Report of the Coastal States Working Group on the distribution of Norwegian spring spawning herring in the North-East Atlantic and the Barents Sea

Copenhagen, 4 – 7 March 2014

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1. Introduction

At the Coastal States meeting in October 2013 between the European Union, the Faroe Islands, Iceland, Norway and the Russian Federation no agreement was reached on the allocation of the shares to the Coastal States. During the Coastal State meeting it was agreed to establish a scientific working group to collect and collate information on the spatial distribution of all life stages of Norwegian spring spawning (Atlanto-Scandian) herring (NSSH).

A first meeting of the scientific working group was held in November 2013. During that meeting an approach to deal with the terms of reference was agreed. It was also agreed to send out a request to the countries involved in the fisheries for Norwegian spring spawning herring to submit catch and survey data needed for the report.

A second and last meeting was held 4-7 March 2014. This report contains the results of that meeting.

1.1. Terms of Reference

The European Union, the Faroe Islands, Iceland, Norway and the Russian Federation agree to establish a Working Group to collect and collate information on the distribution of all life stages (egg, larvae, immature and adult) of Norwegian spring-spawning (Atlanto-Scandian) herring in the North-East Atlantic and Barents Sea, and on the distribution of catches from this stock.

The Working Group shall:

1. Present data on the geographical distribution on an annual and quarterly/survey basis of all life stages of Norwegian spring-spawning (Atlanto-Scandian) herring (biomass and abundance or their appropriate proxies) by age and by relevant areas under national fisheries jurisdiction and in international waters.
2. Tabulate catch data on a monthly basis, both total and divided by country, distributed by areas under national fisheries jurisdiction and beyond as precise as the data allow.

Distributions shall be calculated for each of the years 1995-2013.

The Working Group should compare the information collected and collated with the results of the scientific working report on zonal attachment of Norwegian spring-spawning (Atlanto-Scandian) herring delivered in 1995.

1.2. Review of the zonal attachment report (1995) using the Hamre model

The Working Group reviewed the results of the scientific working report (Anon 1995a) on zonal attachment of Norwegian spring-spawning (Atlanto-Scandian) herring.

In 1995 a working group was established by the governments of Faroes Islands, Iceland, Norway and Russia with the objective of evaluating the zonal attachment of the Norwegian spring spawning herring stock, it got the task to assess the “present” and historical zonal attachment after Second World War (SWW). The present WG reviewed the basic methods of the zonal attachment work from 1995.

The 1995 work was based on the Hamre-model (Hamre 1993), which included specific life-stages of a fish-stock. By using the “representative year classes” in the model and by using a quarter of a year as the time unit, the estimated zonal attachment in percent of “biomass * time” was estimated in a model with parameters, weight by age, mortality rates, and percentage distribution per zone. However, mortality and weight at age of the younger life stages, especially the larvae stage were not known in detail and it was decided to not include the larvae stage in the Hamre model.

Data used were taken from ICES working group reports, cruise reports, publications and unpublished material from the marine research institutes.

Norwegian spring spawning herring was found to have had different migration patterns in the periods 1950 - 1962, 1963 -1971, 1972 - 1985 and 1986 - 1995. Due to this dynamic state it was not possible to find one single year class which was representative of the entire period since the SWW. Based on these

data the period from SWW was split into 4 periods, a representative year class for each period was chosen and the migration pattern mapped.

Historical data on herring distribution and biological samples did not allow a monthly time scaling and therefore it was decided to analyse data by quarter. Biomass and percentage distribution for each of four indicative year-classes of Norwegian spring spawning herring were reported on a quarterly basis by zones with the following additional parameters: Age (0-13+), M, F, Z/4, -dN, N, W, and Growth.

Total catches (kt) of Norwegian spring spawning herring in the four periods 1950-1962, 1963-1971, 1972-1985 and 1986-1995 were given by zones for the different countries with quotas (Faroe Isl., Iceland, Norway, USSR/Russia, Germany, /Poland, /Total-EU). The WG also provided tables of total annual catches 1903-1949 by fishing country and tables of different herring fisheries (summer and autumn, winter, small and fat, total adult and total) 1950-1995 by fishing country.

The 1995 working group also considered the model for biomass production described by Hamre (1993), but noted that this model had several assumptions with considerable effect on model results and concluded that the model needed further development and investigation before it could be used.

Further the 1995 WG was asked to provide information on scientific contributions. The most fundamental source for the knowledge of Norwegian spring spawning herring is the long-time investigation series. The main long-time series since 1950 are the following: Spawning, 0-group and juveniles, Feeding area, Wintering area and Tagging. In addition all the coastal states ran extensive study programs of the biological variables of the stock (e.g. age and size composition, growth, maturity) as well as of stock migrations in relation to environmental variables. The data collected by the coastal states on the Norwegian spring spawning herring have been channelled and made available through ICES since the early 1960s.

1.3. Approach of the present Coastal States working group

The present WG relies on more standardised information in the form of output from nationally and internationally coordinated surveys with common databases, most of them annually reported to ICES, whereas the working group report (1995) was based on a wide variety of data sources, ICES working group reports, cruise reports, publications and unpublished material from the marine research institutes.

For temporal distribution among zones the present Working Group followed a direct observation approach.

The approach of the 1995-WG was that of an expert judgement of life stage seasonal distribution of four representative year-classes, and as such not reproducible. Further the model assumed each chosen year-class as representative for the life stage distributions during each period, with model output at a quarterly time scale excluding the larval stage due to uncertain parameterisation. The approach in the 1995 report was not considered appropriate for the aims of the present WG as all life stages should be considered, which was not possible in Hamres model (1993). The WG accepted the 1995 report as it is, and worked with data from 1995 onwards.

Surveys provide snapshots of distribution of biomass/abundance of the different life stages. The WG chose to report on the following stages, early larvae, 0-group and juveniles ages 0-3 as well as adults age 4+, by producing maps and, when the data allowed, tables showing proportions by zones. The surveys will in principle only provide information about biomass or abundance at specific points in time and space, but the integrated nature of their analysis will give distribution maps within the survey period. Due to the lack of systematic information the WG chose to avoid interpolation between survey periods. Notwithstanding regulation effects, national agreements on zonal access, misreporting etc. the distribution of the herring fishery by month may provide some guidance as to the within year rate of change in distribution among zones.

Catch distributions are based on a data call addressing each country with official recorded catches from the stock from logbooks and sales slips. In the terms of reference the working group was asked to collate catch data from 1995 to 2013, but the group did the main part of the work early in 2014 and at this time catch data from 2013 were not available. The information from these landings statistics were compared to catches provided for ICES WGWIDE. Total catches were not split into fisheries in the present working group but were reported by year, month, country and zone as tonnes and proportions.

2. Background

2.1. Main characteristics of the migration patterns of the stock

The Norwegian spring spawning herring (*Clupea harengus*) is the largest herring stock in the world. It is widely distributed and highly migratory throughout large parts of the NE Atlantic during its lifespan. By far the majority of the stock occurs in Divisions IIa,b Va,b and XIVa (Figure 2.1.1). Juveniles of the stock have their nurseries in Division I. In some years, small amounts of Norwegian spring spawning herring can be found in adjacent areas mixing with other herring stocks.

The herring spawns along the Norwegian west coast in February-April. Large variations in the north-south distribution of the spawning areas have been observed through the centuries. The larvae drift north and northeast and distribute as 0–group in fjords along the Norwegian coast and in the Barents Sea. The Barents Sea is by far the most important juvenile area for the large year classes, which form the basis for the large production-potential of the stock. Some year classes are in addition distributed into the Norwegian Sea basin as 0–group. Most of the young herring leave the Barents Sea as 3 years old and feed in the north-eastern Norwegian Sea for 1–2 years before recruiting to the spawning stock. With maturation the young herring start joining the adult feeding migration in the Norwegian Sea. The feeding migration starts just after spawning with the maximum feeding intensity and condition increase occurring from late May. The feeding migration is in general length dependent, meaning that the largest and oldest fish perform longer and typically more western migrations than the younger ones. After the dispersed feeding migration the herring assembles through September-October in one or more wintering areas. These areas are unstable and since 1950 the stock has used at least 6 different wintering areas in different periods. During the 1950s and 1960s they were situated east of Iceland and after around 1970 in Norwegian fjords. In 2001–2002 a new wintering area was established off the Norwegian coast between 69º30'N and 72ºN in addition to the fjords. In 2007-2009, however, no herring was observed in the fjords in winter and a new wintering area was found to be located in the ocean off northern Norway. After wintering, the spawning migration starts around mid January.

2.1.1. Early lifestages

The Norwegian spring spawning herring spawns on the Norwegian coastal banks during February-April (peak spawning in March). The eggs are deposited on the bottom. After hatching, larvae appear in the upper layers of the sea and drift with the current along the slope of the continental shelf (Figure 2.1.1.1). Larvae are gradually spread along the Norwegian coast and later appear in the Barents Sea and the Bear Island-Spitsbergen area. While poor year classes are mainly restricted to fjords in Norway, abundant ones are predominantly found in the Barents Sea. For instance, the portion brought to the Barents Sea of the abundant herring year classes 1991, 1992 and 1998, comprised 84, 96 and 98 %, respectively, of the total number of these year classes at the age of 1 year. Corresponding figures for the medium year classes of 1990, 1993 and 1996 were 29-48 %, and of the poor year classes 1995-1997 only 4-9 % (Krysov and Røttingen 2011).

Migration of the young herring in the Barents Sea varies seasonally. This has been described for the 1983 year class (Røttingen 1990) (Figure 2.1.1.2).

2.1.2. Adults

A characteristic feature of this herring stock is an extensive, flexible and varying migration pattern. The migration may be relatively stable for periods while periods of large changes occur occasionally at varying time intervals. The changes may be observed on the spawning-, feeding- and/or overwintering grounds both in a single or an interrelated manner. Figure 2.1.2.1. shows how migration was mapped in 1995, but at present we see a period of large changes in feeding area and a delayed migration to the wintering areas.

The usual annual clockwise migration route of adult herring feeding in the Norwegian Sea starting in the south after spawning and ending in the northeast at the wintering areas has remained through the whole period. However some changes in the distribution and recently the timing of the migration have been observed through this period.

After the recovery of the NSS herring stock, and until about 2002 the bulk of the adult herring wintered in fjords in northern Norway. The 1998 and 1999 year classes were expected to enter the fjords around 2002, but were instead observed wintering off the coast in the ocean off Vesterålen/Troms, between 69º30'N–72ºN. This continued in the years to come and in 2005 also the 2002 year class was observed wintering in the same area. During these years, the amount of older herring wintering in the fjords decreased rapidly and following the winter of 2007 no herring was observed in the fjords.

After spawning, in March/April the herring migrate westwards into the Norwegian Sea to start feeding and main concentrations are found in the central part of this area. In July the herring are spread out over a wide area feeding around the fringes of the Norwegian Sea. In the early period from 1995-1999 the main concentrations of feeding herring utilised the central and southern Norwegian Sea, mainly the southern part of the International and the Norwegian zone. From 1999 a north-eastward displacement of the adult stock took place, which lasted until 2005, with almost no herring observed in the central region. After 2005 they were more pronounced in the southern and south-western area, especially in the most recent years.

It is not clear what drives the changes in the migration, but the biomass and production of zooplankton are likely factors, as well as oceanographic features such as sea temperature. A further factor might be the large pelagic stocks of mackerel and blue whiting occupying the same feeding area. However, it should be noted that beside the environmental forces the age distribution in the stock will also influence the overall distribution of the stock during summer. Young herring leaving the nursery areas in Barents Sea or coastal waters in Norway and joining the adult stock for feeding is not as capable of extensive feeding migration as older herring. So when rich year classes have joined the adult stock from the nursery areas in the Barents Sea a more north–easterly distribution has been observed. At present the stock consists mainly of old individuals due to poor recruitment in a number of years, and as the largest fish move farthest west then consequently the main bulk of the spawning stock is distributed more south-westerly.

2.2. Mixing with other herring stocks in the Northeast Atlantic

Norwegian spring spawning herring can be found mixed with various herring stocks to varying degree during its lifespan. Some of these stocks are assessed and managed as separated units while others are included in the assessment of NSSH. The latter group includes autumn spawning herring along the coast in northern Norway around Lofoten and small local stocks in the fjords further south. After the spawning, NSSH can be mixed with North Sea herring in the south. On the summer feeding grounds it can be mixed with smaller local stocks, such as the Norwegian autumn spawners in the eastern part of the Norwegian Sea, Icelandic summer spawning herring off the east coast of Iceland, and autumn spawners in Faroese waters. Also the North Sea autumn-spawning herring can be found in the northern region of the North Sea mixing with NSSH in early summer.

There are several herring stocks in the Barents Sea and NSS herring juveniles can be mixed with them to varying degree. There are stocks that spend their entire life span in the Barents Sea/ White Sea area (Zakharov 1977). Most abundant of them is Cheshsko–pecherskaja herring (*Clupea harengus pallasi n. suworowi* Robinerson). NSS herring can be mixed with Cheshsko–pecherskaja herring in the South–Eastern part of the Barents Sea. Fishery of the Cheshsko–pecherskaja herring was stopped in 1996 due to mixing with different stocks.

3. Methods

3.1. Zonal database

For the purpose of the present workshop, a set of official national EEZs were required, as some changes in the EEZs have been made since 1999. In the analyses presented in this report, the same database with EEZ coordinates has been used as used by the "NEAFC Working Group on Collating Information on the Distribution of All Life Stages of Blue Whiting in the North-East Atlantic and the Distribution of Catches from the Stock", which met in November 2013. Most countries have provided their information on catches on NSS herring by EEZ. For those countries that did not, the information available by rectangle from the catches were used together with the zonal database to allocate those catches to EEZs (see sec. 5.2 for more details).

Zonal information has also been applied to survey data, based on the zonal database.

3.2. Surveys

3.2.1. Methods used when calculating abundance/biomass

Larval index

The herring larval abundance index is based on the number of caught larvae per square meter of surface at each station and is calculated with consideration to measured water volume, depth layers and total number of caught larvae. All larvae are included in the index and herring larvae abundance indices are produced. The surveyed area is delimited by a polygon, which is divided into a grid with cell sizes of 14.5 * 8 km. The herring larval density per grid is estimated and summed over the covered area (Stenevik *et al*. 2012).

0-group index

The geographical distribution of 0-group fishes is estimated by the standard procedure which was first recommended in 1980 (Anon. 1980). All vessels use a small mesh mid-water trawl ("Harstadtrål"). The standard procedure consisted of tows at 3 depths, each of 0.5 nautical miles, with the headline of the trawl located at 0, 20 and 40 m. When the 0-group fish layer was recorded on the echo-sounder deeper than 60m or 80m additional tows at 60 and 80m, of 0.5 nm distance also, carried out. The history of development of 0-group investigation and assessment method is described in details for example in the survey report from 2007 (e.g. Anon. 2007). The abundance of 0-group herring is measured in numbers.

Juveniles

Juveniles are defined as immature herring age 1-3. All regions of the Barents Sea and adjacent areas of the Norwegian Sea are covered, with course lines 35 nautical miles apart. Data from pelagic trawl hauls and bottom trawl hauls considered representative for the pelagic component of the stocks, which is measured acoustically, are included in the stock abundance calculations. The Norwegian BEAM software (Totland and Godø 2001) is used to make estimates of total biomass and numbers of individuals by age and length in the whole survey area and within different subareas.

Adults

The survey estimates of the adult part (mainly ages 4+) of the stock are based on scientific echosounders combined with trawl catches to identify species and size distribution. To estimate the total abundance of fish, the unit area abundance for each statistical square is multiplied by the number of square nautical miles in each statistical square then summed for all the statistical squares within defined subareas and over the total area. Biomass estimation was calculated by multiplying abundance in numbers by the average weight of the fish in each statistical square then summing all squares within defined subareas and over the total area. The Norwegian BEAM software (Totland and Godø 2001) is used to make estimates of total biomass and numbers of individuals by age and length in the whole survey area and within different subareas.

4. Surveys

Number of national and international research surveys have been conducted over the period 1995-2013 that can provide information about spatial and temporal variation in distribution and quantity of different life stages of Norwegian spring-spawning herring (Table 4.1, below). While some of the surveys are constrained to only part of the distribution area and only span a limited range of years, others provide information for the whole stock and/or the whole period from 1995 to 2013. All surveys are snap shots and representative for the distribution during the survey period. Eight of these surveys are considered to provide adequate quantitative information about the distribution of the stock, adult or juveniles, over different seasons of the year. Relative estimates on biomass or number of fish for different EEZs and adequate number of years were tabulated for those surveys only. Results of other surveys are considered to provide only qualitative information on e.g. presence and absence for different areas and are only shown graphically. Below is a short description of each of the surveys,

their main results with regards to inter-annual variation in the spatial distribution of the stock, and conclusions that can be derived from them as well as their limitations.

Table 4.1. List of surveys used. Indication is given of whether the measured abundance/biomass is representative for the distribution of the life-stage. Some surveys may have started earlier, but the first year under consideration is 1995.

Survey	Month	Lifestage	Complete spatial coverage of life-stage	Year range	Representative for distribution of life-stage
1st quarter					
Winter survey in Barents Sea (chapter 4.1)	Feb	Juveniles	No	1995-2013	Incomplete spatial coverage in some years
Acoustic survey on the spawning grounds (ch. 4.2)	Feb/ Mar	Adults	Yes	1995-2008, incomplete	Whole spawning stock covered
Wintering survey in Norwegian fjords (ch. 4.3)	Jan	Adults	Yes	1995-1999	Whole spawning stock covered
2nd quarter					
Larval survey in Norwegian coast (ch. 4.4)	Mar/ Apr	Larvae	Yes	1995-2013	Whole distribution area of newly hatched larvae covered
International ecosystem survey in the Nordic Seas (IESNS) – Barents Sea (ch. 4.5)	May	Juveniles ages 1-3	Yes	1995-2013, incomplete	Main distribution area of juveniles covered
International ecosystem survey in the Nordic Seas (IESNS) (ch. 4.6)	May	Adults	Yes	1996-2013	Adult part of stock spatially covered
Icelandic survey in the feeding season (ch. 4.7)	Jun	Adults	No	1996-1999	Only covers westernmost area of distribution
3rd quarter					
Ecosystem survey in Barents Sea (ch. 4.8)	Aug	0-group,	Yes	1995-2013	Main area of 0-group covered
	Aug	Juveniles age 1-3	Yes	1998-2013, incomplete	Main area of juveniles covered .
Norwegian acoustic survey (ch. 4.9)	July/ Aug	Adults	No	1995-2003	Incomplete coverage
International Ecosystem Summer Survey in the Nordic Seas (IESSNS) (ch. 4.10)	Jul/ Aug	Adults	Yes	2009-2013	Northern boundary of distribution area not fully reached in all years Main distribution area covered
4th quarter					
Winter bottom trawl survey in Barents Sea (ch. 4.11)	Nov/ Dec	Juveniles age 1-3	No	1998-2012, incomplete	Incomplete spatial coverage
Wintering survey in Norwegian fjords and adjacent waters (ch. 4.12)	Nov/ Dec	Adults	Yes	1995-2007	Whole spawning stock covered in most years

1st quarter

4.1. Juveniles from winter survey in Barents Sea

This is mainly a demersal survey to obtain abundance at age for northeast arctic cod and is conducted by Norway and Russia. The survey started in 1981 and covers the ice-free part of the Barents Sea in February. Both swept area estimates from bottom trawl and acoustic estimates are produced. The survey also collects acoustic data for pelagic fish including juvenile herring. The survey is described in Jakobsen *et al* (1997). This survey gives an indication of the distribution during a time when no dedicated herring surveys are conducted in the Barents Sea. Only Norwegian data are reported here. Norwegian vessels did not cover the Russian zone in all years and therefore the coverage is incomplete in some years. Therefore these data are not tabulated. Distribution maps are presented in Figure 4.1.1 for the years 1995-2013. When the year classes are small, little is seen in this survey.

