	367	135	2840	237	1769	1778	1639	998	73	n.s.	50
728	n.s.	507	458	812	1270	0	729	133	574	87	527	45	62	52	209	174	28	86	208	37	70	64	29	573	68	n.s.	210
752	n.s.	125	161	3371	4657	0	576	105	503	31	2	7	6	25	70	21	9	8	25	1	0	3	19	18	0	n.s.	4
753	n.s.	0	4	21	153	0	37	3	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	27	n.s.	0
754	n.s.	n.s.	5	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	n.s.	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	n.s.	0
756	n.s.	763	70	135	6900	0	348	179	30	14	10	2	87	172	36	8	1	6	0	5	6	14	0	21	0	n.s.	0
757	n.s.	14	0	24	1315	0	11	602	77	0	6	0	0	1	2	0	0	0	3	4	3	16	4	0	0	n.s.	0
758	n.s.	n.s.	0	0	6	29	0	80	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
759	n.s.	n.s.	n.s.	0	58	0	0	1	0	0	2	4	n.s.	0	0	0	0	0	0	0	0	27	0	0	0	n.s.	0
760	n.s.	3163	4182	1104	5137	285	1364	52	183	47	300	341	73	8	107	30	148	0	21	6	0	1	5	0	4	n.s.	38
761	n.s.	0	8	129	0	12	26	176	0	9	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
762	n.s.	n.s.	0	0	604	0	0	93	0	0	0	4	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
763	n.s.	n.s.	n.s.	0	0	5079	0	0	0	3	10	0	n.s.	17	n.s.	n.s.	16	0	0	0	0	0	2	0	30	n.s.	6
764	n.s.	45	23	0	1	0	5	9	50	0	15	0	0	0	5	n.s.	26	0	0	1	0	0	1	0	0	n.s.	0
765	n.s.	0	0	286	0	110	12	97	0	0	0	0	0	0	0	0	0	0	0	0	11	0	4	0	0	n.s.	0
766	n.s.	n.s.	0	0	0	0	20	0	6	0	14	0	n.s.	1	0	0	0	0	0	0	0	42	0	7	0	n.s.	0
767	n.s.	n.s.	n.s.	3	0	0	0	0	0	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
Biomass	80639	20029	10405	71583	133972	173626	37495	11172	15714	35275	157716	103029	98805	74172	584357	431296	487655	294033	458716	190832	557954	132505	287284	296546	178556	n.s.	75364
SD	46404	4028	1456	31233	48532	55103	11482	2374	3224	7331	52646	23332	15893	26168	152365	69575	107982	62950	76703	47201	142978	44195	84544	84714	51184	n.s.	19227

Table 25b. Difference in percentage between the redfish biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	0	100	100	100	100	291	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
755	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	0	100	100	100	100	100	100	n.s.	100
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	100	48	100	100	50	100	100	0	100	n.s.	100	100	100	100	100	100	100	100	51	100	100	100	100	n.s.	100
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	100	100	100	0	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
Biomass	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
SD	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100

Table 26a. Roughhead grenadier biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	0	0	n.s.	0
355	n.s.	0	0	0	0	3	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	10	0	0	0	n.s.	0
356	n.s.	0	0	11	0	2	0	0	0	5	1	1	0	0	0	0	0	0	0	0	8	0	0	8	0	0	n.s.	0
357	0	0	9	0	18	37	57	14	20	0	223	573	26	12	228	56	105	120	32	0	0	2	49	0	0	0	n.s.	20
358	0	0	0	0	26	0	0	10	0	0	0	0	5	6	0	0	6	30	18	0	46	3	0	0	0	0	n.s.	1
359	0	12	0	0	0	0	0	2	0	18	4	0	0	0	3	0	0	0	0	0	0	5	0	0	0	0	n.s.	0
360	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	n.s.	0
374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	n.s.	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	1	0	0	n.s.	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	0	0	n.s.	0
377	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	n.s.	0
378	0	0	35	0	21	10	0	0	0	0	8	3	0	0	0	15	5	29	0	0	0	0	7	0	0	0	n.s.	0
379	12	0	0	1	1	28	13	2	1	34	242	1006	57	27	66	159	18	77	121	25	213	2	71	45	14	n.s.	39	
380	n.s.	0	12	0	0	8	2	0	1	2418	1635	1094	180	147	63	208	452	70	79	56	303	53	39	6	9	n.s.	312	
381	n.s.	0	0	0	0	5	0	0	0	53	216	1278	0	0	0	2	1482	32	64	0	0	0	0	1	1	n.s.	37	
382	n.s.	0	0	0	0	1	0	0	0	2	7	6	5	0	0	0	228	8	0	0	0	0	0	0	0	0	n.s.	0
721	n.s.	2	0	29	77	26	12	7	0	20	7	17	5	5	24	6	5	11	2	0	0	1	0	0	0	0	n.s.	0
722	n.s.	86	1	182	167	216	12	78	33	35	39	6	29	23	6	26	14	66	59	4	3	32	58	8	8	n.s.	2	
723	n.s.	43	0	20	188	210	114	9	113	136	287	273	57	53	248	57	52	144	73	31	106	39	69	76	27	n.s.	27	
724	291	37	36	75	238	259	94	110	55	125	105	50	93	92	106	56	36	59	114	18	69	54	133	86	26	n.s.	72	
725	0	0	0	5	200	743	30	25	3	863	928	434	119	45	54	99	78	126	51	32	85	23	76	30	62	n.s.	60	
726	72	0	n.s.	91	274	563	191	18	0	383	223	135	257	260	217	258	140	200	179	71	160	113	217	21	87	n.s.	66	
727	n.s.	0	22	9	32	134	11	5	193	138	157	125	81	61	68	100	58	67	188	25	150	124	374	84	31	n.s.	251	
728	n.s.	90	36	41	709	316	40	4	226	136	254	175	120	58	50	128	43	71	109	155	82	62	223	28	23	n.s.	223	
752	n.s.	252	625	550	598	1989	442	22	892	1160	239	293	226	726	350	879	51	128	54	249	160	232	302	120	20	n.s.	155	
753	n.s.	1684	1178	2656	2016	3664	2394	65	688	810	777	182	382	1446	1394	n.s.	434	959	360	113	537	191	601	140	61	n.s.	41	
754	n.s.	n.s.	6746	6114	2704	7243	8199	1549	1086	562	223	81	854	728	2328	1105	183	693	897	335	1230	264	323	235	165	n.s.	425	
755	n.s.	n.s.	n.s.	9229	5115	5913	5278	50	633	531	1171	762	981	980	374	335	494	1804	819	638	581	936	639	642	37	n.s.	495	
756	n.s.	16	177	364	1563	1046	861	104	65	91	206	237	764	312	353	82	395	520	180	539	187	194	93	255	24	n.s.	115	
757	n.s.	897	1235	2284	458	4972	1053	147	79	121	161	67	416	237	167	109	369	1493	239	57	336	196	422	430	58	n.s.	68	
758	n.s.	n.s.	2547	4119	2514	3064	3695	1246	367	305	300	985	166	396	387	76	109	229	170	229	307	136	279	203	2	n.s.	52	
759	n.s.	n.s.	n.s.	4634	1543	2332	3986	782	881	475	520	27	n.s.	335	551	161	81	187	460	84	291	55	195	75	41	n.s.	89	
760	n.s.	124	337	750	322	1530	937	161	576	1065	778	577	366	57	308	91	237	32	80	110	169	19	229	75	18	n.s.	65	
761	n.s.	1032	1836	2453	1587	1047	1012	81	194	396	580	270	314	268	154	1347	113	103	72	222	355	291	1006	113	43	n.s.	17	
762	n.s.	n.s.	2949	3630	2058	2335	726	6	276	287	225	414	n.s.	442	194	450	629	559	242	448	463	119	210	104	26	n.s.	45	
763	n.s.	n.s.	n.s.	1525	1691	2139	2139	28	68	672	315	677	n.s.	362	n.s.	n.s.	227	141	411	140	245	143	401	298	94	n.s.	94	
764	n.s.	239	364	261	211	239	193	170	176	357	10	27	197	106	177	n.s.	85	12	46	14	33	4	12	10	0	n.s.	22	
765	n.s.	331	830	467	408	558	247	28	115	59	79	158	59	80	71	20	19	27	43	0	13	3	90	83	1	n.s.	9	
766	n.s.	n.s.	639	610	429	252	222	113	73	92	80	44	n.s.	109	25	25	40	16	27	9	9	11	25	3	0	n.s.	20	
767	n.s.	n.s.	n.s.	548	421	224	264	129	43	53	65	34	n.s.	146	n.s.	n.s.	33	11	30	19	9	10	25	44	0	n.s.	10	
Biomass	374	4842	19615	40657	25589	41111	32222	4968	6860	11401	10064	10010	5760	7521	7973	5850	6219	8027	5220	3622	6149	3318	6187	3227	879	n.s.	2833	
SD	12	1627	1687	3775	2532	4737	3890	1365	1266	2022	1236	1716	669	1017	331	1773	1502	1073	753	628	1134	496	750	488	105	n.s.	574	



Table 26b. Difference in percentage between the roughhead grenadier biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	116	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	103	99	83	100	100	64	69	100	415	100	92	100	0	100	135	100	100	100	367	119	127	86	100	n.s.	100	
755	n.s.	n.s.	n.s.	0	0	90	0	0	0	0	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	51	
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	138	100	100	100	100	100	100	100	100	100	100	100	100	615	100	100	340	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	65	69	100	100	50	100	0	0	100	n.s.	0	0	0	57	147	0	0	176	78	122	0	100	n.s.	147	
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	224	322	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	125	100	182	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	101	91	100	50	65	108	100	100	n.s.	74	n.s.	n.s.	75	100	69	100	49	100	100	100	100	100	n.s.	100
Biomass	100	100	102	124	119	98	120	74	102	110	105	108	120	121	169	109	110	130	132	132	135	141	114	127	104	n.s.	87	
SD	100	100	95	137	116	101	112	205	120	103	105	105	116	107	100	100	101	111	111	109	167	139	102	113	101	n.s.	175	

Table 27a. Roughhead grenadier total length distribution with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

Length	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
0	0	0	0	0	0	0	0	44	31	24	0	0	23	14	18	124	0	83	23	12	41	26	150	31	0	65	
3	0	0	48	49	872	1111	504	642	1095	1110	501	543	846	288	363	330	201	551	792	321	574	625	1356	577	106	544	
6	0	0	347	1015	2823	2497	897	491	2399	2567	2055	1622	1010	1001	950	950	491	1808	895	427	2616	1021	2095	1258	216	735	
9	10	92	1146	8730	15833	11926	3333	553	1605	3643	3610	1750	1546	1444	1470	886	550	2064	1297	672	1582	1286	2275	911	222	560	
12	19	907	5907	12928	21487	43602	22862	1928	2967	3979	3830	3529	2036	2154	2769	1359	1320	1959	1380	762	1766	1348	2686	1086	225	1467	
15	45	231	10649	28626	18959	24429	27811	3533	6704	6540	4405	3777	2090	3044	3810	2397	2669	2849	1827	1139	2212	1582	2512	1307	256	1579	
18	92	185	6701	13616	6643	11763	11471	1667	2344	5168	4745	4324	1961	1711	1594	1358	2325	1837	1496	881	2005	1106	1689	1268	172	1358	
21	83	92	3829	6396	2164	4364	2241	727	688	1766	1680	2567	1291	1550	1301	776	800	1191	786	672	1075	505	1051	506	107	497	
24	35	46	1360	3509	1526	2837	1400	247	295	866	817	987	851	1257	1507	1063	866	1034	566	385	829	347	806	404	138	243	
27	47	46	496	1745	1023	1591	664	254	257	479	399	295	363	598	727	612	587	886	505	394	443	210	409	229	48	148	
30	0	31	275	1177	396	873	853	123	117	266	201	252	114	123	146	163	158	256	230	208	229	85	152	101	43	47	
33	12	0	77	454	254	206	296	63	46	110	75	64	40	83	26	30	19	72	84	28	30	33	49	23	25	4	
36	0	0	63	123	44	294	90	16	9	12	14	3	0	42	28	9	7	6	6	0	14	8	7	12	0	8	
39	0	0	0	22	0	26	12	0	0	8	8	0	0	0	0	0	0	0	8	0	0	0	16	0	8	0	
42	0	0	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	343	1630	30897	78390	72026	105519	72434	10288	18557	26538	22339	19714	12170	13317	14709	10058	9994	14596	9895	5901	13416	8183	15253	7714	1565	7255	



Table 27b. Difference in percentage between the roughhead grenadier length distribution with and without the hauls in the closed areas in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	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
0	100	100	100	100	100	100	100	74	136	95	100	100	0	100	100	336	100	100	132	100	124	62	105	157	100		65
3	100	100	100	100	123	123	130	80	110	116	52	114	129	106	150	156	124	125	144	107	115	113	107	107	100		61
6	100	100	100	134	123	137	144	87	122	123	101	119	167	147	244	179	109	128	203	130	110	132	128	124	118		93
9	100	100	94	119	110	103	132	92	117	122	118	120	180	147	187	136	126	127	169	130	107	138	125	124	124		98
12	100	100	96	104	107	94	116	81	102	122	123	119	152	146	165	111	109	137	154	149	119	130	130	146	111		98
15	100	100	98	132	112	99	112	72	95	113	111	120	138	125	177	118	112	124	134	143	122	135	120	152	114		88
18	100	100	107	137	122	95	114	73	99	111	105	110	117	131	140	121	107	124	125	126	121	125	124	151	114		79
21	100	100	92	112	119	91	122	82	107	108	93	102	104	117	153	125	109	129	120	117	131	159	106	115	100		72
24	100	100	120	139	115	94	131	81	136	101	101	102	110	106	171	101	111	128	132	118	157	146	106	105	100		95
27	100	100	97	125	108	88	137	90	99	105	88	100	129	108	165	101	120	127	126	150	186	226	113	123	100		100
30	100	100	100	111	137	88	121	67	99	105	128	110	103	118	197	104	110	148	135	157	138	111	109	117	100		100
33	100	100	100	143	178	152	182	63	119	128	123	100	140	204	100	123	74	192	131	119	123	135	120	132	100		100
36	100	100	100	463	127	82	233	51	100	100	69	100	100	162	372	100	100	0	0	100	100	0	100	100	100		100
39	100	100	100	100	100	0	0	100	100	100	0	100	100	100	100	100	100	100	0	100	100	100	364	100	100		100
42	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100		100
Total	100	100	99	124	112	97	116	77	103	115	107	114	134	128	169	121	111	128	142	132	120	133	120	131	111		85

Table 28a. Witch flounder biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	62	239	23	200	2686	5367	2051	88	16	353	164	394	67	193	8	955	56	406	255	86	77	205	0	125	0	n.s.	29
354	491	246	41	2255	2357	4289	6500	142	670	506	829	209	127	161	264	108	110	88	204	35	41	151	576	18	7	n.s.	9
355	n.s.	926	263	1621	627	958	4009	427	235	48	36	17	11	14	35	14	21	20	0	4	12	11	43	0	2	n.s.	0
356	n.s.	167	60	333	227	135	236	104	327	35	28	14	5	3	17	3	2	2	4	2	14	5	8	1	0	n.s.	1
357	5	439	12	33	114	227	615	0	249	139	24	31	12	46	41	19	29	15	6	8	13	72	27	10	8	n.s.	13
358	797	595	114	51	108	437	2156	52	110	123	181	63	139	220	82	185	60	150	52	69	89	1000	154	6	53	n.s.	19
359	155	118	190	511	259	3137	3249	26	64	400	44	209	54	434	42	78	157	386	388	62	630	142	1322	183	128	n.s.	85
360	328	391	190	234	2216	5061	724	38	75	598	456	1014	242	256	0	745	280	933	323	36	82	0	0	68	0	n.s.	977
374	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	n.s.	0
375	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	n.s.	0
376	0	21	0	22	78	140	16	4	0	30	31	40	6	0	0	0	0	1	12	0	0	0	0	36	0	n.s.	8
377	0	0	0	0	0	1	0	1	0	5	0	4	0	2	0	0	0	0	4	0	7	0	0	0	7	n.s.	0
378	6	0	5	6	0	4	5	0	0	8	0	3	5	9	0	0	0	2	6	11	35	3	38	0	4	n.s.	0
379	18	0	14	15	2	33	12	12	0	0	3	1	1	4	6	7	2	6	0	8	3	5	15	2	5	n.s.	0
380	n.s.	0	0	2	15	2	1	2	0	3	1	1	2	0	0	7	2	6	3	10	6	10	0	0	2	n.s.	4
381	n.s.	4	0	0	0	0	0	0	0	0	5	0	0	0	0	0	22	44	13	0	15	0	0	0	12	n.s.	4
382	n.s.	0	0	0	0	2	0	0	0	0	5	0	0	0	0	0	0	0	16	6	0	0	7	0	0	n.s.	3
721	n.s.	209	114	570	515	68	466	40	87	17	11	7	7	2	64	18	11	4	5	3	4	7	3	4	0	n.s.	2
722	n.s.	792	383	540	317	326	121	27	86	22	45	3	20	20	24	15	5	5	20	11	8	9	4	4	1	n.s.	3
723	n.s.	81	236	200	476	403	184	25	106	55	24	83	37	46	79	158	84	21	33	64	63	38	58	88	26	n.s.	8
724	1200	181	49	245	534	757	278	56	133	223	67	40	258	224	167	109	88	165	95	41	86	77	19	36	16	n.s.	24
725	108	22	11	27	73	646	35	6	2	173	67	33	60	16	45	29	18	14	46	21	65	93	59	1	27	n.s.	16
726	418	14	n.s.	87	205	1103	327	19	0	64	28	22	46	36	408	36	48	23	120	28	19	40	16	34	10	n.s.	1
727	n.s.	5	0	9	23	5	0	0	0	41	29	6	12	53	29	94	30	53	86	22	7	101	286	55	21	n.s.	13
728	n.s.	51	5	48	329	167	34	8	37	18	8	8	67	11	77	142	55	119	56	75	81	156	69	45	23	n.s.	6
752	n.s.	276	86	106	196	459	390	5	59	4	0	0	0	0	8	2	14	21	55	86	115	160	95	152	2	n.s.	28
753	n.s.	391	322	311	583	996	339	9	4	0	0	0	0	0	0	n.s.	13	0	8	14	10	0	13	14	0	n.s.	0
754	n.s.	n.s.	27	19	0	96	353	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
755	n.s.	n.s.	n.s.	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
756	n.s.	16	66	316	730	749	1565	10	40	33	25	31	41	77	154	228	76	43	46	82	46	152	52	11	24	n.s.	19
757	n.s.	359	132	987	174	487	358	50	16	0	0	0	0	0	22	36	15	15	45	50	29	4	45	35	2	n.s.	11
758	n.s.	n.s.	108	54	0	15	18	2	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	n.s.	0
759	n.s.	n.s.	n.s.	7	5	20	6	8	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
760	n.s.	602	207	1262	1894	1853	1604	134	267	127	223	104	170	227	188	48	125	107	89	43	221	41	67	52	1	n.s.	25
761	n.s.	1789	1219	1826	193	1243	816	284	91	23	81	99	1	0	17	146	81	93	35	13	37	14	33	114	36	n.s.	11
762	n.s.	n.s.	55	0	1001	209	159	0	88	141	82	14	n.s.	0	0	20	0	0	0	0	8	17	0	2	0	n.s.	0
763	n.s.	n.s.	n.s.	8	51	136	12	0	0	13	0	0	n.s.	2	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
764	n.s.	863	1258	643	286	236	453	16	86	52	16	17	22	13	6	n.s.	12	9	48	4	5	10	13	12	3	n.s.	3
765	n.s.	622	839	396	567	339	193	184	289	43	52	35	69	41	37	20	8	2	3	8	4	2	11	22	3	n.s.	0
766	n.s.	n.s.	124	111	140	369	105	4	3	50	68	68	n.s.	9	9	11	4	3	0	1	3	0	0	1	2	n.s.	3
767	n.s.	n.s.	n.s.	45	10	357	1	1	4	0	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	1	0	0	n.s.	0
Biomass	3586	9419	6154	13102	16997	30835	27389	1784	3145	3348	2633	2570	1480	2118	1831	3239	1428	2762	2078	903	1834	2526	3033	1132	426	n.s.	1324
SD	524	975	838	1995	1815	3586	4214	426	690	514	488	629	229	481	417	777	245	642	358	134	376	737	1199	250	74	n.s.	476

Table 28b. Difference in percentage between the witch flounder biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	66	52	100	100	100	51	0	100	100	100	100	100	100	100	100	100	100	100	50	100	100	100	100	100	n.s.	100
755	n.s.	n.s.	n.s.	100	100	28	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	n.s.	100
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	48	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	47	48	100	100	50	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	96	358	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	210	100	58	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	53	0	100	0	51	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
Biomass	100	100	101	99	99	101	100	99	100	100	100	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
SD	100	100	100	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100

Table 29a. Witch flounder total length distribution with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

Length	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	116	0	5	16	0	5	12	4	0	20	4	47	0	55	25	0	5	3		7
8	0	0	0	0	5	0	0	317	26	190	755	18	62	15	24	7	15	12	51	3	37	35	24	6	7		16
12	0	0	0	0	2374	27	0	12	293	12	449	244	0	26	57	72	4	26	26	2	15	25	6	106	3		30
16	0	0	0	10	4960	1114	131	24	43	168	127	262	31	3	108	25	73	24	94	10	40	19	28	44	4		82
20	14	38	94	182	675	3316	1692	92	59	203	222	89	86	92	111	70	45	55	114	22	31	57	55	74	14		90
24	66	300	595	1406	1625	1825	4785	345	577	236	413	184	227	192	332	177	53	124	247	55	66	72	89	123	24		172
28	124	2114	1854	4679	9382	10557	7298	871	2069	1310	1401	862	465	437	774	447	250	546	493	151	299	346	342	554	157		438
32	844	6196	3741	8585	11890	21463	19373	1358	1899	2486	1992	1153	819	751	1214	896	683	1126	1004	308	622	451	469	657	199		405
36	2088	5170	4989	11674	11635	21772	21450	1384	1990	2463	1884	1485	1077	1231	1264	2332	916	1526	1125	429	1049	1007	1372	455	162		494
40	1876	2206	3053	6729	7897	16342	14141	966	1553	1463	1243	1629	830	1220	817	2162	813	1750	1165	463	1101	1735	2501	418	259		778
44	1032	864	1556	2918	2631	5627	6453	424	797	796	524	871	378	677	485	861	511	1001	786	350	613	1193	1044	384	150		680
48	609	523	678	1179	1195	2086	2097	144	278	280	150	104	63	178	135	290	111	170	184	109	223	225	360	182	61		138
52	224	131	260	396	619	845	655	39	101	51	39	15	25	97	12	32	6	12	25	22	47	74	70	34	7		0
56	113	74	99	118	174	150	209	30	20	28	5	18	0	11	0	5	0	0	6	5	0	6	0	20	0		0
60	8	5	19	10	0	26	53	0	0	0	11	11	0	17	0	0	0	0	0	0	0	0	0	0	0		0
Total	6998	17621	16938	37887	55061	85152	78338	6123	9703	9691	9232	6944	4069	4959	5335	7375	3501	6376	5366	1929	4197	5269	6358	3061	1048		3330

Table 29b. Difference in percentage between the witch flounder length distribution with and without the hauls in the closed areas in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	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	100	100	100	100	100	100	100	100	100	100	100	100	100	67	100	100	100	100	100	100	87	100	100	100	100		100
8	100	100	100	100	100	100	100	100	100	100	100	100	136	100	100	100	100	100	120	100	82	100	100	100	100		100
12	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100
16	100	100	100	100	100	101	100	100	100	100	100	100	100	122	100	100	100	100	100	100	100	100	100	100	100		100
20	100	100	100	100	100	100	100	100	100	100	100	100	107	106	100	100	100	100	100	100	100	100	100	100	100		100
24	100	100	102	100	100	103	100	102	100	100	100	100	157	150	100	100	100	100	100	100	100	100	100	100	100		100
28	100	100	104	100	99	104	100	100	100	100	100	100	115	136	100	100	100	100	100	100	100	100	100	100	100		100
32	100	100	104	100	99	102	100	100	100	100	100	100	96	106	100	100	100	100	100	100	100	100	100	100	100		100
36	100	100	100	99	99	101	100	99	100	100	100	100	97	100	100	100	100	100	100	100	100	100	100	100	100		100
40	100	100	100	99	99	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100
44	100	100	100	97	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100
48	100	100	101	95	98	101	100	93	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100
52	100	100	100	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100
56	100	100	100	94	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100
60	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		100
Total	100	100	101	99	99	102	100	100	100	100	100	100	103	105	100	100	100	100	100	100	100	100	100	100	100		100



Table 30a. Yellowtail flounder biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	398	4868	842	846	10068	4598	6227	1697	270	210	1347	1565	14	440	4	17	2366	214	806	23	688	177	616	81	0	n.s.	729
354	112	77	89	75	6	111	8	3	0	13	4	4	3	22	0	15	16	15	17	0	43	0	0	0	0	n.s.	4
355	n.s.	5	42	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	n.s.	0
356	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	n.s.	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	n.s.	0
358	0	8	1	0	0	0	0	0	0	5	0	0	0	0	0	0	8	7	0	0	0	0	0	0	0	n.s.	13
359	148	105	9	19	35	254	7	4	0	931	3604	5849	3538	974	473	443	6767	4384	6466	1305	78	9	2	16	0	n.s.	6
360	14804	97457	57415	268389	370809	271740	393028	82622	89057	97150	81907	81579	81869	80657	87779	79998	90856	115943	114639	48586	67463	65826	60296	43872	20839	n.s.	18223
374	0	0	0	2	3895	1091	15769	596	307	3561	5622	11051	18861	12817	26496	9184	26552	16220	8549	8098	4118	4190	63	3199	1372	n.s.	3185
375	107	2933	14	872	23818	10198	11527	1121	701	13081	6729	6429	3257	13982	8001	7388	11857	4858	8038	8355	4655	1911	1010	1014	792	n.s.	1587
376	12138	23729	57301	96465	180565	144712	170628	62443	46435	55026	56887	53613	51811	49761	60659	81971	55789	48374	48457	70031	63736	81580	33908	59513	19562	n.s.	15298
377	0	0	0	0	0	1	2	0	6	0	368	52	1378	1492	1	1054	2802	3549	639	84	65	6	3	0	4	n.s.	0
378	0	2	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	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	n.s.	0
382	n.s.	0	0	0	0	0	1	0	0	0	0	0	0	0	0	9617	6819	2038	207	0	0	10	7	0	0	n.s.	8
721	n.s.	1	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	0
752	n.s.	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	0
Biomass	27706	129186	115730	366671	589197	432705	597203	148487	136775	169978	156472	160145	160731	160146	183412	189687	203833	195606	187969	136484	140845	153708	95905	107695	42569	n.s.	39052
SD	7143	17739	24919	93588	68454	56578	78957	22889	19287	18838	15271	16458	18852	17297	25736	22611	30743	23679	22473	28283	18899	34788	22868	15055	8578	n.s.	5566

Table 30b. Difference in percentage between the yellowtail flounder biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
755	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
Biomass	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
SD	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100

Table 31a. Capelin biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	4	230	18	557	7015	6460	32	317	6383	1675	22566	2094	5755	8182	1138	21575	5766	5108	284	472	836	n.s.	126
354	489	0	2	0	0	248	0	581	5171	0	7	0	139	11998	17331	14684	0	9073	9	16063	1102	326	1616	0	0	n.s.	440
355	n.s.	0	0	0	0	0	0	1	8	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	n.s.	11
356	n.s.	0	0	0	0	0	0	1	6	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
357	0	0	0	0	0	0	0	5	4	0	1	0	2	0	0	0	0	0	0	1	0	0	0	0	0	n.s.	0
358	0	0	0	0	0	0	1	715	2181	0	0	0	0	0	1	0	0	0	0	0	0	8	0	0	0	n.s.	0
359	0	0	2	0	0	348	523	3721	1326	117	1	0	2502	1817	7860	669	140	12671	16	373	2045	56	406	913	97	n.s.	1388
360	0	0	1112	0	260	90	1085	10934	20252	17562	1995	1588	13432	6771	24323	33371	2345	53594	34222	23330	18756	557	1477	13233	449	n.s.	3782
374	0	0	0	0	1	0	0	2	246	0	13	3	10	3	13	123	0	3	11	7	20	1	7	348	2	n.s.	2
375	0	0	0	0	1	0	0	3	355	7	0	34	150	4	27	1	1	3012	95	9	52	1	9	57	4	n.s.	2
376	0	0	0	0	0	0	4	242	713	119	12	667	22	13	308	5382	302	47659	5077	399	2067	17	148	566	1769	n.s.	3236
377	0	44	0	0	38	883	1589	454	161	1	1	0	3	0	78	881	5	0	0	0	0	84	144	3	18	n.s.	21
378	0	0	0	637	0	78	39	39	4003	0	0	0	1	0	2	33	0	0	0	0	0	8	4	0	0	n.s.	0
379	0	0	0	0	0	0	5	4	5	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	n.s.	0
380	n.s.	0	0	0	0	0	0	3	102	0	1	0	36	7	8	0	0	0	0	0	0	12	8	6	0	n.s.	0
381	n.s.	0	217	0	0	0	902	230	246	0	1	0	2062	1579	39	3828	0	0	0	2686	716	1	235	3483	2	n.s.	0
382	n.s.	18	11	1	10	2	0	6	30	5	612	4	109	25647	2	3138	11	0	0	3759	946	55	145	6395	12672	n.s.	0
721	n.s.	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	0
723	n.s.	0	0	0	0	0	0	46	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	n.s.	0
724	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
725	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	n.s.	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	n.s.	0
727	n.s.	0	0	0	0	0	0	140	0	0	0	0	2	0	0	0	0	0	0	0	0	10	0	0	0	n.s.	0
728	n.s.	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
752	n.s.	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
753	n.s.	0	0	0	0	0	0	0	0	0	2	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	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	n.s.	0
757	n.s.	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
758	n.s.	n.s.	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	117	0	0	0	0	n.s.	0
760	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	n.s.	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	n.s.	0
762	n.s.	n.s.	0	0	0	0	0	1	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	0
764	n.s.	0	0	0	0	0	0	1	0	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	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	n.s.	0
Biomass	489	62	1345	637	315	1879	4166	17734	41835	24272	2678	2613	24851	49523	72557	64209	8559	134193	40573	68202	31588	6246	4486	25476	15849	n.s.	9008
SD	414	47	740	658	228	980	1378	5842	9877	5996	1098	872	11067	18706	21867	23007	3057	30327	14083	18288	8750	4039	1762	8842	8508	n.s.	2291

Table 31b. Difference in percentage between the capelin biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	50	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
755	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	51	100	100	100	100	100	n.s.	100
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
Biomass	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
SD	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100

