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Report of the Working Group on Beam Trawl Surveys (WGBEAM)

14–17 April 2015

Leuven, Belgium

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

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Executive summary

The Working Group on Beam Trawl Surveys (WGBEAM) met from 14–17 April 2015 in Leuven, Belgium. The meeting was attended by 9 people representing five countries (+ 10th participant from a sixth country by correspondence) and the ICES Data Centre, and was chaired by Kelle Moreau, Belgium. Data from nine offshore and six inshore surveys were discussed (all surveys under WGBEAM coordination).

WGBEAM 2015 collated an overview of the 2014 results and the 2015 planning of all surveys under its coordination, and provided standard output under the form of updated abundance index time-series for sole and plaice in the offshore and inshore beam trawl surveys. The annual output on spatial sampling coverage and the distribution of a selection of fish species was updated. Progress was made regarding the analysis of changes in mean length-at-age for sole and plaice in the North Sea and the Eastern English Channel, and this work is continued intersessional. The first results of gear comparison tests between the German and Dutch Demersal (Young) Fish Surveys were also presented to the group.

In relation to the ICES Database on Trawl Surveys (DATRAS), actions leading to better data quality were formulated, and ongoing and future development issues were reported and/or discussed.

The group also followed up on its 2014 recommendations and actions, and responded to SSGIEOM requests regarding the skills present in the group and the relation of the group to the different Science Plan Priorities.

Participants to WGBEAM 2015, from left to right : Kay Panten (TI), Vaishav Soni (ICES Data Centre), Kelle Moreau (ILVO), Loes Bolle (IMARES), Sven Kupschus (Cefas), Ingeborg de Boois (IMARES), Holger Haslob (TI), Gérard Biais (Ifremer), and Gary Burt (Cefas).

1 Administrative details

Working Group name

Working Group on Beam Trawl Surveys (WGBEAM)

Year of Appointment

2015

Reporting year within current cycle (1, 2 or 3)

2

Chair(s)

Kelle Moreau, Belgium

Meeting venue

Leuven, Belgium

Meeting dates

14–17 April 2015

2 Terms of Reference a) – e)

2.1 Multi-annual Terms of Reference

ToR	Description	Background	Science Plan topics addressed	Duration	Expected Deliverables
a	Tabulate, report and evaluate population abundance indices by age-group for sole and plaice and other species if required in the North Sea, Division VIIa and Divisions VIId-g, taking into account the key issues involved in the index calculation.	Required to support indices for assessements	113, 121, 141, 144, 161, 162, 173, 211, 251, 252, 311, 321	Annually	WG report chapter
b	Further coordinate and standardize offshore and coastal beam trawl surveys in the North Sea and Divisions VIIa, VIId-g, VIIIa-b and the Adriatic, and update and publish athe standard as a SISP protocol.	Required to ensure consistent approach within and between areas to meet EU directives.	113, 121, 141, 144, 161, 162, 173, 211, 251, 252, 311, 321	Annually	WG report chapter inshore manual offshore manual database (DATRAS)
c	Analyse the changes in mean length-at-age for sole in the North Sea, English Channel, Bristol Channel and Irish Sea.	a). The large WGBEAM dataset has the potential to elucidate temporal and spatial changes in population parameters. b). Indices are being used by assesements	145	Expected output in 2015	WGBEAM 2014 update and ultimatly ASC presentation

		working groups and any changes to age structure of species of interest need to be investigated.			
d	Provide index calculations based on DATRAS for plaice and sole for the North Sea.	Required to support indices for assessements	141, 143, 144	2 years for sole 3 years for plaice	Provision of new indice series to WGNSSK
e	Assess the opportunities for providing plaice and sole index calculations based on DATRAS for all other areas.	Required to support indices for assessements	141, 143, 144	3 years	Provision of new index series to relevant WGs

2.2 Review of WGBEAM 2014 Recommendations and Actions

Recommendations

1) *To create the "WGBEAM flat file" proposed by WKDATR (see Section 4.2.4 of WKDATR 2013 report) as soon as possible.*

Discussions over a number of years at several survey-related working groups, including WGBEAM, have highlighted the difficulty for many users in using the DATRAS exchange files as a quick access download product. The request for a simplified "flat file" product was formalized by WKDATR 2013, and supported by the Survey groups the same year (ICES, 2013). The work was reported on during the Workshop on Integrated DATRAS Products (WKIDP 2014) (more info in ICES 2014), and continued afterwards. By WGBEAM 2014, the ICES Data Centre had added the derived fields to the "flat file", now referred to as "flex file", and created this file internally (in DATRAS). It is not downloadable from the website. The draft structure of the "flex file" can be consulted in Annex 4 of ICES (2014).

2) *WGBEAM recommends that if time and weather allows, overlapping hauls should be carried out by countries operating in the same area.*

Recurrent recommendation

3) WGBEAM and WGCRAN

a) jointly recommend that NED and GFR carry out side-by-side or overlapping hauls during their Q3 inshore beam trawl surveys in the context of gear comparisons, mainly to investigate differences in catchability for brown shrimp, and b) power analysis

Part a) of this recommendation has been addressed during the 2014 demersal young fish surveys (see Annex 6.3), and the dataset will be expanded in 2015. With respect to b), previously lost German data were found and can be included in the power analysis (together with the 2014 and 2015 data mentioned above). WGBEAM however feels that carrying out the power analysis is a task for the Working Group on Crangon Fisheries and Life History (WGCRAN).

4) *WGBEAM recommends that the Methods Working Group (WGMG) decides on the format of survey sampling variance required for use at assessment working groups. If possible the methodology to calculate this variance should also be produced.*

No single variance estimate can be produced as these are specific to the sampling plan. If no details on this are provided, no progress will be made.

WGBEAM however agrees that this is an important issue that should be taken forward, and recommends that a WK is organized with stock assessors and survey experts to decide on the format(s) of survey sampling variance(s) required for use at assessment working groups, and to produce the methodology to calculate this variance (Annex 3).

5) *WGBEAM recommends that WGEF provides guidance on the required numbers of tope, small-eyed ray, blonde ray and undulate ray that should be tagged to ensure that scientifically meaningful tagging programmes can be set up.*

This recommendation was not carried out but is repeated in the WGBEAM 2015 action list (Annex 3).

6) *WGBEAM recommends that ICES Data Centre develops the procedures to generate survey summary information for beam trawl surveys following the format developed by IBTSWG 2014.*

Not done (also not for IBTS).

7) *WGBEAM recommends that ILVO gives priority to the import of beam trawl survey data in their own database and the transmission to the ICES database DATRAS.*

Ongoing.

8) *WGBEAM recommends that the UK re-investigates the possibility for an inshore survey in the Thames area, so there is improved monitoring of this ecologically important area.*

No action noted.

Actions

1) *Continue cross-checking of distance and duration information for the complete offshore dataset in DATRAS, and resubmit data where appropriate.*

2) *Continue resubmission of files containing -9 for GroundSpeed, replacing this code with the standard survey speed following the manual.*

3) *Continue checks for mismatching information on datatype and subfactor and change errors as soon as possible in DATRAS, by resubmitting the data.*

The national checks referred to in actions 1-3 are ongoing, but an analysis at WGBEAM 2015 showed that no countries resubmitted data yet.

4) *Continue uploading all species caught during the beam trawl surveys, if necessary by resubmitting files from earlier years.*

Ongoing.

5) *Summarize all information on tag-and-release programmes for demersal elasmobranchs that have been carried out on beam trawl surveys so far. WGBEAM Chair to liaise with the chair of the Working Group on Elasmobranch Fishes (WGEF) on*

the required information, and to collate this information for the attention of WGEF.

This action was transferred to the action list of WGBEAM 2015, and the information should be collected by WGBEAM 2016 so it can be delivered to WGEF 2016.

6) Present updated survey list to SSGIEOM-Chairs.

Done.

7) Present Annex 13 (table) and text (Section 5.6.3) with information on species collected during beam trawl surveys, stored in national databases, and uploaded to DATRAS, to the ICES Data Centre.

Done.

8) Include updated maps and send offshore BTS manual to SSGIEOM-Chairs for review in the process towards publication in the SISP-series.

Ongoing.

9) Present WGBEAM response to the marine litter request to the ICES Data Centre (Marilynn Sorensen/Vaishav Soni).

Done.

Actions related to index calculations BTS from DATRAS, carry out before 1/02/15.

1) Continue scrutinizing the differences between nationally constructed indices and indices calculated from DATRAS (for ENG, GFR, NLD), and continue solving the differences by resubmitting data and/or fine-tuning the current codes. Remaining differences should be discussed during WGBEAM 2015, to see the impact of the differences.

Ongoing.

2) Apply the current index calculation to

a) the German BTS data and send the data to TI for review,
b) the Belgian BTS data if uploaded in DATRAS and send the data to ILVO for review.

Part a) was carried out during WGBEAM 2015 for as far as the index calculation is concerned, the review by TI will follow afterwards. Part b) could not be carried out yet.

3) Formal data product request to ICES Data Centre regarding output calculations for VIII offshore survey and all inshore surveys.

Done.

4) Fine-tuning of Dutch index before information can be made available to assessment groups.

Ongoing (resubmission by IMARES done, recalculation by ICES Data Centre done, review by IMARES ongoing)

5) English index calculations for IVa have to be approved by Cefas.

Done (but WGBEAM wishes to note that this action refers to the English index calculations for Division IVc, and not IVa).

6) Compose documentation on index calculations.

Ongoing.

3 Summary of Work plan

Year 1	Annual standard outputs for a,b. Continue analysis for ToR c,d,e.
Year 2	Annual standard outputs for a,b. Continue analysis for ToR c,d,e sole index output for North Sea.
Year 3	Annual standard outputs for a,b. Combine analysis for previous year and report ToR c.

4 List of Outcomes and Achievements of the WG in this delivery period

- Response to recommendations and actions from WGBEAM 2014 (section 2.2)
- Update and interpretation of abundance index time-series for sole and plaice in offshore and inshore beam trawl surveys (section 5.1)
- First results of gear comparison between RV Clupea (GFR) and RV Isis (NED) during the demersal young fish survey (2014) (section 5.1.2.3)
- Overview of results from 2014 offshore and inshore beam trawl surveys (section 5.2.1)
- Planning of 2015 offshore and inshore beam trawl surveys (section 5.2.2)
- Progress on the analysis of the changes in mean length-at-age for sole and plaice in the North Sea and the Eastern English Channel (section 5.3)
- Progress on improving data quality in DATRAS (section 5.6.1.1) and DATRAS-development topics (section 5.6.1.2)
- Response to requests from SSGIEOM (WGBEAM skills / WGBEAM vs. Science Plan) (sections 5.6.2 and 5.6.3)

5 Progress report on ToRs and workplan

5.1 Tabulate, report and evaluate population abundance indices by age group for sole and plaice and other species if required in the North Sea, Division VIIa and Divisions VIId–g, taking into account the key issues involved in the index calculation (ToR a).

5.1.1 Abundance indices by age group for plaice and sole for the offshore surveys

Figures 5.1.1.1–5.1.1.2 and Tables 5.1.1.1–5.1.1.2 in Annex 5 present the abundance indices by age for sole and plaice from each of the offshore survey areas separately, updated with the indices for 2014.

The revision history until 2013 can be found in the WGBEAM 2014 report (ICES, 2014) and preceding WGBEAM reports.

5.1.1.1 Sole

North Sea – Subarea IV

Time-series trends for sole in the North Sea, based on the Netherlands Isis offshore survey, are shown in Figure 5.1.1.1a in Annex 5.3. This survey indicates that recent year classes have been mainly poor with 7 of the year classes in the latest decade (2004–2013) below the long-term arithmetic mean at all ages. The 2010 year class, with slightly above average number of one year olds in 2011, appears clearly at age 4+ in 2014 with above average numbers at this age and the second highest record since the start of the time-series. The number of one year olds in 2014 however (year class 2013), was below the long-term average. While the number of age group 2 in 2014 was slightly above average the number of age group 3 is clearly below which reflects the poor year class of 2011. The spatial coverage of the Netherlands Tridens survey makes it unsuitable for monitoring sole abundance.

Time-series trends for sole in the Southern North Sea, based on the UK offshore survey, are depicted in Figure 5.1.1.1b in Annex 5.3. Also here, the number of one-year olds was below the long-term mean in 2014 and similar to the value observed in 2013. The year class 2010 seems less strong in this part of the North Sea compared to the Dutch Isis survey area, being around average at age 1 but below average at age 2. The 2010 year class however does appear above average at age 3 in 2013, with the highest value observed in the series but does not appear as clearly at age 4+ as compared to the Isis survey area. The year class 2011 is one of the lowest at age group 1 and below average at age group 2. At age group 3 this year class is the lowest observed in the time-series.

Western Waters - Subarea VII

The indices for sole from area VII stocks are summarized in Figure 5.1.1.1c-f in Annex 5.3.

Division VIId

After three years (2009–2011) during which the relative abundance of sole in the Eastern English Channel was either at or above the time-series averages across all age groups, this trend did not continue in 2012 and in 2013, when the numbers of one and two year olds were far below the long-term averages, with the number of one year olds (the incoming year class 2012) being the second lowest of the time-series. In 2014 the number of one year old sole was again far above the average among the highest values recorded. However, the extremely low year class of 2012 reached nearly the average value at age group 2 in 2014. The number of 3 year olds has decreased in abundance compared to the all-time record of the year 2013 (2010 year class) but was still well above average. The strong 2010 year class now appears in the 4+ group, presenting the highest value observed in this dataseries ever. The relative abundances for the 1–3 age groups have been quite variable over time, what can often be attributed to strong 1 group recruitments that can be followed through from one year to the next.

Division VIIe

The survey in this area was not continued since 2014, but Tables and Figures including the data up to 2013 are still provided in Annex 5.

Division VIIf

The relative abundances of the age groups 1 and 2 of sole in the Bristol Channel are below time-series averages in 2014 and the abundance of the 3 group is above the long-term average. While for the years 2011 to 2013 the number of age group 4+ was above average it has decreased to average in 2014.

Division VIIa

Of all VII sole stocks, sole in the Irish Sea is clearly in the worst shape according to the beam trawl surveys carried out in this Division. In 2014 the abundances have been below the time-series means for all age groups, as observed since 2005. An increase in numbers of age group 1 was observed for 2014 but still this value is below the time-series average. The numbers for the 4+ group however remain more or less stable at the low 2005–2013 level. As for most other sole stocks, peaks in the abundance of 1 groups can generally be tracked through to following years.

Division VIII a,b

The ORHAGO survey time-series trends of age group abundances of sole in the Bay of Biscay (Figure 5.1.1.1g) is marked by the arrival of two below average year classes in 2011 and 2012 at age 1. The yearly advance in age of these two year classes can be followed from age 1 to 3. Their abundance indices in successive years are consistent between them. The following year classes at age 1 are slightly above the mean in 2013 and 2014. Again the abundance indices at age 1 and 2 of the 2012 year class are consistent between them. The 4+ age group abundance indices are above the mean in recent years because the cumulative effect of three good year classes (2007, 2008. and 2009).

Northern Adriatic Sea

Figure 5.1.1.1h shows the time-series trends in sole for the northern Adriatic Sea, based on the SoleMon offshore beam trawl surveys. Although sole otoliths were collected since 2007, for financial constraints it was not possible to analyse these for the age. So age slicing, based on von Bertalanffy parameters (Linf: 39.6; k: 0.44, t0: -0.46), was carried out using LFDA 5.0.

This survey indicates that the 2014 0 age group of sole in the northern Adriatic has been higher than the level of the long-term arithmetic mean (the abundances at this age have only been substantially below the mean in 2006, 2008, 2009, and 2010). At age 1, the 2014 cruise yielded the highest index value of the time-series and the abundance was also above the long-term arithmetic mean for age 2 in this year. Age groups 3 showed lower values than the averages for these ages in 2014, what has been consistently so since 2009. The abundance of the 4+ group showed the highest value since 2008.

5.1.1.2 Plaice

North Sea – Subarea IV

Figures 5.1.1.2a and 5.1.1.2b in Annex 5.4 show trends in the indices for North Sea plaice from the Netherlands Isis and Tridens surveys. The Isis survey covers mainly the southern North Sea, whereas the Tridens extends substantially further north and west.

The Isis survey indicates that recruitment has been below average in most years since the strong 2001 year class became apparent as one year olds in 2002. In 2014, as detected in 2009, 2011 and 2013, the observed number of one year olds was higher than

the long-term mean but in this year it was only slightly higher. The Tridens survey confirmed the strong 2001 year class, but also documented a series of seven consecutive incoming year classes that were above average from 2007 onwards, including 2014. This pattern is visible at all ages in this survey, and the cohorts can be tracked over time really well. The clear increasing trend in the age 4+ group is continuing in 2014 with the highest record of the time-series ever. In the more inshore Isis survey this was only the case to a lesser extent, with above average abundances since 2011 for age group 3 and since 2007 for age 4+. Same as for the Tridens survey time-series the 2014 value for age group 4+ is the highest ever recorded. The combined Isis-Tridens index (Figure 5.1.1.2c in Annex 5.4) shows above average numbers-at-ages 1-4+ in 2014, with an increasing trend since the beginning of the 21st century for ages 3 and 4+. It is not clear where the larger numbers of four year olds in 2007–2009 come from in the Tridens and combined indices.

The population abundance series for plaice from the UK offshore survey (depicted in Figure 5.1.1.2d), tells a different story for the Southern North Sea. Here, the high incoming year classes 2007 and 2008 are apparent as the biggest in recent years. Differently from Dutch surveys the number of incoming recruits at age 1 (year class 2013) is somewhat increasing but still below the long-term average as previously observed for the years 2012 and 2013. The increasing trend in numbers which can be seen from the combined Dutch survey index for age group 3 and 4+ is not visible in the UK offshore survey in this area. However, the numbers of age group 4+ was above average for the last three years but with a decreasing trend.

Western Waters - Subarea VII

The indices for plaice from area VII stocks are summarized in Figure 5.1.1.2e-h in Annex 5.4.

Division VIId

The abundance at age 1 after the dropping observed in 2012, was again above the long-term arithmetic mean (year class 2012) in 2013. In 2014 the abundance at age 1 was observed to be exceptional high and is by far the highest record of the time-series. This is also the case for the abundance at age 2 although the numbers of this year class were only slightly above the average in 2013. As a result of the good year classes 2009 and 2010 also the number of age 4+ was the highest ever observed in the time-series. Cohorts can be generally well tracked into all or some of the following years in this survey.

Division VIIe

The survey in this area was not continued in 2014, but Tables and Figures including the data up to 2013 are still provided in Annex 5.

Division VIIf

The relative abundance at age 1 increased considerably for plaice in the Bristol Channel in 2013, reaching a value similar to what was observed in 2010 and 2011. This trend continued in 2014 and resulted in the highest record for age group one in the time-series. The strong year class 2010 can be tracked over the years, and produce time-series peaks of 3 in 2013 and 4+ year olds in 2014. The numbers in the 4+ group are again the highest of the entire time-series doubling the value for 2013. Since 2009 the numbers of this age group consistently increased. Earlier in the survey history, abundance peaks of age 1 fish could not always be tracked over the following years as well as in recent years.

Division VIIa

The age 1 abundance of plaice in the Irish Sea in 2014 was above the level of the long-term average with the highest record of the time-series. Since 2002–2003 the abundance figures have remained relatively constant for all age groups (with a lower value for age 1 in 2005–2006 as the main exception), and noticeably above those recorded for the years prior to this date. As opposed to sole in this area, place in VIIa seems to be characterized by a healthy stock status, with numbers for the 4+ group in 2010–2014 being the highest of the time-series. Cohorts can be tracked relatively well over consecutive years in this survey.

5.1.2 Abundance indices by age group for plaice and sole for the inshore surveys

The Belgian Demersal Young Fish Survey (DYFS), the German DYFS and the Dutch Demersal Fish Survey (DFS) together cover most of the coastal and estuarine waters along the continental coast from the French-Belgian border to Esbjerg in Denmark. All these surveys were initiated in the 1970s.

Previously, the three continental surveys and the UK Young Fish Survey (YFS) were combined into international inshore indices for 0 and 1 group plaice and sole. Due to termination of the UK YFS and the spring survey of the German DYFS, the combined 0 group indices are now calculated using Belgian, Dutch and German data, and the combined 1 group indices using Belgian and Dutch data only. The Dutch, and hence the combined indices, are calculated from 1990 onwards, mainly due to a change in the survey design of the Dutch DFS in 1990.

The Dutch Sole Net Survey (SNS) was initiated in 1970 and samples transects further offshore than the other inshore surveys. The SNS survey area overlaps with those of the Dutch DFS and BTS-Isis.

The Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK) uses the SNS indices and the combined inshore indices for recruitment estimates of the North Sea plaice and sole stocks. The SNS indices are also used as tuning fleet in the XSA models. The combined inshore indices are considered to be suitable for 0 group plaice and sole, but less suitable for 1 group sole and especially for 1 group plaice, because of the spatial coverage of the survey in relation to the spatial distribution of these age groups. The SNS is considered to be suitable for plaice and sole age groups 1 to 4.

The abundance indices are presented in Annex 6.1 for the D(Y)FS and Annex 6.2 for the SNS. The corresponding combined inshore indices and the SNS indices are plotted for 1990 to 2014 in Figures 5.1.2.1 and 5.1.2.2 respectively (Annexes 6.1 and 6.2).

5.1.2.1 Sole

The combined inshore indices for both 0 and 1 group sole in 2014 were slightly below average. The 2013 year class appeared to be above average at age 0, but not at age 1 in the inshore surveys (Figure 5.1.2.1 in Annex 6.1). The SNS indices suggest a slightly above average year class 2013 at age 1 (Figure 5.1.2.2 in Annex 6.2).

The SNS indices were extremely low for all age groups sole in 2012 (Figure 5.1.2.2 in Annex 6.2). This year effect was probably caused by the fact the survey was carried out by the RV Tridens instead of the (smaller) RV Isis, which is usually used for this survey. It appears that the catchability for sole was strongly reduced by deploying the SNS gear on board of the RV Tridens. The 2012 indices should, therefore, be treat-

ed with care. The strong year effect in 2012 has resulted in a reduced internal consistency for this survey in the most recent years.

5.1.2.2 Plaice

The combined inshore indices for 0 and 1 group plaice were below average in 2014. The 0 group index is among the lowest values estimated since 1990 (Figure 5.1.2.1 in Annex 6.1). In the SNS, the 1 group index is also below average (Figure 5.1.2.2 in Annex 6.2).

Although a year effect in 2012 in the SNS is far less evident for plaice than for sole (Figure 5.1.2.2 in Annex 6.2), this year should also be treated with care for plaice. The use of a different vessel may also have affected the catchability of plaice (see above). The internal consistency is also poor for plaice in the most recent survey years.

5.1.2.3 Gear comparison between RV Clupea and RV Isis during the demersal young fish survey 2014

In response to WGBEAM 2014 recommendation 3, Germany and the Netherlands carried out 12 overlapping hauls during their autumn young fish surveys. The results are briefly discussed in Annex 6.3.

5.2 Further coordinate and standardize offshore and coastal beam trawl surveys in the North Sea, Division VIIa and Divisions VIId–g, VIIIa–b and the Adriatic, and update and publish the standard as a SISP protocol (ToR b).

5.2.1 Results of 2014 surveys

5.2.1.1 Offshore beam trawl surveys

5.2.1.1.1 Participation and coverage of the area

Nine surveys were carried out, covering the North Sea, VIId, VIIe, VIIfg, VIIa, VIIIa, VIIIb and the Northern Adriatic Sea. The participating vessels and time of the surveys are listed in Table 5.2.1.1. Further details (areas covered, technical specifications) by country are given in Annex 4.1.

Table 5.2.1.1. Overview of offshore bream trawl surveys during 2014 / early 2015.

Country	Vessel	Area	Dates	Gear
Belgium	Belgica	southern North Sea	27 Aug – 5 Sep 2014	4 m beam
England	Endeavour	VIId, IVc	16 – 23 July 2014	4 m beam
England	Endeavour	VIIa, VIIf	7 – 27 Sep 2014	4 m beam
England	Endeavour	VIIe. Celtic Sea	26 Feb – 22 Mar 2015	4 m beam
France	Antea	VIIIa, VIIIb	5 – 25 Nov 2014	4 m beam
Germany	Solea	German Bight	11 – 24 Aug 2014	7 m beam
Italy/Slovenia	G. Dallaporta	northern Adriatic Sea	10 – 28 Nov 2014	3.5 m beam
Netherlands	Tridens	central North Sea	18 Aug – 11 Sep 2014	8 m beam + flip-up rope
Netherlands	Isis	southern North Sea	4 Aug – 5 Sep 2014	8 m beam

5.2.1.1.2 Survey results

A summary of each of the offshore surveys is to be found in Annex 8. The spatial sampling coverage per country, and distribution plots for several fish species are presented in Annex 7.

For the Belgian survey, 61 out of the total of 62 planned stations were fished successfully and were declared valid. One station was missed because of time lost due to some minor technical problems that were quickly solved by the crew of the RV Belgica.

The English eastern English Channel and southern North Sea (VIId, IVc) survey was completed in excellent weather, and in total 86 stations were sampled, although it was necessary to reduce the tow duration to 20 min for 19 of the prime stations to avoid static gear, reduce the impact of large catches of shell/gravel, and because of time constraints. For The Irish Sea and Bristol Channel (VIIa, VIIf) survey 108 stations were sampled, although significant gear damage occurred at two stations. A total of 22 prime stations were reduced from the standard 30 min tow to either a 20 or 15 min tow or were hauled early because of either expected large catches of weed, broken shell or small flatfish, static gear over the tow or fishing a new tow location. The weather was generally good throughout the Q1 western English and Celtic Sea ecosystem survey although at the beginning of the survey in VIIe it was necessary to sample stations close inshore to shelter form strong winds and heavy swells offshore. Both static gear and hard ground, resulted in a number of invalid tows, along the Irish and French coasts meant that tows had to be repeated or alternative tows identified. One of the beam trawls was lost on hard ground off the French coast, and although it was not was not be initially recovered, it was recovered after returning to the location later during the survey. In total 134 stations were completed.

The French ORHAGO survey in the Bay of Biscay was carried out using a new vessel: Antea, a 34.9 m long catamaran, because the withdrawal of the Gwen Drez from the French scientific fleet. This leads to a technical change in the gear configuration: whereas two warps were attached directly to the extremities of the beam on Gwen Drez (this rigging had been adopted since the beginning of the ORHAGO series for security reasons on the Gwen Drez), this was no longer possible on the Antea because of its width (11.9 m). Consequently, the beam was towed on one warp using a chain bridle. The 50 reference stations used for the abundance index calculation were completed. However, some hauls were slightly displaced because of the presence of fixed nets on the position. Six hauls were carried out on positions which were towed in 2007–2008, but not retained later in the reference list, to investigate if some changes in abundance may request to revise their exclusion from the reference list.

The German survey was affected by strong winds. Fishing could be carried out at 6 of 13 days. Due to these time constraints, it was decided to give priority to the coastal rectangles with a reduced intensity of two hauls per square instead of the planned four. Thirty hauls were carried out (approx. 15 hours fishing time).

Sixty-seven hauls were successfully completed for the Adriatic Sea survey (approx. more than 30 hours fishing time). The survey was completed without incident. A total of 18 stations had to be fished for less than 30 minutes. This was mainly due to large bycatches of benthos and/or as a precaution against gear damage.

Two offshore beam trawl surveys were undertaken by the Netherlands, each using a different vessel ("Tridens" and "Isis"). For the survey conducted by "Tridens", 71 hauls were carried out (approx. 35 hours fishing time). The survey was finished without major incidents. As the weather was good during most of the survey, the survey was completed within the time planned. Sixty-two hauls were carried out (approx. 30 hours fishing time) by "Isis", although the survey suffered from technical problems and bad weather conditions.

5.2.1.2 Inshore beam trawl surveys

5.2.1.2.1 Participation and coverage of the area

The inshore surveys in the North Sea are carried out by Belgium (Demersal Young Fish Survey-DYFS), Germany (DYFS) and the Netherlands (Demersal Fish Survey-DFS). UK (Young Fish Survey-YFS) ceased the survey due financial constraints.

The Sole Net Survey (SNS), which is carried out by the Netherlands in the North Sea, is classified as an inshore survey, but 'nearshore' may be more appropriate because the area covered is further offshore than the other inshore surveys.

The participating vessels and time of the cruises is listed in Table 5.2.1.2. Further details (areas covered, technical specifications) by country are given in Annex 4.2. Details on the strata fished are given in Annex 10.

Table 5.2.1.2. Overview of inshore surveys during 2014.

Country	Vessel	Area	Dates	Gear
Belgium	Simon Stevin	Belgian coastal zone	8 Sep–16 Sep	6 m shrimp trawl
Germany	BK3 Clupea	German Bight and German Wadden Sea	1 Sep–2 Oct	3 m shrimp trawl
Netherlands (SNS)	Isis	Dutch coastal zone	9 Sep–19 Sep	6 m beam trawl
Netherlands	Schollevaar	Scheldt estuary	1 Sep–18 Sep	3 m shrimp trawl
Netherlands	Stern	Dutch Wadden Sea	25 Aug–26 Sep	3 m shrimp trawl
Netherlands	Isis	Dutch coastal zone and German Bight	22 Aug–23 Sep	6 m shrimp trawl

5.2.1.2.2 Survey results

A summary of each of the surveys is to be found in in Annex 9.

Belgium carried out all planned stations and all stations were valid.

The German inshore survey did not face any difficulties. In 2014, the age determination on plaice – that was started in 2013 – was continued.

The Netherlands carried out all planned inshore surveys without any problems.

5.2.2 Coordination and standardization of beam trawl surveys

5.2.2.1 Offshore beam trawl surveys

5.2.2.1.1 Timing and area coverage

Annex 4.1 lists the offshore surveys together with the geographic area covered, the gear used and date started.

As in previous years, WGBEAM recommends that if time and weather allows, overlapping hauls should be carried out by countries operating in the same area. In 2014, no overlapping hauls were carried out due to time constraints, other priorities and budgetary constraints.

Table 5.2.2.1. Timing of the offshore beam trawl surveys in 2015 / early 2016.

Country	Vessel	Area	Dates	Gear	Contact
Belgium	Belgica	southern North Sea	24 Aug–4 Sep 2015	4 m beam	kelle.moreau@ilvo.vlaanderen.be
UK	Cefas Endeavour	English Channel / Celtic Sea	26 Feb–23 Mar 2016	2x 4 m beam	sven.kupschus@cefas.co.uk Cc: ian.holmes@cefas.co.ukk
UK	Cefas Endeavour	VIId, IVc	18 Jul–31 Jul 2015	4 m beam	joanne.smith@cefas.co.uk Cc: ian.holmes@cefas.co.uk
UK	Cefas Endeavour	VIIfg, VIIa	10 Sep–30 Sep 2015	4 m beam	stephen.shaw@cefas.co.uk Cc: ian.holmes@cefas.co.uk
France	Antea	VIIIa, VIIIb	5 Nov–28 Nov 2015 (provisional)	4 m beam	yann.coupeau@ifremer.fr Cc: Gerard.Biais@ifremer.fr
Germany	Solea	German Bight	17 Aug–31 Aug 2015	7 m beam	kay.panten@ti.bund.de
Adriatic (Italy-Slovenia)	G. Dallaporta	North Adriatic Sea (GSA 17)	17 Nov–10 Dec 2015	2x 3.5 m modified beam	giuseppe.scarcella@an.ismar.cnr.it
Netherlands	Tridens	central North Sea	17 Aug–11 Sep 2015	2x 8 m beam + flip-up rope	ingeborg.deboois@wur.nl
Netherlands	Isis	southern North Sea	4 Aug–4 Sep 2015	2x 8 m beam	Ronald.bol@wur.nl Cc:ingeborg.deboois@wur.nl

5.2.2.1.2 Staff Exchanges

No staff exchanges are planned for the 2015 offshore surveys.

5.2.2.2 Inshore beam trawl surveys

5.2.2.2.1 Timing and area coverage

Annex 4.2 lists the inshore surveys together with the geographic area covered, the gear used and the date started.

Table 5.2.2.2. Timing of the inshore beam trawl surveys in 2015.

Country	Vessel	Area	Dates	Gear	Contact
Belgium	Simon Stevin	Belgian coastal zone	7–15 Sep 2015	6 m shrimp trawl	Jurgen.Bossaert@ilvo.vlaanderen.be Cc: kelle.moreau@ilvo.vlaanderen.be
Germany	Chartered vessels + RV Clupea	German Bight and German Wadden Sea	31 Aug–2 Oct 2015	3 m shrimp trawl	Holger.haslob@ti.bund.de Cc: Volker.siegel@ti.bund.de
Netherlands (SNS)	Isis	Dutch coastal zone	7–18 Sep 2015	6 m beam trawl	Hanz.wiegerinck@wur.nl Cc: Loes.bolle@wur.nl
Netherlands	Schollevaar	Scheldt estuary	31 Aug–18 Sep 2015	3 m shrimp trawl	Andre.dijkman@wur.nl Cc: Loes.bolle@wur.nl
Netherlands	Stern	Dutch Wadden Sea	24 Aug–25 Sep 2015	3 m shrimp trawl	Marcel.devries@wur.nl Cc: Loes.bolle@wur.nl
Netherlands	Isis	Dutch coastal zone and German Bight	21 Sep–30 Oct 2015	6 m shrimp trawl	Thomas.pasterkamp@wur.nl Cc: Loes.bolle@wur.nl

The UK survey ceased in 2010.

5.2.2.2.2 Staff Exchanges

No staff exchanges are planned for the 2015 inshore surveys.

5.2.3 Survey Summary Sheets

WGBEAM 2015 held a brief discussion on the usefulness of the survey summary sheets that are produced by the group's participants after each survey. Although detailed survey results and data are not to be found in these sheets, they do contain valuable information about the general survey success and conformity (technical issues, missed and/or replaced stations, etc.) and should therefore be of interest to stock assessors working with indices that are generated from these surveys. Some survey coordinators have developed a practice of sending the summary sheets to stock assessors and/or stock assessment working groups, but the sheets are never being requested. The fear exists that they are not being looked at all. WGBEAM 2015 feels that this doesn't mean that composing the summaries is a useless task. More effort should be directed at making sure people know about the survey summary sheets, and towards an improved use of the sheets by the stock assessment world. Also the contents of the sheets could be better tuned to the needs of stock assessors. Future additions will also include links to DATRAS, where data can be downloaded and derived products can be obtained.

5.2.4 Beam trawl survey manuals

The last updates of the draft offshore beam trawl manual were described in WGBEAM 2014, and no further progress was made during WGBEAM 2015. The group feels that the offshore BTS manual is in a state that allows review, and will send it in for this purpose (see Action 2).

The draft inshore beam trawl manual will be discussed and finalized during WGBEAM 2016 and sent in for review afterwards.

5.3 Analyse the changes in mean length-at-age for sole in the North Sea, English Channel, Bristol Channel and Irish Sea (ToR c)

The objective is to analyse changes in mean length-at-age for sole and plaice in the North Sea, English Channel, Bristol Channel and Irish Sea. Originally this was only intended for sole, but we decided to include plaice to widen the scope of this study. The main goal of this study is to examine consistency of trends across areas and species, to allow formulation and evaluation of hypotheses on the causal factors underlying trends in length-at-age. During the meeting this year we focused on elaborating the dataset (including data not yet included in DATRAS, such as the Bay of Biscay sole data) and statistical analysis of the data. The work will be continued intersessional and a comprehensive document in the form of a draft paper will be made available by the end of 2015.

5.4 Provide index calculations based on DATRAS for plaice and sole for the North Sea (ToR d)

The UK BTS North Sea plaice and sole indices as well as the German sole and plaice indices were produced during WGBEAM 2014, using DATRAS data and the method that is used to calculate the Dutch offshore indices. This exercise and other discussions led to further scrutiny of DATRAS, the data stored, and the DATRAS products during WGBEAM 2015 and intersessional. More information on this can be found under 5.6.1 Data Topics.

5.5 Assess the opportunities for providing plaice and sole index calculations based on DATRAS for all other areas

To be carried out during WGBEAM 2016.

5.6 Other requests and actions

5.6.1 Data topics

5.6.1.1 DATRAS data quality

As in 2013, an analysis of the BTS and BTS-VII data in DATRAS has been carried out. The haul information was screened, and similar issues as described at WGBEAM 2013 were seen. Annex 11 shows the full analysis.

Furthermore, the species list was screened for completeness and inconsistencies between countries. It appeared that none of the countries has submitted all data (i.e. fish and benthos), although WGBEAM in 2013 decided to upload all species in the catch into DATRAS.

Actions:

1) ENG to correct and resubmit all surveys (BTS and BTS-VII) where ground speed=-9. England does not report speed over ground at all. Table 5.6.1.2 (Annex 11) shows the years which this applies to. WGBEAM 2013 (ICES 2013) decided that -9 should not be allowed for speed and so, if speed is not observed, the default for the survey should be entered.

2) ENG to resubmit 2003–2010 BTS and BTS-VII correcting DataType=S in combination with SubFact=1 (see Table 5.6.1.3, Annex 11, and WGBEAM report 2013).

3) TI (GFR) decided to change to Data Type C, however WGBEAM advises that GFR resubmits the BTS 2014 data using data type R as agreed by WGBEAM, and also use this for future submissions. Data type=C should not be used for BTS surveys.

4) ENG, GFR and NED to upload all species caught during the beam trawl surveys, if necessary by resubmitting files from earlier years.

5) ENG, GFR and NED to check the highlighted species in the Table 5.6.1.4 in Annex 11, and to record to the species if possible, or check if the species is correct, and resubmit the file.

5.6.1.2 Developments

5.6.1.2.1 Litter data submission

Based on the format supplied by ICES Data Centre, WGBEAM prepared a test file for litter from the beam trawl. A few questions to ICES Data Centre arose and suggestions were being made by the group:

1) There is no way to fill in attached organisms. The column existed in the previous format, and WGBEAM assumes it can be relevant to those interested in which materials are being used as substratum and which are not.

2) Weight in kg/haul; why not g/haul? Most items weigh less than a kilogramme.

3) LTSZC: for WGBEAM, length is especially relevant to monofilamentous fishing line. For NED 2014 BTS this reaches from 4 cm to 3.5 m. As the monofilamentous fishing lines then still don't have any proper size from a surface perspective WGBEAM likes to be able to fill in lengths.

   Proposal: add classes 15–49.99 cm (13), 50–99.99 cm (14), 100–199.99 cm (15), ≥ 200 cm (16).

4) LTPRP:

a) the link in your format description does not lead to LTPRP (actually it leads to nowhere) although technically it seems to be ok. Searching for LTPRP works fine though;

b) How should we fill in orange fragments in LTPRP? In other words: how can the two different entities listed in LTPRP together be added in the column?

c) Colours: orange and green are missing and often present, and maybe an option 'other' is also relevant, in case the colour was defined but not in the list

5) How should hauls investigated for litter but no litter found be handled?

The questions and suggestions have been sent to ICES Data Centre during the WGBEAM 2015 meeting.

5.6.1.2.2 Inshore data DATRAS upload facility

During WGBEAM 2015, the screening facility for the Inshore beam trawl surveys was tested. The format description can be found at:

https://datras.ices.dk/Data_products/ReportingFormat.aspx

Files for the Dutch 2011 DYFS (Isis, Stern and Schollevaar) were successfully screened during WGBEAM 2015. SNS data could not be screened as the survey and area coding for this inshore survey have not yet been implemented.

WGBEAM has still some comments, which have been sent to the ICES Data Centre during the meeting. The comments are:

1) In the field AgePrepMet a combination of codes (like BKBRWO) is not allowed in DATRAS. For a number of species, a combination of otolith preparation methods is the standard. Like for sole, breaking and burning is the common way to handle the otoliths before age reading, and other combinations apply to other species –sometimes up to three.

2) Valid depth range is 2–35m. Based on the Dutch inshore data, it is proposed to change to 1–50m.

3) It is not possible to submit more than one subfactor for sval=4 in a haul. It happens however quite frequently that (mainly benthos) species are counted in different subsampling factors. If only one subfactor is allowed for sval=4, all the counts per species should be added up which means that the data type should change as it is not R anymore. That is not possible as data type relates to a complete haul.

   WGBEAM concludes that it should be possible to upload different subsampling factors for all special types, no matter if we measure, count or only weigh, as there's always a possibility that you have to deal with more than one subfactor.

Actions:

1) ICES Data Centre to allow data upload for Inshore Beam Trawl survey;

2) BEL, ENG, GFR, NED to submit 2014 DYFS data before WGBEAM 2016;

3) ICES Data Centre and NED to sort out submission of SNS data in the Inshore Beam Trawl survey.

5.6.1.2.3 DATRAS offshore beam trawl survey products

During WGBEAM 2015, the DATRAS cpue per length (n/hour as well as n/km^2) have been compared with national calculations. The calculations give identical results and so, when the cpue per haul (n/hour and n/km^2) is ready, WGBEAM agreed that the products can be made available for download.

5.6.1.2.4 DATRAS checks

WGBEAM discussed data submission in relation to data checks. The most time-consuming issue is to screen the file, go back to the original data, correct, resubmit the file, discover new issues and go back to the original data again. This could be facilitated by making the DATSU checks available to countries submitting data to DATRAS. It was suggested that ICES Data Centre provides the checks to the countries submitting data to DATRAS, preferably as an R script. In that way, data submitters make the DATRAS checks part of the national QA/QC procedure which will speed up the DATRAS upload.

5.6.1.2.5 Webserver to webserver upload under development

During 2015, Netherlands (IMARES) and ICES Data Centre will work together on a webserver to webserver application to resubmit data to DATRAS. The goal is to cre-

ate a generic system available for all member countries using DATRAS to facilitate up-to-date data in DATRAS.

5.6.2 SSGIEOM: WGBEAM skills

WGBEAM – as all other survey working groups – received the question from SSGIEOM to reflect on the skills present in the WG, and assess whether these suffice to carry out the tasks that the group is responsible for.

WGBEAM 2015 feels that the skills that are currently present in the group make answering to the ToRs possible, but the group heavily relies on the expertise of only a few working group members. Therefore, the group feels that it would benefit from skills in working with DATRAS data and general statistical expertise being present in more people, especially when carrying out more analytical tasks in future.

5.6.3 SSGIEOM: WGBEAM vs. Science Plan

SSGIEOM composed a substantial template in which survey groups could elaborate on the relevance of the Science Plan Priorities to the respective WGs, and in which interest regarding future ToRs related to these topics could be expressed. Kelle Moreau prepared the WGBEAM response, that was evaluated and expanded during WGBEAM 2015. The resulting table is not presented in this report, but is available on request.

5.6.4 Marine Litter

As the request on marine litter is also related to DATRAS, this issue was discussed under 5.6.1.2.1 “Developments - Litter data submission”.

5.6.5 Cefas examination of efficiency of otolith collections on surveys

Cefas is planning to examine the efficiency of otolith collections on surveys. Currently most surveys have fixed otolith targets per cm length group across all ranges. However the number of ages represented within a length group varies with length. This would suggest that increased sampling in length groups representing many ages while reducing sampling in those groups representing few ages could improve the efficiency of otolith collections with minimal impact on the precision of numbers-at-age information. The aim is to develop a protocol that dynamically assesses the optimal otolith targets to maximize index-at-age precision given a specified total number of otoliths to collect on a survey. We are currently in the initial stages of developing the project, and are interested to hear from other countries with similar initiatives or interest in survey sampling specifically, but also applications or methodologies employed for other types of age collections (on board observations, market sampling).

5.6.6 Proposal on joint WGBEAM paper

WGBEAM 2015 received a proposal by Giuseppe Scarcella (WGBEAM member, Italy) to publish a joint paper on the modelling of adult sole grounds in the Adriatic and the North Sea using the beam trawl survey data, and involving all WGBEAM participants. Giuseppe was involved in a similar publication on European hake nurseries (Druon *et al.*, 2015). As the time frame of WGBEAM 2015 does not allow taking up this proposal during the meeting, and this idea also involves using environmental data that were not collected on beam trawl surveys and liaising with externals, it was decided to discuss the possibilities for such a publication outside WGBEAM.

5.6.7 Enquiry regarding decision-making within ICES

WGBEAM 2015 was approached by Hendrik Stouten and Eric Jacobs of the Radboud University Nijmegen (NSM, Business Administration, Methodology) with the request whether the group would like to cooperate in an enquiry regarding decision-making processes in organization (in this case: ICES, that already offered its general cooperation and distributed the list of WG chairs to the researchers). For this item, half an hour was reserved at the start of WGBEAM 2015, during which the researchers briefly explained the scope of their research and the WG participants filled out the questionnaire.

6 Revisions to the work plan and justification

No changes to the ToRs and the work plan were made.

7 Next meetings (Interim reports only)

The Working Group on Beam Trawl Surveys (WGBEAM) will meet in La Rochelle, France, 12–15 April 2016, to continue working on the multi-annual ToRs and generate deliverables as outlined in the work plan (see Section 2.1).

WGBEAM will report on the activities of 2016 by 1 June 2016 to SCICOM, WGISUR and ACOM.

8 References

Druon, J.-N., F. Fiorentino, M. Murenu, L. Knittweis, F. Colloca, C. Osio, B. Mérigot, G. Garofalo, A. Mannini, A. Jadaud, M. Sbrana, G. Scarcella, G. Tserpes, P. Peristeraki, R. Carlucci & J. Heikkonen. 2015. Modelling of European hake nurseries in the Mediterranean Sea: An ecological niche approach. Progress in oceanography, 130(2015):188-204.

ICES. 2013. Report of the Working Group on Beam Trawl Surveys (WGBEAM), 23–26 April 2013, Ancona, Italy. ICES CM 2013/SGESST:13, 260pp.

ICES. 2013. Report of the Workshop on DATRAS data Review Priorities and checking Procedures (WKDATR), 29–31 January 2013, ICES HQ, Copenhagen, Denmark. ICES CM 2013/SGESST:05, 45pp.

ICES. 2014. 2nd Interim Report of the International Bottom Trawl Survey Working Group (IBTSWG), 31 March – 4 April 2014, Hamburg, Germany. ICES CM 2014/SSGESST:11,184pp.

ICES. 2014. Report of the Working Group on Beam Trawl Surveys (WGBEAM), 6–9 May 2014, Hamburg, Germany. ICES CM 2014/SGESST:9,168pp.

ICES. 2014. Report of the Workshop on Integrated DATRAS Products (WKIDP), 7-9 October 2014, ICES HQ, Copenhagen, Denmark. SSGESST:17, 70pp.

Annex 1: List of participants

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Vaishav Soni	International Council for the Exploration of the Sea (ICES) H. C. Andersens Boulevard 44-46 1553 Copenhagen V Denmark	vaishav@ices.dk

Annex 2: Agenda WGBEAM 2015

Agenda WGBEAM 2015, 14-17 April 2015

Huis Bethlehem – Raadzaal Bethlehem (00.18)

Schapenstraat 34, 3000 Leuven, Belgium

Tuesday 14 April, start 14.00

1. Welcome and Logistics

   Daily schedule

   - Tu 14/04 14:00-18:00
   - We 15/04 09:00-18:00
   - Th 16/04 09:00-18:00
   - Fr 17/04 09:00-13:00

   - Coffee etc. 09:00 – 10:30 – 14:00 – 16:00
   - Lunch 12:30 – 14:00

   Entering and leaving the building / Web connection / Printer / Toilets / Smoking / Social Dinner

   (suggestions : Domus / De Kansel / …)

2. Terms of Reference / Agenda

3. No recommendations from ICES WGs to WGBEAM in 2014

4. Other presentations? Working Documents? Updates from ICES Data Centre?

5. Enquiry regarding decision-making within ICES Hendrik Stouten and Eric Jacobs, Radboud University Nijmegen

16:00-16:30 Coffee break

6. Presentation on WKNSEA 2015 -> benchmark of North Sea sole - Kelle

7. WGBEAM vs. Ecosystem Approach / MSFD - Update on WGISUR / JMP NSCS / JPI

8. Update SSGIEOM

   - SISP

   - skills

   - WGBEAM versus ICES Science Plan

9. REPORT STRUCTURE and RESPONSIBILITIES

   Contents / Executive summary - Kelle (end of meeting)

   Chapter 1 **Administrative details -** Kelle

   Chapter 2 **Terms of Reference -** Kelle

   Section 2.1 **ToRs 2014 -** Kelle

   Section 2.2 **Review of WGBEAM 2014 recommendations and actions -** Kelle

   Section 2.3 **Review of other recommendations to WGBEAM 2015 -** Kelle

   Section 2.4 **Other requests to WGBEAM 2015 -** Kelle

   Chapter 3 **Summary of work plan -** Kelle

   Chapter 4 **List of outcomes and achievements of the WG in 2015 -** Kelle (end of meeting)

Chapter 5 Progress report on ToRs and work plan

Section 5.1 ToR a Tabulate, report and evaluate population abundance indices by age group for sole and plaice and other species if required in the North Sea, Division VIIa and Divisions VIId-g, taking into account the key issues involved in the index calculation.

Section 5.1.1. - Holger Abundance indices by age group for plaice and sole for the offshore surveys

5.1.1.1 Sole

5.1.1.2 Plaice

Text in main report – tables and figures in annex

Section 5.1.2. - Loes (Holger) Abundance indices by age group for plaice and sole for the inshore surveys

5.1.2.1 Sole

5.1.2.2 Plaice

5.1.2.3 Evaluation of the combined inshore indices

Text in main report – tables and figures in annex

Section 5.2 ToR b Further coordinate and standardize offshore and coastal beam trawl surveys in the North Sea and Divisions VIIa, VIId-g, VIIIa-b and the Adriatic, and update and publish the standard as a SISP protocol.

Section 5.2.1 Results of 2014 surveys

5.2.1.1 Offshore beam trawl surveys - Gary

5.2.1.1.1 Participation and coverage of the area

5.2.1.1.2 Survey Results

Check previous reports for examples/templates

+ collate survey summary sheets to be put in an annex "Survey summary sheets offshore surveys per country"

5.2.1.2 Inshore beam trawl surveys - Kay

5.2.1.2.1 Participation and coverage of the area

5.2.1.2.2 Survey Results

Check previous reports for examples/templates

+ collate survey summary sheets to be put in an annex "Survey summary sheets offshore surveys per country"

5.2.1.3 General discussion on Survey Summary Sheets

Section 5.2.2 Coordination and standardization of beam trawl surveys

5.2.2.1 Offshore beam trawl surveys - Gary

5.2.2.1.1 Timing and area coverage

Check previous reports for examples/templates

5.2.2.1.2 Staff exchanges

Only if there are any plans.