4.2. Adults from acoustic survey on the spawning grounds

A Norwegian acoustic survey has been undertaken to estimate the abundance at age of herring in the spawning areas along the Norwegian coast in February and March. The survey has been carried out since 1988 but not in every year. After 2005 the survey was carried out earlier than in preceding years and before the herring had reached the spawning grounds, which means that there is a possibility of herring emerging at the spawning grounds also through other routes than those covered in the survey. This survey is conducted during a period when the entire spawning stock is distributed along the Norwegian coast to spawn (Figure 4.2.1) and the tabulation therefore shows 100% distribution in Norwegian EEZ (Table 4.2.1).

4.3. Adults from wintering survey

This survey was carried out by Norway in January in fjords in northern Norway in the period 1991–1999 and produced estimates of abundance at age based on acoustic and trawl catches. The survey was conducted during a period when the stock wintered in Norwegian fjords (Figure 4.3.1) and tabulation therefore shows 100% distribution in Norwegian EEZ (Table 4.3.1).

2nd quarter

4.4. Larvae from survey

A Norwegian herring larvae survey has been carried out on the Norwegian shelf since 1981 during March-April. The objectives of the survey are to map the distribution of herring larvae and other fish larvae on the Norwegian shelf and to collect data on hydrography, nutrients, chlorophyll and zooplankton. In the years 2003 and 2009 the survey missed the main hatching period and in 2007 the distribution area could not be fully covered due to bad weather conditions. The survey is considered to cover the entire distribution area of newly hatched larvae (Figure 4.4.1). The survey is tabulated and gives 100% distribution of newly hatched larvae in Norwegian EEZ (Table 4.4.1).

4.5. Juveniles in Barents Sea according to the International ecosystem survey in the Nordic Seas (IESNS)

A part of the international ecosystem survey in the Nordic Seas in May (section 4.6), is focusing on juvenile herring, zooplankton and hydrography in the Barents Sea. The survey is conducted by a Russian vessel and has been carried out in most years since 1995. In 2003 and 2004 the investigations were not carried out due to technical problems. Further, in 1996, 1997, and 1999 coverage and estimation of young herring in the Barents Sea have been done and included in the PGSPFN (Planning Group on Surveys on Pelagic Fish in the Norwegian Sea) reports but primary acoustics data are not available now. Therefore these years were not tabulated with respect to distribution between zones. The distribution maps are presented in Figure 4.5.1 and percentages by zone in Table 4.5.1. Prior to 2008, the cruise-tracks in the Barents Sea are incomplete. According to the surveys around 80% of the biomass was distributed within the EEZ of Norway, except in one year (1998) where the majority was in the Russian EEZ.

4.6. Adults from the International ecosystem survey in the Nordic Seas (IESNS)

The international ecosystem survey in the Nordic Seas is aimed at observing the pelagic ecosystem, focusing on herring, blue whiting, zooplankton and hydrography. The survey, carried out in late April and May since 1995, is coordinated by ICES survey planning groups (PGNAPES and currently WGIPS) and is a cooperative effort by Faroes, Iceland, Norway, Russia, and since 1998 the EU (Denmark, Germany, Ireland, The Netherlands, Sweden and UK). A good internal consistency among years for age groups 4+ and experts judgment on the whole time-series point out that the survey cover the adult part of the stock adequately each year. Biomass estimates based on the acoustic and catch samples per ICES rectangle for the years 1996-2013, shown in Figure 4.5.1 and Table 4.6.1, are therefore considered to be representative for the relative distribution of the adult part of the stock during that month of the year**.**

In 2003-2005 juveniles were observed in considerable amount too, but it is rather uncommon. A part of the 2002 year class was growing up in the Norwegian Sea, but the majority of it was growing in the Barents Sea.

From Figure 4.5.1 it can been seen how the distribution changes around 1999 to a more easterly and north-easterly distribution. Similarly the change around 2005 back to being more south- and south-westerly distributed. The average percentage distribution by zones for the whole period 1996-2013 give the following (Table 4.6.1): Norway 42.7%, International zone 32.4, Faroes 10.4%, Iceland 7.1%, Jan Mayen 4.8%, Svalbard 1.6% and EU 0.9%. According to table 4.6.1 most of the biomass in the years 1996-2005 was distributed in two zones. On average it was 53% within the EEZ of Norway and 33% inside the International waters in the Norwegian Sea. In the years 2006-2013 the biomass is distributed mostly to four zones in the following way: 29% within the EEZ of Norway, 14% inside the Icelandic EEZ, 19% inside the Faroes EEZ and 31% inside the International waters in the Norwegian Sea, which is close to what it was in International water during the years 1996-2005.

4.7. Adults from the Icelandic surveys in the feeding season

In 1996-1999, acoustic surveys were conducted in June to early July on a single vessel east and north off Iceland. The main objectives were to map the feeding distribution and abundance of the herring stock in the western part of the Norwegian Sea, in order to monitor the western boundary of the distribution. The results of the surveys were reported in the working group reports from the ICES survey group PSGPFN on NSSH each year. The survey was not coordinated with other vessels and covered only part of the stock each year in a restricted area. Thus, it represents only the relative distribution of herring in the survey area and the western boundary of the distribution during the survey period, and cannot be used for allocating the stock to national EEZs. Biomass estimates based on the acoustic and catch samples per ICES rectangle for the years 1996-1999 are shown Figure 4.7.1.

3rd quarter

4.8. 0-group and juveniles from ecosystem survey in Barents Sea

The survey consists of a trawl survey catching 0–group herring amongst other species and an acoustic survey estimating one and two year old herring. It is difficult to assess the abundance during autumn, due to various reasons. The age groups 1 to 3 are found mixed with 0–group herring and are difficult to catch in the sampling trawl used in this survey. The stock size estimates of herring are therefore considered less reliable than those for capelin and polar cod. The survey, however, is assumed to cover the main distribution area of 0-group herring even though it is known that they are found to a lesser extent in Norwegian fjords. Distribution maps of the 0-group are presented in Figure 4.8.1. The results from this survey are tabulated for the years 1995-2013 and for 0-group it shows an average distribution

of 78% in Norwegian EEZ and 11% in Russian EEZ, 8% in the Fishery protection zone around Svalbard, and 3% in international waters (Table 4.8.1).

For the juveniles, however, only data in the years 2004-2013 are presented since the survey became a joint effort between Norway and Russia in 2004 and the coverage became more extensive. The distribution of the juveniles are presented in Figure 4.8.2. According to Table 4.8.2 an average distribution of the juveniles is 46% in Norwegian EEZ, 39% in Russian EEZ and 13% in the Fishery protection zone around Svalbard.

4.9. Adults from the Norwegian acoustic survey

A Norwegian acoustic survey was conducted annually in July/August 1995-2003 to map the distribution of herring during the feeding period. The survey is not considered to have covered the whole stock in some of the years and only the distribution maps are shown here (Figure 4.9.1).

In the years 1996-2002 the spatial coverage was adequate enough to decide on the southern border of the distribution of the herring, but the northern border of the distribution was not reached in all years. In 1996-1999 the southern limit was in the range from 66 to 68°N, while in the years 1999-2002 it was between 70 and 72°N, being the northern most in the year 2000. The spatial coverage in 2003 was not adequate enough to decide on the southern bound of the distribution.

4.10. Adults from the International ecosystem summer survey in Nordic Sea (IESSNS)

This ecosystem survey was initiated in 2004 by Norway and has since then been gradually expanded in geographical coverage, especially from 2009 and onwards with participation of vessels from Iceland and the Faroes in addition to two vessels from Norway. The main objective of the survey is to study abundance and distribution of Northeast Atlantic mackerel, NSSH, blue whiting and other pelagic species with acoustically and swept-area methods in relation to oceanographic conditions, prey communities and marine mammals. Acoustic estimates of herring are available from the 2009-2013 surveys with corresponding biomass estimates for ICES rectangles (Figure 4.10.1 and Table 4.10.1). The adult part of the herring stock was not considered to be adequately covered in 2011 when northern part of the area was poorly covered. For the years 2009, 2012 and 2013, the northwestern border (north of Jan Mayen) of the herring distribution was probably not fully reached. In these years it is not clear how much of the stock was north of the survey area, but due to low sea temperatures in the uncovered areas (not shown here) it is expected to be a minor part. Despite these shortcomings the results from the survey are considered to give a fair representation of the relative distribution of the adult part of the stock during July/August in the years 2009-2010 and 2012-2013. Excluding the year 2011, then according to Table 4.10.1 most of the biomass, on average, during July/August is inside the EEZ of Iceland 31%, Faroes 24%, Norway 15%, Jan Mayen 14%, the International waters in the Norwegian Sea 9% and less in other EEZs.

4th quarter

4.11. Juvenile from winter bottom trawl survey in Barents Sea

In November-December 1998-2012 PINRO carried out a trawl-acoustic survey of main demersal fish species in the Barents Sea. The survey also collects acoustic data for pelagic fish including juvenile herring. Estimates of herring biomass and numbers per ICES rectangle are available from this survey. This survey may give an indication of juvenile distribution in the early winter in the southern Barents Sea. However, the whole Barents Sea was not covered and therefore the data were not tabulated. The distribution maps are presented in Figure 4.11.1 for the years 1998-2012. Cruise-tracks are missing in the distribution maps.

4.12. Adults from the from wintering survey

The survey has been carried out by Norway in November/December since 1992 in the Norwegian fjords, where the adult herring are wintering, and gives estimates of abundance at age from acoustic and trawl catches. Since 2003 also the oceanic areas north of Lofoten/Vesterålen have been included in the survey to take account of changes in the wintering area. The coverage in the fjords was ceased during the winter 2007/2008 because the herring had left the fjords. Given the large changes in the wintering pattern of herring there was a possibility of other undefined wintering areas. In this report, the biomass distribution is tabulated for the years before the new oceanic wintering area was established (Figure 4.12.1), or from 1995-2001. In those years the distribution is 100% within Norwegian EEZ (Table 4.12.1).

5. Catch

5.1. Overview of submitted data

The Chair of the Working Group formulated a request on catch data by year, month and ICES statistical square (0.5° lat, 1° lon) and also by economical zone (EEZ) if available, to the heads of delegations. The deadline for submission of the catch data was set to 1st February 2014. With the exception of France, all countries delivered their catch data in time for the Working Group meeting. The level of detail of the catch data differed from country to country. The information on data quality and detail level can be found in the data quality table (Table 5.1.1).

In Table 5.1.2 the catches reported to the Working Group are compared with the catches reported to WGWIDE for each year in 1993-2012 (ICES 2013). Catches reported to the Working Group as percentage of catches reported to WGWIDE by year varies from 94.9 % in 2003 to 104 % in 1994. The difference of 5 percentage points in 2003 can partly be explained with the fact that the catch data were raised in the WGWIDE report to account for changes in the percentages of water content. The proportion is 99.9 % for the whole period.

Catches by EEZ for the period were calculated using the information given on EEZ. Some of the countries did, however, not report EEZ in their catch data. Information on the national EEZ's obtained by the NEAFC working group on blue whiting was used to calculate the distribution by EEZ for those countries that did not include information about EEZ in their catch data (see section 5.2). The area calculations were done using Cylindrical Equal Area projection, which is assumed to produce the most correct result over a very wide geographical area.

The total catch in the years 1995-2012 and the relative catch by zones is shown in Figure 5.1.1.

5.2. Level of information

The quality of the catch data can be seen from Table 5.1.1 (catch information quality table). Level 1 (24 % of reported catch) is defined as spatially disaggregated data on a monthly basis **with** zonal information and derived from logbooks. Level 2 (15 % of reported catch) is defined as spatially disaggregated data on a monthly basis and derived from logbooks **without** zonal information. Level 3 (61 % of reported catch) is defined as spatially disaggregated data on a monthly basis **with** information on zones derived from sources other than logbooks. Level 4 (0.1 % of reported catch) is defined as catch data, usually on an annual basis or by ICES Divisions, assigned to pre-agreed arbitrary ICES rectangles. Based on the numbers above, about 85 % of the catch data (level 1 and 3) is reported with zonal information.

Below is a short description of the methods used for levels 2-4, which either did not provide zonal information or were spatially disaggregated derived from sources other than logbooks. For level 2 data, information about EEZ was not supplied with the data, and therefore the submitted ICES rectangle were used to apply EEZs to the data. This was done using the zonal database, which links information between EEZ and ICES rectangles. For ICES rectangles, which were only partly covered by individual

EEZs, the proportion of the ICES-rectangle within a given EEZ was used to allocate EEZ to the catch data.

For the Norwegian catch data (level 3) information by ICES rectangle was converted from the national Norwegian statistical system. For most of the distribution area of NSSH the smallest square in the Norwegian statistical system corresponds exactly to the ICES rectangle system. However, in some parts of the areas north of 62° N the size of the squares in the Norwegian system is either larger or smaller than the ICES rectangle. The lines defining the smallest squares, however, follow the same longitude and latitude as that of the ICES rectangle system. In the instances where the smallest square in the Norwegian statistical system consists of two or more ICES-rectangles **and** the corresponding ICES-rectangles are in different economic zones, information of the economic zone from the sales note is used to determine which ICES-rectangle the catch should be distributed to.

Poland (level 4 and 2) reported only on ICES division in 2002, but for later years Polish catches were reported on ICES-rectangles. Catch information reported by Poland to NEAFC showed that these catches were taken in International waters in the Norwegian Sea.

The Greenlandic catches (level 4) were collected from the 2013 WGWIDE report, which do not split the catches by rectangles and zones prior to 2011, and from the reported catches to NEAFC for the relevant years. The NEAFC data is split by zone, and this information was used to allocate the catches on zones prior to 2011. The catches in the WGWIDE report are split by quarter, and were therefore split by three, to allocate the catches to months.

5.3. Description of Fishery

The fishery is carried out all year round, mainly by purse seiners and pelagic trawlers, but to a lower amount also in a coastal fishery. The catches are used for human consumption and reduction purposes to fish meal and fish oil.

The fishery is regulated and carried out by the Coastal States (European Union, Faroe Islands, Iceland, Norway and the Russian Federation). The TAC is set by the Coastal States and derived from an agreed long term management plan.

The traditional fishing pattern follows the general clockwise migration pattern of the herring in the Norwegian Sea as the year progresses. This is illustrated in Figure 2.1.2.1, based on the perception of the migration in 1995. The fishery focuses on pre-spawning, spawning and post-spawning fish. In most recent years, fishing activity starts in January on the Norwegian shelf. The fishing effort then shifts south to Icelandic and Faroese waters in spring and expands north to Svalbard in summer, hence, covering the whole western part of the Norwegian Sea. Until 2010, fishing activities in late autumn, moved to the eastern part of the Norwegian Sea, but in recent years there have also been fisheries in the international (<68°N), Icelandic and Faroese EEZs during autumn.

The NSSH changed wintering areas from fjords to more off-shore waters during the years 2002-2006. The change in wintering pattern caused a large change in fishing pattern as well. More catches were taken during the spawning migration and at spawning time instead of during the wintering period. These changes applied mostly to the Norwegian fleet.

Typically, catches in the purse seiner and pelagic trawl fishery consist of “pure” herring. However, due to recent changes in the distribution of mackerel, by-catches of mackerel increasingly occur on the traditional herring fishing grounds.

Due to limitations inherent to catch data, e.g. regulation effects, national agreements on zonal access, distance from homeport, area misreporting, technical changes, changes in fishing methods etc., the fisheries do not necessarily depict the distribution of herring in the Norwegian Sea.

5.4. Seasonal patterns

There are many aspects that govern the seasonal fishery for adult herring. The catches might be limited by access to fish in foreign zones, or the distance from homeport may restrict some vessels, further, technical changes and changes in fishing methods may have changed the temporal fishing pattern of the fleets. The description is therefore restricted to general remarks on distribution of the fisheries.

Since the fishery began again in mid 1990s changes have been observed in the seasonal pattern in the fishery. This is depicted in Figure 5.4.1a showing the percentage distribution of the fishery by month for each year from 1995 to 2012 (represented by graded lines from dark purple in 1995 to light purple in 2012). From this three periods stand out in the seasonal fishing patterns (Figure 5.4.1b), an early period 1995-1997 (blue line), a mid period from 1998-2005 (green line) and a late/recent period from 2006-2012 (red line) (average percentage distribution by month for each period shown as bold coloured lines in Figure 5.4.1b).

In the early period up to 1998 the main fisheries were in the spawning area (Norwegian zone) in January-March with a peak in February, then a fishery in the Norwegian Sea (ICES Division Va, Vb and IIa) developed with a peak in May, followed by a fishery in the north-eastern areas from September to November.

In the mid period 1998-2005 the spawning fishery was the same, but now the peak in the summer fishery changed from May to June while the autumn fishery continued as usual. However, the importance shifted with less effort in the summer period to an increase in the autumn fishery.

In the recent period since 2006 the May and June fishery has disappeared, instead the late autumn and winter fishery dominates. The spawning fishery is now concentrated in January and February with highest catches in January and practically no catches in March. The only nations fishing in late summer (late June and onwards) are the Icelandic and Faroese fleets. In the total picture these quantities are small. The level of the autumn fishery has increased in recent years with a peak in November in 2012.

There are some possible explanations for these observed changes in the summer fishery for Norwegian spring spawning herring. Firstly, the distribution of herring has changed throughout the summermonths over the years (Figures 4.5.1), and thus e.g. accessability to the fleets may have also changed. Other explanations relate to stock size and consequently quota sizes, which may affect where the catches are taken. The quota opportunities to fish for other pelagic species (blue whiting and mackerel) are also likely to influence the focus put on the herring fishery.

The usual clockwise migration route of adult herring feeding in the Norwegian Sea, starting in the south after spawning and ending in the northeast at the wintering areas, has remained through the whole period. This pattern can be seen in the fishery by month (Fig. 5.4.2).

In the last five years or so the catch distribution during the feeding migration has changed. This indicates that the timing of the northward migration from the southern feeding areas has been delayed. (Figures A1-12). As a fishery has been going on in the northern area at the same time as in the southern area, it is clear that not the entire stock delays the northward migration.

Another issue with the catches is the misreporting to rectangles where it is obvious that the area (zone) for specific months is wrong in relation the ongoing fishery during that period and in relation to the general migratory behaviour of the stock. An example is the EU catches in Division IIa reported in 1996 up to 2004. These were all allocated to a row of three rectangles in the northern tip of the EU zone north of 62ºN that belong to Division IIa (see e.g. Figures 5.5.1 and A1-12). The problem with the allocations is that they give the impression that a fishery has been going on there throughout the year, even during the autumn and winter when the fishery was going on in the overwintering area far north in International and Norwegian zones. This is especially evident in the years when the herring stock was feeding only in the northern part of the Norwegian Sea (1999-2005, see next section), and at this time EU catches have been allocated to these three rectangles south in the EU waters. The working group believes, however, that on the whole, area misreporting is not a big caveat in the available catch-data.

5.5. Interannual patterns

Changes have been observed in the fishery through the years since the NSS herring reappeared in the feeding area in the Norwegian Sea in the mid 1990s. In the beginning the stock followed the typical clockwise feeding migration route in the Norwegian Sea as describe above (Figure 2.1.2.1). One change that was reflected in the fishery was the north-eastward displacement of the adult stock in the period 1999-2005, when the fishery was mainly going on in the International, Jan Mayen and Norwegian zones (Figure 5.5.1). The reason for this northern movement of the feeding stock is not

clear. Since 2005 the feeding stock has again moved south-westwards like in the mid 1990s (Figure 5.5.1). In the recent period since 2009 a further change has been observed in the summer fishery, with a fishery developed in the fourth quarter in international (<68°N), Icelandic and Faroese EEZs (Figures A1-12).