Table 32a. Thorny skate biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	858	3061	565	2451	29088	13802	20892	8050	1895	1284	938	1049	515	1301	922	781	503	388	578	600	544	958	759	942	5	n.s.	686
354	1005	2386	103	5743	1857	6939	6297	1860	882	3154	1009	1264	1074	2721	1174	437	486	1098	1268	151	1107	909	793	273	165	n.s.	263
355	n.s.	293	703	93	326	857	411	17	126	162	117	9	126	40	69	168	180	71	38	18	62	48	13	8	8	n.s.	23
356	n.s.	55	46	12	26	38	27	6	22	69	44	75	16	41	126	90	93	187	206	210	169	265	167	67	0	n.s.	141
357	302	563	80	94	168	0	16	27	32	660	732	381	96	149	663	31	118	58	70	271	119	46	170	98	179	n.s.	296
358	1561	601	127	78	221	1245	1686	224	423	864	1396	111	1396	348	344	432	305	137	566	126	1021	1681	1820	33	512	n.s.	2074
359	1783	2332	1110	1167	1869	10471	3720	2663	963	1734	1634	1564	965	1007	1347	887	803	816	1095	145	1367	153	616	4165	175	n.s.	738
360	7826	27633	9748	17501	62540	124724	62043	5010	8775	22537	14197	16855	10867	9680	6666	8293	4271	13707	9483	1831	5262	4920	2402	3459	87	n.s.	12338
374	45	155	170	30	421	51	272	6	0	35	50	178	0	33	0	36	108	0	315	8	42	0	0	86	0	n.s.	77
375	180	385	79	189	613	314	161	32	56	249	287	768	800	220	125	32	26	423	595	0	445	27	53	42	52	n.s.	191
376	1963	11176	7270	11291	33773	31095	17304	1473	1277	10257	17559	20092	4583	8279	4852	4782	1334	10587	4058	2425	3165	944	227	3003	376	n.s.	5757
377	20	40	45	11	35	20	80	10	4	67	253	520	9	278	22	61	67	138	75	0	83	14	0	15	63	n.s.	0
378	278	442	111	100	411	269	68	0	37	324	75	68	89	366	144	336	224	241	122	75	798	135	1504	77	158	n.s.	0
379	144	66	23	61	28	42	0	51	0	117	293	1627	298	108	142	39	195	62	17	47	24	72	346	38	51	n.s.	13
380	n.s.	121	47	156	131	42	51	38	34	1035	560	926	617	791	87	466	934	257	152	133	41	23	25	29	131	n.s.	760
381	n.s.	511	326	392	53	195	37	9	43	904	648	912	61	208	0	2	252	99	108	279	279	34	9	85	13	n.s.	499
382	n.s.	645	78	125	512	599	211	20	0	187	152	100	0	14	0	200	195	3	247	28	1066	19	121	127	52	n.s.	274
721	n.s.	24	54	213	25	146	13	0	61	16	35	0	0	0	663	161	41	97	310	77	0	81	159	77	28	n.s.	152
722	n.s.	169	241	1225	322	433	180	0	7	0	50	0	26	114	14	19	42	43	40	40	28	42	70	62	0	n.s.	22
723	n.s.	237	379	142	208	206	100	8	70	66	0	71	171	73	266	75	43	169	114	0	0	0	30	49	123	n.s.	182
724	236	4	92	601	440	101	74	285	290	0	46	0	77	48	36	111	31	0	0	0	0	42	38	24	12	n.s.	0
725	16	2	11	192	135	167	20	17	12	413	275	659	185	18	30	42	21	0	17	18	0	45	56	19	0	n.s.	0
726	52	0	n.s.	7	23	256	158	22	0	0	0	23	13	4	245	45	13	0	22	0	14	14	58	15	0	n.s.	0
727	n.s.	68	140	202	93	22	22	25	853	84	63	0	84	74	951	231	79	46	23	86	234	3283	1147	387	34	n.s.	28
728	n.s.	221	43	144	134	56	46	46	119	23	0	9	89	11	367	36	0	82	76	27	65	127	122	26	0	n.s.	7
752	n.s.	7	208	2728	103	62	453	6	2100	0	0	8	0	0	0	0	0	0	0	0	0	54	168	74	0	n.s.	0
753	n.s.	1381	711	207	840	155	688	156	96	0	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
754	n.s.	n.s.	3013	7819	1182	4122	7409	9374	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
755	n.s.	n.s.	n.s.	1189	0	397	21	0	0	46	0	0	0	0	0	0	0	0	0	0	0	0	0	37	0	n.s.	0
756	n.s.	48	525	2322	591	150	438	83	1216	0	0	0	0	0	22	16	0	0	0	0	0	116	74	19	0	n.s.	0
757	n.s.	322	1338	2708	383	2152	538	14	64	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
758	n.s.	n.s.	1978	8728	4422	2140	6823	286	38	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	n.s.	0
759	n.s.	n.s.	n.s.	5510	20	2057	230	42	44	0	0	0	n.s.	0	0	0	0	35	0	0	0	0	0	0	0	n.s.	0
760	n.s.	180	0	394	512	773	311	25	434	0	60	0	22	0	39	37	0	0	0	29	29	0	36	0	0	n.s.	0
761	n.s.	2369	3921	1187	47	641	1933	181	0	42	0	0	0	0	0	42	0	74	0	0	0	0	18	0	0	n.s.	29
762	n.s.	n.s.	4267	438	679	471	0	0	56	21	0	26	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	0
764	n.s.	1293	585	466	0	0	295	0	380	38	0	68	0	0	0	n.s.	0	60	45	0	62	74	103	0	0	n.s.	17
765	n.s.	1429	727	580	0	67	95	7	25	0	0	46	43	20	0	0	0	10	0	0	38	0	16	0	0	n.s.	0
766	n.s.	n.s.	869	31	0	0	0	0	0	9	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
767	n.s.	n.s.	n.s.	164	0	0	0	0	16	35	0	0	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	0	0	0	n.s.	0
Biomass	16268	58218	39735	76693	142231	205280	133124	30072	20508	44429	40473	47415	22223	25946	19317	17887	10365	28889	19640	6624	16085	14126	11121	13334	2225	n.s.	24567
SD	2361	5475	6222	12553	15181	32392	15864	9698	2371	5277	6171	9207	2898	2641	2788	3539	1193	3011	2278	987	1768	2894	2283	3210	394	n.s.	3528

Table 32b. Difference in percentage between the thorny skate biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	144	95	51	100	100	52	50	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
755	n.s.	n.s.	n.s.	0	100	28	0	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100	n.s.	100
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	56	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	49	67	100	100	50	100	100	100	100	n.s.	100	100	100	100	51	100	100	100	100	100	100	100	100	n.s.	100
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	0	0	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	112	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	100	100	100	100	117	0	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
Biomass	100	100	103	87	99	100	100	77	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
SD	100	100	100	136	100	100	100	262	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100

Table 33a. Thorny skate total length distribution with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

Length	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
8	0	285	577	24	109	89	429	296	68	194	103	60	27	16	16	348	23	25	44	13	18	23	87	22	8	294	
16	796	2084	1254	896	734	961	1159	845	245	423	387	294	69	192	100	783	4	94	225	18	34	136	200	69	19	370	
24	1687	1810	3040	3082	3388	2480	4553	253	155	557	862	583	298	334	200	937	49	154	78	122	122	222	816	125	11	445	
32	2301	951	4323	8200	15405	10039	16238	1380	986	1842	1641	1236	575	760	415	1557	74	565	401	235	241	521	971	368	30	601	
40	2218	114	3702	5764	29575	22552	25316	5635	2529	4257	3352	2657	896	883	490	1240	168	1281	1044	493	800	897	745	340	62	1311	
48	1595	53	2277	4237	18846	24053	26050	4635	2479	4285	4569	5202	1252	1105	683	780	177	1189	691	441	1136	1112	882	767	112	1177	
56	696	0	2011	3275	10801	16033	13759	1984	1948	4310	4203	4716	1717	1826	1121	1135	329	1125	711	402	762	877	794	740	106	1528	
64	775	10	1664	2875	8090	12121	12534	1630	1408	3207	3171	3923	2093	2134	1600	1384	748	1869	1117	451	950	877	686	833	194	2032	
72	803	7	1002	1138	5423	8133	10026	1406	1025	2226	2036	2472	1628	2042	1710	1231	1153	2527	1583	467	1226	961	717	1003	139	1788	
80	64	0	206	208	1592	2243	2709	500	247	704	681	742	416	713	493	355	374	997	903	185	503	417	270	431	68	670	
88	0	0	0	0	117	516	169	47	8	88	32	52	36	35	21	85	19	147	230	30	98	83	85	80	32	84	
96	0	0	0	7	0	61	29	0	0	0	4	10	0	4	0	0	6	30	19	0	4	7	14	0	6	0	
104	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	4	0	0	0	0	6	
112	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
120	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
128	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	10935	5314	20057	29724	94079	99280	112972	18611	11099	22092	21040	21947	9008	10045	6849	9835	3124	10003	7051	2856	5896	6138	6267	4779	788	10307	

Table 33b. Difference in percentage between the thorny skate length distribution with and without the hauls in the closed areas in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	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
8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
24	100	100	100	100	100	100	100	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
32	100	100	100	96	100	100	100	69	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
40	100	100	104	77	100	100	100	62	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	103	100	100	
48	100	100	119	70	99	100	100	69	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
56	100	100	155	65	99	100	100	79	100	100	100	100	101	100	100	100	100	100	100	100	100	100	100	100	100	100	
64	100	100	121	76	99	100	100	95	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	101	100	100	
72	100	100	100	84	100	100	100	98	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
80	100	100	100	93	100	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100	100	100	100	100	
88	100	100	100	100	100	100	100	78	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
96	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
104	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
112	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
120	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
128	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Total	100	100	108	82	99	100	100	73	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	



Table 34a. White hake biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	18	1	0	0	0	41	0	0	0	0	1	37	0	0	0	0	0	11	0	n.s.	0
354	0	0	0	0	0	0	15261	1	0	495	1137	702	299	0	203	0	437	3	992	46	90	280	114	100	39	n.s.	34
355	n.s.	0	0	0	0	0	949	982	202	97	275	13	0	39	156	32	153	307	175	119	45	176	176	31	20	n.s.	209
356	n.s.	0	0	0	0	0	372	347	62	18	50	3	0	24	25	33	39	125	72	42	64	242	23	22	3	n.s.	72
357	0	0	0	0	0	0	49	0	32	13	0	0	55	10	87	87	0	0	18	57	377	837	63	126	0	n.s.	117
358	0	0	0	0	0	0	7	3	8	246	593	26	28	0	43	47	78	0	44	35	212	0	0	28	12	n.s.	65
359	0	0	0	0	0	0	1320	0	0	0	0	217	1	0	0	0	54	222	144	35	0	0	0	17	0	n.s.	14
360	0	0	0	0	0	0	27	0	0	17	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	n.s.	1
374	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	n.s.	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	0	n.s.	0
376	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	0
377	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	n.s.	0
378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0	0	0	0	n.s.	0
379	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3	0	0	0	0	1	0	0	n.s.	0
380	n.s.	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	6	5	0	1	0	0	0	1	n.s.	0
381	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	n.s.	0
382	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	n.s.	0
721	n.s.	0	0	0	0	0	48	280	137	21	0	34	34	0	10	66	0	3	26	15	126	71	134	37	12	n.s.	38
722	n.s.	0	0	0	0	0	25	129	213	10	0	0	19	0	0	0	13	0	5	7	13	38	70	0	0	n.s.	0
723	n.s.	0	0	0	0	0	54	0	0	14	20	24	1	0	0	28	43	52	23	33	16	49	126	31	52	n.s.	182
724	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	n.s.	0
725	0	0	0	0	0	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	11	6	0	0	n.s.	0
726	0	0	n.s.	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8	0	0	n.s.	0
727	n.s.	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	n.s.	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	n.s.	0
752	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	n.s.	0
753	n.s.	0	0	0	0	0	0	0	0	9	0	0	0	0	0	n.s.	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	0
756	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	n.s.	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	n.s.	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	n.s.	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	n.s.	0
760	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	n.s.	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	n.s.	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	n.s.	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	n.s.	0
764	n.s.	0	0	0	0	0	0	0	34	0	0	0	0	0	0	n.s.	3	0	0	0	0	0	0	23	0	n.s.	0
765	n.s.	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n.s.	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	n.s.	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	n.s.	0
Biomass	0	0	0	0	0	0	18131	1784	688	940	2082	1067	440	74	526	293	822	783	1503	389	965	1704	722	427	140	n.s.	733
SD	0	0	0	0	0	0	14791	389	224	464	1270	407	94	46	75	117	361	303	613	131	181	425	199	120	59	n.s.	213



Table 34b. Difference in percentage between the white hake biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100		
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
753	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	
754	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
755	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
758	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
759	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10						

Table 35a. Squid biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3NO survey during years 1995-2021.

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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	2
380	n.s.	0	0	0	0	0	0	0	0	2	0	1	1	3	2	5	1	0	0	0	0	0	0	0	117	n.s.	1
381	n.s.	0	0	0	0	0	0	0	0	0	2	1	2	3	0	16	4	0	0	0	0	0	0	0	20	n.s.	2
382	n.s.	0	0	0	0	0	0	0	0	1	1	1	6	2	0	9	0	0	0	0	0	0	0	5	604	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	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	n.s.	0
727	n.s.	0	0	1	0	0	0	0	0	4	1	0	0	2	0	2	0	0	0	0	0	0	44	0	3	n.s.	0
728	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	3	n.s.	0
752	n.s.	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	3	n.s.	0
753	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	n.s.	0	0	0	0	0	0	1	0	3	n.s.	0
754	n.s.	n.s.	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	2	n.s.	0
755	n.s.	n.s.	n.s.	1	0	0	0	0	0	0	0	0	3	2	2	0	0	0	0	0	0	0	6	1	20	n.s.	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	n.s.	0
757	n.s.	0	0	0	0	0	0	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	2	0	3	n.s.	0
758	n.s.	n.s.	0	0	0	0	0	0	0	1	0	0	1	1	2	0	0	0	0	0	0	0	0	1	2	n.s.	0
759	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	1	0	n.s.	0	2	2	1	0	0	0	0	0	1	0	1	n.s.	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	n.s.	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	n.s.	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	n.s.	0
763	n.s.	n.s.	n.s.	3	0	0	0	0	0	1	2	1	n.s.	0	n.s.	n.s.	0	0	0	0	0	0	8	1	4	n.s.	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	n.s.	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	n.s.	0
766	n.s.	n.s.	0	0	0	0	0	0	0	2	0	4	n.s.	0	0	1	2	0	0	0	0	0	5	0	1	n.s.	0
767	n.s.	n.s.	n.s.	0	0	0	0	0	0	6	0	2	n.s.	0	n.s.	n.s.	1	0	0	0	0	0	6	0	2	n.s.	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	n.s.	123
SD	0	0	0	52	0	0	0	0	0	635	8	221	47	8	109	27	3540	1	0	0	0	0	135	17359	15869	n.s.	23

Table 35b. Difference in percentage between the squid biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3NO survey during years 1995-2021. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

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	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	
354	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
355	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
356	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
357	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
358	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
359	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
360	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
374	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
375	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
376	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
377	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
378	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
379	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
380	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
381	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
382	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
721	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
722	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
723	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
724	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
725	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
726	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
727	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
728	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
752	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
753	n.s.	100	100	100	100	100	100	100	100	100	0	0	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
754	n.s.	n.s.	100	100	100	100	100	100	100	100	0	0	50	100	100	100	100	100	100	100	100	100	100	0	100	100	n.s.	100
755	n.s.	n.s.	n.s.	0	100	100	100	100	100	100	0	0	0	0	0	100	100	0	100	100	100	100	100	0	0	0	n.s.	100
756	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
757	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
758	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	48	100	100	100	100	100	100	100	100	n.s.	100
759	n.s.	n.s.	n.s.	100	100	100	100	100	100	0	0	100	n.s.	100	0	0	99	100	100	100	100	100	100	143	100	100	n.s.	100
760	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
761	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
762	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
763	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100
764	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	n.s.	100
765	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
766	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	n.s.	100
767	n.s.	n.s.	n.s.	100	100	100	100	100	100	121	100	100	n.s.	100	n.s.	n.s.	0	100	100	100	100	100	100	100	100	100	n.s.	100
Biomass	100	100	100	101	100	100	100	100	100	100	103	100	102	104	101	102	100	111	100	100	100	100	102	100	100	100	n.s.	100
SD	100	100	100	100	100	100	100	100	100	100	101	100	100	101	100	100	104	100	100	100	100	100	100	100	100	100	n.s.	100

Table 36a. Atlantic cod biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	1	5	n.s.	18	9	62	55	8	967	51	47	88	83	29	14	11	15
387	98	45	n.s.	9	45	127	542	77	831	154	2115	887	403	1447	83	111	237
388	253	45	n.s.	235	236	596	238	1941	484	5074	2861	866	721	422	457	231	624
389	38	23	n.s.	474	188	1394	1815	6763	1212	1524	3351	1142	3103	1112	471	747	1040
390	0	0	n.s.	6	99	609	1599	2667	15844	3124	3054	1471	764	616	616	196	215
391	4	0	n.s.	359	280	8509	1609	3582	3705	1092	358	332	586	554	671	381	528
392	5	179	n.s.	26	180	0	1	911	41	174	352	19	34	296	85	8	85
729	22	0	n.s.	0	0	0	0	0	0	0	12	0	0	0	0	0	0
730	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
731	423	9	n.s.	0	10	3	0	5	0	0	3	0	29	95	5	9	34
732	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	3	0	0	0
733	n.s.	0	n.s.	0	9	0	0	0	11	0	104	2	7	34	0	0	1
734	n.s.	0	n.s.	0	0	0	0	0	0	0	0	1	0	0	0	0	0
741	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
742	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
744	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
745	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
746	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
747	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
748	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
749	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
750	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
751	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biomass	844	306	n.s.	1128	1057	11300	5859	15953	23095	11192	12258	4809	5729	4608	2401	1694	2779
SD	221	180	n.s.	317	245	7745	1523	5244	5832	3315	1984	983	829	1394	301	353	427

Table 36b. Difference in percentage between the Atlantic cod biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
387	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
388	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
389	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
390	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
391	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
392	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
729	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
730	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
731	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
732	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
733	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
734	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
741	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
742	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
743	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
744	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
745	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
746	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
747	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
748	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
749	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
750	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
751	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Biomass	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SD	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 37a. Greenland halibut biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	0	62	n.s.	162	176	186	52	13	135	1	124	294	13	3	31	124	162
387	356	1570	n.s.	1195	707	1095	772	534	274	282	562	655	494	558	706	394	418
388	670	1452	n.s.	1539	1588	1018	432	614	264	355	287	446	428	641	780	526	934
389	21	261	n.s.	1476	1695	1947	877	455	516	1392	602	888	913	604	1623	985	634
390	1	0	n.s.	931	468	360	111	12	20	39	40	140	55	45	31	415	537
391	8	148	n.s.	442	395	569	119	158	61	343	79	444	276	231	307	729	641
392	156	212	n.s.	87	546	149	168	134	183	203	246	195	167	163	787	177	788
729	618	513	n.s.	399	408	296	411	343	149	210	145	221	96	84	642	316	176
730	375	118	n.s.	131	73	645	454	313	119	77	188	435	437	254	442	521	885
731	686	507	n.s.	316	601	835	425	760	79	237	336	452	126	156	983	504	454
732	885	243	n.s.	136	202	888	988	1164	437	384	397	497	520	755	1180	543	1069
733	n.s.	388	n.s.	383	512	690	763	773	217	224	565	490	275	236	546	624	473
734	n.s.	311	n.s.	61	63	105	828	441	153	206	291	323	168	206	536	380	354
741	242	107	n.s.	68	41	67	320	260	177	235	475	166	987	484	674	292	395
742	175	166	n.s.	59	27	88	233	327	66	141	44	210	273	216	263	210	230
743	n.s.	48	n.s.	22	50	33	122	227	107	43	64	98	118	133	429	106	271
744	n.s.	49	n.s.	61	175	139	196	284	153	92	232	192	270	488	630	151	249
745	337	424	n.s.	220	264	655	926	1010	840	994	571	625	944	952	1362	642	1383
746	1037	332	n.s.	198	247	2097	813	1433	497	414	581	1423	1248	1055	1697	1098	1117
747	n.s.	36	n.s.	280	355	971	734	791	562	679	1021	1193	1173	1942	2735	812	1555
748	200	102	n.s.	52	91	199	933	264	198	80	519	337	308	479	992	293	1083
749	97	75	n.s.	47	45	244	227	119	179	88	45	281	457	203	177	90	218
750	n.s.	0	n.s.	535	460	774	733	2236	1443	856	1351	2875	1728	1377	1722	1176	2128
751	n.s.	n.s.	n.s.	92	415	445	407	804	1647	900	1252	864	1986	735	660	1244	910
Biomass	5863	7121	n.s.	8892	9603	14494	12047	13466	8477	8476	10018	13743	13462	12002	19936	12351	17063
SD	438	324	n.s.	559	742	1221	961	1069	1147	900	784	1513	1105	852	1415	1031	1296

Table 37b. Difference in percentage between the Greenland halibut biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
387	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
388	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
389	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
390	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
391	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
392	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
729	100	100	n.s.	100	100	100	100	122	100	100	100	100	100	100	100	100	100
730	0	0	n.s.	0	0	106	0	0	0	0	0	67	0	0	0	0	86
731	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
732	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
733	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
734	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
741	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
742	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
743	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
744	n.s.	100	n.s.	62	100	100	100	100	100	100	100	92	100	100	100	100	100
745	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
746	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
747	n.s.	71	n.s.	94	92	97	95	95	116	95	145	95	91	88	132	101	100
748	100	70	n.s.	42	45	140	60	0	96	189	0	0	0	0	59	0	0
749	152	0	n.s.	51	100	369	118	93	174	137	299	202	235	0	145	182	100
750	n.s.	100	n.s.	78	59	109	83	87	86	90	98	80	90	82	77	104	100
751	n.s.	n.s.	n.s.	75	224	89	118	64	74	55	65	46	85	70	83	78	62
Biomass	107	102	n.s.	98	98	102	98	99	94	92	104	90	103	100	99	105	102
SD	99	104	n.s.	93	79	100	120	97	82	165	82	70	160	96	123	83	125

Table 38a. Greenland halibut total length distribution with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	0	0		0	0	0	0	0	0	0	0	0	0	7	0	0	0
7	1528	819		2231	1350	1837	2853	373	151	586	4645	3896	617	1782	3404	15831	8202
14	1076	3759		4732	1911	482	1295	469	2582	1233	3262	1471	623	899	2879	9771	3705
21	7354	2662		618	1377	3225	1387	2594	1421	3558	859	6001	3324	3854	10226	7832	11664
28	5959	7084		3245	1537	1900	2299	1670	1214	4010	1837	1376	1968	2925	9237	5253	8890
35	3645	6592		6228	5628	4680	4473	4848	2285	2597	4201	3686	2126	2509	7728	3486	7795
42	1033	1540		4300	5015	7056	4938	4867	2896	3184	4108	4870	3694	2370	5797	2291	4818
49	462	258		878	1519	3559	2873	3155	1945	1610	1984	3311	3644	2937	3221	1875	2076
56	80	96		152	221	647	777	1138	843	523	585	1089	1529	1606	2070	1547	1274
63	60	35		38	36	95	124	187	218	224	189	316	386	376	505	511	563
70	31	23		11	9	59	35	63	74	29	41	92	146	132	92	47	97
77	6	0		11	16	43	22	28	32	6	33	52	43	15	78	39	41
84	9	0		11	0	5	13	23	0	0	9	14	10	5	11	25	25
91	0	0		0	0	6	0	2	0	0	0	0	0	12	0	0	0
98	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	7
Total	21242	22869		22454	18619	23594	21091	19418	13662	17561	21754	26175	18112	19429	45249	48510	49155

Table 38b. Difference in percentage between the Greenland halibut length distribution with and without the hauls in the closed areas in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	100	100		100	100	100	100	100	100	100	100	100	100	0	100	100	100
7	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
14	100	100		100	100	100	100	98	100	100	100	100	100	100	100	100	100
21	102	101		100	100	100	99	94	100	100	102	100	100	100	100	101	100
28	106	101		100	99	100	97	99	100	100	105	100	101	102	100	104	99
35	107	101		100	99	99	99	102	100	101	108	95	110	109	97	113	108
42	104	100		99	100	100	96	98	93	93	107	92	108	113	97	112	110
49	102	108		92	92	102	95	101	92	82	99	85	102	102	98	99	90
56	145	147		83	101	100	94	99	87	88	96	81	101	93	102	105	99
63	115	100		81	78	89	109	93	102	89	98	93	104	88	109	104	101
70	133	100		158	100	142	157	101	104	95	107	80	102	99	111	104	100
77	0	100		68	272	130	145	129	102	88	86	102	99	135	86	85	100
84	100	100		89	100	0	0	56	100	100	316	165	329	100	100	121	138
91	100	100		100	100	0	100	100	100	100	100	100	100	77	100	100	100
98	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	104	101		99	99	100	98	99	96	96	103	95	103	102	99	102	101

Table 39a. American plaice biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	42	197	n.s.	501	335	668	5886	685	2091	2029	2115	3139	5449	3162	1464	1671	1073
387	86	427	n.s.	151	182	139	161	54	82	55	207	413	502	182	188	172	152
388	235	457	n.s.	245	266	93	118	44	94	61	142	496	161	211	598	362	593
389	290	405	n.s.	923	1153	593	1094	991	420	1312	1387	2435	5632	2915	3981	1680	1794
390	134	1969	n.s.	5462	5016	8212	8158	2581	3930	7008	7065	6085	4730	4263	3030	3367	2605
391	156	386	n.s.	265	1044	512	237	241	538	774	734	3866	2184	2414	1847	3476	1639
392	105	4	n.s.	0	14	0	13	7	7	0	10	0	5	13	29	6	202
729	978	3	n.s.	0	0	0	0	0	2	0	4	0	0	0	0	0	0
730	907	0	n.s.	0	0	0	3	0	0	0	0	0	0	0	0	0	0
731	484	27	n.s.	0	5	6	2	0	0	1	2	2	12	68	10	5	32
732	836	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	2	0	0
733	n.s.	27	n.s.	0	7	9	0	1	1	1	5	2	20	0	13	0	21
734	n.s.	0	n.s.	0	0	1	0	8	0	0	0	0	0	0	0	0	0
741	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
742	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
744	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
745	19	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
746	0	0	n.s.	0	0	0	2	0	0	0	0	0	0	0	0	0	0
747	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
748	15	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
749	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
750	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
751	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biomass	4284	3901	n.s.	7547	8021	10234	15676	4611	7165	11241	11671	16438	18695	13228	11162	10738	8111
SD	347	626	n.s.	1149	1168	2805	3407	925	1580	2006	3513	3228	3750	2100	1744	1890	1314

Table 39b. Difference in percentage between the American plaice biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
387	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
388	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
389	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
390	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
391	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
392	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
729	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
730	0	100	n.s.	100	100	100	0	100	100	100	100	100	100	100	100	100	100
731	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
732	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
733	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
734	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
741	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
742	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
743	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
744	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
745	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
746	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
747	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
748	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
749	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
750	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
751	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Biomass	127	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
SD	134	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 40a. Redfish biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	0	0	n.s.	0	0	5	3	0	2	0	1	0	4	0	18	2	0
387	38	1341	n.s.	2587	1830	4358	13267	6236	10738	10381	20568	15380	16429	13187	16088	5268	6053
388	207	401	n.s.	2137	5143	6977	54234	28881	12715	114297	81864	62966	27256	32266	9312	7419	13573
389	36	1495	n.s.	2062	485	17602	14271	154597	14210	239382	68551	29466	30454	1013	2043	5722	11409
390	42	0	n.s.	14	13	65	6	0	22	22	18	7	41	1	0	6	3
391	2	37	n.s.	179	151	27175	6005	58105	6659	32478	239	968	7285	2413	581	7252	260
392	578	16584	n.s.	55365	12369	2741	10111	6188	94952	53345	17226	34703	17682	12859	14247	4473	2770
729	1573	5216	n.s.	3342	2131	10225	897	4708	23239	24663	31613	17547	3683	4502	3465	635	10953
730	3551	854	n.s.	2281	5557	471	2533	2253	1513	3235	2190	1372	3548	7179	2320	1074	379
731	743	1478	n.s.	362	712	2611	703	1709	878	703	1609	2084	9323	14078	381	4764	2795
732	1483	925	n.s.	117	249	248	171	342	254	147	114	812	231	561	343	54	82
733	n.s.	2375	n.s.	1498	2406	2878	1242	3627	5263	2678	8699	50484	13365	9624	7017	3564	5588
734	n.s.	81	n.s.	168	336	311	228	81	107	119	2332	575	1027	1069	317	85	142
741	19911	2	n.s.	0	0	5	8	0	5	6	18	3	12	19	241	0	0
742	0	2	n.s.	0	2	0	0	0	1	0	0	0	2	0	7	10	0
743	n.s.	11	n.s.	0	0	0	28	0	0	0	0	0	0	0	0	0	0
744	n.s.	0	n.s.	0	3	0	0	1	5	0	0	0	0	0	0	0	0
745	53633	0	n.s.	4	12	11	0	13	23	11	15	36	8	12	8	4	12
746	0	0	n.s.	4	0	0	2	2	0	0	0	3	10	6	7	3	0
747	n.s.	14	n.s.	0	0	1	0	0	25	0	0	0	1	0	0	0	0
748	39	7	n.s.	2	12	63	22	0	9	0	100	0	42	15	150	8	0
749	0	0	n.s.	0	0	0	0	0	0	0	0	2	0	4	10	0	0
750	n.s.	0	n.s.	0	0	0	11	9	12	2	0	0	7	0	4	7	0
751	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	6	0	0	0	0
Biomass	81837	30825	n.s.	70121	31410	75747	103741	266754	170632	481469	235158	216408	130418	98807	56557	40350	54019
SD	50714	17139	n.s.	50718	6081	20423	40568	164583	72434	228101	64942	57447	31381	21419	9730	10496	12677

Table 40b. Difference in percentage between the redfish biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
387	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
388	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
389	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
390	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
391	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
392	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
729	100	100	n.s.	100	100	100	100	312	100	100	100	100	100	100	100	100	100
730	0	0	n.s.	0	0	67	0	0	0	0	0	170	0	0	0	0	137
731	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
732	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
733	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
734	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
741	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
742	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
743	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
744	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
745	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
746	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
747	n.s.	71	n.s.	100	100	0	100	100	87	100	100	100	77	100	100	100	100
748	100	55	n.s.	33	41	0	49	100	85	100	0	100	0	0	67	0	100
749	100	100	n.s.	100	100	100	100	100	100	100	100	155	100	0	87	100	100
750	n.s.	100	n.s.	100	100	100	0	63	83	88	100	100	75	100	0	135	100
751	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	0	100	100	100	100
Biomass	105	103	n.s.	103	121	100	102	102	101	101	101	100	103	108	104	103	100
SD	100	100	n.s.	100	150	100	100	100	100	100	100	100	100	100	102	100	100

Table 41a. Redfish total length distribution with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
4	2769	3536		1548	9596	4954	781	1602	2999	6477	2928	2862	37051	2069	570	4646	1002
8	1630	26555		10952	18351	45141	7803	4972	6576	20506	11626	9530	21439	63065	26844	15696	18828
12	13489	30294		13515	7790	21152	11113	9320	6052	14579	13580	7869	15381	3849	44834	40948	22504
16	13457	18939		35551	18883	90008	183260	341928	58254	129475	28242	25600	17397	5138	4692	26594	90911
20	7867	41107		55773	58235	181706	239427	979040	271815	1502832	466495	253925	149339	50210	20414	14325	24550
24	104598	48708		78756	38425	93815	146440	187468	227748	714936	401421	384984	215538	125817	69222	33849	37382
28	72071	20760		65350	11497	37481	21681	56861	120255	119943	100068	137534	76173	67075	43523	31856	38625
32	43324	2064		16700	9929	7387	6075	11778	26585	23941	22708	32498	26818	32401	24338	14798	17481
36	339	432		1753	729	904	1232	3063	3879	3732	4474	6754	6647	17241	8389	5455	7824
40	12	0		23	51	152	394	1469	42	296	655	344	72	1868	728	954	695
44	0	0		14	6	83	167	80	27	89	1084	45	27	552	47	6	730
48	0	0		7	7	0	162	0	0	62	17	7	7	210	60	0	417
52	0	0		0	6	0	0	17	19	60	12	5	16	0	60	5	0
56	0	0		0	0	0	0	0	0	10	0	6	7	0	33	0	0
60	0	0		0	0	0	0	0	0	10	0	0	13	0	6	11	6
64	0	0		0	0	0	0	0	0	0	0	0	0	0	0	5	0
Total	259555	192395		279942	173505	482784	618536	1597597	724253	2536948	1053311	861961	565926	369494	243760	189148	260955