5.2.2.2 Inshore beam trawl surveys - Kay

5.2.2.2.1 Timing and area coverage

5.2.2.2.2 Staff exchanges

Section 5.2.3 Beam trawl survey manuals

General intro : focus in 2014 on offshore manual, progress on inshore manual to be continued after review of offshore manual

5.2.3.1 Update of offshore manual maps - done + check by everybody

5.2.3.2 Gear drawings / tables - Sven / Ingeborg

5.2.3.3 Publication of offshore manual as SISP Protocol - Kelle / Ingeborg

Section 5.3 ToR c Analyse the changes in mean length-at-age for sole in the North Sea, English Channel, Bristol Channel and Irish Sea - Loes/Sven

EXPECTED OUTPUT IN 2015

Section 5.4 ToR d Provide index calculations based on DATRAS for plaice and sole for the North Sea - Vaishav/Ingeborg

EXPECTED OUTPUT FOR SOLE IN 2015

EXPECTED OUTPUT FOR PLAICE IN 2016

Section 5.5 ToR e Assess the opportunities for providing plaice and sole index calculations based on DATRAS for all other areas - Vaishav/Ingeborg/Sven

Road map

Section 5.6 Other requests and actions

5.6.1 SSGIEOM: *skills*/SISP - Kelle + revisit

Skills in working with DATRAS data – statistical expertise in more people

5.6.2 *SSGIEOM: WGBEAMvs.Science Plan* - Ingeborg/Sven

5.6.3 Marine litter - Ingeborg

5.6.4 Proposal Giuseppe on joint WGBEAM paper

Combining offshore indices

Proposal Sven : more efficient sampling schemes for age info

Webserver initiative : auto-linking DATRAS with national databases

Chapter 6 Dissemination of WG results

Chapter 7 Revisions to the work plan and justification

Chapter 8 Next meeting

Chapter 9 References

Annexes

Wednesday 15 April, start 9:00

9. Review of WGBEAM 2014 recommendations and actions

Rest of day: chapter work / subgroups

Thursday 16 April, start 9.00

am

plenary presentation of subgroups / finished chapters

revisit stuff?

continue chapter work

pm

continue chapter work

plenary presentation of subgroups / finished chapters

Friday 17 April, start 9.00

Date and venue of next meeting

Recommendations

Text checking

13:00 finish

Annex 3: Recommendations and actions

Recommendation	Adressed to
1. WGBEAM recommends that a WK is organized with stock assessors and survey experts to decide on the format of survey sampling variance required for use at assessment working groups, and to produce the methodology to calculate this variance.	SSGIEOM chairs
2. WGBEAM recommends a) that NED and GFR continue to carry out side-by-side or overlapping hauls during their Q3 inshore beam trawl surveys in the context of gear comparisons, mainly to investigate differences in catchability for brown shrimp. b) that a power analysis is carried out (2010, 2014 + newly collected data).	NED, GFR WGCRAN - WGBEAM
3. WGBEAM recommends that the DATRAS checking procedures be made available in an R-script so national data can be screened prior to the DATRAS screening, making the process more efficient.	ICES Data Centre
4. WGBEAM recommends that ILVO gives priority to the import of beam trawl survey data in their own database and the transmission to the ICES database DATRAS.	ILVO
5. WGBEAM recommends that Ifremer gives priority to the upload of beam trawl survey data to the ICES database DATRAS.	Ifremer
6. WGBEAM recommends that if time and weather allows, overlapping hauls should be carried out by countries operating in the same area.	All WGBEAM countries
Action	Adressed to
1. Summarize all information on tag-and-release programmes for demersal elasmobranchs that have been carried out on beam trawl surveys so far. WGBEAM chair to liaise with WGEF chairs on the required information, and to collate this information for the attention of WGEF.	All WGBEAM countries, Kelle Moreau
2. Send offshore BTS manual to SSGIEOM-chairs for review in the process towards publication in the SISP-series.	Kelle Moreau
3. WGBEAM member countries to test the 2014 inshore data against the format description on www.datras.ices.dk and upload these data by WGBEAM 2016.	All WGBEAM countries
4. Follow-up on the data quality actions listed under 5.6.1.2 of WGBEAM 2015.	All WGBEAM countries
5. Allow data upload for inshore beam trawl surveys to DATRAS.	ICES Data Centre
6. Sort out submission of SNS data to DATRAS.	ICES Data Centre, NED

Annex 4: Details on offshore and inshore beam trawl surveys

Annex 4.1: Details of the offshore beam trawl surveys currently undertaken by each country.

	Belgium	France	Germany	Adriatic	Netherlands	Netherlands	UK	UK	UK
Survey area:	IVb and c west	VIIIab	IVb east	North Adriatic Sea (GSA 17)	IVb and c east	Central N Sea	VIId	VIIe	VIIa, f and g
Year survey started:	1992	2007	1991	2005	1985	1996	1988	1988	1988
Dates:	August	November	mid August	November	August-early September	mid August-mid September	late July	late September/ early October	September
Usual start date	week 33	week 44	week 32	week 45	week 32/33	week 34	week 30	week 39/40	week 36/37
Number of survey days	10	35	13	18	20	16–20	15	8	21–24
Ship:	RV Belgica	RV Gwen Drez	RV Solea #	RV G. Dallaporta	RV Isis	RV Tridens	RV Cefas Endeavour ##	MFV Carhelmar	RV Cefas Endeavour
Ship length:	50 m	24.5 m	42 m	35.7 m	28 m	73.5	73 m	22 m	73 m
Beam trawl length:	4 m	4 m	7 m	3.5 m	8 m	8 m	4 m	4 m	4 m
Number of beams fished:	1	1	2	2	2	2	1	2	1
Number of beams sorted:	1	1	1	2	1	1	1	2	1
Trawl duration (min):	30	30	30	30	30	30	30	30	30
Tow speed (knots):	4	5	4	5.5	4	4	4	4	4
Codend stretched mesh (mm):	40	20	80 Liner: 40 mm	40	40	40	75 Liner: 40 mm	75 Liner: 40 mm	75 Liner: 40 mm
Number of ticklers:	0	10	5	0	8	8	0	0	0
Gear code:	BT4M		BT7	Rapido	BT8	BT8F	BT4FM	BT4FM	BT4FM
Attachment:	*	(none)	(none)	(none)	(none)	**	*	*	*
Station positions:	fixed	fixed	pseudo-random	fixed	pseudo-random	pseudo-random	fixed	fixed	fixed
Av No stns/yr	53	120	63	67	88	63-73	100	57	94
Benthos sampling since:	1992	2007	1992	2005	1985	1996	1991	1992	1992

 # new vessel since 2004; previously 35m, ## Corystes (53 m) in 2009 replaced by Cefas Endeavour, * chain mat and flip-up rope, ** flip-up rope only.

Annex 4.2: Inventory of the inshore beam trawl surveys.
Broodwinner (27 m) in 2013 replaced by Simon Stevin

Country	Netherlands (SNS)	Netherlands (DYFS)			UK (YFS)	Belgium (DYFS)
Geographical Area	Scheveningen (NL) to Esbjerg (DK)	Wadden Sea	Scheldt Estuary	Dutch coast to Danish coast	Eastern/South-Eastern English Coast	Belgian Coast
Ship	Tridens / Isis	Stern / Waddenzee	Schollevaar	Isis / Beukels / WR17 / GO29	Chartered vessels	Simon Stevin#
ship size (m)	73m / 28 m	21m / 21 m	21 m	± 28 m	8–10 m	36 m
Date started	1969	1970	1970	1970	1973–2007 - Ceased 2011	1970
Sampling Period	Apr/May ('69–'89) Sept/Oct	Apr/May ('70–'86) Sept/Oct	Apr/May ('70–'86) Sept/Oct	Apr/May ('70–'86) Sept/Oct	Sept/Oct	Sept/Oct
Usual Start date	12 Sept	29 Aug	5 Sept	26 Sept	1 Sept	1–14 Sept
Number of days per period	8–9 within 2 weeks	20 within 5 weeks	12 within 3 weeks	16 within 5 weeks	3 surveys x 8 days	7 within 2 weeks
Beam trawl type	6m beam trawl	3m shrimp trawl	3m shrimp trawl	6m shrimp trawl	2m shrimp trawl	6m shrimp trawl
Tickler Chains	4	1	1	1	3	0
Mesh size net	80 mm	35 mm	35 mm	35 mm	10 mm	40 mm
Mesh size codend	40 mm	20 mm	20 mm	20 mm	4 mm	22 mm
Speed fished	3.5–4 knots	3 knots	3 knots	3 knots	1 knot	3 knots
Time Fished	15 min	15 min	15 min	15 min	10 min	15 min
Approx. number of stations per year	55	120	80	100	82	33
Target species	0– 4 group sole and plaice	0–1 group sole and plaice	0–1 group sole and plaice	0–1 group sole and plaice	0–1 group sole and plaice	0–2 group sole and plaice
Catch rate and LF distribution	All fish species	All fish species *Crangon*	All fish species *Crangon*	All fish species *Crangon*	All fish species	Commercial fish species *Crangon* (1973–92, 2004–05)
Catch rate	Epibenthos	Epibenthos	Epibenthos	Epibenthos (quantity)	*Crangon* (volume)	*Crangon* (weight)

Country	Netherlands (SNS)		Netherlands (DYFS)		UK (YFS)	Belgium (DYFS)
	(quantity)	(quantity)	(quantity)			
Age data for plaice and sole	All years	All years	All years	All years	Since 2003	None

Annex 4.2 continued: Inventory of the inshore beam trawl surveys.

Country	Germany (DYFS)		
Geographical Area	NiedersachsenWadden Sea +Elbe Estuary	Schlesweig-Holstein Waddensea	Coastal Area outsidee the island chain
Ship	Chartered vessels	Chartered vessels	Clupea
ship size (m)	12–16 m	12–18 m	28 m
Date started	1972	1974	2012
Sampling Period	Apr/May ('74–'04) Sept/Oct	Apr/May ('74–'04) Sept/Oct	Sept/Oct
Usual Start date	15 Sept	5 Sept	15 Sept
Number of days per period	5	5–7	14
Beam trawl type	3 m shrimp trawl	3 m shrimp trawl	3 m shrimp trawl
Tickler Chains	0	0	0
Mesh size net	32 mm	32 mm	32 mm
Mesh size codend	18 mm	18 mm	18 mm
Speed fished	3 knots	3 knots	3 knots
Time Fished	15 min	15 min	15 min
Approx. number of stations per year	75	75	85
Target species	0–1 group sole and plaice	0–1 group sole and plaice	0–1 group sole and plaice
Catch rate and LF distribution	All fish species *Crangon*	All fish species *Crangon*	All fish species *Crangon*
Catch rate	Epibenthos (quantity)	Epibenthos (quantity)	Epibenthos (quantity)
Age data for plaice and sole	Since 2013	Since 2013	Since 2013

Annex 5: Population abundance indices for sole and plaice, offshore surveys

Annex 5.1: Tables of catch rate of sole, offshore surveys.

a) Netherlands: sole (N.hr^-1/8m trawl) North Sea (IV) RV "Isis".

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1985	0.000	7.031	7.121	3.695	1.654	0.688	0.276	0.000	0.000	0.000	0.000
1986	0.000	7.168	5.183	1.596	0.987	0.623	0.171	0.158	0.000	0.018	0.052
1987	0.041	6.973	12.548	1.834	0.563	0.583	0.222	0.228	0.058	0.000	0.022
1988	0.000	83.111	12.512	2.684	1.032	0.123	0.149	0.132	0.103	0.014	0.126
1989	0.490	9.015	68.084	4.191	4.096	0.677	0.128	0.242	0.000	0.051	0.034
1990	0.019	37.839	24.487	21.789	0.778	1.081	0.770	0.120	0.115	0.025	0.048
1991	0.815	4.035	28.841	6.872	6.453	0.136	0.135	0.063	0.045	0.013	0.059
1992	0.024	81.625	22.284	10.449	2.529	3.018	0.090	0.162	0.078	0.020	0.077
1993	0.018	6.350	42.345	1.338	5.516	3.371	6.199	0.023	0.084	0.053	0.061
1994	2.172	7.660	7.121	19.743	0.124	1.636	0.088	0.983	0.009	0.000	0.008
1995	0.429	28.125	8.458	6.268	5.129	0.363	0.805	0.316	0.734	0.039	0.036
1996	0.161	3.975	7.634	1.955	1.785	2.586	0.326	0.393	0.052	0.264	0.055
1997	0.542	169.343	4.919	2.985	0.739	0.710	0.380	0.096	0.035	0.042	0.055
1998	0.371	17.108	27.422	1.862	1.242	0.073	0.015	0.391	0.000	0.000	0.000
1999	6.338	11.960	18.363	15.783	0.584	1.920	0.310	0.218	0.604	0.003	0.310
2000	0.190	14.594	6.144	4.045	1.483	0.263	0.141	0.060	0.007	0.150	0.069
2001	9.200	7.998	9.963	2.156	1.564	0.684	0.074	0.037	0.028	0.000	0.163
2002	5.908	20.989	4.182	3.428	0.886	0.363	0.361	0.032	0.069	0.000	0.052
2003	0.321	10.507	9.947	2.459	1.670	0.360	0.187	0.319	0.000	0.020	0.000
2004	0.685	4.192	4.354	3.553	0.644	0.626	0.118	0.070	0.073	0.000	0.012
2005	0.083	5.534	3.395	2.377	1.303	0.167	0.171	0.077	0.047	0.000	0.018
2006	0.060	17.089	2.332	0.278	0.709	0.479	0.151	0.088	0.000	0.007	0.030
2007	0.714	7.498	19.504	1.464	0.565	0.315	0.537	0.031	0.009	0.000	0.024
2008	3.092	15.247	9.062	12.298	1.313	0.222	0.279	0.202	0.028	0.047	0.000
2009	4.911	15.950	4.999	2.858	4.791	0.252	0.124	0.272	0.079	0.000	0.000
2010	2.462	54.811	10.707	2.027	0.774	1.252	0.143	0.122	0.005	0.027	0.089
2011	2.228	26.166	17.387	4.006	1.094	0.778	0.828	0.013	0.000	0.141	0.027
2012	1.089	5.149	18.212	8.863	1.692	0.764	0.257	0.229	0.046	0.000	0.043
2013	0.381	6.844	3.558	12.566	5.385	0.871	0.197	0.105	0.078	0.019	0.082
2014	0.136	18.926	15.576	3.737	6.763	3.208	0.377	0.101	0.020	0.000	0.027

b) United Kingdom: sole (total numbers per km towed) Southern North Sea (IVc).

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1995	0.53	41.6	86.43	17.13	16.1	9.81	5.19	0.86	0.78	0	0.43
1996	3.33	75.48	52.47	22.89	8.98	8.33	8.77	1.3	1.81	0.73	2.22
1997	4.49	70.49	63.17	19.81	9.34	5.56	3.52	7.1	1.77	1.77	0.97
1998	7.91	10.59	63.34	15.71	1.77	0.89	0.86	0	0.44	0	0.22
1999	8.96	103.75	18.49	24.53	9.36	0.86	0.3	1.09	0.59	1.56	0.99
2000	3.22	192.51	157.89	15.03	14.08	7	2.6	0.67	0.37	0.91	3.01
2001	5.87	91.45	174.9	45.7	2.99	4.57	1.83	0.82	0.63	0.24	1
2002	2.22	125.78	47.31	33.28	21.97	3.61	4.39	1.79	0.9	1.15	2.38
2003	0.91	69.91	129.31	16.26	23.56	14.71	0.77	6.43	1.52	0.86	2.5
2004	24.63	58.65	57.77	50.15	12.46	10.14	8.58	0.65	2.15	1.15	3
2005	37.64	107.01	55.54	19.82	37.68	3.29	10.42	5.63	0.56	1.2	4.64
2006	7.02	202.5	82.19	20.64	14.03	35.2	6.72	9.17	5.34	0.36	3.83
2007	9.41	40.71	77.34	19.25	4.4	2.78	11.41	0.94	2.19	1.08	0.96
2008	1	98.84	59.97	39.34	13.45	0.63	3.41	10.73	2.55	1.79	1.32
2009	1.01	35.21	82.39	58.21	56.85	12.23	1.99	3.39	10.18	6.27	5.23
2010	1.43	77.97	67.96	24.52	22.62	17.47	7.01	2.16	3.34	1.36	1.97
2011	5.43	89.66	51.75	15.66	4.40	7.94	4.01	1.13	0.77	0.43	1.60
2012	0	26.85	58.22	30.93	9.05	3.47	3.85	5.61	1.07	0.27	2.52
2013	0	61.51	49.46	84.92	25.12	7.75	3.24	2.73	6.05	0	0.67
2014	9.6	55.6	68.9	11.8	21.9	8.8	2.5	2.0	0.8	0.0	1.5

c) United Kingdom: sole (N.hr^-1/8m trawl) Eastern Channel (VIId)

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1988		8.2	14.2	9.9	0.8	1.3	0.6	0.1	0.1	0.2	0.2
1989		2.6	15.4	3.4	1.7	0.6	0.2	0.2	0	0	0.7
1990		12.1	3.7	3.4	0.7	0.8	0.2	0.1	0.2	0	0
1991		8.9	22.8	2.2	2.3	0.3	0.5	0.1	0.2	0.1	0.1
1992		1.4	12	10	0.7	1.1	0.3	0.5	0.1	0.2	0.6
1993		0.5	17.5	8.4	7	0.8	1	0.3	0.2	0	0.4
1994		4.8	3.2	8.3	3.3	3.3	0.2	0.6	0.1	0.3	0.3
1995		3.5	10.6	1.5	2.3	1.2	1.5	0.2	0.3	0.2	0.3
1996		3.5	7.3	3.8	0.7	1.3	0.9	1.1	0.1	0.5	0.4
1997		19	7.3	3.2	1.3	0.2	0.5	0.4	0.9	0	0.7
1998		2	21.2	2.5	1	0.9	0.1	0.3	0	0.1	0.3
1999		28.14	9.44	13.17	2.51	1.73	1.28	0.16	0.93	1.07	0.47
2000		10.49	22.03	4.15	4.24	1.03	0.58	0.28	0.03	0.24	1.2
2001		9.09	21.01	8.36	1.2	1.91	0.54	0.57	0.35	0.04	1.01
2002		31.76	11.42	5.42	3.45	0.27	0.71	0.44	0.09	0	0.56
2003		6.47	28.48	4.13	2.46	1.58	0.3	0.39	0.2	0.07	0.52
2004		7.35	8.49	7.71	1.57	1.45	0.99	0.2	0.44	0.21	0.57
2005		25	5.04	2.86	3.47	1.63	1.02	0.66	0.06	0.31	0.35
2006		6.3	29.18	2.83	1.99	1.95	0.34	0.44	0.57	0	0.34

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
2007		2.14	21.86	12.9	1.22	0.8	1.2	0.32	0.17	0.59	1.02
2008		2.86	6.46	7.24	4.82	0.25	0.49	0.38	0.27	0.24	0.2
2009		30.54	13.33	5.44	4.34	3.76	0.37	0.2	0.31	0.23	0.48
2010		15.9	30.12	5.32	1.66	2.82	2.38	0.35	0.16	0.55	0.31
2011		11.92	23.54	11.56	1.25	0.57	2.56	0.60	0.16	0.21	0.06
2012		1.75	9.14	6.47	3.36	0.87	0.39	0.65	0.52	0	0.65
2013		0.78	9.20	15.54	8.91	2.95	1.35	0.37	0.97	0.75	0.10
2014		25.53	13.93	9.87	11.31	5.22	3.52	1.40	0.85	0.23	0.26

d) United Kingdom: sole (total numbers for 2*4m beam trawl) Western Channel (VIIe).

Year/ Age	0	1	2	3	4	5	6	7	8	9	10+
1989	0	5	56	120	107	34	40	17	5	7	12
1990	0	23	52	76	31	24	7	15	3	6	11
1991	0	11	231	79	51	23	21	5	17	4	15
1992	0	5	140	316	44	36	12	7	5	11	11
1993	0	5	54	115	105	14	10	9	3	3	10
1994	0	6	47	106	62	44	5	5	2	3	7
1995	0	14	37	44	42	26	31	4	5	5	13
1996	0	28	112	67	25	32	20	17	3	2	9
1997	0	11	130	126	43	14	16	13	14	5	15
1998	0	11	141	114	76	22	10	14	6	8	11
1999	0	11	97	128	47	23	8	4	4	4	17
2000	0	12	136	70	52	23	16	5	3	5	9
2001	0	9	197	162	52	31	12	12	4	1	7
2002	0	6	37	113	48	27	6	3	2	0	12
2003	0	23	124	78	56	28	6	1	1	2	4
2004	0	16	110	120	24	15	10	16	9	4	4
2005	0	8	110	39	53	12	12	6	2	4	4
2006	0	5	120	95	26	37	10	7	9	0	5
2007	0	7	188	135	50	11	23	3	3	1	4
2008	0	10	85	158	77	40	2	14	3	6	7
2009	0	11	104	126	96	49	13	13	12	1	8
2010	0	20	175	154	84	59	31	20	7	12	14
2011	0	9	156	231	62	39	25	24	8	2	4
2012	0	3	47	162	125	40	27	13	3	6	9
2013	0	4	36	100	106	80	21	9	6	3	4
2014	Survey discontinued										

e) United Kingdom: sole (total numbers for 4m beam trawl) Bristol Channel (VIIf).

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1993	3	201	379	51	23	1	2	2	1	1	2
1994	1	407	473	121	17	9	8	0	0	2	2
1995	31	142	255	60	13	7	14	1	1	1	4
1996	3	178	251	64	27	7	3	4	1	3	3
1997	37	498	207	21	13	14	5	3	6	0	4
1998	104	885	472	57	11	9	5	2	1	5	5
1999	29	2922	297	38	16	7	4	5	1	0	9
2000	16	1086	1608	37	26	6	0	2	1	1	4
2001	26	449	711	307	23	9	6	2	0	2	8
2002	9	786	283	151	121	14	7	2	3	0	4
2003	14	465	628	55	30	56	9	3	3	0	1
2004	64	860	434	99	15	22	42	4	3	0	5
2005	44	407	267	38	16	7	5	17	1	2	0
2006	13	324	238	47	16	8	0	2	12	0	1
2007	108	424	128	51	16	8	7	3	4	13	3
2008	6	1232	124	15	18	7	9	4	3	5	8
2009	1	604	377	29	8	10	4	3	3	2	11
2010	19	101	558	144	20	2	7	9	4	2	8
2011	22	596	62	163	82	8	2	7	3	0	6
2012	16	643	274	9	63	28	1	1	1	3	10
2013	11	331	614	51	16	29	18	1	6	1	7
2014	40	289	305	90	16	6	27	9	1	1	2

f) United Kingdom: sole (total numbers for 4m beam trawl) Irish Sea (VIIa).

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1993	0	78	320	158	208	28	16	5	14	39	27
1994	0	62	431	193	95	128	43	10	11	6	36
1995	24	246	154	253	110	30	67	12	5	5	24
1996	4	886	126	32	76	46	23	31	8	2	11
1997	5	1158	577	72	24	55	27	16	30	7	10
1998	2	539	716	292	18	6	24	23	5	18	9
1999	3	385	293	255	203	29	8	26	5	6	21
2000	0	354	464	147	219	91	13	2	13	6	24
2001	1	91	284	192	65	96	64	6	3	12	11
2002	0	205	61	121	126	42	79	49	2	1	19
2003	0	242	210	51	97	81	40	43	26	1	13
2004	0	406	240	119	27	77	45	41	17	19	11
2005	0	53	165	69	25	13	35	25	4	6	17
2006	0	107	110	90	45	36	9	16	15	10	20
2007	0	125	93	49	57	41	11	4	6	12	22
2008	0	126	125	60	21	43	23	6	2	9	17
2009	0	57	150	68	39	23	30	12	7	1	16
2010	0	25	59	73	37	16	5	10	9	3	6
2011	0	89	35	62	68	35	12	4	13	6	11
2012	0	21	49	17	46	29	12	9	2	6	13
2013	8	75	57	37	21	33	18	21	9	1	9
2014	18	172	42	22	35	14	26	21	14	6	14

Annex 5.2: Tables of catch rate of plaice, offshore surveys.

a) Netherlands: plaice (N.hr^-1/8m trawl) North Sea (IV) RV "Isis".

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1985	595.271	136.759	173.893	36.059	10.997	1.273	0.973	0.336	0.155	0.091	0.229
1986	9.303	667.441	131.704	50.173	9.208	3.780	0.400	0.418	0.147	0.070	0.188
1987	44.126	225.822	764.186	33.841	4.880	1.842	0.607	0.252	0.134	0.078	0.186
1988	29.623	680.173	146.993	182.312	9.991	2.810	0.814	0.458	0.036	0.112	0.254
1989	31.862	467.877	319.272	38.660	47.305	5.850	0.833	0.311	0.661	0.132	0.075
1990	27.000	185.344	146.071	79.339	26.351	5.469	0.758	0.189	0.383	0.239	0.198
1991	152.176	291.378	159.424	33.955	13.569	4.313	5.659	0.239	0.204	0.092	0.107
1992	26.814	360.890	174.526	29.253	5.961	3.748	2.871	1.186	0.346	0.050	0.089
1993	74.272	188.988	283.400	62.783	8.272	1.128	1.130	0.584	0.464	0.155	0.071
1994	284.479	193.260	77.139	34.458	10.586	2.667	0.600	0.800	0.895	0.373	0.030
1995	108.101	265.634	40.618	13.218	7.527	1.110	0.806	0.330	1.051	0.202	0.119
1996	222.510	310.287	206.883	21.469	4.470	3.134	0.838	0.044	0.161	0.122	0.110
1997	65.515	1046.845	59.241	17.180	2.670	0.257	0.358	0.157	0.111	0.000	0.031
1998	255.654	347.575	402.657	44.960	8.294	1.224	0.339	0.149	0.213	0.072	0.081
1999	257.559	293.253	121.551	171.254	3.391	1.956	0.127	0.130	0.027	0.030	0.079
2000	209.293	267.473	69.252	29.349	22.359	0.570	0.162	0.502	0.027	0.012	0.052
2001	807.932	206.531	72.236	17.840	9.174	8.716	0.270	0.131	0.038	0.040	0.170
2002	248.356	519.224	44.475	14.901	4.991	2.539	1.321	0.085	0.128	0.000	0.092
2003	225.619	132.754	159.120	10.057	5.550	1.426	1.133	0.638	0.111	0.096	0.018
2004	197.940	233.707	39.623	61.912	6.152	2.464	1.492	0.952	2.842	0.000	0.012
2005	270.775	163.046	66.176	6.759	12.790	1.084	1.164	0.290	0.152	0.492	0.041
2006	250.800	128.615	36.385	18.115	2.982	5.890	0.867	0.757	0.040	0.269	0.387
2007	298.086	311.997	67.169	19.707	14.416	2.942	6.085	0.684	0.831	0.156	0.651
2008	387.592	221.567	120.728	30.108	9.075	7.205	0.618	1.715	0.292	0.229	1.046
2009	555.472	408.995	105.222	45.975	13.013	4.029	3.474	0.574	2.128	0.278	0.929
2010	814.363	261.097	84.254	34.244	20.178	4.662	2.162	3.464	0.207	2.547	1.232
2011	323.428	486.157	148.217	55.305	20.065	12.903	3.945	2.243	2.263	0.232	0.906
2012	454.620	241.840	191.502	58.067	20.904	12.638	5.594	1.787	0.494	1.695	0.789
2013	336.300	449.774	113.177	90.493	27.004	10.642	5.824	1.497	1.519	1.082	1.935
2014	138.248	360.286	145.339	82.281	39.503	22.384	8.475	2.541	2.545	1.659	1.623

b) Netherlands: plaice (N.hr^-1/8m trawl) North Sea (IV) RV "Tridens"

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1996	-	1.643	6.021	4.451	2.903	2.039	1.566	0.721	0.415	0.190	0.468
1997	-	0.221	7.119	9.127	3.252	2.105	1.523	0.401	0.819	0.354	0.429
1998	-	0.228	32.249	9.572	4.874	2.202	1.274	0.929	0.762	0.304	0.540
1999	0.054	2.692	7.711	35.228	5.558	2.498	1.928	0.633	0.761	0.309	0.331
2000	0.043	4.795	13.445	12.910	16.957	2.882	1.716	0.933	0.805	0.218	0.530
2001	0.178	2.154	8.612	9.901	6.681	7.360	1.055	0.592	0.418	0.505	0.543
2002	-	18.553	12.912	9.541	6.411	4.181	4.420	0.743	0.741	0.394	0.933
2003	0.338	3.975	41.692	13.378	9.059	5.077	2.806	3.920	0.703	0.740	1.562
2004	0.014	5.985	15.784	31.488	9.430	4.316	2.439	1.242	2.500	0.409	1.405
2005	0.043	6.876	23.366	12.234	17.672	2.824	6.871	1.565	0.567	3.574	2.482
2006	0.236	6.725	32.192	25.727	11.367	10.918	1.985	3.897	0.864	0.723	3.262
2007	-	26.571	23.735	19.551	23.175	4.900	10.147	1.974	3.786	0.323	5.471
2008	-	17.467	50.462	25.585	18.392	18.974	6.243	12.747	2.657	6.749	8.411
2009	0.116	12.110	41.685	43.331	19.126	12.052	11.768	3.081	10.119	1.567	8.025
2010	0.644	26.180	35.716	34.561	30.093	13.412	5.695	12.234	2.744	6.362	7.706
2011	0.174	41.881	71.478	41.593	28.462	31.670	14.284	5.501	11.881	1.172	12.890
2012	0.000	12.898	87.806	65.988	32.006	19.318	16.038	7.147	3.630	8.635	8.989
2013	0.000	15.063	48.685	63.138	39.968	25.028	14.233	10.973	4.235	2.959	12.472
2014	0.188	23.719	74.414	60.682	48.550	30.198	13.066	9.829	6.030	7.125	13.240

c) Netherlands: plaice (N.hr^-1/8m trawl) North Sea (IV) Combined with gear correction (RV "Isis" and RV "Tridens").

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1996	102.136	143.896	99.623	13.280	4.266	3.035	1.653	0.676	0.442	0.214	0.457
1997	24.190	386.840	28.679	14.886	4.010	2.042	1.538	0.428	0.797	0.327	0.407
1998	96.333	131.191	177.631	25.463	7.266	2.500	1.355	0.955	0.808	0.323	0.549
1999	100.264	116.989	53.597	96.348	6.493	3.005	1.926	0.659	0.756	0.314	0.355
2000	81.459	108.393	38.887	22.880	23.680	3.017	1.725	1.113	0.797	0.219	0.526
2001	297.375	80.296	39.788	15.695	8.754	9.300	1.079	0.624	0.420	0.511	0.602
2002	87.786	217.276	26.709	14.029	7.616	4.794	4.643	0.754	0.765	0.385	0.943
2003	87.985	53.579	94.429	15.858	10.305	5.361	3.081	4.007	0.732	0.760	1.534
2004	80.357	101.411	30.306	51.218	11.212	4.961	2.885	1.538	3.402	0.391	1.347
2005	106.916	70.845	45.646	13.806	20.392	3.035	6.942	1.568	0.571	3.570	2.435
2006	97.992	54.855	42.922	29.187	11.748	12.052	2.106	3.938	0.844	0.767	3.258
2007	115.922	139.391	44.429	24.594	26.579	5.681	11.685	2.091	3.947	0.364	5.558
2008	143.963	98.909	89.736	33.838	20.735	20.605	6.330	13.054	2.727	6.718	8.618
2009	219.268	170.840	76.528	54.059	21.482	12.834	12.192	3.139	10.254	1.585	7.941
2010	326.437	144.792	69.544	47.943	40.349	17.914	6.845	15.841	3.179	8.306	8.876
2011	120.520	226.465	125.987	58.138	32.752	33.174	15.090	5.808	11.940	1.124	12.808
2012	178.353	118.441	149.626	79.759	35.864	22.166	16.393	7.216	3.544	8.696	9.044
2013	132.569	192.771	90.454	90.344	46.710	27.597	15.369	11.273	4.523	3.224	12.740
2014	50.408	155.222	123.188	83.283	58.532	34.736	14.868	10.569	6.607	7.591	13.729

d) United Kingdom: plaice (total numbers per km towed) Southern North Sea (IVc)

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1999	1.5	24.45	2.51	3.79	0.50	0	0	0	0	0.25	0
2000	13.25	26.33	3.68	0.25	2.92	0.33	0	0	0	0	0
2001	23.00	48.10	21.90	0.50	0.50	0.25	0	0	0.25	0	0
2002	1.07	42.40	1.87	1.07	0	0	0.27	0	0	0	0
2003	11.29	28.08	31.69	0.94	0.24	0.24	0	0.47	0	0.24	0
2004	0.95	6.29	0.95	1.33	0	0	0	0	0.19	0	0
2005	1.31	25.85	9.49	0.36	0.44	0	0	0	0	0.36	0
2006	2.49	16.02	1.72	0.22	0	0	0	0	0	0	0
2007	0.35	13.46	3.6	0.42	0.05	0	0.24	0	0	0	0
2008	0.80	66.24	11.07	1.60	0	0.80	0.80	0	0	0	0
2009	7.87	44.73	9.6	1.6	0	0	0	0	0	0	0
2010	4.86	18.72	4.27	0.57	0.29	0	0	0	0	0	0
2011	9.14	36.76	6.27	1.10	0	0	0	0	0	0	0
2012	0.53	9.54	8.94	1.93	0.80	0	0.53	0	0	0	0
2013	10.13	16.74	2.83	1.32	1	0.27	0	0	0	0	0
2014	0.9	26.1	3.7	0.4	0.7	0.3	0	0	0	0	0

e) United Kingdom: plaice (N.hr^-1/8m trawl) Eastern Channel (VIId).

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1988		26.5	31.3	43.8	7	4.6	1.5	0.8	0.7	0.6	1.2
1989		2.3	12.1	16.6	19.9	3.3	1.5	1.3	0.5	0.3	1.7
1990		5.2	4.9	5.8	6.7	7.5	1.8	0.7	1	0.8	0.4
1991		11.8	9.1	7	5.3	5.4	3.2	1.2	1	0.1	1.2
1992		16.5	12.5	4.2	4.2	5.6	4.9	3.4	0.7	0.5	0.7
1993		3.2	13.4	5	1.7	1.9	1.6	2	2.8	0.4	0.6
1994		8.3	7.5	9.2	5.6	1.9	0.8	0.9	1.8	1.2	0.8
1995		11.3	4.1	3	3.7	1.5	0.6	0.6	1.3	0.8	0.8
1996		13.2	11.9	1.3	0.7	1.3	0.9	0.4	0.3	0.4	2.8
1997		33.1	13.5	4.2	0.6	0.3	0.3	0.2	0.2	0.2	1.9
1998		11.4	27.3	7	3.1	0.3	0.2	0.2	0.1	0	1
1999		11.3	14.1	15.9	2.9	1	0.2	0.1	0.3	0.1	0.9
2000		13.2	21	14.4	13.8	3.5	0.9	0.6	0.2	0.4	1.5
2001		17.9	13	10	7.1	10.9	1.9	0.5	0.3	0.2	1
2002		20.7	15.9	7.7	3.5	1.8	3.5	0.7	0.1	0.1	0.6
2003		6.2	22.8	6	2.9	1.6	0.8	1.8	0.6	0.1	0.3
2004		36.2	15	13.2	3.4	0.9	0.2	0.7	1.2	0.2	0.2
2005		10.8	31.2	13.8	10.3	2.9	1.2	0.8	0.4	0.9	0.7
2006		17.2	16.1	9.2	3.3	2.6	0.8	0.6	0.3	0.1	0.5
2007		42.6	18.8	8.7	3.9	1.7	2	0.8	0.3	0.1	1.1
2008		30.3	26.5	7.2	3	2.3	1.1	0.5	0.4	0.1	0.3
2009		71.6	42.9	19.1	5.7	3.2	2.2	0.8	1.2	0.4	1.3
2010		65.25	63.83	17.27	8.9	3.04	1.9	1.38	0.3	0.36	0.89
2011		105.55	95.31	35.70	9.25	6.68	2.82	1.40	0.19	0.57	0.95
2012		23.23	76.07	45.26	12.73	3.53	1.61	0.42	0.41	0.43	0.12
2013		34.33	59.27	87.99	45.47	10.58	3.54	1.03	1.37	0.14	0.20
2014		153.6	141.0	50.7	55.5	25.1	9.1	2.3	1.9	1.0	1.4

f) United Kingdom: plaice (total numbers for 2*4m beam trawl) Western Channel (VIIe).

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1989	0	31	70	281	188	23	11	14	8	6	18
1990	0	25	38	220	87	75	2	6	1	6	7
1991	2	22	27	63	79	62	41	9	0	1	3
1992	0	152	44	72	24	40	20	17	3	5	4
1993	0	21	70	60	24	13	25	13	11	2	2
1994	0	34	32	98	30	10	2	9	13	8	2
1995	0	50	46	45	48	12	4	5	6	1	4
1996	1	33	106	30	17	25	5	1	3	7	8
1997	0	53	122	197	24	6	12	7	1	1	7
1998	0	81	125	125	85	9	6	7	4	0	3
1999	1	38	44	182	53	30	3	2	6	4	2
2000	0	47.93	62.76	125.38	178.56	38.11	22.18	1.08	2.00	0	5.00
2001	20.50	31.88	63.69	50.99	111.35	97.44	24.54	12.61	0	3.00	5.00
2002	0	138.00	101.55	86.58	23.20	23.47	39.87	5.33	2.00	0	2.00
2003	0	28.83	137.32	59.84	50.14	4.50	18.06	27.08	7.22	0	2.00
2004	0	11.00	32.50	59.84	23.00	10.00	3.00	1.00	10.00	0	4.00
2005	1.50	30.43	75.41	90.88	69.82	12.88	3.20	2.67	5.25	2.20	2.75
2006	0.00	55.00	102.40	103.05	30.39	31.19	2.67	3.80	0.00	4.50	2.00
2007	0.00	37.00	91.15	120.53	33.79	27.03	6.00	5.50	0.50	2.50	4.00
2008	0.00	14.92	145.77	67.61	30.87	12.00	7.83	9.50	3.50	1.00	4.00
2009	3.00	16.17	156.37	213.65	29.13	14.63	10.94	8.00	4.61	1.00	2.50
2010	14.00	184.25	350.81	224.27	112.75	31.05	15.05	16.50	1.00	3.33	4.00
2011	0	207.99	578.76	351.47	94.41	54.86	8.75	8.27	3.00	1.00	6.50
2012	0	16.24	235.46	577.44	188.21	47.22	44.14	19.35	6.07	5.00	6.88
2013	10.00	8.23	102.88	379.14	397.31	176.37	77.90	20.88	4.79	6.50	1.00
2014	Survey discontinued										

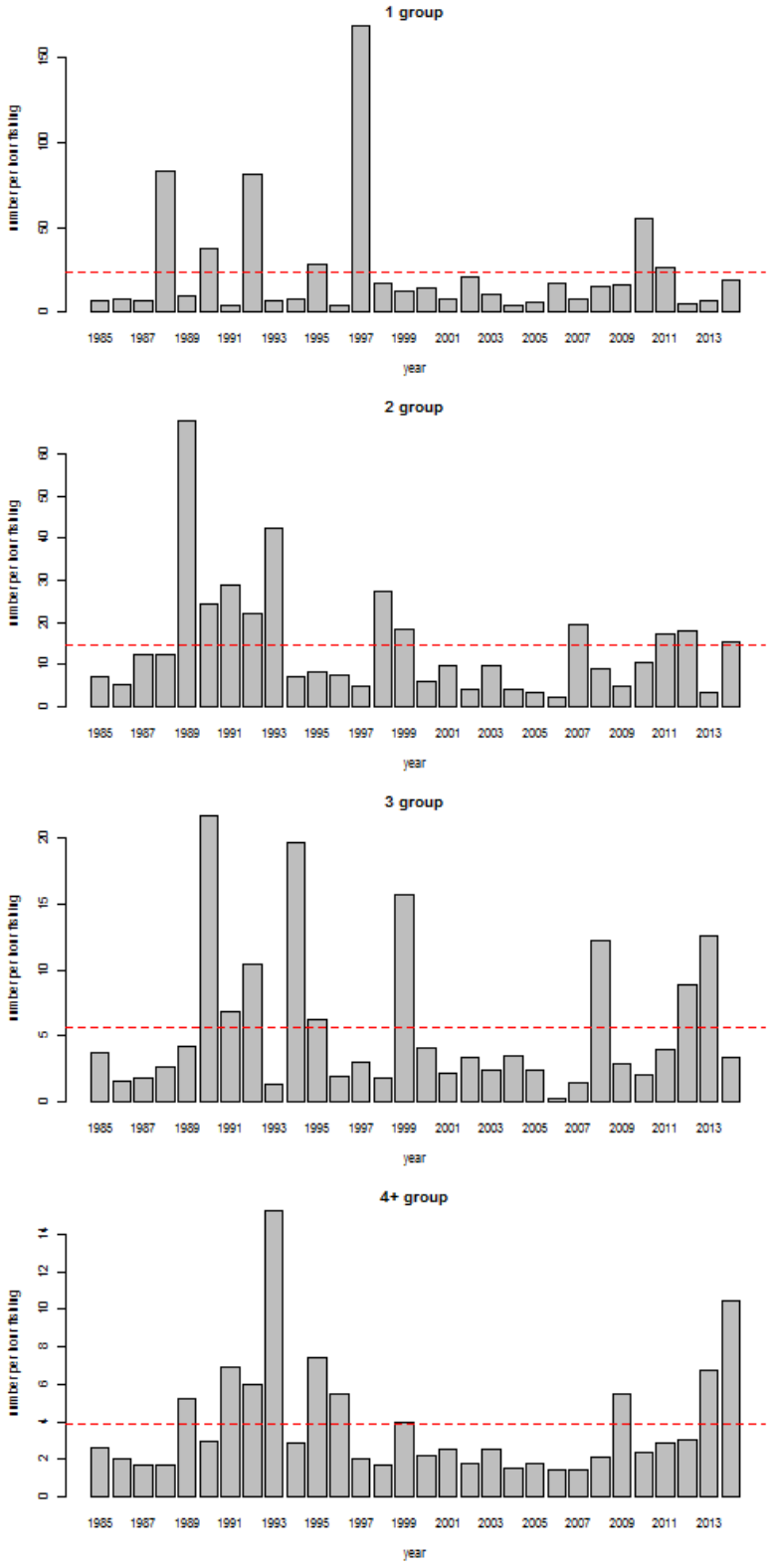
g) United Kingdom: plaice (total numbers for 4m beam trawl) Bristol Channel (VIIf).

Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1993	4	121	107	43	2	5	0	1	0	0	0
1994	150	131	39	19	10	1	0	0	0	0	0
1995	1	275	103	19	3	8	2	0	0	2	0
1996	10	265	342	37	1	3	1	0	0	0	0
1997	8	259	117	40	5	2	2	1	0	0	0
1998	6	273	145	54	10	2	1	0	0	0	1
1999	192	181	94	34	23	8	0	0	2	0	0
2000	100	403	75	37	8	7	0	1	0	0	0
2001	42	251	185	19	10	5	4	2	0	0	0
2002	1	162	208	95	7	7	2	4	1	0	0
2003	72	117	95	72	26	3	2	1	1	2	0
2004	188	297	38	31	15	3	1	1	3	0	2
2005	3	228	89	25	10	13	3	1	0	0	1
2006	96	102	121	41	11	2	11	0	3	1	0
2007	41	178	109	56	18	2	3	1	2	1	0
2008	7	167	257	57	19	6	1	3	0	0	1
2009	222	192	66	93	25	13	5	2	0	1	0
2010	170	393	105	31	47	8	5	1	0	1	2
2011	10	433	353	63	24	27	18	3	3	1	0
2012	19	173	506	116	29	12	18	7	2	0	0
2013	83	395	159	211	54	9	6	10	4	2	0
2014	0	444	233	79	128	27	2	3	2	2	2

h) United Kingdom: plaice (total numbers for 4m beam trawl) Irish Sea (VIIa).