Some of the changes in the fishery can be due to changes in the biology of NSSH – others due to changes in methods, mainly fishing gear (from purse-seine to pair trawling) and change of vessel types (from RSV bulk tanks to production freezers). It is not clear how these changes have affected the fishery, but the change to pair trawling might have made it possible to fish earlier in the feeding season when the fish is more dispersed, and the increasing number of vessels with freezing capacities makes it feasible to be at sea for longer trips and further away from processing plants.

The factor that most affects the use of the fishery as a representation of the distribution of the stock is the limitations by some countries to enter the EEZs of other countries, especially in periods with disagreements among the coastal states. Other factors include the amount of other pelagic species available to fish by the same fleet. Based on these limitations the fisheries do not necessarily depict the distribution of herring in the sea and as such cannot be directly used as basis for zonal attachment, but the fisheries may supplement information from the surveys.

6. Discussion and conclusions

In this report data are presented from 1995-2013, which illustrate the distribution, and changes in distribution, of NSS herring. The main source of information is surveys. The surveys provide information about the general seasonal migration pattern and distribution of NSSH over the period 1995-2013. Survey information is not available for all months, and some of the survey-series have been terminated, whereas other have just recently started. With regards to the adult stock, only one survey has been ongoing the whole period and that is the survey on the feeding grounds in May (IESNS). The lack of systematic information throughout years and seasons prevents a full assessment of the zonal distribution for all life stages over the years. For adults, survey information is available for the winter period (November – March) and the summer months (May and July-August), but no survey information was available to the working group for April, when the herring start the feeding migration, and September – October, when the herring is returning to the wintering areas. For larvae and 0-group herring survey information is available in April and August, and for juveniles in February (up to 2005), May, August and November-December.

There are limitations in using catch-data to describe the seasonal distribution of herring. These limitations include regulation effects, changes in fleet behaviour, national agreements on zonal access and area misreporting. One example of regulation effects is, that there has been no directed fishery in the Barents Sea since 1996 to protect juveniles. However, taken these limitations into account the catch data can be used to some extent to describe the distribution on NSS herring, as a supplement to survey data.

By combining the information from the surveys and the catches, some general conclusions can be made for the adult part of the stock and partly for juveniles, but a full assessment of a zonal distribution is not possible.

Information about the distribution of larvae, 0-group and juvenile stem from surveys only.

Larvae are distributed along the Norwegian coast in spring and drift mainly into the Barents Sea. That is they are within the EEZ of Norway in the years 1995-2013.

0-group herring were distributed in the Barents Sea in August in 1995-2013. There was a consistent pattern through the years, most being within the Norwegian zone. The rest is in most years distributed in the Russian zone, but also in the EEZ of Svalbard.

Juveniles were primarily distributed in the Barents Sea. In the years 1995-2013 information about the distribution in February is only available from surveys not aimed at herring. Those surveys did not cover the area in all years and give only indication of the distribution. In the years 1998-2013 information about the distribution in May comes from the IESNS surveys. Information from 5 years in this period is missing. But according to these surveys the majority of the biomass was within the EEZ of Norway, except in 3 years where it was in the Russian EEZ. Joint Russian and Norwegian surveys have taken place in August in the years 2004-2013. A similar amount was within the EEZ of Russia

and Norway, but considerably less was within the EEZ of Svalbard. In November-December indications of the juvenile distribution stem from Russian surveys in the years 1998-2012 in the southern Barents Sea.

For the adults in quarter 1, the main sources of information are from surveys in the overwintering areas in the years 1995-1999 and on the spawning grounds from surveys in 1995-2008. According to this information then the distribution of the adult part of the stock is limited to the eastern part of the Norwegian Sea and the Norwegian fjords, that is within the EEZ of Norway. No surveys have taken place at this time of the year as from 2009.

In quarter 2, the adult stock migrates from the spawning grounds to the feeding grounds. The IESNS survey in the years 1995-2013 shows that changes in the distribution have occurred over time. This survey is the only survey that continuous through the whole period under consideration. In the beginning of the period the stock was distributed in the central Norwegian Sea, but soon became east, north-easterly distributed during 1999-2005. Since 2005 the stock has been more south and south-westerly distributed. In the period 1999-2005 the biomass was mostly distributed on two zones, the Norwegian EEZ and the International waters in the Norwegian Sea. In the period since 2005 the biomass has been distributed on four zones, namely, EEZ of Norway, Iceland, Faroes and International waters in the Norwegian Sea. A contributing factor to the south-western movement is the change in age distributions in the stock, with increasing age in the stock in recent years, due to poor recruitment, combined with the tendency of the largest (oldest) fish to migrate furthest south and west. Changes in the environment have been observed (e.g. ICES 2014), such as in changes zooplankton abundance and temperature changes in the traditional feeding area in the Norwegian Sea, which also are likely to have affected the distribution of herring in the summer feeding season.

Quarter 3 covers the latter half of the feeding season and the period when the stock starts to migrate back to the overwintering grounds. The results from the IESSNS survey in 2009-2013, are considered to be representative for the relative distribution of the adult part of the stock during July/August in the years 2009-2010 and 2012-2013. Spatial coverage to the north was not good enough in 2011. The survey shows that herring is distributed mostly in the southwestern part of the Norwegian Sea in July/August. Before 2009 there are no surveys that fully covered the stock in 3rd quarter, so that a biomass distribution could not be made on zones. However, a Norwegian survey covered most of the spawning stock during 1995-2003. In 1996-1998 the southern boundary of the distribution in August was in the range from 66-68ºN, whereas in 1999-2002 it was in the range 70-72ºN. In this period, 1996-2002, the northern boundary was not reached in all years. Due to the spatial coverage in 2003 the southern limit could not be defined (PGSPFN and PGNAPES reports in 1996-2003). This shows that there have been changes in the distribution of the adult stock late summer, from being first in the central Norwegian Sea, then in the north-east and in the recent years in the south-west. This change is also supported by the catch data.

In the later years the fisheries in the traditional feeding areas in the south-western part of the Norwegian Sea have extended further into the autumn months, indicating that herring has been staying longer in this region. The reasons to the prolonged stay in the southern regions of the feeding area in recent years are not known. It might be that the herring avoid feeding areas with low zooplankton concentrations, or conversely prefer to stay in an area if plankton abundance is adequate. Another explanation could be that the herring is forced out to fringe areas due to presence of high abundances of mackerel feeding in the area, thus competing with the herring for space and food.

In quarter 4 the information on the adults stem from a survey on the overwintering grounds conducted in November-December in the years 1995-2007. During that period the herring was distributed entirely in the Norwegian EEZ. It is supported by the catch data as well. As from 2008 no surveys directed on herring have been conducted in this quarter so no scientific data about the distribution exists. However, in 2011 and 2012 there has been a fishery in the International zone, illustrating that at least in the latest years herring is not entirely in the Norwegian zone in this quarter.

The working group has collated available data from surveys in the period 1995-2013 and analysed distribution of NSS herring based on these surveys. Catch data from 1995 to 2012 have been collated as well and they supplement the survey data. The working group believes that the report at hand gives a relevant picture of the distribution – and changes in distribution – of NSS herring in the Northeast Atlantic since 1995. However, the working group believes that it is not possible to compare the results from the present report with the results of the report on zonal attachment report from 1995, because the working groups have used different approaches to analyse the distribution of the NSS herring stock.

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Table 4.2.1. Percentages of Norwegian spring spawning herring by zone from spawning ground survey in February/March (chapter 4.2). *= incomplete coverage. - = region not covered.

Year	Norway	Iceland	Russia	EU	Faroe Islands
1995	100	-	-	-	-
1996	100	-	-	-	-
1997	-	-	-	-	-
1998	100	-	-	-	-
1999	100	-	-	-	-
2000	100	-	-	-	-
2001	-	-	-	-	-
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	100	-	-	-	-
2006	100*	-	-	-	-
2007	100*	-	-	-	-
2008	100*	-	-	-	-
2009	-	-	-	-	-
2010	-	-	-	-	-
2011	-	-	-	-	-
2012	-	-	-	-	-
2013	-	-	-	-	-

Table 4.3.1. Percentages of Norwegian spring spawning herring by zone from wintering survey in January (chapter 4.3). - = region not covered.

Year	Norway	Iceland	Russia	EU	Faroe Islands
1995	100	-	-	-	-
1996	100	-	-	-	-
1997	100	-	-	-	-
1998	100	-	-	-	-
1999	100	-	-	-	-
2000	-	-	-	-	-
2001	-	-	-	-	-
2002	-	-	-	-	-
2003	-	-	-	-	-
2004	-	-	-	-	-
2005	-	-	-	-	-
2006	-	-	-	-	-
2007	-	-	-	-	-
2008	-	-	-	-	-
2009	-	-	-	-	-
2010	-	-	-	-	-
2011	-	-	-	-	-
2012	-	-	-	-	-
2013	-	-	-	-	-

Table 4.4.1. Percentages of Norwegian spring spawning herring larvae by zone from larval survey in March/April (chapter 4.4). *= incomplete coverage. - = region not covered.

Year	Norway	Iceland	Russia	EU	Faroe Islands
1995	100	-	-	-	-
1996	100	-	-	-	-
1997	100	-	-	-	-
1998	100	-	-	-	-
1999	100	-	-	-	-
2000	100	-	-	-	-
2001	100	-	-	-	-
2002	100	-	-	-	-
2003	100*	-	-	-	-
2004	100	-	-	-	-
2005	100	-	-	-	-
2006	100	-	-	-	-
2007	100*	-	-	-	-
2008	100	-	-	-	-
2009	100*	-	-	-	-
2010	100	-	-	-	-
2011	100	-	-	-	-
2012	100	-	-	-	-
2013	100	-	-	-	-

Table 4.5.1. Percentages of Norwegian spring spawning herring juveniles by zone from International Ecosystem Survey in the Norwegian Sea (IESNS) in the Barents Sea in May (chapter 4.5). - = region not covered.

Year	Norway	Russia
1998	9.6	90.4
1999	-	-
2000	90.2	9.8
2001	97.8	2.2
2002	84.9	15.1
2003	-	-
2004	-	-
2005	83.4	16.6
2006	87.8	12.2
2007	98.8	1.2
2008	-	-
2009	99.6	0.4
2010	67.4	32.6
2011	66.3	33.7
2012	100.0	0.0
2013	95.8	4.2

Table 4.6.1. Percentages of Norwegian spring spawning herring adults by zone from the International Ecosystem Survey in the Norwegian Sea (IESNS) in May (chapter 4.6).

Year	EU	Norway	Iceland	Svalbard	JanMayen	Faroes	InterNorwSea
1996	0.8	33.8	1.9	0.0	8.3	3.0	52.3
1997	0.8	42.8	0.0	0.0	0.3	3.4	52.6
1998	0.4	80.6	0.0	0.0	0.2	0.3	18.6
1999	0.0	44.9	0.0	0.0	7.7	0.0	47.3
2000	0.3	65.4	0.0	1.3	3.7	0.0	29.3
2001	0.0	56.5	0.0	2.8	5.3	0.2	35.2
2002	0.0	62.2	0.0	6.1	7.5	0.0	24.2
2003	0.0	49.9	1.2	10.8	11.8	5.1	21.3
2004	0.0	49.0	2.3	0.6	15.1	5.0	28.0
2005	0.0	49.1	7.5	2.2	2.6	15.0	23.6
2006	0.0	24.7	20.8	3.2	4.8	24.9	21.6
2007	0.4	31.1	20.5	0.8	2.0	16.2	29.0
2008	1.3	19.9	15.0	0.1	3.0	18.4	42.3
2009	2.3	26.6	15.7	0.0	6.8	10.9	37.8
2010	2.8	34.5	14.8	0.8	1.4	21.0	24.7
2011	3.0	31.2	8.9	0.2	2.4	19.6	34.7
2012	2.7	36.5	10.0	0.0	0.8	21.4	28.6
2013	1.2	30.5	9.8	0.0	3.1	23.5	31.9

Table 4.8.1. Percentages of 0-group Norwegian spring spawning herring by zone from the Ecosystem Survey in the Barents Sea (chapter 4.8).

Year	Norway	Svalbard	InterBarSea	Russia	SpecialAreaBar
1995	72.1	18.5	3.4	6.0	0.0
1996	93.7	0.6	0.0	5.7	0.0
1998	68.2	4.3	0.4	26.8	0.4
1999	83.1	2.0	0.0	14.9	0.0
2000	99.6	0.1	0.0	0.3	0.0
2001	24.2	32.8	29.7	13.3	0.0
2002	42.9	17.6	0.2	39.3	0.0
2003	97.9	0.4	0.2	1.5	0.0
2004	78.1	7.3	1.0	12.8	0.9
2005	88.2	0.6	3.7	7.5	0.0
2006	74.4	1.4	0.3	23.8	0.2
2007	99.5	0.2	0.0	0.2	0.0
2008	78.0	5.1	3.9	13.1	0.0
2009	79.5	8.0	0.0	12.4	0.1
2010	80.3	1.4	4.3	14.0	0.0
2011	68.4	19.0	6.1	6.4	0.1
2012	96.8	1.5	0.0	1.7	0.0
2013	71.7	21.2	5.1	2.0	0.0

Table 4.8.2. Percentages of Norwegian spring spawning herring juveniles by zone from the Ecosystem Survey in the Barents Sea in August/September (chapter 4.8). *= incomplete coverage.

Year	Norway	Svalbard	InterBarSea	InterNorwSea	Russia	SpecialAreaBar
1998*	0.0	0.0	0.0	0.0	100.0	0.0
1999*	3.3	0.0	0.5	0.0	96.2	0.0
2000*	0.0	0.0	1.1	0.0	98.9	0.0
2001*	0.0	0.0	0.4	0.0	99.6	0.0
2002*	0.0	52.7	0.0	0.0	47.3	0.0
2003*	62.2	0.0	0.2	0.0	37.5	0.0
2004	63.4	5.1	0.7	0.0	30.5	0.3
2005	37.2	11.7	2.7	20.7	27.7	0.1
2006	50.9	0.1	0.4	0.0	48.0	0.6
2007	3.0	0.0	0.0	0.0	97.0	0.0
2008	10.0	29.3	0.0	0.0	60.7	0.0
2009	54.3	43.7	0.0	0.0	2.0	0.0
2010	63.7	36.3	0.0	0.0	0.0	0.0
2011	71.3	0.0	0.0	0.0	28.7	0.0
2012	79.5	2.6	0.0	0.0	17.9	0.0
2013	21.4	0.0	0.9	0.0	77.7	0.0

Table 4.10.1. Percentages of Norwegian spring spawning herring adults by zone from the International Ecosystem Summer Survey in the Norwegian Sea (IESSNS) in July (chapter 4.10). *= incomplete coverage.

Year	EU	Norway	Iceland	Svalbard	JanMayen	Greenland	Faroes	InterNorwSea
2009	0.2	25.9	23.5	4.1	21.7	0.2	9.7	14.8
2010	1.3	22.1	20.8	12.5	16.7	0.7	16.5	9.4
2011*	2.9	2.9	24.5	0.0	2.9	0.0	60.6	6.2
2012	3.8	7.0	35.3	0.1	10.5	0.0	36.6	6.6
2013	2.7	5.5	43.8	0.6	8.8	0.1	32.2	6.3

Table 4.12.1. Percentages of Norwegian spring spawning herring adults by zone from spawning ground survey in November/December (chapter 4.12). *= incomplete coverage. - = region not covered.

Year	Norway	Iceland	Russia	EU	Faroe Islands
1995	100	-	-	-	-
1996	100	-	-	-	-
1997	100	-	-	-	-
1998	100	-	-	-	-
1999	100	-	-	-	-
2000	100	-	-	-	-
2001	100	-	-	-	-
2002	100*	-	-	-	-
2003	100*	-	-	-	-
2004	100*	-	-	-	-
2005	100*	-	-	-	-
2006	100*	-	-	-	-
2007	100*	-	-	-	-
2008	-	-	-	-	-
2009	-	-	-	-	-
2010	-	-	-	-	-
2011	-	-	-	-	-
2012	-	-	-	-	-
2013	-	-	-	-	-

Table 5.1.1. Norwegian spring spawning herring catches - data availability and quality as used in the Coastal States Working Group report and in the database file

Year	Denmark	Faroe Islands	France	Germany	Greenland	Iceland	Netherlands	Norway	Poland	Russia	Sweden	UK
1995								3		2		1
1996	1	1				1	2	3		2	1	1
1997	1	1	NA	2		1	2	3		2	1	1
1998	1	1	NA	2		1	2	3		2	1	1
1999	1	1		2		1	2	3		2	1	1
2000	1	1		2		1	2	3		2	1	1
2001	1	1		2		1	2	3		2	1	1
2002	1	1		2		1	2	3	4	2	1	1
2003	1	1		2		1	2	3		2	1	1
2004	1	1	NA	2		1	2	3	2	2	1	1
2005	1	1		2		1	2	3	2	2	1	
2006	1	1	NA	2		1	2	3	2	2	1	1
2007	1	1		2	4	1	2	3	2	2		1
2008	1	1		2	4	1	2	3		2		1
2009	1	1		2	4	1	2	3		2		1
2010	1	1		2	4	1	2	3		2		1
2011	1	1		2	4	1	2	3		2		1
2012	1	1		2	4	1	2	3		2		1

1= spatially disaggregated data (rectangles) on a monthly basis and derived from logbooks with zonal information
2= spatially disaggregated data (rectangles) on a monthly basis and derived from logbooks without zonal information
3= spatially disaggregated data (rectangles) on a monthly basis with zonal information and derived from sources other than logbooks
4= catch data, usually on an annual basis, assigned to arbitrary ICES rectangles
NA= no data available, but fishery

Table 5.1.2. Norwegian spring spawning herring. Catch reported to the Coastal States Working Group as percentage of catch reported to WGWIDE. Coastal States WG catches are official catches, whereas WGWIDE catches are provided by scientists.