Table 41b. Difference in percentage between the redfish length distribution with and without the hauls in the closed areas in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
4	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
8	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
12	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	102	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	121	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
24	106	101		100	102	100	100	103	100	100	100	100	100	100	100	100	100
28	104	105		103	159	100	105	112	100	101	103	100	102	106	102	101	100
32	104	129		120	299	97	198	126	105	117	111	103	116	121	114	106	100
36	321	137		110	212	96	211	155	125	151	107	101	122	127	113	116	101
40	100	100		147	84	100	107	100	156	107	100	97	111	110	99	105	99
44	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
48	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
52	100	100		100	100	100	100	100	100	100	100	34	100	100	100	100	100
56	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
60	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
64	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	105	101		102	107	100	101	101	100	100	101	100	101	104	102	101	100



Table 42a. Roughhead grenadier biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	0	0	n.s.	0	0	0	0	0	10	0	0	0	0	0	0	0	0
387	0	1437	n.s.	792	1047	478	701	322	257	364	1093	761	1257	1960	1225	434	548
388	0	1472	n.s.	870	1195	481	889	538	159	439	368	585	1096	1120	848	685	503
389	0	85	n.s.	64	139	868	1381	369	213	531	346	202	643	263	63	216	283
390	41	0	n.s.	0	0	41	331	77	208	0	30	15	12	0	2	0	26
391	0	0	n.s.	4465	2169	6189	1797	4214	3777	534	174	453	2875	275	464	645	596
392	49	2722	n.s.	1496	1675	763	772	452	1058	945	5964	2131	1179	936	879	208	360
729	669	496	n.s.	416	438	330	181	179	56	392	213	341	344	234	471	258	174
730	1553	518	n.s.	833	1230	555	1140	403	1016	412	251	358	638	895	597	1031	184
731	66	194	n.s.	200	275	281	95	202	39	100	114	209	243	519	263	316	226
732	706	869	n.s.	460	229	446	170	330	49	62	193	410	372	413	208	141	245
733	n.s.	331	n.s.	484	397	520	397	183	137	192	528	991	474	617	547	248	239
734	n.s.	995	n.s.	535	318	423	405	892	114	276	715	719	779	562	261	89	207
741	77	10	n.s.	252	41	99	102	128	71	53	236	85	222	78	180	43	13
742	134	25	n.s.	117	82	103	21	22	83	43	28	228	47	65	89	52	38
743	n.s.	143	n.s.	48	134	128	67	140	85	27	111	65	56	106	110	27	51
744	n.s.	17	n.s.	89	206	350	52	77	37	52	162	53	23	142	39	26	18
745	537	190	n.s.	251	112	448	118	246	87	59	221	435	439	454	459	281	287
746	2242	913	n.s.	1455	1226	1133	827	451	311	503	676	635	575	510	463	467	588
747	n.s.	3082	n.s.	2739	4023	1945	2150	2367	1445	1256	1444	1315	2249	1002	1522	1007	1175
748	818	360	n.s.	1020	474	3178	1284	712	373	1503	714	1002	1449	356	1162	1138	197
749	1654	523	n.s.	286	321	559	153	226	316	112	190	178	631	308	210	270	276
750	n.s.	3506	n.s.	845	959	629	831	631	464	946	347	530	1112	422	852	549	592
751	n.s.	n.s.	n.s.	86	498	201	1795	451	306	734	190	198	1132	208	98	381	268
Biomass	8546	17887	n.s.	17800	17190	20148	15659	13612	10672	9535	14308	11898	17846	11446	11010	8512	7093
SD	1340	3239	n.s.	4274	2784	3532	2752	926	1466	1663	897	1356	1857	1400	1400	787	607

Table 42b. Difference in percentage between the roughhead grenadier biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
387	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
388	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
389	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
390	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
391	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
392	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
729	100	100	n.s.	100	100	100	100	127	100	100	100	100	100	100	100	100	100
730	0	0	n.s.	0	0	177	0	0	0	0	0	223	0	0	0	0	139
731	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
732	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
733	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
734	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
741	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
742	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
743	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
744	n.s.	100	n.s.	60	100	100	100	100	100	100	100	81	100	100	100	100	100
745	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
746	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
747	n.s.	101	n.s.	91	92	116	122	98	125	101	90	95	82	95	102	97	100
748	100	262	n.s.	299	229	1410	4147	0	994	950	0	0	0	0	761	0	0
749	115	51	n.s.	54	100	87	67	52	468	62	98	84	204	0	132	137	100
750	n.s.	69	n.s.	119	79	131	198	142	91	92	154	82	100	130	317	118	100
751	n.s.	n.s.	n.s.	139	130	167	1848	140	117	60	80	92	409	220	81	99	217
Biomass	126	93	n.s.	107	106	122	144	110	122	113	107	109	118	118	126	137	106
SD	106	114	n.s.	100	95	171	177	122	114	194	121	102	111	107	149	165	103

Table 43a. Roughhead grenadier total length distribution with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	114	32		33	36	23	8	58	5	27	45	42	79	41	29	34	15
3	1240	819		687	967	1229	1021	543	980	845	3938	1149	2802	1506	950	570	447
6	2210	2221		1743	1775	1440	966	1264	839	1795	3921	1888	5373	5659	2717	1569	2016
9	2062	3318		3196	2587	2736	1727	1995	1229	1708	5147	1651	4573	4684	3471	2452	3383
12	3506	4982		5764	4639	4734	4236	5050	2416	2505	7512	3116	4612	5047	4913	3377	4109
15	7051	11825		6795	5305	8504	6324	8005	5728	4517	7880	4707	7952	5735	4825	4216	4612
18	2963	9746		8044	5406	5803	4562	5245	4297	3672	5731	4203	7286	3925	3822	2974	2448
21	1168	2206		4125	4086	3700	2616	1953	1506	1801	2582	2788	3728	2044	2226	1583	951
24	648	971		1544	2385	3513	2073	1249	1017	979	1152	1462	1860	1247	1322	966	469
27	414	521		542	1016	1562	1315	678	710	531	523	595	826	425	574	450	225
30	201	381		235	409	391	466	204	131	178	215	217	354	115	127	171	94
33	67	85		58	90	30	126	86	52	45	41	39	151	25	92	59	44
36	14	64		40	40	11	46	61	30	30	8	28	34	17	13	30	38
39	0	0		6	18	18	6	13	8	0	6	6	0	0	0	12	0
42	0	0		0	0	0	0	6	0	0	0	0	0	6	0	0	0
Total	21659	37172		32813	28759	33696	25492	26410	18949	18634	38701	21892	39630	30475	25081	18465	18852

Table 43b. Difference in percentage between the roughhead grenadier length distribution with and without the hauls in the closed areas in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
0	100	100		76	119	87	100	102	100	55	100	100	109	96	100	96	100
3	108	107		95	104	121	107	98	114	123	109	119	106	112	126	118	109
6	116	114		109	103	117	106	108	121	114	102	118	115	110	124	180	107
9	134	115		100	112	114	116	102	113	106	101	103	111	105	118	138	105
12	159	109		104	117	111	116	114	121	109	103	105	122	111	112	124	105
15	148	106		106	111	108	115	109	113	108	106	110	113	110	114	124	105
18	131	92		104	111	109	129	102	109	110	103	109	109	115	123	125	108
21	112	85		108	112	110	142	106	123	135	107	109	122	121	137	160	106
24	109	79		109	102	135	151	131	144	138	117	111	130	135	145	206	108
27	103	88		104	108	179	184	119	170	86	128	122	117	120	126	160	113
30	101	90		120	86	165	261	119	147	89	100	94	112	141	137	102	108
33	92	62		89	89	94	231	91	159	91	112	126	117	121	138	99	100
36	72	71		127	78	99	167	91	121	168	62	78	102	147	90	76	100
39	100	100		82	126	0	90	74	87	100	70	90	100	100	100	100	100
42	100	100		100	100	100	100	90	100	100	100	100	100	100	100	100	100
Total	133	100		105	110	115	126	108	117	112	105	110	114	112	121	135	106

Table 44a. Witch flounder biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	0	0	n.s.	2	0	0	0	0	0	0	6	3	0	5	0	5	0
387	6	63	n.s.	78	30	72	4	34	106	26	82	48	204	58	27	70	45
388	5	147	n.s.	29	47	58	43	62	48	55	67	68	32	88	27	17	33
389	1	4	n.s.	13	0	8	0	4	6	1	10	16	6	3	0	7	27
390	0	0	n.s.	6	0	7	0	0	0	0	15	5	5	0	2	13	0
391	0	0	n.s.	10	3	25	3	11	0	4	0	0	7	0	0	19	0
392	0	0	n.s.	2	15	22	16	1	4	16	9	10	9	19	4	24	13
729	14	39	n.s.	24	80	46	54	122	202	174	105	68	142	152	45	84	38
730	63	29	n.s.	7	0	12	0	8	0	9	9	40	6	4	4	22	10
731	34	70	n.s.	64	74	68	114	156	58	34	81	77	106	75	89	43	56
732	147	47	n.s.	28	7	43	64	114	52	69	73	89	82	116	84	24	12
733	n.s.	53	n.s.	138	43	120	150	176	41	45	89	24	78	83	119	40	18
734	n.s.	0	n.s.	3	1	3	0	1	3	0	0	8	4	0	0	4	1
741	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
742	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
743	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
744	n.s.	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
745	12	0	n.s.	0	0	0	0	0	0	0	2	5	2	0	7	1	1
746	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
747	n.s.	0	n.s.	0	0	0	0	0	0	0	0	6	2	0	0	0	0
748	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	5	0	7
749	0	0	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
750	n.s.	0	n.s.	0	0	0	0	1	3	3	1	1	0	0	0	0	0
751	n.s.	n.s.	n.s.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biomass	281	453	n.s.	405	298	483	448	691	523	436	550	467	685	603	412	372	262
SD	37	71	n.s.	115	70	79	67	129	86	100	74	65	102	77	82	60	40

Table 44b. Difference in percentage between the witch flounder biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
387	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
388	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
389	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
390	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
391	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
392	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
729	100	100	n.s.	100	100	100	100	74	100	100	100	100	100	100	100	100	100
730	0	0	n.s.	0	100	66	100	0	100	0	0	153	0	0	0	0	33
731	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
732	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
733	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
734	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
741	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
742	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
743	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
744	n.s.	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
745	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
746	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
747	n.s.	71	n.s.	100	100	100	100	100	100	100	100	0	77	100	100	100	100
748	100	55	n.s.	33	100	100	100	100	100	50	100	100	0	100	50	100	0
749	100	100	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
750	n.s.	100	n.s.	100	100	100	100	138	83	88	63	63	100	100	100	100	100
751	n.s.	n.s.	n.s.	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Biomass	129	107	n.s.	102	100	99	100	95	100	102	102	104	101	101	100	106	95
SD	157	106	n.s.	100	100	99	100	86	100	100	100	111	100	99	100	103	104

Table 45a. Witch flounder total length distribution with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
4	11	34		0	0	13	38	13	0	19	0	0	27	50	12	6	13
8	32	271		90	68	207	44	144	64	49	19	12	80	25	25	19	229
12	571	59		37	70	141	60	91	49	84	91	34	23	134	72	32	56
16	53	409		361	62	358	99	83	97	98	102	45	22	33	62	54	112
20	154	567		321	315	222	170	158	147	69	254	77	164	50	120	106	119
24	62	302		374	352	260	221	348	150	126	261	153	101	108	44	50	196
28	192	332		281	507	506	302	660	371	177	274	280	335	197	92	92	243
32	83	241		403	92	259	374	370	327	143	196	173	512	255	198	73	109
36	116	77		125	103	223	226	350	210	253	191	141	284	390	134	128	70
40	86	168		107	50	159	171	322	222	240	254	163	223	249	191	154	93
44	10	69		46	60	104	87	104	146	111	156	178	175	173	102	94	35
48	29	29		17	6	16	27	43	22	21	68	74	71	77	87	84	53
52	41	53		0	6	7	0	5	23	6	17	6	23	0	17	23	6
56	0	0		11	0	0	0	0	0	6	6	0	0	0	0	0	0
60	21	0		6	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1461	2610		2181	1692	2476	1819	2691	1828	1401	1888	1336	2041	1740	1155	915	1334

Table 45b. Difference in percentage between the witch flounder length distribution with and without the hauls in the closed areas in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when the base case is higher than the new case. In orange, the cases with a difference of more than 10% when the base case is lower than the new case.

Length	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
4	100	100		100	100	100	100	100	100	100	100	100	122	117	100	100	100
8	100	97		90	100	100	100	100	100	87	100	100	109	100	100	100	100
12	100	100		79	100	100	100	100	100	100	100	100	128	106	100	100	100
16	100	98		100	100	100	100	108	98	100	100	128	100	100	100	100	100
20	105	100		97	100	100	100	92	99	100	106	94	103	100	100	100	100
24	133	100		100	100	100	100	99	99	100	102	103	100	100	113	100	100
28	279	102		100	100	99	100	98	100	100	101	102	100	100	100	106	100
32	138	100		100	100	99	100	95	100	104	100	104	100	100	100	100	100
36	166	111		100	100	100	100	95	100	100	103	104	101	100	100	100	87
40	122	105		100	100	100	100	93	100	102	104	100	100	103	100	103	90
44	100	113		113	100	97	100	95	100	100	100	117	103	100	98	106	100
48	100	136		143	100	86	100	99	100	131	100	94	100	100	100	114	95
52	100	117		100	100	100	100	100	100	100	100	100	100	100	100	129	100
56	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
60	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total	119	101		99	100	100	100	97	100	100	102	104	101	101	100	103	98

Table 46a. Thorny skate biomass by strata, as total biomass and SD by year, with all the hauls in the EU-Spain 3L survey during years 2003-2019.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	0	73		62	317	388	240	44	422	406	191	93	188	77	32	48	239
387	119	256		374	739	619	481	500	119	172	532	1394	1452	714	445	263	361
388	426	568		1423	987	1187	1077	1094	297	1338	1024	2165	3048	2481	1525	638	580
389	268	493		1478	1170	1510	575	1218	538	641	961	1434	1014	1096	652	445	883
390	14	142		397	534	354	1001	926	1473	1344	1050	1106	547	1045	1092	664	853
391	43	1666		3787	2523	4743	786	598	807	958	936	875	1274	751	472	699	630
392	125	845		1895	4255	2087	524	473	514	2307	723	694	1939	1310	613	1146	755
729	973	2360		814	2724	567	657	107	81	584	471	711	362	769	257	266	169
730	1097	0		68	0	0	0	0	22	55	174	329	96	168	0	22	0
731	731	344		888	1103	179	434	213	87	62	281	400	406	379	112	0	0
732	1565	0		42	0	15	146	0	0	0	17	40	66	180	0	0	0
733	0	199		301	134	319	90	116	60	124	393	658	140	409	91	43	37
734	0	0		0	0	0	0	0	0	0	0	0	0	28	24	0	0
741	0	0		0	0	0	0	0	0	0	0	0	0	0	17	0	0
742	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
743	0	0		0	0	0	7	0	0	0	0	0	0	0	0	0	0
744	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
745	675	0		0	0	0	0	20	0	0	0	0	0	46	0	20	0
746	81	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
747	0	0		0	0	0	0	0	27	0	0	36	44	0	0	0	0
748	954	0		12	0	0	0	0	0	0	0	21	0	24	13	0	0
749	92	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
750	0	85		20	0	0	0	0	0	0	24	0	0	0	0	0	0
751	0	0		0	0	0	0	0	0	0	3	0	0	0	0	0	0
Biomass	7164	7031		11562	14486	11968	6016	5310	4448	7991	6783	9956	10577	9478	5345	4253	4506
SD	924	2642		1853	2992	1121	781	738	558	1992	767	1257	1978	1746	703	877	714

Table 46b. Difference in percentage between the thorny skate biomass by strata with and without the hauls in the closed areas, as total biomass and SD by year, in the EU-Spain 3L survey during years 2003-2019. In red, the cases with a difference of more than 10% when biomass in the base case is higher than the one in the new case. In orange, the cases with a difference of more than 10% when biomass in the base case is lower than the one in the new case.

Stratum	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
385	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
387	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
388	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
389	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
390	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
391	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
392	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
729	100	100		100	100	100	100	162	100	100	100	100	100	100	100	100	100
730	0	100		0	100	100	100	0	0	0	0	83	0	0	100	0	100
731	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
732	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
733	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
734	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
741	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
742	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
743	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
744	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
745	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
746	100	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
747	100	100		100	100	100	100	100	87	100	100	243	77	100	100	100	100
748	100	100		0	100	100	100	100	100	100	100	0	100	0	50	100	100
749	217	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100
750	100	50		67	100	100	100	100	100	100	63	100	100	100	100	100	100
751	100	100		100	100	100	100	100	100	100	0	100	100	100	100	100	100
Biomass	119	99		101	100	100	100	101	100	101	102	100	101	102	100	101	100
SD	134	100		100	100	100	100	100	100	100	100	100	100	100	100	100	100

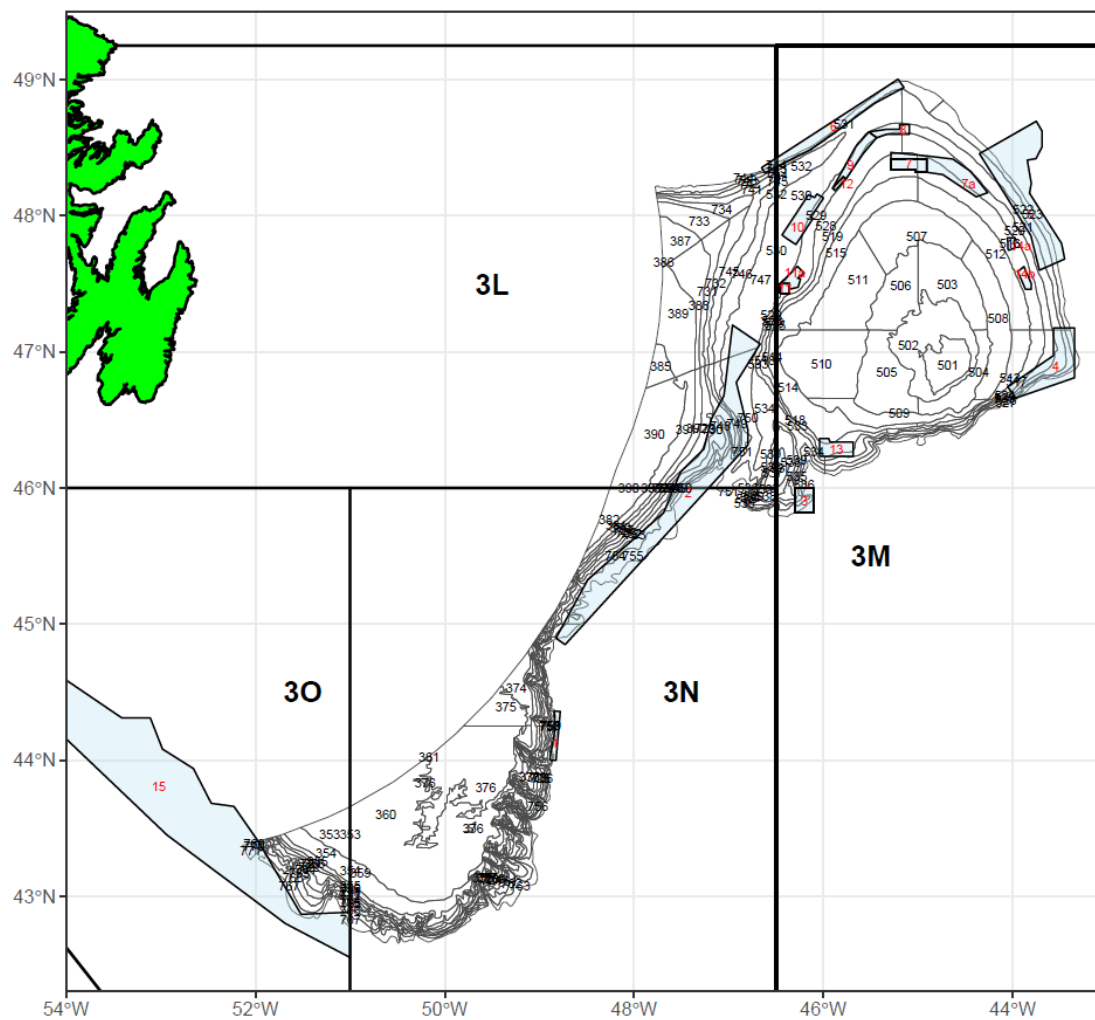


Figure 1. Stratification of the NRA Div. 3LMNO used during the EU surveys, including the closed areas.

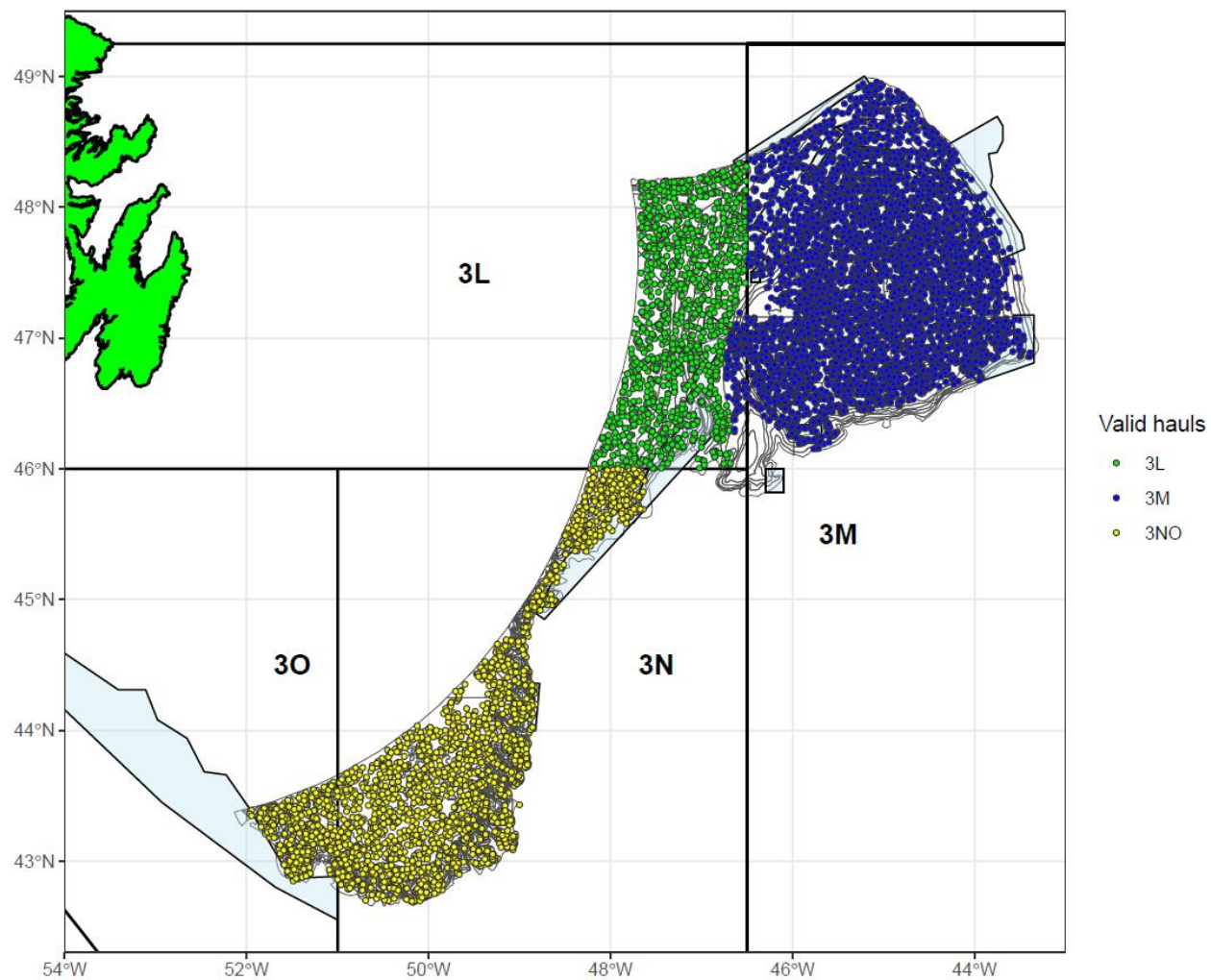


Figure 2. Initial position of the valid hauls during the used time series of the EU surveys.

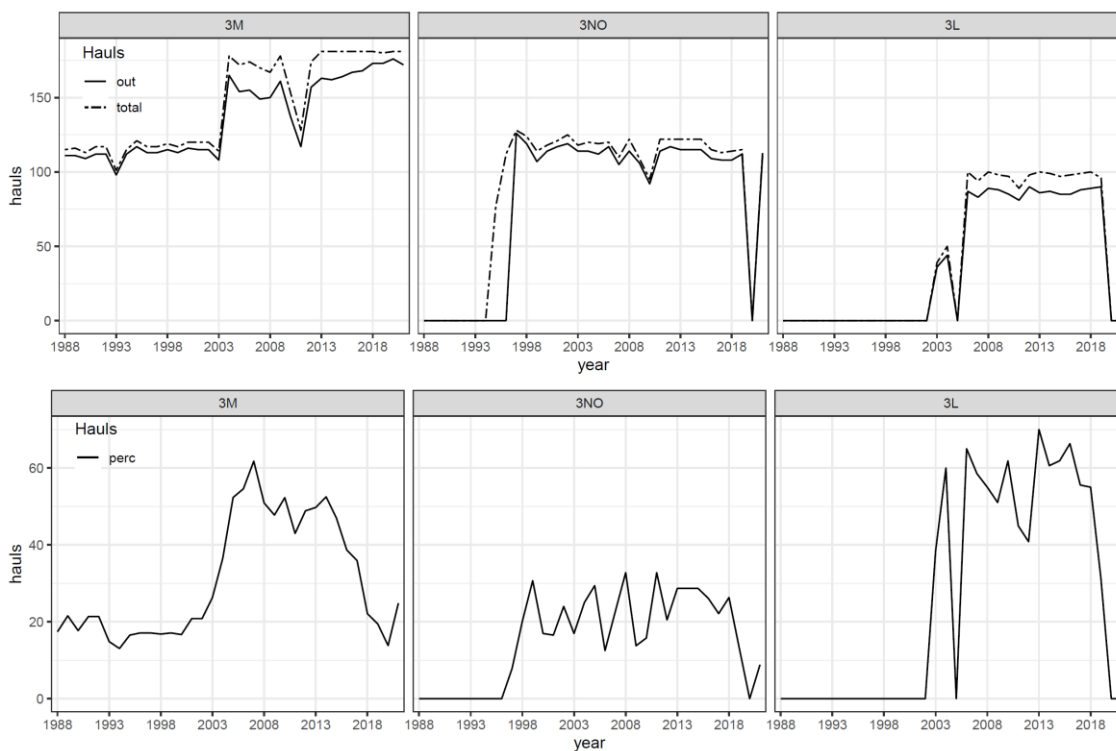


Figure 3. Number of total valid hauls by year with and without the hauls inside the closed areas (top panel) and percentage of hauls inside closed areas (bottom panel).

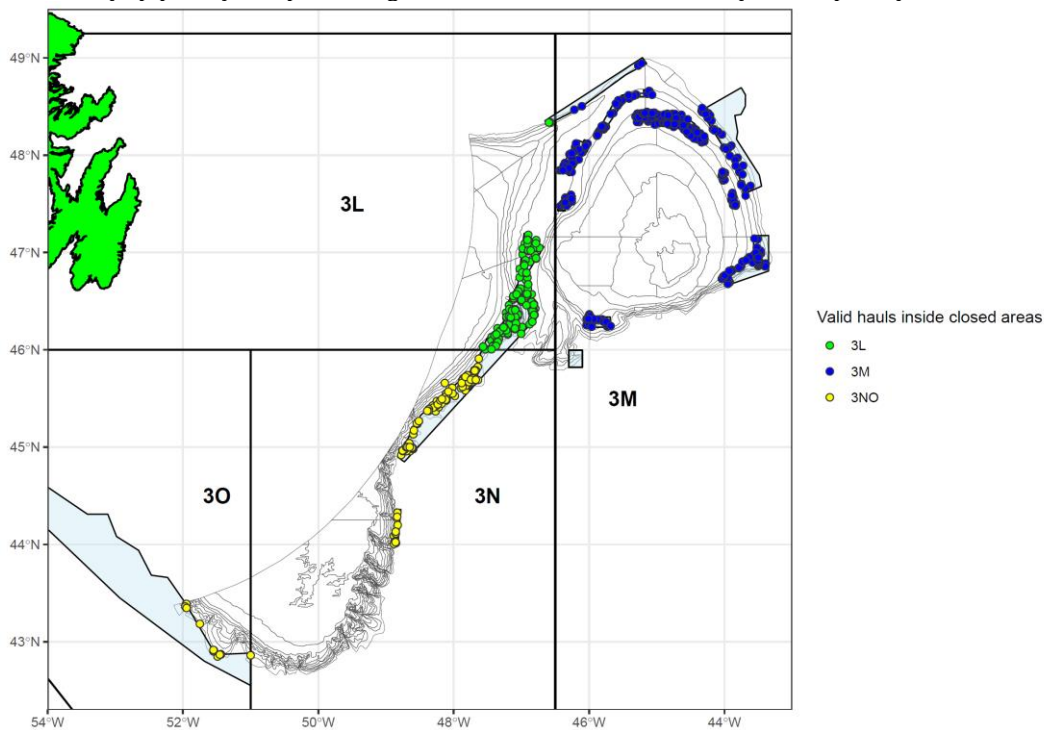


Figure 4. Position of the valid hauls inside the closed areas during the EU surveys.