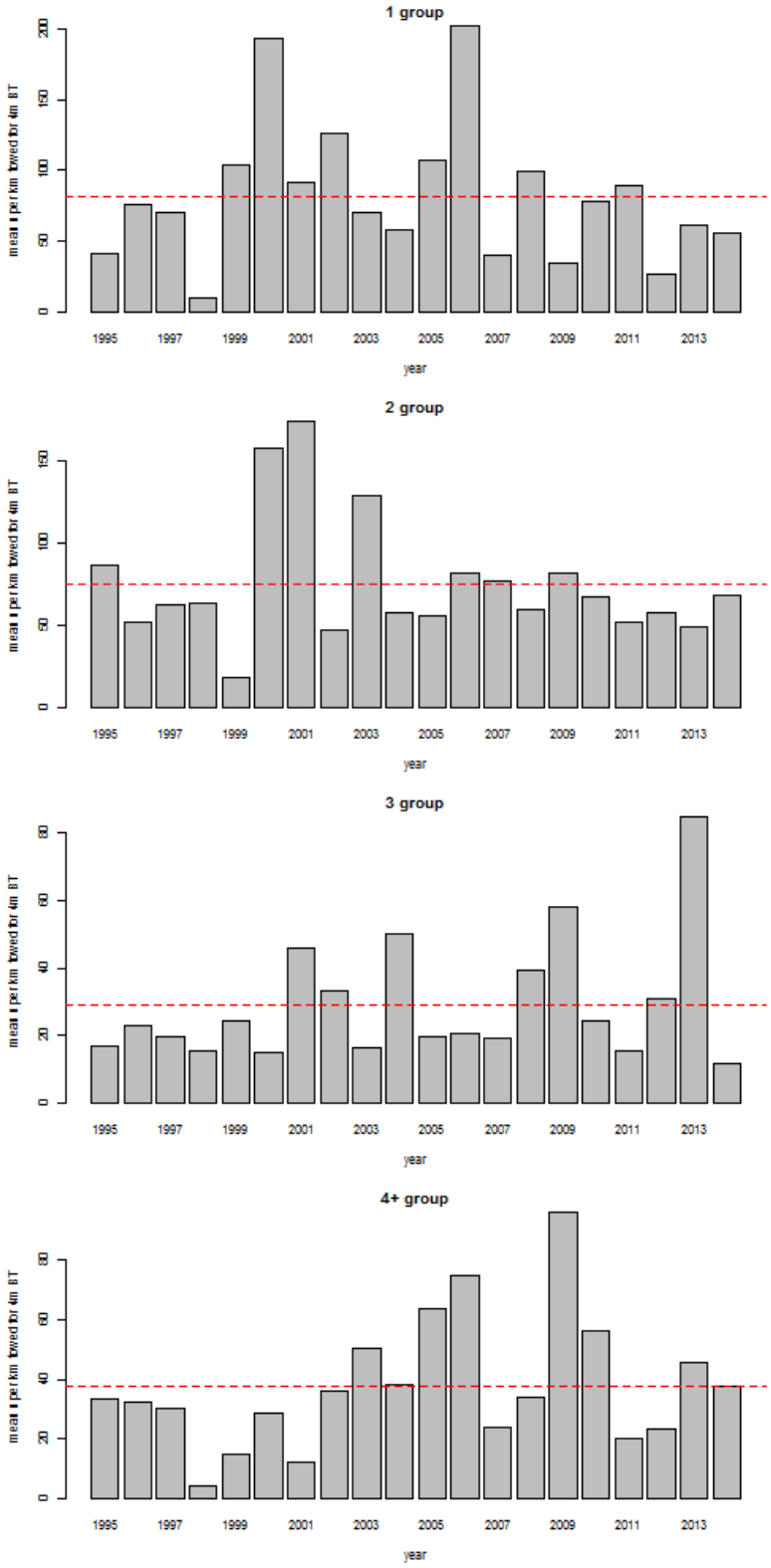
Year/Age	0	1	2	3	4	5	6	7	8	9	10+
1993	7	1007	836	111	90	11	5	9	2	1	6
1994	100	736	642	339	63	29	12	16	9	2	9
1995	281	1283	387	179	84	16	18	0	1	3	8
1996	105	1701	601	124	74	49	9	11	1	2	8
1997	31	1363	668	322	65	50	23	8	7	0	7
1998	169	1167	767	212	95	34	23	14	3	1	7
1999	180	1189	965	344	113	38	17	7	7	4	0
2000	132	2112	659	298	141	73	22	7	3	3	5
2001	249	1468	663	218	130	89	28	10	7	6	4
2002	16	1734	1615	647	243	79	51	16	17	5	7
2003	258	1480	1842	827	296	122	62	39	10	4	4
2004	218	1816	1187	1184	404	261	57	57	14	4	3
2005	288	869	1295	666	499	297	111	17	17	9	11
2006	485	1120	840	722	411	178	83	59	16	15	6
2007	186	2667	1255	525	417	196	95	45	37	6	10
2008	439	1293	1900	619	339	244	76	55	33	5	0
2009	150	1460	1083	1225	310	189	251	65	31	20	13
2010	499	1912	1431	600	460	187	142	98	61	35	35
2011	232	2213	1432	663	315	347	122	101	87	71	74
2012	320	1964	1796	660	319	156	148	137	84	100	84
2013	689	1526	1694	1010	487	313	152	157	95	96	98
2014	107	2886	2199	865	726	302	229	200	78	37	95

Annex 5.3: Figures of catch rate of sole, offshore surveys



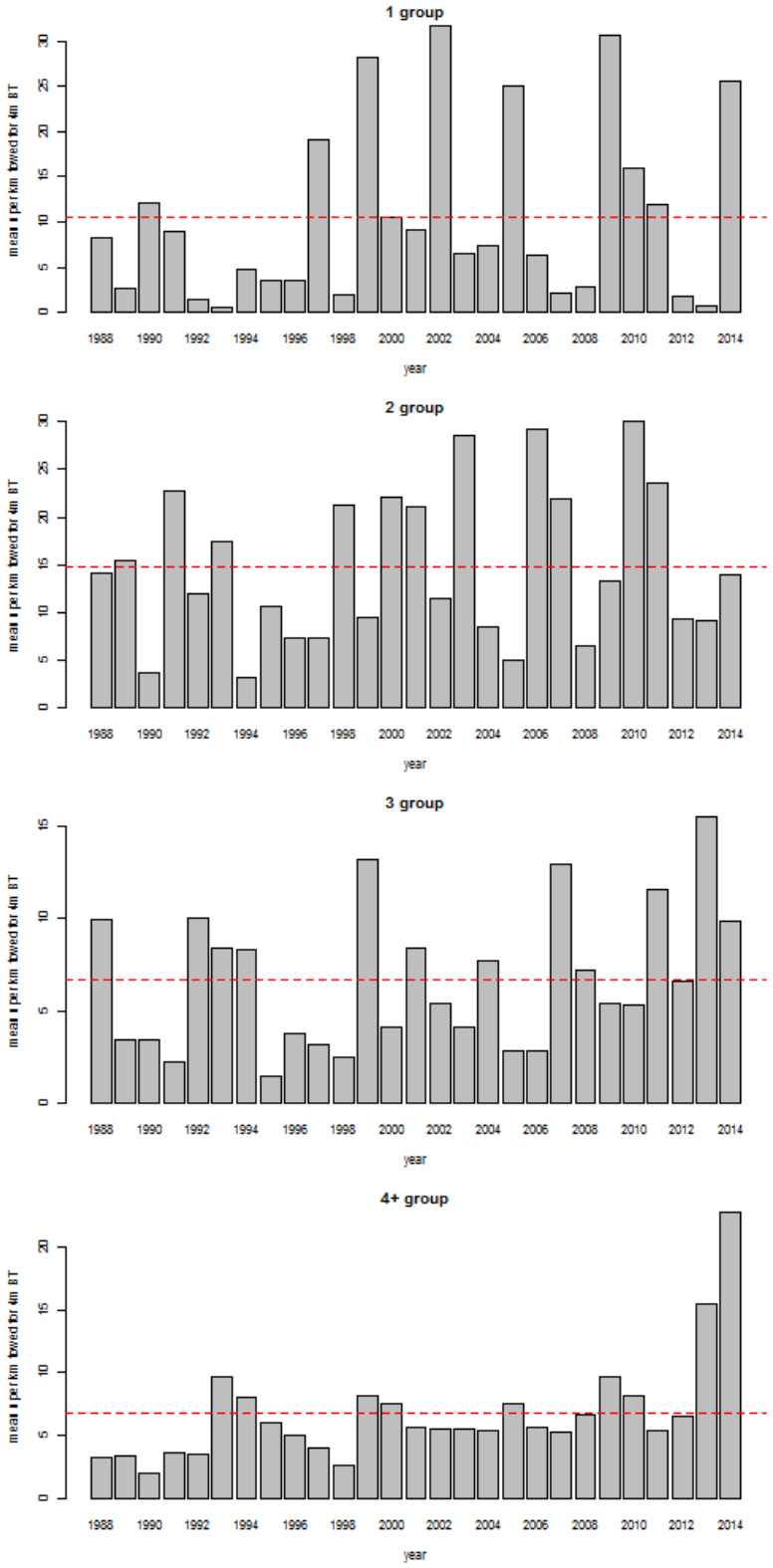
a) Netherlands: sole (N.hr^-1/8m trawl) North Sea (IV) RV “Isis”

Figure 5.1.1.1. Catch rate of sole, offshore surveys. (Horizontal line=long-term mean for the period presented)



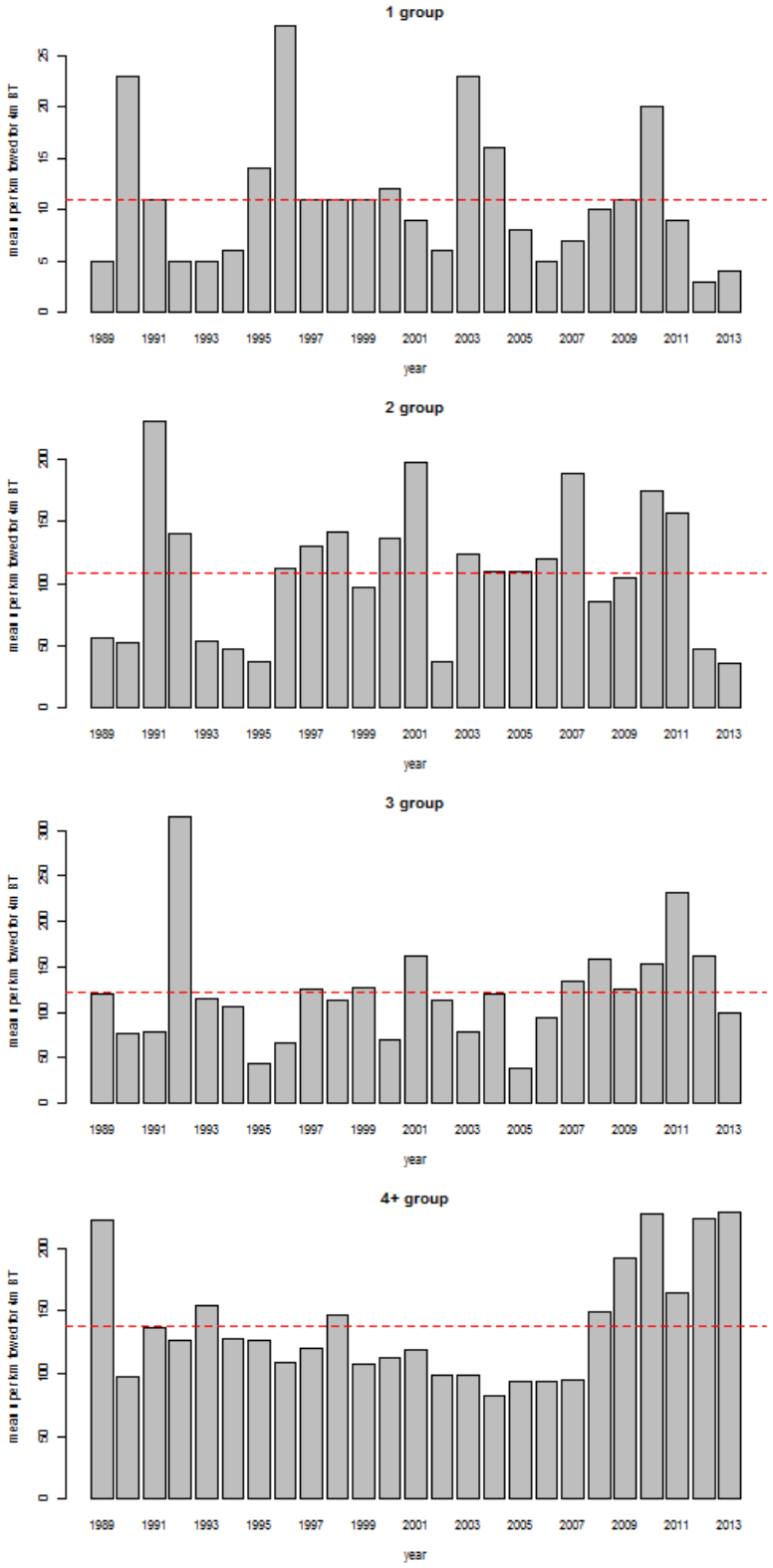
b) UK: sole (mean numbers per km towed for 4m beam trawl) Southern North Sea (IVc)

Figure 5.1.1.1. Continued



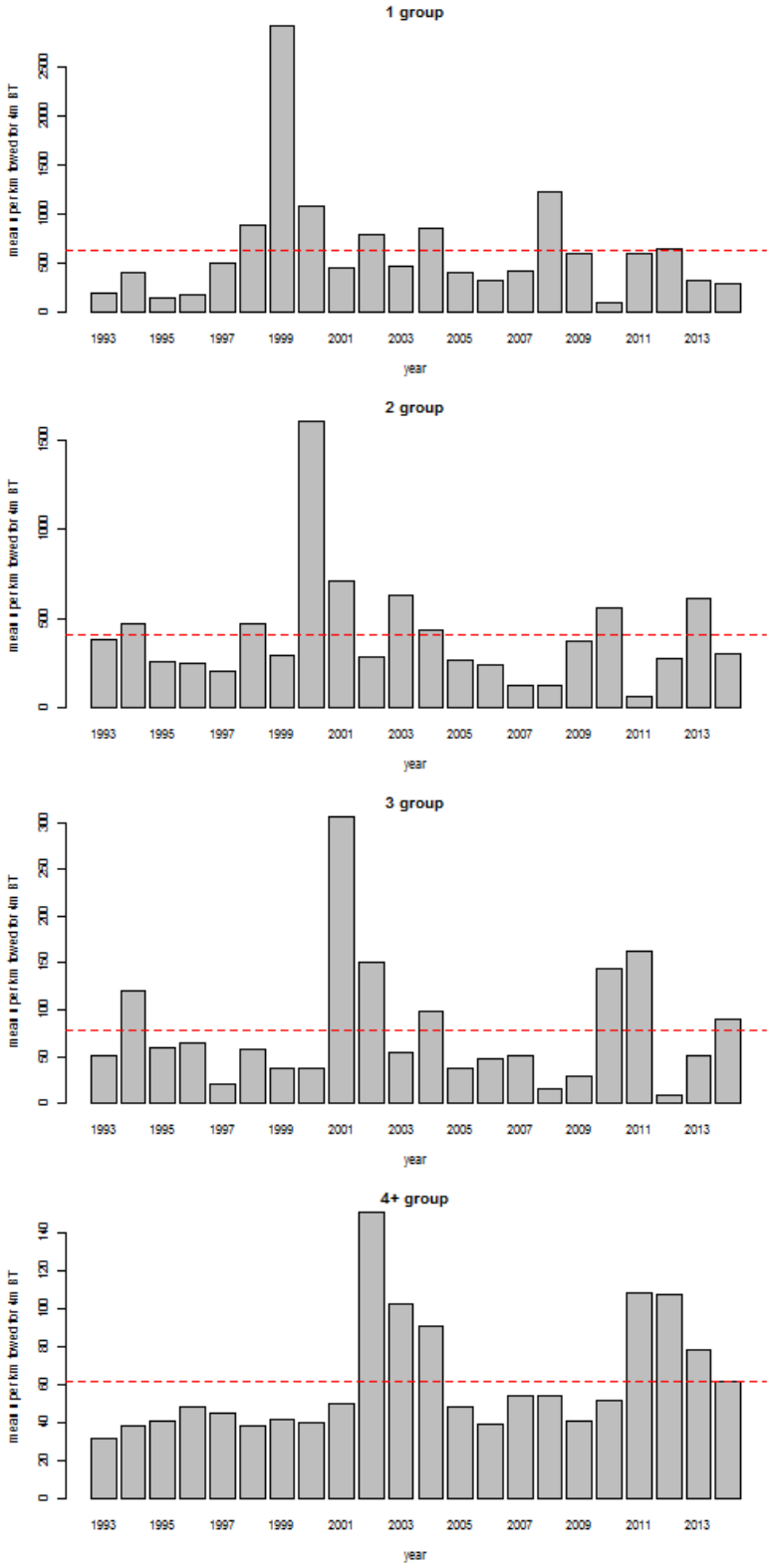
c) UK: sole (N.hr^-1/8m beam) Eastern English Channel (VIId)

Figure 5.1.1.1. Continued



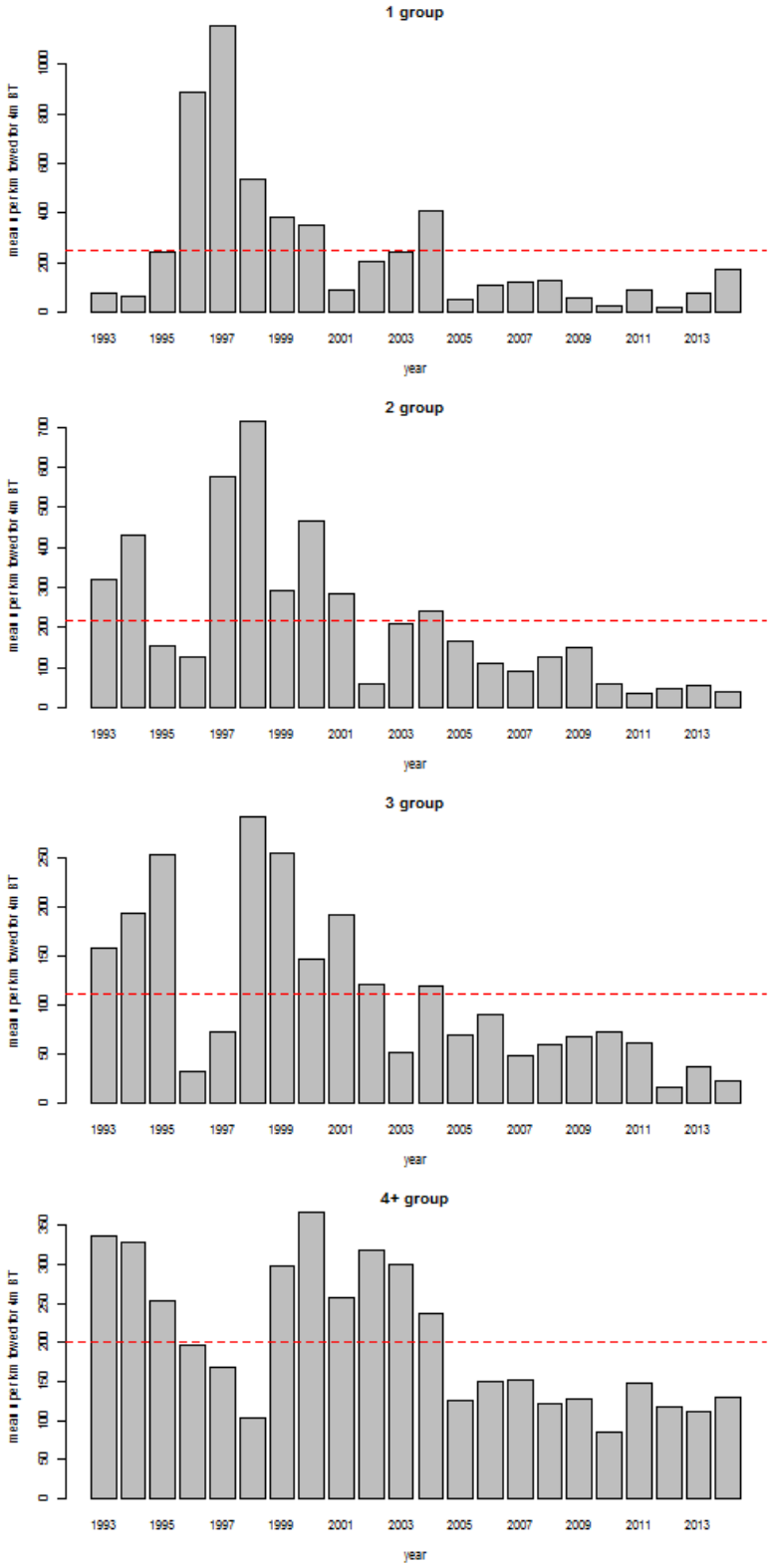
d) UK: sole (mean numbers per km towed for 2*4m beam trawl) Western English Channel (VIIe). The survey in this area was not continued in 2014.

Figure 5.1.1.1. Continued



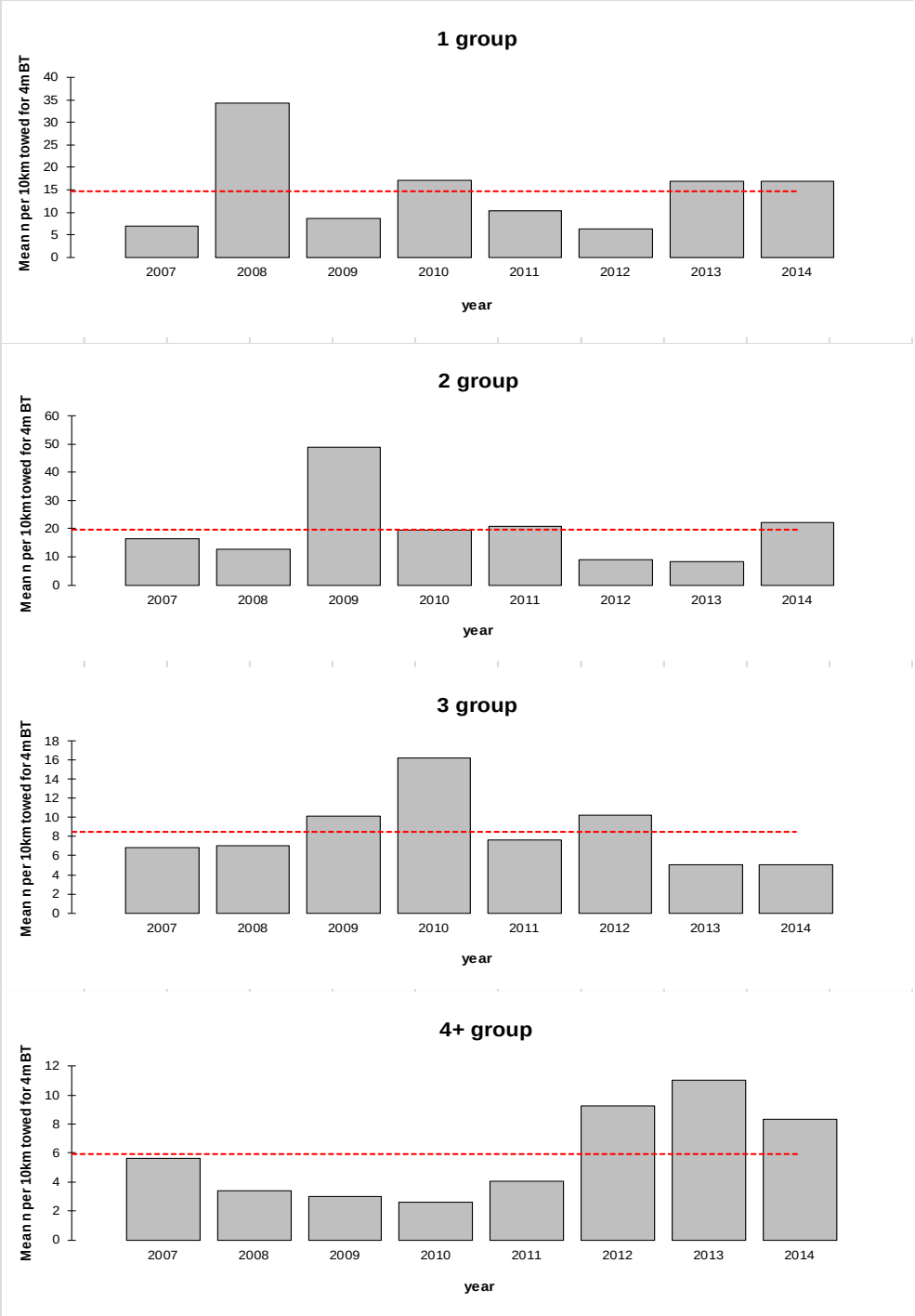
e) UK: sole (mean numbers per km towed for 4m beam trawl) Bristol Channel (VIIf)

Figure 5.1.1.1. Continued



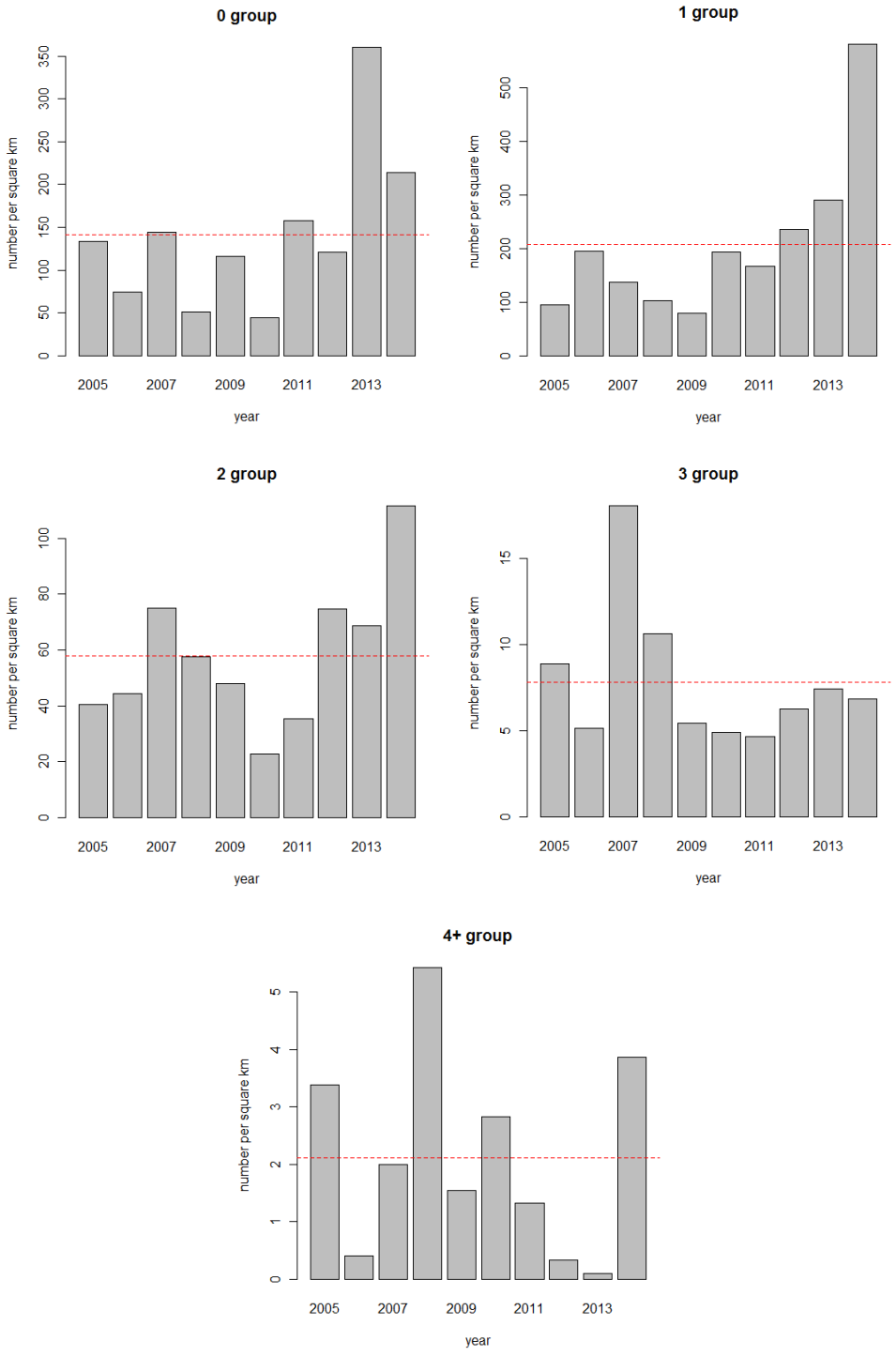
f) UK: sole (mean numbers per km towed for 4m beam trawl) Eastern Irish Sea (VIIa)

Figure 5.1.1.1. Continued



g) France: Catch rate of sole from French survey in the Bay of Biscay. (mean numbers per 10km towed for 4m beam trawl; Horizontal line=long-term mean for the period presented).

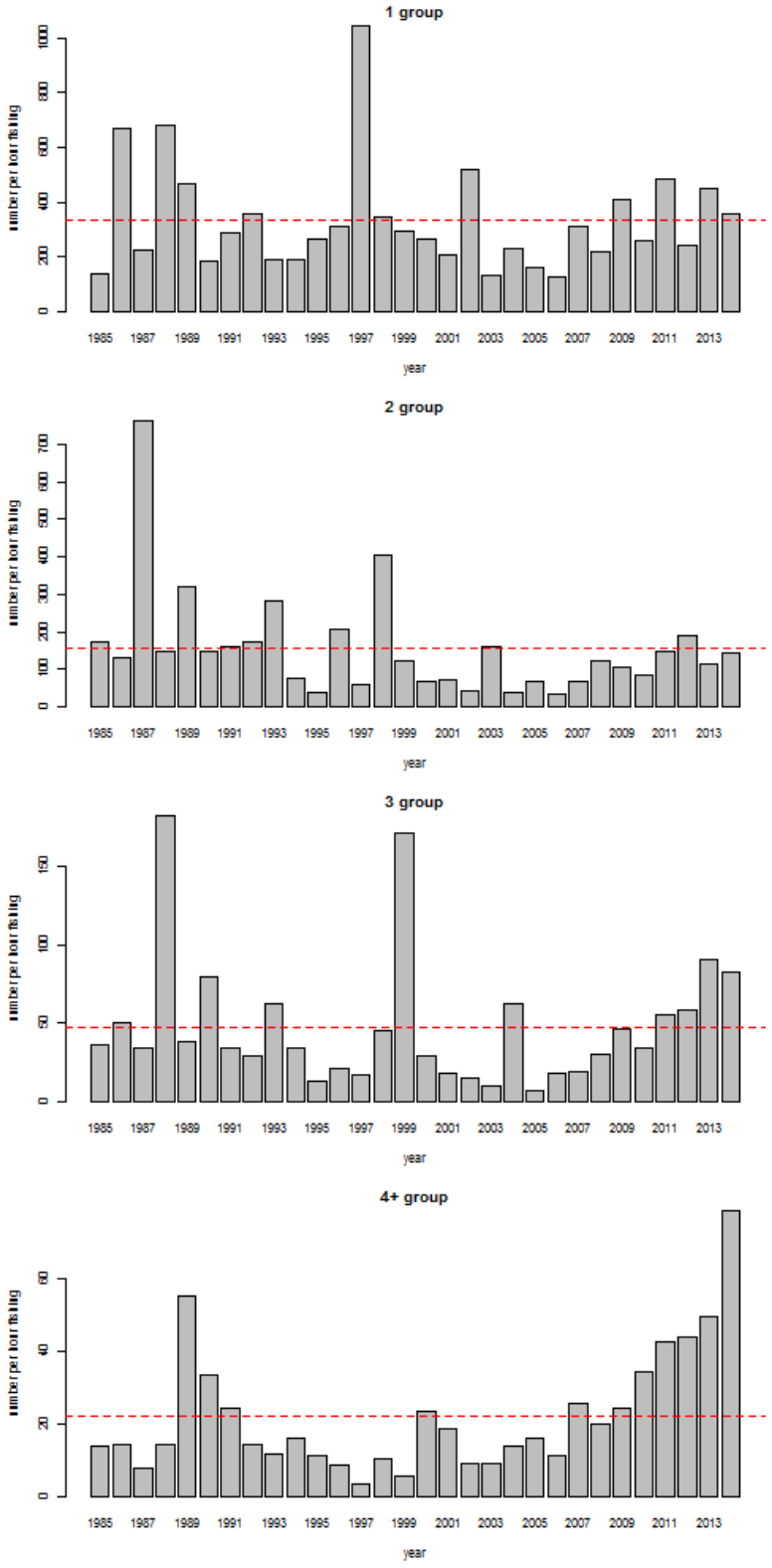
Figure 5.1.1.1. Continued



h) Italy: Catch rate of sole from the Adriatic beam trawl survey. (horizontal line = long-term mean for the period presented).

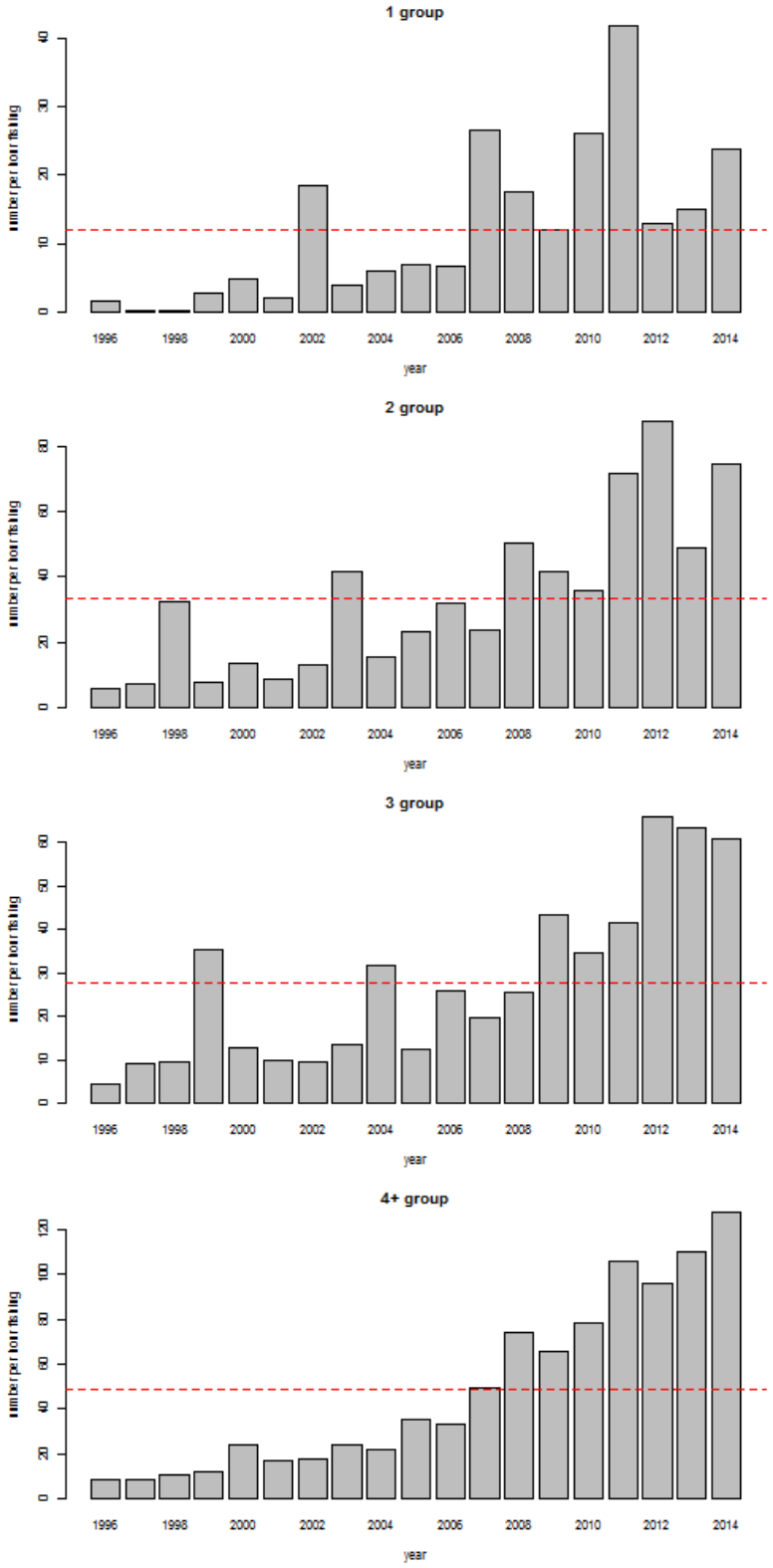
Figure 5.1.1.1. Continued

Annex 5.4: Figures of catch rate of plaice, offshore surveys



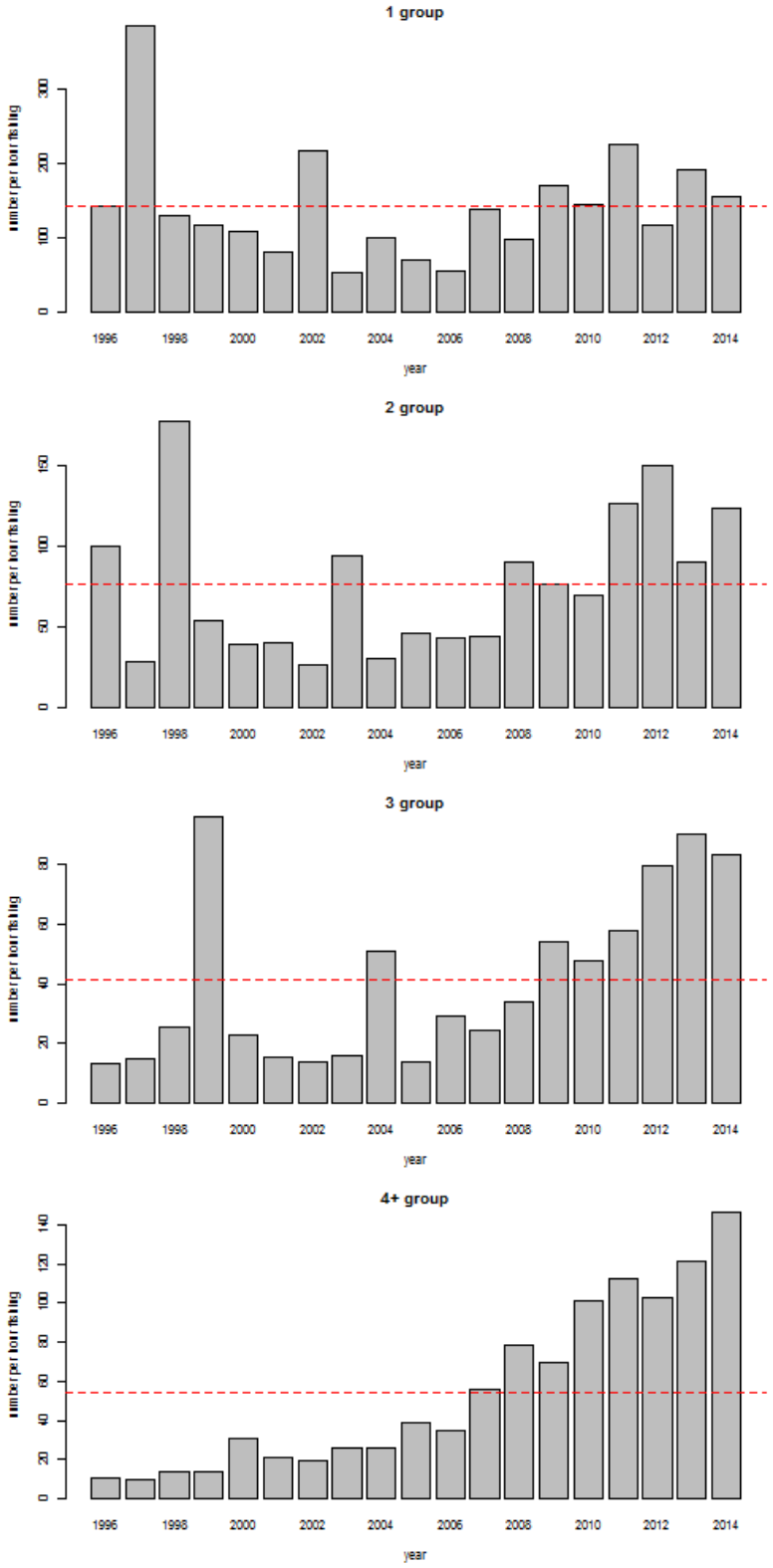
(a) Netherlands: plaice (N.hr^-1/8m trawl) North Sea (IV) RV "Isis"

Figure 5.1.1.2. Catch rate of plaice, offshore surveys. (Horizontal line=long-term mean for the period presented)



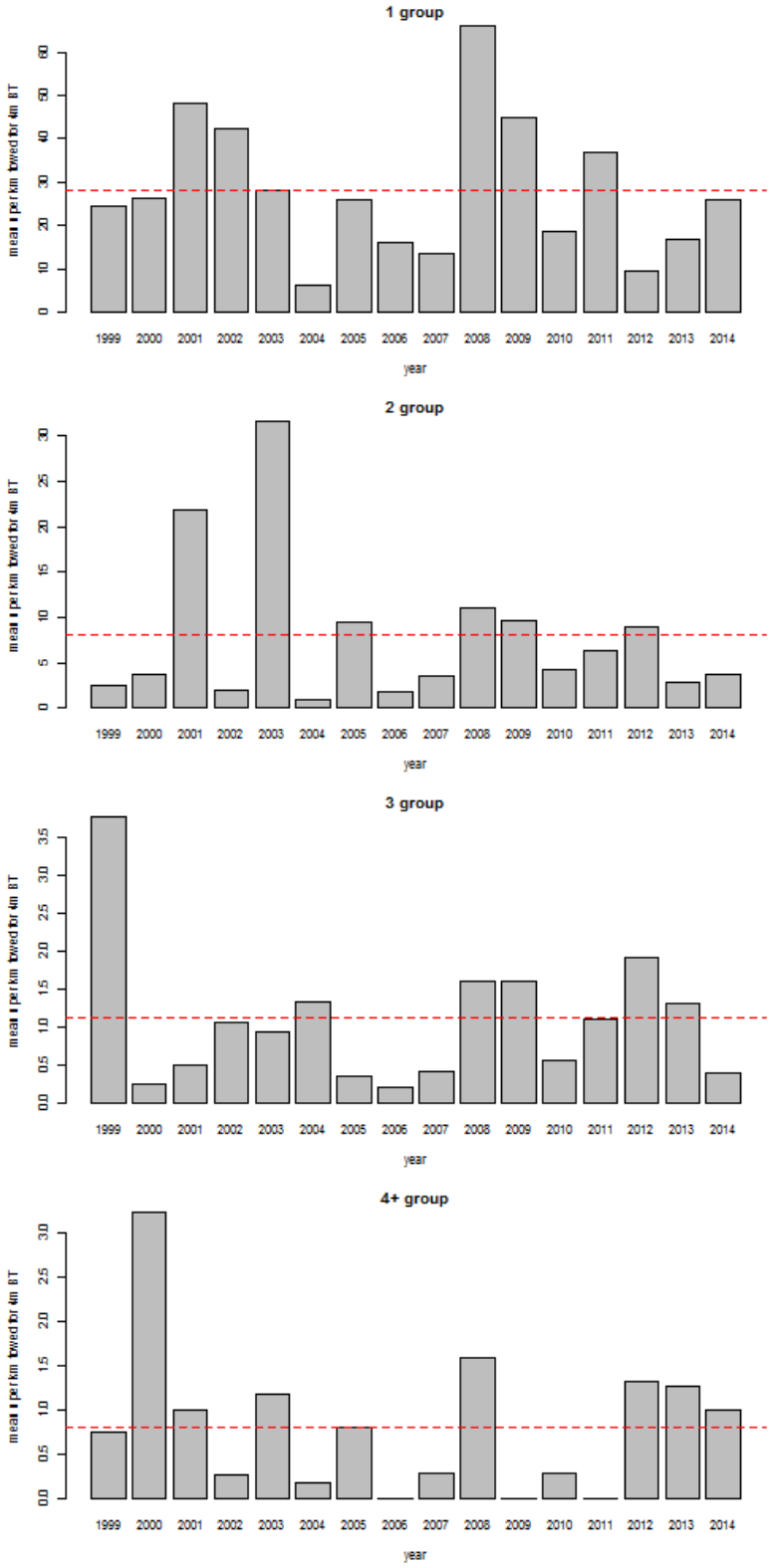
(b) Netherlands: plaice (N.hr^-1/8m trawl) North Sea (IV) RV “Tridens”

Figure 5.1.1.2: continued.



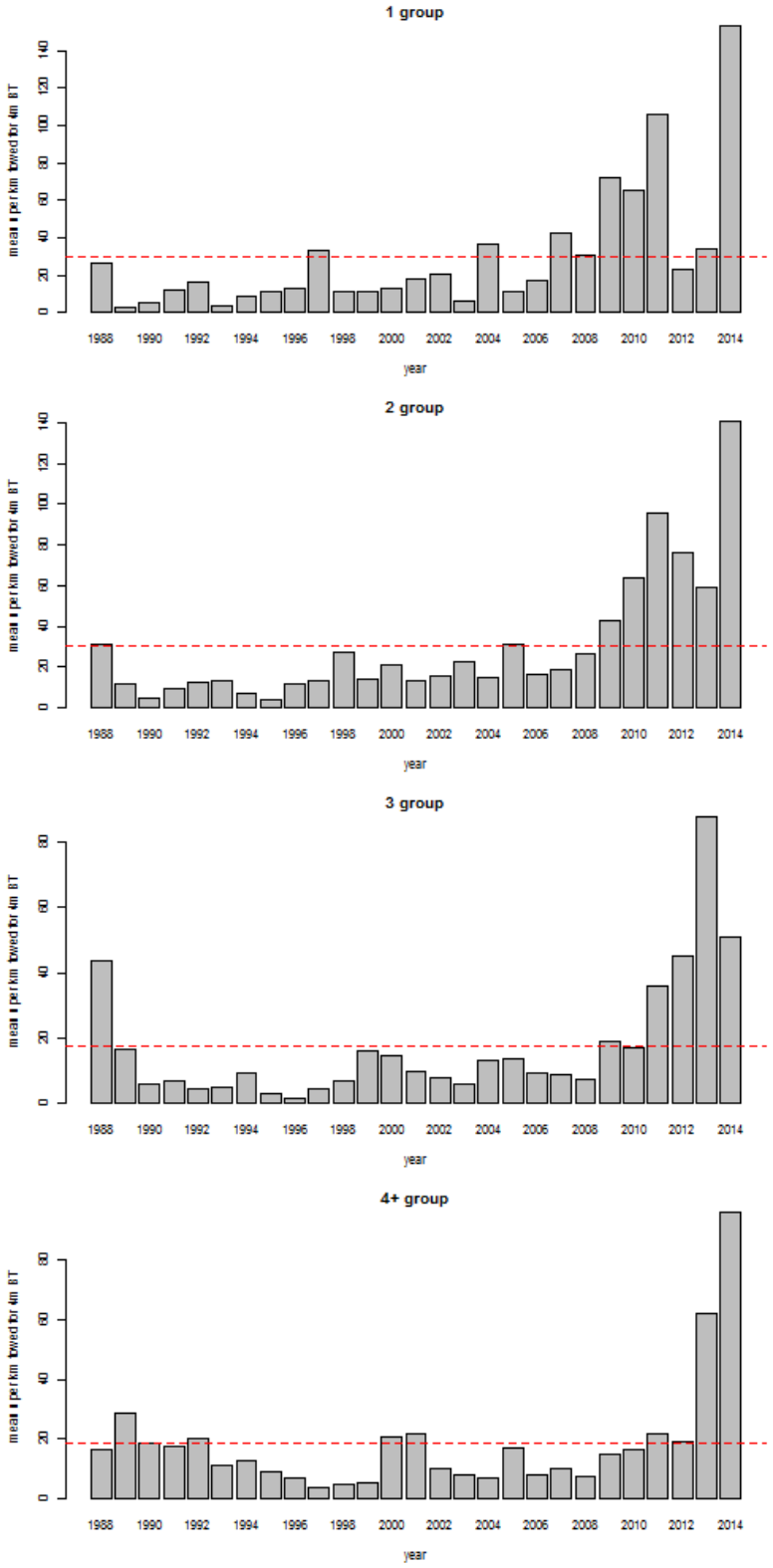
(c) Netherlands: plaice (N.hr^-1/8m trawl) North Sea (IV) RV “Isis” and RV “Tridens”

Figure 5.1.1.2: continued.



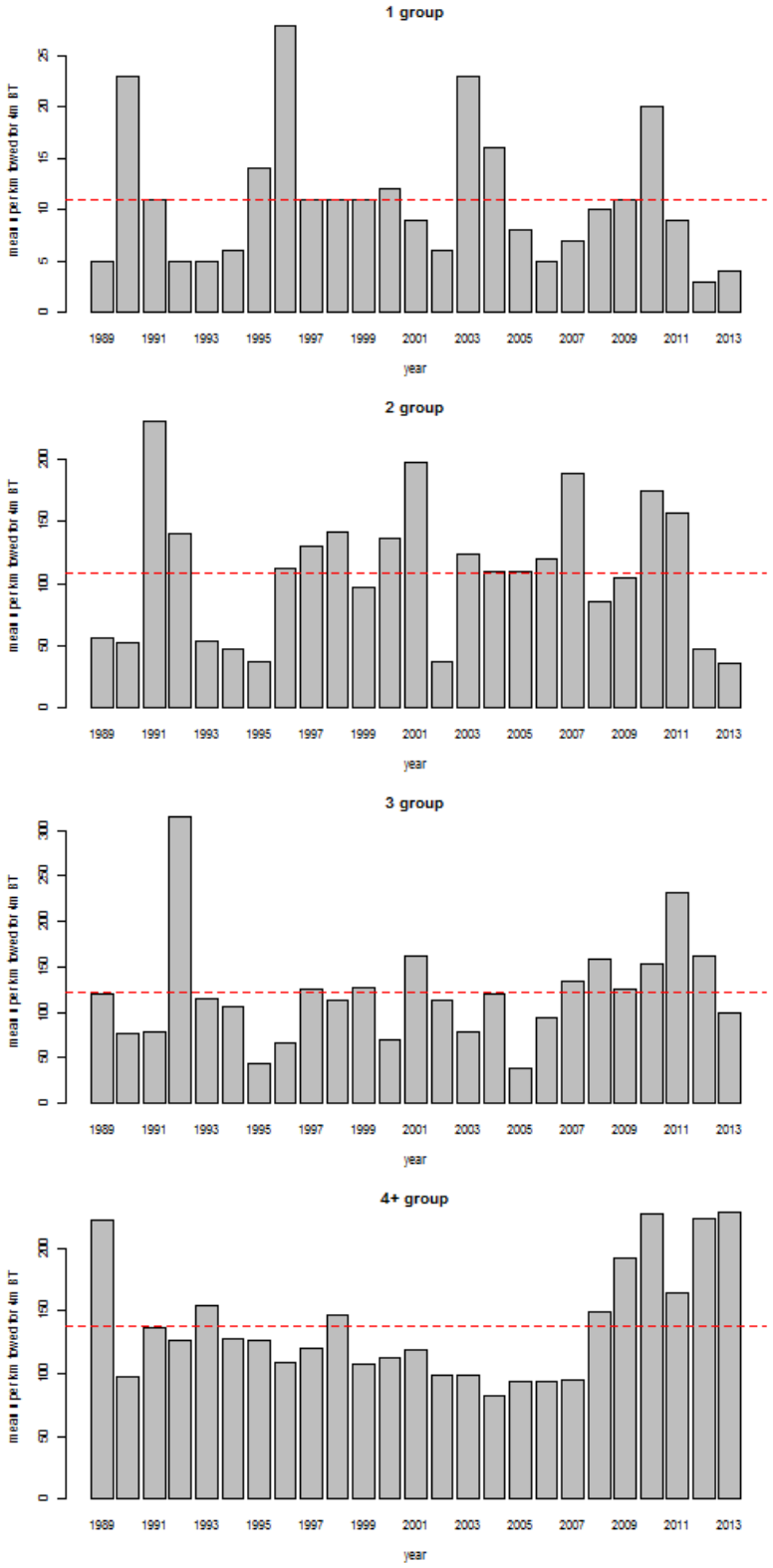
(d) UK: plaice (mean numbers per km towed for 4m beam trawl) Southern North Sea (IVc)

Figure 5.1.1.2: continued.



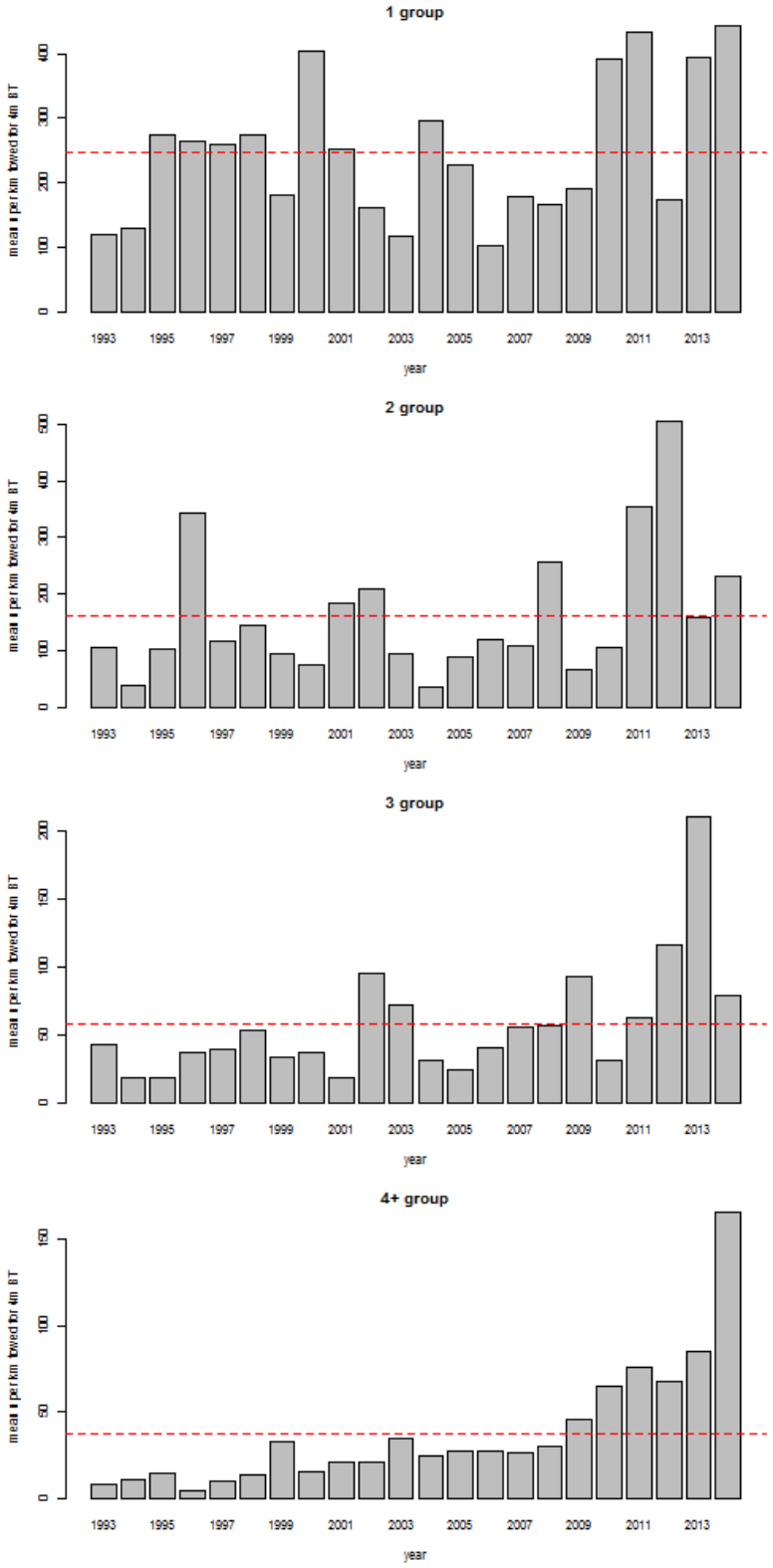
(e) UK: plaice (N.hr^-1/8m beam trawl) Eastern English Channel (VIId)

Figure 5.1.1.2: continued.