Year	CS WG 2014	WGWIDE	Comparison
1993	229,066	232,457	98.5 %
1994	498,420	479,228	104.0 %
1995	896,882	905,501	99.0 %
1996	1,187,992	1,220,283	97.4 %
1997	1,423,968	1,426,507	99.8 %
1998	1,225,097	1,223,131	100.2 %
1999	1,247,181	1,235,433	101.0 %
2000	1,212,631	1,207,201	100.4 %
2001	771,632	766,136	100.7 %
2002	813,544	807,795	100.7 %
2003	749,187	789,510	94.9 %
2004	805,594	794,066	101.5 %
2005	1,026,314	1,003,243	102.3 %
2006	968,223	968,958	99.9 %
2007	1,264,053	1,266,993	99.8 %
2008	1,546,513	1,545,656	100.1 %
2009	1,686,912	1,687,371	100.0 %
2010	1,447,340	1,457,015	99.3 %
2011	987,717	992,997	99.5 %
2012	818,960	826,000	99.1 %
Total	**20,807,226**	**20,835,481**	**99.9 %**

Table 5.3.1. Catches (tonnes) of Norwegian spring spawning herring by zones for each year 1995-2012

EEZ / Year	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
1995	613	164,083		12,979	92,856		7,035	619,164	152			896,882
1996	10,495	101,757		1,759	221,691		29,381	822,893		16		1,187,992
1997	14,828	145,501		3,407	169,208		32,111	1,046,687	51	0	12,174	1,423,968
1998	29,463	85,235		42,157	68,986		96,021	903,216	0		19	1,225,097
1999	32,860	3,874	150	12,310	96,792		206,633	892,606	8	198	1,751	1,247,181
2000	15,369	14		400	145,793	1	150,566	881,187	181		19,121	1,212,631
2001	13,882	275			123,812	0	6,996	594,733	165		31,768	771,631
2002	10,029	130			86,459		24,558	595,213			97,155	813,544
2003	1,577	902		11,821	109,682	0	6,464	571,686	0		47,053	749,187
2004	12,226	1,078		5,425	134,529	0	653	556,846	0		94,836	805,594
2005	4,408	22,069		38,506	197,145		2,970	668,006	2	0	93,208	1,026,314
2006	1,134	51,295		62,999	138,474		163	707,448		10	6,700	968,223
2007	585	20,585	1,552	113,737	77,283	3	22,176	1,017,243	0		10,890	1,264,053
2008	20	10,932		139,289	82,216		45,557	1,235,768	25		32,705	1,546,513
2009	74	6,479		203,576	118,501		9,151	1,270,568			78,564	1,686,912
2010	257	12,914	155	173,194	46,106		10,657	1,141,051	1		63,004	1,447,340
2011	4	52,168		117,112	91,630		4,097	686,425	0		36,282	987,717
2012	2	53,734	162	85,800	36,541		10,161	527,358	0		105,200	818,960
Total	**147,825**	**733,024**	**2,019**	**1,024,473**	**2,037,704**	**5**	**665,351**	**14,738,099**	**587**	**224**	**730,429**	**20,079,739**

Table 5.1.2. Catches (percentages) of Norwegian spring spawning herring by zones for each year 1995-2012

EEZ / Year	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
1995	0.07 %	18.29 %	0.00 %	1.45 %	10.35 %	0.00 %	0.78 %	69.04 %	0.02 %	0.00 %	0.00 %	**100.00 %**
1996	0.88 %	8.57 %	0.00 %	0.15 %	18.66 %	0.00 %	2.47 %	69.27 %	0.00 %	0.00 %	0.00 %	**100.00 %**
1997	1.04 %	10.22 %	0.00 %	0.24 %	11.88 %	0.00 %	2.26 %	73.50 %	0.00 %	0.00 %	0.85 %	**100.00 %**
1998	2.40 %	6.96 %	0.00 %	3.44 %	5.63 %	0.00 %	7.84 %	73.73 %	0.00 %	0.00 %	0.00 %	**100.00 %**
1999	2.63 %	0.31 %	0.01 %	0.99 %	7.76 %	0.00 %	16.57 %	71.57 %	0.00 %	0.02 %	0.14 %	**100.00 %**
2000	1.27 %	0.00 %	0.00 %	0.03 %	12.02 %	0.00 %	12.42 %	72.67 %	0.01 %	0.00 %	1.58 %	**100.00 %**
2001	1.80 %	0.04 %	0.00 %	0.00 %	16.05 %	0.00 %	0.91 %	77.07 %	0.02 %	0.00 %	4.12 %	**100.00 %**
2002	1.23 %	0.02 %	0.00 %	0.00 %	10.63 %	0.00 %	3.02 %	73.16 %	0.00 %	0.00 %	11.94 %	**100.00 %**
2003	0.21 %	0.12 %	0.00 %	1.58 %	14.64 %	0.00 %	0.86 %	76.31 %	0.00 %	0.00 %	6.28 %	**100.00 %**
2004	1.52 %	0.13 %	0.00 %	0.67 %	16.70 %	0.00 %	0.08 %	69.12 %	0.00 %	0.00 %	11.77 %	**100.00 %**
2005	0.43 %	2.15 %	0.00 %	3.75 %	19.21 %	0.00 %	0.29 %	65.09 %	0.00 %	0.00 %	9.08 %	**100.00 %**
2006	0.12 %	5.30 %	0.00 %	6.51 %	14.30 %	0.00 %	0.02 %	73.07 %	0.00 %	0.00 %	0.69 %	**100.00 %**
2007	0.05 %	1.63 %	0.12 %	9.00 %	6.11 %	0.00 %	1.75 %	80.47 %	0.00 %	0.00 %	0.86 %	**100.00 %**
2008	0.00 %	0.71 %	0.00 %	9.01 %	5.32 %	0.00 %	2.95 %	79.91 %	0.00 %	0.00 %	2.11 %	**100.00 %**
2009	0.00 %	0.38 %	0.00 %	12.07 %	7.02 %	0.00 %	0.54 %	75.32 %	0.00 %	0.00 %	4.66 %	**100.00 %**
2010	0.02 %	0.89 %	0.01 %	11.97 %	3.19 %	0.00 %	0.74 %	78.84 %	0.00 %	0.00 %	4.35 %	**100.00 %**
2011	0.00 %	5.28 %	0.00 %	11.86 %	9.28 %	0.00 %	0.41 %	69.50 %	0.00 %	0.00 %	3.67 %	**100.00 %**
2012	0.00 %	6.56 %	0.02 %	10.48 %	4.46 %	0.00 %	1.24 %	64.39 %	0.00 %	0.00 %	12.85 %	**100.00 %**
Total	**0.76 %**	**3.75 %**	**0.01 %**	**4.62 %**	**10.73 %**	**0.00 %**	**3.06 %**	**72.89 %**	**0.00 %**	**0.00 %**	**4.16 %**	**100.00 %**

Table 5.5.1. Total catches (tonnes) of Norwegian spring spawning herring by country in each zone for the years 1995-2012

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	30,188	5,939			263,442			254,301				553,870
Faroe Island		228,513		72,965	228,554		54,731	353,100			67,887	1,005,751
Germany	27,390	2,065			34,988		1,820	43,289			38,531	148,083
Greenland		1,514	1,552		6,496			10,755			489	20,805
Iceland		395,480		945,735	826,795		497,959	192,685			172,863	3,031,517
Netherland	40,460	2,845	155	113	95,951		13,170	77,080			41,091	270,866
Norway	6	3,144		3,207	171,041		39,696	11,819,197			20,775	12,057,065
Poland	1,514	1			1,937			3,680		0	47	7,178
Russia	1,483	19,343	312	2,452	316,230	5	53,565	1,800,349	587	224	382,881	2,577,431
Sweden		1,095			86,399		2,108	28,756			5,865	124,223
UK	46,784	73,085			5,870		2,302	154,908				282,949
Total	**147,825**	**733,024**	**2,019**	**1,024,473**	**2,037,704**	**5**	**665,351**	**14,738,099**	**587**	**224**	**730,429**	**20,079,739**

Table 5.5.1. Catches (tonnes) of Norwegian spring spawning herring by zones in 1995

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	587				31,560							**32,147**
Faroe Island		49,757		2,608	4,719							**57,084**
Germany					556							**556**
Greenland												
Iceland		111,238		10,371	50,517		1,292					**173,418**
Netherland												
Norway					5,503		5,743	519,561				**530,807**
Poland												
Russia	26	2,207			0			99,603	152			**101,988**
Sweden												
UK		881										**881**
Total	**613**	**164,083**		**12,979**	**92,856**		**7,035**	**619,164**	**152**			**896,882**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 1996

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	90				61,834							**61,924**
Faroe Island		29,812			160		355	19,916				**50,243**
Germany	5,034	916			5,808			219				**11,977**
Greenland												
Iceland		24,041		1,759	119,791		19,470					**165,061**
Netherland	5,232	1,205			2,323			64				**8,822**
Norway		9			8,349		9,556	683,597				**701,511**
Poland												
Russia	28	148			0			119,098		16		**119,290**
Sweden					23,033							**23,033**
UK	111	45,627			393							**46,131**
Total	**10,495**	**101,757**		**1,759**	**221,691**		**29,381**	**822,893**		**16**		**1,187,992**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 1997

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	1,267	2,886			30,595			12,408				**47,156**
Faroe Island		16,317			16,355		3,648	23,546				**59,866**
Germany	2,986	1,025			2,177							**6,189**
Greenland												
Iceland		97,340		3,406	90,539		24,608	4,162				**220,055**
Netherland	9,059	111			2,890		134					**12,194**
Norway		1,365			8,147		3,721	851,501				**864,734**
Poland												
Russia	277	2,346		1	1,981			152,070	51	0	12,174	**168,901**
Sweden					16,524			3,000				**19,524**
UK	1,238	24,112										**25,350**
Total	**14,828**	**145,501**		**3,407**	**169,208**		**32,111**	**1,046,687**	**51**	**0**	**12,174**	**1,423,968**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 1998

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	3,479	710			22,266			10,595				**37,050**
Faroe Island		12,868		16,445	6,271		9,168	22,657				**67,409**
Germany	6,886	117										**7,003**
Greenland												
Iceland		63,415		25,636	24,917		80,189	6,072				**200,229**
Netherland	11,996	1,035			548		33	281				**13,892**
Norway		979		76	2,702		3,929	737,037				**744,723**
Poland												
Russia	221	3,487			655			119,666	0		19	**124,048**
Sweden		1,095			8,995		400	4,373				**14,863**
UK	6,881	1,530			2,631		2,302	2,536				**15,880**
Total	**29,463**	**85,235**		**42,157**	**68,986**		**96,021**	**903,216**	**0**		**19**	**1,225,097**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 1999

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	4,609	1,064			21,117			11,767				**38,557**
Faroe Island		1,495		9,061	13,518		10,782	20,301				**55,157**
Germany	6,996											**6,996**
Greenland												
Iceland				2,244	23,358		178,148					**203,750**
Netherland	5,547	5		113	1,118		2,235					**9,018**
Norway		136			4,195		8,855	728,395				**741,581**
Poland												
Russia	148	814	150	892	23,586		5,538	124,244	8	198	1,751	**157,328**
Sweden					9,569		1,075	3,413				**14,057**
UK	15,560	360			329			4,487				**20,736**
Total	**32,860**	**3,874**	**150**	**12,310**	**96,792**		**206,633**	**892,606**	**8**	**198**	**1,751**	**1,247,181**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2000

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	1,992				24,901			10,655				**37,548**
Faroe Island				400	32,420		5,636	24,546			400	**63,402**
Germany	2,059				444		878	2,661				**6,042**
Greenland												
Iceland					43,885		134,523	7,660				**186,068**
Netherland	3,411				3,463		3,154					**10,028**
Norway					3,994		1,568	711,409				**716,971**
Poland												
Russia	8	14			25,409	1	4,807	114,120	181		18,721	**163,261**
Sweden					11,276			3,473				**14,749**
UK	7,900							6,663				**14,563**
Total	**15,369**	**14**		**400**	**145,793**	**1**	**150,566**	**881,187**	**181**		**19,121**	**1,212,631**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2001

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	3,289				15,502			6,592				**25,383**
Faroe Island					15,887		265	15,826			2,192	**34,170**
Germany	3,430				292			1,558			11	**5,290**
Greenland												
Iceland					64,204		1,351	6,339			5,696	**77,590**
Netherland	1,223				1,605		202	484				**3,514**
Norway					10			495,064				**495,074**
Poland												
Russia					18,489	0	4,545	61,985	165		23,869	**109,053**
Sweden					6,770		633	2,415				**9,818**
UK	5,940	275			1,052			4,470				**11,738**
Total	**13,882**	**275**			**123,812**	**0**	**6,996**	**594,733**	**165**		**31,768**	**771,631**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2002

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	6,259				8,508			10,843				**25,610**
Faroe Island					11,196		754	15,807			4,544	**32,302**
Germany					648		63	1,303			1,003	**3,017**
Greenland												
Iceland					36,277		21,123	5,822			63,973	**127,195**
Netherland	151	123			2,297		1,852	68				**4,490**
Norway	3				793			488,583				**489,378**
Poland					1,266							**1,266**
Russia	5	7			18,323		766	67,306			27,355	**113,762**
Sweden					7,151			2,000			280	**9,431**
UK	3,612							3,482				**7,093**
Total	**10,029**	**130**			**86,459**		**24,558**	**595,213**			**97,155**	**813,544**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2003

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	1,275				891			11,977				**14,143**
Faroe Island		70			4,187		5,296	13,765			3,620	**26,938**
Germany					762			387			2,218	**3,367**
Greenland												
Iceland		574		11,821	80,625		193	4,810			19,887	**117,910**
Netherland	269				6,773		447	1,448				**8,936**
Norway					1,456		13	437,933				**439,403**
Poland												
Russia	34	258			14,989	0	515	85,721	0		21,328	**122,845**
Sweden								6,431				**6,431**
UK								9,214				**9,214**
Total	**1,577**	**902**		**11,821**	**109,682**	**0**	**6,464**	**571,686**	**0**		**47,053**	**749,187**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2004

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	3,293				20,601							**23,894**
Faroe Island		16			17,575						25,146	**42,736**
Germany		0			572		86				4,152	**4,810**
Greenland												
Iceland				5,404	47,820						49,563	**102,787**
Netherland	3,360	290			18,278		176	759			456	**23,318**
Norway					953			476,124				**477,077**
Poland					125			0			25	**150**
Russia	78	772		21	24,741	0	391	79,963	0		9,909	**115,875**
Sweden					2,401						5,585	**7,986**
UK	5,495				1,464							**6,960**
Total	**12,226**	**1,078**		**5,425**	**134,529**	**0**	**653**	**556,846**	**0**		**94,836**	**805,594**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2005

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	3,581	1,279			24,070			970				**29,900**
Faroe Island		13,431		5,270	28,138						18,233	**65,072**
Germany		1			12,966		59	393			4,257	**17,676**
Greenland												
Iceland		5,359		33,189	85,052						32,866	**156,466**
Netherland		78			31,205		362	1,872			6,769	**40,287**
Norway					1,576		2,018	578,519			941	**583,053**
Poland	512	1			535			13		0	22	**1,084**
Russia	314	1,921		47	12,924		531	86,239	2		30,119	**132,097**
Sweden					680							**680**
UK												
Total	**4,408**	**22,069**		**38,506**	**197,145**		**2,970**	**668,006**	**2**	**0**	**93,208**	**1,026,314**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2006

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark								18,449				**18,449**
Faroe Island		20,409		11,542	31,185							**63,135**
Germany					8,271			573			1,114	**9,958**
Greenland												
Iceland		28,521		51,439	78,707						878	**159,545**
Netherland					10,866		13	289			381	**11,550**
Norway					487			567,270				**567,757**
Poland	1,001							524				**1,525**
Russia	133	2,365		18	8,957		150	104,875		10	4,327	**120,836**
Sweden								2,946				**2,946**
UK								12,523				**12,523**
Total	**1,134**	**51,295**		**62,999**	**138,474**		**163**	**707,448**		**10**	**6,700**	**968,223**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2007

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark	467							22,603				**23,070**
Faroe Island		10,775		9,184	9,776		8,649	25,867				**64,250**
Germany					531		176	5,331				**6,038**
Greenland			1,552		143			3,202				**4,897**
Iceland		7,799		104,404	23,368		6,438	34,618				**176,627**
Netherland					4,870		315	22,559			131	**27,874**
Norway					597			778,955				**779,552**
Poland					11			3,143				**3,154**
Russia	71	1,711		149	37,989	3	6,599	105,152	0		10,759	**162,433**
Sweden												
UK	47	300						15,813				**16,160**
Total	**585**	**20,585**	**1,552**	**113,737**	**77,283**	**3**	**22,176**	**1,017,243**	**0**		**10,890**	**1,264,053**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2008

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark					705			30,725				**31,430**
Faroe Island		3,657		8,493	19,368		7,645	35,097				**74,260**
Germany								8,338				**8,338**
Greenland		1,508			2,278			24				**3,810**
Iceland		4,536		130,447	19,277		25,936	42,604				**222,800**
Netherland					5,710		140	13,853			9,334	**29,038**
Norway					12,532		2,687	948,764				**963,983**
Poland												
Russia	20	1,231		349	22,346		9,149	136,627	25		23,371	**193,118**
Sweden												
UK								19,737				**19,737**
Total	**20**	**10,932**		**139,289**	**82,216**		**45,557**	**1,235,768**	**25**		**32,705**	**1,546,513**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2009

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark								32,320				**32,320**
Faroe Island		450		5,291	5,959		1,883	57,762			13,752	**85,097**
Germany					349			6,724			7,379	**14,452**
Greenland					811			2,919				**3,730**
Iceland		5,058		197,956	18,409		4,416	39,641				**265,480**
Netherland					657			17,798			8,314	**26,769**
Norway					55,996		119	967,369				**1,023,483**
Poland												
Russia	74	971		329	36,319		2,734	120,558			49,119	**210,103**
Sweden												
UK								25,477				**25,477**
Total	**74**	**6,479**		**203,576**	**118,501**		**9,151**	**1,270,568**			**78,564**	**1,686,912**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2010

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark					13			26,779				**26,792**
Faroe Island		4,397		4,257	2,338		650	63,185				**74,827**
Germany					15		558	4,584			5,976	**11,133**
Greenland								3,453				**3,453**
Iceland		7,858		165,735	3,654		41	28,574				**205,862**
Netherland	213		155		3,232		4,108	10,066			8,921	**26,695**
Norway	2			3,131	12,122		650	859,051				**874,955**
Poland												
Russia	43	659		71	24,732		4,651	121,209	1		48,106	**199,472**
Sweden												
UK								24,151				**24,151**
Total	**257**	**12,914**	**155**	**173,194**	**46,106**		**10,657**	**1,141,051**	**1**		**63,004**	**1,447,340**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2011

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark								26,742				**26,742**
Faroe Island		36,806		415	4,592			11,457				**53,270**
Germany					140			10,646			2,509	**13,295**
Greenland					2,930			7			489	**3,425**
Iceland		14,951		116,679	8,348		231	11,931				**152,140**
Netherland					104			7,540			704	**8,348**
Norway	1				47,314		838	523,869				**572,023**
Poland												
Russia	4	411		18	28,201		3,028	80,185	0		32,581	**144,428**
Sweden												
UK								14,045				**14,045**
Total	**4**	**52,168**		**117,112**	**91,630**		**4,097**	**686,425**	**0**		**36,282**	**987,717**

Table 5.5.1 *continued.* Catches (tonnes) of Norwegian spring spawning herring by zones in 2012

EEZ Country	EU	Faroes	Greenland	Iceland	Inter.Norw. Sea	Inter. West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
Denmark					879			20,876				**21,755**
Faroe Island		28,255			4,911			3,368				**36,534**
Germany		6			1,456			572			9,912	**11,945**
Greenland		6			334			1,150				**1,490**
Iceland		24,791		85,245	8,047			452				**118,534**
Netherland					11						6,080	**6,092**
Norway	0	655			4,315			466,196			19,834	**491,000**
Poland												
Russia	2	22	162	555	16,588		10,161	21,729	0		69,374	**118,594**
Sweden								705				**705**
UK								12,310				**12,310**
Total	**2**	**53,734**	**162**	**85,800**	**36,541**		**10,161**	**527,358**	**0**		**105,200**	**818,960**

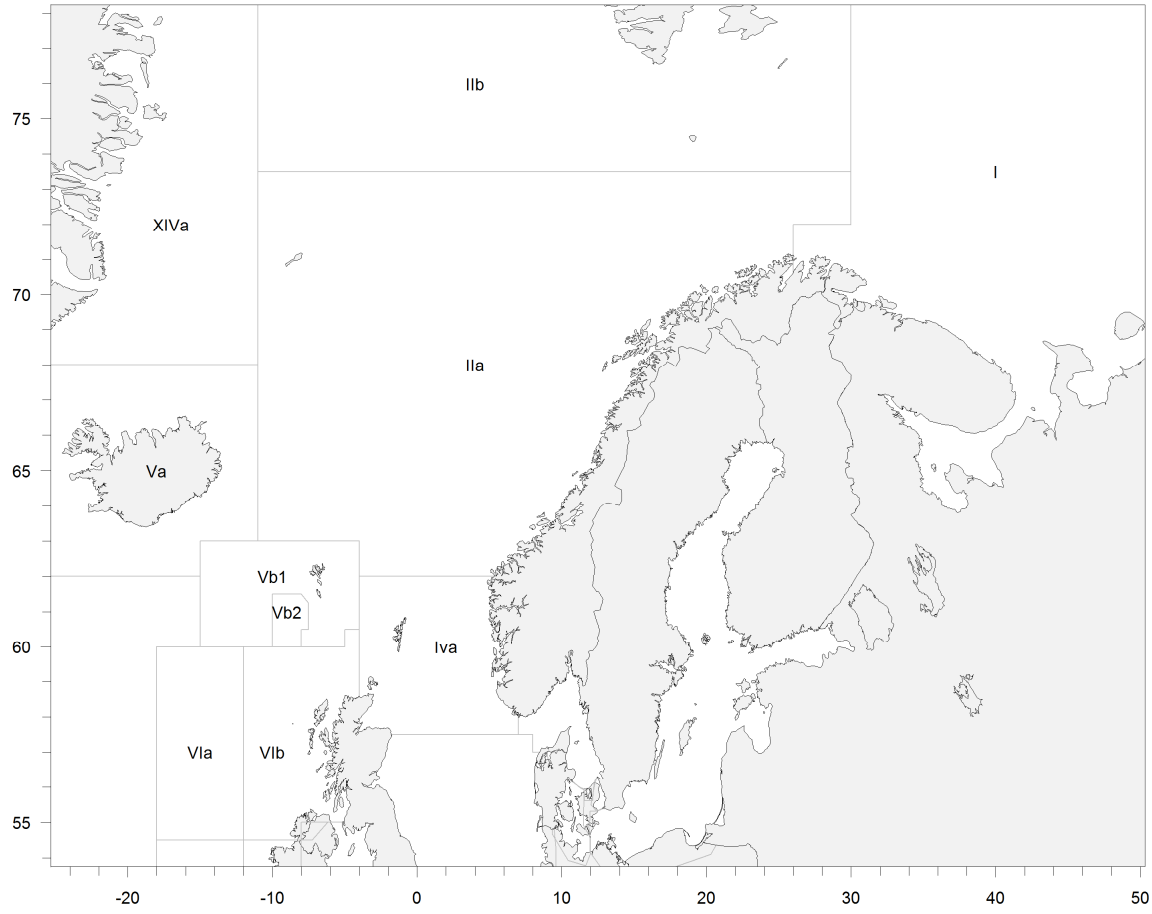


Figure 2.1.1. ICES areas and Divisions ((I, IIa, Va, Vb and XIVa), where Norwegian spring spawning herring is distributed. Also adjacent Divisions are shown.