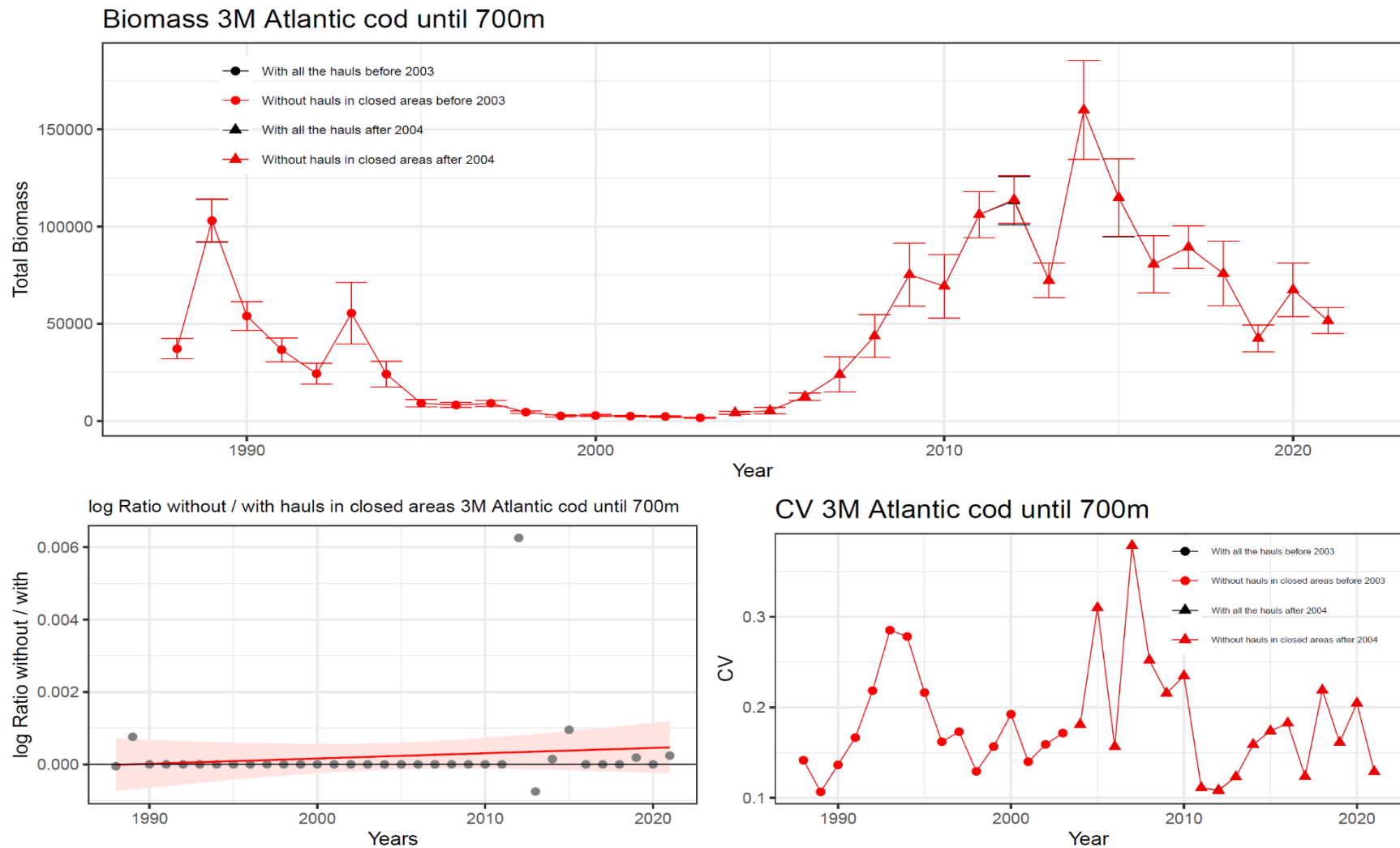


Figure 5. Biomass and SD by year (1988-2021) of the cod in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

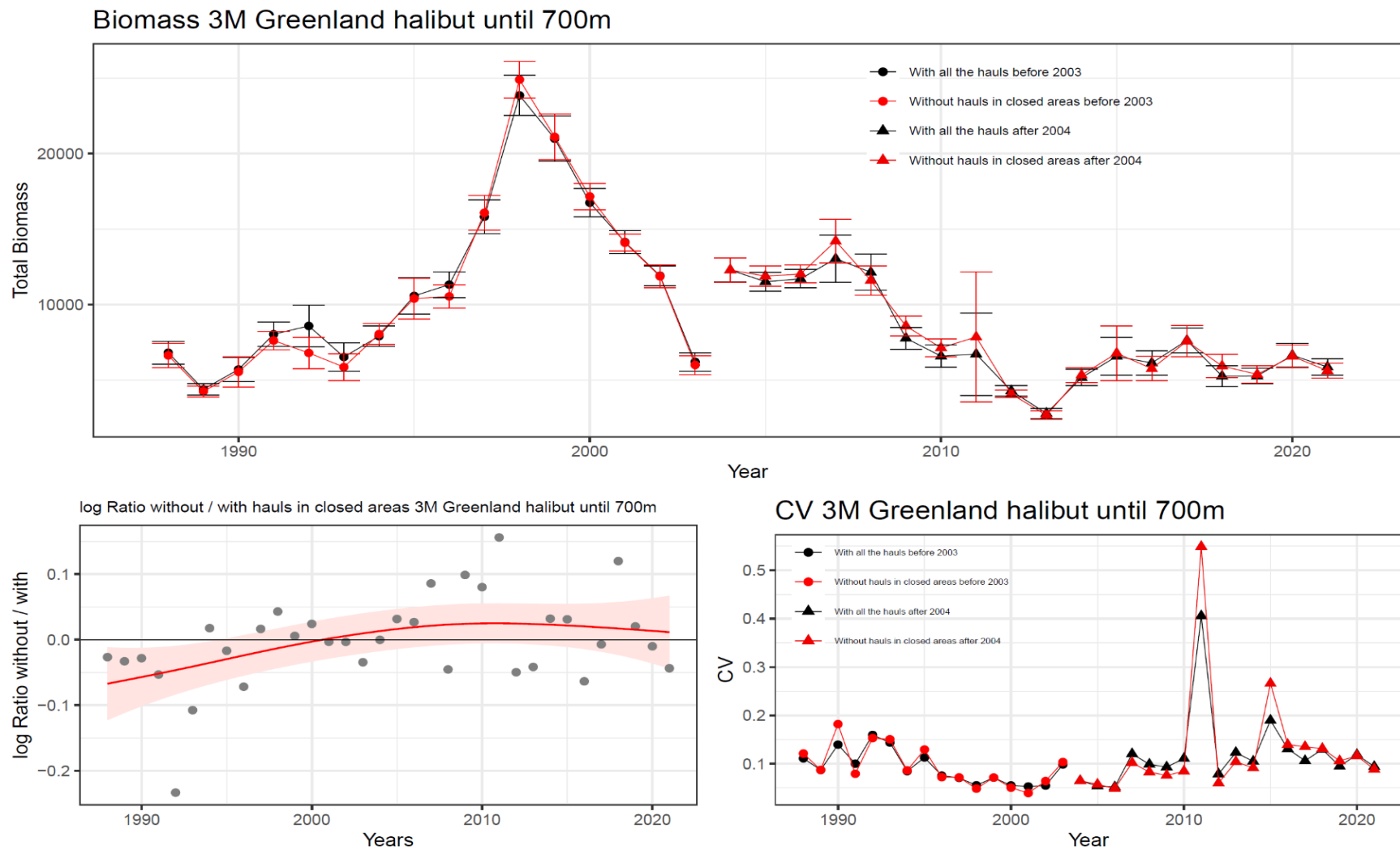


Figure 6a. Biomass and SD by year (1988-2021) of the Greenland halibut in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

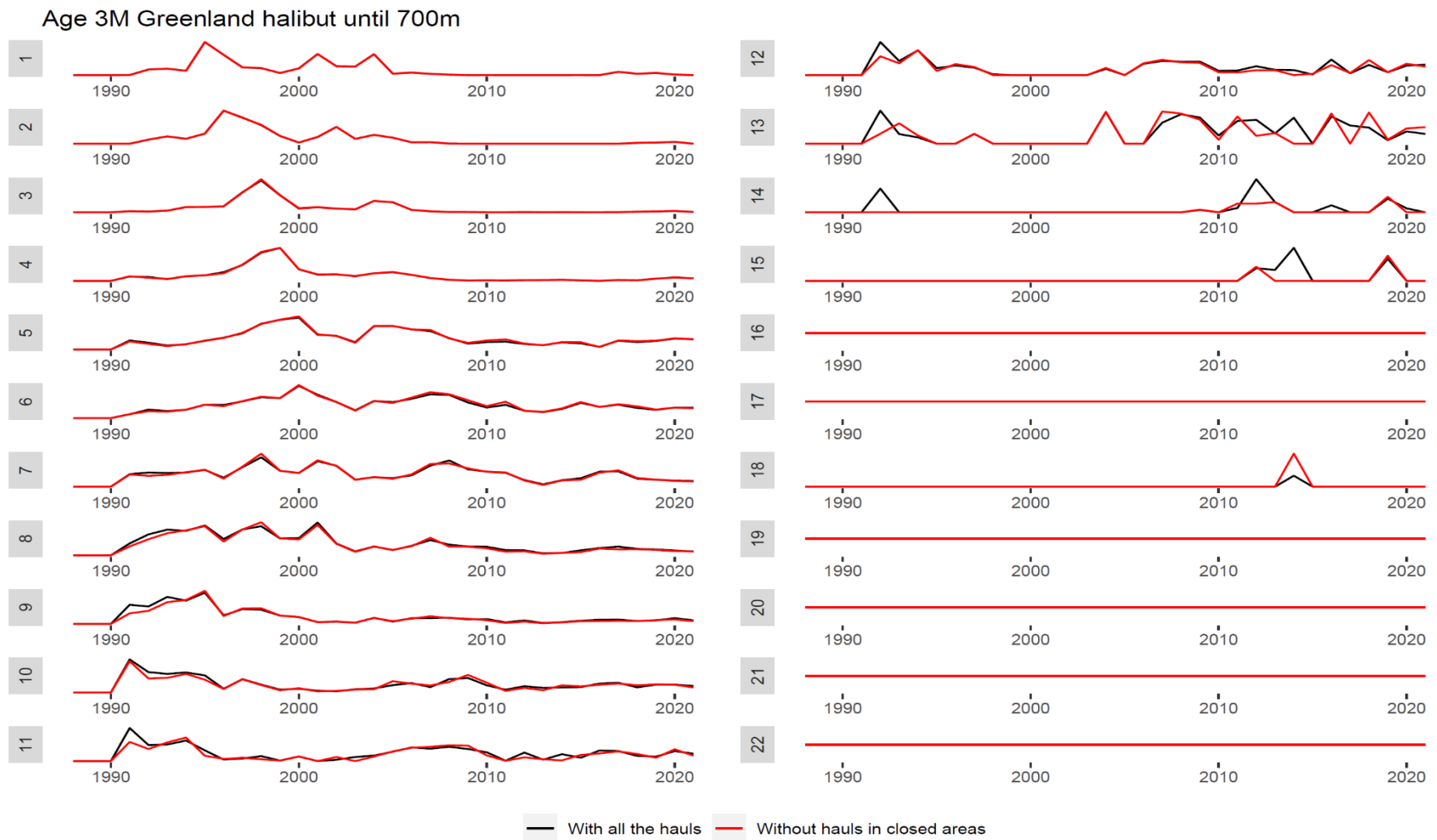


Figure 6b. Age distribution by year (1991-2021) of the Greenland halibut in 3M until 700 meters with and without the closed areas.

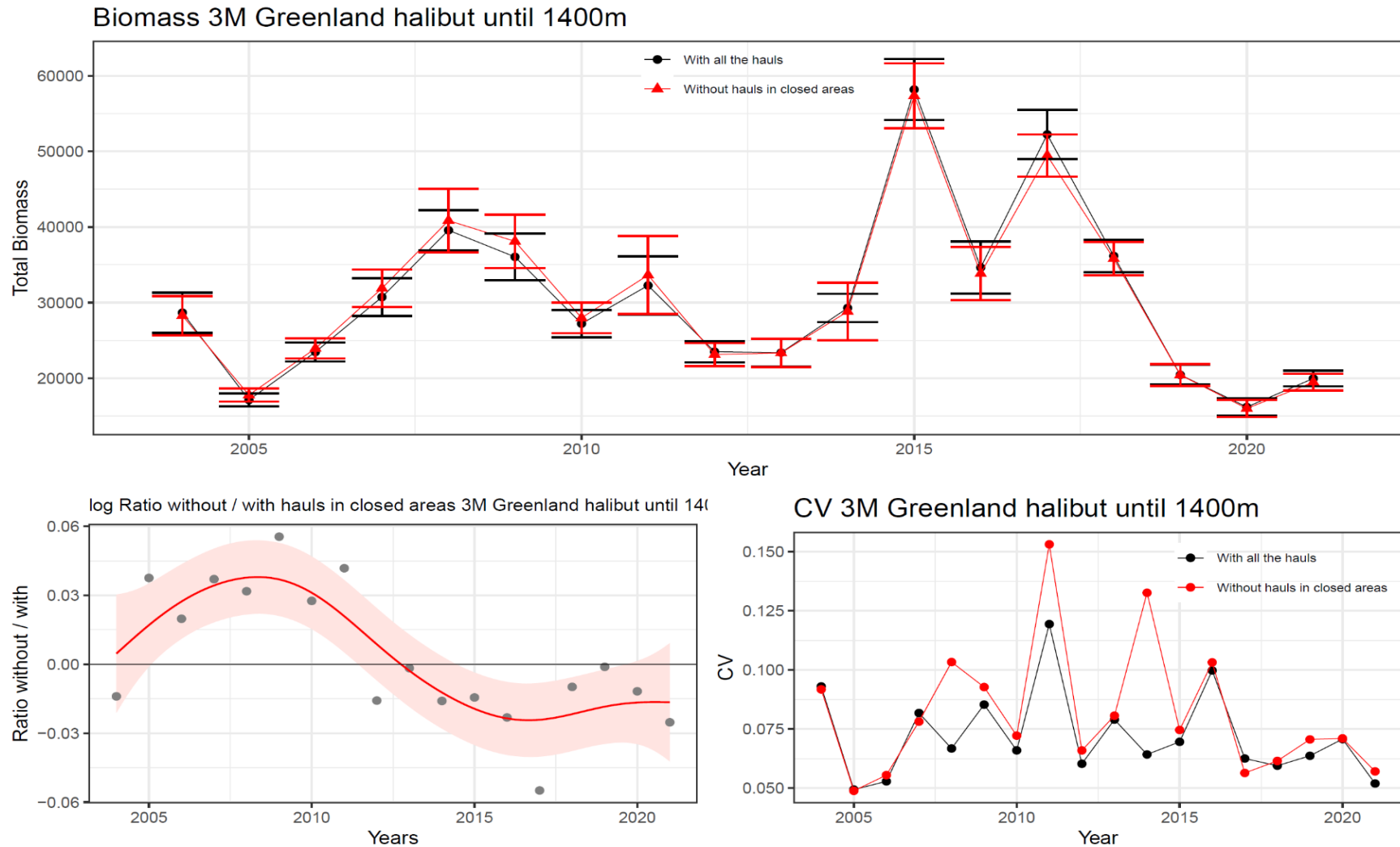


Figure 7a. Biomass and SD by year (2004-2021) of the Greenland halibut in 3M until 1400 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

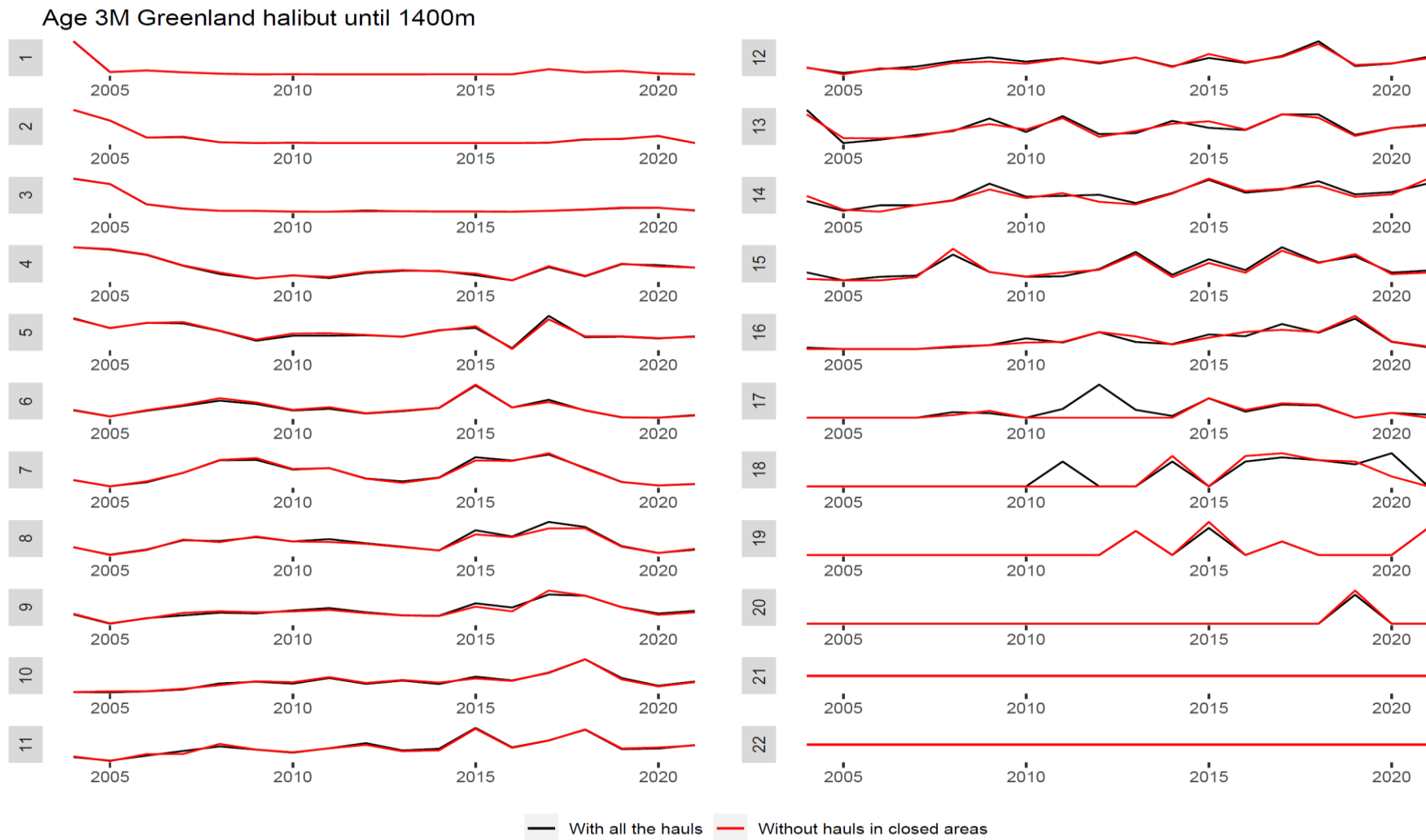


Figure 7b. Age distribution by year (2004-2021) of the Greenland halibut in 3M until 1400 meters with and without the closed areas.

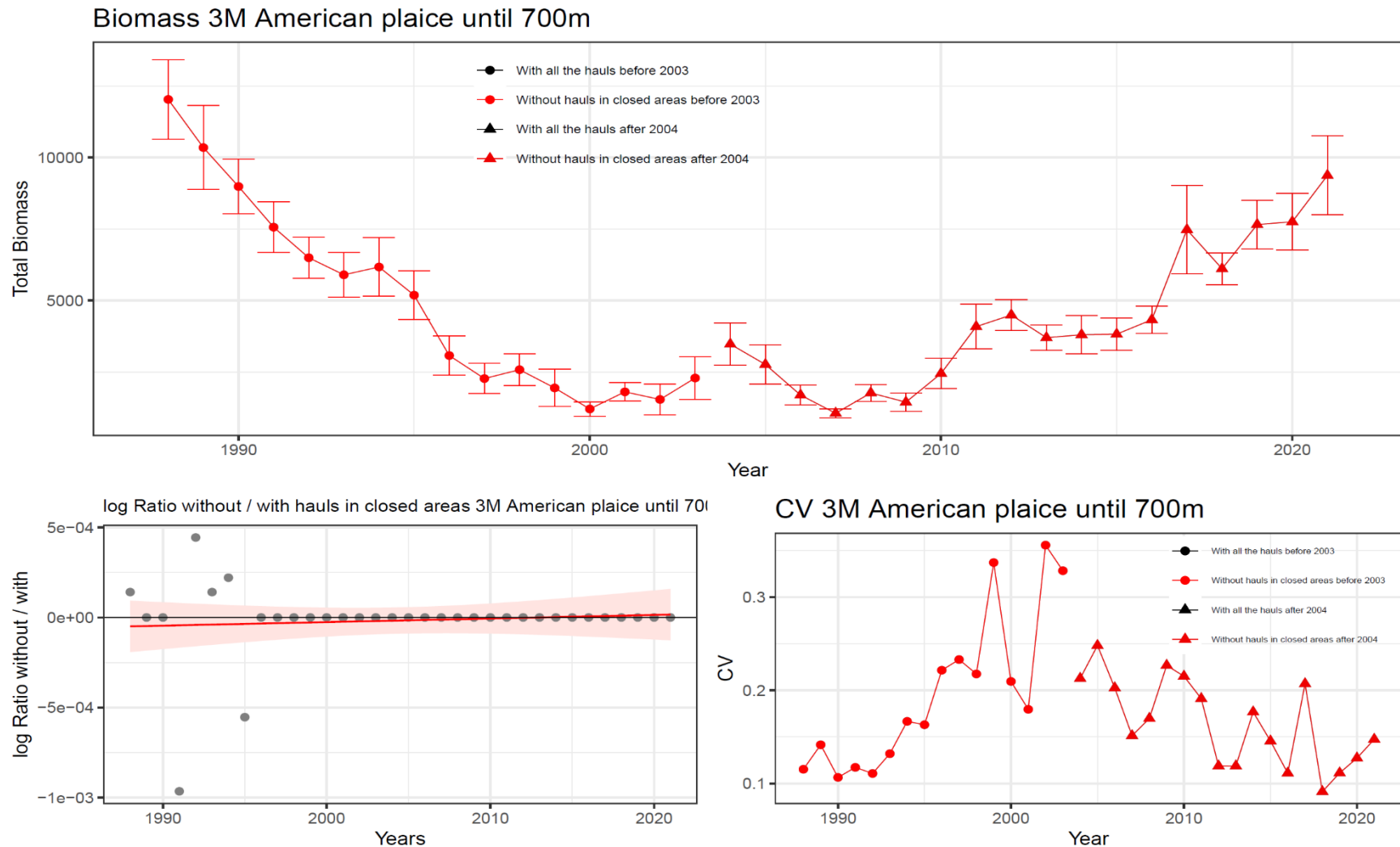


Figure 8. Biomass and SD by year (1988-2021) of the American plaice in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

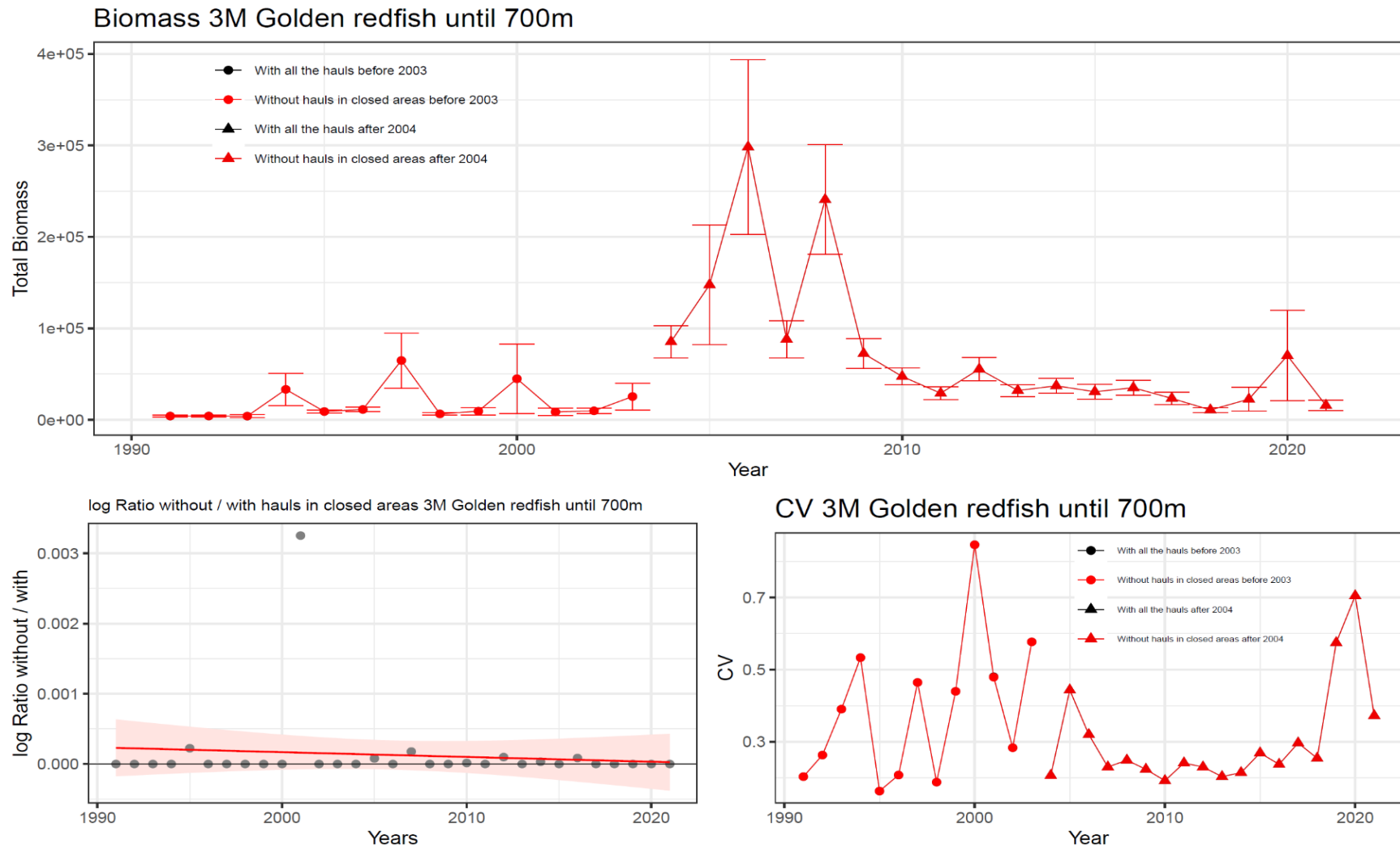


Figure 9. Biomass and SD by year (1991-2021) of the golden redfish in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

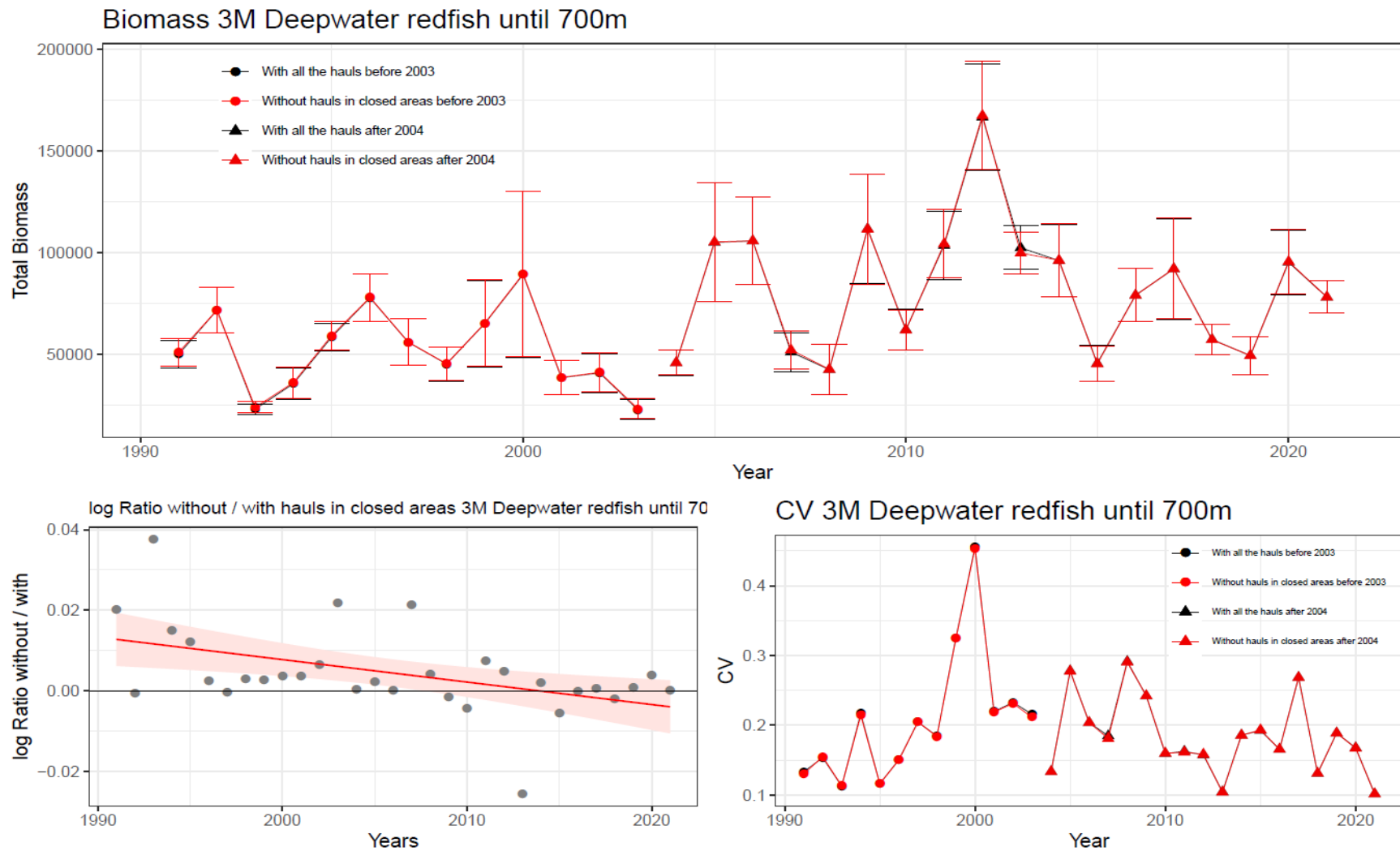


Figure 10a. Biomass and SD by year (1991-2021) of the deepwater redfish in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

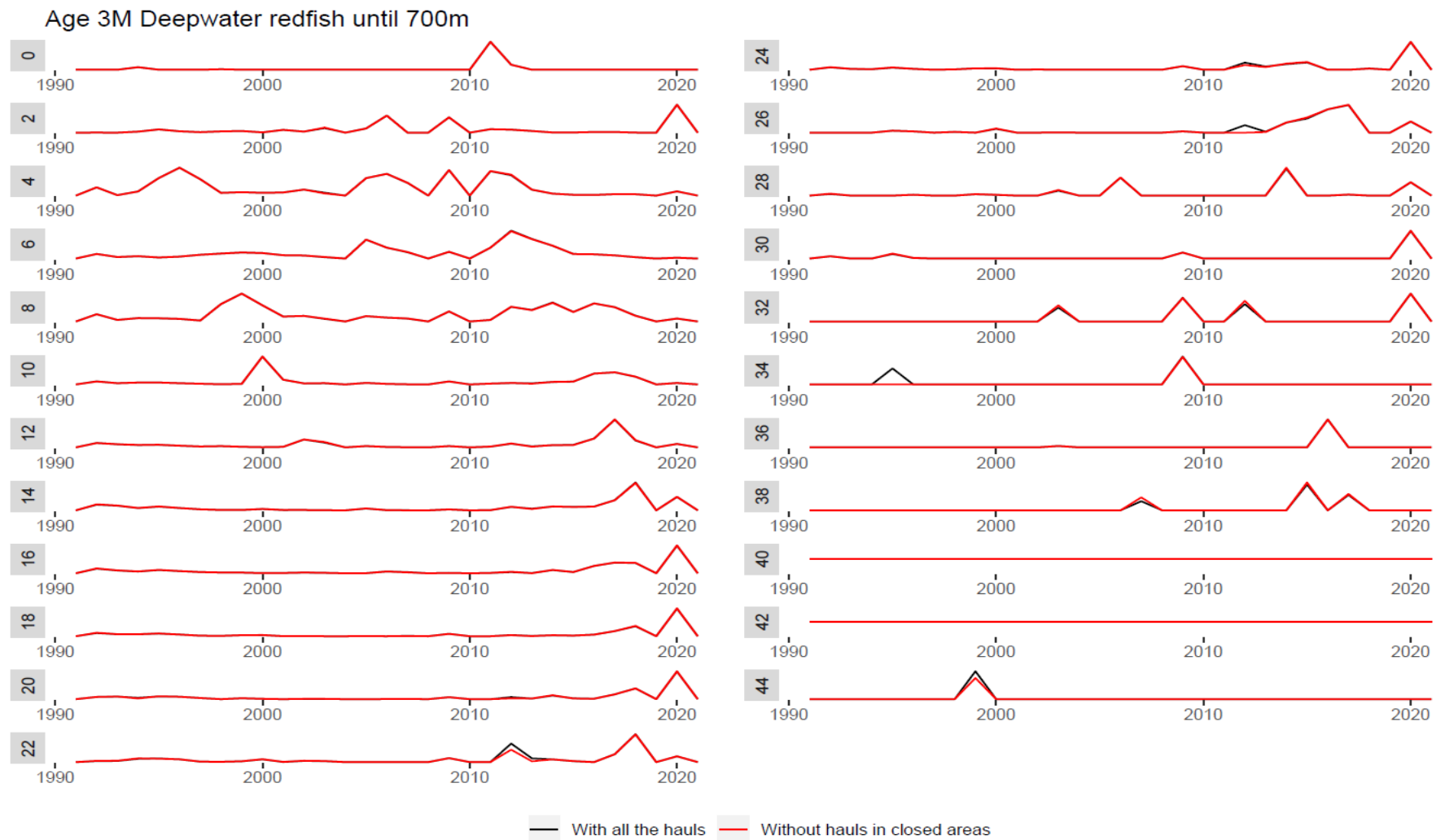


Figure 10b. Age distribution by year (1992-2021) of the deepwater redfish in 3M until 700 meters with and without the closed areas.