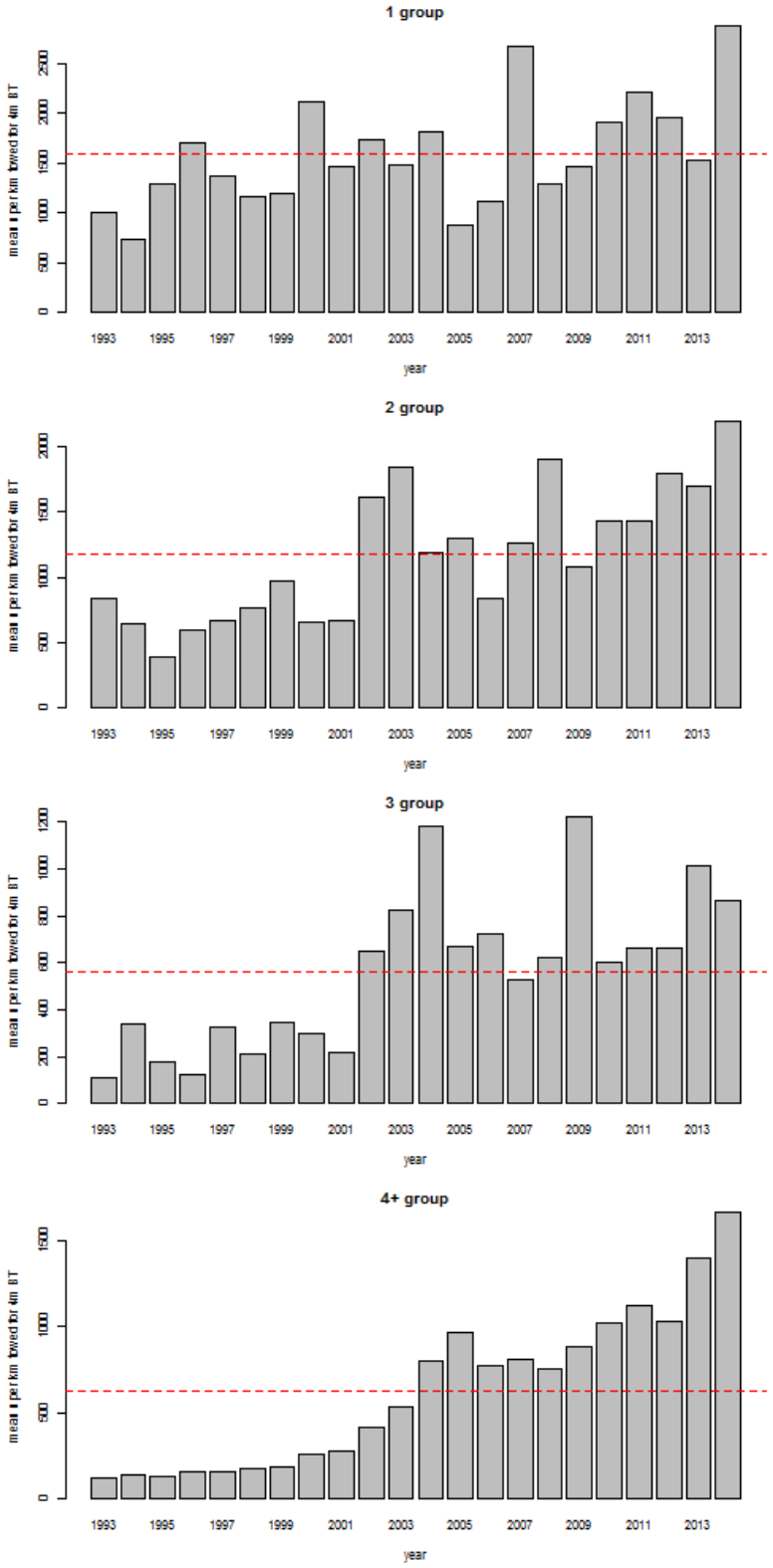
(f) UK: plaice (mean numbers per km towed for 2*4m beam trawl) Western English Channel (VIIe). The survey in this area was not continued in 2014.

Figure 5.1.1.2: continued.



(g) UK: plaice (mean numbers per km towed for 4m beam trawl) Bristol Channel (VIIf)

Figure 5.1.1.2: continued.



(h) UK: plaice (mean numbers per km towed for 4m beam trawl) Eastern Irish Sea (VIIa)

Figure 5.1.1.2: continued.

Annex 6: Population abundance indices for sole and plaice, inshore surveys

Annex 6.1: Indices from the D(Y)FS inshore beam trawl surveys

a) Plaice abundance indices in numbers per 1000m² (national) or numbers*10⁶ (combined)

	Plaice, age 0				Plaice, age 1		
	nl	be	de	combined	nl	be	combined
Raising	11.007	1.472	1.919		11.007	1.472	
Gear correction	1	1.22	1.22		1	1	
1990	34.515	2.482	23.590	439.593	5.518	1.256	62.588
1991	25.489	1.155	21.240	332.358	4.633	0.170	51.251
1992	15.326	0.315	4.720	180.310	4.066	0.182	45.020
1993	18.860	0.198	3.860	216.990	2.362	0.121	26.178
1994	23.898	1.306	7.710	283.438	0.636	0.292	7.432
1995	10.623	2.623	10.440	146.076	0.789	0.724	9.749
1996	45.345	12.648	41.770	619.615	0.426	0.198	4.985
1997	16.584	4.273	16.670	229.243	3.729	3.448	46.119
1998	*	2.763	8.110	*	*	1.543	*
1999	*	1.136	2.940	*	*	1.624	*
2000	8.953	1.290	10.280	124.926	0.162	0.949	3.185
2001	22.353	1.572	27.470	313.175	0.136	0.630	2.422
2002	10.013	5.609	1.120	122.907	0.088	4.685	7.861
2003	19.197	3.224	9.200	238.626	0.257	1.210	4.607
2004	9.787	4.463	4.700	126.738	0.592	1.999	9.455
2005	6.589	3.942	2.680	85.880	0.155	0.264	2.100
2006	14.230	1.117	3.997	167.988	0.143	0.690	2.585
2007	7.074	4.298	5.410	98.253	0.129	0.236	1.770
2008	10.691	3.796	2.230	129.710	0.067	0.657	1.708
2009	9.757	7.402	9.050	141.870	0.138	0.311	1.981
2010	12.807	1.182	15.600	179.615	0.073	0.501	1.537
2011	6.897	2.182	5.610	92.963	0.329	2.778	7.713
2012	15.191	3.057	3.600	181.122	0.111	1.691	3.713
2013	12.37	5.716	9.423	168.48	0.267	0.745	4.03
2014	8.454	3.822	3.450	107.99	0.207	1.372	4.29

*** No valid survey**

b) Sole abundance indices in numbers per 1000m² (national) or numbers*10⁶ (combined)

	Sole, age 0				Sole, age 1		
	nl	**be**	**de**	**combined**	**nl**	**be**	**combined**
Raising	11.007	1.472	1.919		11.007	1.472	
Gear correction	1	1.59	1.59		1	1.9	
1990	0.440	0.356	0.230	6.381	0.119	0.045	1.435
1991	14.521	2.168	0.870	167.563	0.015	0.005	0.184
1992	0.755	0.160	0.190	9.266	0.344	0.350	4.771
1993	1.263	0.450	0.120	15.324	0.024	0.024	0.335
1994	1.817	0.687	0.150	22.063	0.015	0.106	0.457
1995	0.284	1.568	0.090	7.065	0.075	0.084	1.065
1996	2.454	4.949	0.550	40.272	0.013	0.418	1.306
1997	2.141	1.400	0.030	26.940	0.248	0.804	4.981
1998	*	3.476	0.180	*	*	2.336	*
1999	*	2.310	0.100	*	*	0.506	*
2000	0.716	0.535	0.120	9.504	0.036	0.086	0.636
2001	2.648	9.452	0.050	51.424	0.032	0.687	2.269
2002	2.426	13.386	0.180	58.583	0.087	4.060	12.307
2003	0.618	1.498	0.100	10.609	0.087	0.479	2.298
2004	0.589	10.516	0.050	31.252	0.030	2.235	6.585
2005	2.245	5.665	0.990	40.987	0.032	1.240	3.819
2006	1.037	0.341	0.115	12.567	0.126	2.297	7.813
2007	0.863	1.739	0.050	13.727	0.013	0.226	0.776
2008	0.970	0.434	0.024	11.768	0.011	0.059	0.292
2009	1.224	5.519	0.310	27.332	0.035	1.873	5.620
2010	2.245	7.724	0.024	42.862	0.059	1.439	4.673
2011	0.981	0.477	0.070	12.130	0.143	0.900	4.088
2012	0.915	0.428	0.050	11.226	0.012	0.269	0.880
2013	3.458	1.944	0.724	44.819	0.036	0.528	1.868
2014	1.980	0.686	0.070	23.616	0.094	0.532	2.522

*** No valid survey**

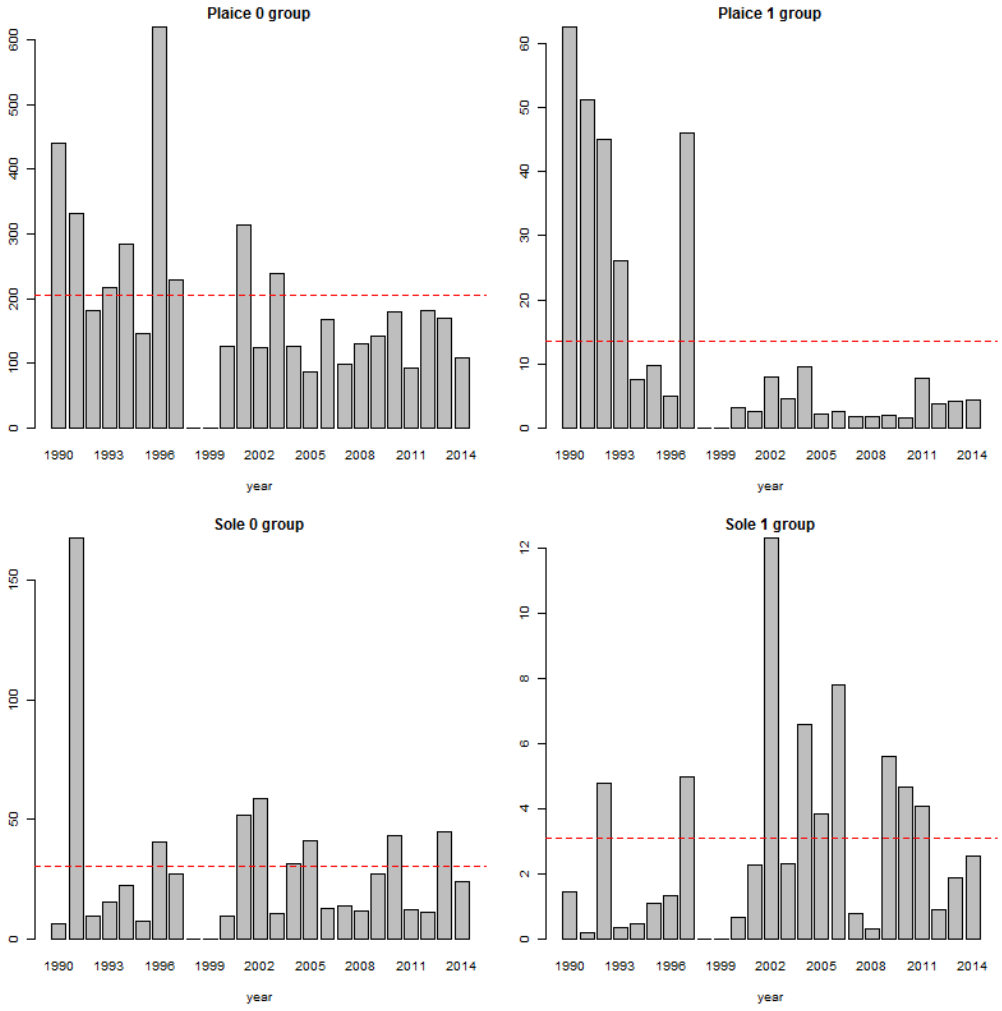


Figure 5.1.2.1. Combined inshore indices for 0 and 1 group plaice and sole. The horizontal line is the long-term mean for the period presented. The indices were declared to be invalid in 1998 and 1999, due to insufficient coverage of the Dutch survey area and are not displayed.

Annex 6.2: Indices from SNS inshore beam trawl survey.

a) Plaice abundance indices in numbers per 100 hours fished

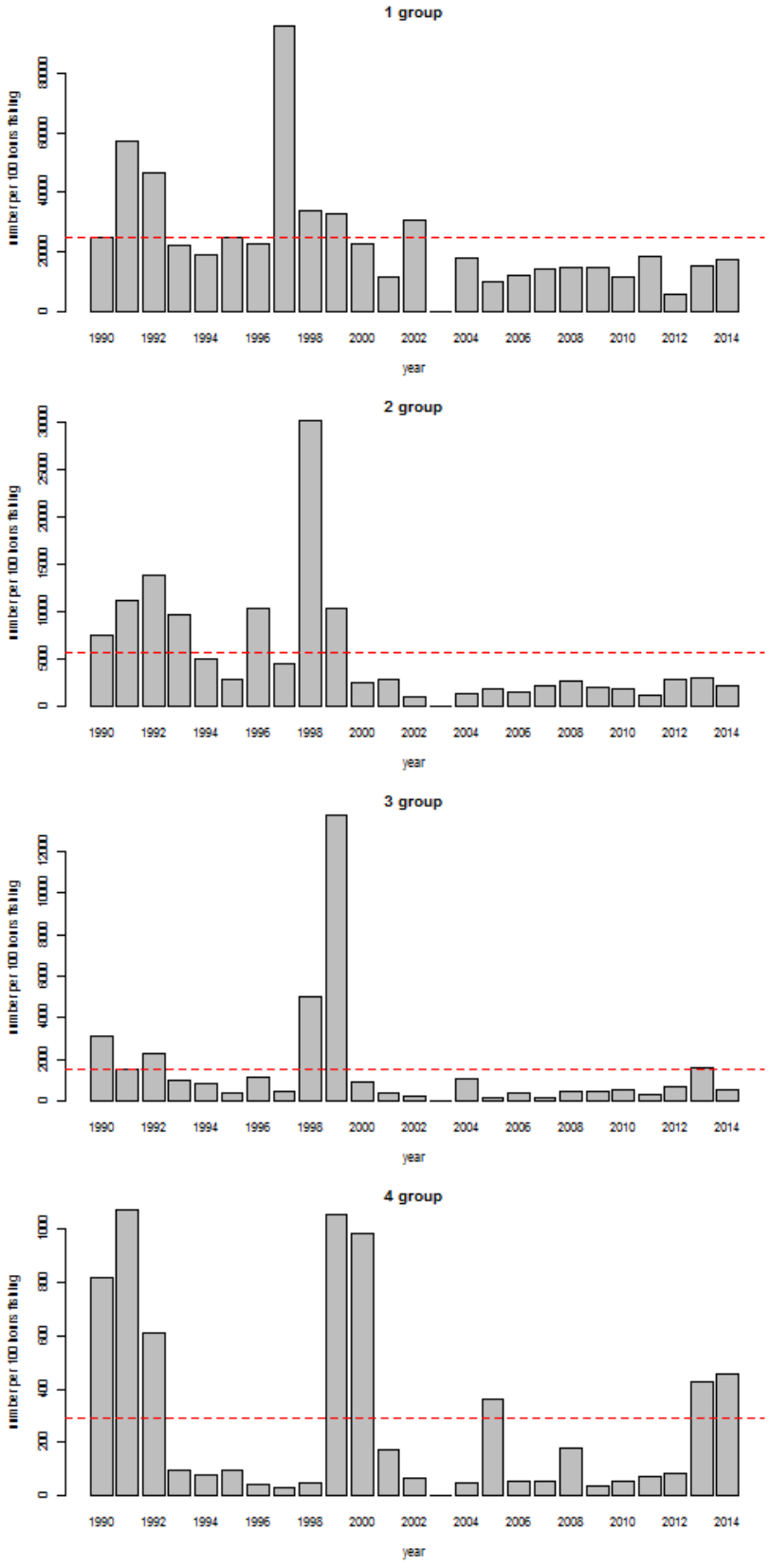
	Plaice			
	age group			
	1	2	3	4
1970	9311.368	9731.527	3272.977	769.727
1971	13538.483	28163.543	1414.688	100.825
1972	13206.903	10779.712	4477.829	89.111
1973	65642.504	5133.332	1578.221	461.359
1974	15366.398	16508.939	1128.838	160.004
1975	11628.230	8168.365	9556.302	65.238
1976	8536.534	2402.627	868.236	236.317
1977	18536.699	3423.843	1737.311	589.947
1978	14011.969	12678.032	345.465	134.778
1979	21495.430	9828.822	1574.911	161.222
1980	59174.156	12882.339	490.655	180.434
1981	24756.155	18785.306	834.420	38.321
1982	69993.328	8642.029	1261.036	87.857
1983	33974.181	13908.624	249.374	70.965
1984	44964.544	10412.798	2466.902	41.667
1985	28100.547	13847.837	1597.696	328.037
1986	93551.910	7580.403	1152.144	144.873
1987	33402.438	32991.107	1226.651	199.582
1988	36608.576	14421.140	13153.247	1350.132
1989	34276.253	17810.152	4372.837	7126.431
1990	25036.611	7496.000	3160.028	816.139
1991	57221.278	11247.222	1517.833	1076.833
1992	46798.224	13841.786	2267.598	612.976
1993	22098.315	9685.589	1006.278	97.778
1994	19188.431	4976.550	855.907	75.944
1995	24766.964	2796.381	381.327	96.994
1996	23015.391	10268.227	1185.155	44.714
1997	95900.889	4472.700	496.633	31.667
1998	33665.689	30242.247	5013.857	49.667
1999	32951.262	10272.083	13783.060	1058.214
2000	22855.018	2493.389	891.444	982.556
2001	11510.524	2898.476	370.167	175.833
2002	30809.227	1102.715	264.641	65.242
2003	*	*	*	*
2004	18201.602	1349.703	1080.686	50.778
2005	10118.405	1818.912	141.881	365.524
2006	12164.222	1570.978	384.722	52.444
2007	14174.543	2133.911	139.537	51.852
2008	14705.767	2700.438	464.129	178.500
2009	14860.033	2018.683	492.452	38.333
2010	11946.907	1811.517	529.338	55.476
2011	18348.596	1142.515	308.193	74.696
2012	5893.440	2928.552	681.524	82.000
2013	15394.878	3021.319	1638.492	427.603
2014	17312.696	2258.336	513.847	457.944

*** No survey**

b) Sole abundance indices in numbers per 100 hour fishing

	Sole			
	age group			
	1	2	3	4
1970	5410.280	734.377	237.695	35.444
1971	902.697	1831.076	113.370	2.857
1972	1454.685	272.270	148.553	0.000
1973	5587.152	935.259	83.810	37.303
1974	2347.930	361.429	65.159	0.000
1975	525.425	864.480	176.960	17.500
1976	1399.429	73.556	229.111	26.667
1977	3742.944	776.101	103.838	43.091
1978	1547.714	1354.661	294.069	28.000
1979	93.778	408.273	300.838	76.889
1980	4312.889	88.889	109.333	61.333
1981	3737.200	1413.052	49.970	20.000
1982	5856.463	1146.204	227.778	6.667
1983	2621.143	1123.325	120.579	39.857
1984	2493.111	1099.911	318.322	74.433
1985	3619.435	715.602	167.074	49.333
1986	3705.063	457.607	69.235	31.429
1987	1947.852	943.704	64.815	21.333
1988	11226.667	593.833	281.611	81.533
1989	2830.744	5004.997	207.558	53.131
1990	2856.167	1119.500	914.250	100.444
1991	1253.620	2529.104	513.839	623.854
1992	11114.014	144.405	360.410	194.857
1993	1290.778	3419.571	153.778	212.778
1994	651.778	498.251	934.097	10.222
1995	1362.100	223.672	142.848	411.134
1996	218.359	349.085	29.600	35.533
1997	10279.333	153.630	189.819	26.470
1998	4094.611	3126.374	141.713	98.730
1999	1648.854	971.782	455.612	10.000
2000	1639.173	125.883	166.278	118.000
2001	970.310	655.357	106.667	35.476
2002	7547.460	379.044	195.300	0.000
2003	*	*	*	*
2004	1369.505	624.376	393.032	68.889
2005	568.083	162.917	124.000	0.000
2006	2726.417	117.083	25.000	30.000
2007	848.642	910.988	33.333	39.506
2008	1259.119	258.548	325.333	0.000
2009	1931.598	344.354	61.667	102.667
2010	2636.933	237.131	67.114	42.202
2011	1247.967	883.867	211.333	111.833
2012	226.576	159.476	54.000	18.000
2013	967.400	426.616	490.472	179.267
2014	2849.000	448.190	44.786	60.000

*** No survey**


1 group
number per 100 tons fishing
0
2000
4000
6000
8000
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
year
2 group
number per 100 tons fishing
0
500
1000
1500
2000
2500
3000
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
year
3 group
number per 100 tons fishing
0
2000
4000
6000
8000
10000
12000
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
year
4 group
number per 100 tons fishing
0
200
400
600
800
1000
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
year

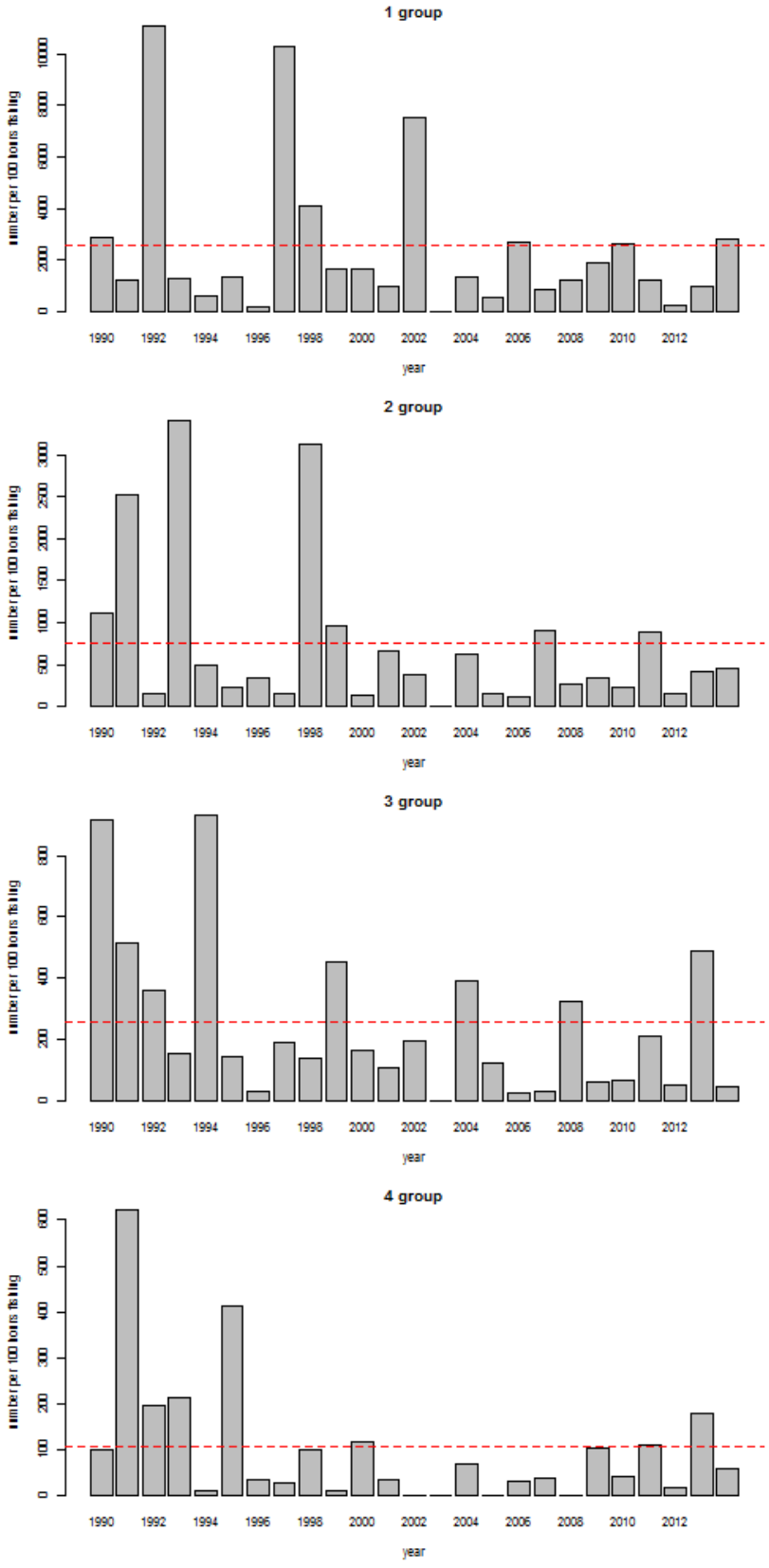


Figure 5.1.2.2. SNS indices for 1 – 4 group plaice (left) and sole (right), in numbers per 100 hours fishing. The horizontal line is the long-term mean for the period presented.

Annex 6.3. Gear comparison between RV Clupea and RV Isis during the demeral young fish survey 2014

During the demersal young fish survey in 2014 there was the opportunity to perform parallel hauls with the Dutch research vessel "Isis" and the German research vessel "Clupea" (30.09.2014–01.10.2014) along the German coast. All in all 12 parallel hauls were performed. The gears in use were a 3 m beam trawl on RV Clupea and a double 6 m beam trawl with tickler chain on the RV Isis. The goal of this exercise was to check the conversion factor which has been used in the past to estimate a combined inshore index for plaice and sole. It is clear that a sound statistical analysis cannot be obtained by 12 hauls only. However, it is intended to repeat this exercise during the 2015 demersal young fish campaign to extend the number of samples. Preliminary results suggest that there is a similar pattern for plaice, flounder and dab between the gears but with larger numbers per swept-area for the 6m beam trawl. The preliminary conversion factor obtained for plaice is 1.9 compared to the used one of 1.22. However, this preliminary estimation was not done by different length groups for which results could differ considerably.

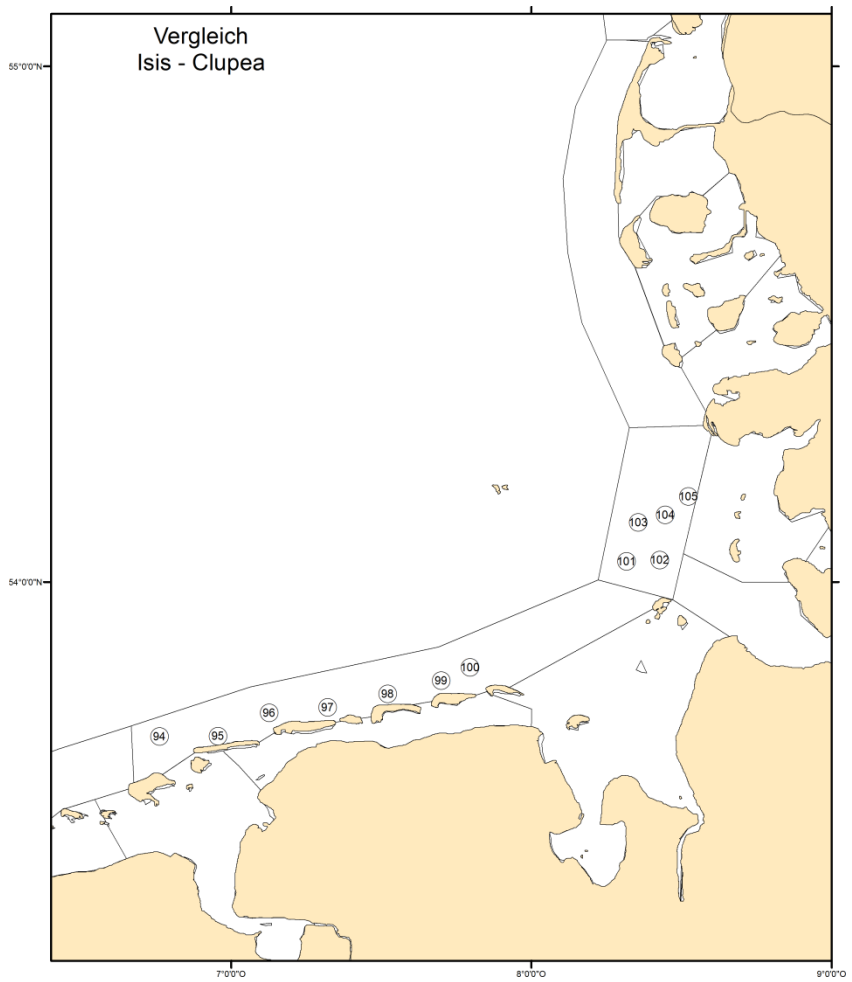


Figure 5.1.2.3. Positions of parallel hauls of RV Clupea and RV Isis.

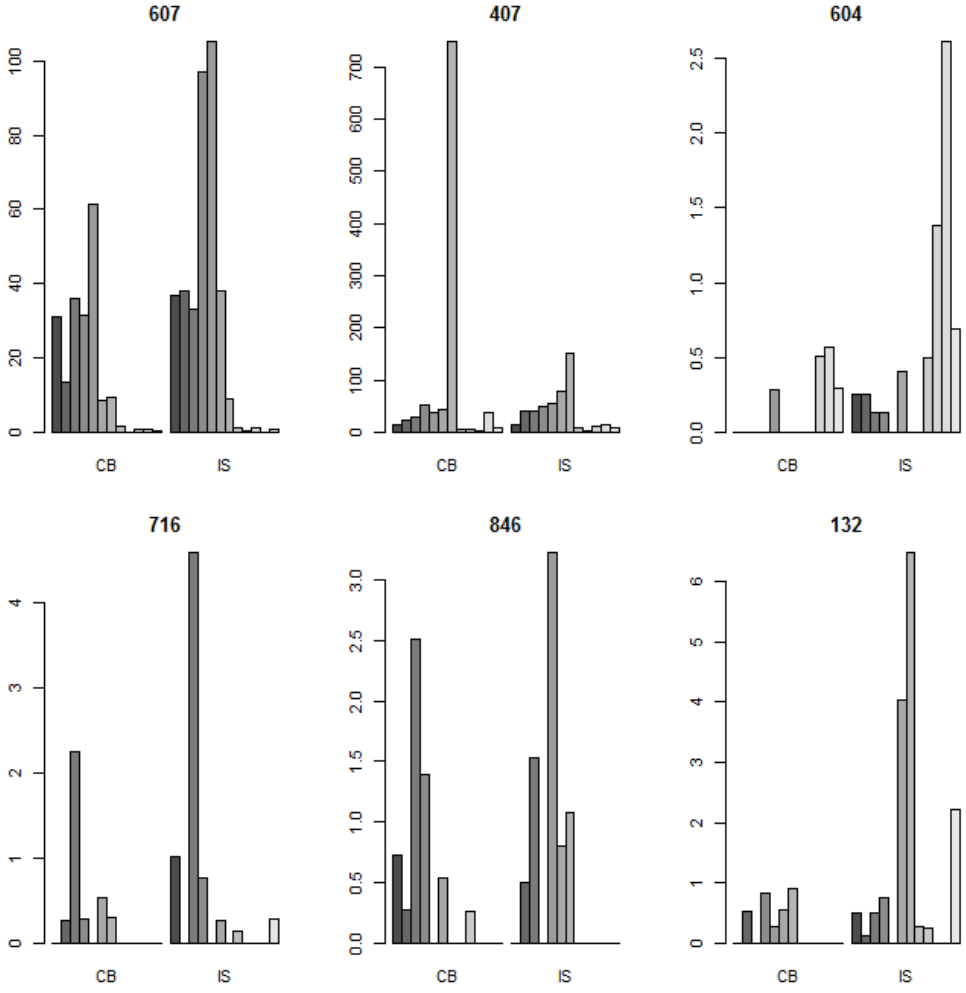


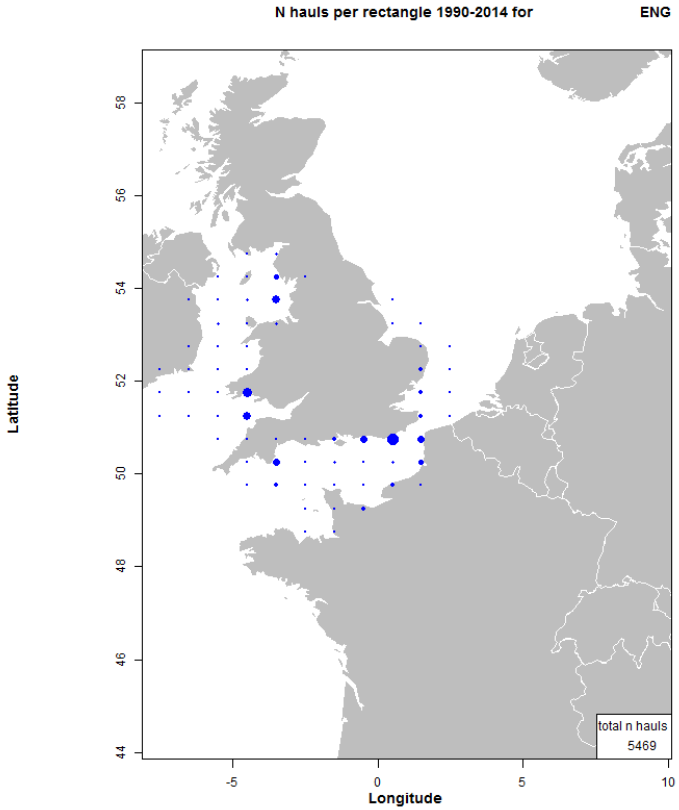
Figure 5.1.2.4. Histograms displaying the number per 1000m² swept-area for RV Clupea (CB) and RV Isis (IS) for selected species. Color coding of bars denote the parallel haul-ID. 607=plaice, 407=dab, 604=flounder, 716=sole, 846=*Sepiola* spec., 132= dragonet.

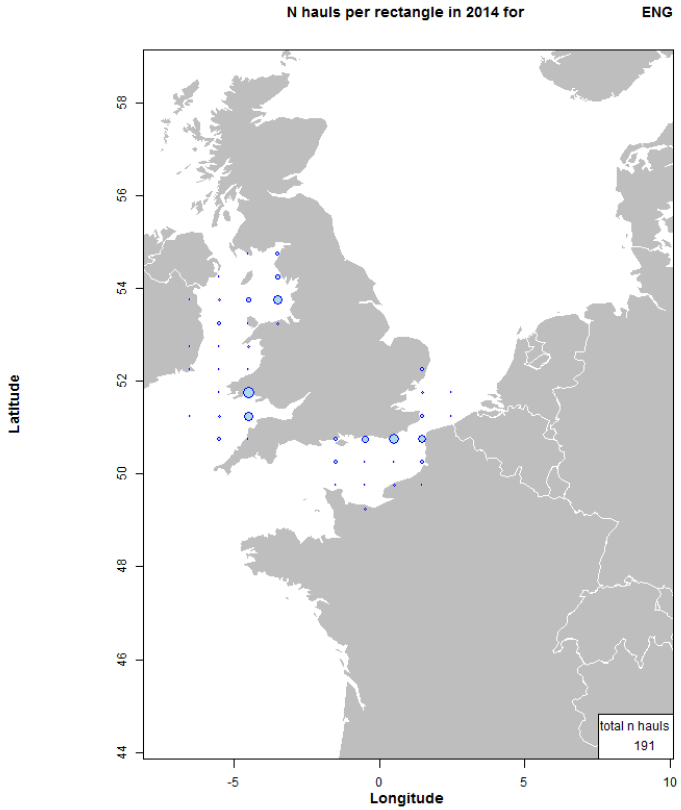
Annex 7: Spatial distribution of sampling and fish species for the offshore surveys

Annex 7.1: Spatial sampling coverage per country, offshore surveys

Annex 7.1.1: Total number of offshore beam trawl hauls per rectangle for England

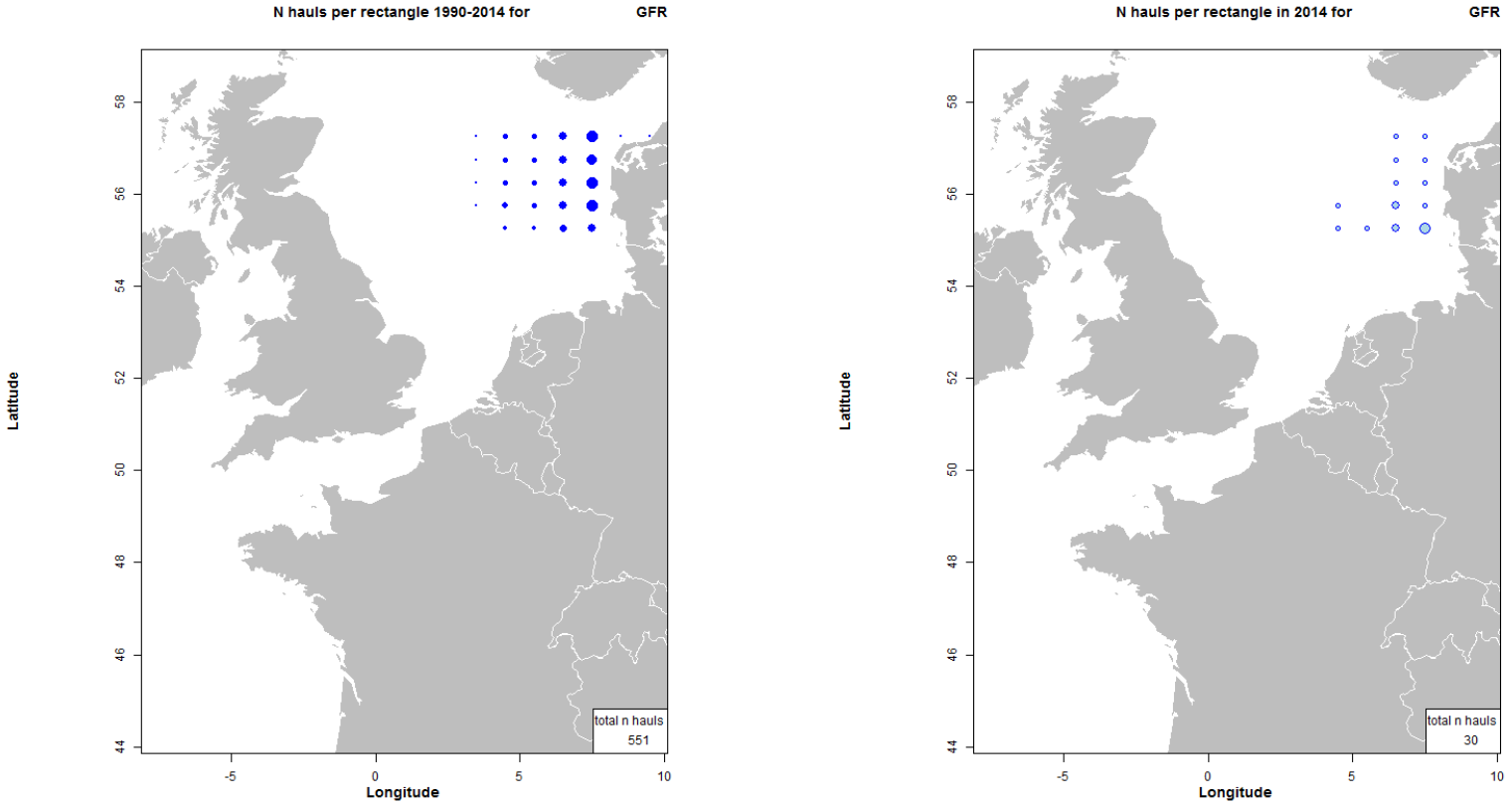
Left plot time-series, right plot current year





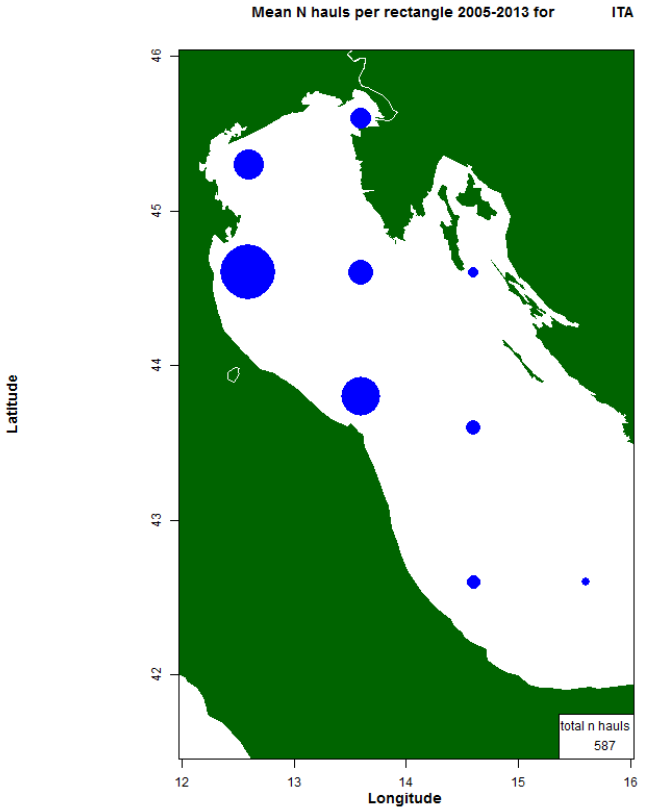
Annex 7.1.2: Total number of offshore beam trawl hauls per rectangle for Germany

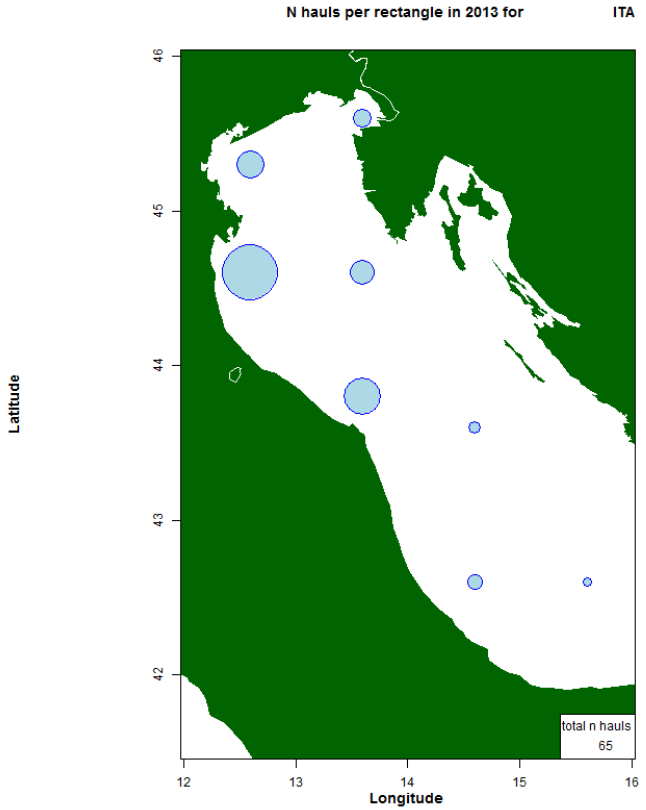
Left plot time-series, right plot current year



Annex 7.1.3: Total number of offshore beam trawl hauls per rectangle for Italy–Slovenia–Croatia

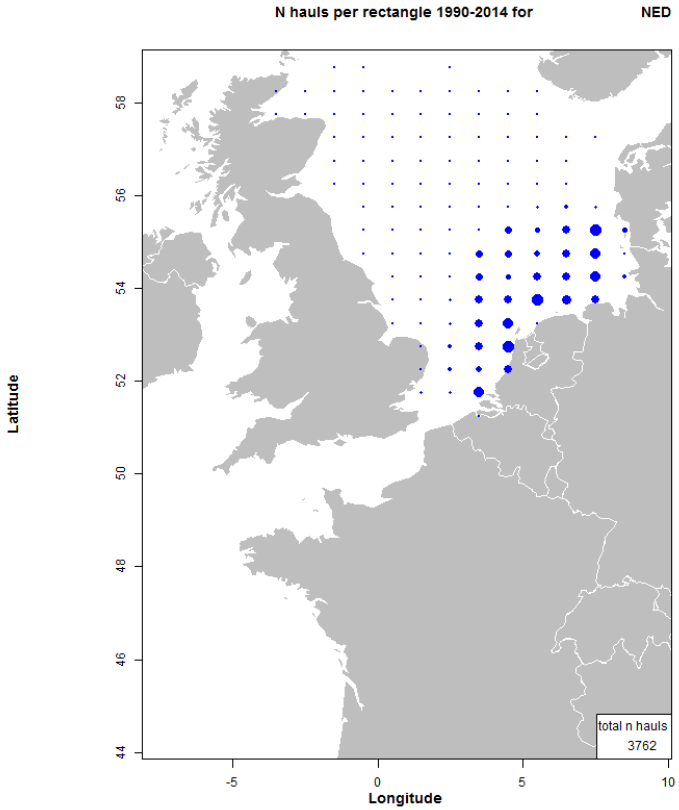
Left plot time-series, right plot current year

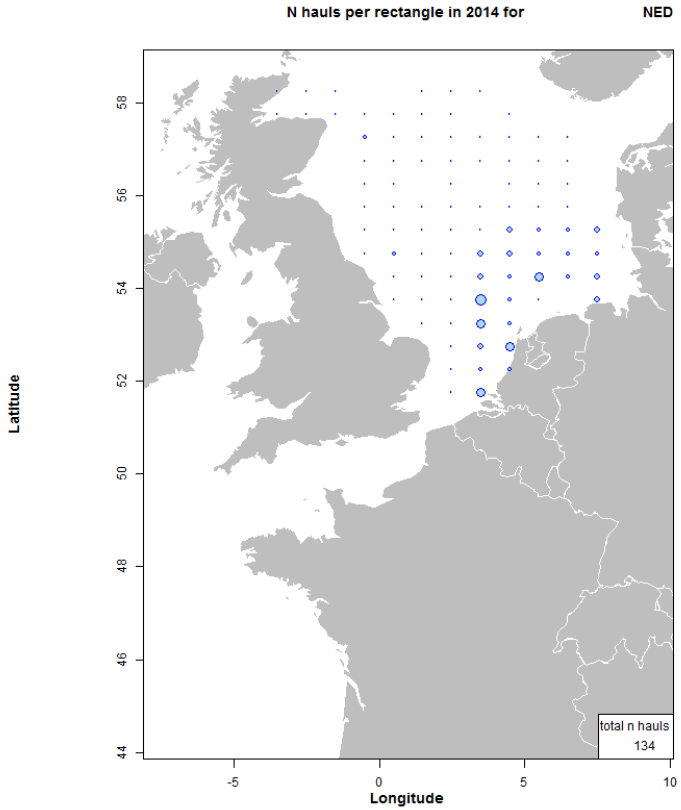




Annex 7.1.4: Total number of offshore beam trawl hauls per rectangle for Netherlands

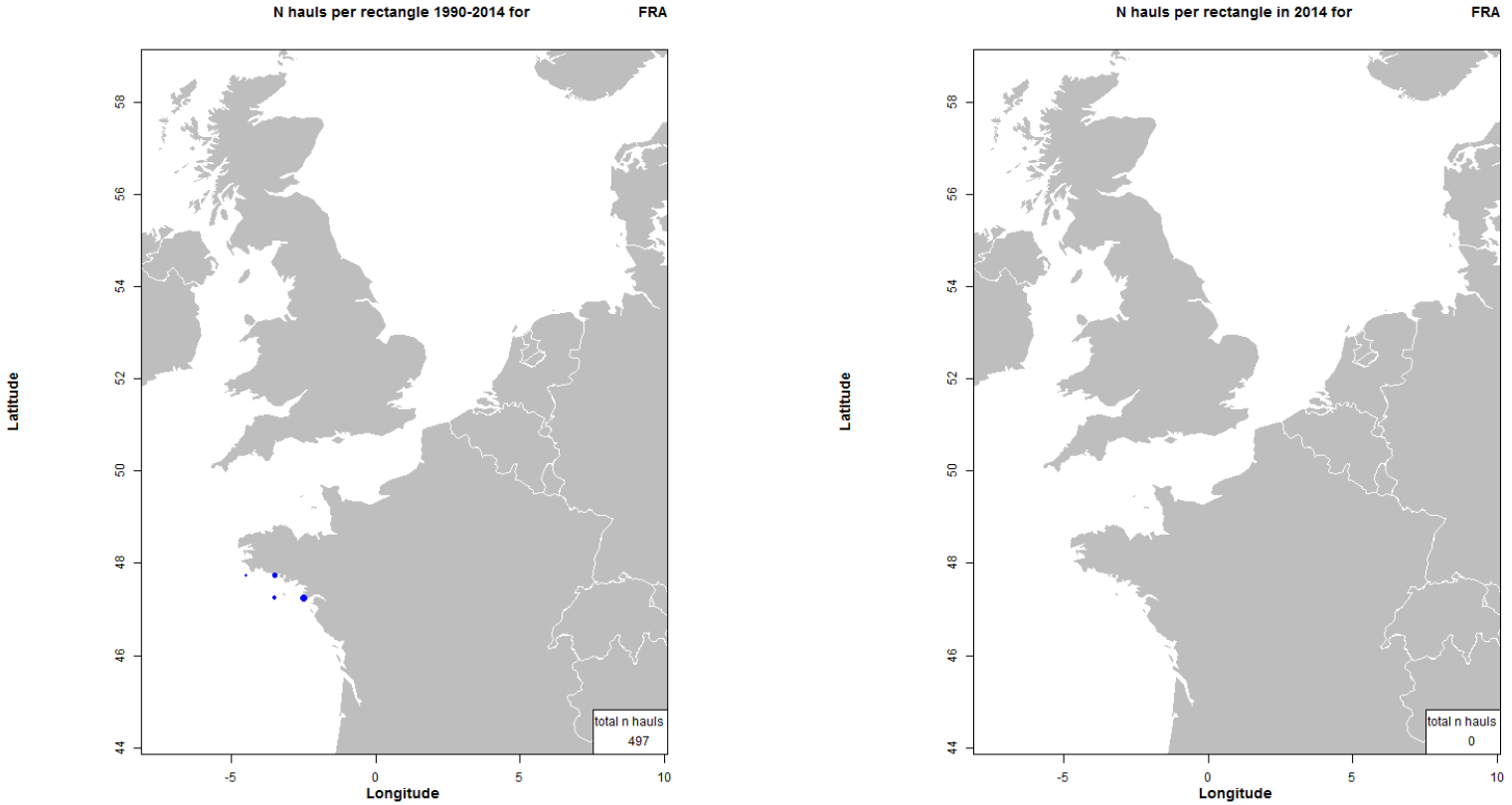
Left plot time-series, right plot current year





Annex 7.1.5: Total number of offshore beam trawl hauls per rectangle for France

Left plot time-series, right plot current year



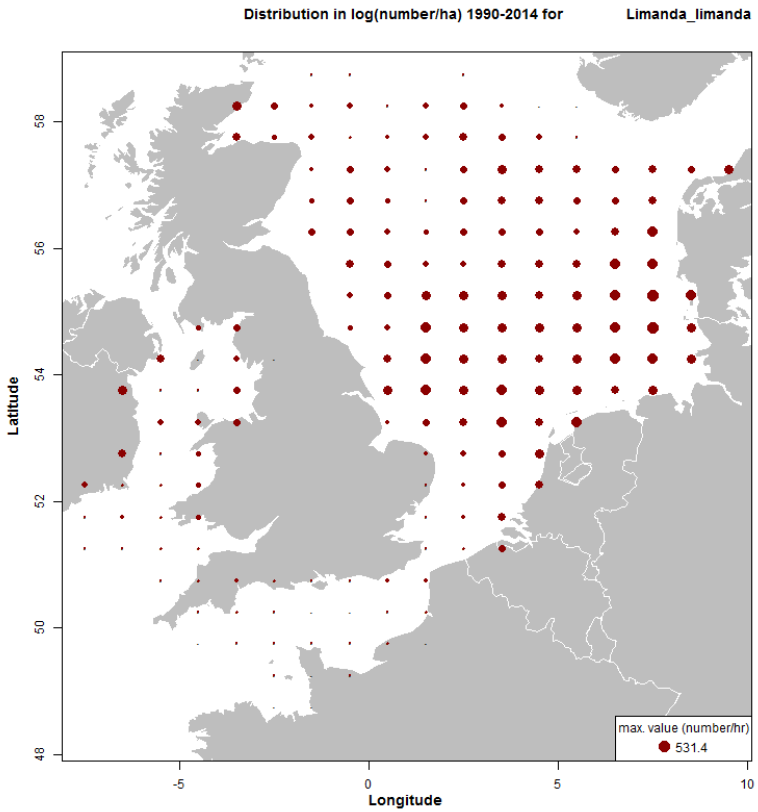
Annex 7.2: Spatial distribution per species, offshore surveys

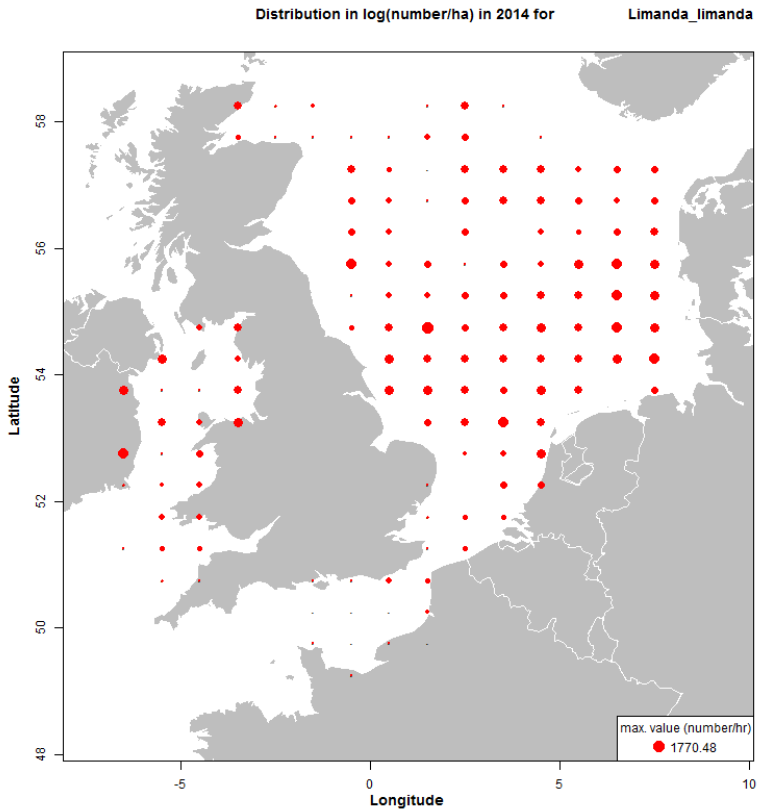
This annex shows distribution bubble plots of the main species caught throughout the beam trawl surveys by rectangle for all surveys combined. The left hand plot shows the mean catch in numbers per swept-area (hectares), for the time-series. The right hand plot shows the data for the current year.