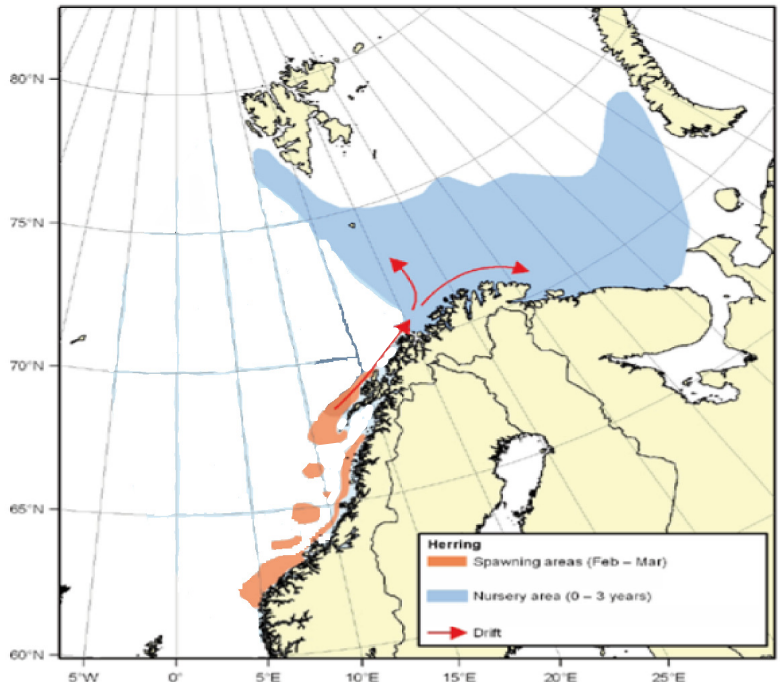


Figure 2.1.1.1. Main spawning grounds, nursery area and drift direction of larvae in the Norwegian and Barents Seas (Remade from Krysov, Rottingen 2011).

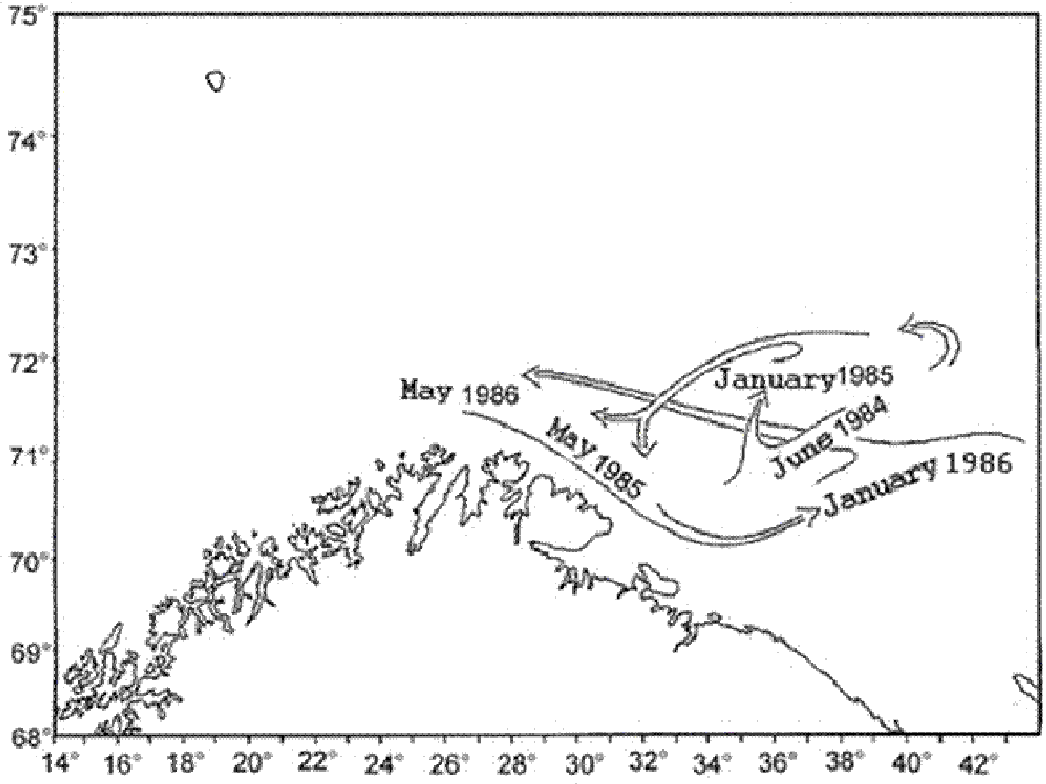


Figure 2.1.1.2. Migration scheme of the 1983 year class as juveniles in the Barents Sea (from Rottingen 1990).

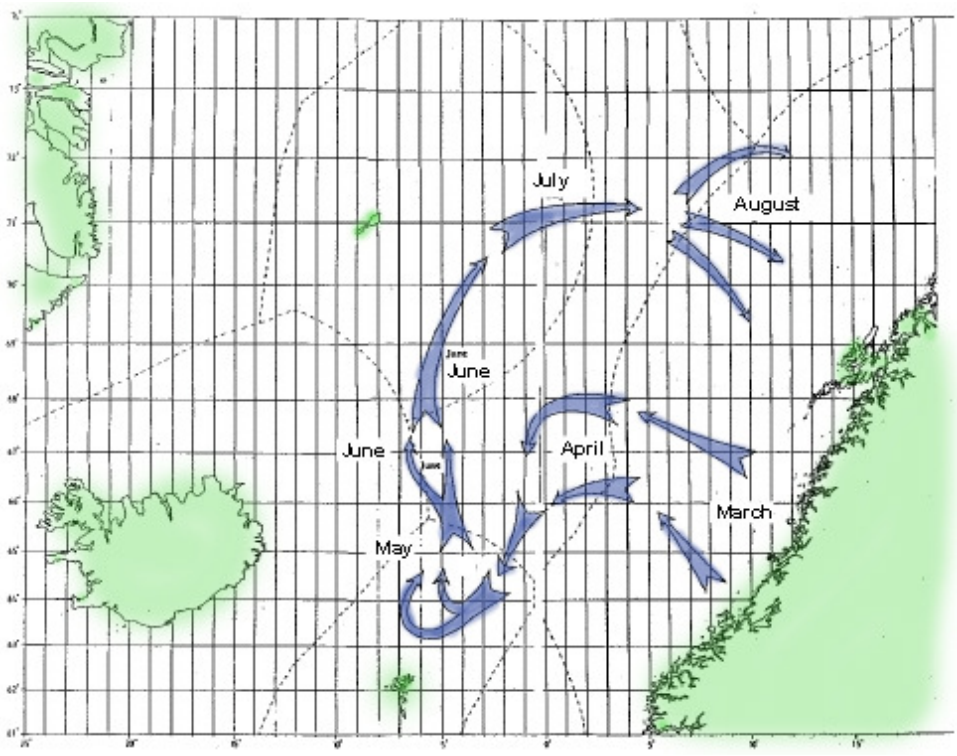


Figure 2.1.2.1. Migration paths of NSS herring from March to August 1995 (PGSPFN 1995).

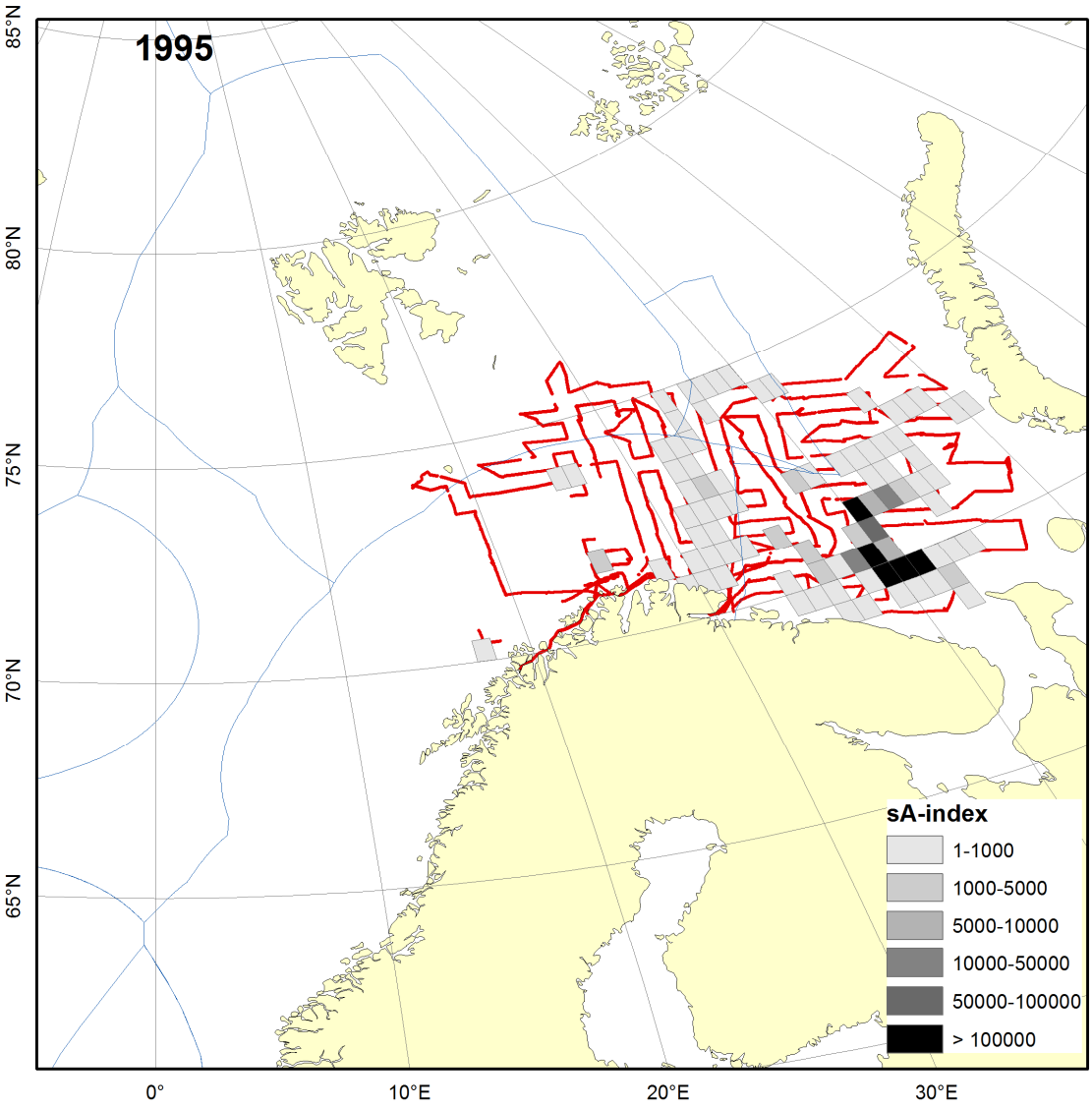


Figure 4.1.1. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 1995, based on the winter survey in February.

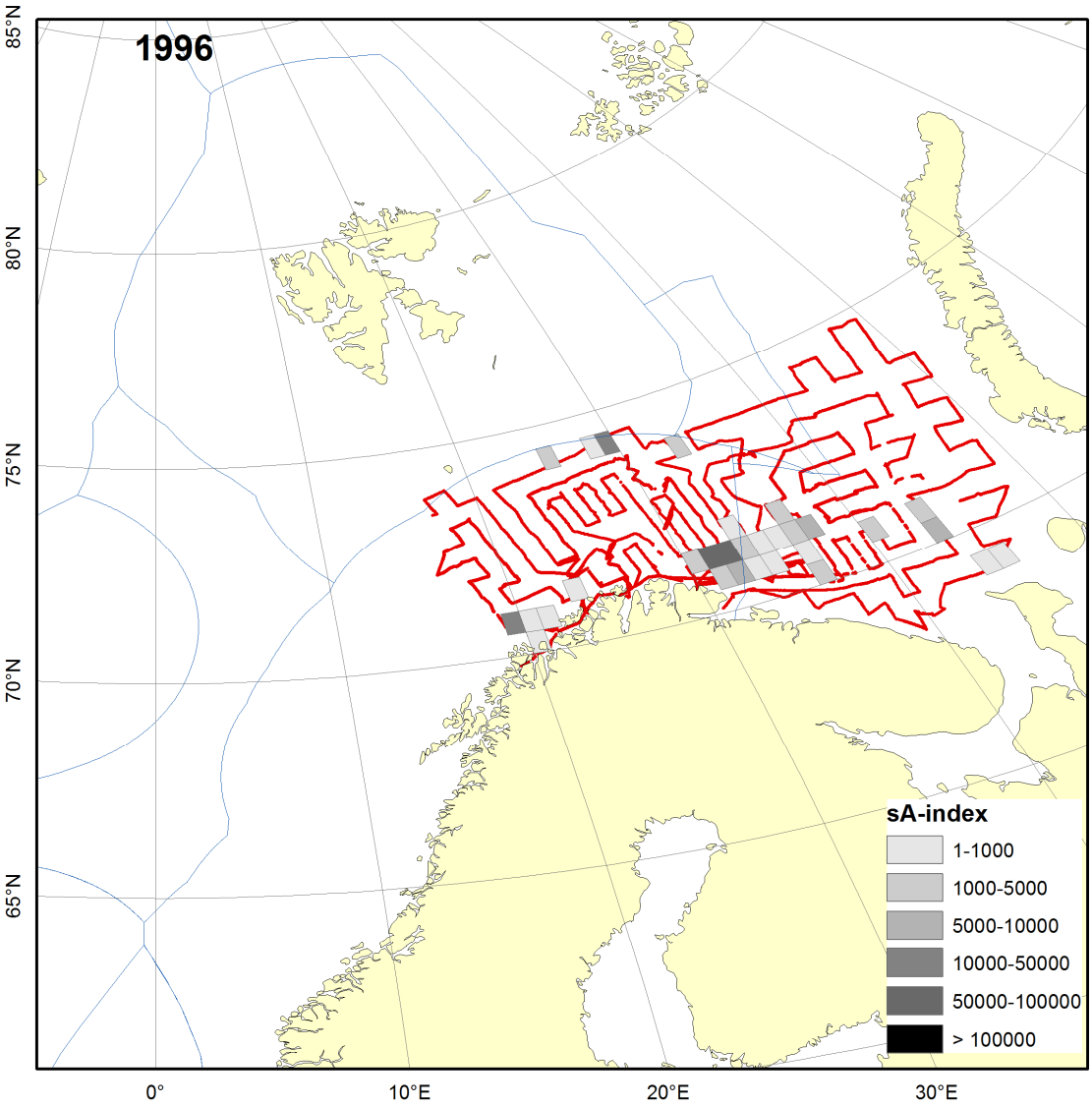


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 1996, based on the winter survey in February.

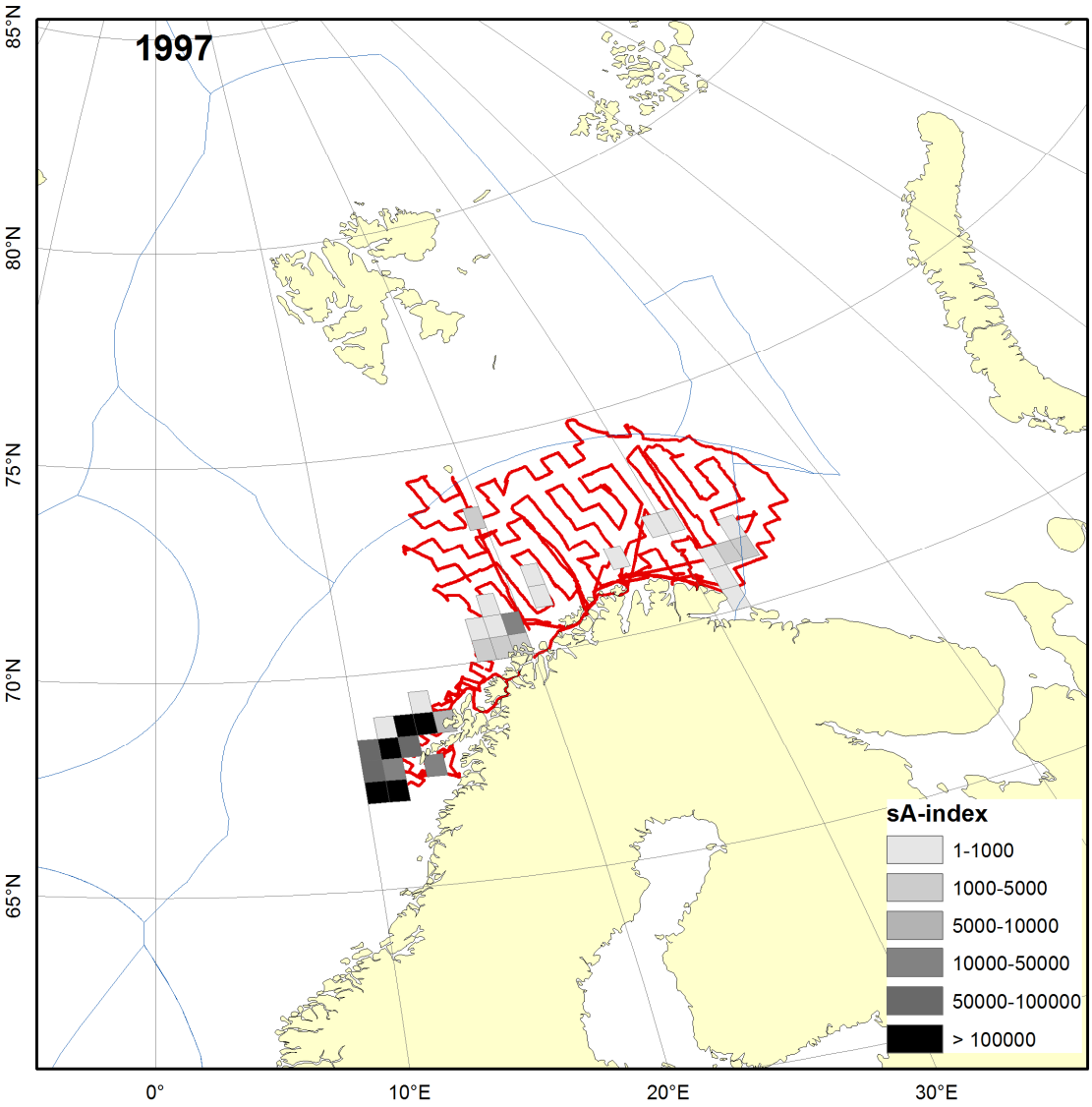


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 1997, based on the winter survey in February.