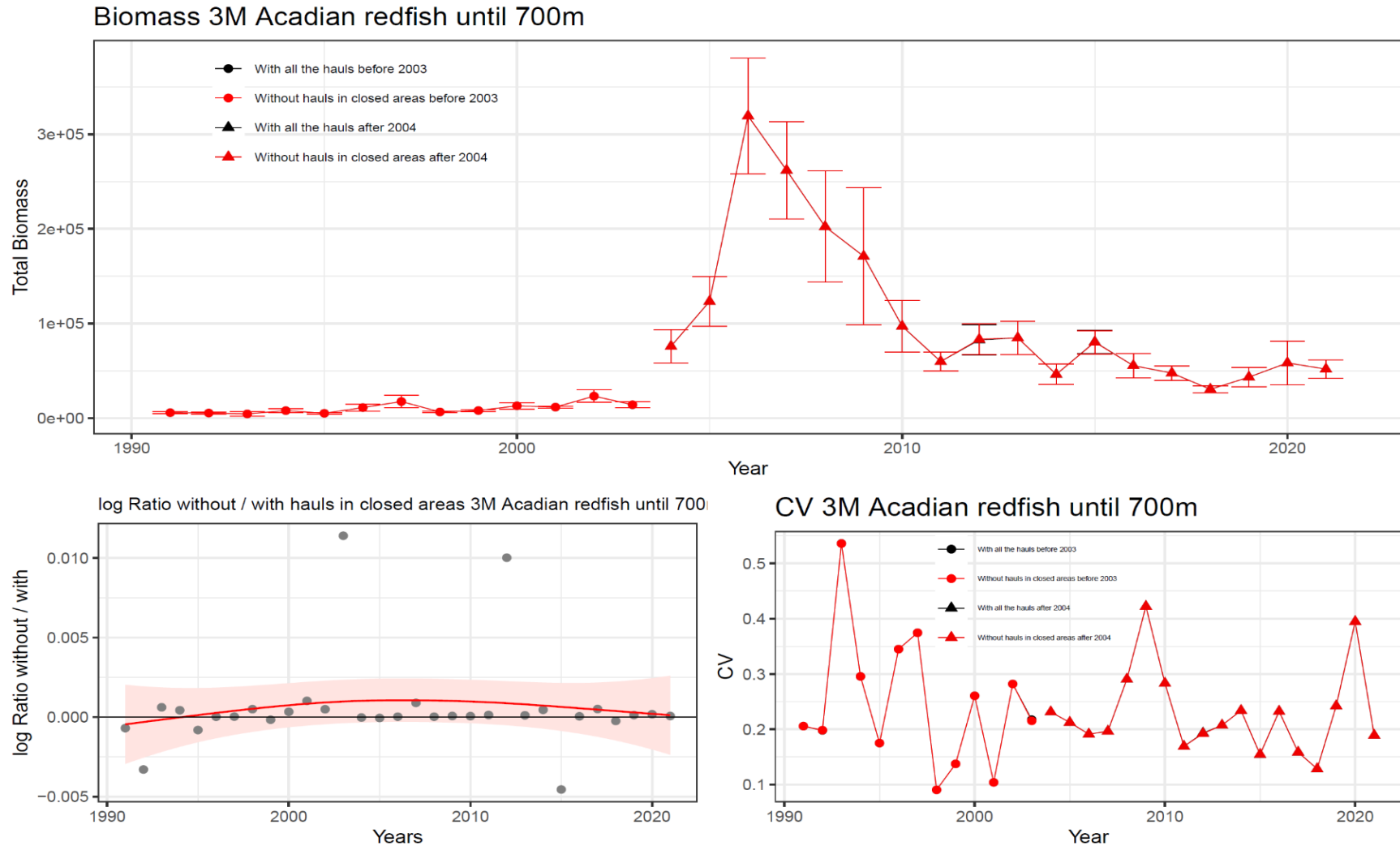


Figure 11. Biomass and SD by year (1991-2021) of the Acadian redfish in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

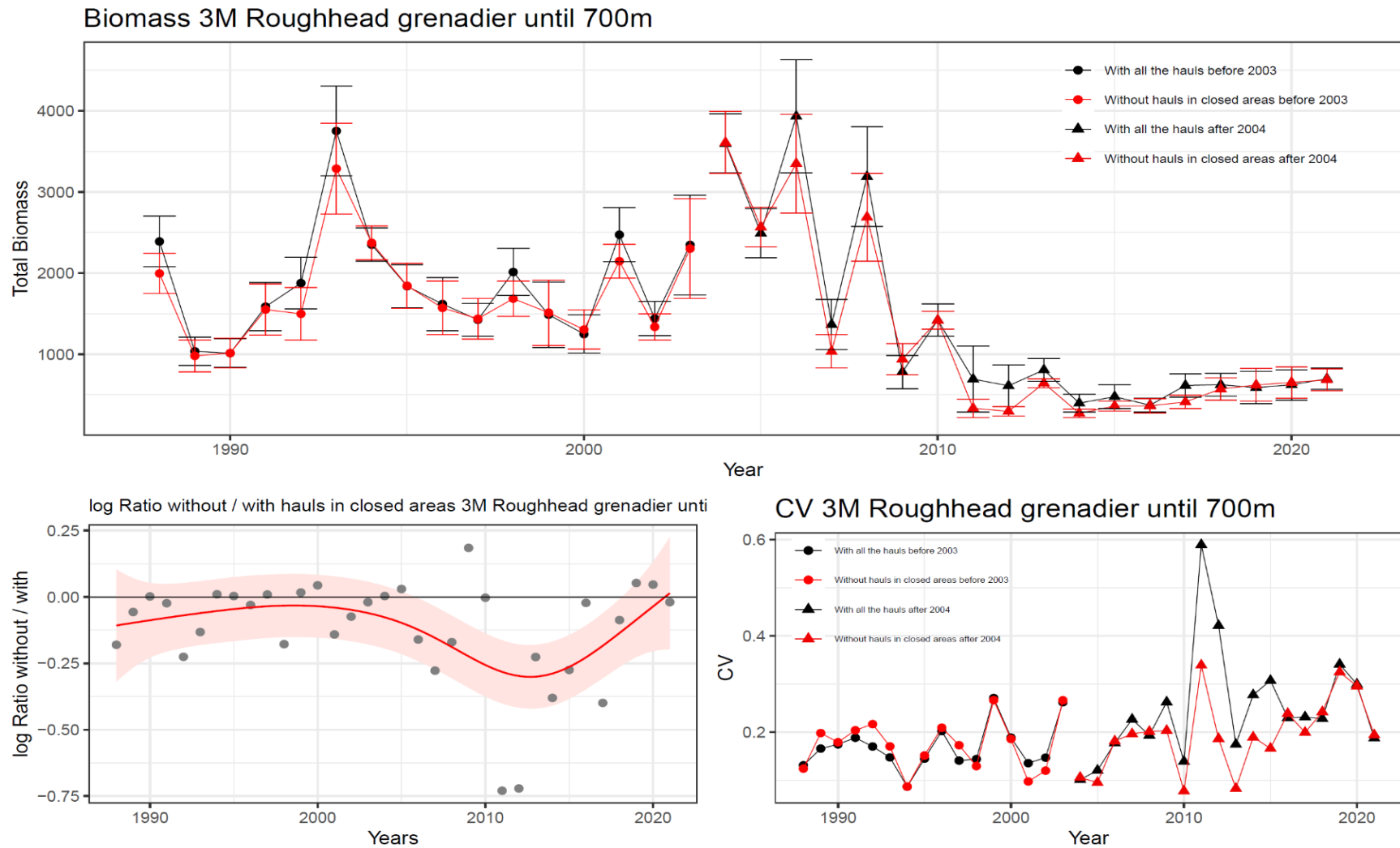


Figure 12a. Biomass and SD by year (1988-2021) of the roughhead grenadier in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

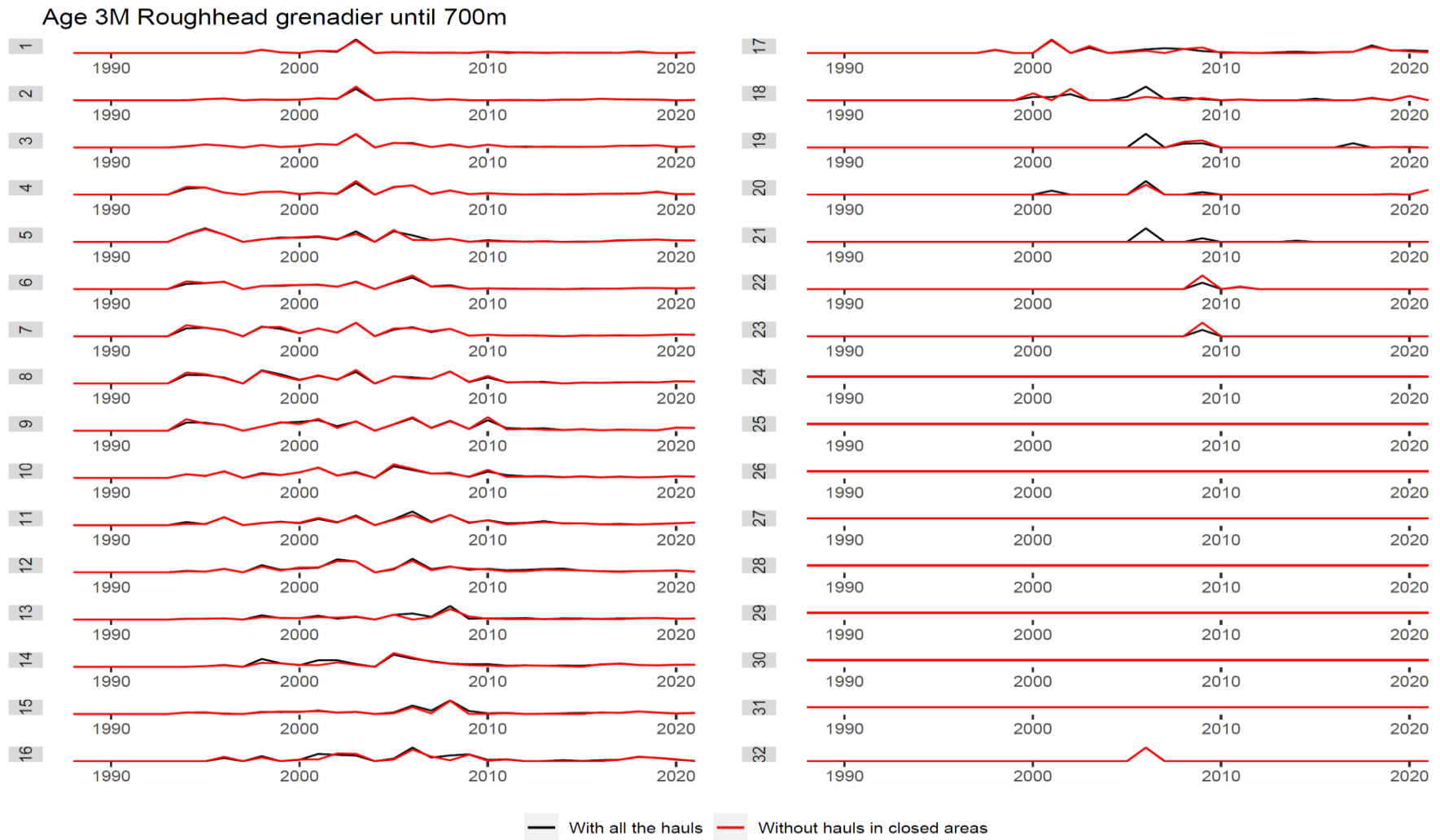


Figure 12b. Age distribution by year (1994-2021) of the roughhead grenadier in 3M until 700 meters with and without the closed areas.

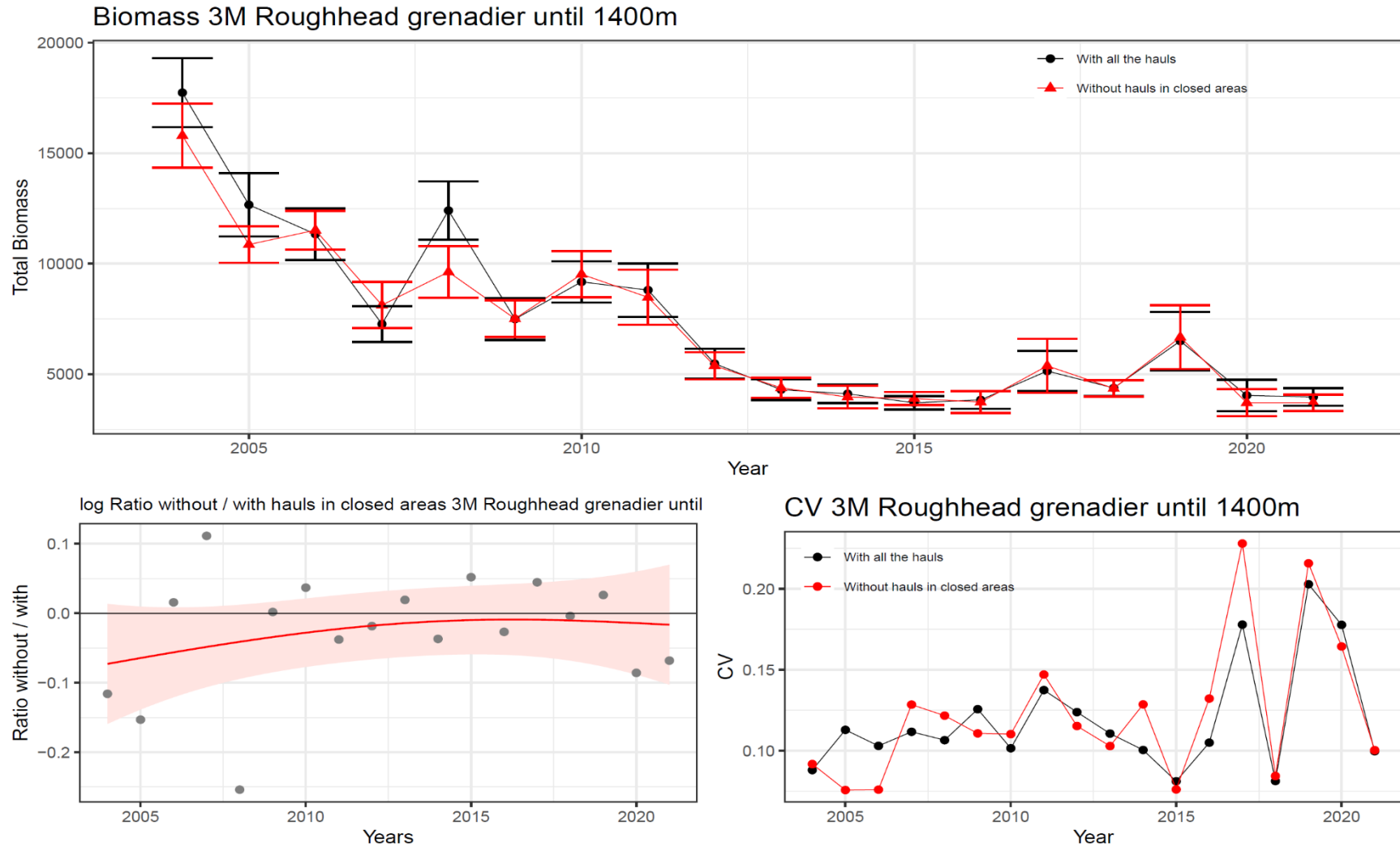


Figure 13a. Biomass and SD by year (2004-2021) of the roughhead grenadier in 3M until 1400 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

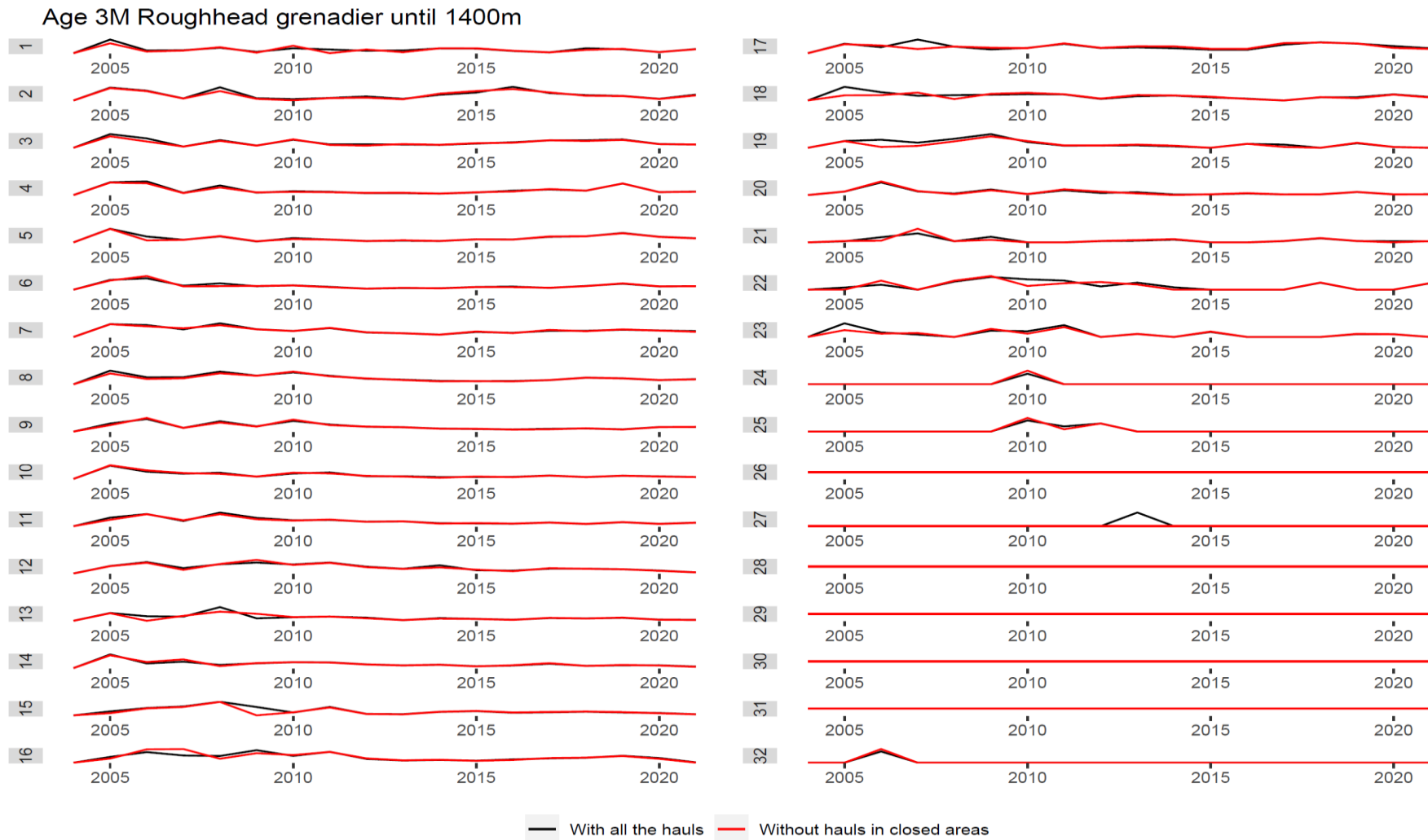


Figure 13b. Age distribution by year (2004-2021) of the roughhead grenadier in 3M until 1400 meters with and without the closed areas.

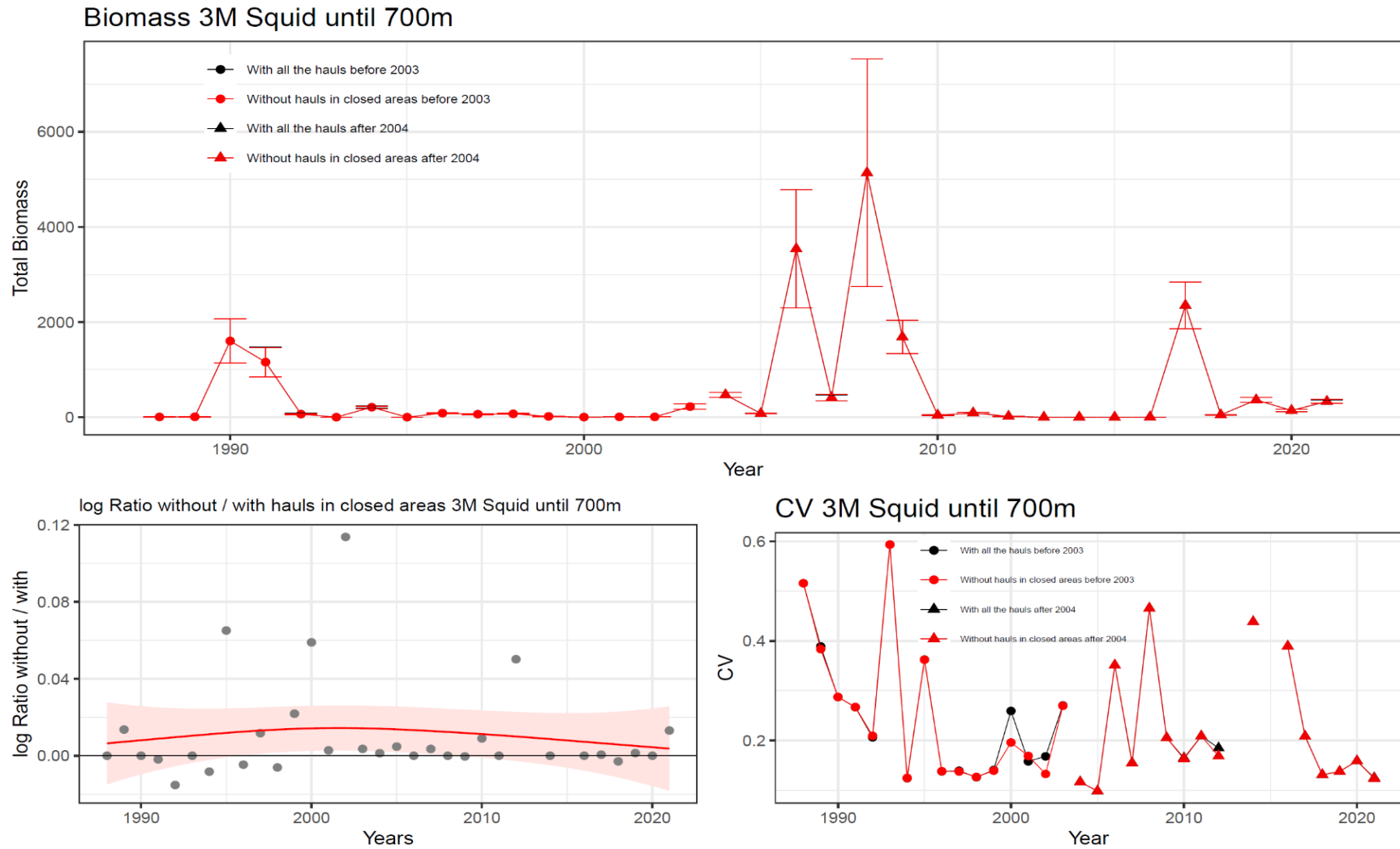


Figure 14. Biomass and SD by year (1988-2021) of the squid in 3M until 700 meters with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

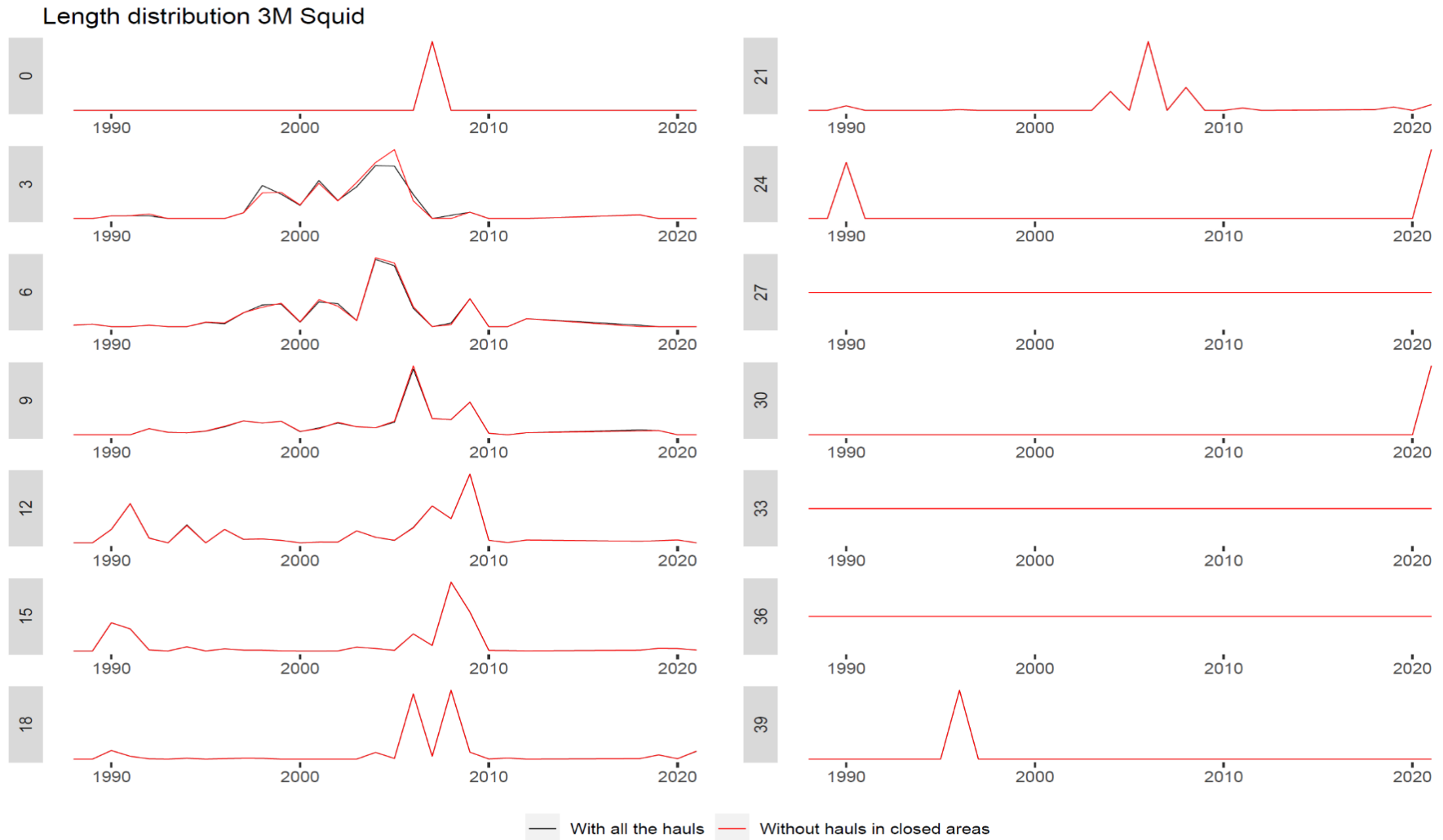


Figure 15. Age distribution by year (1988-2021) of the squid in 3M until 700 meters with and without the closed areas.

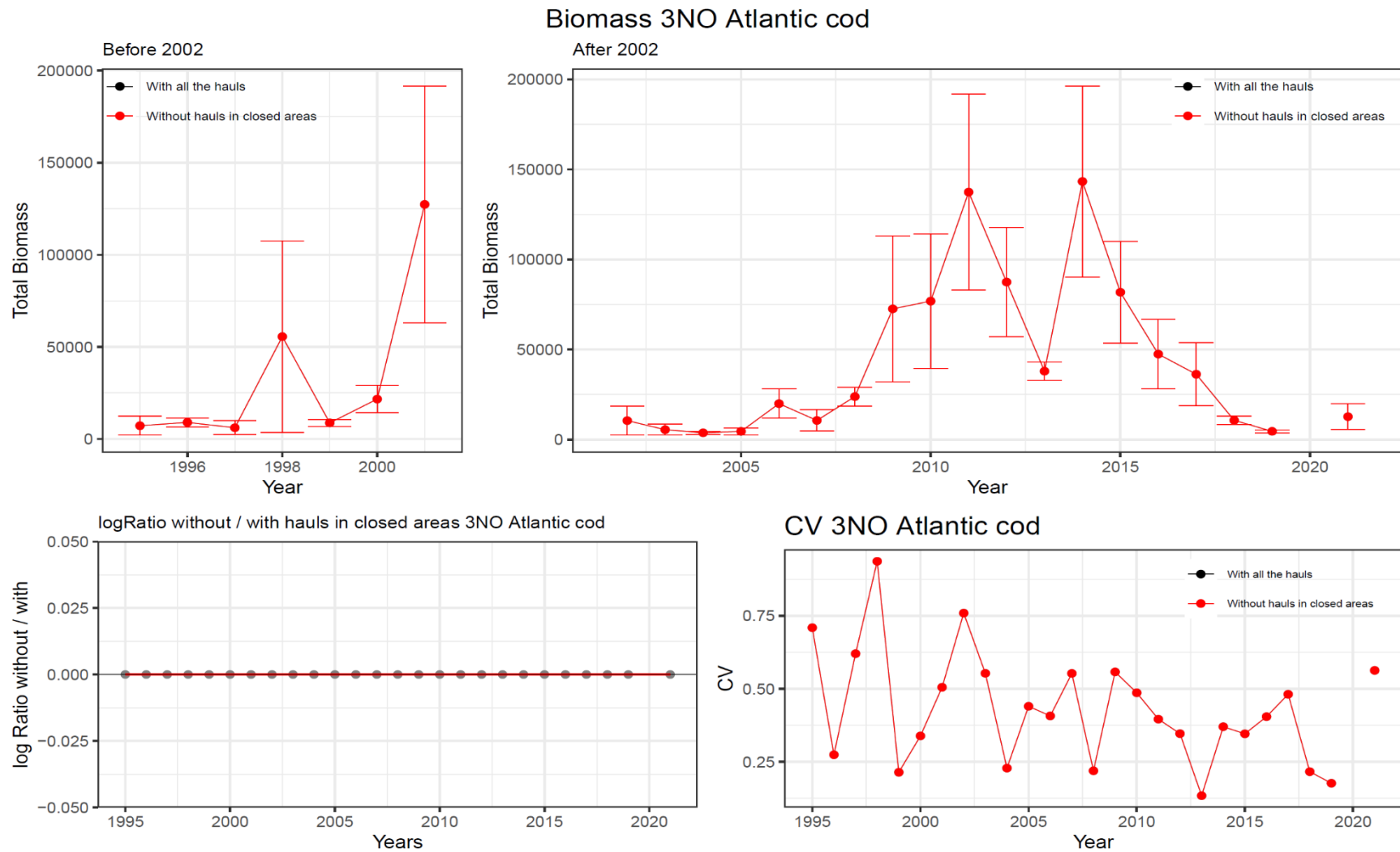


Figure 16. Biomass and SD by year (1995-2021) of the Atlantic cod in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