Annex 7.2.1: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Dab

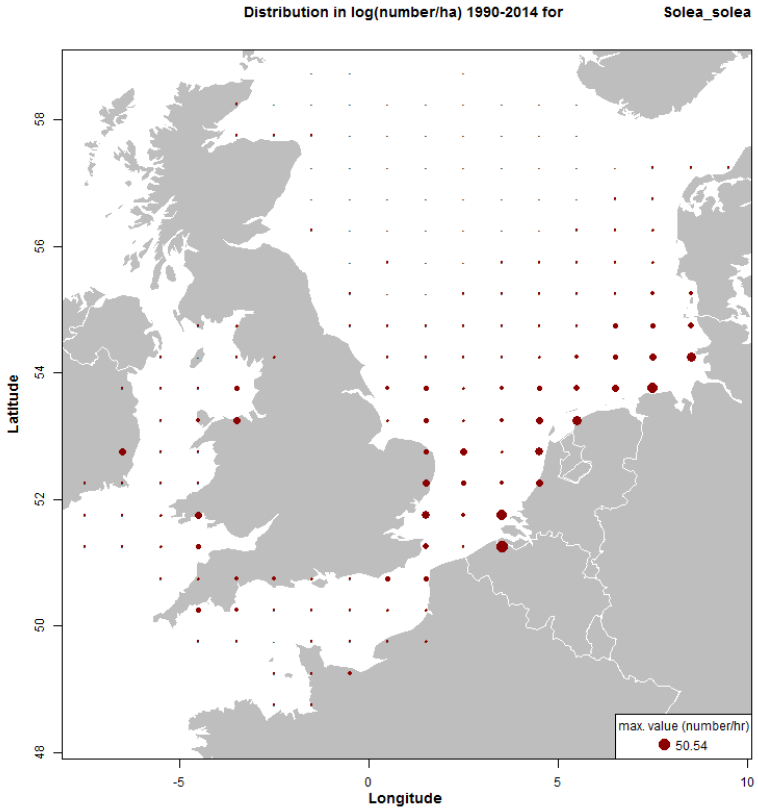


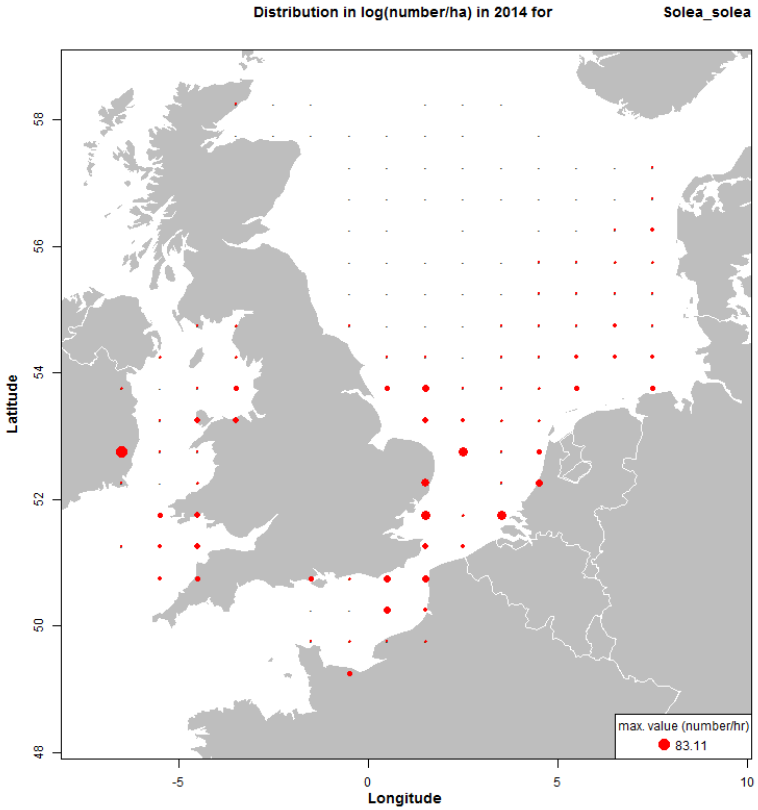


Annex 7.2.2: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Sole

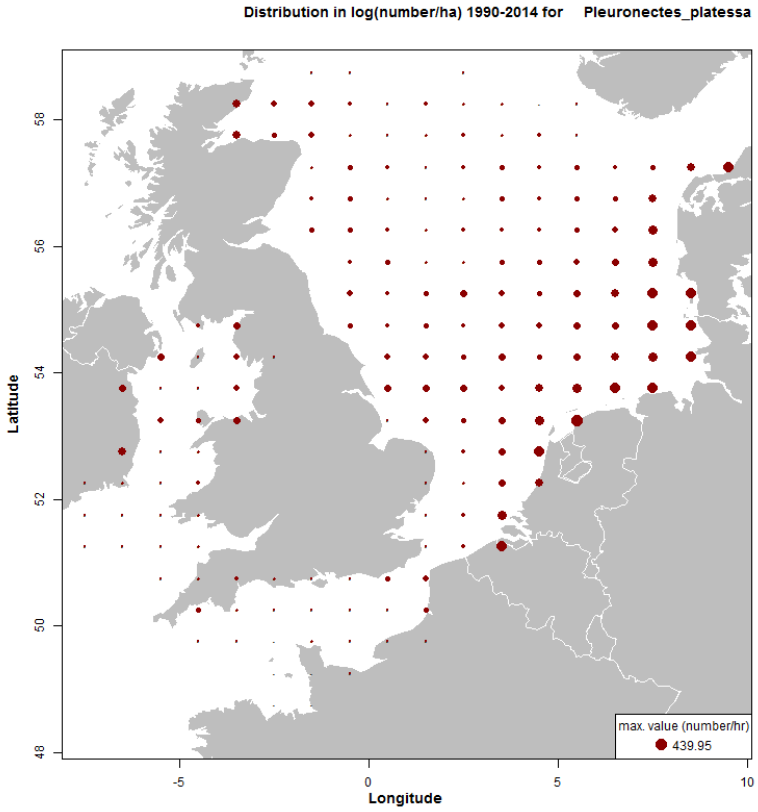


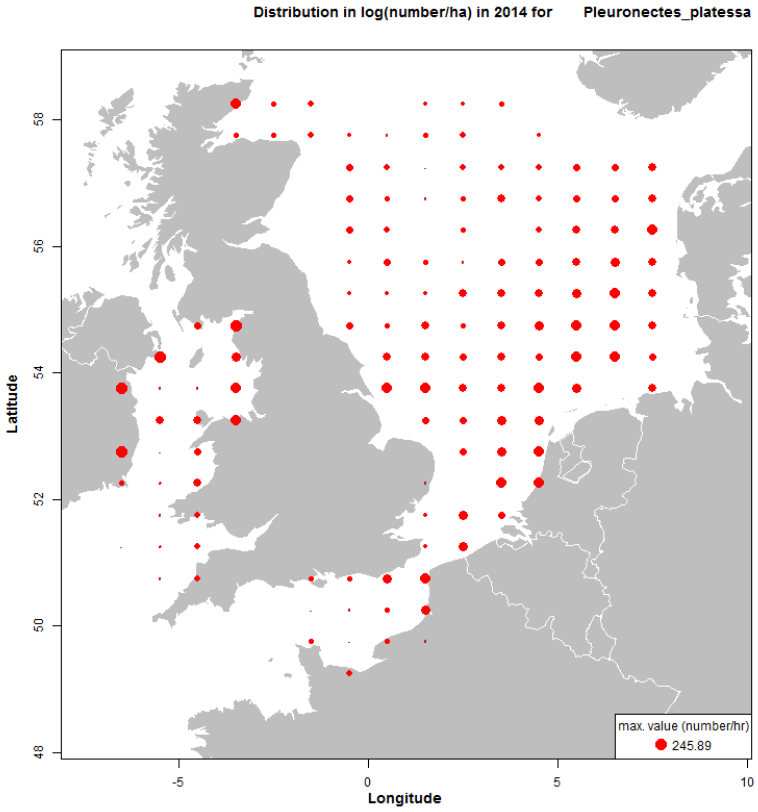


Annex 7.2.3: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Plaice

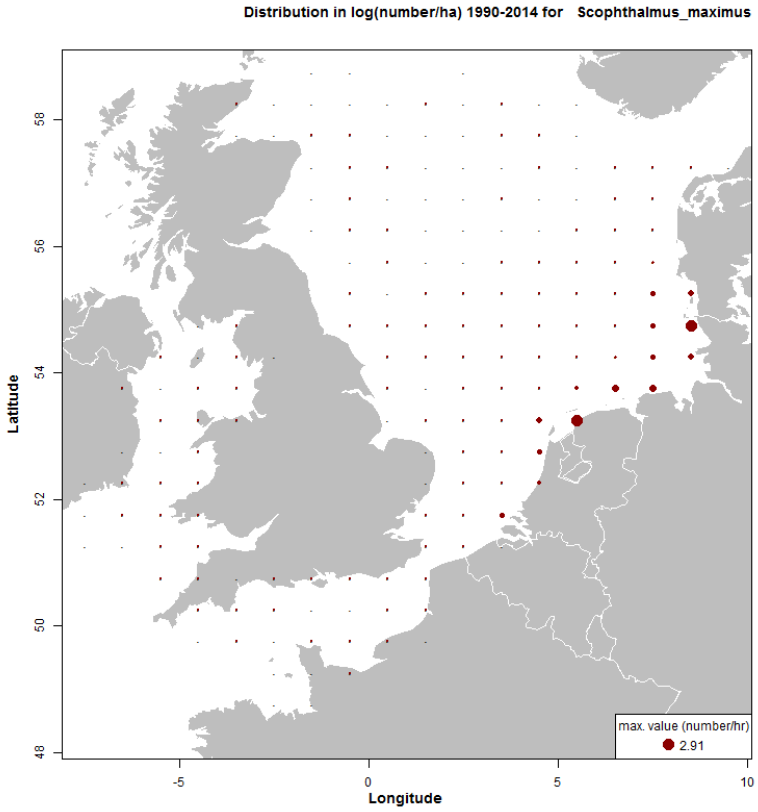


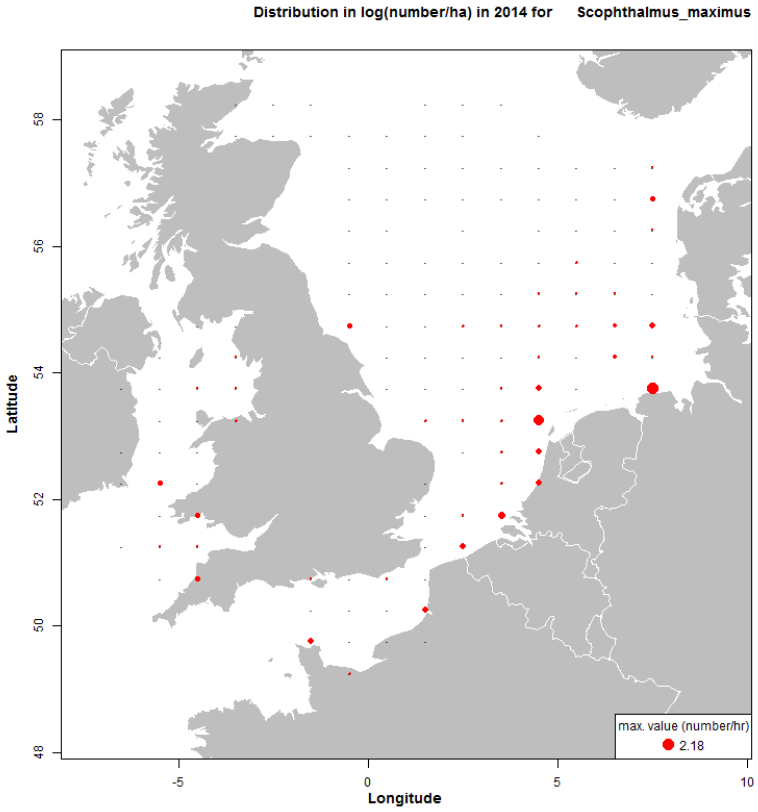


Annex 7.2.4: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Turbot

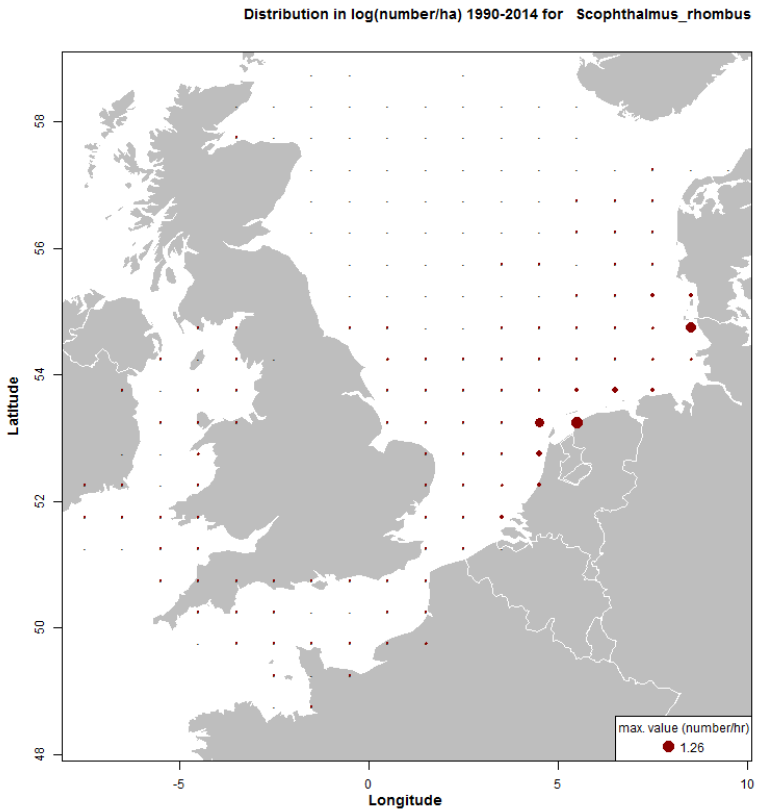


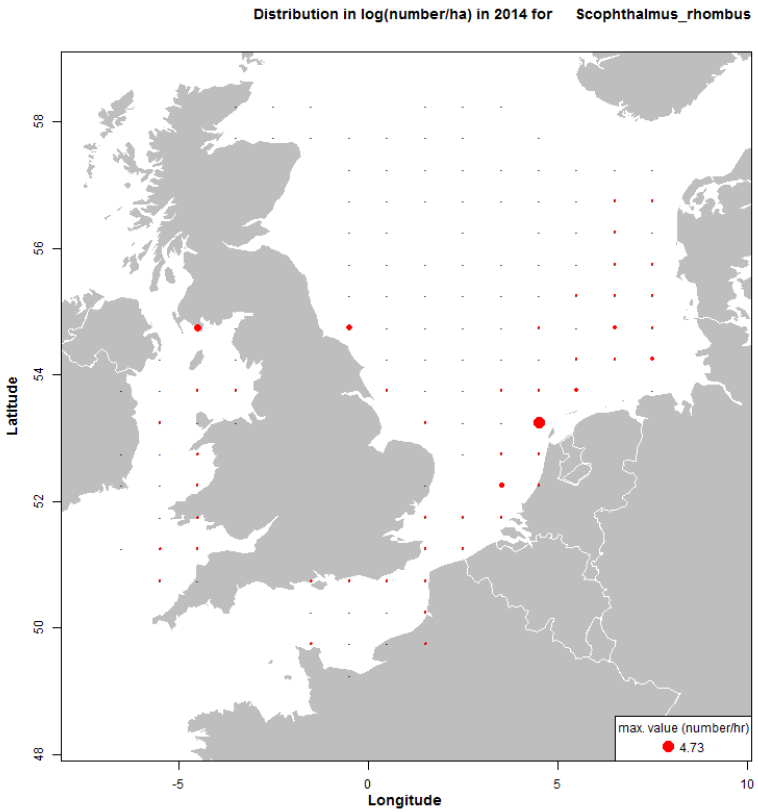


Annex 7.2.5: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Brill

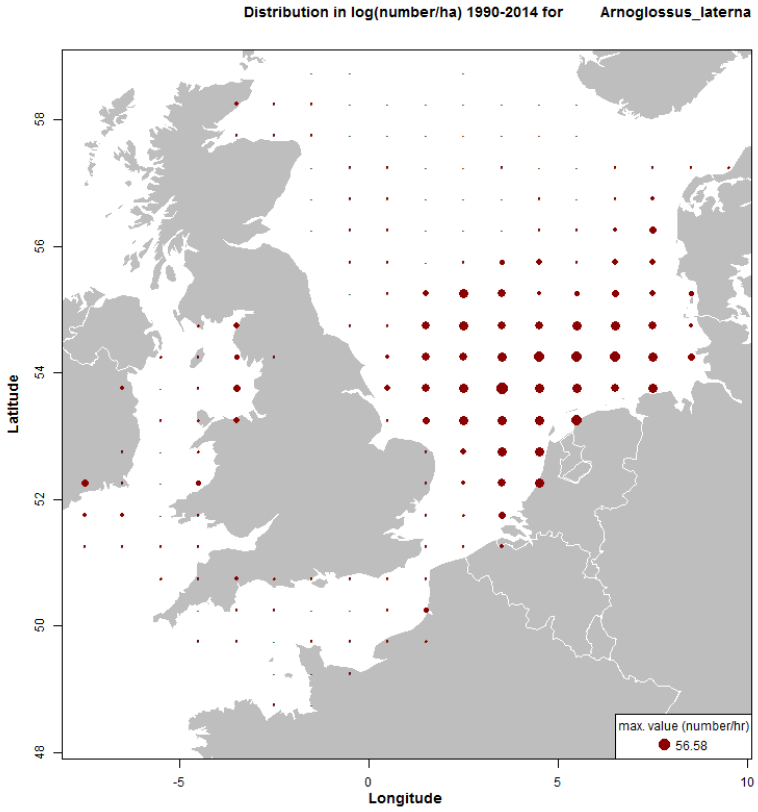


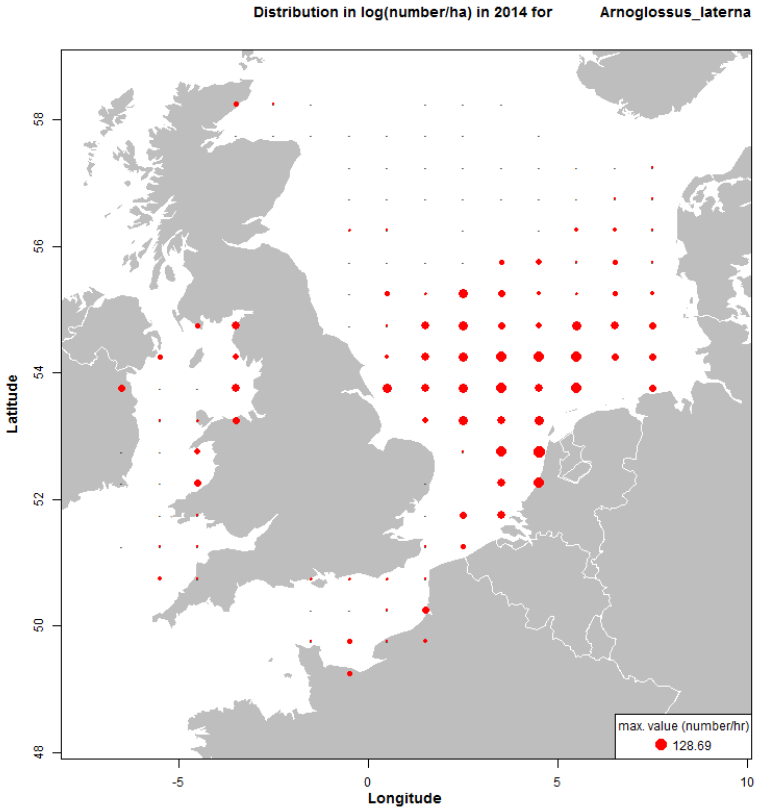


Annex 7.2.6: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Scaldfish

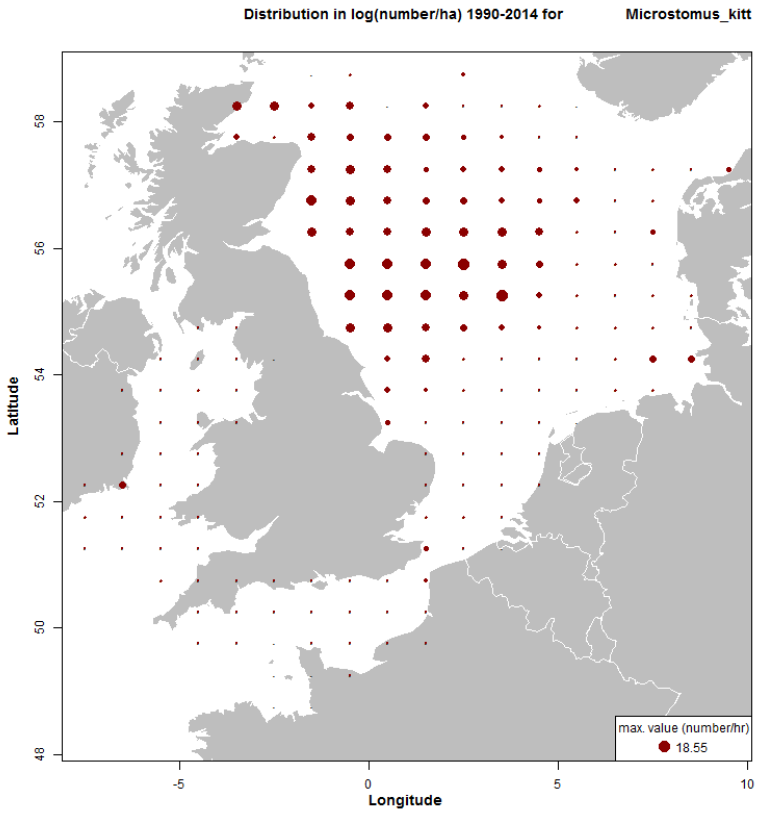


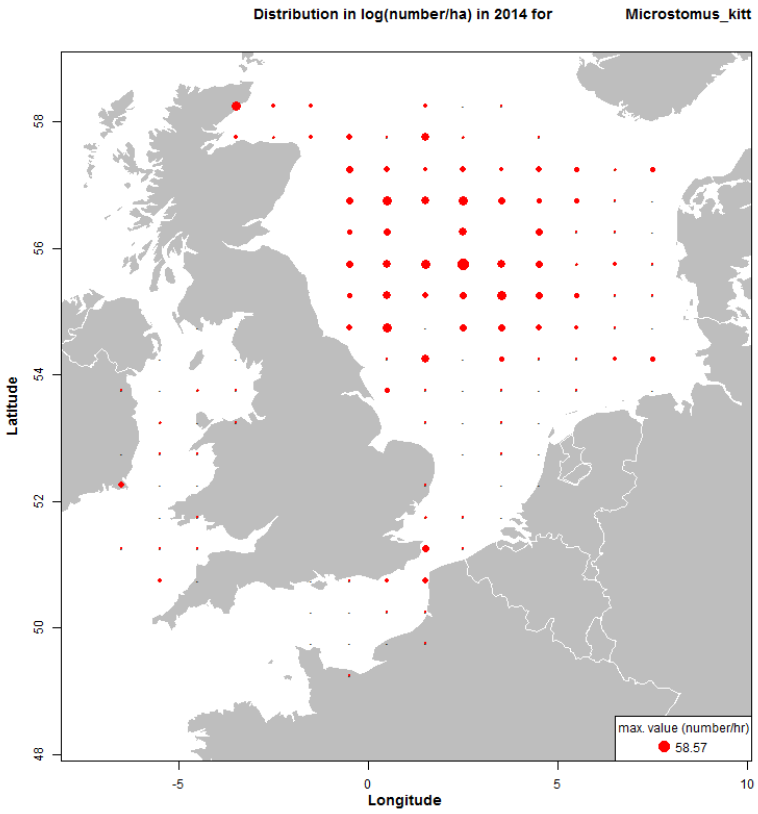


Annex 7.2.7: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Lemon sole

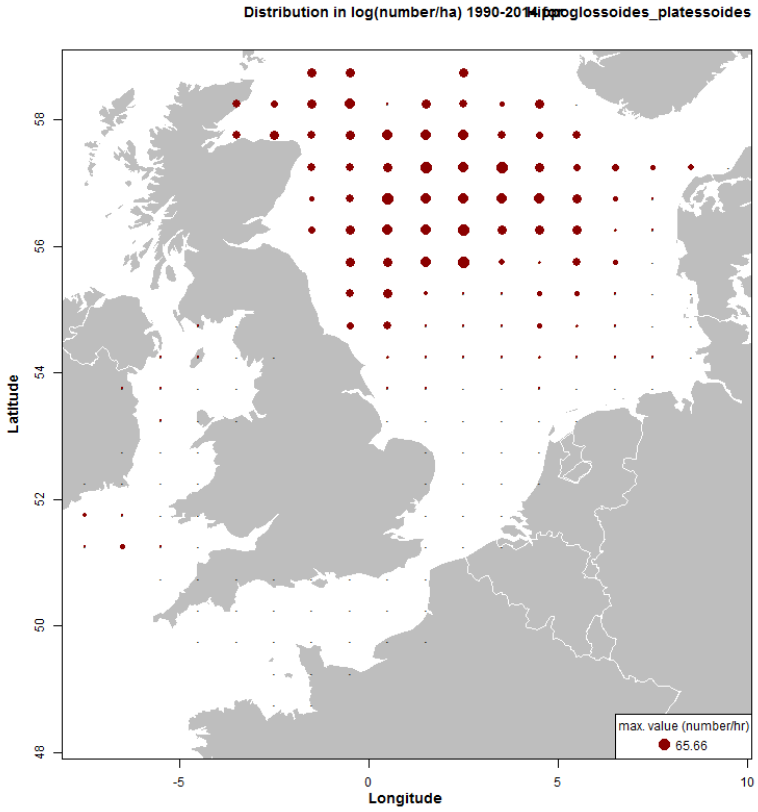


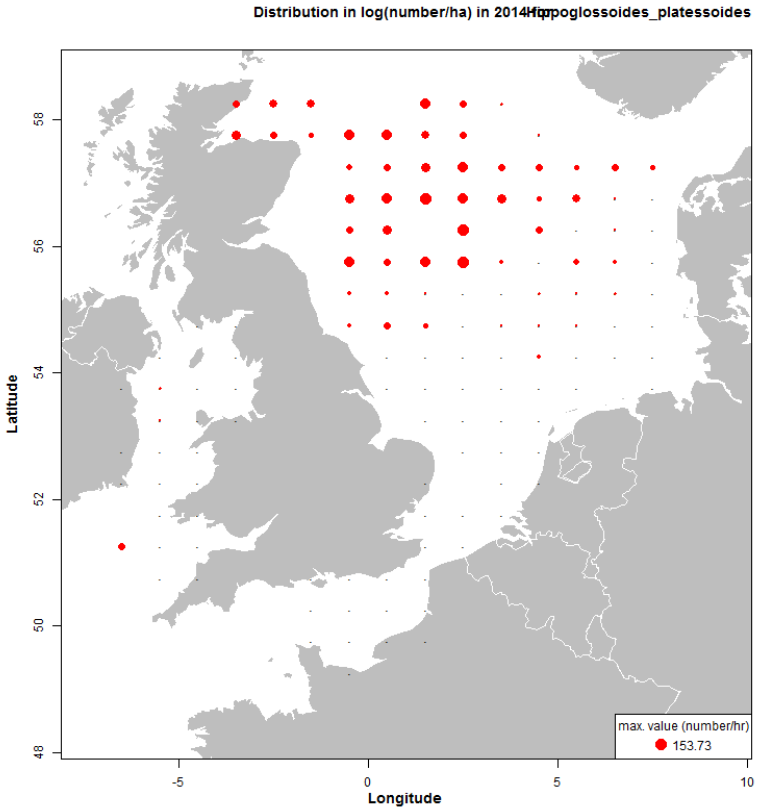


Annex 7.2.8: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

American plaice (long rough dab)

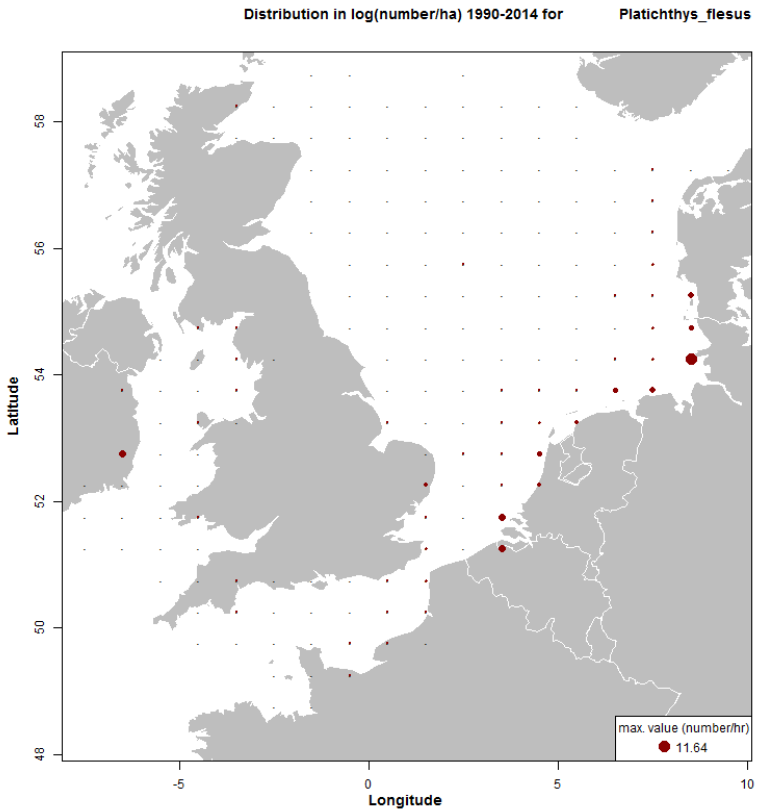


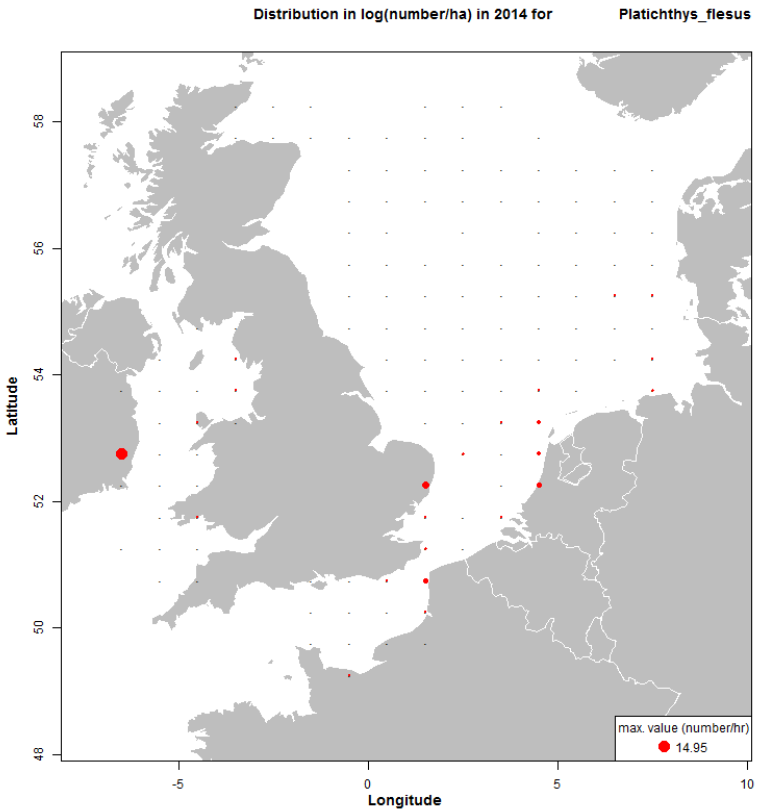


Annex 7.2.9: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Flounder

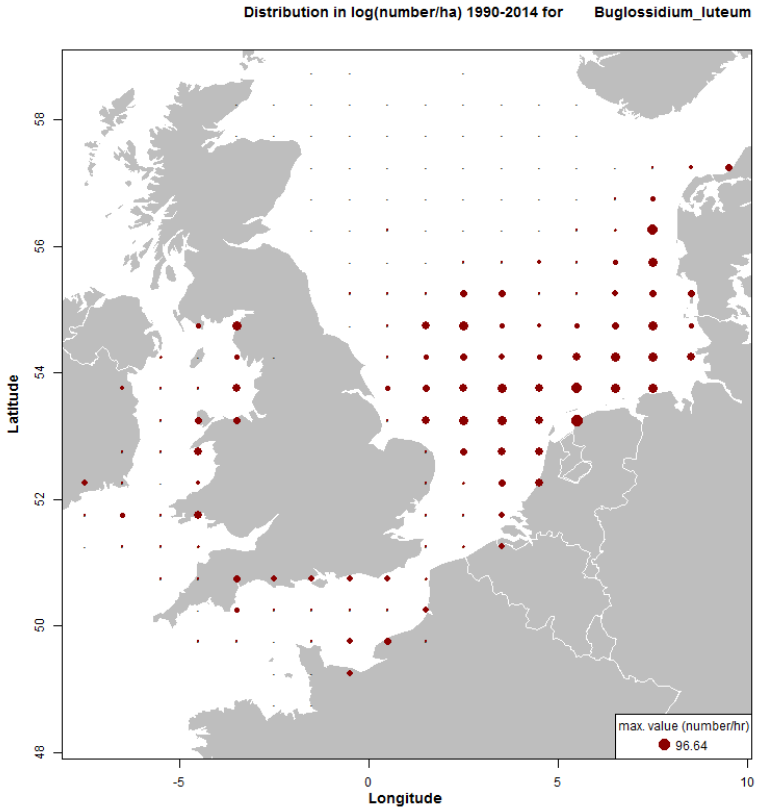


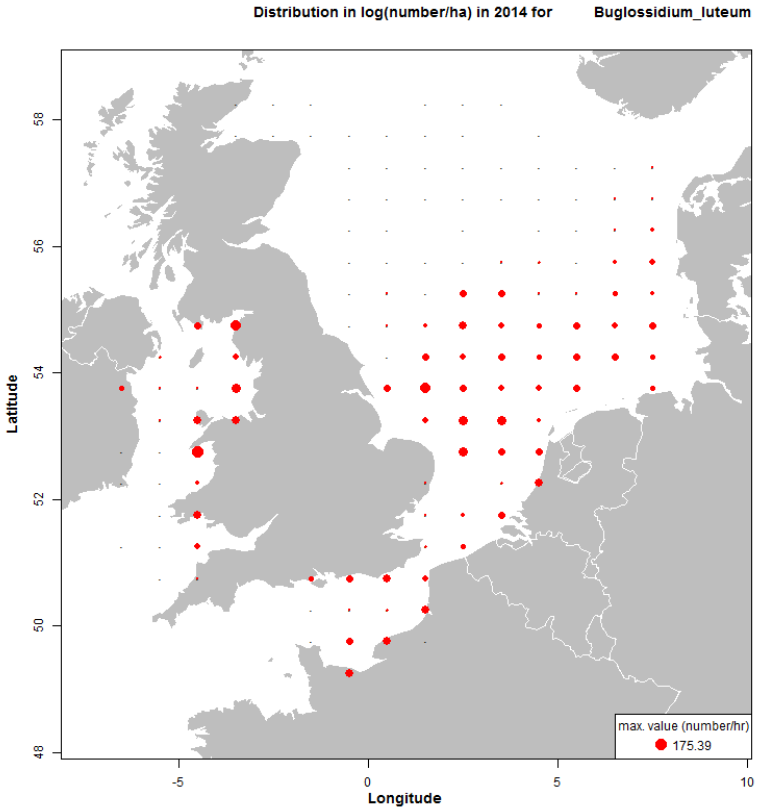


Annex 7.2.10: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Solenette

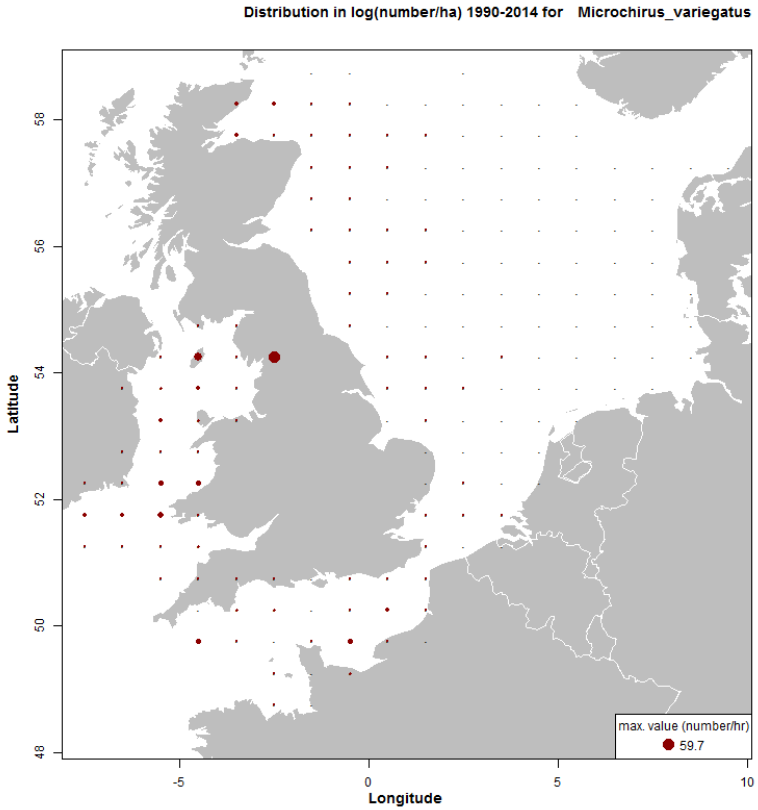


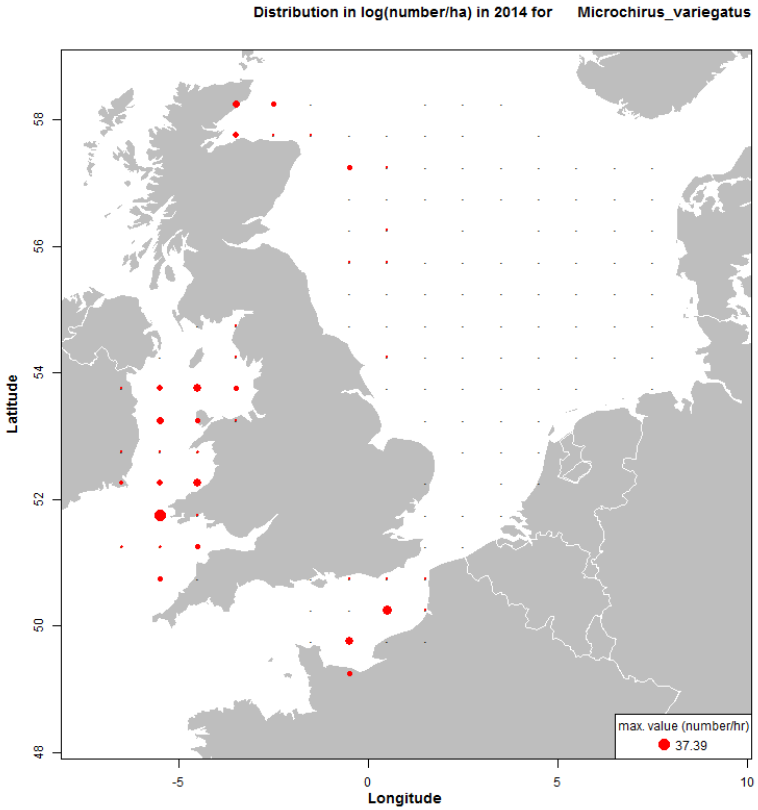


Annex 7.2.11: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Thickback sole

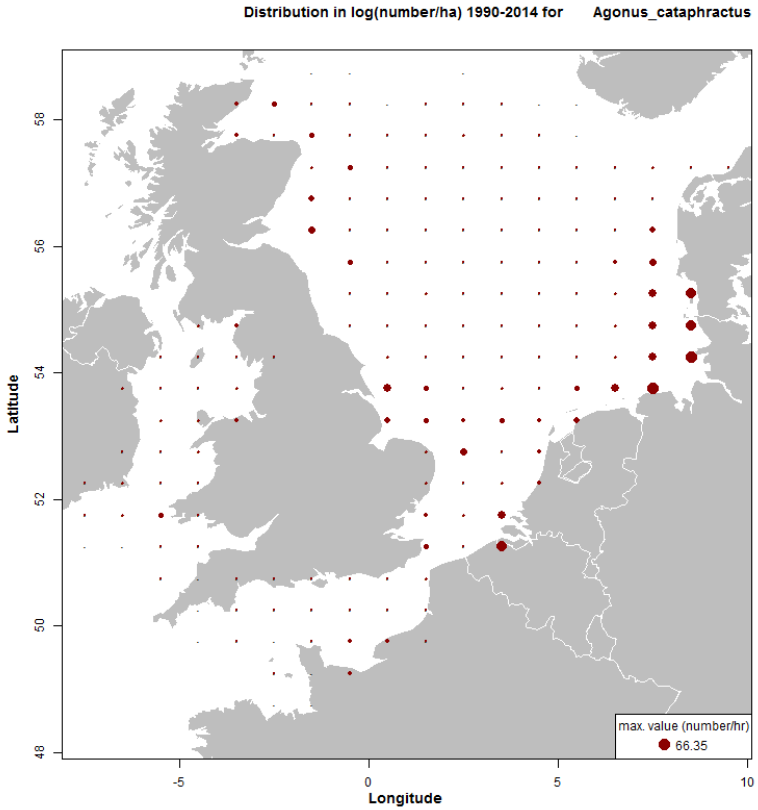


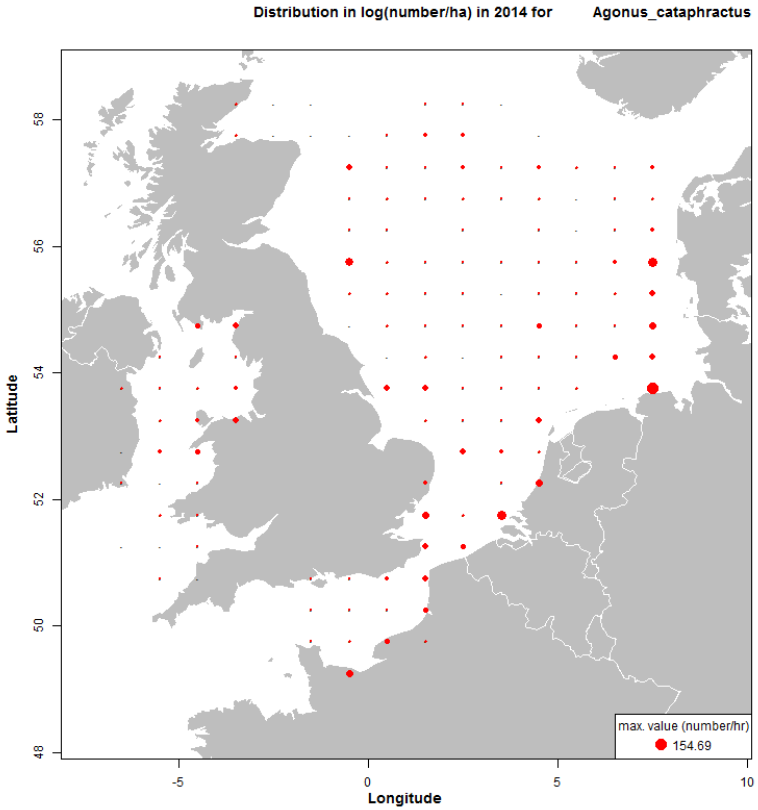


Annex 7.2.12: International offshore beam trawl survey 1990-2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Pogge