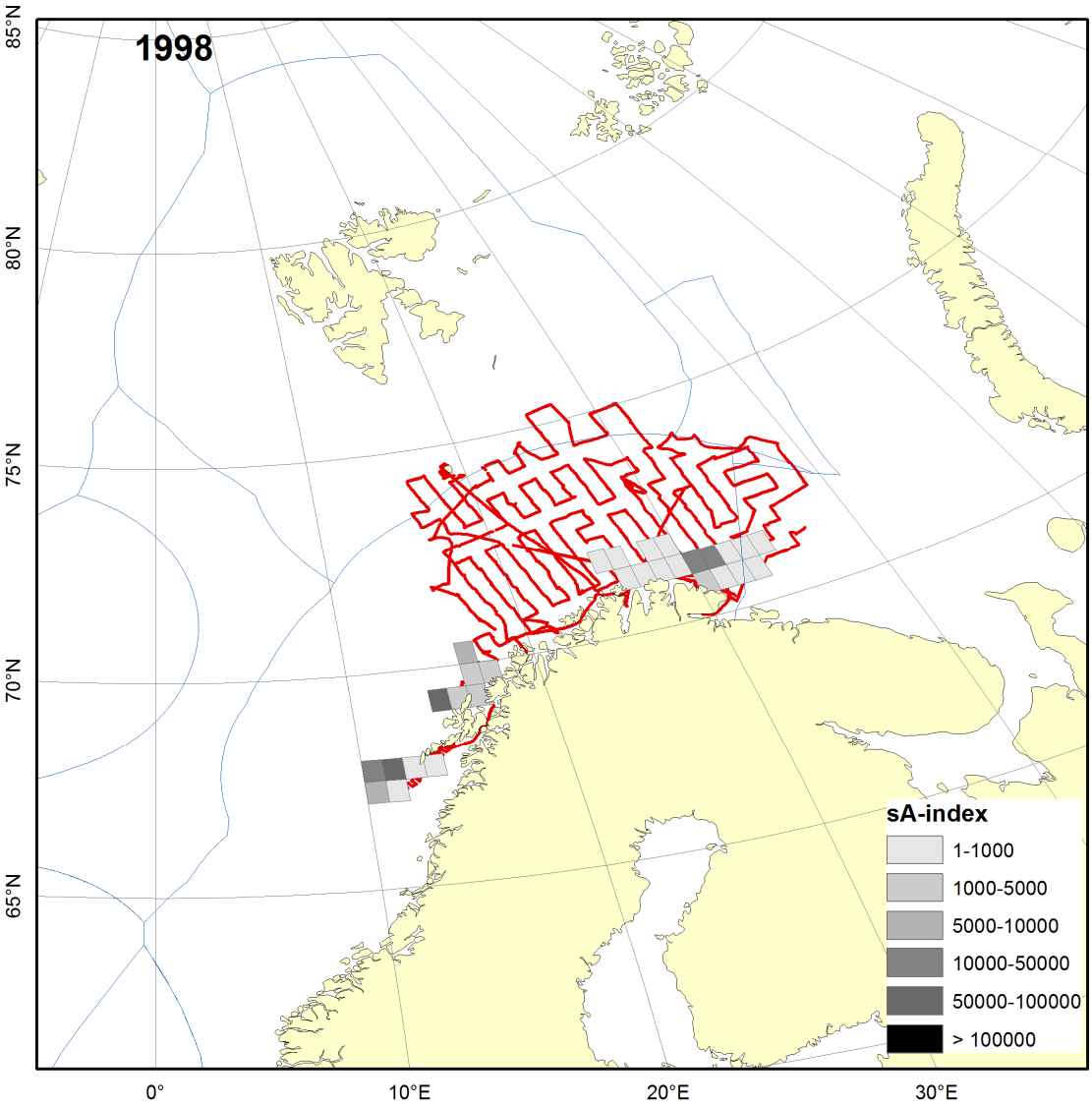


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 1998, based on the winter survey in February.

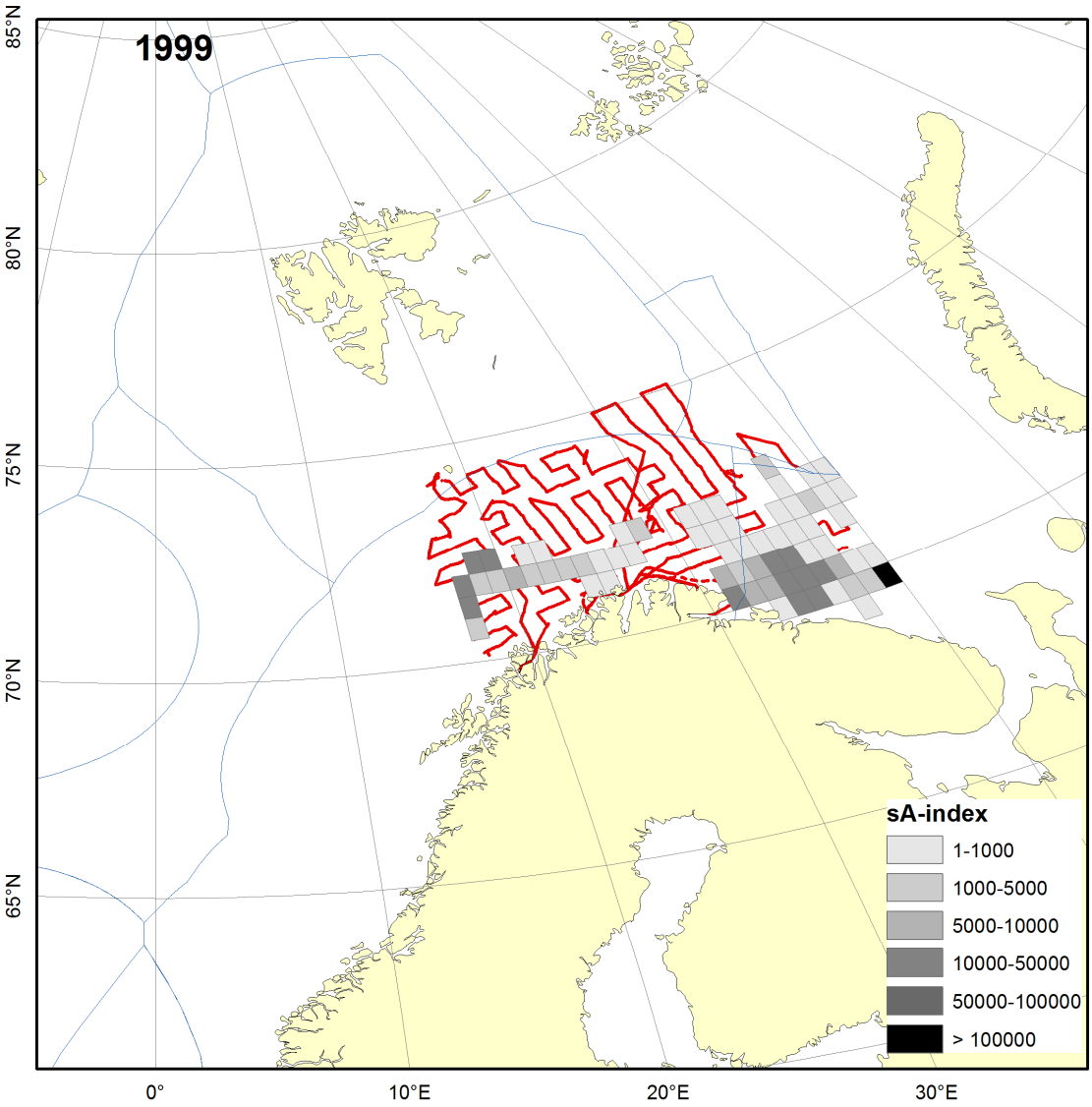


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 1999, based on the winter survey in February.

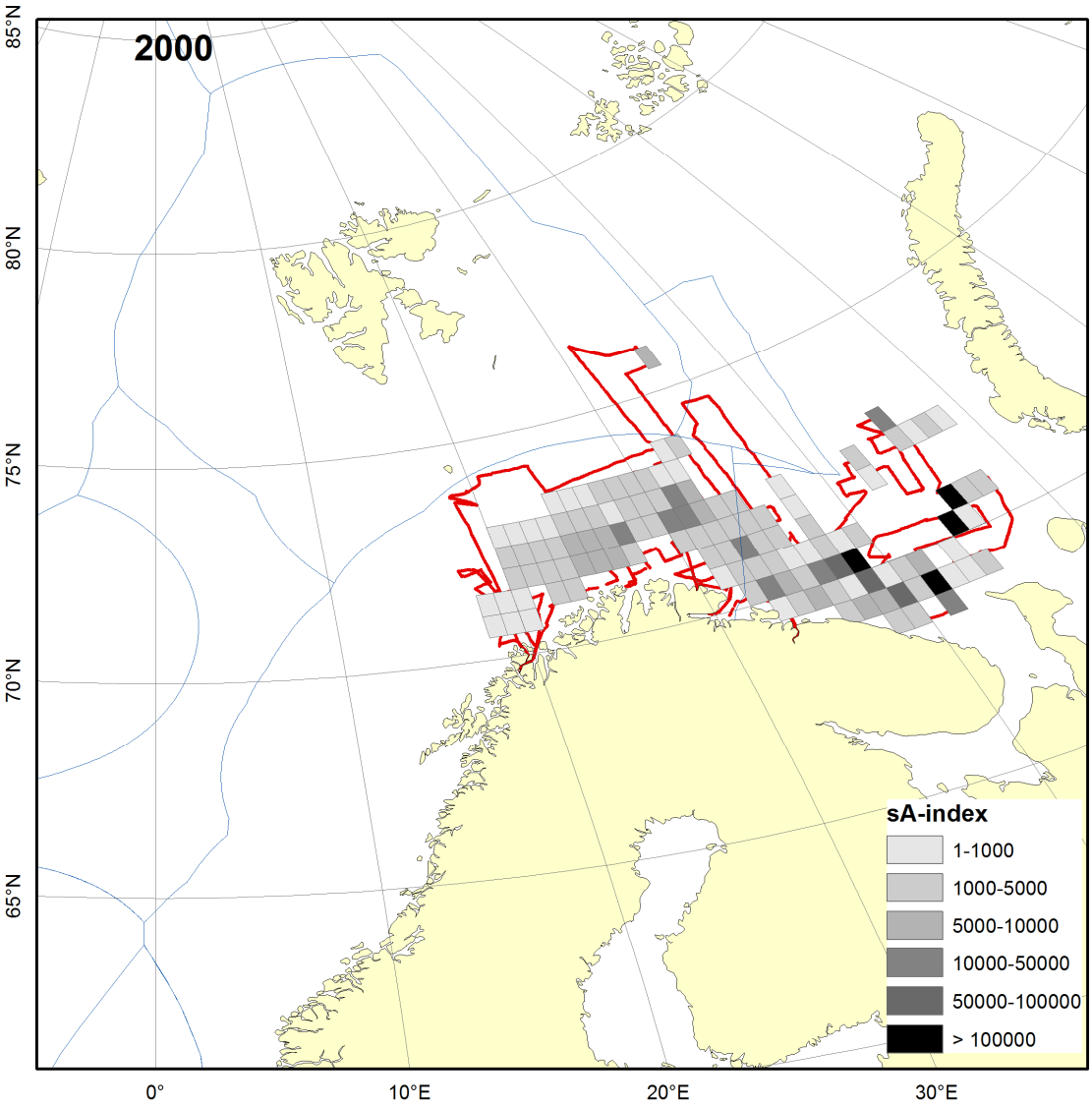


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2000, based on the winter survey in February.

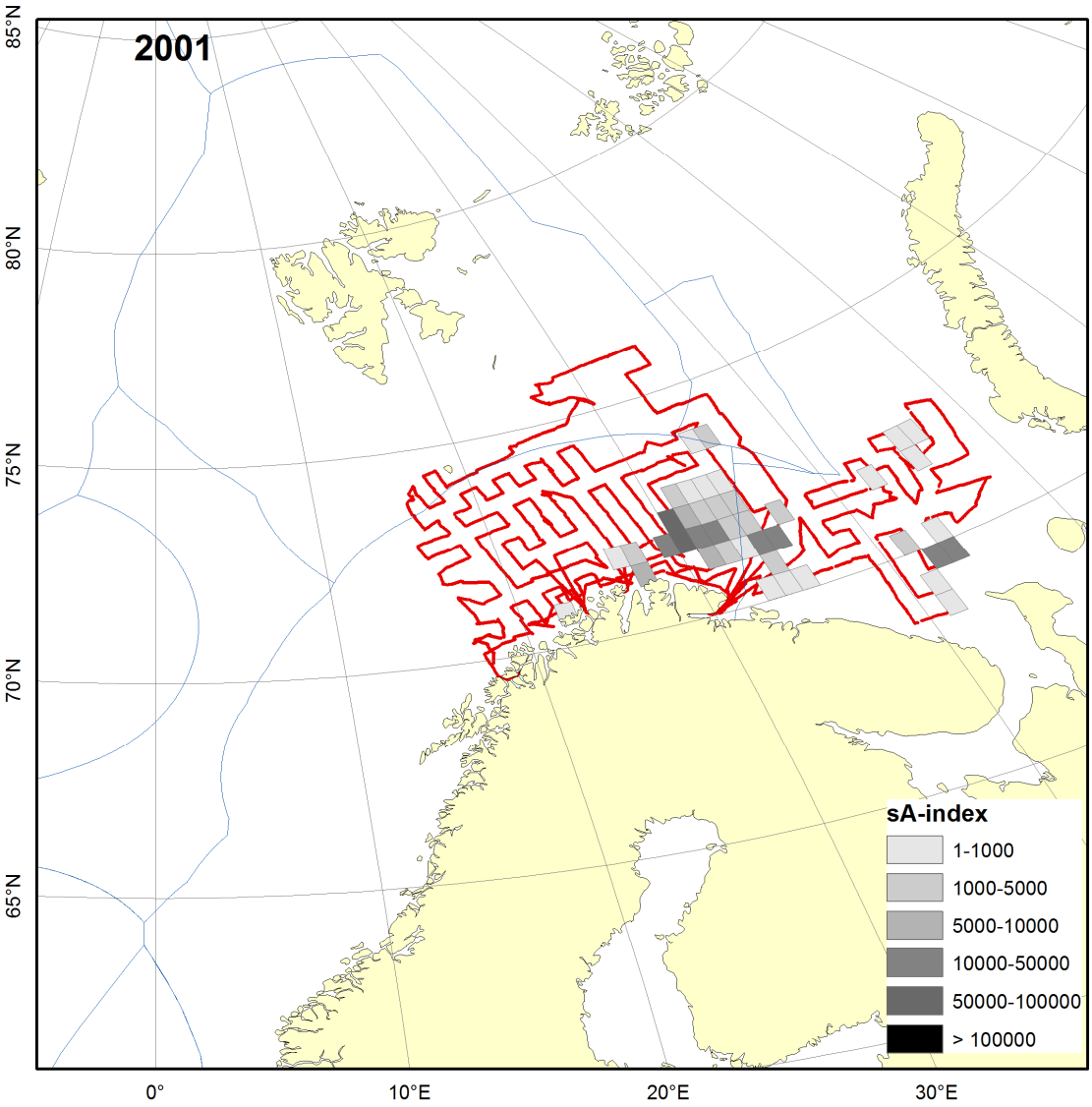


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2001, based on the winter survey in February.

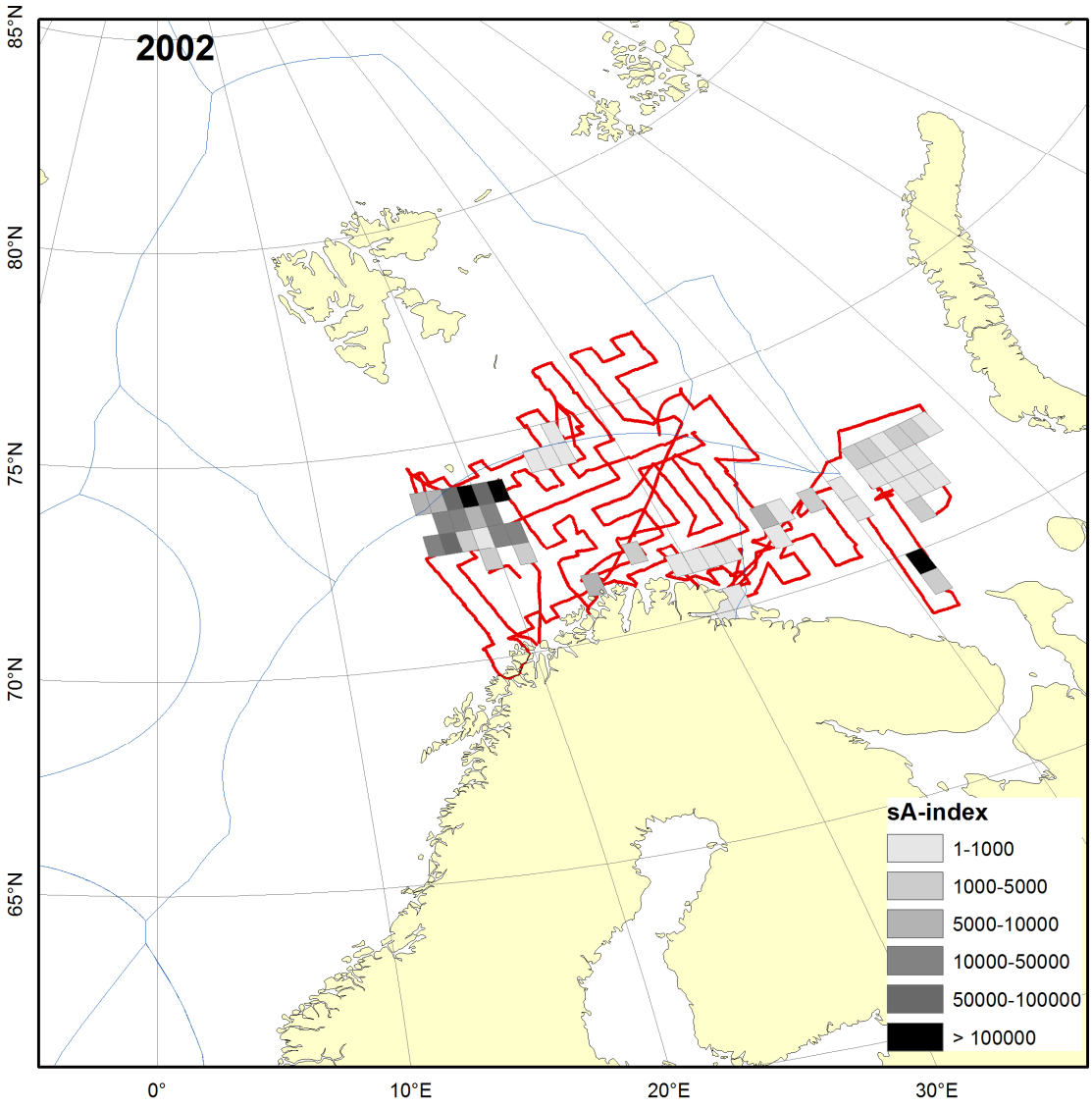


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2002, based on the winter survey in February.