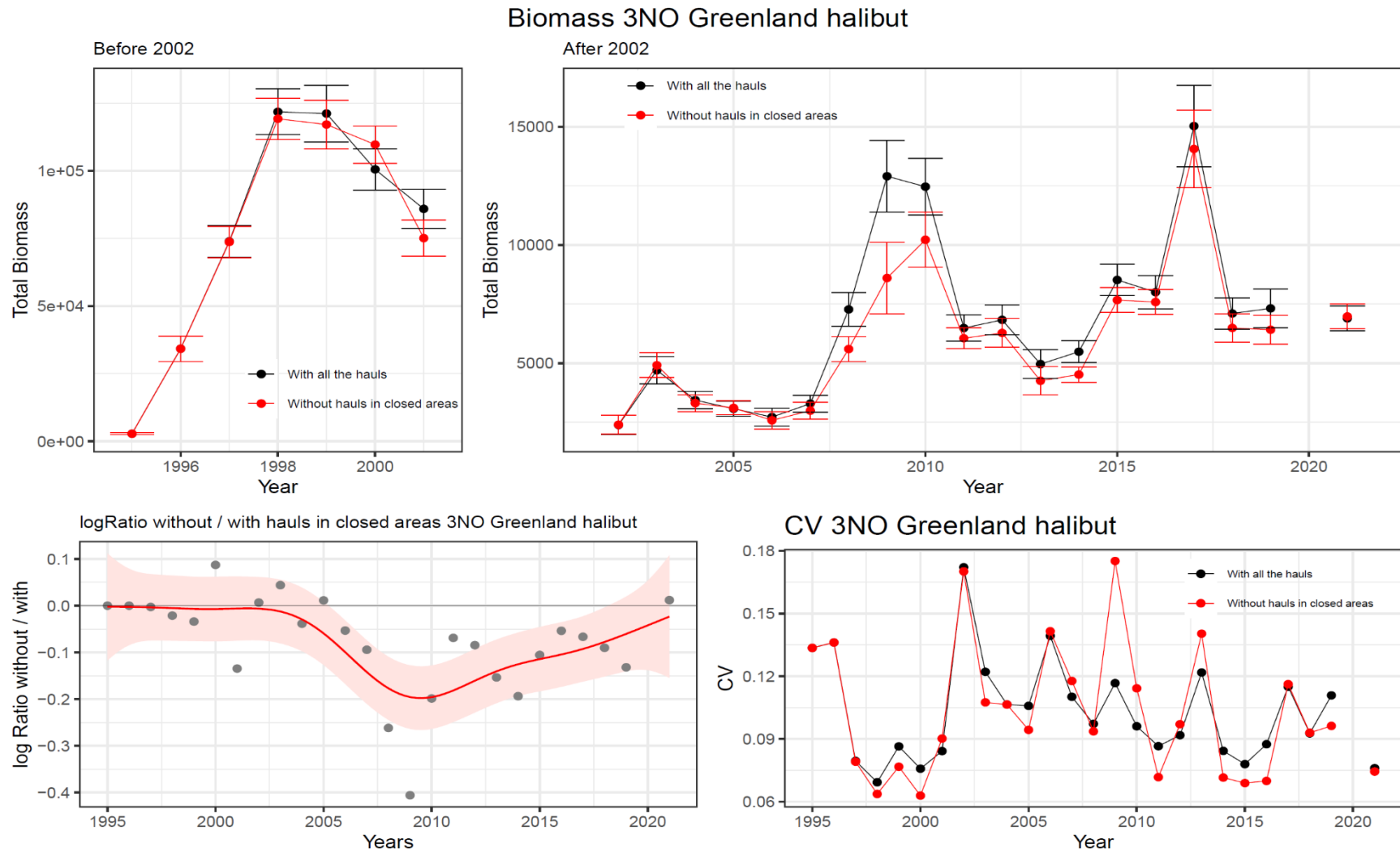


Figure 17. Biomass and SD by year (1995-2021) of the Greenland halibut in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

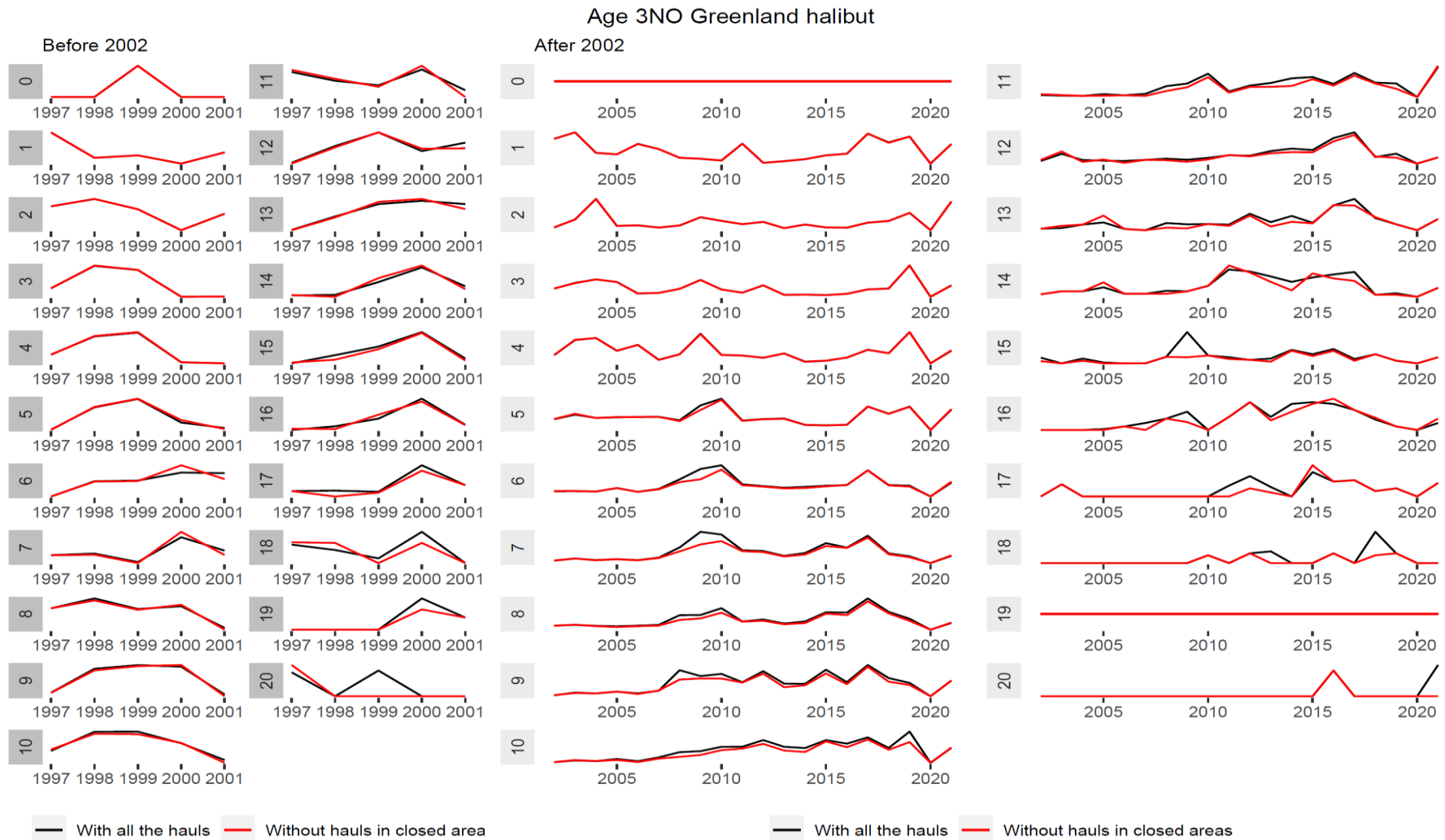


Figure 18. Age distribution by year (1995-2021) of the Greenland halibut in 3NO with and without the closed areas.

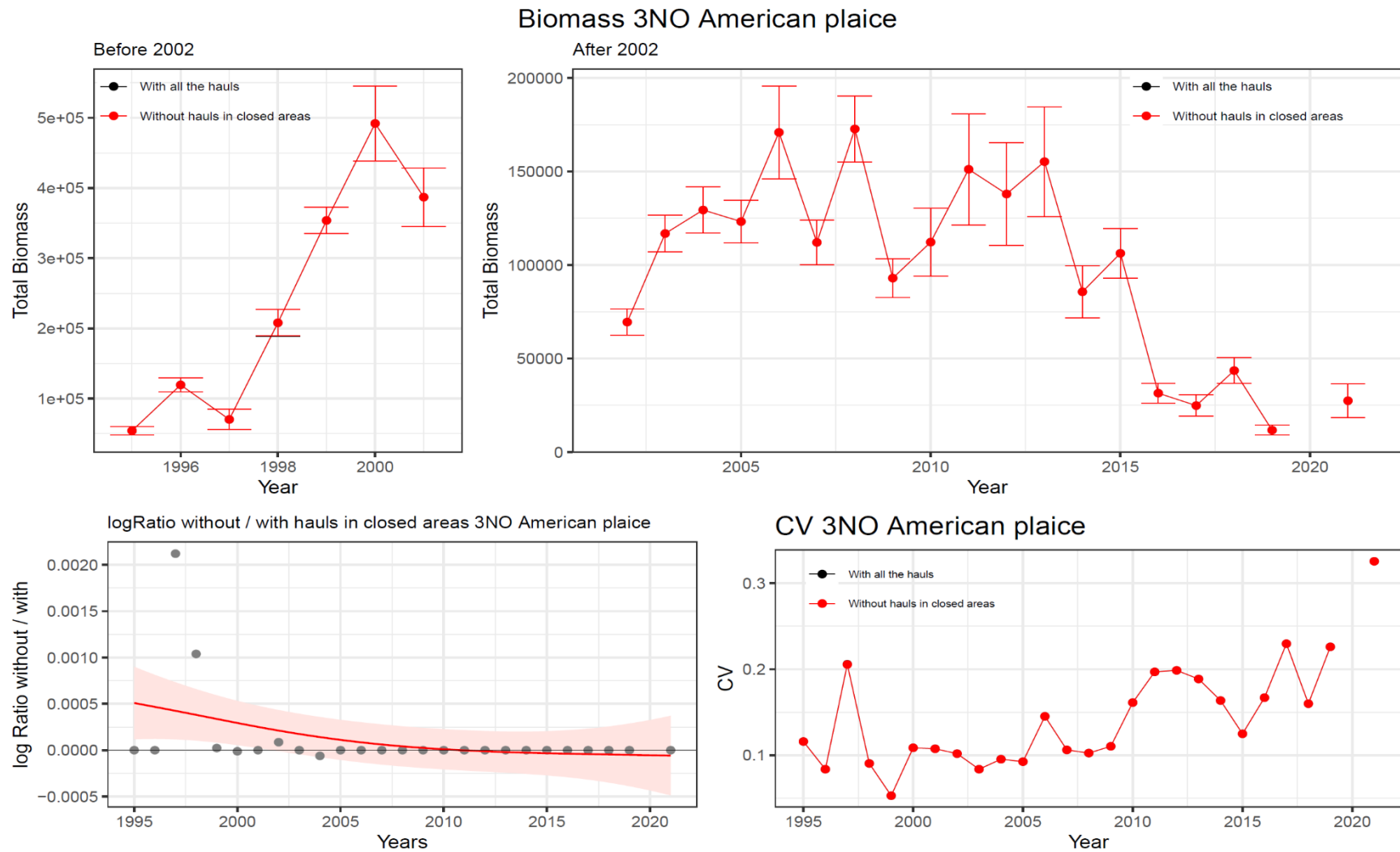


Figure 19. Biomass and SD by year (1995-2020) of the American plaice in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

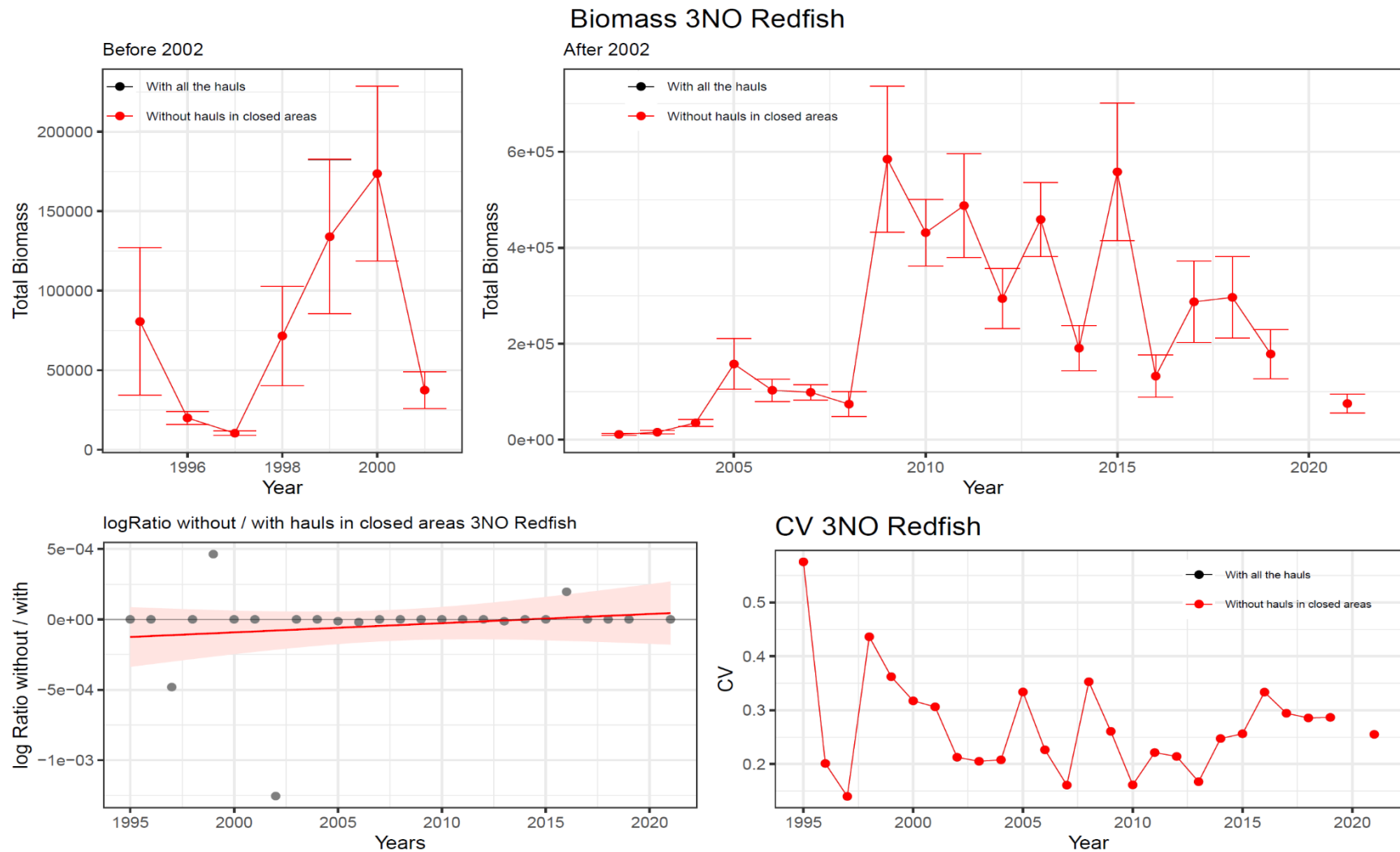


Figure 20. Biomass and SD by year (1995-2021) of the redfish in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

Biomass 3NO Roughhead grenadier

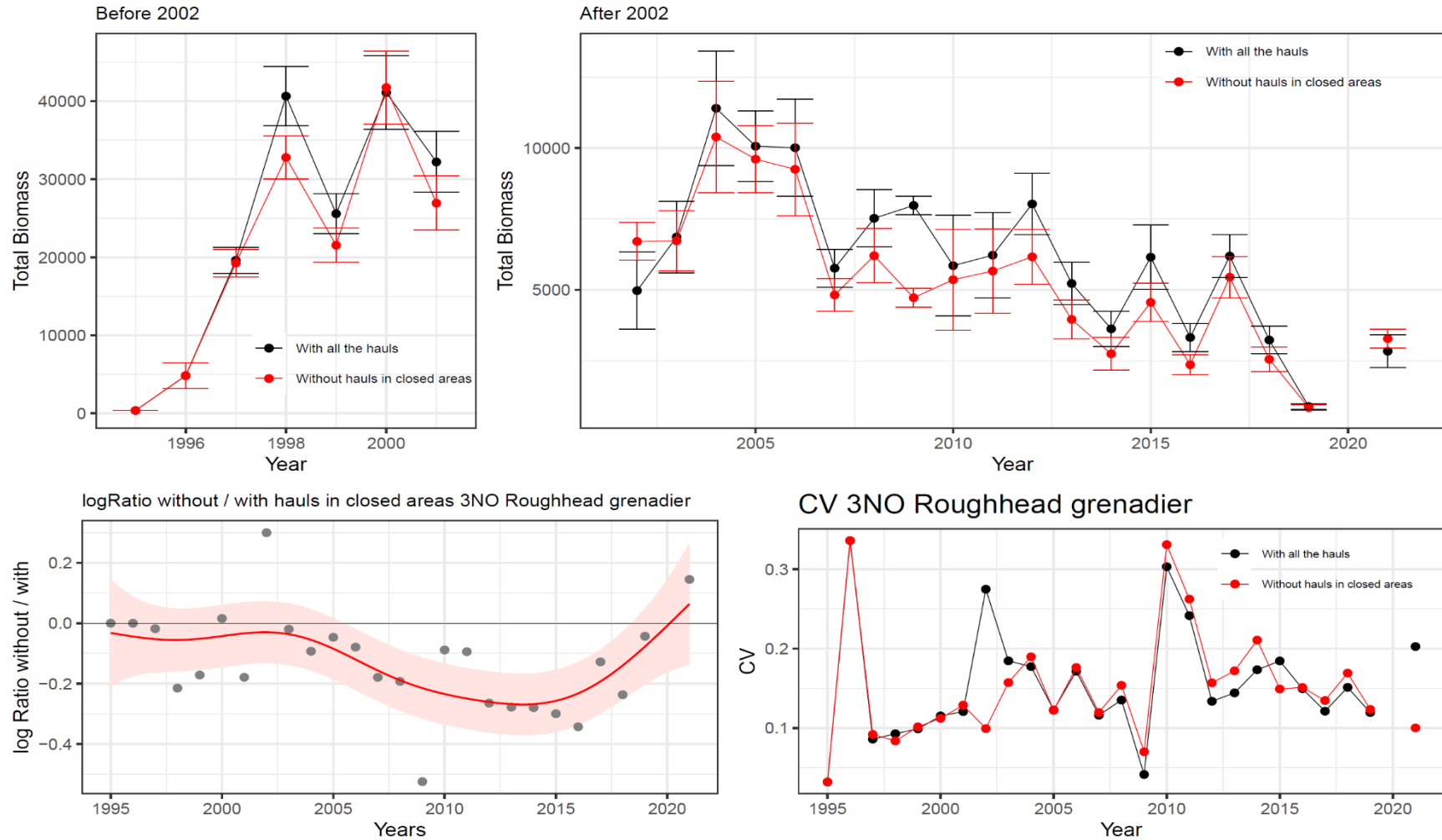


Figure 21. Biomass and SD by year (1995-2021) of the roughhead grenadier in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

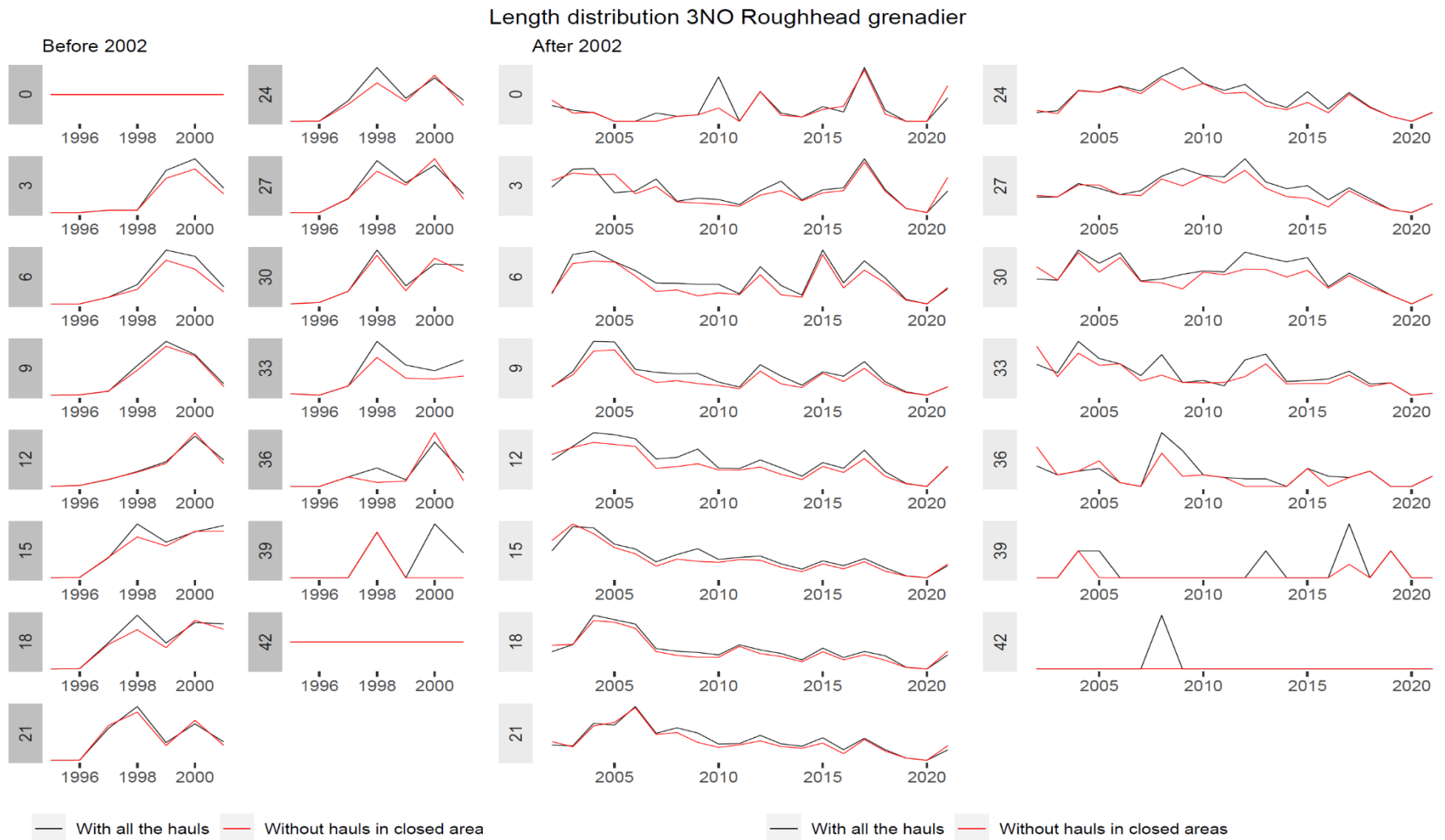


Figure 22. Length distribution by year (1995-2021) of the roughhead grenadier in 3NO with and without the closed areas.

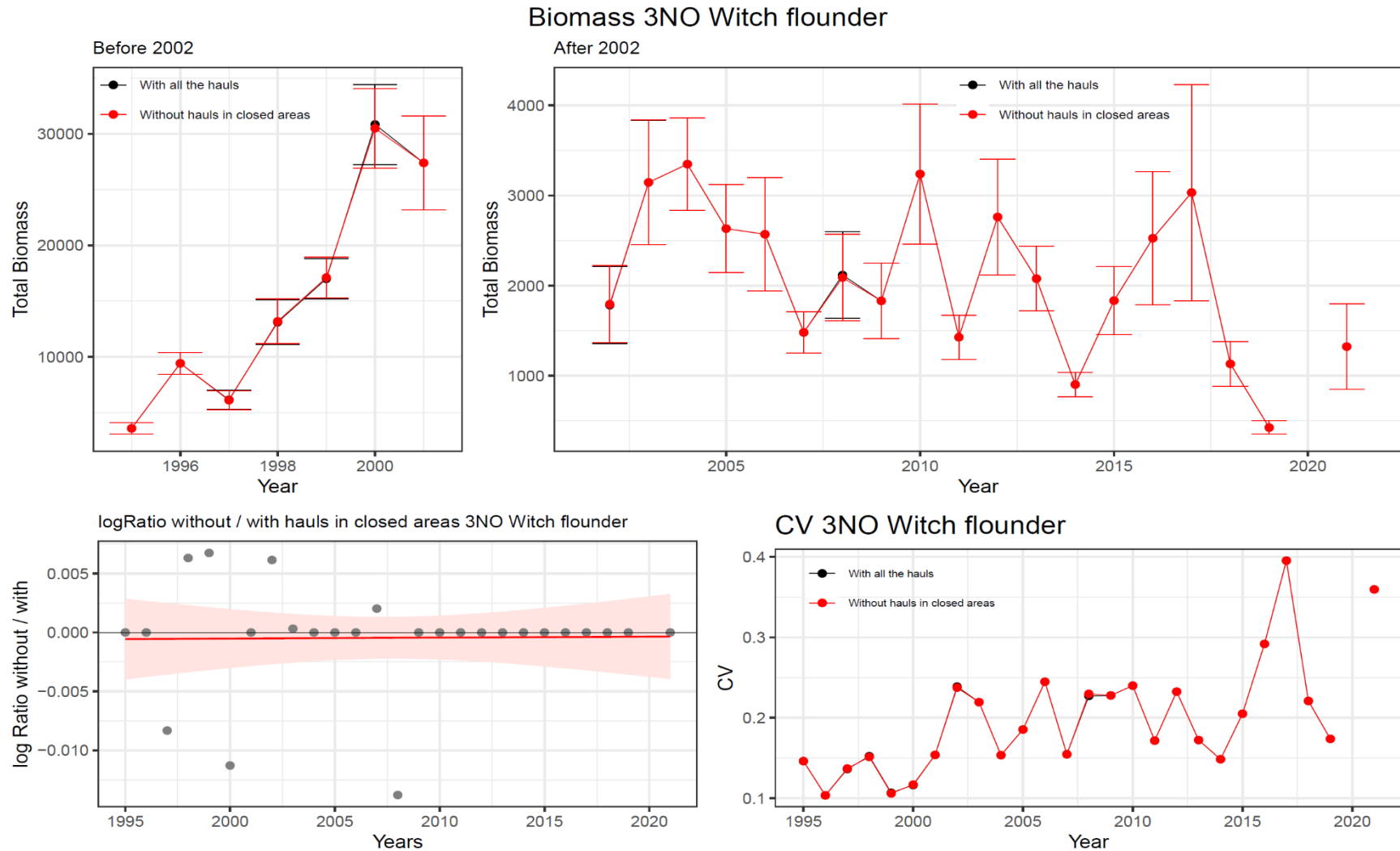


Figure 23. Biomass and SD by year (1995-2021) of the witch flounder in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

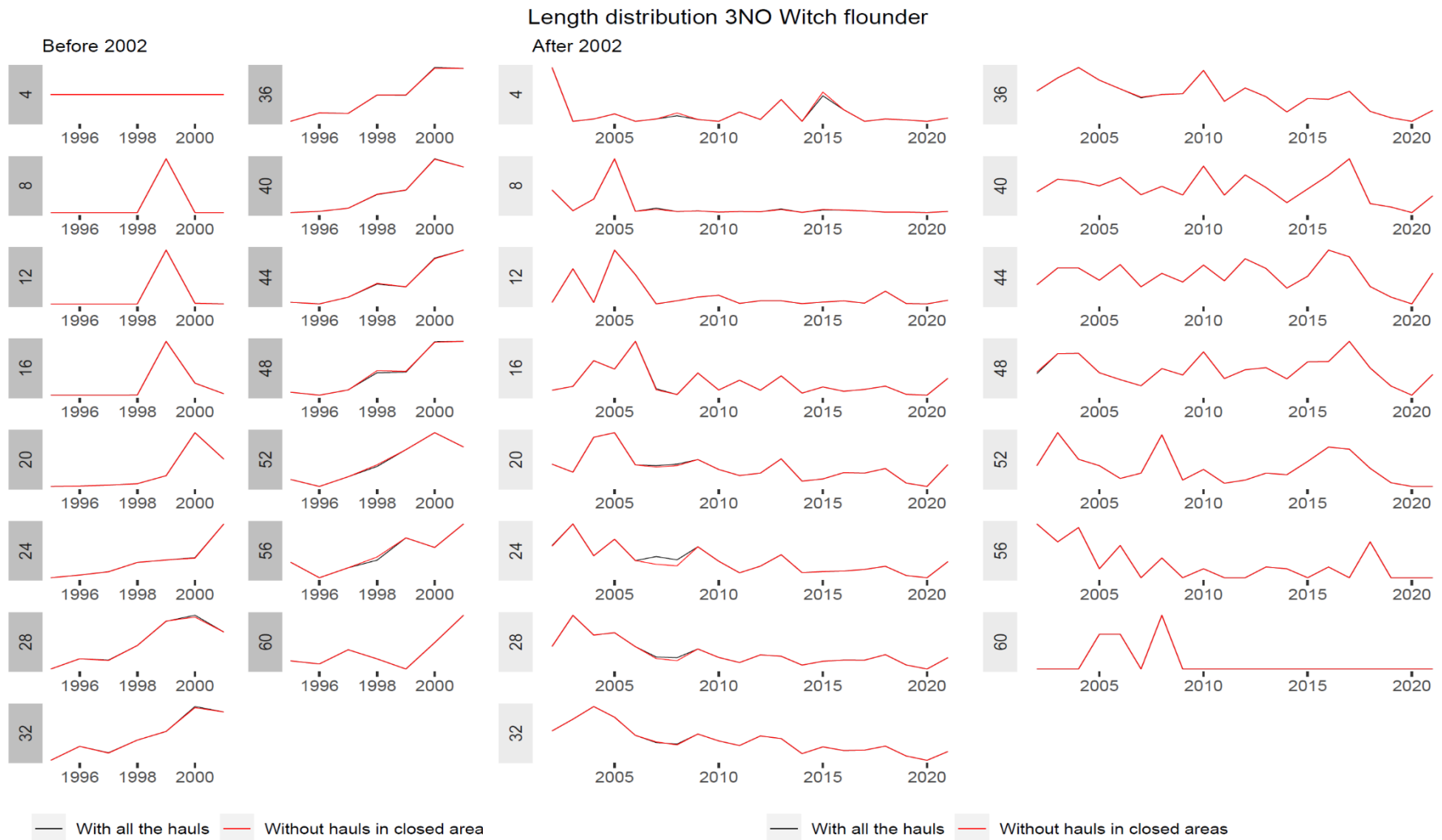


Figure 24. Length distribution by year (1995-2021) of the roughhead grenadier in 3NO with and without the closed areas.