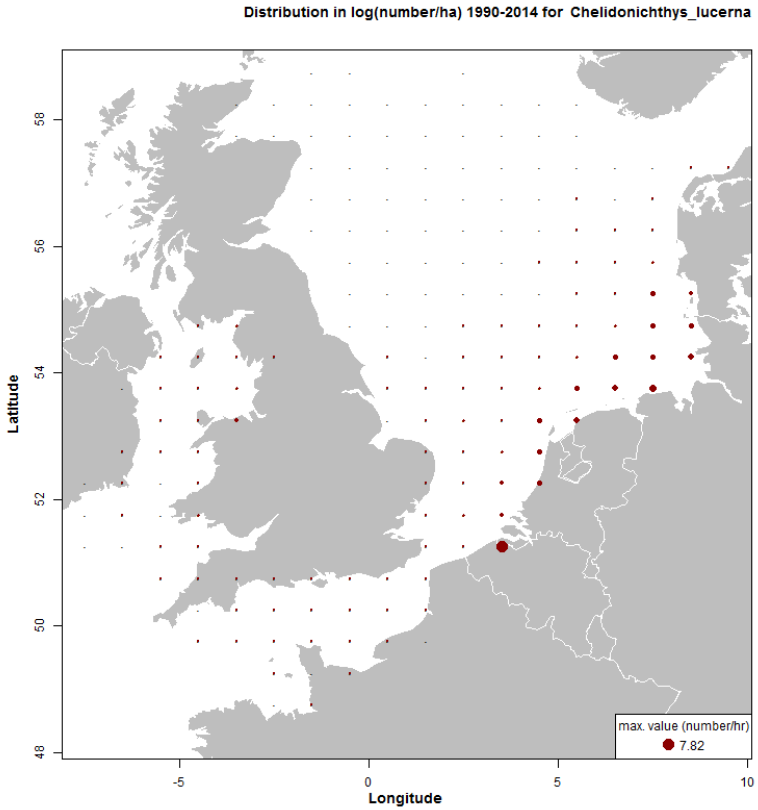


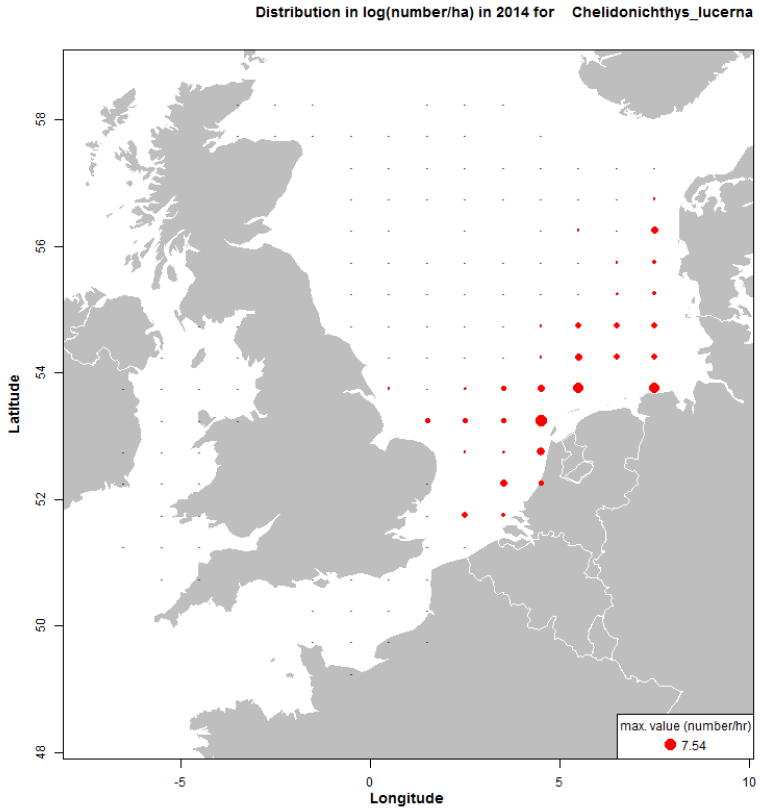


Annex 7.2.13: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Tub gurnard

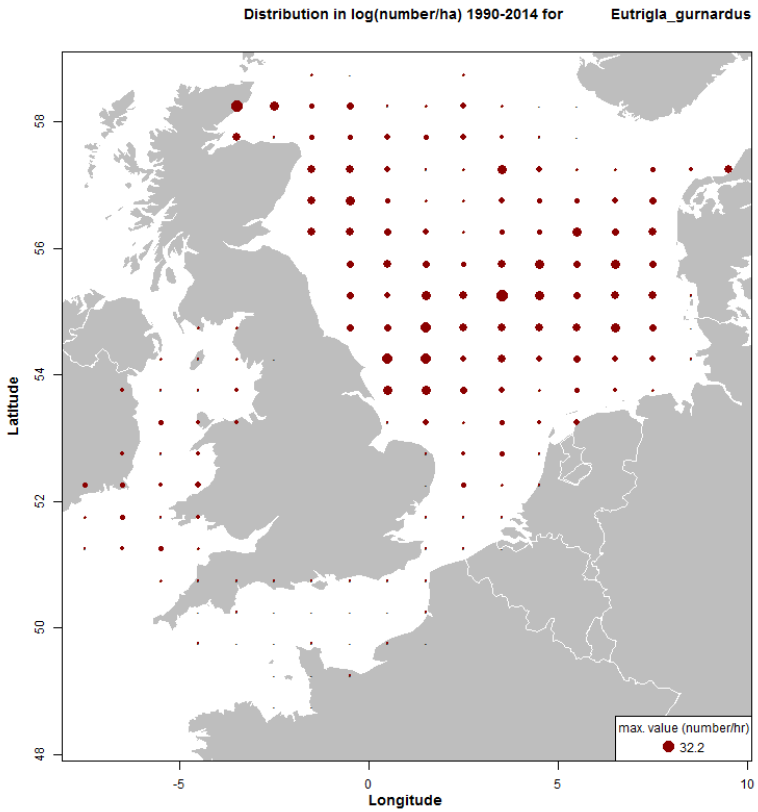


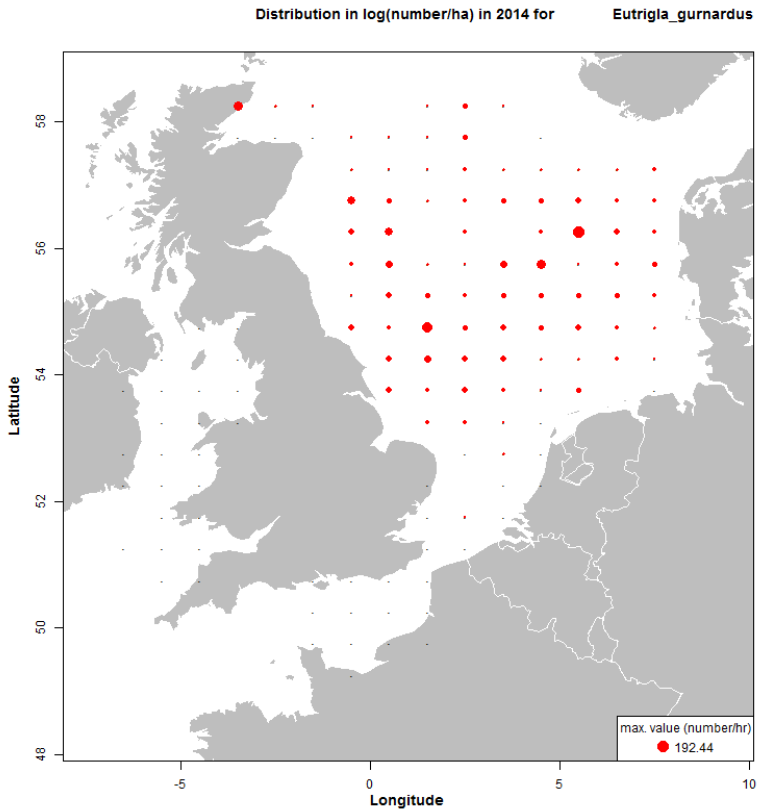


Annex 7.2.14: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Grey gurnard

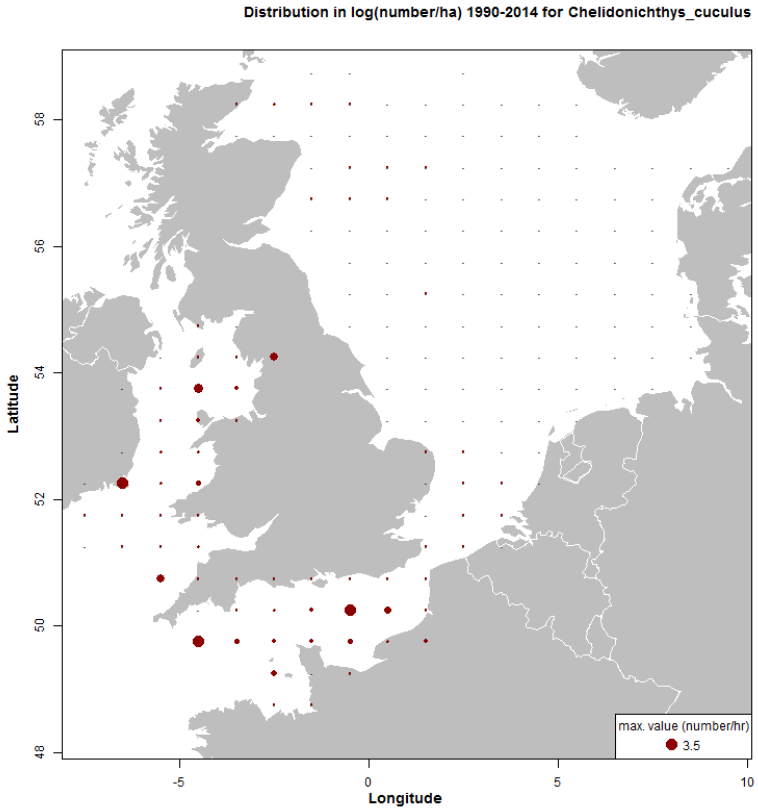


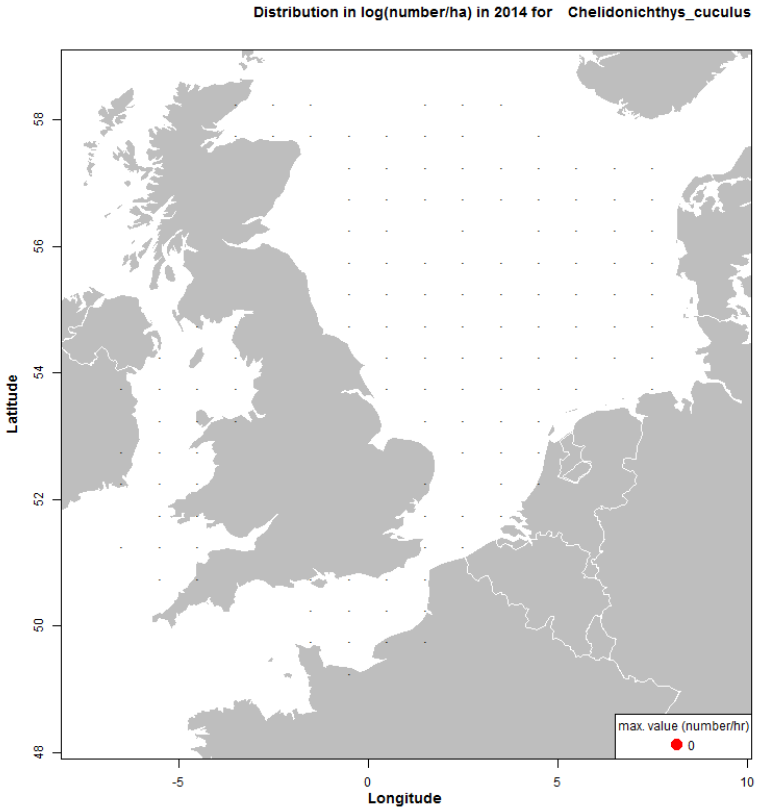


Annex 7.2.15: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Red gurnard

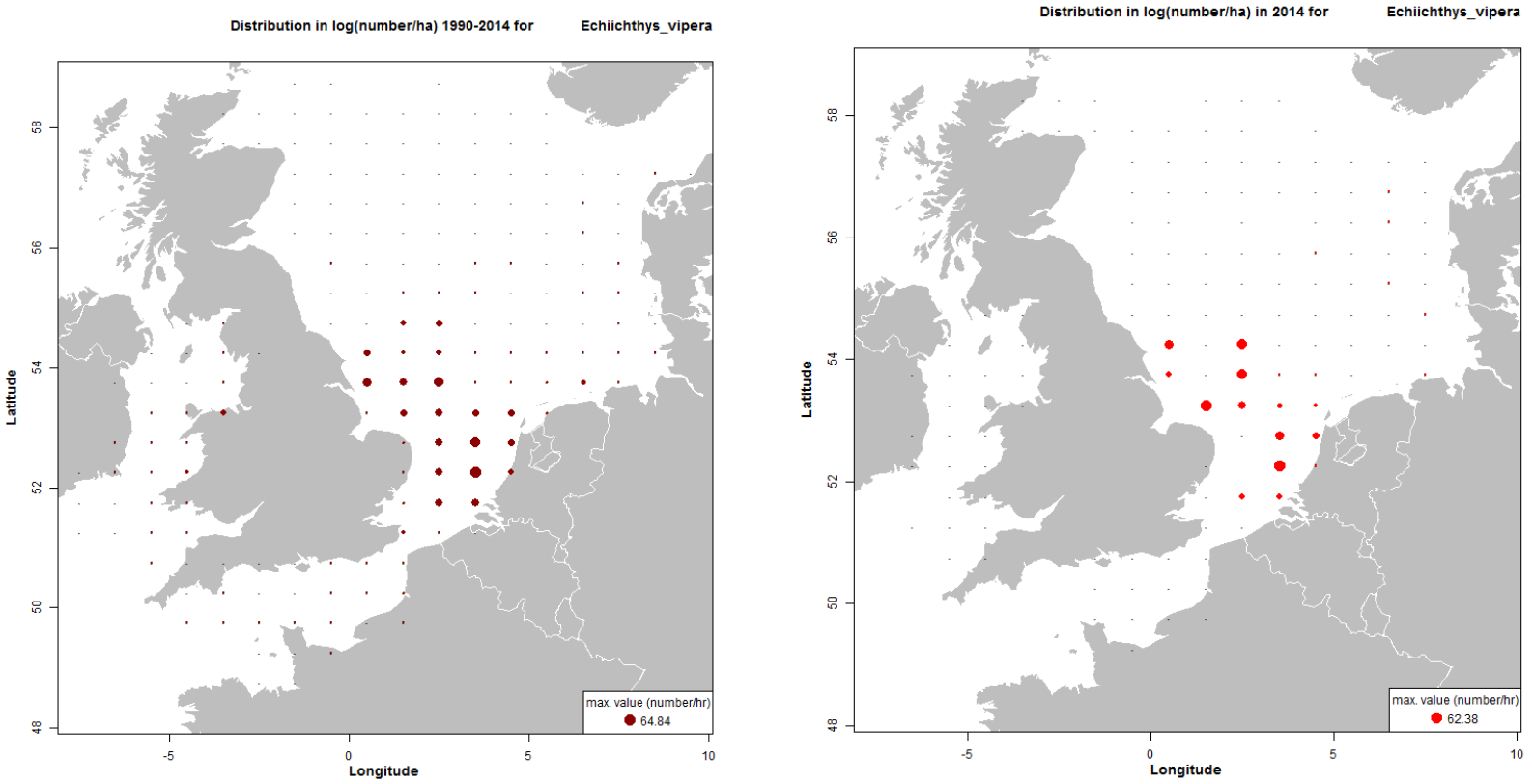




Annex 7.2.16: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

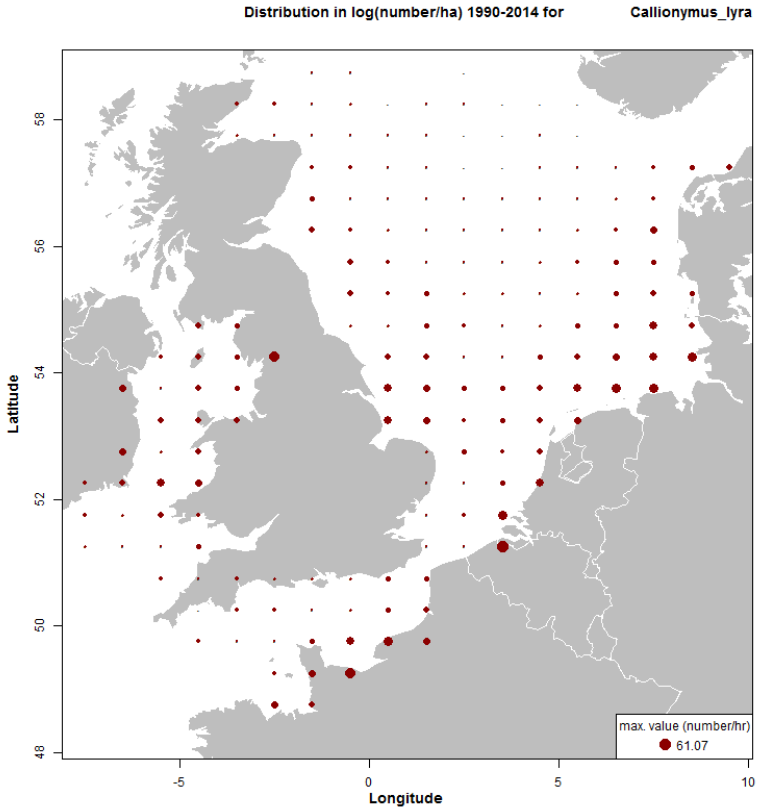
Lesser weever

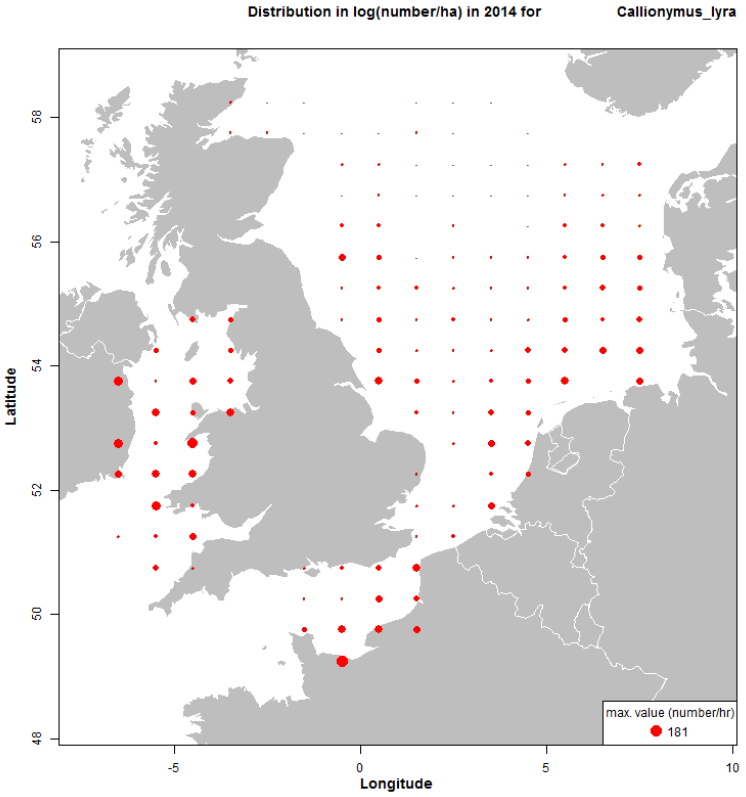


Annex 7.2.17: International offshore beam trawl survey 1990-2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Common dragonet

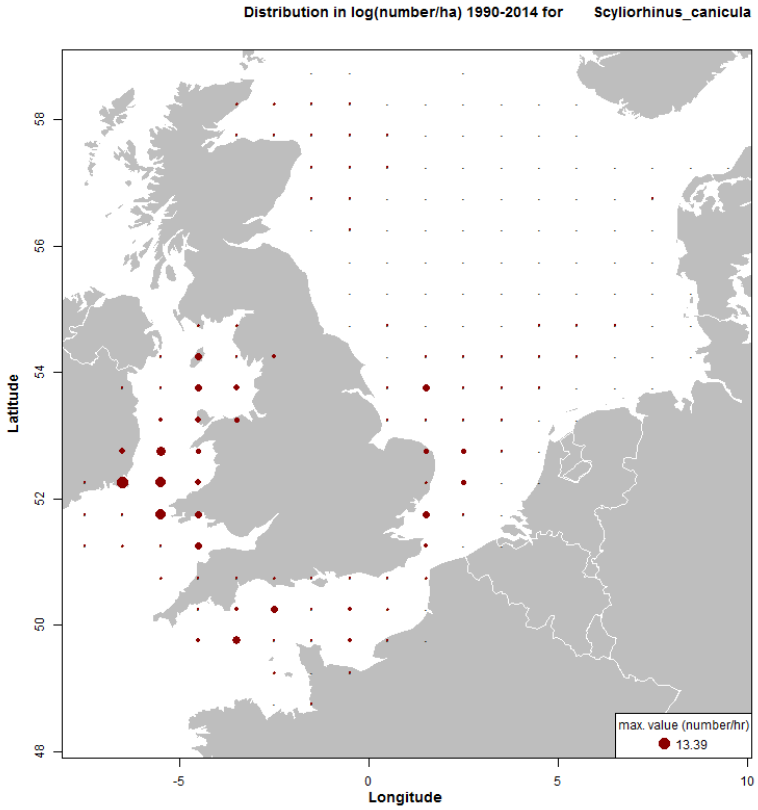


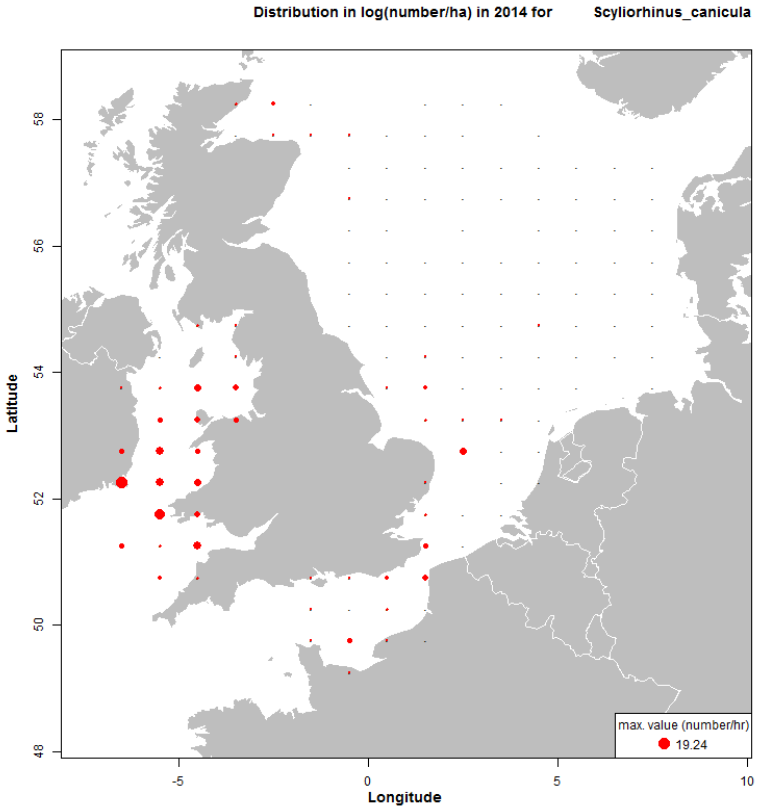


Annex 7.2.18: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Lesser spotted dogfish

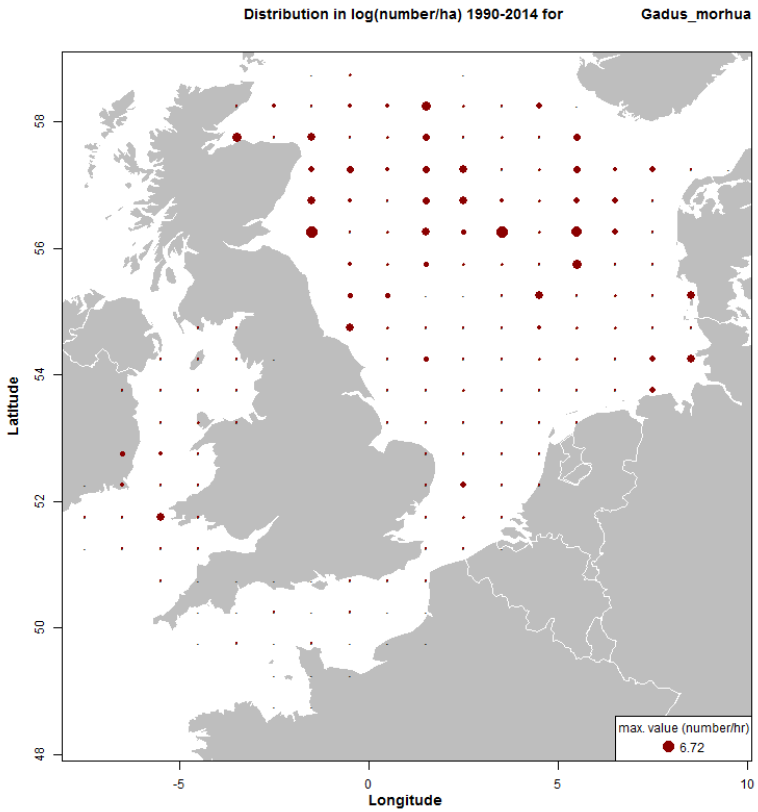


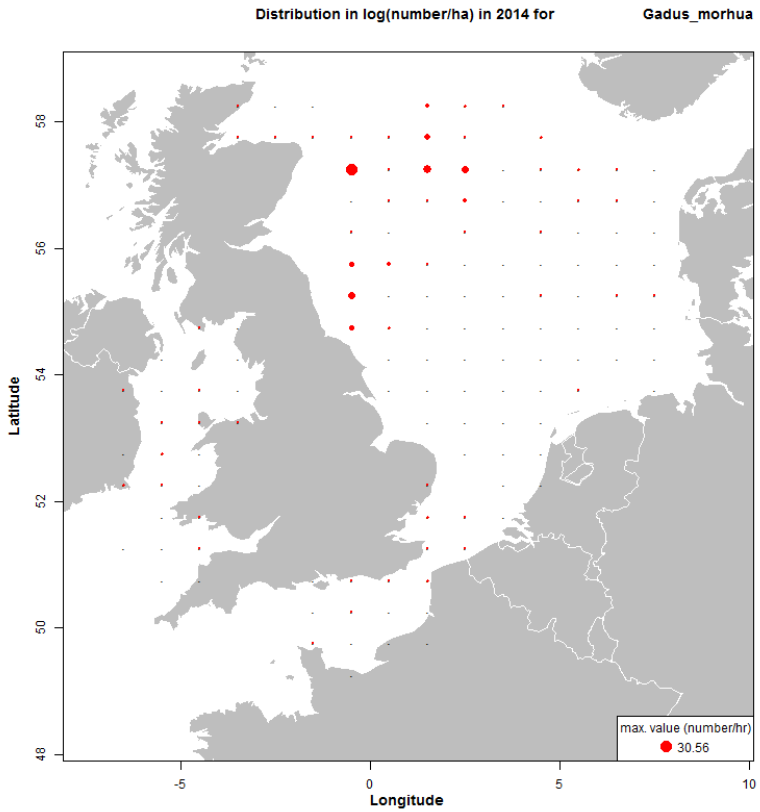


Annex 7.2.19: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Cod

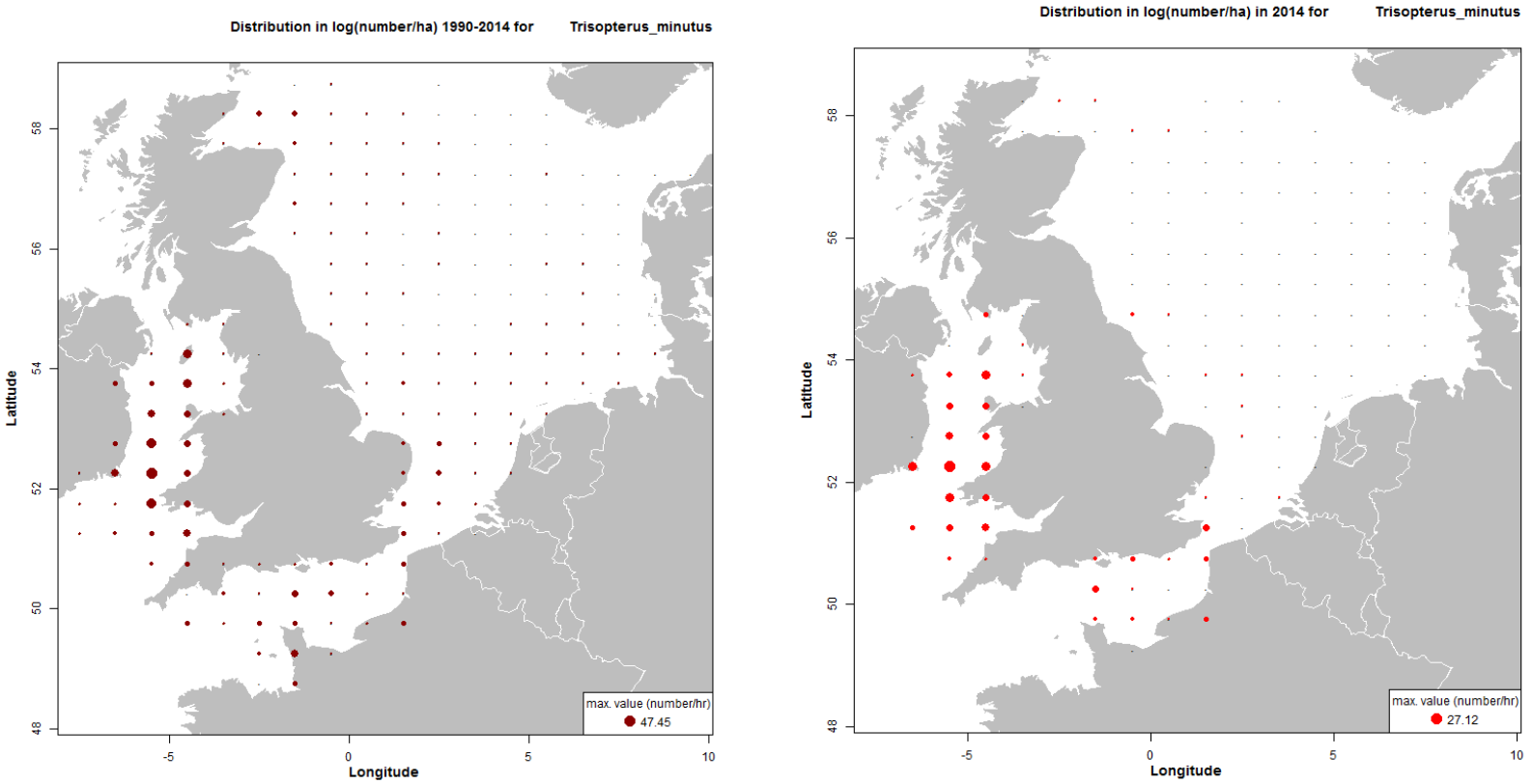




Annex 7.2.20: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

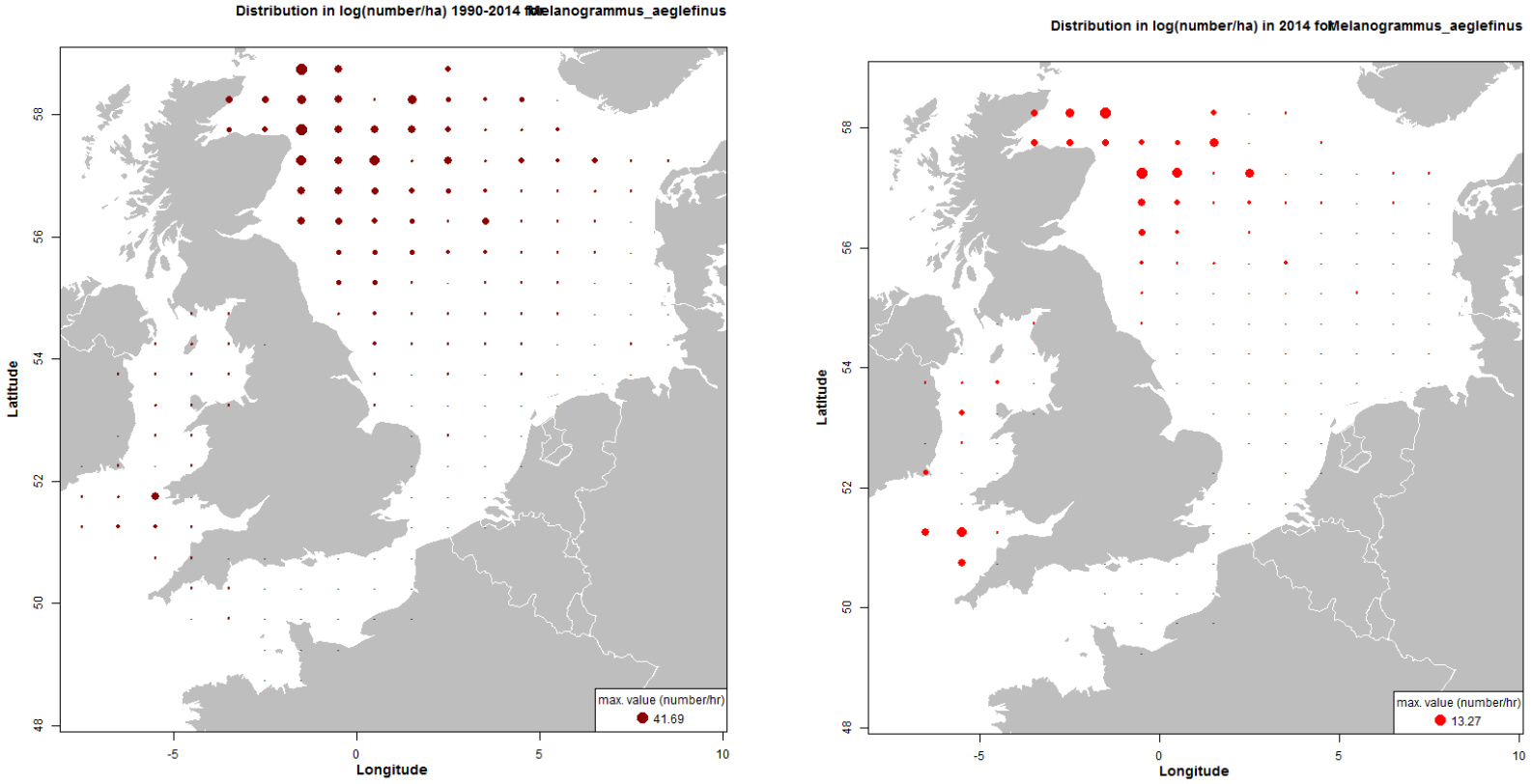
Poor cod



Annex 7.2.21: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

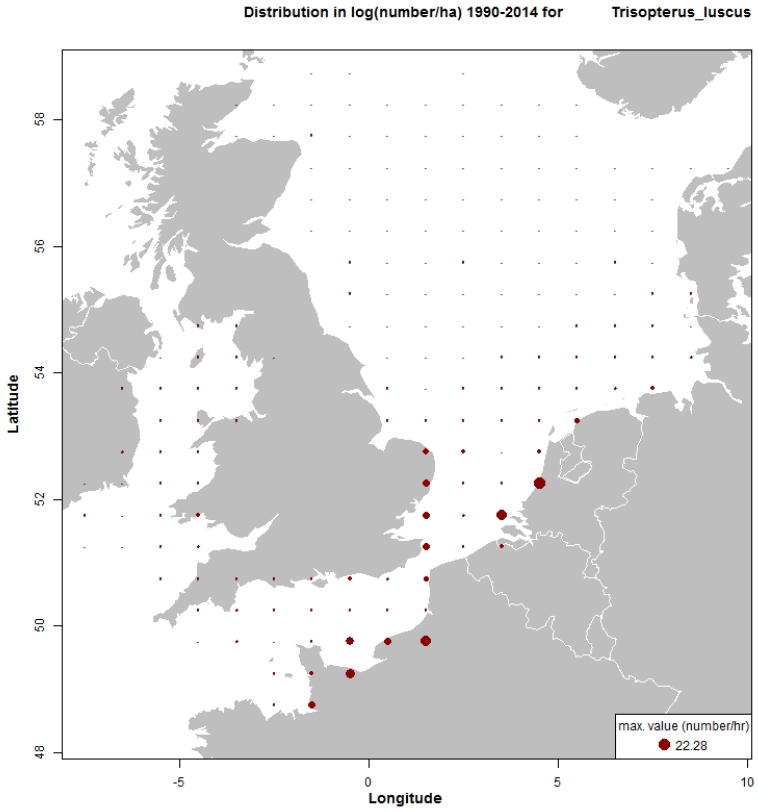
Haddock

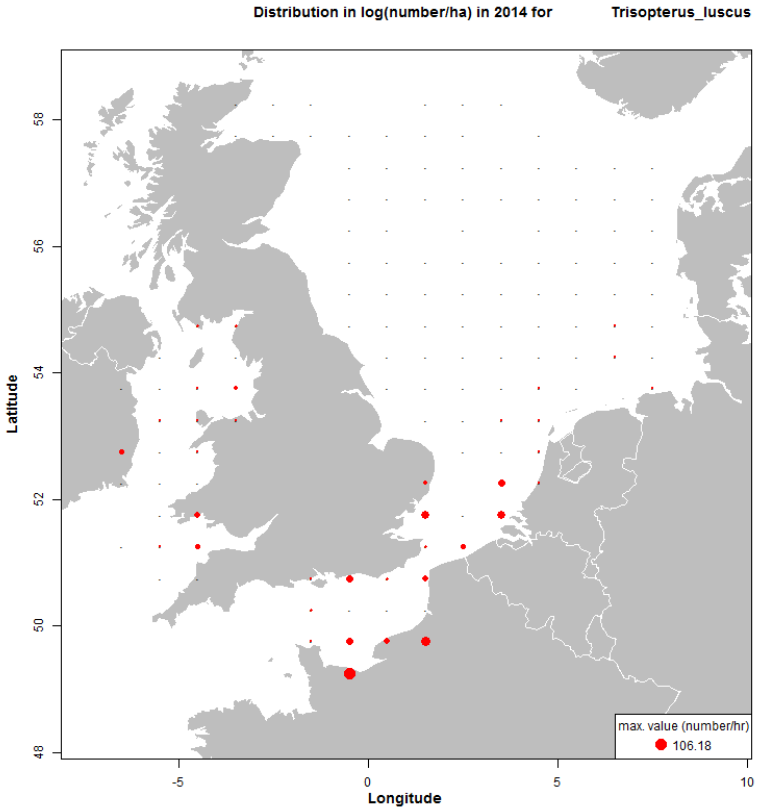


Annex 7.2.22: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Pout whiting

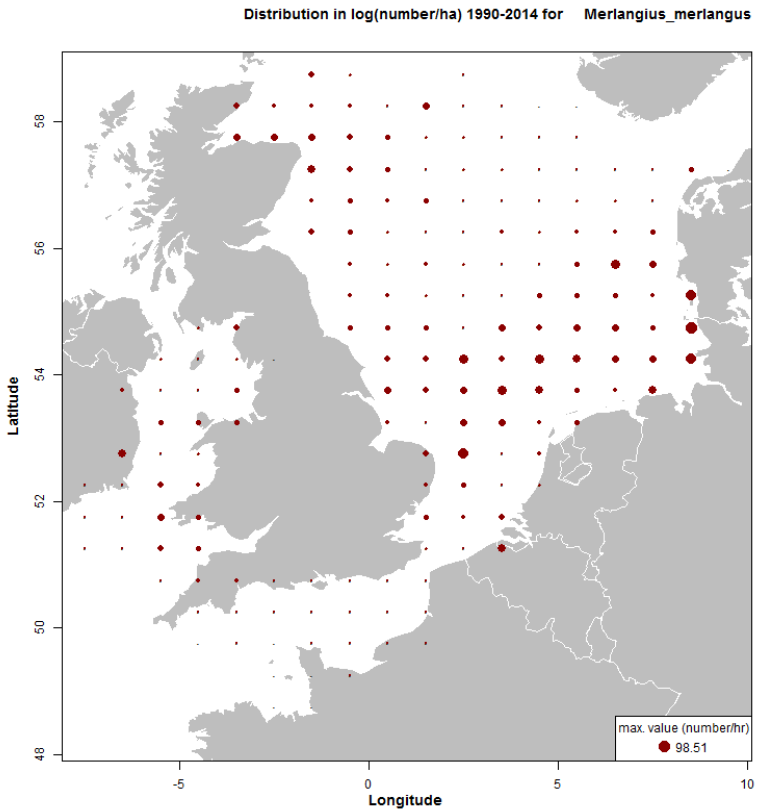


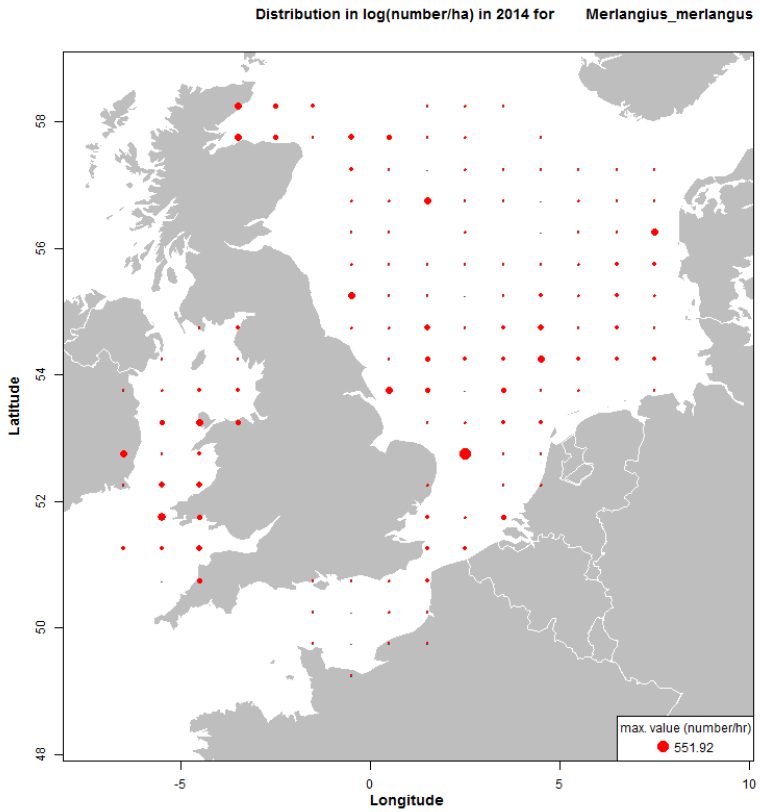


Annex 7.2.23: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Whiting

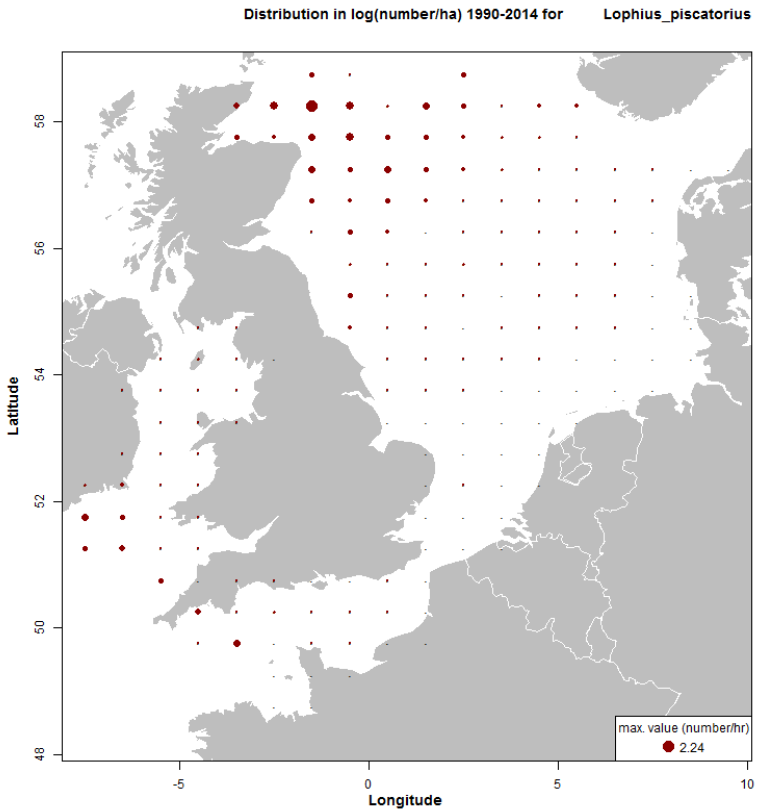


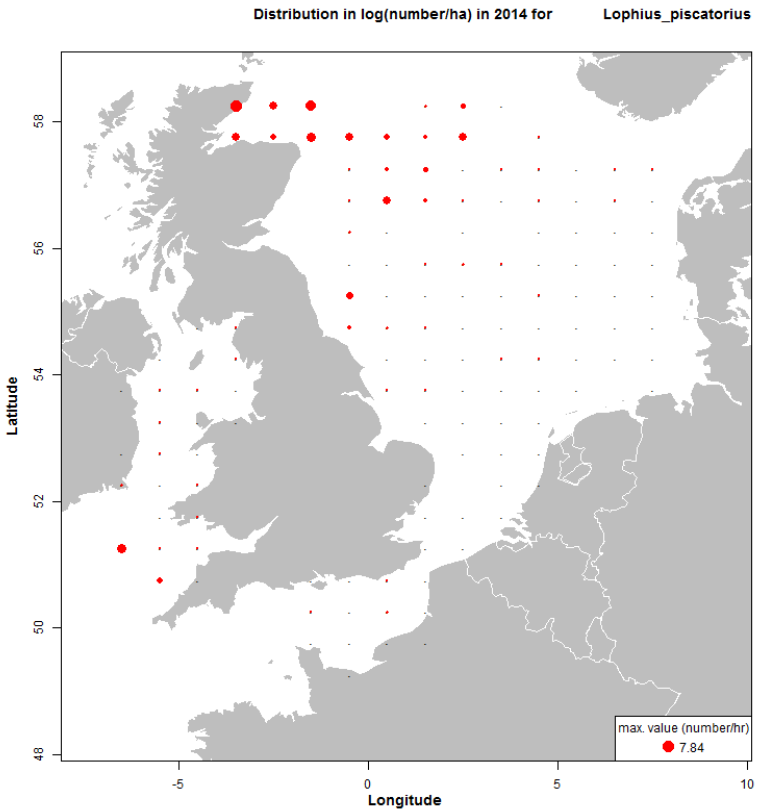


Annex 7.2.24: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Monkfish

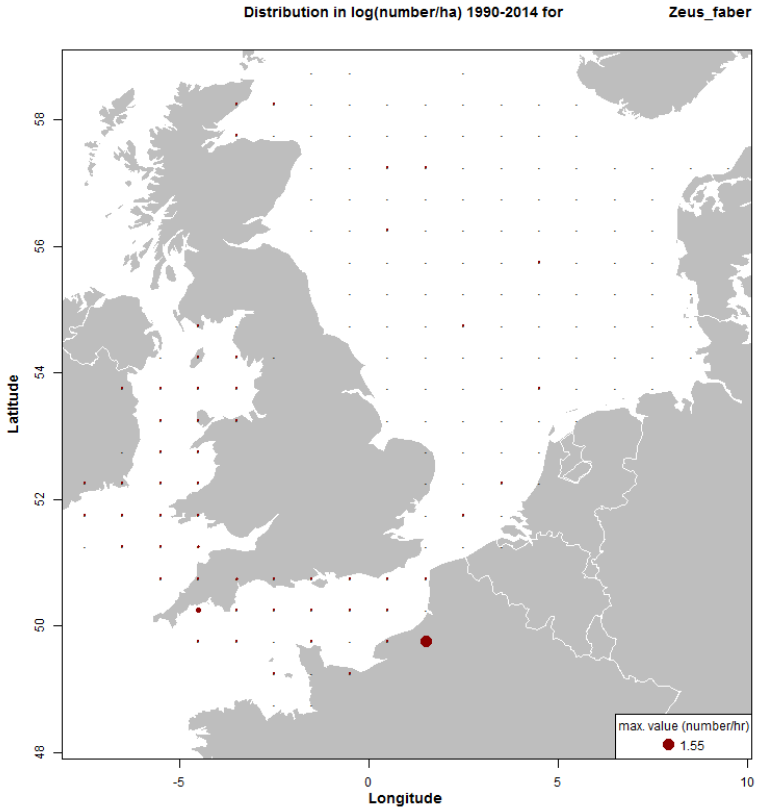


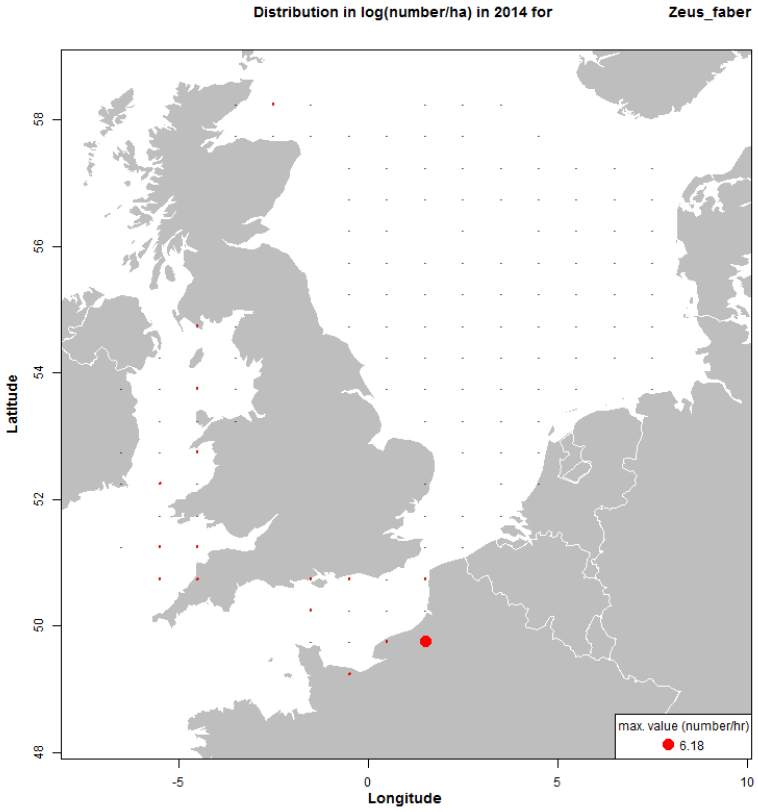


Annex 7.2.25: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

John Dory

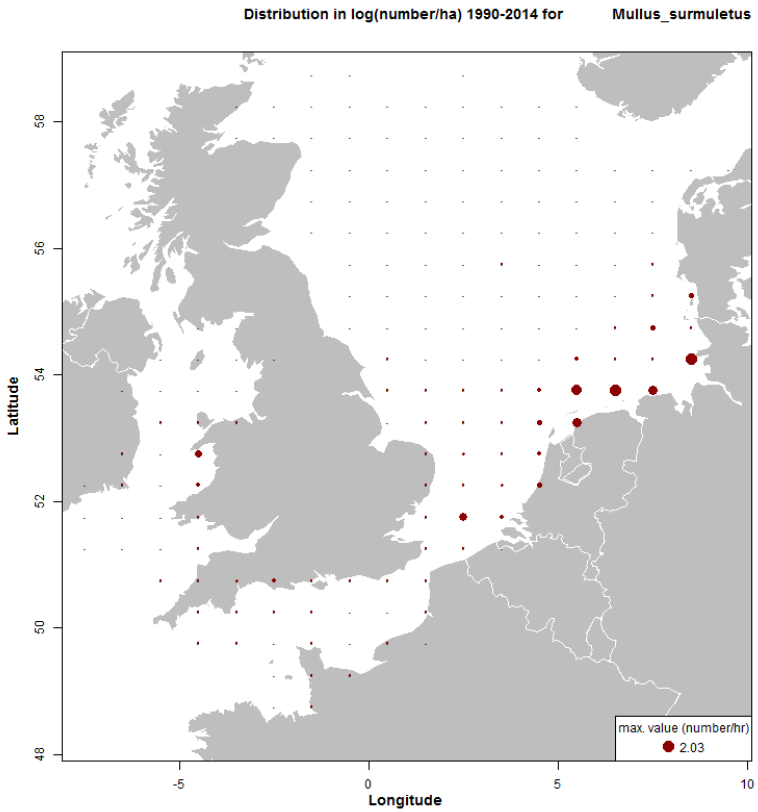


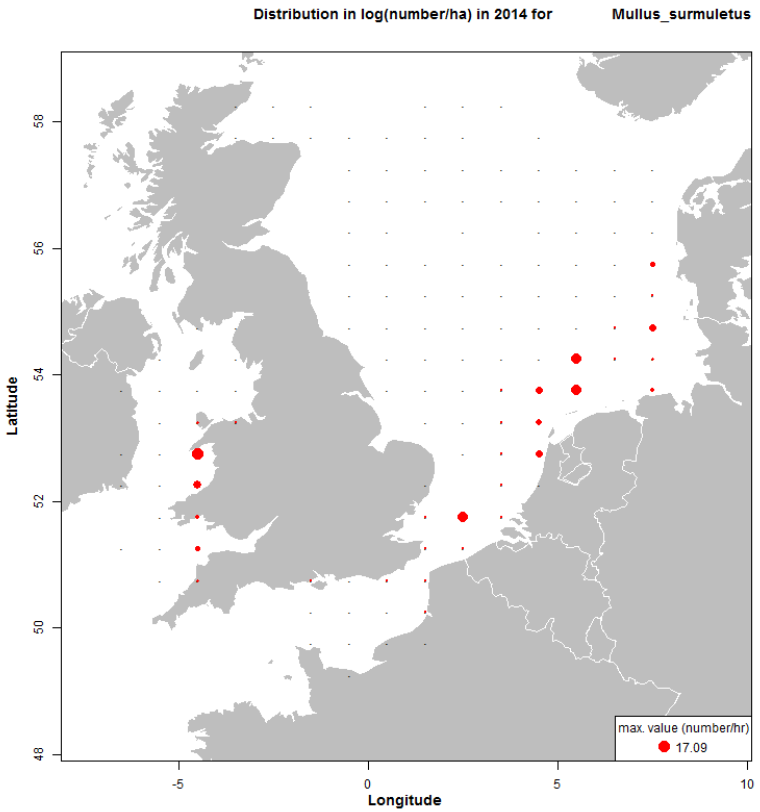


Annex 7.2.26: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Red mullet

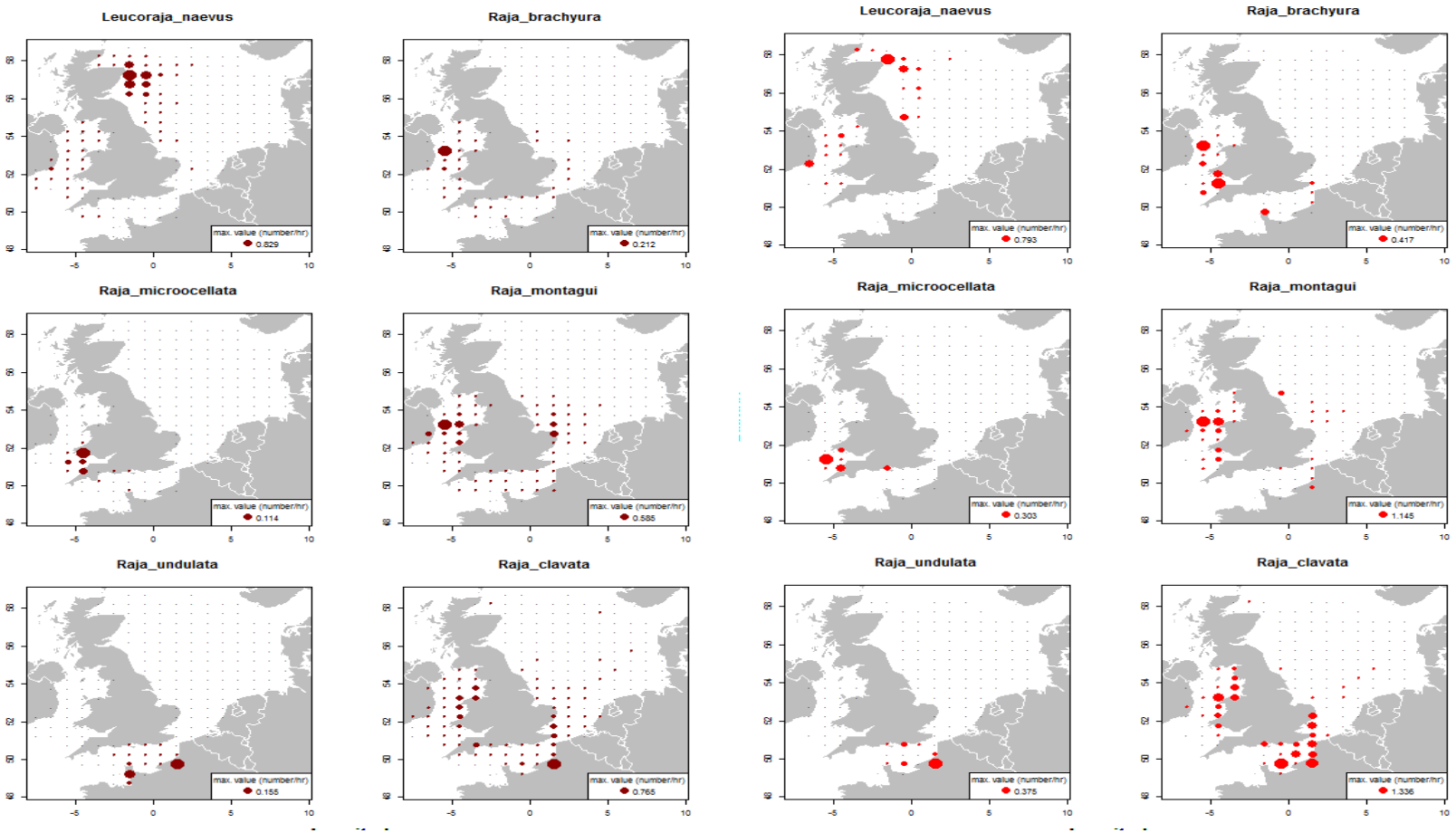




Annex 7.2.27: International offshore beam trawl survey 1990–2014

Catches are number/hectare swept-area; left plot mean of time-series, right plot current year