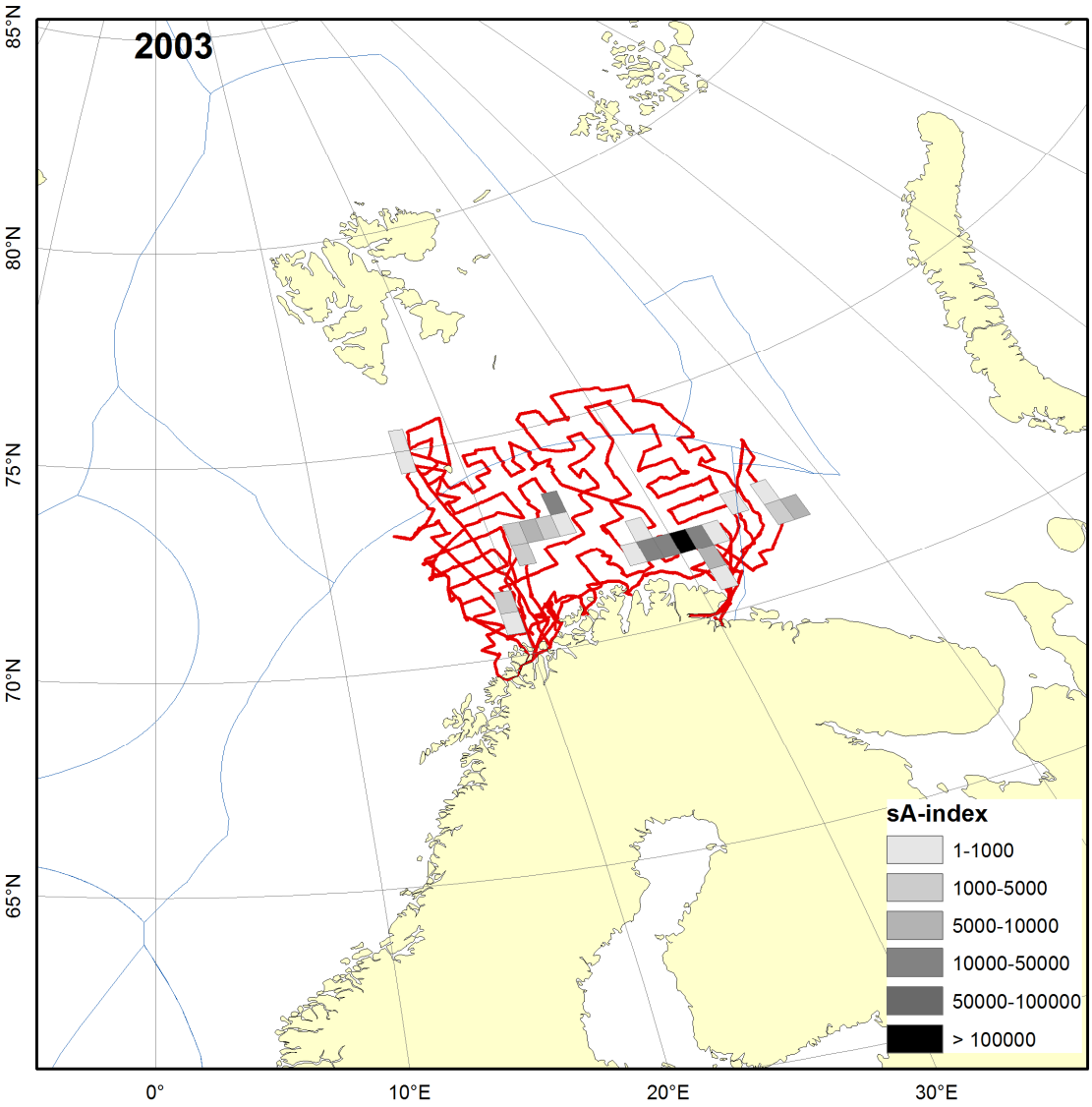


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2003, based on the winter survey in February.

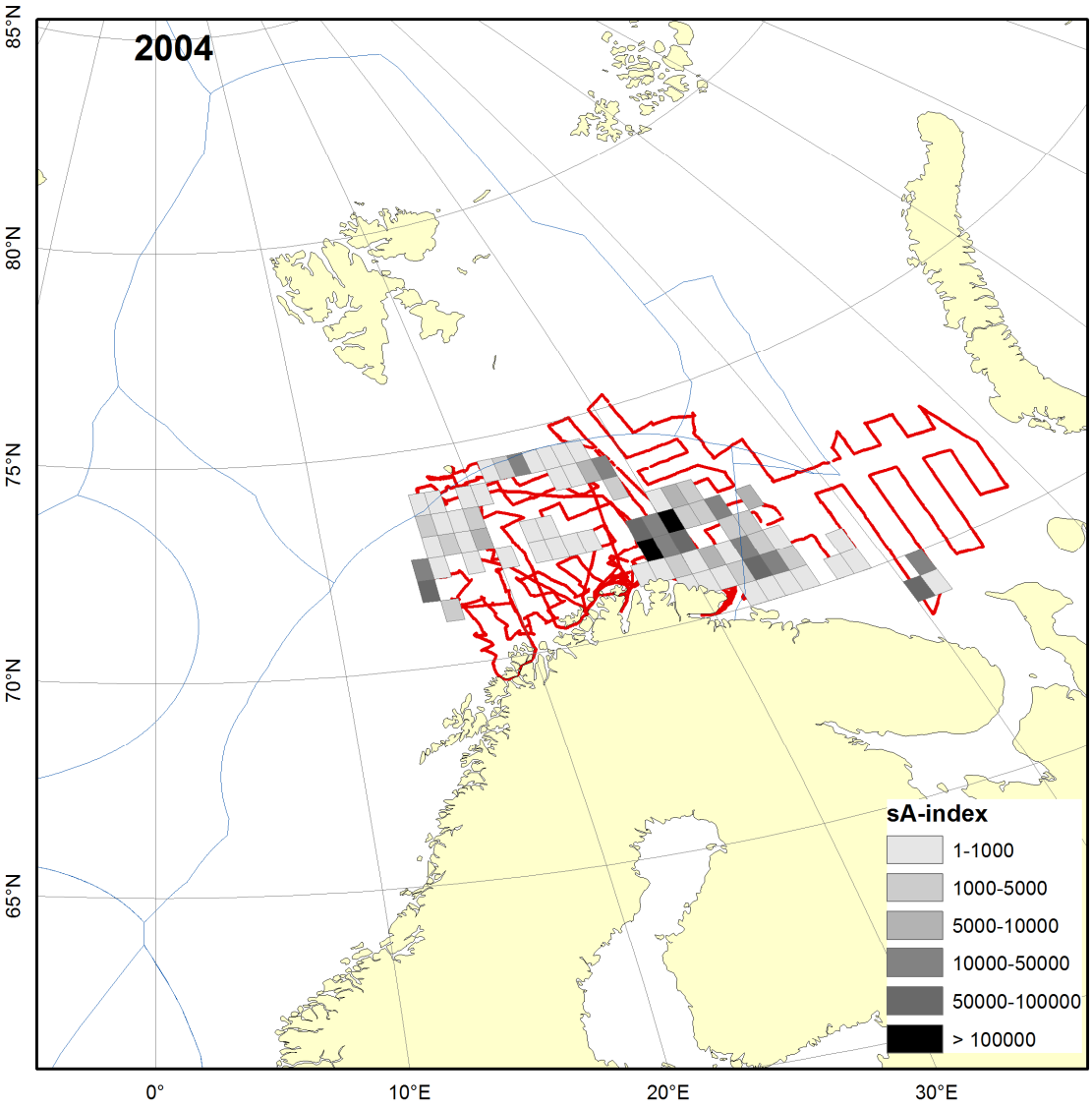


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2004, based on the winter survey in February.

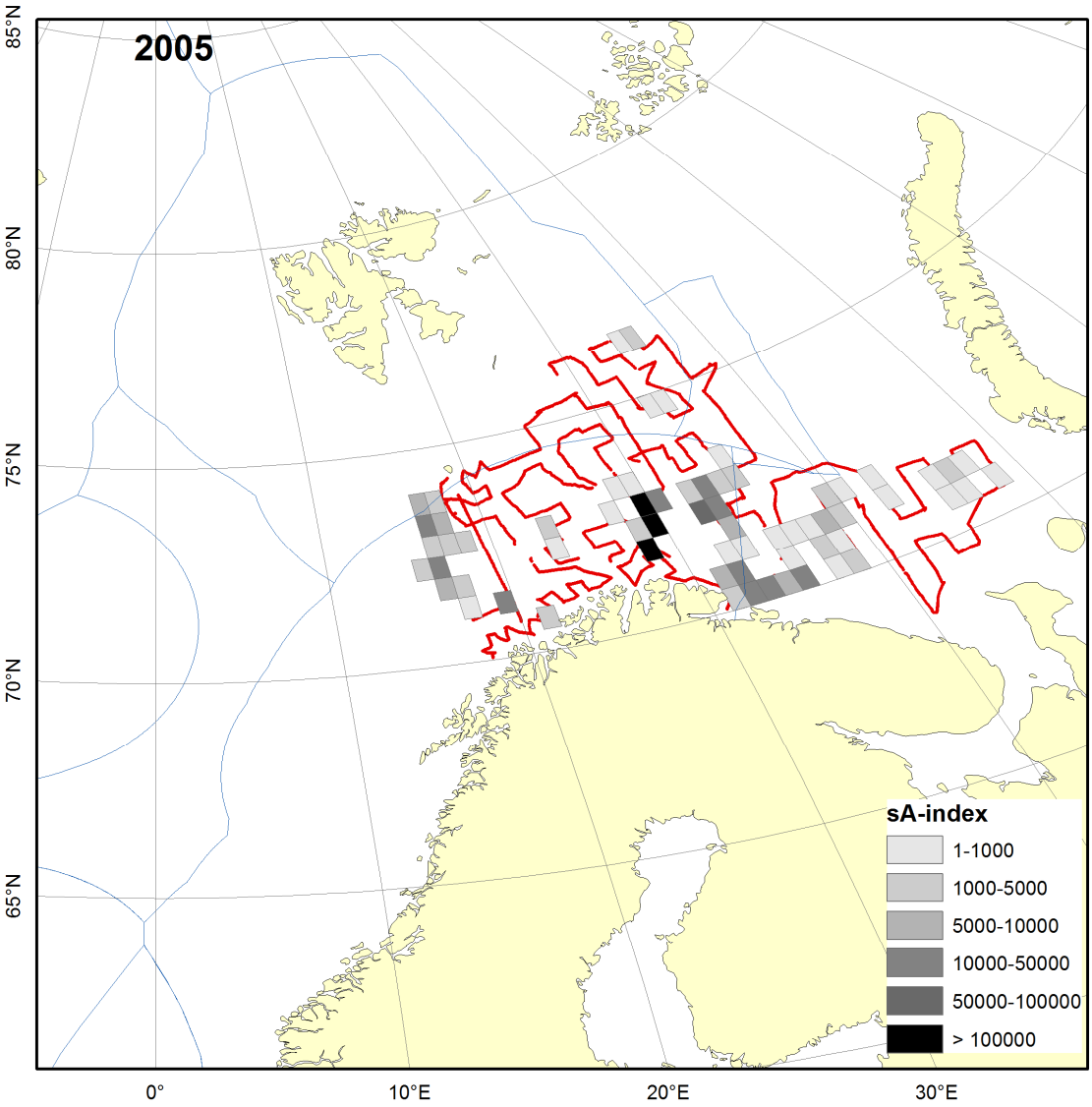


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2005, based on the winter survey in February.

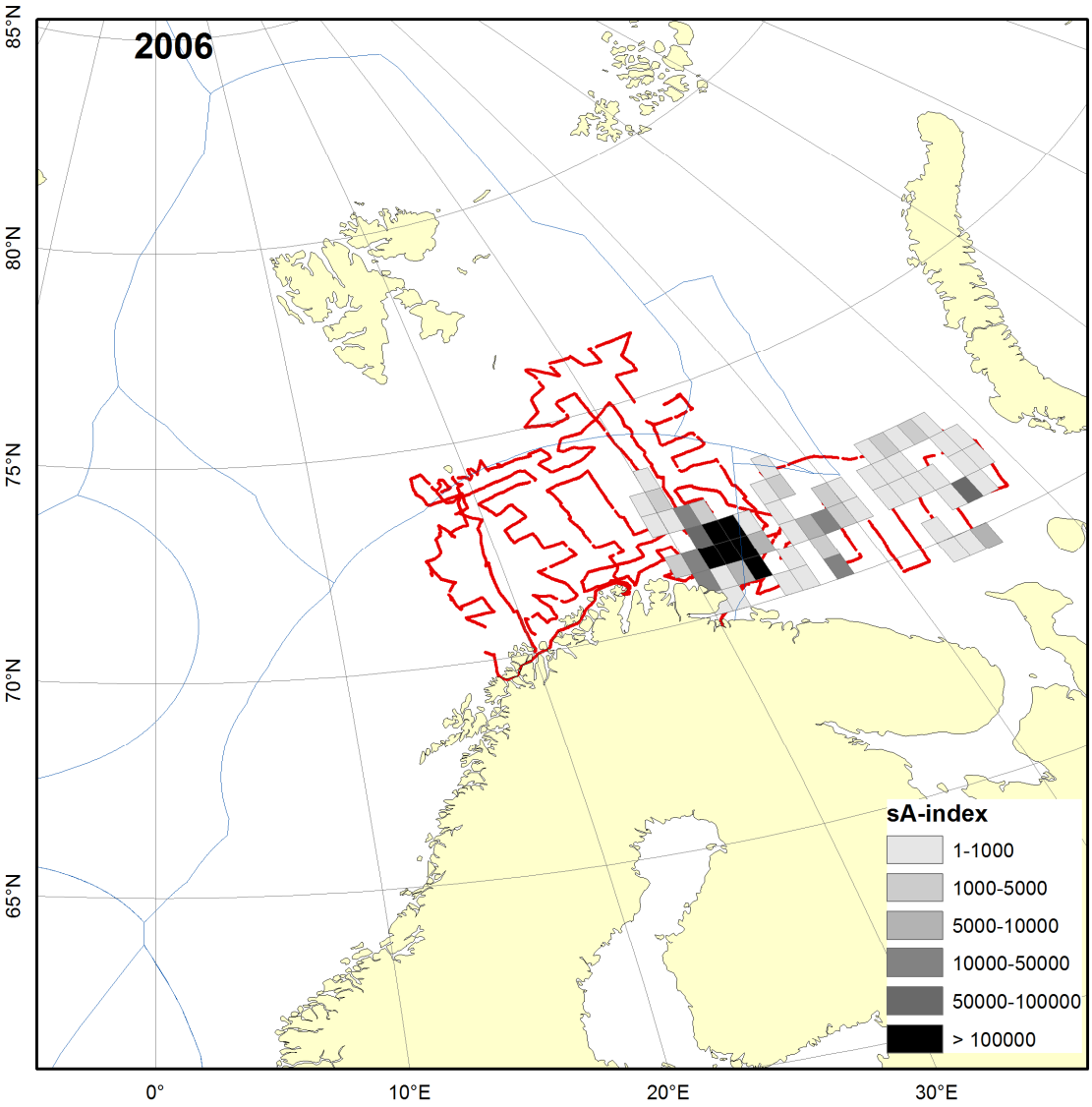


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2006, based on the winter survey in February.

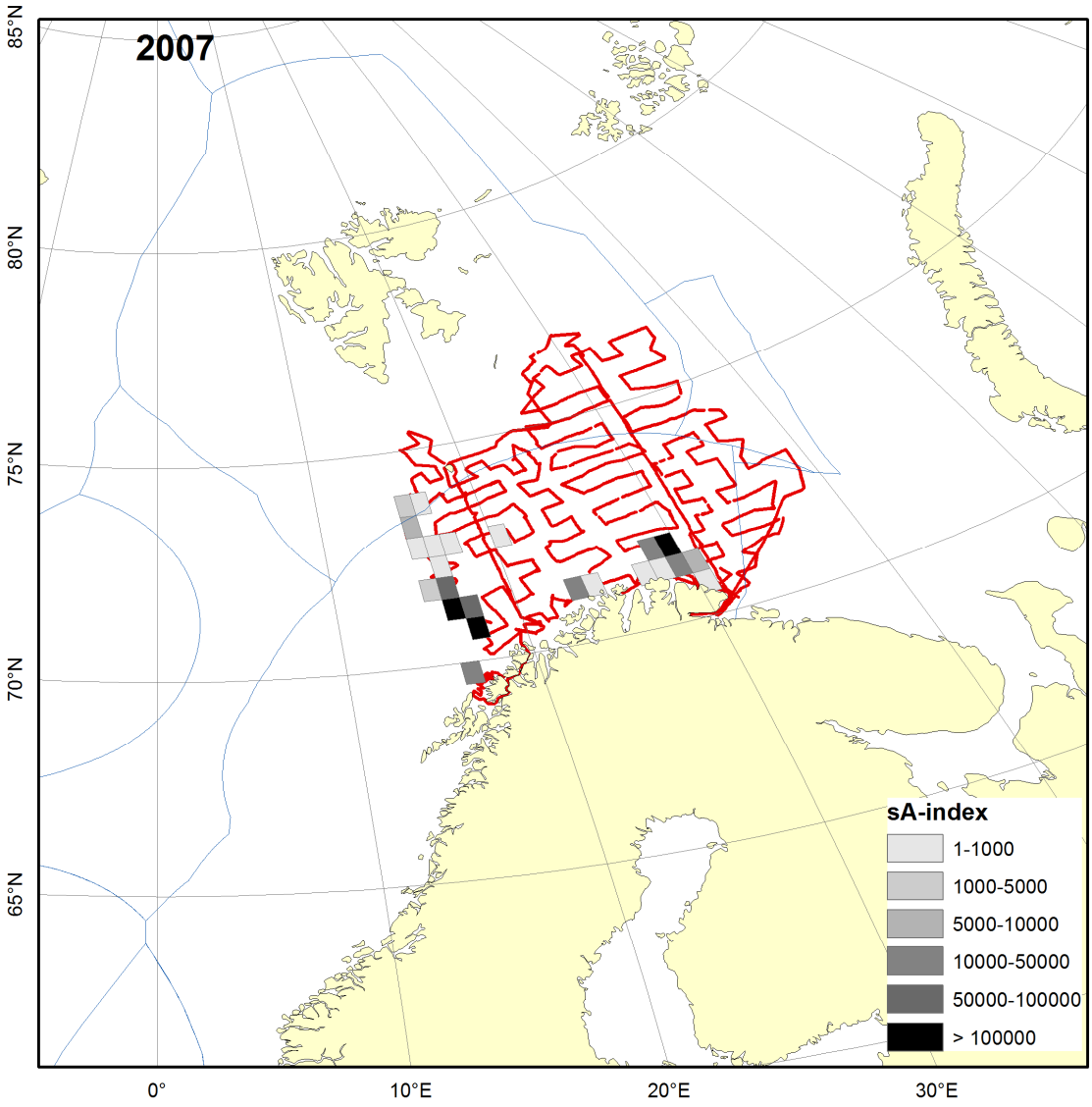


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2007, based on the winter survey in February.