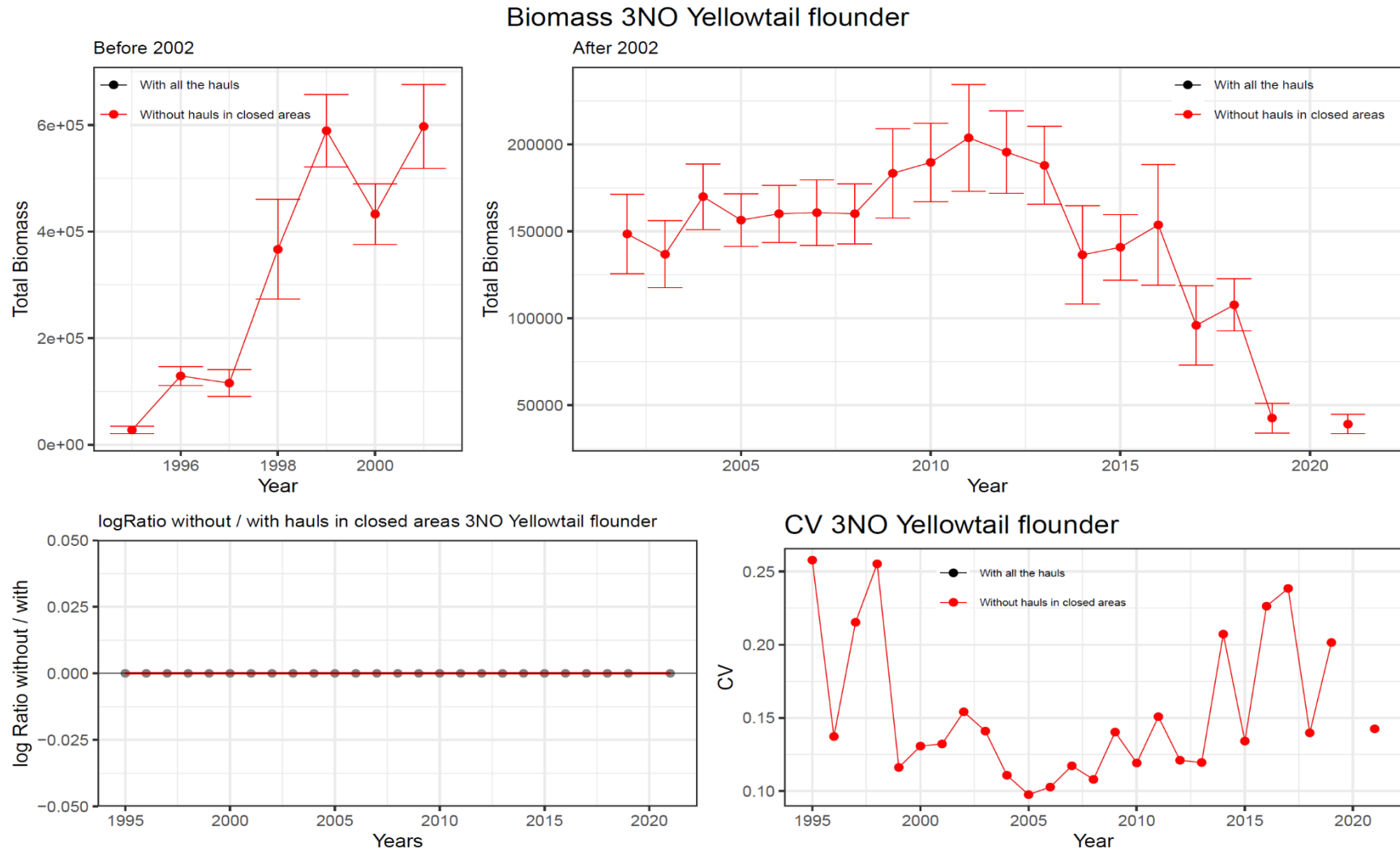


Figure 25. Biomass and SD by year (1995-2021) of the yellowtail flounder in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

Biomass 3NO Capelin

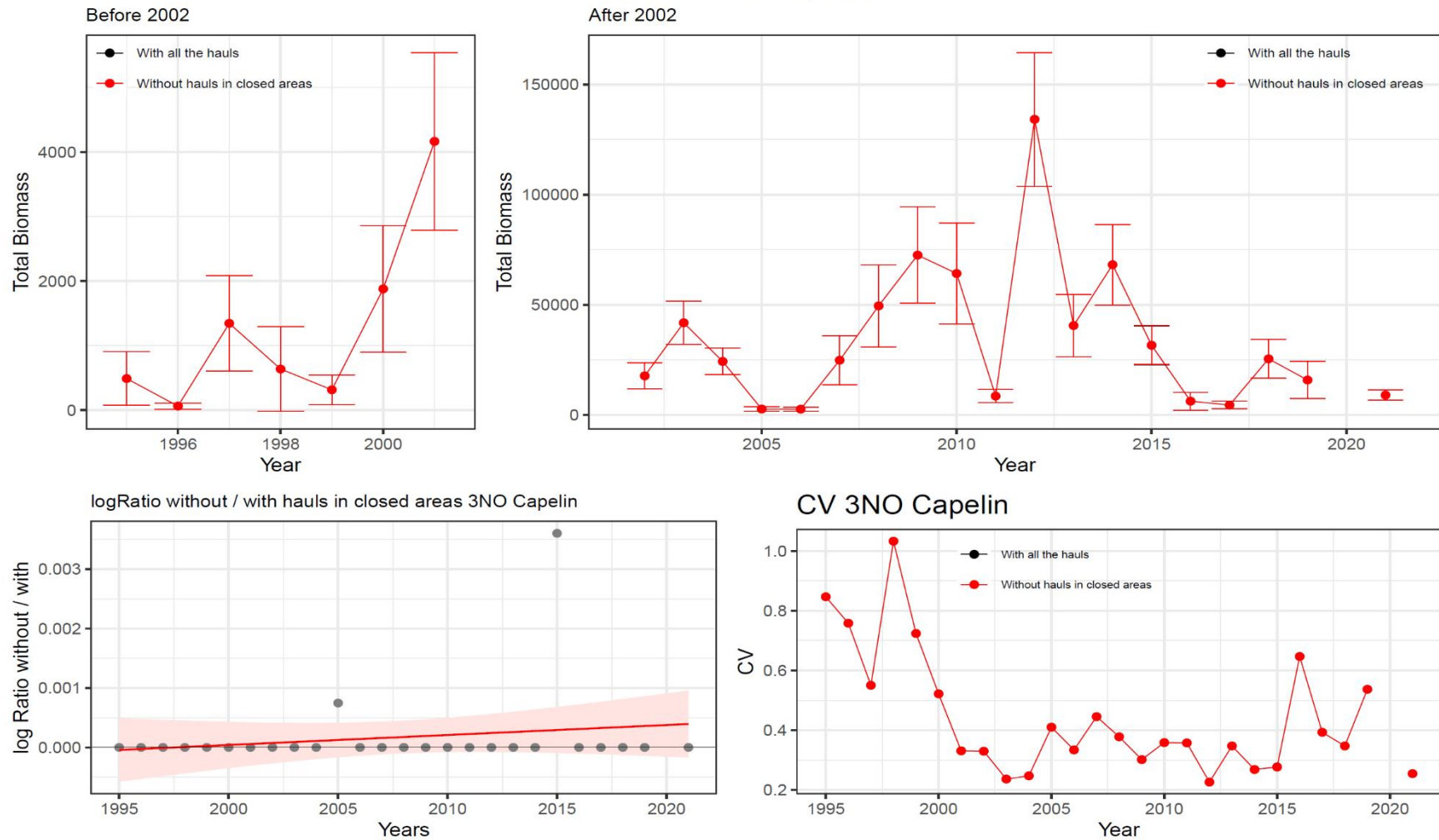


Figure 26. Biomass and SD by year (1995-2021) of the capelin in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

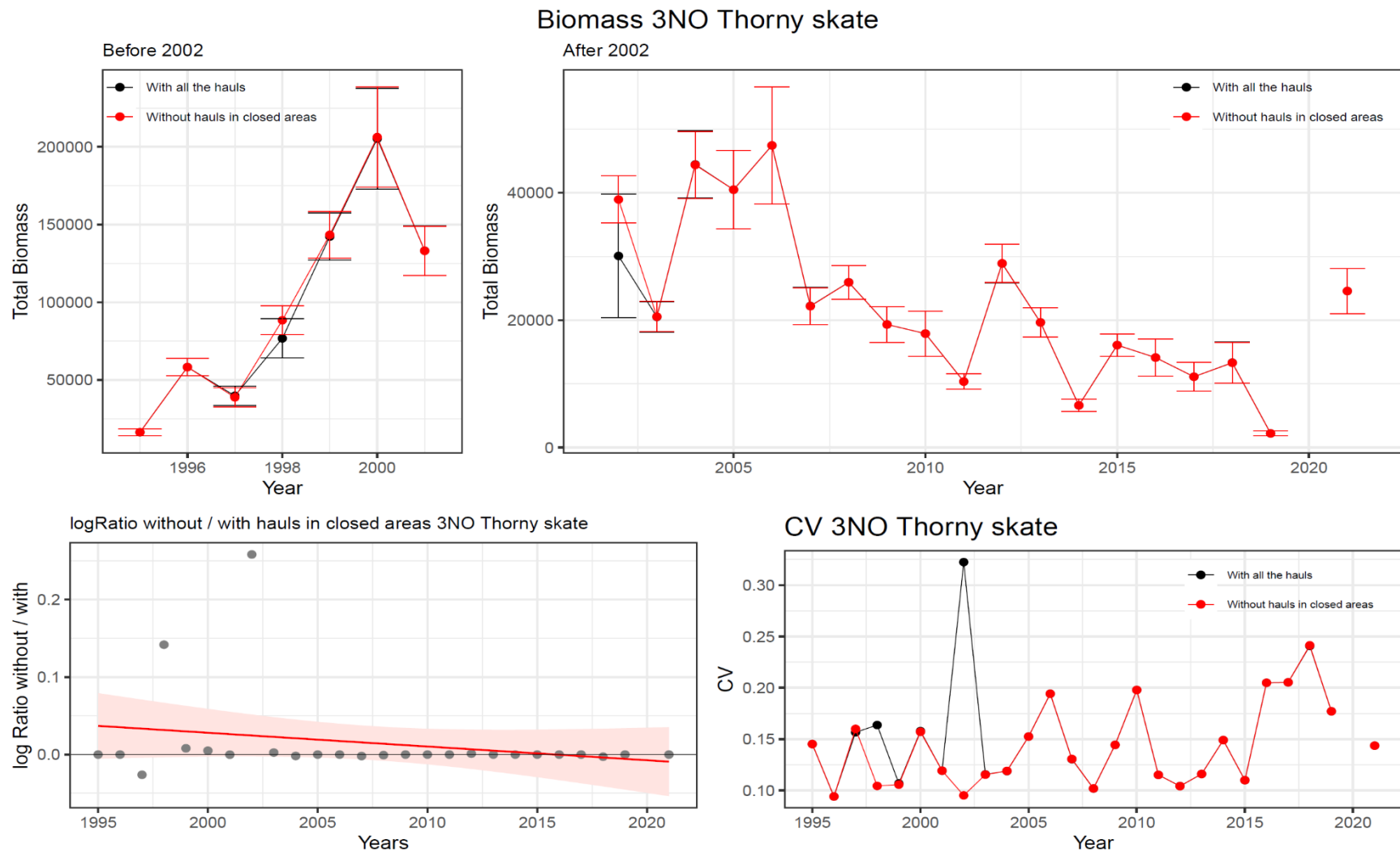


Figure 27. Biomass and SD by year (1995-2021) of the thorny skate in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

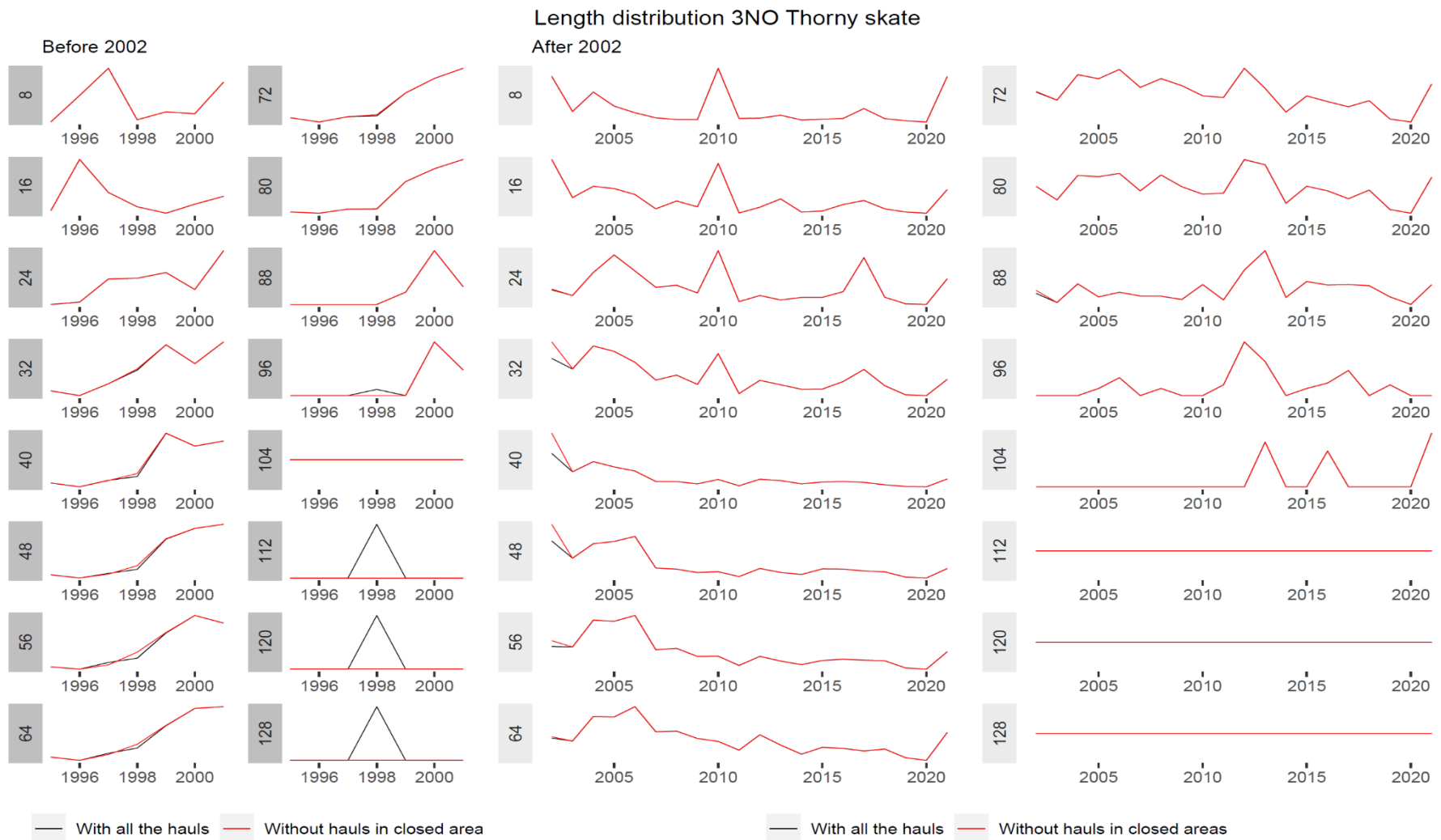


Figure 28. Length distribution by year (1995-2021) of the thorny skate in 3NO with and without the closed areas.

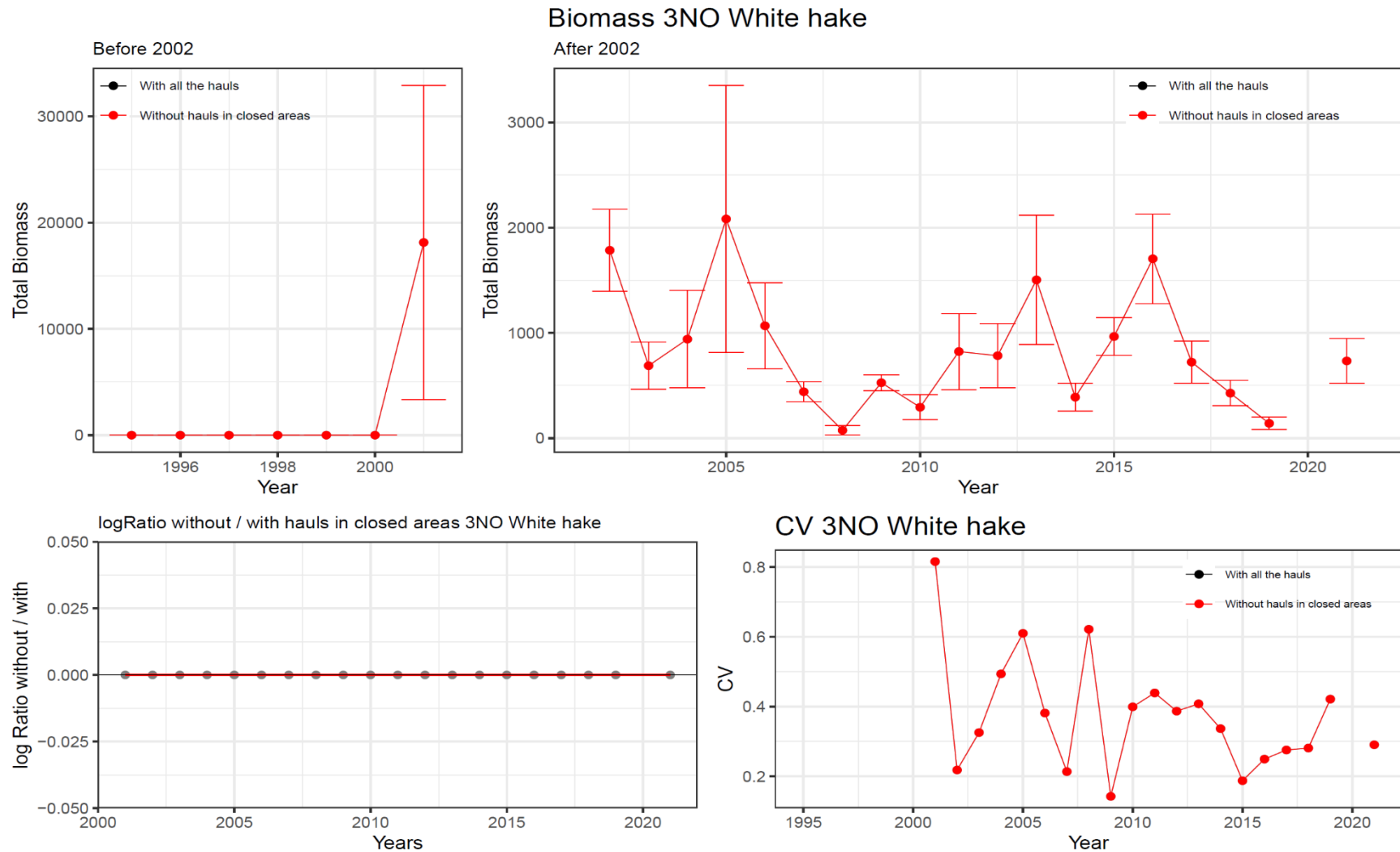


Figure 29. Biomass and SD by year (1995-2021) of the white hake in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

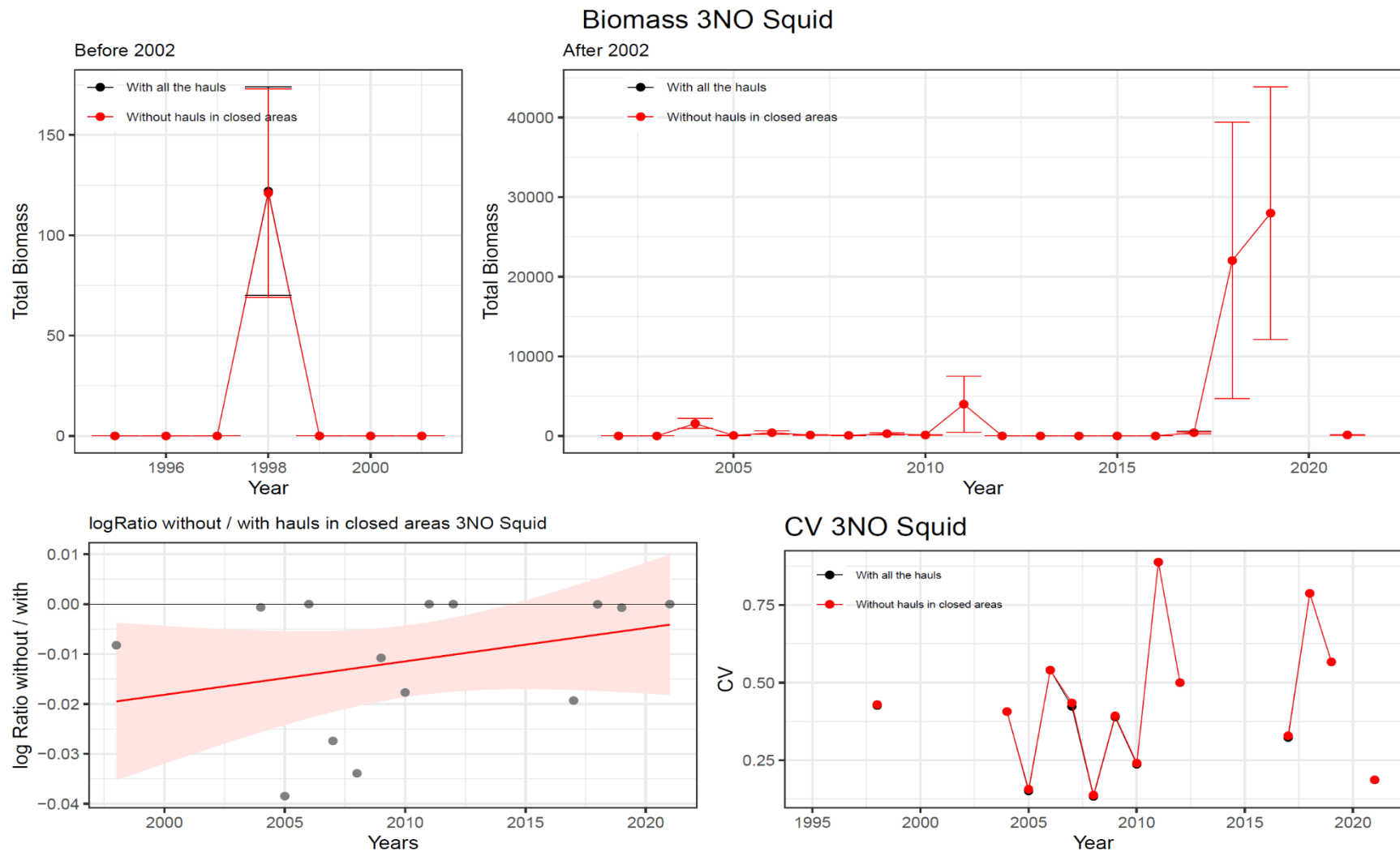


Figure 30. Biomass and SD by year (1995-2021) of the squid in 3NO with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

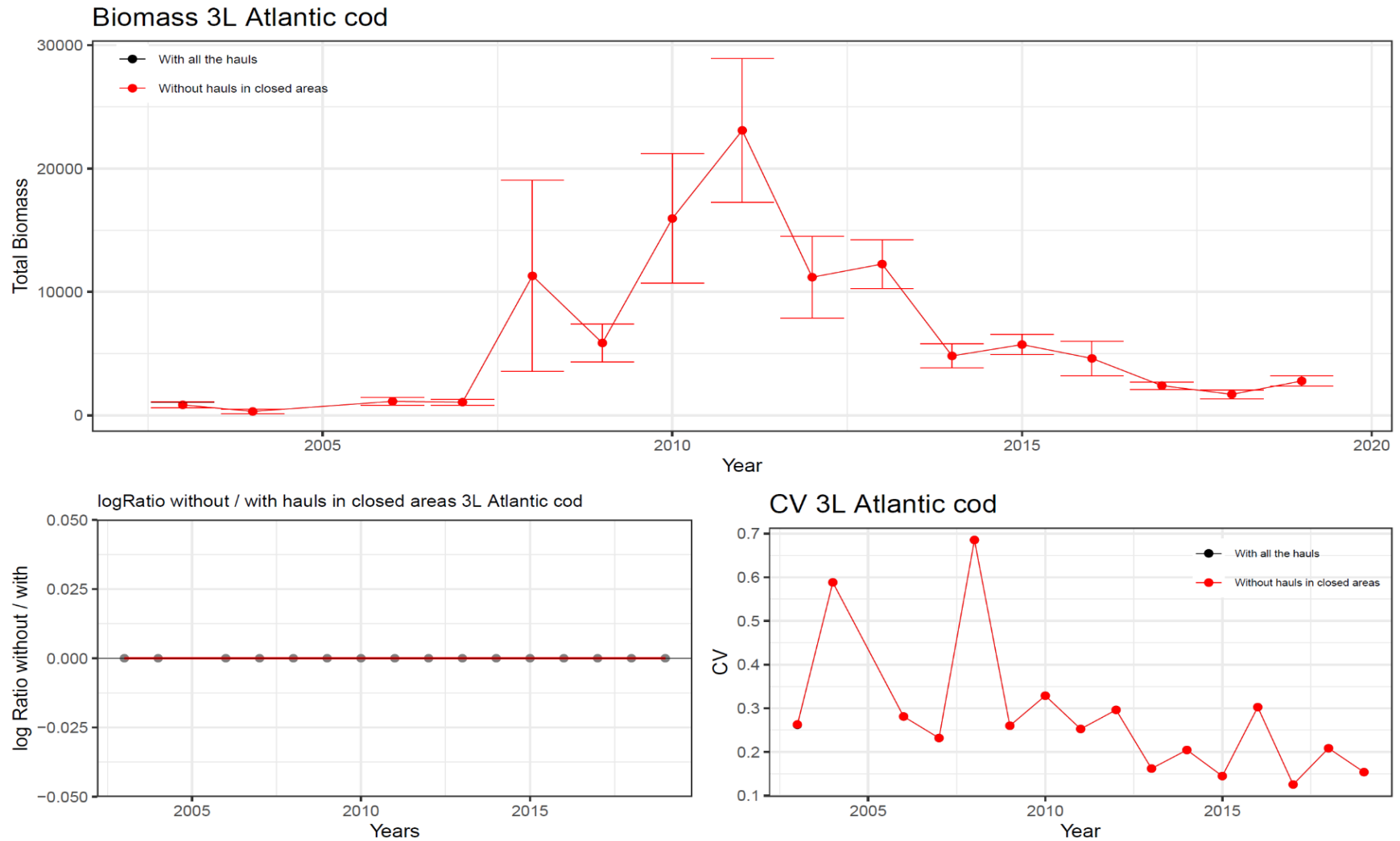


Figure 31. Biomass and SD by year (2003-2019) of the Atlantic cod in 3L with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

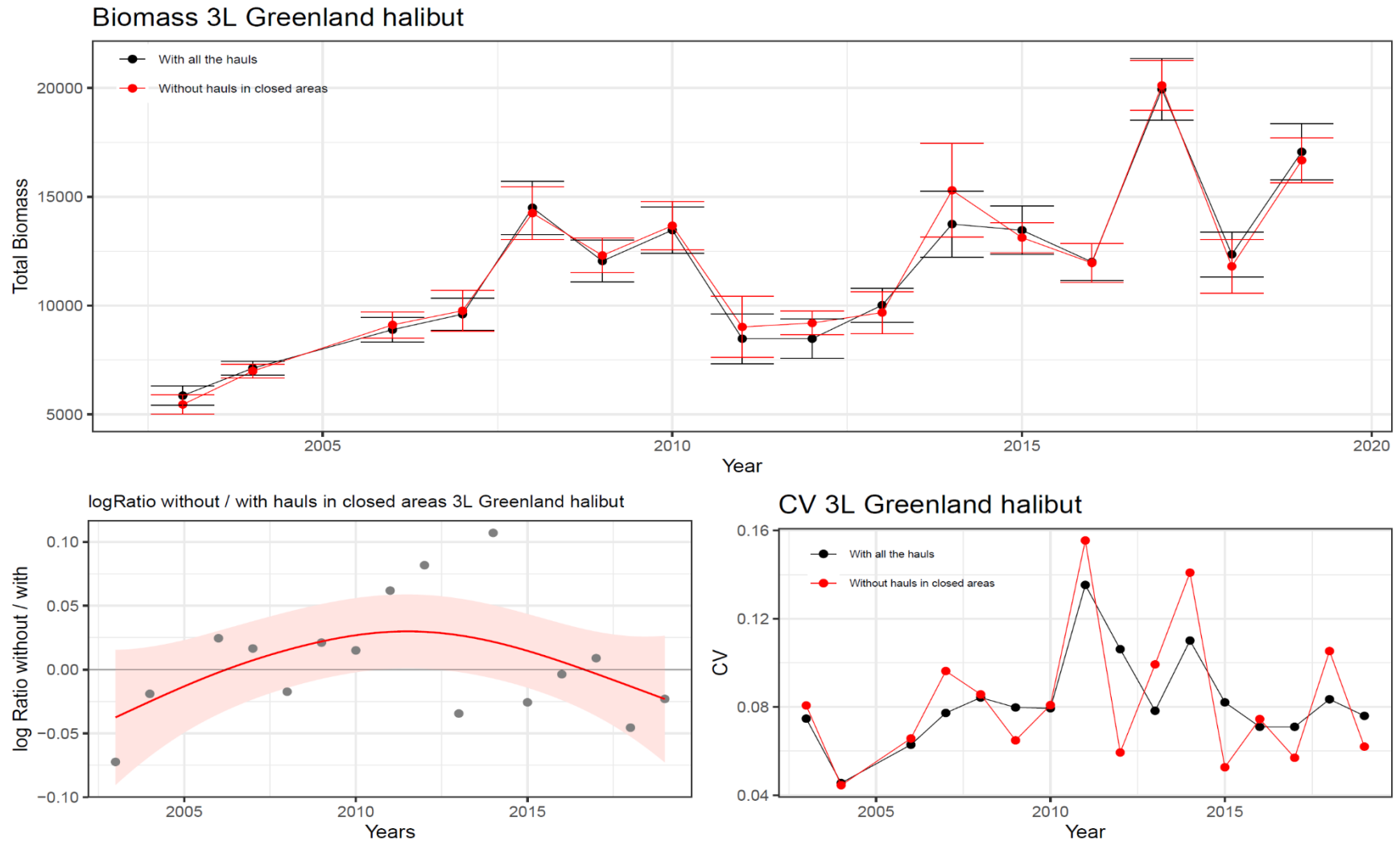


Figure 32. Biomass and SD by year (2003-2019) of the Greenland halibut in 3L with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

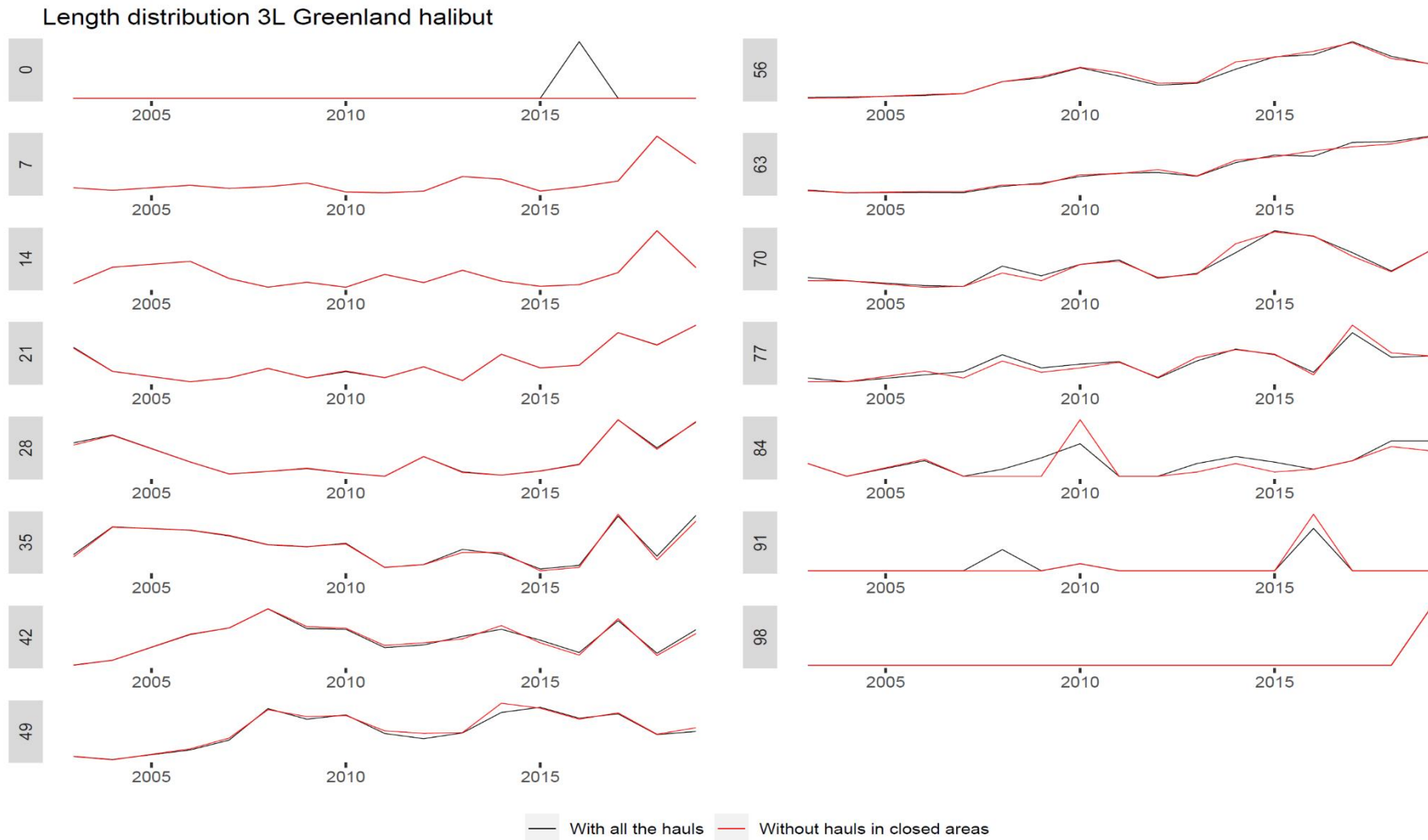


Figure 33. Length distribution by year (2003-2019) of the Greenland halibut in 3L with and without the closed areas.