Rays



Annex 8: Survey summary sheets offshore surveys per country

Survey summary Belgium

Nation:	**Belgium**	Vessel:	RV "Belgica"
Survey:	Offshore North Sea Beam Trawl Survey	Dates:	25 August to 5 September 2014

Survey description:	An annual North Sea Beam Trawl Survey is carried out in the southwestern part of the North Sea (IVb and IVc West) to sample the adult flatfish stocks, primarily targeting plaice *Pleuronectes platessa* and sole *Solea solea*. Starting in 1992, the RV "Belgica" samples 62 fixed sampling stations in BTS Areas 2, 3 and 4.
Gear details:	All NSBTS sampling stations are fished for approx. 30 min, with a 4 m beam trawl, a 40 mm codend and chain mat.
Notes from survey (e.g. problems, additional work etc.):	- Although we had some hard winds during the first week of the campaign, this didn't influence the fishing operations in a negative way. - We encountered some minor technical problems that were always quickly solved by the crew of RV Belgica. These didn't cause substantial delays or a loss of stations (one station was missed during the first week, but we were able to make up for this later in the campaign). - We only missed one station (station 18) due to the presence of several lines with static crab pots on the fishing track. Conclusion: 61 out of the total of 62 planned stations have been fished successfully and were declared valid. This is within the margin of 10% missed stations (would be a maximum of 6 missed stations) superposed by the European Commission (DG Mare). Number of otoliths: 5 ind per cm size class per ICES Statistical Rectangle for cod, brill, turbot, plaice and sole. This was the fourth time that the collection of biological samples was geographically organized based on the rectangles instead of the formerly used ALK-areas. Indices for plaice and sole are the numbers per hour, averaged by ICES rectangle and averaged over all sampled ICES rectangles.
Target species catch rates:	
Number of fish species recorded and notes on any rare species or unusual catches:	The NS BTS measures all commercial fish species to the 5 mm below (no subsampling), and also records all other fish species by length (mostly all individuals, but sometimes based on subsamples). 53 different species of fish were caught. The top 10 by number are:

	TIME-SERIES MEAN NR. PER HR	2014 MEAN NR. PER HR
Plaice	63.2	73.8
Sole	85.5	44,8

SPECIES	TOTAL NUMBER
Dab (*Limanda limanda*)	5335
Plaice (*Pleuronectes platessa*)	4616
Sole (*Solea solea*)	3577
Lesser Weever (*Echiichthys vipera*)	3447
Solenette (*Buglossidium luteum*)	1988

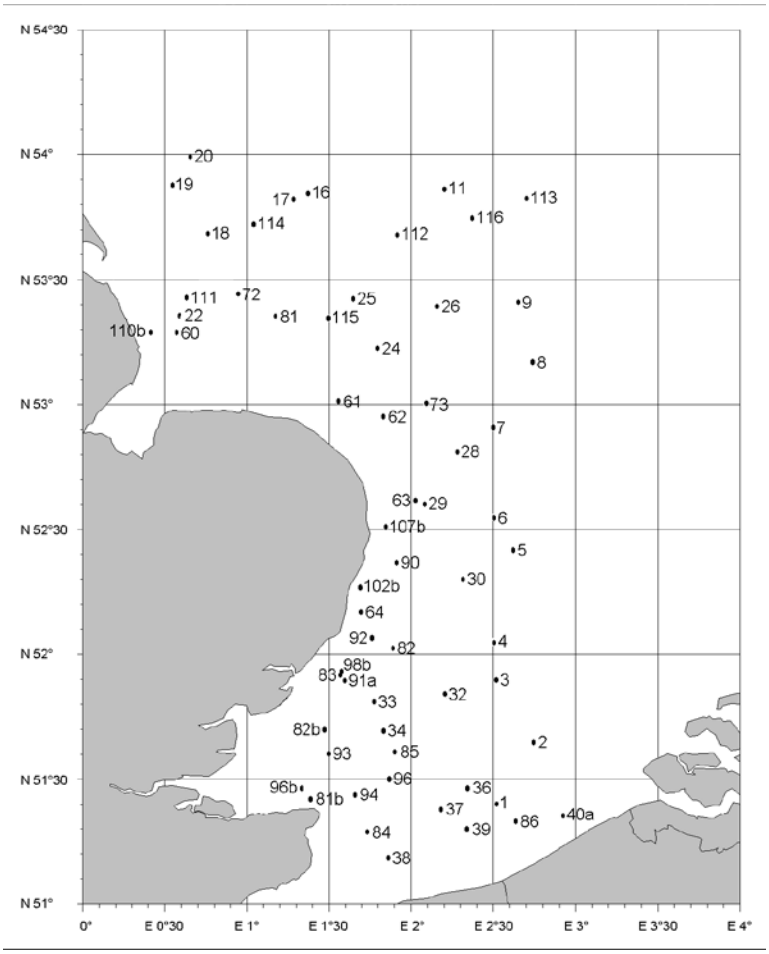
	Pogge (*Agonus cataphractus)*	1860
	Bib (*Trisopterus luscus*)	1642
	Common Dragonet (*Callionymus lyra*)	1573
	Scaldfish (*Arnoglossus laterna*)	1261
	Whiting (*Merlangius merlangus*)	1197
Number of epifauna species recorded	All individuals of epibenthic/benthic species and occasionally caught pelagic species are recorded on the species-level whenever possible (or the most detailed taxonomical level otherwise) based on complete catches (subsampling only for the bigger catches). A selected list, decided upon by WGBEAM, is presented to the WGBEAM.	
Index revisions:	None	

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	comments
IVbc	61 fixed stations	4 m beam trawl	61	
Number of biological samples (maturity and age material, *maturity only):				

5 otoliths per cm size class are collected per ICES Statistical Rectangle for cod, brill, turbot, plaice and sole, and the fish these came from are also sexed.

No maturity information is recorded (inappropriate period of the year)..



Survey summary England: VIId and IVc

Nation:	**UK (England and Wales)**	Vessel:	RV Cefas Endeavour
Survey:	15/14	Dates:	16 – 23 July 2014

Survey description: Q3 Eastern English Channel and Southern North Sea survey aims to collect data on distribution and relative abundance, with biological information on commercial fish species in VIId and IVc. The primary target species are sole and plaice, with additional species including lemon sole and cod.

Gear details: Steel 4m-beam trawl with chain mat and single flip-up rope, 80mm nylon trawl with 40mm codend liner. Also attached is the SAIV mini CTD.

Notes from survey (e.g. problems, additional work etc.): In total 86 valid stations were successfully sampled during the survey, although it was necessary to reduce the tow duration to 20 min for 19 of the prime stations to avoid static gear, reduce the impact of large catches of shell/gravel, and because of time constraints. Two stations in the English Channel were invalid on the first attempts and had to be repeated to achieve valid hauls. At prime station 42 (English side) the gear was not in contact with bottom due to strong tides and at prime station 11 (French side) the trawl flipped over on hauling after catching 5 tonnes of gravel, which resulted in the repeat tow being reduced to 20 min. Prime station 17 (French side) had to be abandoned because of the presence of static gear. In the North Sea there were a number problems associated with achieving a valid haul at prime station 99 because of unmanageable quantities of mud, and despite having three attempts and the loss of much time the station was eventually abandoned. Consequently the tow duration for the remainder of the North Sea stations had to be reduced to 20 min because of time considerations. Fourteen additional tows of 15 min duration were conducted either side of the Isle of Wight to obtain abundance and distribution data of undulate ray for an MCZ project. Additional survey aims included the collection of: litter data, water samples for nutrient analysis, environmental data; tag and release of species of elasmobranch; fin clips from DNA analysis; live crab and starfish for a local Sea Life centre.

At Target species catch rates:

	Time-series mean no. per hr	2014 mean no. per hr	Time-series mean catch weight per hr (kg)	2014 mean catch weight per hr (kg)
Sole	38.41	54.72	4.34	6.09
Plaice	53.23	199.54	12.43	32.85

Number of fish species recorded and notes on any rare species or unusual catches: 64 separate species / genera of finfish were caught. The top 10 by number(Standardized to 30-minute tow duration) were:

Pleuronectes platessa	8580
Buglossidium luteum	3965
Callionymus lyra	3211
Solea solea	2353
Limanda limanda	2054
Trisopterus luscus	1739
Agonus cataphractus	1040
Trisopterus minutus	833
Echiichthys vipera	740
Pomatoschistus minutus	624

Number of epifauna species: 92 separate infauna species / genera were observed during the 2014 survey across both ICES divisions. At 15 selected fishing stations (12 VIId, 3 IVc), samples of the epi-benthic bycatches were sorted and 32 'core species' identified and quantified,

recorded:	and at all fishing stations epi-benthic species were observed and the nine sentinel taxa quantified.
Index revisions:	

Stations fished:

ICES Divisions	Strata	Gear	Valid	Invalid	Unable to fish	Comments
VIId	English	4m beam trawl	39	1	0	
VIId	French	4m beam trawl	29	1	1	
IVc		4m beam trawl	18	3	1	

Number of biological samples (maturity and age material, *maturity only):			
Species	Number	Species	Number
Pleuronectes platessa	2021	*Gadus morhua*	43
Solea solea	652	*Scophthalmus rhombus*	31
Platichthys flesus	148	*Mullus surmuletus*	23
Microstomus kitt	122	*Scophthalmus maximus*	17
Limanda limanda	110	*Zeus faber*	14
Merlangius merlangus	91	*Eutrigla gurnardus*	14
Chelidonichthys lucerna	78	*Dicentrarchus labrax*	8
Chelidonichthys cuculus	74	*Lophius piscatorius*	4
Trigloporus lastoviza	53		

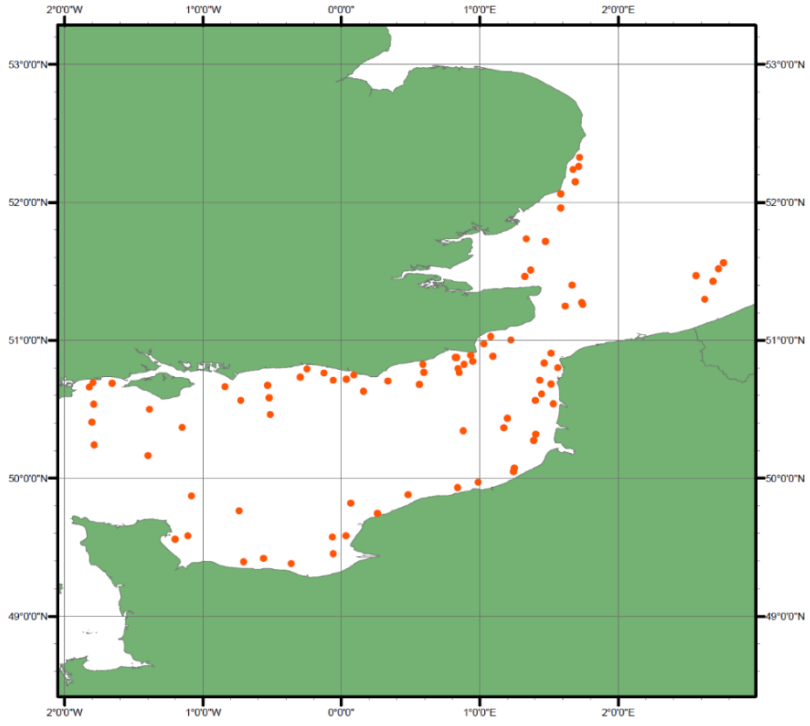


Figure 1: Station positions for Cefas Endeavour 15/14 Beam Trawl survey

Survey summary England: VIIa and VIIf

Nation:	**UK (England and Wales)**	Vessel:	RV Cefas Endeavour
Survey:	18/14	Dates:	7 Sept – 27 Sept 2014

Survey description	Q3 Irish Sea and Bristol Channel survey aims to collect data on distribution and relative abundance, with biological information on commercial fish species in VIIa and VIIf. The primary target species are sole and plaice, with additional species including whiting, lemon sole and cod.
Gear details:	Steel 4m-beam trawl with chain mat and single flip-up rope, 80mm nylon trawl with 40mm codend liner. Also attached is the SAIV mini CTD.
Notes from survey (e.g. problems, additional work etc.):	Gear damage occurred on three occasions. During the shakedown tow the groundgear warp parted and the spare beam trawl had to be used until the original could be repaired and reinstated, at prime 137 there was catastrophic damage with almost total loss of the net for which an alternative location had to be identified, and at prime 47 most of the net had ripped away, with just the top sheet and codend remaining. A total of 14 prime stations were reduced from the standard 30 min tow to either a 20 or 15 min tow, and in addition, a total of 8 prime stations were hauled early. All tow reductions were due to expected large catches of weed, broken shell or small flatfish, static gear over the tow or fishing a new tow location. A few stations were moved short distances to avoid undersea cables (an increasing problem in this busy sea area). Two Belgian observers (one from ILVO and one commercial fishing skipper) joined the survey to observe survey operations and in particular the catches of Dover sole, and consequently additional tows were conducted at prime stations 43 and 22 for this purpose. Additional survey aims included the collection of: surface and bottom temperature/salinity data; length/weight and maturity information using individual fish measurements, in support of the EU Data Collection Framework; surface water samples for analysis of tritium; water samples to determine alkalinity.

Target species catch rates:

	Time-series mean no. per hr (for period 2001-2014)	2014 mean no. per hr	Time-series mean catch weight per hr (kg)	2014 mean catch weight per hr (kg)
Sole VIIa	19.92	34.41	2.99	4.69
Sole VIIf	64.42	30.30	8.00	2.23
Plaice VIIa	255.68	264.09	22.44	28.28
Plaice VIIf	49.41	206.12	7.02	13.89

Number of fish species recorded and notes on any rare species or unusual catches:

74 separate species / genera of finfish were caught. The top 10 by number (Standardized to 30-minute tow duration) were:

Limanda limanda	21382
Pleuronectes platessa	11929
Buglossidium luteum	8633
Callionymus lyra	4077
Trisopterus minutus	3544
Merlangius merlangus	2647
Scyliorhinus canicula	2076
Arnoglossus laterna	1762
Sprattus sprattus	1753
Solea solea	1732

Number of infauna species recorded	108 separate infauna species / genera were observed during the 2014 survey across both ICES divisions. At 25 selected fishing stations, samples of the epi-benthic bycatches were sorted and 32 'core species' identified and quantified, and at all fishing stations epi-benthic species were observed and the nine sentinel taxa quantified.
Index revisions:	

Stations fished:

ICES Divisions	Strata	Gear	Valid	Additional	Invalid	Total	Comments
VIIa,f	Depth band within stratum area	4m beam trawl	108	5	3	116	

Number of biological samples (maturity and age material, *maturity only):			
Species	Number	Species	Number
Pleuronectes platessa	1971	*Lepidorhombus whiffiagonis*	41
Solea solea	759	*Lophius piscatorius*	34
Limanda limanda	288	*Gadus morhua*	33
Merlangius merlangus	211	*Scophthalmus rhombus*	30
Chelidonicthys gurnardus	139	*Scophthalmus maximus*	27
Microstomus kitt	99	*Merluccius merluccius*	25
Chelidonichthys lucerna	88	*Zeus faber*	14
Chelidonichthys cuculus	80	*Dicentrarchus labrax*	8
Melanogrammus aeglefinus	58	*Lophius budegassa*	1
Mullus surmuletus	53		

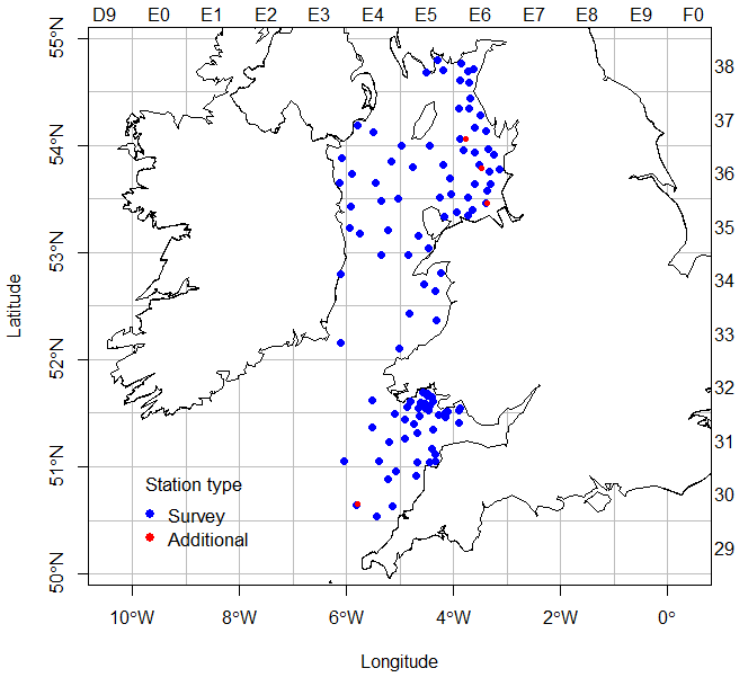


Figure 1: Station positions for Cefas Endeavour 18/14 Beam Trawl survey

Survey summary England: VIIe and Celtic Sea

Nation:	**UK (England and Wales)**	Vessel:	RV Cefas Endeavour
Survey:	4/15	Dates:	26 Feb – 23 Mar 2015

Survey description: Q1 western English and Celtic Sea ecosystem survey aims to collect data on distribution and relative abundance, with biological information on commercial fish species in VIIe and Celtic Sea (VIIe, VIIf, VIIg, VIIh, VIIj). Stations are randomly selected by startum.

Gear details: Steel 4m-beam trawl with chain mat and single flip-up rope, 80mm polypropylene trawl with 40mm codend liner. Also attached is the SAIV mini CTD. At a station two beam trawls are deployed, one with and one without a liner.

Notes from survey (e.g. problems, additional work etc.): The weather was generally good throughout although at the beginning of the survey in VIIe it was necessary to sample stations close inshore to shelter form strong winds and heavy swells offshore. Both static gear and hard ground, which resulted in a number of invalid tows, along the Irish and French coasts meant that tows had to be repeated or alternative tows identified. One of the beam trawls was lost on hard ground off the French coast, and although it was not was not be initially recovered, it was recovered after returning to the location later during the survey. The survey was successfully completed. Additional survey aims included the collection of: litter data, water samples for nutrient analysis, environmental data; tag and release of species of elasmobranch.

Target species catch rates:

Species	VIIe 2015 mean no. per hr	Celtic Sea 2015 mean no. per hr
Pleuronectes platessa	17.71	15.81
Lepidorhombus whiffiagonis	3.58	25.92
Lophius piscatorius	9.00	11.67
Solea solea	4.92	3.37
Microstomus kitt	4.33	4.21
Lophius budegassa	0.93	5.52

Number of fish species recorded and notes on any rare species or unusual catches: 100 separate species / genera of finfish were caught. The top 10 by number (Standardized to 30-minute tow (for both beam trawls) were:

	VIIe	Celtic Sea	Total
Trisopterus minutus	7968	2933	10900
Scyliorhinus canicula	1243	795	2038
Callionymus lyra	957	320	1277
Pleuronectes platessa	709	427	1135
Buglossidium luteum	1058	9	1066
Lepidorhombus whiffiagonis	143	700	843
Chelidonichthys cuculus	583	259	842
Merlangius merlangus	342	371	713
Trisopterus luscus	614	69	683
Lophius piscatorius	360	315	675

Number of infauna species recorded: 193 separate infauna species / genera were observed during the 2015 survey across all areas. The epi-benthic bycatches were either observed or fully sorted at all stations. The nine sentinel taxa were always quantified.

Index revisions:

Stations fished:

ICES Divisions	Gear	Valid	Invalid	Additional	Comments
VIIe	4m Beam Trawl no blinder	80	4	2	
	4m Beam Trawl with blinder	79	3	4	
Celtic Sea	4m Beam Trawl no blinde	54	2		
	4m Beam Trawl with blinder	54	2		

Number of biological samples (maturity and age material, *maturity only):			
Species	VIIe	Celtic Sea	Total
Lepidorhombus whiffiagonis	133	717	850
Pleuronectes platessa	476	340	816
Lophius piscatorius	333	254	587
Aspitrigla (chelidonichthys) cuculus	326	197	523
Merlangius merlangus	203	211	414
Eutrigla (chelidonicthys) gurnardus	95	264	359
Melanogrammus aeglefinus	81	257	338
Microstomus kitt	166	103	269
Solea solea	182	75	257
Lophius budegassa	36	151	187
Glyptocephalus cynoglossus	4	160	164
Merluccius merluccius	13	149	162
Trigla (chelidonichthys) lucerna	117	6	123
Trigloporus (chelidonichthys) lastoviza	112	7	119
Mullus surmuletus	87	24	111
Zeus faber	35	16	51
Gadus morhua	14	15	29
Conger conger	14	12	26
Scophthalmus rhombus	18	7	25
Molva molva	2	4	6
Scophthalmus maximus (psetta maxima)	2	3	5
Aspitrigla (chelidonichthys) obscura	4		4

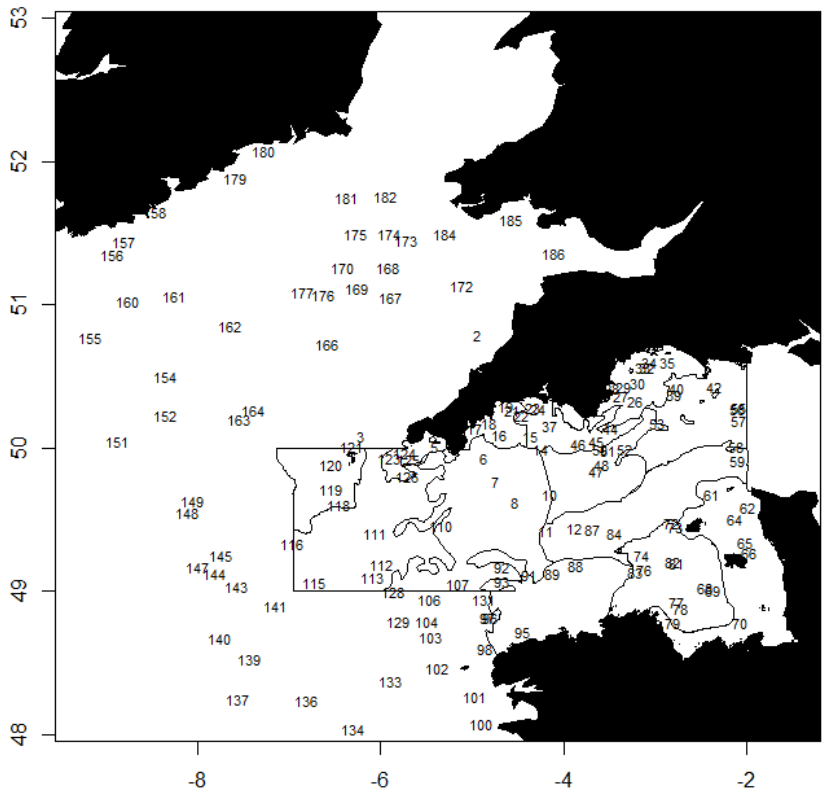


Figure 1: Station positions for Cefas Endeavour 4/15 Beam Trawl survey

Survey summary France

Nation :	FRANCE	Vessel :	NO "Antéa"
Survey :	ORHAGO 14	Dates :	5 Nov. – 25 Nov. 2014

Survey description :	The Q4 Bay of Biscay ORHAGO survey aims to collect data on composition, distribution and change in relative abundance of fish fauna on yearly basis. Information is collected on length frequency for all the fish, with biological information (age, maturity) on some species. The main target species is sole, other additional abundant commercial species include (the 10 top number by decreasing numbers/hour in 2014) mussel, Norway lobster, hake, common prawn, cuttlefish, brown shrimp, Queen scallop, horse mackerel, wedge sole, and dog cockle. For the second time in 2014, the benthos was exhaustively sampled for all the hauls (for determination at the laboratory).
Gear details :	4m-beam trawl with chain mat, 50mm mesh in the net et 40 mm mesh in the codend.
Notes from survey (e.g. problems, additional work etc.):	Some hauls slightly displaced because the presence of fixed net on the position.
Target species catch rates :	

	Time-series mean no. per hr	2014 mean no. per hr	Time-series mean catch weight per hr	2014 mean catch weight per hr (kg)
Sole	51	59	6.8	7.8

Number of fish recorded and note on any rare species or unusual catches :

70 separate species of fish were caught. The top 10 by number per hr were:

Arnoglossus laterna	113
Trisopterus luscus	73
Solea solea	62
Callionymus lyra	48
Buglossidium luteum	38
Merluccius merluccius	35
Microchirus variegatus	28
Trisopterus minutus	18
Trachinus draco	17
Trachurus trachurus	14

Number of epifauna species recorded:	174 separates epifauna species or group of species sorted by lower taxon to which they can be attributed on board (number, total weight, length distribution of some of them).

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total valid	comments
VIIIab	N/A	4m beam trawl	50		3	0	56	1 replicate tow

Number of biological samples (*age materiel only)			
Species	Number	Species	Number
Solea vulgaris maturity and age	857	Bass	3
Solea vulgaris maturity only	641	*Lophius piscatorius**	67
Red mullet	101	*Lophius budegasa**	44
Argyrosomus regius	11		

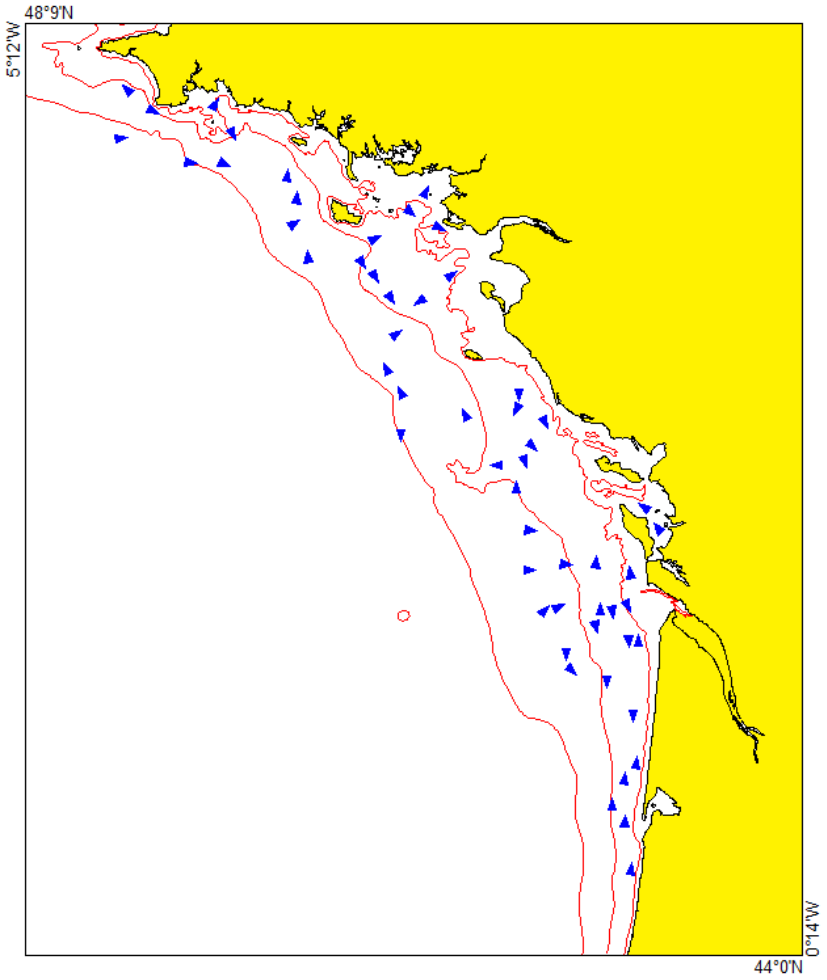


Figure 1: ORHAGO 2014 tow positions

Survey summary Germany

Nation:	**Germany**	Vessel:	RV "Solea"
Survey:	BTS	Dates:	11 – 24 Aug 2014

Survey description:	Q3 North Sea survey aims to collect data on distribution and relative abundance, with biological information, on commercial and other fish and invertebrate species in IVb to the west of Denmark. The distribution of young flatfish, particularly plaice, has particular attention (higher sampling density further inshore). In 2013 two rectangles off the north coast of Denmark were added, each with 4 hauls.
Gear details:	7 meter beam trawl with 5 ticklers, 40 mm mesh in the codend, 80 mm mesh in the net.
Notes from survey (e.g. problems, additional work etc.):	The survey was affected by strong winds. Fishing could be carried out at 6 of 13 days. Due to this time constrains, it was decided to give priority to the coastal rectangles with a reduced intensity of two hauls per square instead of planned four. 30 hauls were carried out (approx. 15 hours fishing time).
Target species catch rates:	Time-series mean no. per hr / 2014 mean no. per hr Sole 8.37 / 10.74 Plaice 325.29 / 414.53
Number of fish species recorded and notes on any rare species or unusual catches:	32 separate species of finfish were caught. The top 10 by number are: *Limanda limanda* 31626 *Pleuronectes platessa* 6218 *Eutrigla gurnardus* 803 *Agonus cataphractus* 657 *Merlangius merlangus* 550 *Callionymus lyra* 485 *Buglossidium luteum* 464 *Arnoglossus laterna* 273 *Microstomus kitt* 195 *Hippolossoides platessoides* 164 *Solea solea* 102 *Pomatoschistus minutus* 69
Number of epifauna species recorded:	54 epifauna (attached and free-living) species were observed during the 2014 survey.
Index revisions:	

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
North Sea IVb	N/A	7m beam trawl	30	30	0	0	30	

Number of biological samples (maturity and age material, *maturity only):			
Species	Number	Species	Number
Pleuronectes platessa	545	*Limanda limanda*	472
Solea vulgaris	102		

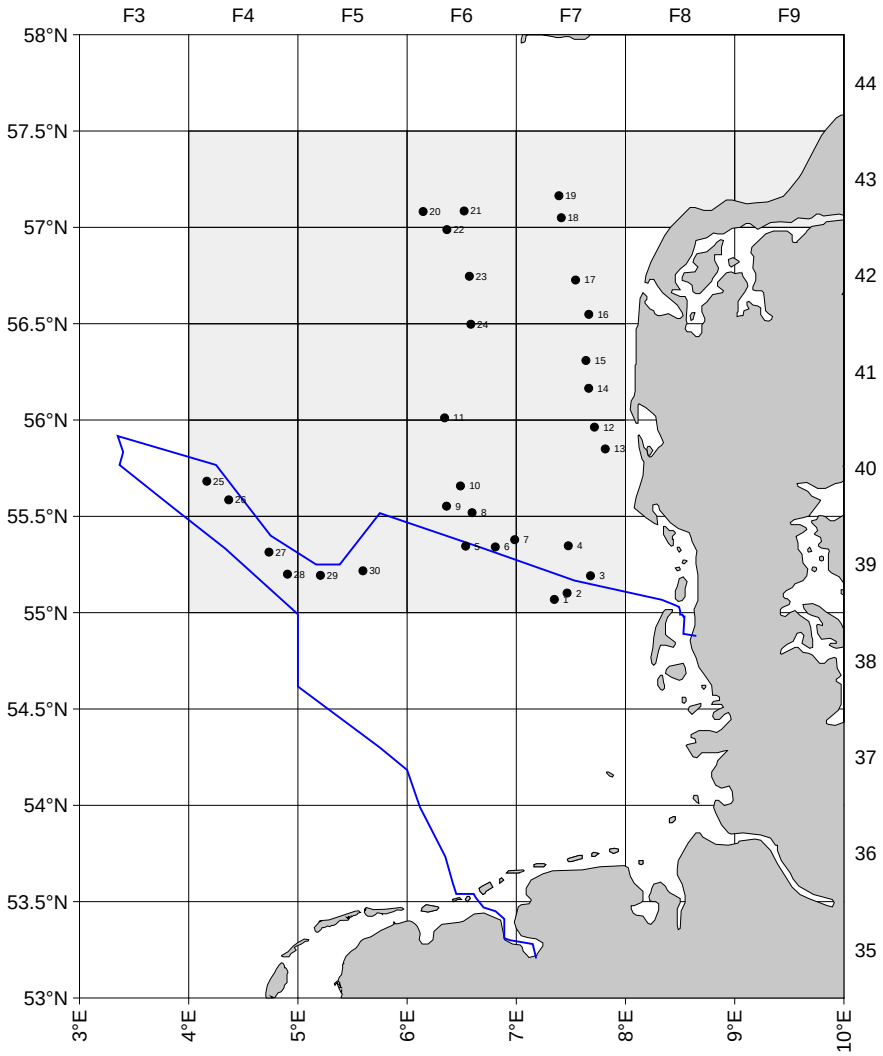


Figure 1: Towing positions Germany "Solea" Beam Trawl Survey

Survey summary Adriatic Sea: GSA17

Nation:	Italy and Slovenia	**Vessel:**	N/O G. Dallaporta
Survey:	SoleMon	**Dates:**	10 Nov – 28 Nov 2014

Survey description	SoleMon survey aims to collect data on distribution and relative abundance, with biological information on commercial fish species in FAO-GFCM Geographical Sub-Area 17 (Figure 5.1.3.7.1). The primary target species is sole, with additional species including cuttlefish, scallop, queen scallops, turbot, brill, skates, purple dye murex and caramote prawn.
Gear details:	Modified beam trawl with a rigid mouth. The frame is rigged with 46 iron teeth along the lower leading edge. Joined to the iron frame there are 4 skids and a reinforced rubber diamond-mesh net in the lower part to protect the polyamide net bag tied to the iron frame (Width: 3.5 m; Weight: 225 kg; Four 120-mm wide skids; 46-mm codend mesh size). The beam trawl is provided with DST Logic Temperature and Depth Recorders.
Notes from survey (e.g. problems, additional work etc.):	67 hauls were carried out (approx. more than 30 hours fishing time). The survey was completed without incident. A total of 18 stations had to be fished for less than 30 minutes. This was mainly due to large by catches of benthos and/or as a precaution against gear damage. A significant amount of additional aims were carried out. These incldued *Solea solea*, *Scophthalmus rhombus* and *Scophthalmus maximus* otolith and fin-clips for ageing and comparative population genetics structure, collection of samples for Lindane and TBT contaminants analises, maturity stages of *Sepia officinalis*, epibenthos analises. Genetic samples of *Raja* spp. Vertical CTD measurements were carried out after each haul.

Target species catch rates:

	Time-series mean no. per hr	2013 mean no. per hr	Time-series mean catch weight per hr (kg)	2011 mean catch weight per hr (kg)
Sole GSA17	**34.9**	**57.3**	**3.26**	**5.67**

Number of fish species recorded and notes on any rare species or unusual catches:

62 separate species of finfish were caught. The top 10 by number per square km are:

Solea solea	917.17
Arnoglossus laterna	583.95
Serranus hepatus	344.06
Merluccius merluccius	173.15
Scorpaena notata	151.04
Pagellus erythinus	145.43
Eutrigla gurnardus	145.38
Gobius niger	119.26
Buglossidium luteum	112.15
Lepidotrigla cavillone	108.28

Number of infauna species recorded	**Around 270 separate macro- and megabenthos species were observed during the 2014 survey.**
Index revisions:	

Stations fished:

GSA	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	comments
17	3 depth Strata	2 x 3.5m modified beam trawls	67	0	0			

Number of biological samples (maturity and age material):		
Species	**Number**	**Biological material**
Solea solea	2364	(maturity)
Solea solea	424	(otolith)
Scophthalmus rhombus	50	(maturity and otolith)
Scophthalmus maximus	4	(maturity and otolith)
Platichthys flesus	2	(maturity)

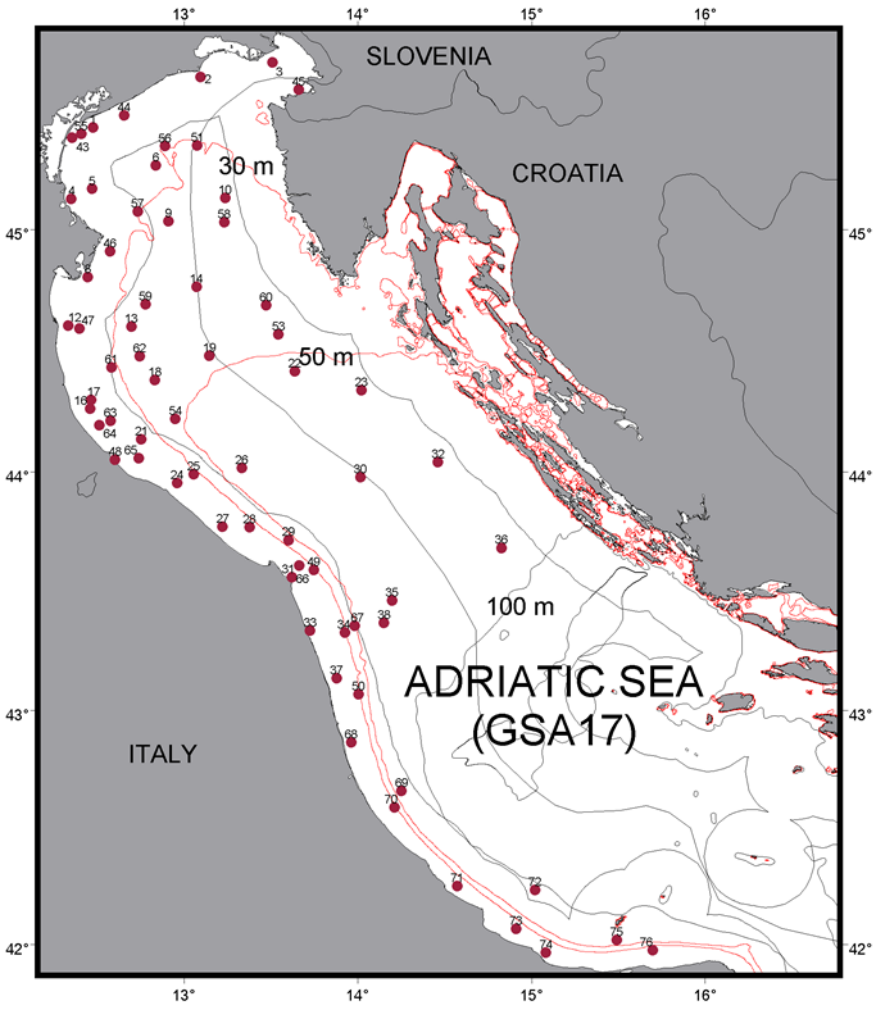


Figure1: Towing positions of SoleMon survey

Survey summary Netherlands: Tridens

Nation:	**Netherlands**	Vessel:	RV "Tridens"
Survey:	BTS (Beam Trawl Survey)	Dates:	18 Aug – 11 Sep 2014

Survey description	The BTS aims to (i) monitor fish fauna by sampling length frequency distributions of all fish species and age composition of flatfish species, (ii) monitor species composition of epibenthos species by counting and weighing (if possible), (iii) create a fishery-independent estimate of age density for plaice and sole in the North Sea for stock assessment, (iv) monitor sex- and length composition of *Cancer pagurus*, *Nephrops norvegicus* and elasmobranch species.
Gear details:	8 meter beam trawl with 8 ticklers, 40 mm mesh in the codend, 120 mm mesh in the net and a flip-up rope.
Notes from survey:	71 hauls were carried out (approx. 35 hours fishing time). The survey was finished without major incidents. As the weather was good during most of the survey, the survey was completed within the time planned. Net damage was repaired within a few hours. Vertical CTD measurements were carried out after each haul.
Target species catch rates:	Time-series mean no. per hr / 2014 mean no. per hr Sole no index Plaice 121.88 287.04
Number of fish species recorded and notes on any rare species or unusual catches:	58 separate species of finfish were caught. The top 10 by number are: *Limanda limanda* 43839 *Pleuronectes platessa* 9744 *Hippoglossoides platessoides* 7515 *Eutrigla gurnardus* 3388 *Buglossidium luteum* 4386 *Arnoglossus laterna* 2913 *Microstomus kitt* 2348 *Trisopterus esmarkii* 2046 *Callionymus lyra* 949 *Agonus cataphractus* 800
Number of epifauna species recorded:	155 epifauna (attached and free-living) species were observed during the 2014 survey.
Index revisions:	None

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
North Sea	N/A	8m beam trawl	47	24	0	1	71	

Number of biological samples (age material), including hauls with Isis gear:			
Species	Number	Species	Number
Pleuronectes platessa	1341	*Merluccius merluccius*	89
Limanda limanda	552	*Microchirus variegatus*	37
Microstomus kitt	432	*Scophthalmus maximus*	22
Solea solea	204	*Scophthalmus rhombus*	16
Hippoglossoides platessoides	225	*PLatichthys flesus*	12
Gadus morhua	247	*Zeugopterus norvegicus*	1

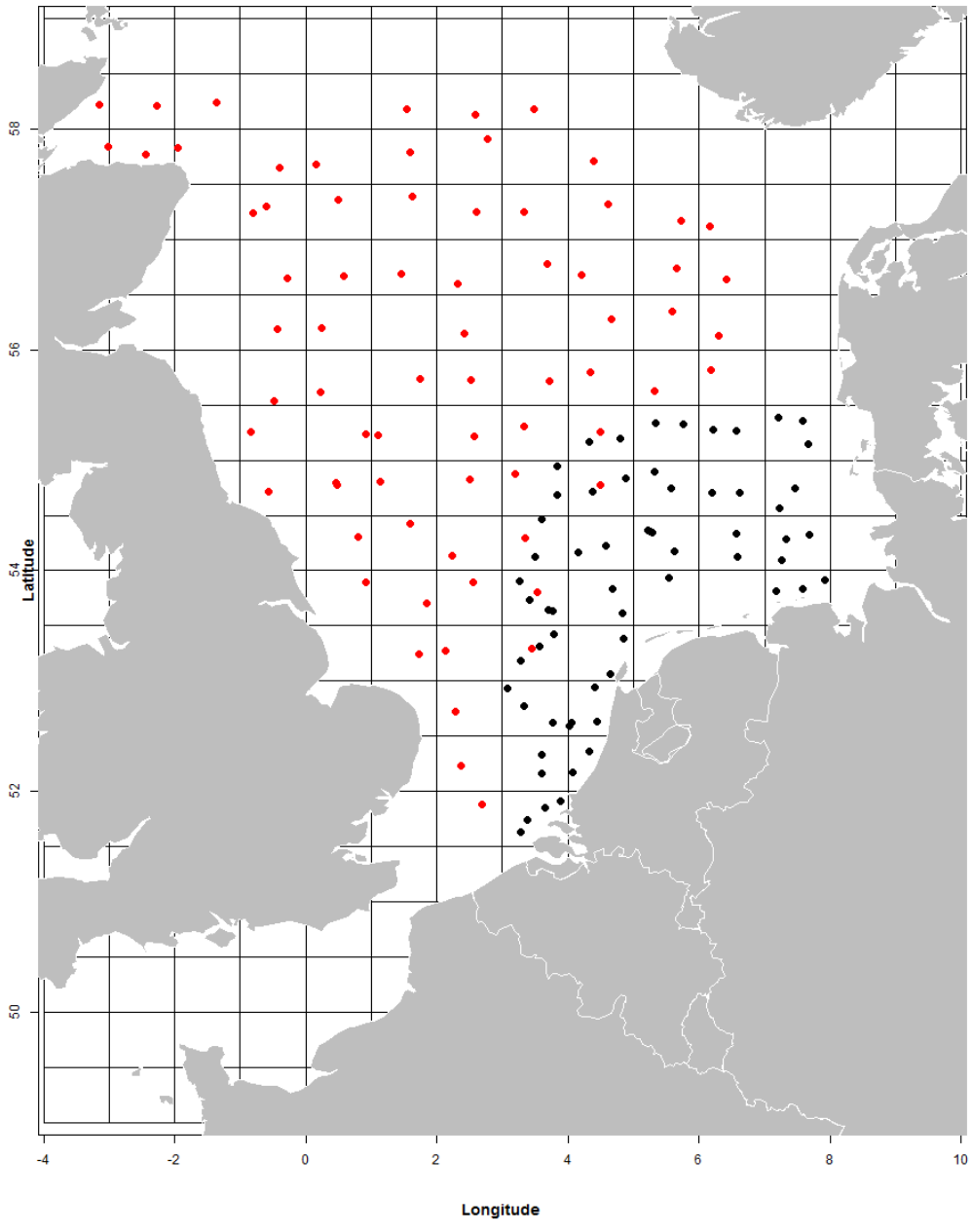


Figure 1: Towing positions Dutch Beam Trawl survey: red=Tridens, black=Isis (in Isis summary sheet)

Survey summary Netherlands: Isis

Nation:	**Netherlands**	Vessel:	RV "Isis"
Survey:	BTS (Beam Trawl Survey)	Dates:	4 Aug - 5 Sep 2014

Survey description	The BTS aims to (i) monitor fish fauna by sampling length frequency distributions of all fish species and age composition of flatfish species, (ii) monitor species composition of epibenthos species by counting, (iii) create a fishery-independent estimate of age density for plaice and sole in the North Sea for stock assessment, (iv) monitor sex- and length composition of *Cancer pagurus*, *Nephrops norvegicus* and elasmobranch species.
Gear details:	8 meter beam trawl with 8 ticklers, 40 mm mesh in the codend, 120 mm mesh in the net.
Notes from survey:	62 hauls were carried out (approx. 30 hours fishing time) by Isis. The survey suffered from technical problems and bad weather conditions.
Target species catch rates:	Time-series mean no. per hr / 2014 mean no. per hr Sole 49.25 / 48.51 Plaice 817.28 / 804.89
Number of fish species recorded and notes on any rare species or unusual catches:	43 separate species of finfish were caught. The top 10 by number are: *Limanda limanda* 72539 *Pleuronectes platessa* 20497 *Arnoglossus laterna* 7699 *Buglossidium luteum* 4065 *Callionymus lyra* 2437 *Agonus cataphractus* 1900 *Solea solea* 1438 *Merlangius merlangus* 1442 *Eutrigla gurnardus* 1012 *Echiichthys vipera* 939
Number of epifauna species recorded:	52 epifauna (attached and free-living) species were observed during the 2014 survey
Index revisions:	None

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
North Sea	N/A	8m beam trawl	62	0	6		56	

Number of biological samples (age material):			
Species	Number	Species	Number
Pleuronectes platessa	632	*Scophthalmus rhombus*	74
Limanda limanda	183	*Microstomus kitt*	62
Solea solea	456	*Gadus morhua*	13
Scophthalmus maximus	114	*Platichthys flesus*	35

Annex 9: Survey summary sheets inshore surveys per country

Survey summary Belgium

Nation:	**Belgium**	Vessel:	RV 'Simon Stevin'
Survey:	Inshore Demersal Young Fish and Brown shrimp Survey	Dates:	8-16 September 2014

Survey description:

As part of the international Demersal Young Fish and Brown Shrimp Survey, an annual autumn sampling survey is carried out in the Belgian coastal waters, to collect data on the abundance of juvenile flatfish (primarily plaice *Pleuronectes platessa*, and sole *Solea solea*) and brown shrimp (*Crangon crangon*).