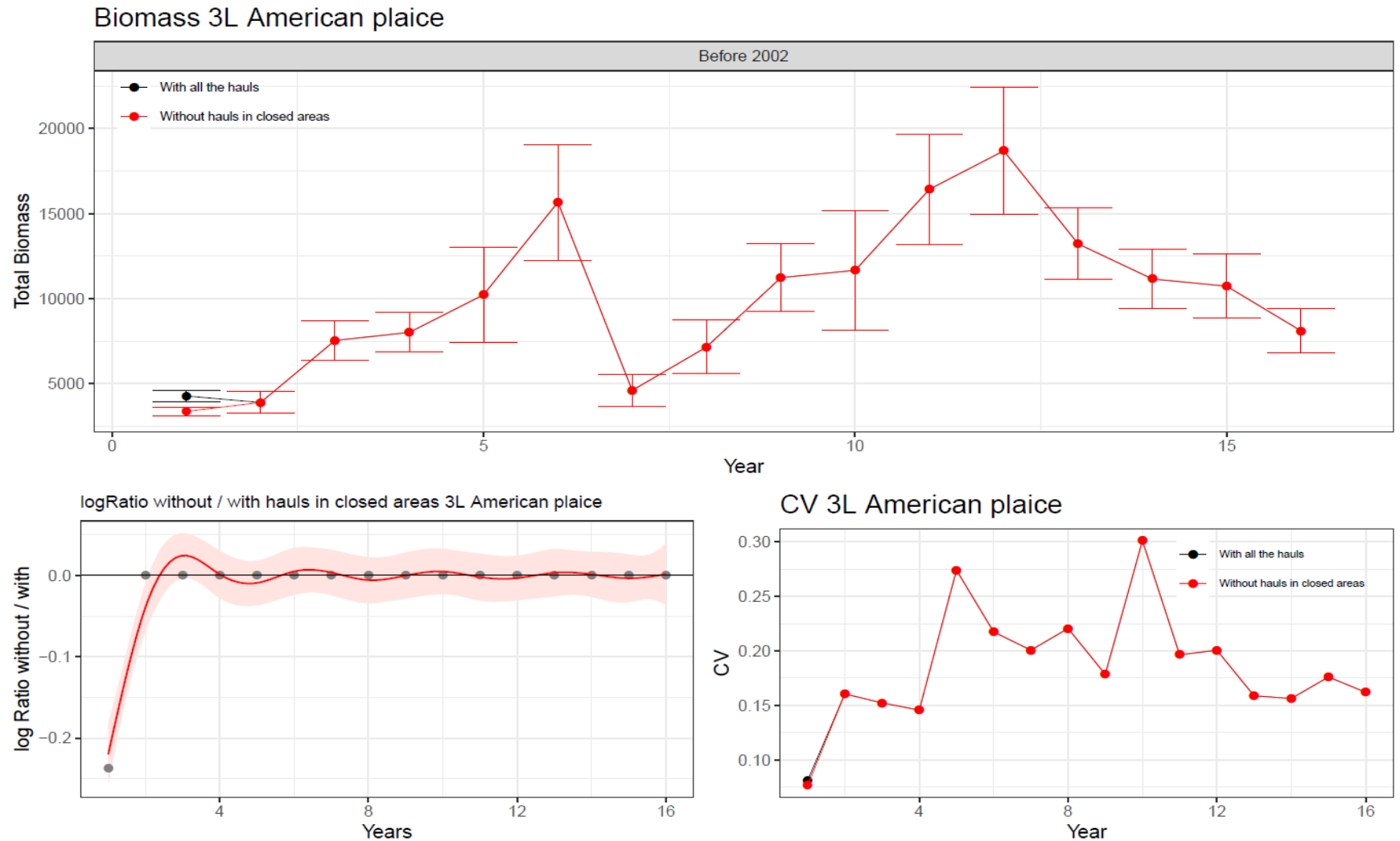


Figure 34. Biomass and SD by year (2003-2019) of the American plaice in 3L with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

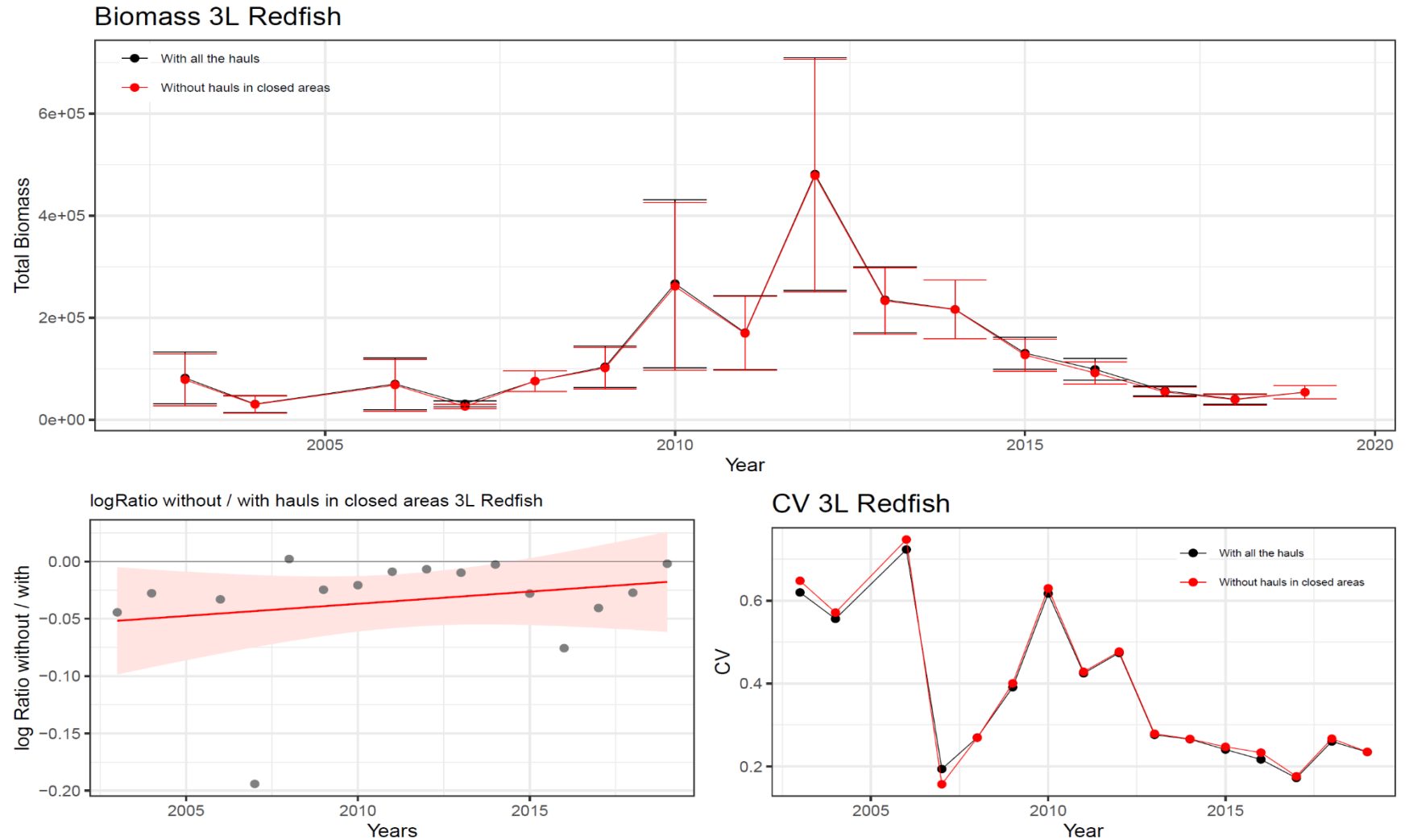


Figure 35. Biomass and SD by year (2003-2019) of the redfish in 3L with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

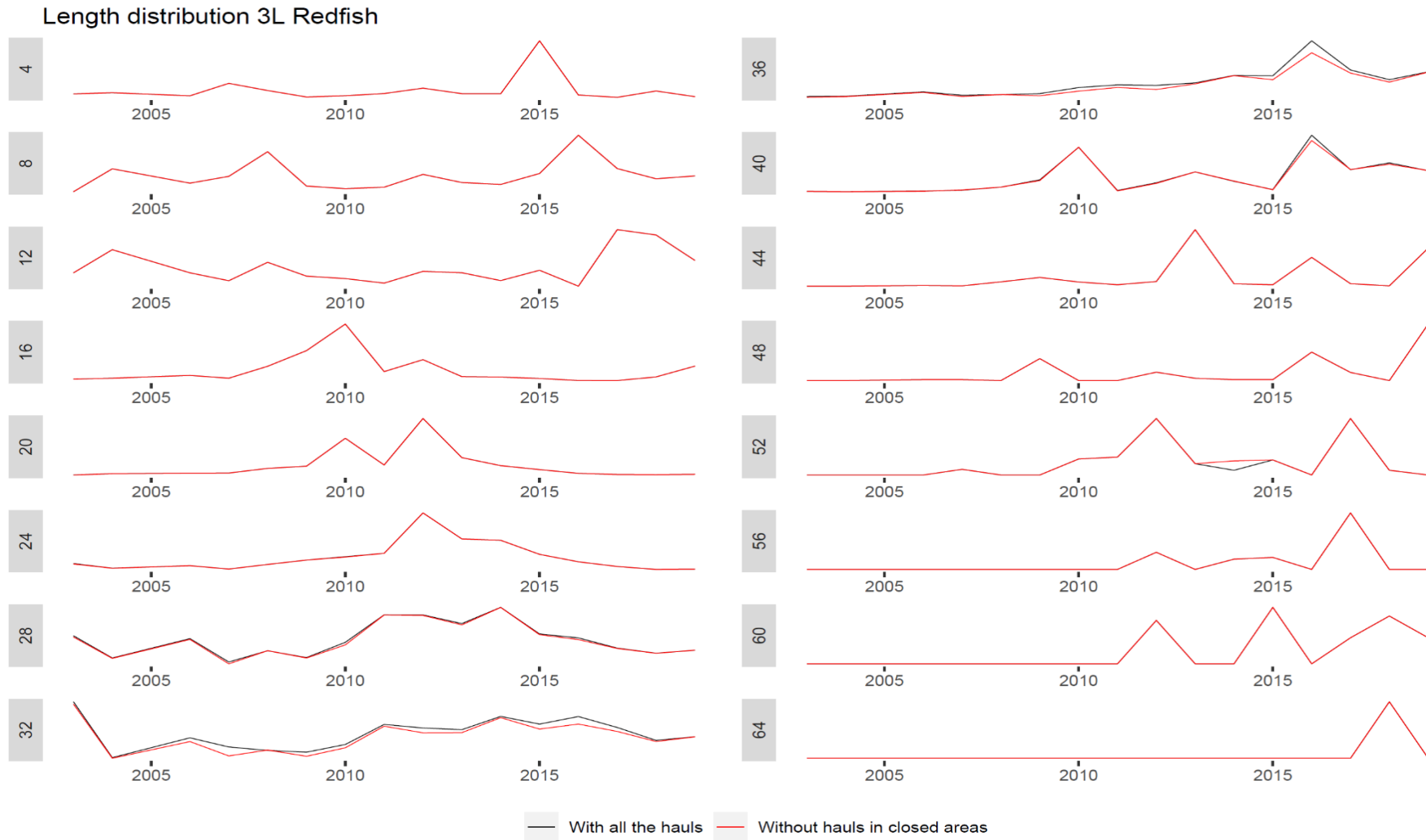


Figure 36. Length distribution by year (2003-2020) of the redfish in 3L with and without the closed areas.

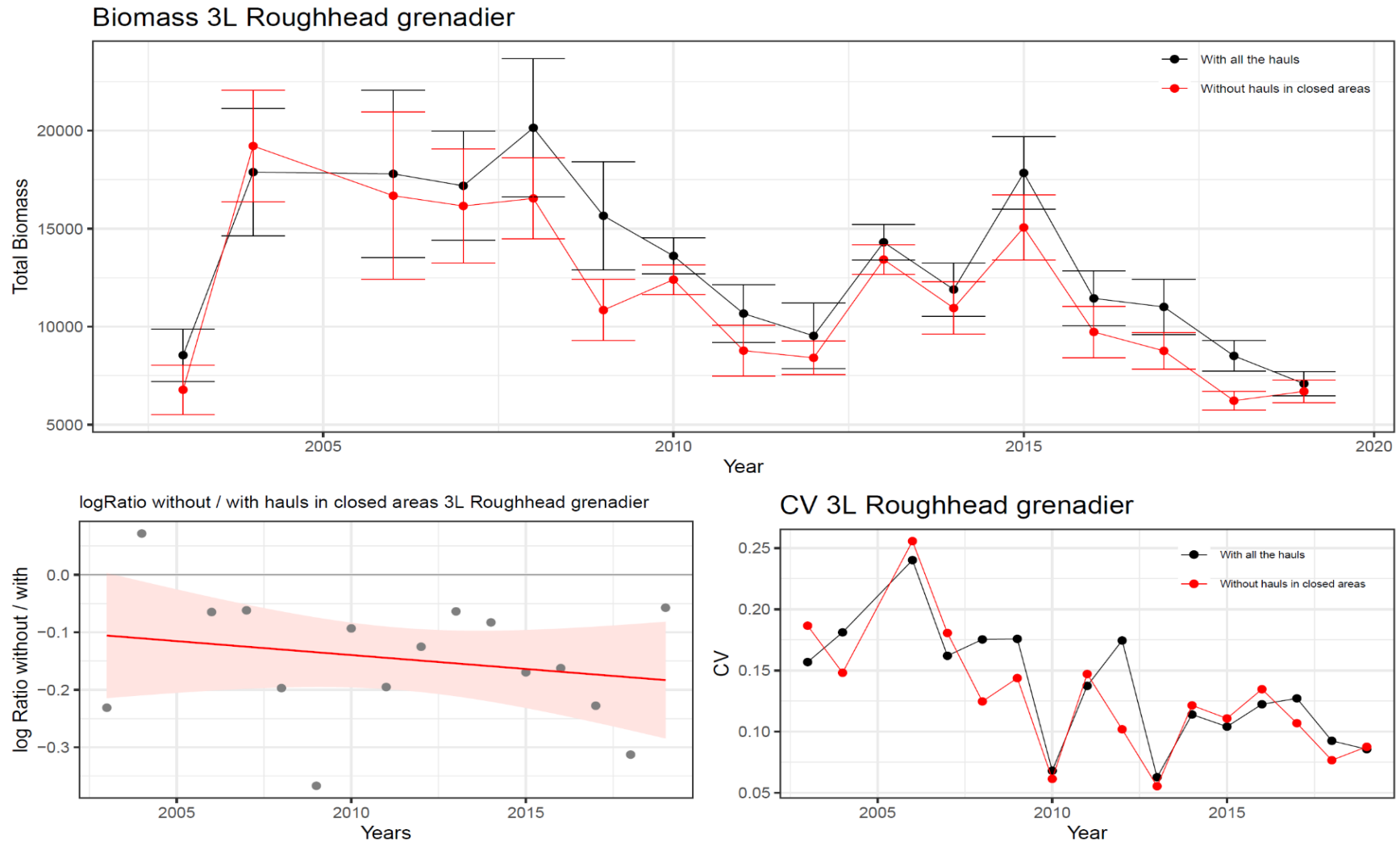


Figure 37. Biomass and SD by year (2003-2019) of the roughhead grenadier in 3L with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

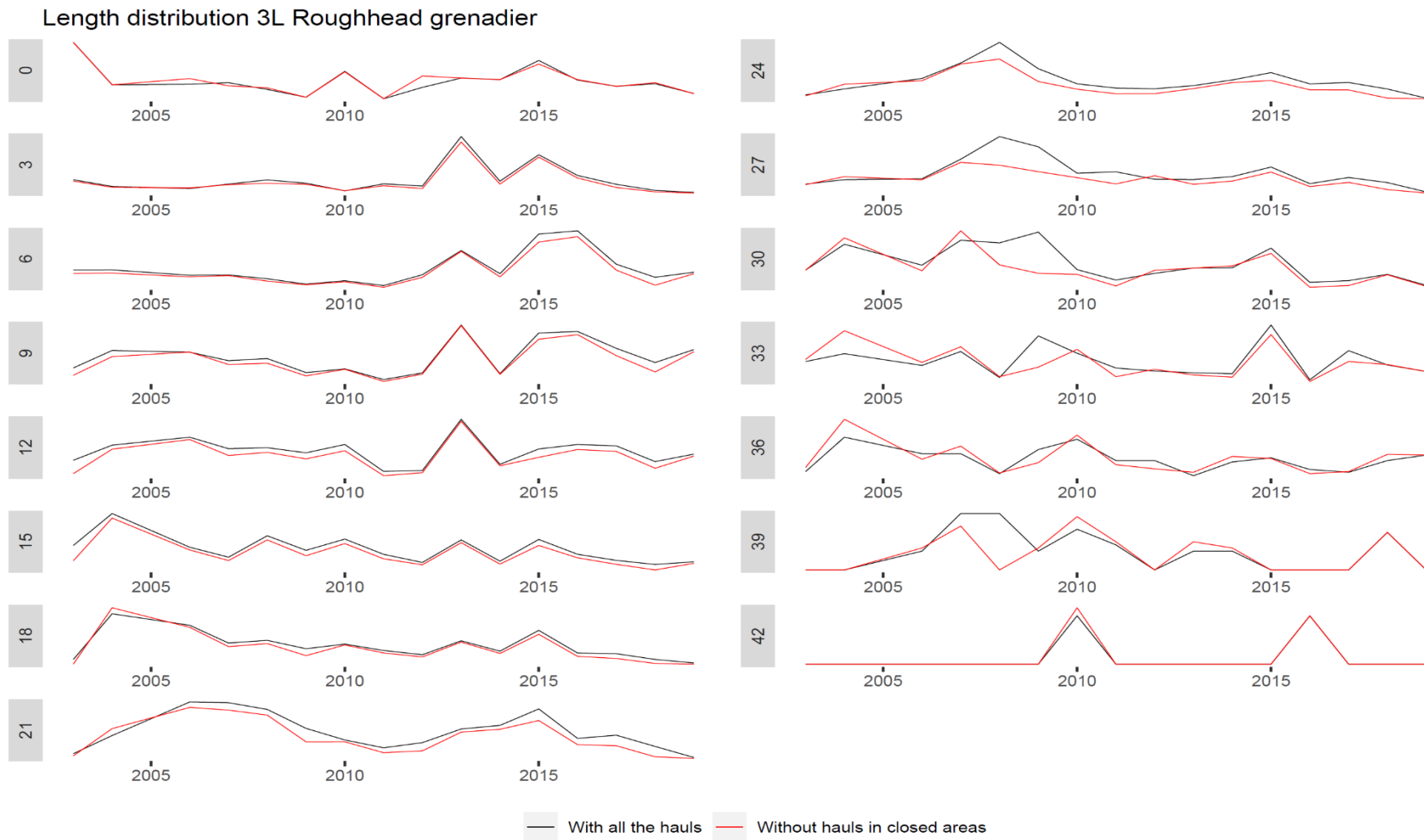
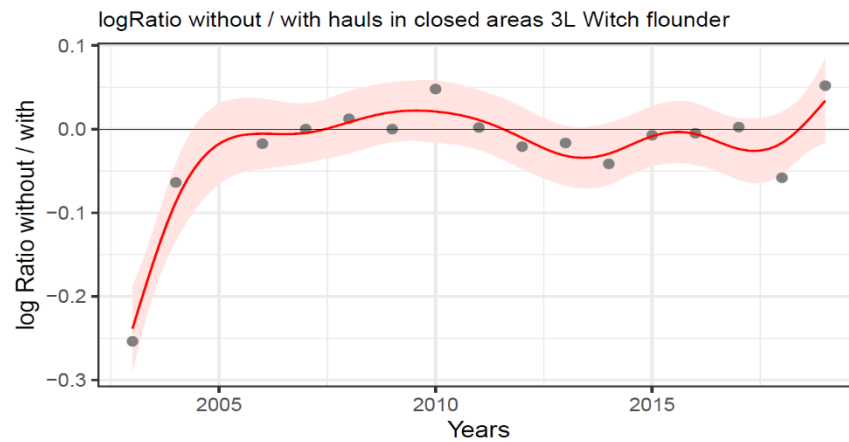
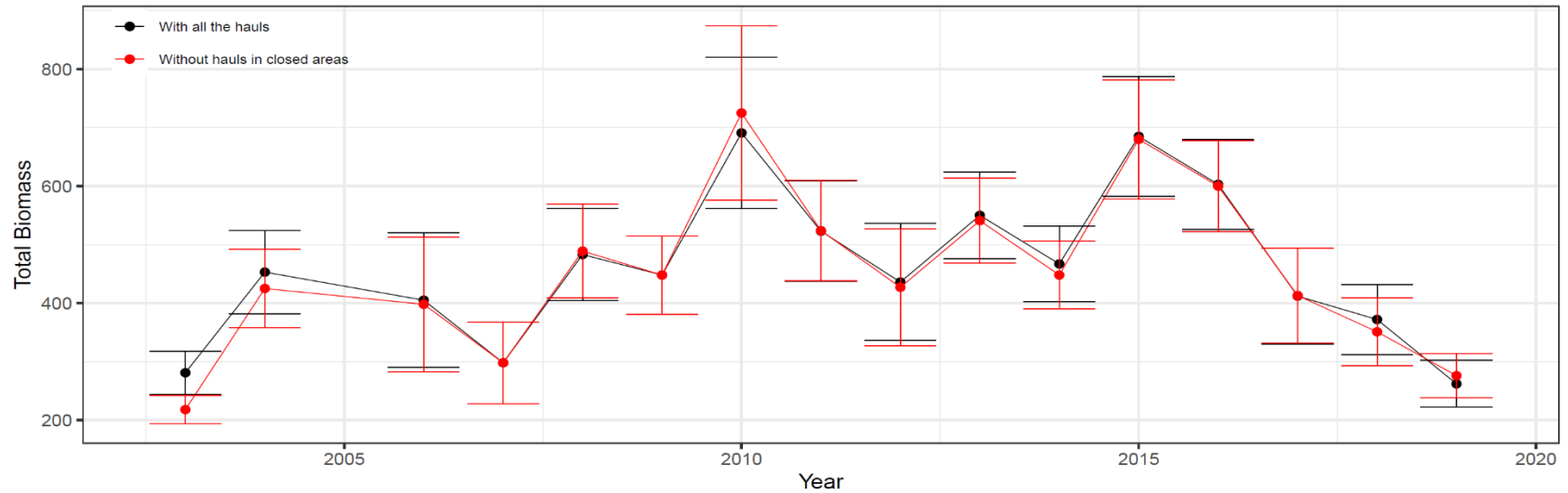


Figure 38. Length distribution by year (2003-2020) of the roughhead grenadier in 3L with and without the closed areas.

Biomass 3L Witch flounder



CV 3L Witch flounder

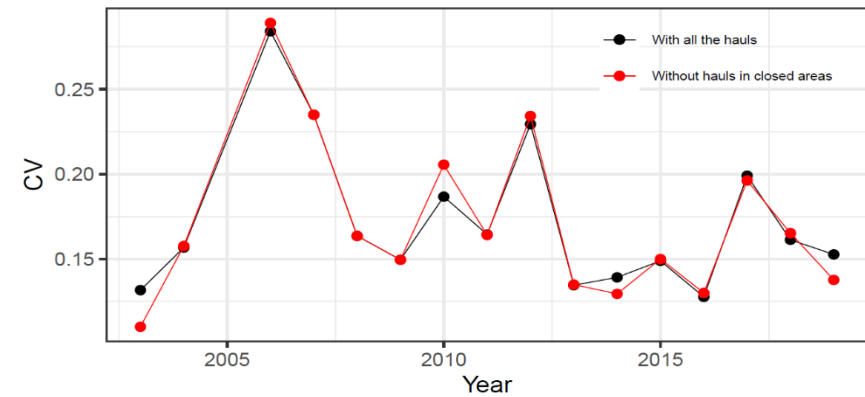


Figure 39. Biomass and SD by year (2003-2019) of the witch flounder in 3L with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).

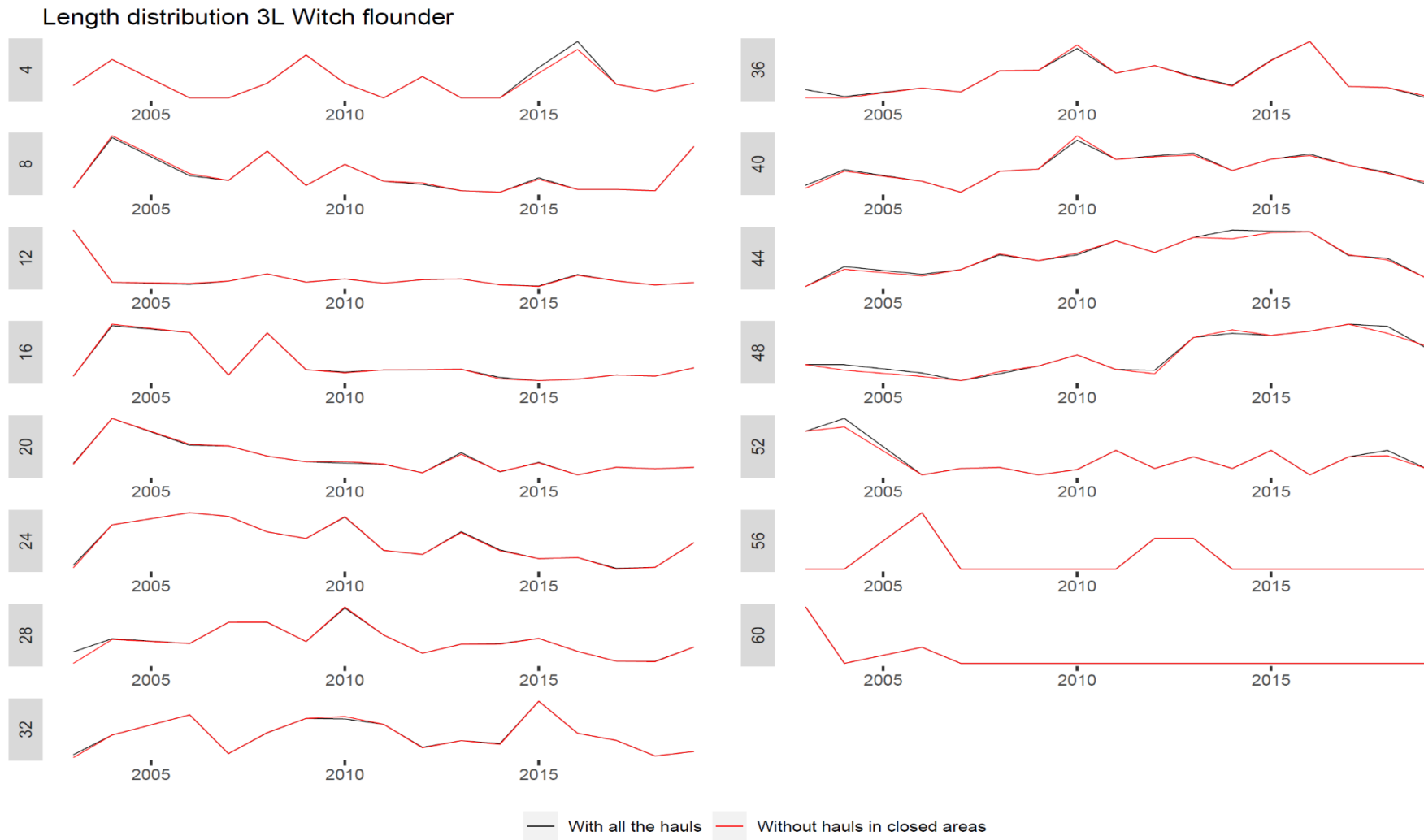


Figure 40. Length distribution by year (2003-2020) of the witch flounder in 3L with and without the closed areas.

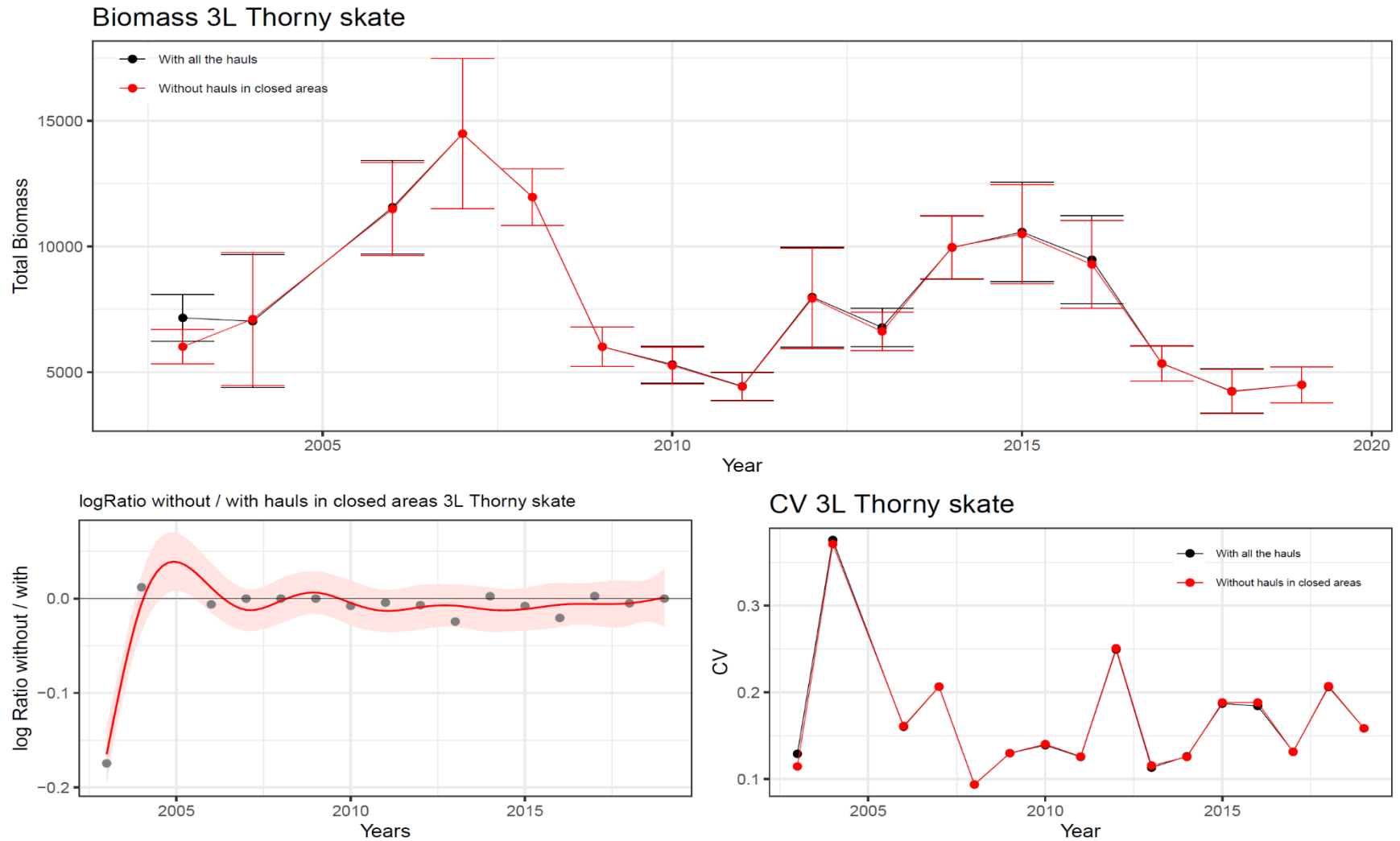


Figure 41. Biomass and SD by year (2003-2019) of the thorny skate in 3L with and without the closed areas. Top plot: total biomass by year. Bottom left plot: log-ratio plot (indicating the relative bias caused by removing data from the protected areas and the GAM smoother trend line and 95% confidence intervals). Bottom right plot: CV of the biomass (SD/biomass).