Since 1973, 33 fixed sampling stations are fished. Untill 1982, the research vessel Hinders was used, from 1983 onwards the survey was carried out with the training and research vessel O.29 'Broodwinner'. In 2013 a switch was made to the new RV 'Simon Stevin', that was used for the Belgian DYFS for the second time in 2014.

The location of the sampling area matches the main flatfish nursery grounds along the Belgian coast.

Gear details:

All DYFS sampling stations are fished for approx. 30 min, with a standard shrimp beam trawl (beam length 6 m; codend mesh size 11 mm, no tickler chains), at 3 knots against tide.

Notes from survey (e.g. problems, additional work etc.):

The weather did not interfere with the sea-going operations in 2014, and no technical problems were encountered. This allowed for all 33 sampling stations to be fished succesfully. None of the fished stations were declared invalid.

Target species catch rates:

2012 data

	TIME-SERIES mean nr. per 1000 m²	2014 mean nr. per 1000 m²
Plaice	5.97	6,22
Sole	3.61	1.45

Number of fish species recorded and notes on any rare species or unusual catches:

The DYFS focuses on measuring the most important commercial fish species (value and/or volume) to the cm below being cod, whiting, plaice, flounder, dab, sole, brill and turbot. From 2009 on, the species list was extended to cover all commercial fish species caught (e.g. including lesser spotted dogfish, gurnards, lemon sole, …). In this way, 12 species were documented in 2013. Ordered by number, these are:

Species	Total number
Dab (*Limanda limanda*)	6894
Plaice (*Pleuronectes platessa*)	3373
Whiting (*Merlangius merlangus*)	3169
Sole (*Solea solea*)	832
Horse Mackerel (*Trachurus trachurus*)	200
Flounder (*Platichthys flesus*)	170
Tub Gurnard (*Chelidonichthys lucerna*)	167
Turbot (*Psetta maxima*)	20
Cod (*Gadus morhua*)	13
Lemon Sole (*Microstomus kitt*)	8
Brill (*Scophthalmus rhombus*)	2
Sea bass (*Dicentrarchus labrax*)	1

Number of epifauna species recorded:

Appr. 500 brown shrimp per station are measured in 5 mm size classes.

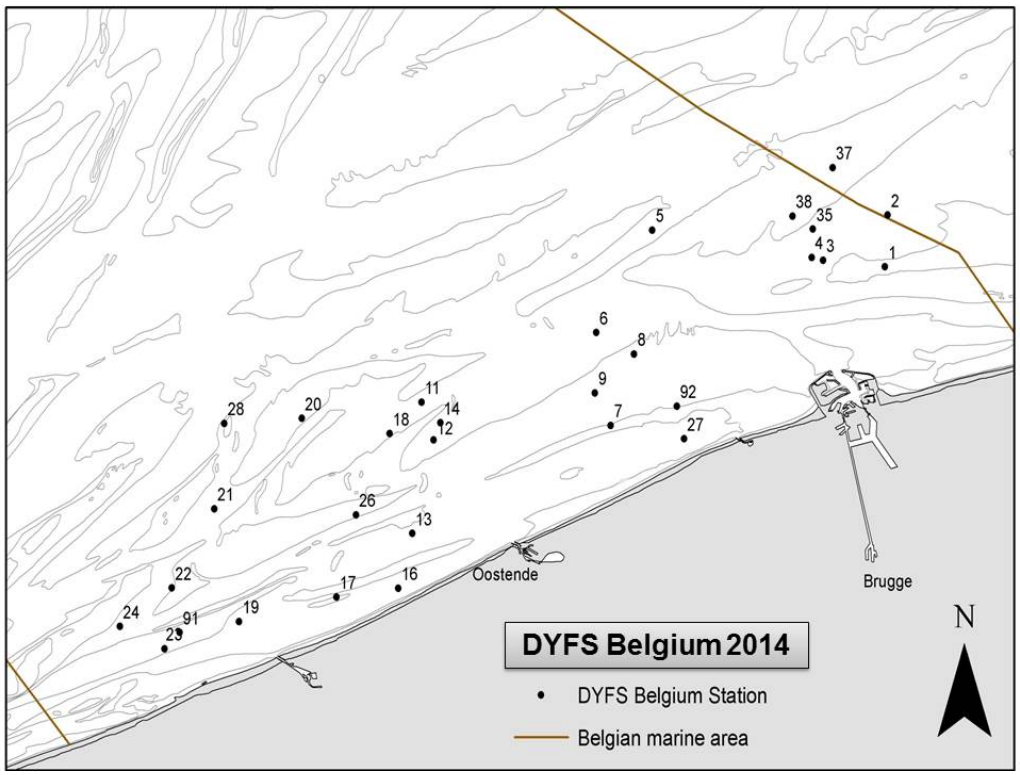
No other epifauna species are recorded.

Index revisions:	No

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
IVc	N/A	6m beam trawl	33	33	0	0	33	none

Number of biological samples (maturity and age material, *maturity only):
None



DYFS sampling stations in the Belgian coastal waters

Survey summary Germany

Nation:	**Germany**	Vessel:	RV "Clupea" and Chartered Cutters
Survey:	DYFS	Dates:	01 Sep – 02 Oct 2014

Survey description	The DYFS (Demersal Young Fish and Brown Shrimp Survey) aims to collect data on distribution and relative abundance, with biological information on fish and crustacean species in the Wadden Sea region. The primary target species are plaice and sole, with additional species including whiting, cod and brown shrimp.
Gear details:	Steel 3m- shrimp-beam trawl without tickler chain, 20mm codend. An electronic mini sensor for time, temperature and pressure (turbidity optional) is attached.
Notes from survey (e.g. problems, additional work etc.):	TI-SF operates the survey since 1974. Weser estuary and Jade were included from 2005 onwards. Spring series were terminated in 2004. There is no fixed position grid, but the same channel systems and all depth strata covered within and outside the island chain down to approx. 20m water depth are sampled on a yearly basis. The deeper gullies are taken into account, too. Since 2012 the survey area outside the island chain was intensified by using RV Clupea in addition to chartered cutters. Single station data are available for the entire dataset. At present, time-series indices are avilable from 1976 onwards, the earlier survey data are in a validation process. Data of only a limited number of "standard" invertebrates are stored in the TI-SF database. (Species list has changed also over years) In total 285 valid hauls of 289 total hauls were carried out in 2014. 12 Parallel hauls for gear comparison were performed during the RV Clupea (GER) cruise with RV Isis (NED).

Target species catch rates:

	Time-series mean (Schleswig-Holstein only 2005 - 2014) n/1000m²	2014 mean (Schleswig-Holstein only) n/1000m²	Time-series mean (coastal Zone all along Germany, 2005 - 2014) n/1000m²	2014 mean (coastal Zone all along Germany) n/1000m²
Plaice	10.25	3.45	9.01	4.37
Sole	0.22	0.07	0.20	0.08
Cod	0.35	0.02	0.27	0.03
Whiting	2.43	0.33	0.10	0.05
Brown shrimp	n.a.	n.a.	n.a.	n.a.

Number of fish species recorded and notes on any rare species or unusual catches:

The top 10 by number are:

59 taxa of finfish were caught from 2001 to 2014. The top 10 by number in 2014 out of 42 taxa:

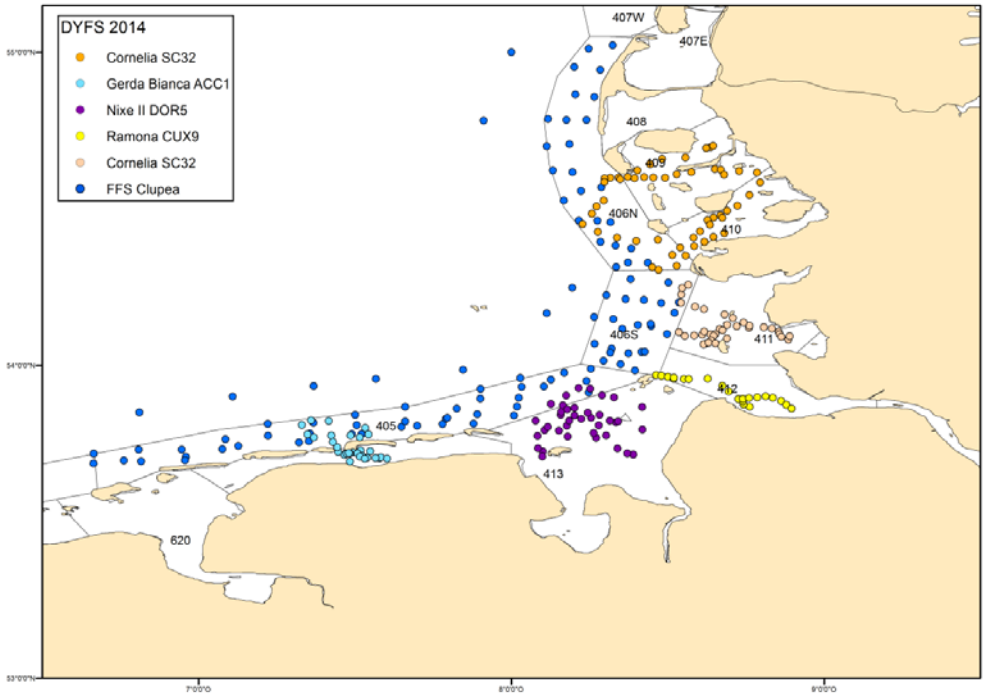
Limanda limanda	16300
Pomatoschistus minutus	13708
Pleuronectes platessa	5410
Syngnathus rostellatus	5207
Osmerus eperlanus	2328
Callionymus lyra	2057
Merlangius merlangus	1935
Agonus cataphractus	1469
Clupea harengus	836
Chelidonichthys lucerna	508

Number of epifauna species recorded:

All epifauna found are recorded and available in the SF database. For 2014 they were

Crangon crangon	Not available yet
Liocarcinus holsatus	35173
Ophiurida	15126
Pandalus montagui	11291
Mytilus edulis	4061
Carcinus maenas	1775
Asterias rubens	1626

	Leander serratus	844
	Sepiola atlantica	338
	Paguridae	249
Index revisions:	Inclusion of RV Clupea data since 2012 in the time-series means and top ten species for the whole German coastline.	



Stations sampled in the German DYFS 2014.

Survey summary Netherlands: Schollevaar

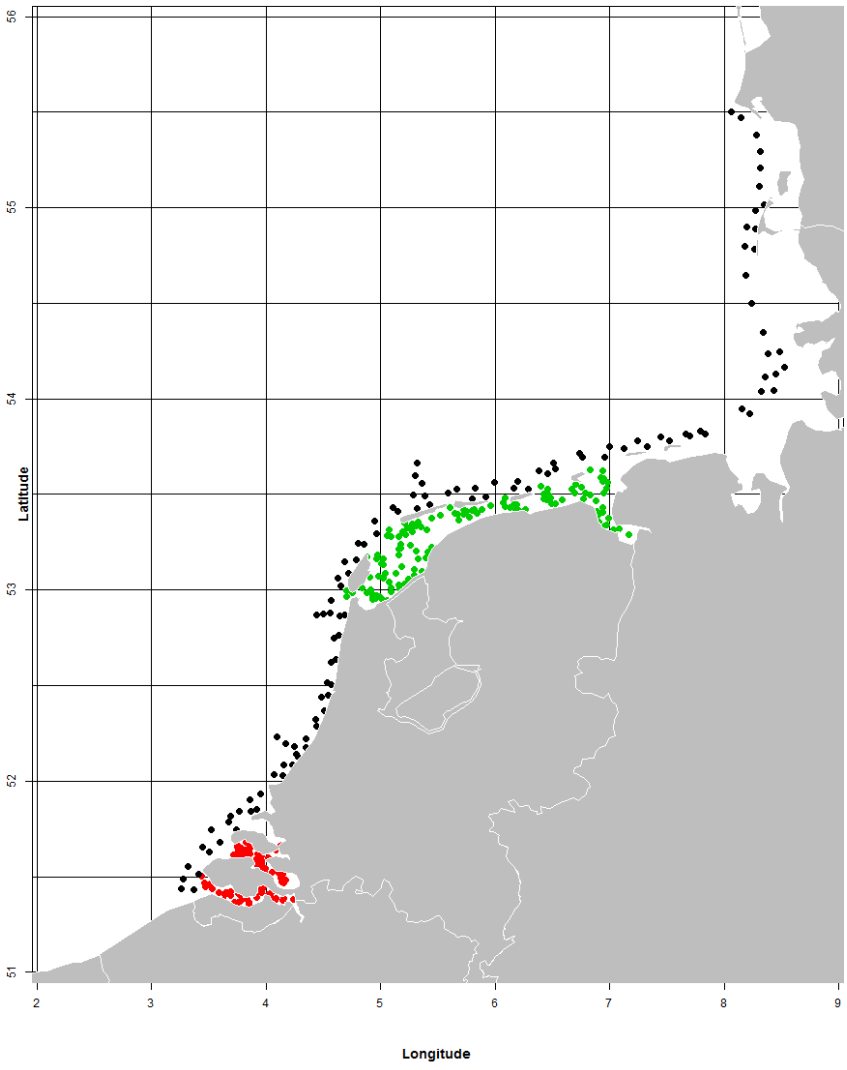
Nation:	**Netherlands**	Vessel:	RV "Schollevaar"
Survey:	DYFS (Demersal Young Fish Survey)	Dates:	1-18 Sep 2014

Survey description	The DYFS aims to (i) monitor fish fauna by sampling length frequency distributions of all fish species and age compositions of flatfish species, (ii) monitor species composition of epibenthos species by counting, (iii) create a fishery-independent index of abundance by age group (0- and 1-group) for plaice and sole in the North Sea for stock assessment, (iv) collect data on length frequency distribution of brown shrimp (*Crangon crangon*).
Gear details:	3 meter beam trawl with 1 tickler chain and a bobbin rope ("shrimp net").
Notes from survey (e.g. problems, additional work etc.):	81 valid hauls were carried out. A CTD was attached to the net.
Target species catch rates:	Time-series mean no./1000m^2 / 2014 mean no. per 1000m^2 Sole 3.28 / 1.10 Plaice 10.06 / 17.09 Note: without area based weighting as used in the index calculations
Number of fish species recorded and notes on any rare species or unusual catches:	35 separate species of finfish were caught. The top 10 by number are: *Pomatoschistus sp.* 5497 *Pleuronectes platessa* 2430 *Osmerus eperlanus* 729 *Syngnathus rostellatus* 643 *Platichthys flesus* 564 *Dicentrarchus labrzx* 502 *Solea solea* 413 *Clupea harengus* 409 *Merlangius merlangus* 374 *Gobius niger* 307
Number of epifauna species recorded:	37 epifauna (attached and free-living) species were observed during the 2013 survey.
Index revisions:	No

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
IVc: Scheldt estuary	area and depth class	3m beam trawl	81		0	0	81	

Number of biological samples (maturity and age material):			
Species	Number	Species	Number
Pleuronectes platessa	86	*Limanda limanda*	33
Solea solea	113	*Scophthalumus rhombus*	11
Platichthys flesus	76		



Positions DYFS 2014: red=Schollevaar; black=Isis, green=Stern

Survey summary Netherlands: Stern (DYFS)

Nation:	**Netherlands**	Vessel:	RV "Stern"
Survey:	DYFS (Demersal Young Fish Survey)	Dates:	25 Aug- 26 Sep 2014

Survey description	The DYFS aims to (i) monitor fish fauna by sampling length frequency distributions of all fish species and age compositions of flatfish species, (ii) monitor species composition of epibenthos species by counting, (iii) create a fishery-independent index of abundance by age group (0- and 1-group) for plaice and sole in the North Sea for stock assessment, (iv) collect data on length frequency distribution of brown shrimp (*Crangon crangon*).
Gear details:	3 meter beam trawl with 1 tickler chain and a bobbin rope ("shrimp net").
Notes from survey (e.g. problems, additional work etc.):	137 valid hauls were carried out. A CTD was attached to the net.
Target species catch rates:	Time-series mean no/1000m^2 / 2014 mean no/1000m^2 Sole 5.03 / 1.72 Plaice 31.06 / 4.65 Note: without area based weighting as used in the index calculations
Number of fish species recorded and notes on any rare species or unusual catches:	35 separate species of finfish were caught. The top 10 by number are: *Pomatoschistus minutus* 5599 *Pleuronectes platessa* 2445 *Solea solea* 966 *Coiliata mustela* 732 *Clupea harengus* 565 *Syngnathus rostellatus* 531 *Zoarces viviparus* 480 *Osmerus eperlanus* 446 *Myoxocephalus scorpius* 408 *Platichthys flesus* 355
Number of epifauna species recorded:	23 epifauna (attached and free-living) species were observed during the 2013 survey.
Index revisions:	No

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
IVc: Wadden Sea	area and depth class	3m beam trawl	125		12	0	137	

Number of biological samples (maturity and age material):			
Species	Number	Species	Number
Pleuronectes platessa	148	*Scophthalmus rhombus*	16
Platichthys flesus	170	*Limanda limanda*	14
Solea solea	131	*Scophthalmus maximus*	4

Positions DYFS Stern 2014: see map above

Survey summary Netherlands: Isis (DYFS)

Nation:	**Netherlands**	Vessel:	RV "Isis"
Survey:	DYFS (Demersal Young Fish Survey)	Dates:	22 Sep –23 Oct 2014

Survey description	The DYFS aims to (i) monitor fish fauna by sampling length frequency distributions of all fish species and age compositions of flatfish species, (ii) monitor species composition of epibenthos species by counting, (iii) create a fishery-independent index of abundance by age group (0- and 1-group) for plaice and sole in the North Sea for stock assessment, (iv) collect data on length frequency distribution of brown shrimp (*Crangon crangon*).
Gear details:	6 meter beam trawl with 1 tickler chain and a bobbin rope ("shrimp net").
Notes from survey (e.g. problems, additional work etc.):	112 valid hauls were carried out. A CTD was attached to the net.
Target species catch rates:	Time-series mean no/1000m^2 / 2014 mean no/1000m^2 Sole 5.75 3.28 Plaice 20.85 10.34 Note: without area based weighting as used in the index calculations
Number of fish species recorded and notes on any rare species or unusual catches:	43 separate species of finfish were caught. The top 10 by number are: *Pomatoschistus sp.* 122772 *Limanda limanda* 15057 *Pleuronectes platessa* 8634 *Callionymus lyra* 5088 *Syngnathus rostellatus* 3747 *Buglossidium luteum* 2737 *Merlangius merlangus* 2699 *Solea solea* 2623 *Agonus cataphractus* 1831 *Clupea harengus* 1376
Number of epifauna species recorded:	48 epifauna (attached and free-living) species were observed during the 2013 survey.
Index revisions:	No

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
IVc: Dutch coast	area and depth class	6m beam trawl	113	0	0	1	112	

Number of biological samples (maturity and age material):			
Species	Number	Species	Number
Limanda limanda	470	*Platichthys flesus*	118
Pleuronectes platessa	349	*Scophthalmus rhombus*	32
Solea solea	243	*Scophthalmus maximus*	31

Positions DYFS Isis 2014: see map above

Survey summary Netherlands: Isis (SNS)

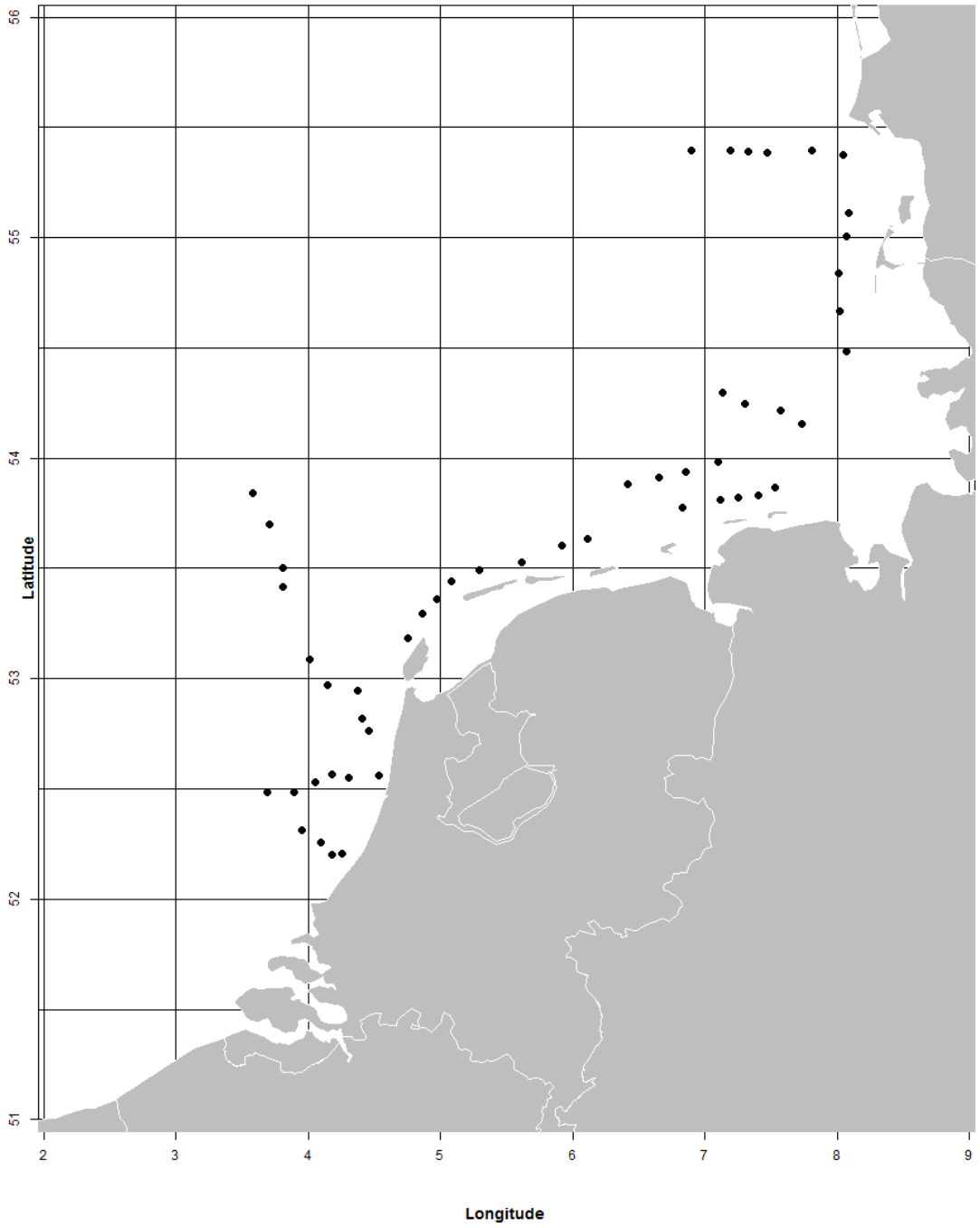
Nation:	**Netherlands**	Vessel:	RV "Isis"
Survey:	SNS (Sole Net Survey)	Dates:	9-19 Sep 2014

Survey description	The SNS aims to (i) monitor fish fauna by sampling length frequency distributions of all fish species and age compositions of flatfish species, (ii) monitor species composition of epibenthos species by counting, (iii) create a fishery-independent index of abundance by age group (1-, 2-, 3- and 4-group) for plaice and sole in the North Sea for stock assessment.
Gear details:	6 meter beam trawl with 4 tickler chains, mesh size 40 mm in the codend. A Valeport CTD is attached to the gear
Notes from survey (e.g. problems, additional work etc.):	51 hauls were carried out (approx. 13 hours fishing time). A CTD was mounted to the net, collecting a profile throughout the haul. All transects were covered.
Target species catch rates:	Time-series mean no/100 hr / 2014 mean no/100 hr Sole 6237 / 3562 Plaice 65754 / 32339
Number of fish species recorded and notes on any rare species or unusual catches:	34 separate species of finfish+elasmobranchs were caught. The top 10 by number are: *Limanda limanda* 20074 *Pleuronectes platessa* 3723 *Pomatoschistus sp.* 4275 *Callionymus lyra* 3207 *Buglossidium luteum* 2623 *Mullus surmuletus* 2069 *Arnoglossus laterna* 1552 *Agonus cataphractus* 1309 *Trisopterus luscus* 1009 *Echiichthys vipera* 959
Number of epifauna species recorded:	44 epifauna (attached and free-living) species were observed during the 2013 survey.
Index revisions:	

Stations fished:

ICES Divisions	Strata	Gear	Indices stations	Priority stations	Additional	Invalid	Total Valid	Comments
IVc: North Sea	area and depth class	6m beam trawl	51	0	0	0	51	

Number of biological samples (maturity and age material):			
Species	Number	Species	Number
Pleuronectes platessa	742	*Scophthalmus maximus*	36
Limanda limanda	658	*Scophthalmus rhombus*	49
Solea solea	272	*Platichthys flesus*	30



Station positions for SNS 2014

Annex 10: Number of hauls by area and year for the Dutch DFS, German DYFS and Belgian DYFS

Annex 10.1. Dutch DFS

region	Belgian Coast	Dutch Coast				German Bight			Scheldt Est			Dutch Wadden Sea						
area code	400	401	402	403	404	405	406	407	631	634	638	610	612	616	617	618	619	620
1970		6	11	11	22				13	31	26	23		24	16	10	12	20
1971		9	9	13	19				4	29	30	25		28	14	8	12	22
1972		8	15	11	20				5	29	28	18		25	11	10	10	20
1973		8	9	8	19				5	30	31	18	2	24	11	9	9	22
1974		8	16	11	19				6	32	32	19	7	24	12	10	11	21
1975		8	11	10	19				4	31	26	21	7	25	14	9	10	21
1976									6	30	26	21	7	25	13	10	10	21
1977		10	16	9	23				8	28	27	21	7	26	13	10	11	21
1978		1	15	10	23	8	16	18	5	30	28	21	7	26	13	10	10	21
1979			15	8	13	7	18	19	6	28	28	21		26	13	10	10	21
1980		9	7	10	26	7	16	23	6	27	29	21	7	26	13	10	10	21
1981		10	9	9	25	10	10		6	28	27	19	6	28	13	10	10	21
1982	3	18	8	9	28	14	21	6	6	28	27	21	7	26	13	10	10	21
1983		18	13	6	15	8	21	6	7	27	27	21	7	26	13	10	9	21
1984		23	13	8	31	15	22	4	6	27	27	22	7	25	12	10	10	21
1985		17	12	9	28	15	20	7	6	26	27	21	7	26	12	10	8	20
1986		17	13	9	28	15	21	5	6	26	27	21	7	26	13	10	9	21
1987		18	13	9	28	15	21	6		30	28	17	7	30	13	10	8	23
1988		18	14	8	28	15	22	5		24	27	21		26	13	9	8	22
1989		26	13	9	28	10	23	6		40	30	21		26	13	10	8	23
1990		25	13	9	28	15	21	6		39	29	21		25	13	11	8	23
1991		16	13	9	28	15	21	6		31	31	23	5	25	13	10	10	24
1992		26	16	13	28	15	21	6		36	28	23	6	26	12	6		28
1993		22	20	9	28	15	21	5		31	27	23		27	14	11	8	29
1994		21	16	13	28	15	19	6		35	33	24		26	12	10	7	25
1995		17	13	9	25	14	22	6		41	33	31		23	15	10	9	26
1996		17	12	10	29	14	21	6		43	33	28	6	28	15	10	9	27
1997		17	13	9	28	13				43	34	27		28	15	11	9	27
1998		9	10	8						43	34	27	6	29	15	10	10	27
1999		17	14	8	14	1				43	35	28		31	14	13	10	22
2000		15	7	2	17	10	19	6		45	43	42		26	15	11	10	26
2001			13	5	28	15	19	3		45	49	28		27	14	11	10	26
2002		21	13	8	26	14				44	41	27		26	13	11	9	26
2003		16	14	9	28	15	18	6		42	36	29		27	13	9	9	26
2004		17	13	4	19	15	17	6		41	31	28	6	27	14	10	8	27
2005		17	16	12	30	15	15	8		43	36	29	6	25	13	11	9	34
2006		15	14	10	28	15	17	6		41	36	28	7	28	16	8	9	29
2007		17	16	13	30	15	17	6		41	36	30	9	25	13	11	8	25
2008		16	11	8	19	11	4	6		41	37	30	7	24	12	9	9	30
2009		16	13	16	28	15	16	6		44	37	32	6	26	12	10	8	28
2010		17	13	15	26	15	16	6		41	36	31	6	24	13	10	6	28
2011		15	12	19	28	15	14	6		49	25	32	6	22	14	9	7	28
2012		17	28	18	28	14	16	3		43	37	26	7	27	15	8	22	28
2013		16	12	16	21	15	16	6		42	37	31	6	26	15	9	10	28
2014		17	14	17	28	15	16	6		42	39	28	6	29	15	9	11	27

Annex 10.2. German DYFS

region	German Bight				German/DK Wadden Sea						
area code	405	406N	406S	Outside	408	409	410	411	412	413	414
1978		3	3		4	10	7	22	18		
1979	4	3	3		4	10	7	23	15		30
1980	4	1	3		4	9	7	23	17		21
1981	1	3	6		4	10	7	20	25	2	29
1982	13	3	3		4	10	7	23	29		25
1983	12		1					9	23		34
1984	6		7		4	8	6	16	24		35
1985	7	7	2				37		23	1	39
1986	11	10	9			8	7	23	25		34
1987	11	9	2				31	15	23		38
1988	2	4	10			5	23	16	23		42
1989	10		3				24	21	23		42
1990	19	6	8			6	29	21	27	1	36
1991	12		5			12	27	14	24		34
1992	1	3	7		3	13	12	22	24		45
1993	13	11	6			12	14	17	23		21
1994	23	5	7			8	23	20	22		10
1995	17	9	9		7	18	14	20	21		27
1996	12		9	1		25	8	25	21	1	21
1997	8	9	14			16	14	39	23		26
1998	1	29	2			19	11	33	21		29
1999	1	16	7			13	13	36	23		35
2000	11	11	5			16	14	29	21		29
2001	14	14	2			12	11	30	19		21
2002	8	11	4			15	10	29	23		19
2003		10	1			10	18	35	18		25
2004			7			11	14	24	24		19
2005	17	13	8		6	19	12	22	21	23	25
2006	12	11	5		5	14	11	23	28	21	23
2007	4	10	1	1		13	14	34	40	29	24
2008	12	17	6	7		15	14	21	19	25	22
2009	13	6	13	6		22	9	18	20	29	16
2010	8	10	8			23	9	30	16	21	21
2011	13	1	1	2		15	17	32	15	28	17
2012	32	18	14	16		20	12	29	17	38	17
2013	57	48	23	13		14	13	26	15	33	21
2014	61	43	28	10		19	16	32	21	34	21

Annex 10.3. Belgian DYFS

region	Belgian Coast
area code	400
1973	35
1974	35
1975	35
1976	35
1977	29
1978	27
1979	29
1980	31
1981	33
1982	33
1983	33
1984	32
1985	33
1986	33
1987	33
1988	29
1989	33
1990	33
1991	33
1992	24
1993	33
1994	33
1995	33
1996	33
1997	33
1998	33
1999	31
2000	27
2001	33
2002	33
2003	33
2004	33
2005	33
2006	33
2007	32
2008	31
2009	23
2010	28
2011	31
2012	32
2013	33
2014	33

Annex 11: Data quality in DATRAS

Haul information

Distance towed was plotted against speed over ground (Figure 5.6.1.1). The lower black line represents the distance when fishing for 30 minutes with 4 knots ground speed, the upper black line fishing for 60 minutes with 4 knots ground speed.

Figure 5.6.1.1 shows that still corrections have to be made for ground speed, and that data for distance towed should be checked if the values were calculated or not.

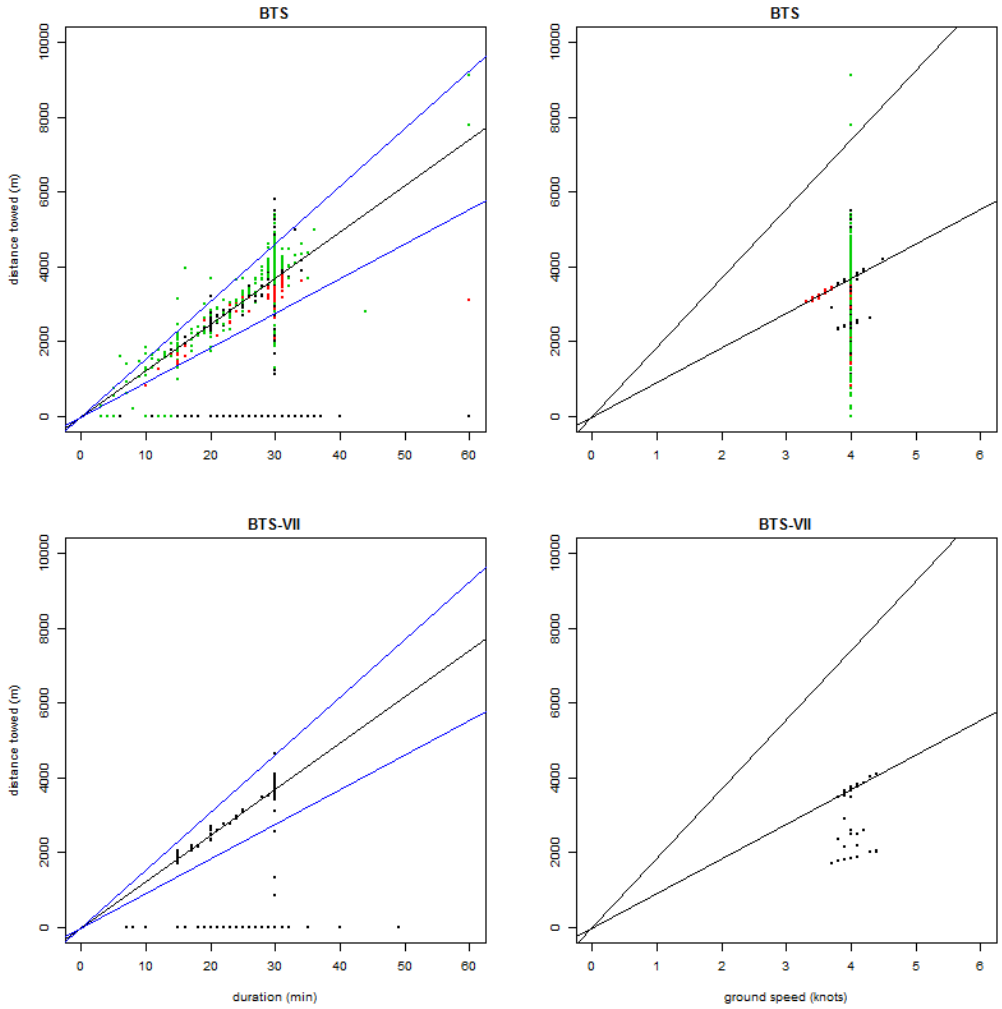


Figure 5.6.1.1 Plots of distance against duration (left) and ground speed (right) for BTS (upper) and BTS-VII (lower)

Table 5.6.1.1 Groundspeed values for BTS by country

	ENG			**GFR**		**NED**	
Ground speed	CAR	COR	END	SOL	SOL2	ISI	TRI2
-9	114	1831	530				
3.3					1		
3.4					4		
3.5					7		
3.6	1				12		
3.7	1		2		6		
3.8			6				
3.9	10		30				
4	776		35	51	470	2467	1295
4.1	9		11				
4.2	5		1				
4.3			1				
4.5	1						

Most countries probably submit a standard speed over ground, as the actual speed over ground is not recorded on board. WGBEAM 2013 (ICES 2013) decided that -9 should not be allowed for speed and so, if speed is not observed, the default for the survey should be entered. England does not report speed over ground at all. This should be changed by resubmitting the English data where ground speed=-9 (BTS and BTS-VII). Table 5.6.1.2 shows the years which this applies to.

Table 5.6.1.2 BTS data for which ground speed=-9.

		ENG		
Year	**GroundSpeed**	**CAR**	**COR**	**END**
1990	-9		89	
1991	-9		103	
1992	-9		102	
1993	-9		94	
1994	-9		82	
1995	-9		108	
1996	-9		113	
1997	-9		92	
1998	-9		99	
1999	-9		90	
2000	-9		105	
2001	-9		108	
2002	-9		101	
2003	-9		106	
2004	-9		121	
2005	-9		104	
2006	-9		108	
2007	-9		106	
2008	-9			91
2009	-9			100
2010	-9			93
2011	-9	114		80
2012	-9			82
2013	-9			84

Data type vs. subsampling factor

As in 2013 (ICES 2013) the information in data type was compared with subsampling factor. Table 5.6.1.3 shows all combinations, where subfact_cat=1 means that subsampling factor is 1, and subfact_cat > 1 contains all subsampling factors > 1. In the table, the combinations that should be checked, are highlighted.

The combinations that are not allowed, are:

1) If **DataType=S and SubFactor=1** and species information is available, then DataType should be changed into DataType=R. However, the DataType of the other hauls within that survey-year-country combination should also be checked if the DataType is correct as there is a possibility that the wrong DataType is reported for the complete time-series.

2) If **DataType=S or DataType=R and SubFactor=-9** and no species information is available, then DataType should be changed in -9.

3) If **DataType=S or DataType=R and SubFactor=-9** and species information is available, then SubFactor should be checked. If there is no information on

SubFactor available, then either DataType should be changed to C (numbers per hour) or to -9 (invalid)

Actions:

- DataType=S in combination with SubFact=1 occurs for ENG data 2003–2010 in both BTS and BTS-VII. Those data should be resubmitted.
- Data type=C should not be used for BTS surveys. GFR is asked to check the data type C for 2014. TI decided to change to Data Type C, but WGBEAM advises to resubmit the 2014 data using data type R as agreed by WGBEAM, and also use this for future submissions.

Table 5.6.1.3 Current data type-subfactor combinations in BTS data in DATRAS

		ENG		GFR		NED
YEAR	SUBFACT_CAT	R	S	C	R	R
1987	1					4044
1988	1					3997
1989	1					5202
1990	1	4451				6932
1991	1	4707				6708
1992	1	4080				7290
1993	1	15800				7417
1994	1	14310				7579
1995	1	14563				6588
1996	1	14790				8182
1997	1	14405				8631
1998	1	12924				9316
	>1					4
1999	1	14385				12153
	>1					17
2000	1	13193				12921
	>1					32
2001	1	14986				11116
	>1					18
2002	1	17031				8537
	>1					3751
2003	1	18236	57		3819	8623
	>1		9			3864
2004	1	12472	7363		2767	9935
	>1		1146			2971
2005	1	9214	3045		3461	9947
	>1		419			3302
2006	1	13931	2937			9676
	>1	193	352			2259
2007	1	13249	4183		4301	10173
	>1	10	813			3129

		ENG		GFR		NED
YEAR	SUBFACT_CAT	R	S	C	R	R
2008	1	12742	4237		3900	8314
	>1	92	481			3029
2009	1	16999	889		4606	8164
	>1	360	146			3475
2010	1	17961	669		4292	7195
	>1	367	102			2928
2011	1	18261			4730	8118
	>1	510				3739
2012	1	15620			5320	9629
	>1	806				4093
2013	1	17797			6173	8132
	>1	874				4467
2014	1	14324		3155		8288
	>1	780				3588

Species information

From Table 5.6.1.4 can be concluded that none of the countries uploads all species to DATRAS. WGBEAM 2013 (ICES 2013) decided that as on board all countries fully sort the catch, including all benthic species, all benthos species should be uploaded by all countries.

Actions:

- all countries to upload all species caught during the beam trawl surveys, if necessary by resubmitting files from earlier years.
- ENG, GFR and NED to check the highlighted species in the table below, and to record to the species if possible, or check if the species is correct, and resubmit the file.

Table 5.6.1.4 Species submitted to DATRAS for BTS (all years)

Species	ENG	GFR	NED
Aequipecten opercularis	3776		
Agonus cataphractus	20471	3841	87188
Alloteuthis		11	
Alloteuthis subulata	388	52	482
Alosa fallax		5	14
Amblyraja radiata		2196	11719
Ammodytes marinus	13	368	318
Ammodytes tobianus	81	1	28
Ammodytidae	284		2775
Anarhichas lupus		3	62
Anguilla anguilla	38		62
Anguillidae	4		
Aphia minuta	2		2

Species	ENG	GFR	NED
Apletodon dentatus	12		
Apletodon microcephalus	148		
Argentina sphyraena			742
Arnoglossus imperialis	160		
Arnoglossus laterna	8867	6921	189664
Aspitrigla obscura	53		
Atherina presbyter	1		
Belone belone	20	1	291
Blennius ocellaris	463		
Brosme brosme			9
Buenia jeffreysii	7		
Buglossidium luteum	66825	18905	214750
Callionymidae			48920
Callionymus lyra	97343	6235	92935
Callionymus maculatus	39	74	1554
Callionymus reticulatus	188	28	1251
Cancer pagurus	4715	574	7468
Capros aper	2		
Centrolabrus exoletus	1		
Chelidonichthys cuculus	4239		122
Chelidonichthys lucerna	1914	200	8888
Chelon labrosus			4
Chirolophis ascanii	6		1
Ciliata mustela	92		44
Ciliata septentrionalis	36		17
Clupea harengus	30	7	1615
Conger conger	8		1
Crystallogobius linearis	9		
Ctenolabrus rupestris	190		1
Cyclopterus lumpus	5	1	93
Dicentrarchus	6		
Dicentrarchus labrax	125		27
Diplecogaster bimaculata	295	1	5
Dipturus batis			4
Echiichthys vipera	9095	127	70058
Echinocardium cordatum			4
Eledone cirrhosa		3	7
Enchelyopus cimbrius	16	90	6990
Engraulis encrasicolus	2		13
Entelurus aequoraeus		5	240
Eutrigla	2015		
Eutrigla gurnardus	349	9408	82764
Gadiculus argenteus			123

Species	ENG	GFR	NED
Gadus morhua	643	624	9920
Gaidropsarus mediterraneus	5		
Gaidropsarus sp.	2		
Gaidropsarus vulgaris	23		24
Galeorhinus galeus	6		25
Gasterosteus aculeatus	9		349
Gasterosteus aculeatus gymnurus			1
Gasterosteus aculeatus trachurus			1
Glyptocephalus cynoglossus	2	140	3458
Gobiidae	650	1059	35316
Gobius gasteveni	52		
Gobius niger	1026		13
Gobius paganellus	500		
Gobiusculus flavescens	2		
Gymnammodytes semisquamatus	1		
Helicolenus dactylopterus			5
Hippoglossoides platessoides		10563	86213
Hippoglossus hippoglossus			5
Homarus gammarus	202		50
Hyas coarctatus			8
Hyperoplus immaculatus	6		
Hyperoplus lanceolatus	82	81	4626
Hyporthodus acanthistius	79		
Icelus bicornis			1
Labridae	20		
Labrus bergylta	188		
Labrus mixtus	57		
Lampetra fluviatilis			5
Lepidorhombus whiffiagonis	16		38
Lesueurigobius friesii	14		8
Leucoraja fullonica	1		
Leucoraja naevus	11		1132
Limanda limanda	43763	211983	1940536
Liparis liparis liparis	14		301
Liparis montagui	27	2	4
Lithodes maja		15	419
Liza aurata	3		
Loliginidae	5	1	
Loligo forbesi	79	35	174
Loligo sp.	226		2
Loligo vulgaris	1	4	14
Lophius budegassa	3		
Lophius piscatorius	911	48	1420

Species	ENG	GFR	NED
Lumpenus lampretaeformis		11	65
Lycodes vahli			11
Maja	669		
Maja brachydactyla	641		
Maja squinado	1000		
Melanogrammus aeglefinus	81	509	18596
Merlangius merlangus	12026	1766	160076
Merluccius merluccius	16	75	464
Microchirus variegatus	5313		787
Micromesistius poutassou	52		11
Microstomus kitt	6400	3709	32290
Mola mola			1
Molva molva	8		93
Mugilidae			4
Mullus surmuletus	650	24	3262
Mustelus asterias	644		40
Mustelus mustelus	24		14
Mustelus sp.			20
Myoxocephalus scorpioides	88		
Myoxocephalus scorpius	749	295	9213
Myxine glutinosa			344
Necora puber	4683		
Nephrops norvegicus		785	17923
Osmerus eperlanus	4		3
Pagellus bogaraveo	1		
Pagrus pagrus			8
Parablennius gattorugine	18		
Pecten maximus	1059		
Pegusa lascaris	799		53
Pholis gunnellus	314		240
Phycis blennoides			2
Platichthys flesus	4366	119	7508
Pleuronectes platessa	62979	77378	1014737
Pollachius pollachius	8		
Pollachius virens		2	79
Pomatoschistus lozanoi			1
Pomatoschistus microps	6		
Pomatoschistus minutus	5726	2688	7861
Pomatoschistus pictus	62		327
Pomatoschistus sp.	2252		18656
Raja brachyura	156		12
Raja clavata	5121		329
Raja microocellata	71		

Species	ENG	GFR	NED
Raja montagui	659		417
Raja undulata	169		
Rajidae			1
Raniceps raninus	1		4
Rossia macrosoma			10
Salmo trutta			3
Sander lucioperca			1
Sardina pilchardus	10		8
Scomber scombrus	27	1	154
Scophthalmus maximus	403	110	4488
Scophthalmus rhombus	810	63	1991
Scyliorhinus canicula	11405	1	2525
Scyliorhinus stellaris	31		
Sebastes viviparus			13
Sepia officinalis	4353		14
Sepia sp.			2
Sepietta oweniana		4	
Sepiola atlantica		10	27
Sepiola sp.			188
Solea solea	48171.96	530	69262
Spondyliosoma cantharus	613.66		2
Sprattus sprattus	107	2	2898
Squalus acanthias	10		25
Symphodus	26		
Symphodus bailloni	43		
Symphodus melops	85		
Syngnathidae			373
Syngnathus acus	315		172
Syngnathus rostellatus	14	5	674
Taurulus bubalis	472	1	150
Thorogobius ephippiatus	4		
Thyonidium sp.			1
Todaropsis eblanae		1	21
Torpedo marmorata	7		
Torpedo nobiliana	1		
Trachinus draco	551	11	9
Trachurus trachurus	211	8	7488
Trigla	639		
Trigloporus	94		
Trigloporus lastoviza	1478		2
Triglops murrayi			67
Trisopterus esmarkii	2	26	10184
Trisopterus luscus	43976		16823

Species	ENG	GFR	NED
Trisopterus minutus	35072	1	7559
Zeugopterus	23		
Zeugopterus norvegicus	81	68	327
Zeugopterus punctatus	183		1
Zeugopterus regius	285		
Zeus faber	480	1	21
Zoarces viviparus	5	3	872