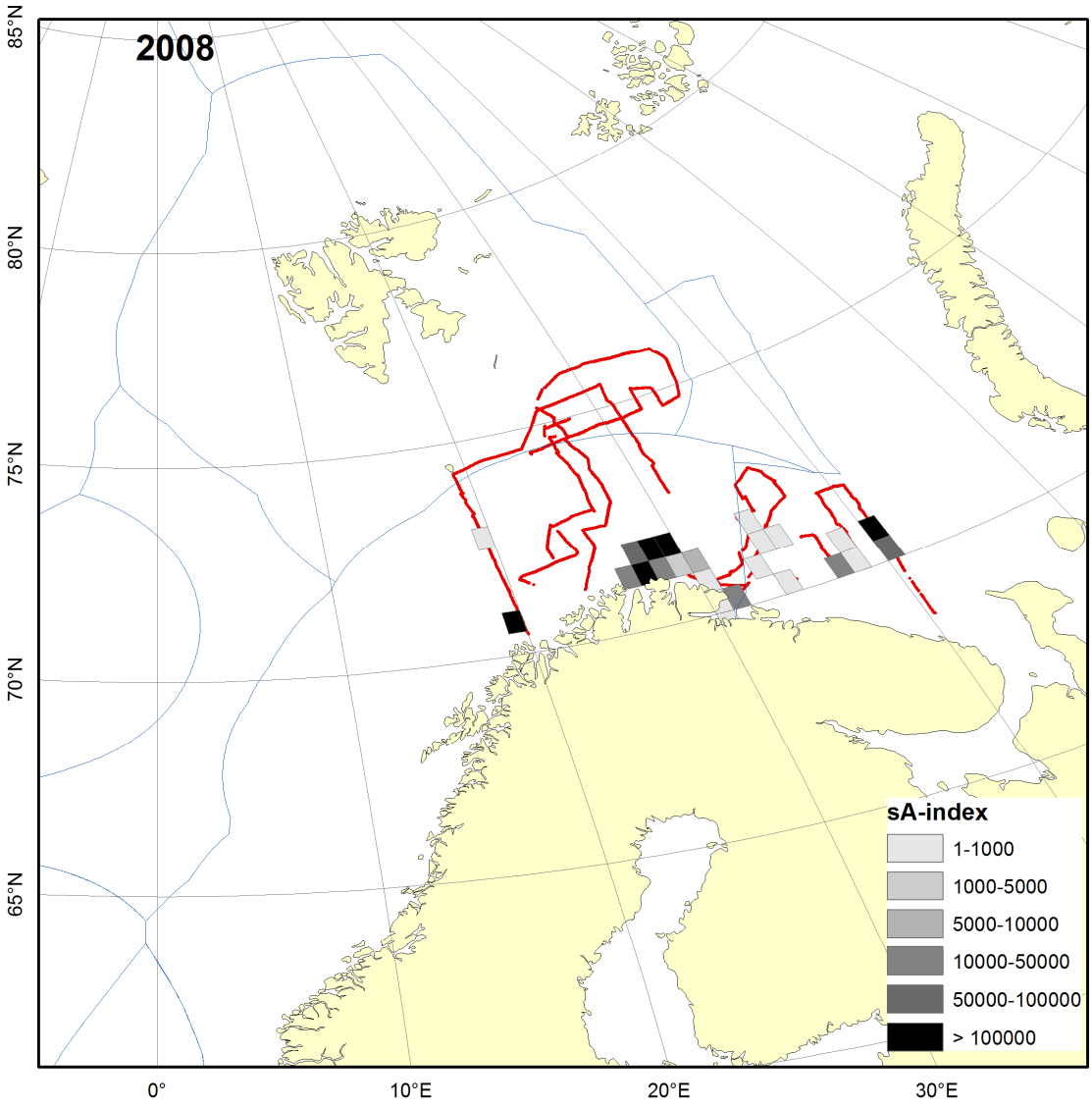


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2008, based on the winter survey in February.

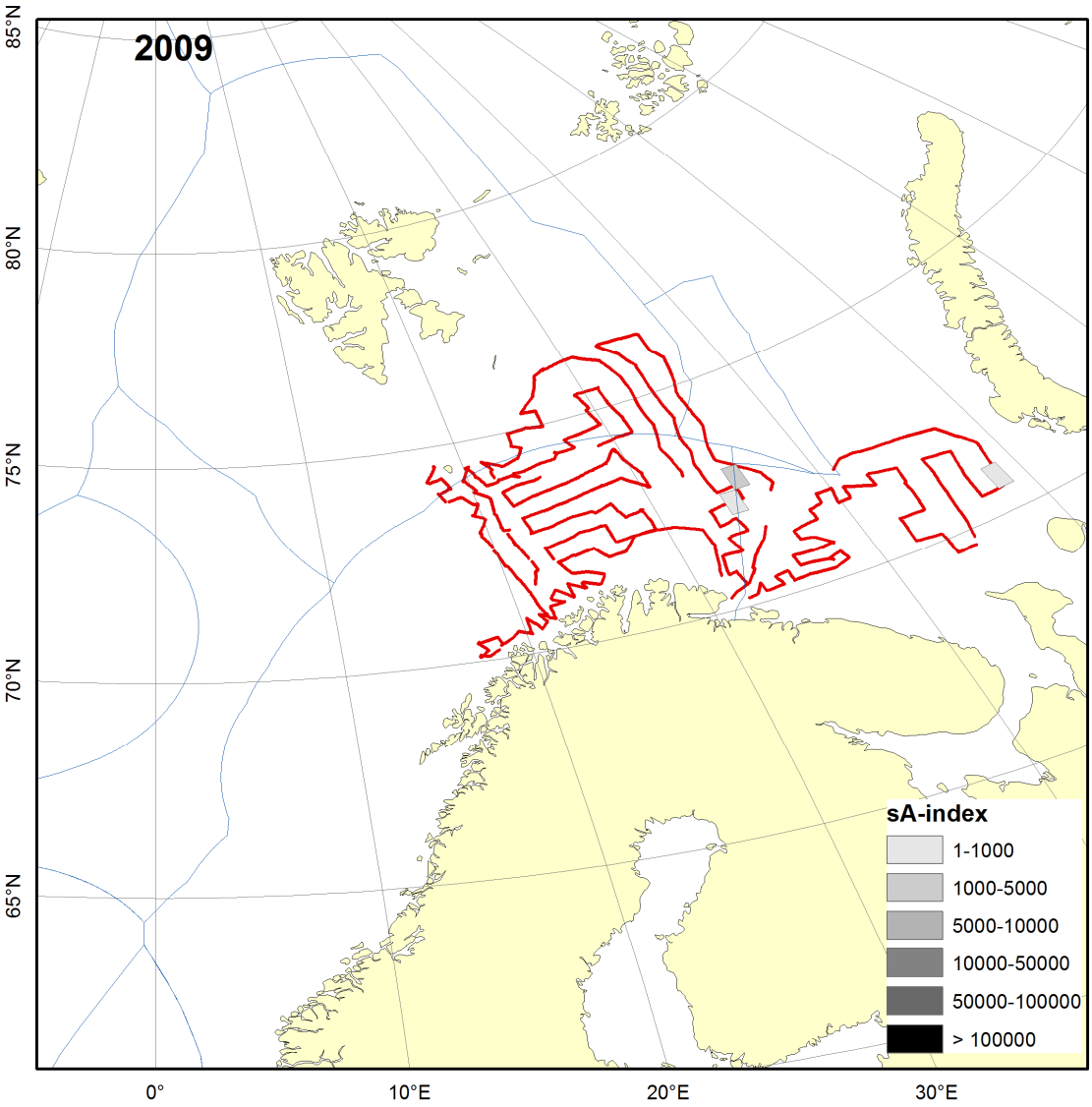


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2009, based on the winter survey in February.

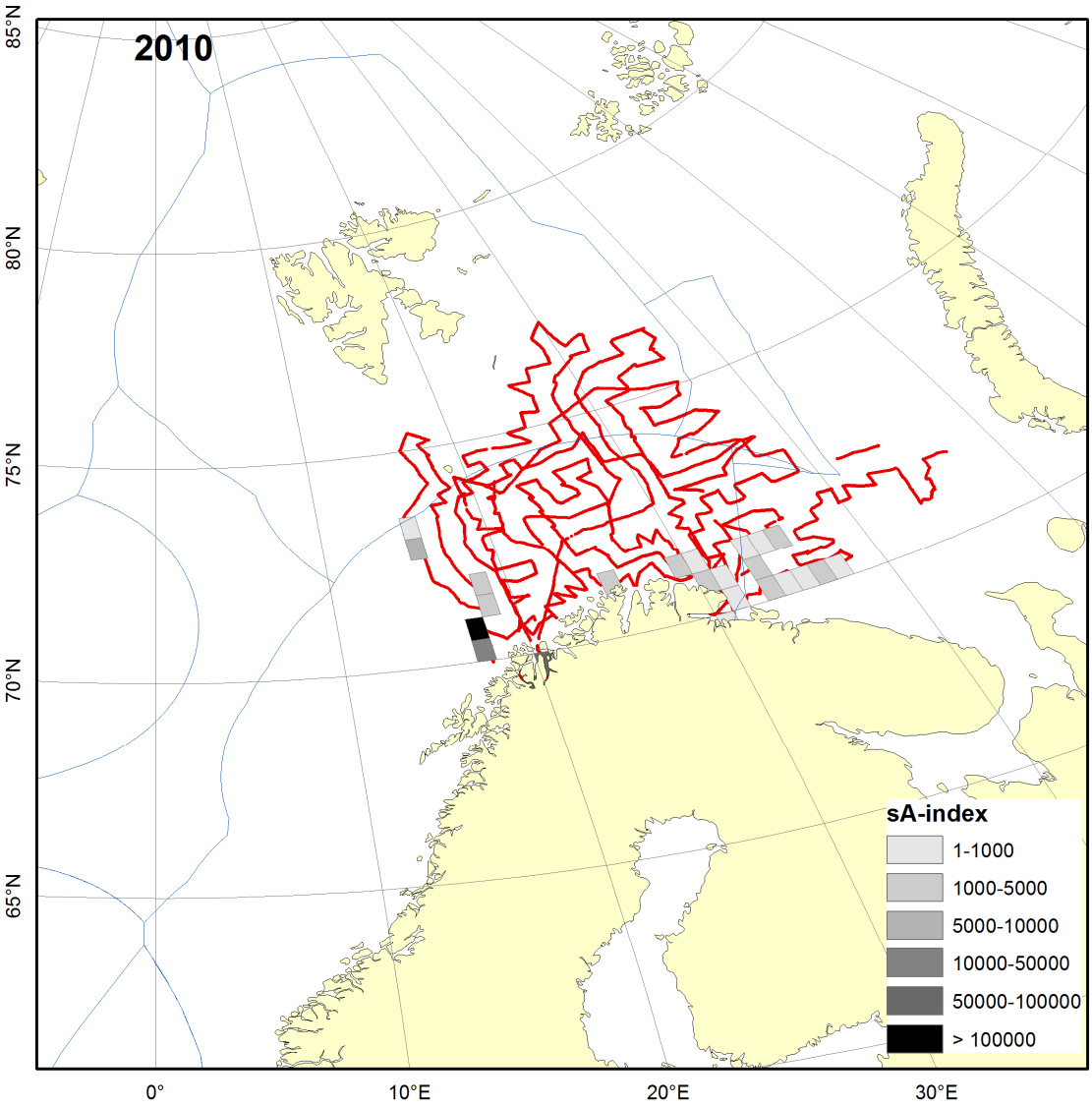


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2010, based on the winter survey in February.

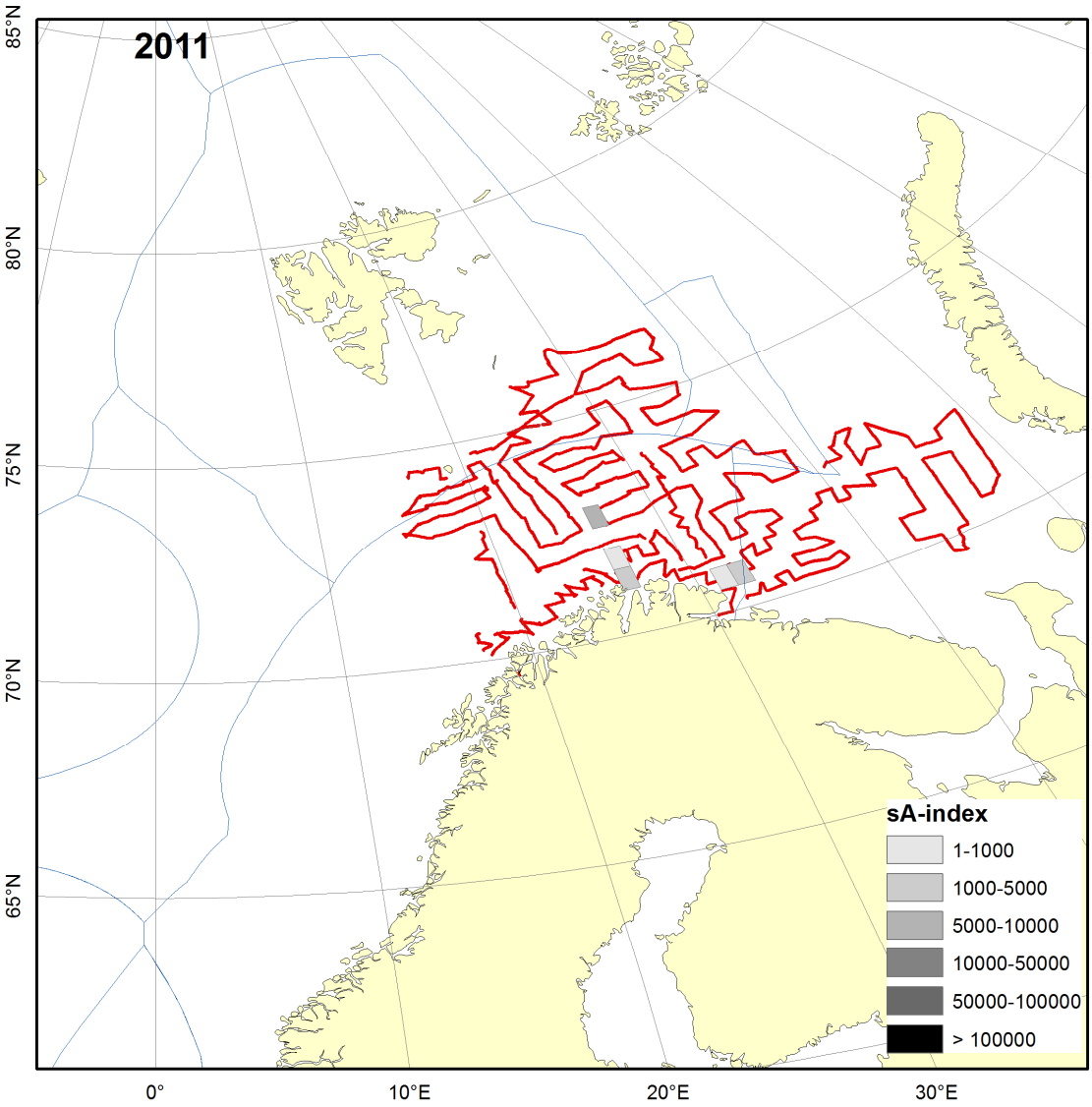


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2011, based on the winter survey in February.

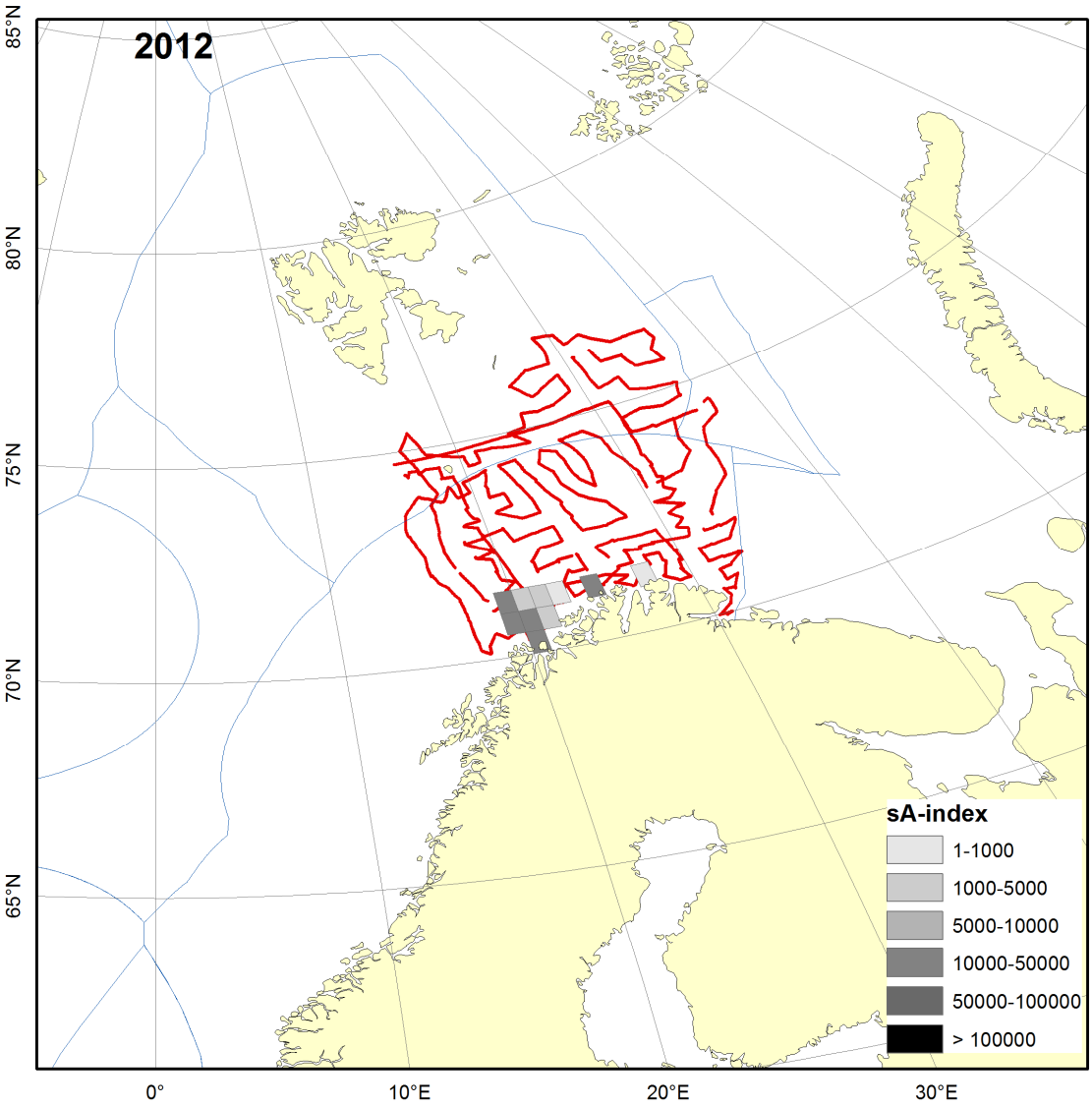


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2012, based on the winter survey in February.

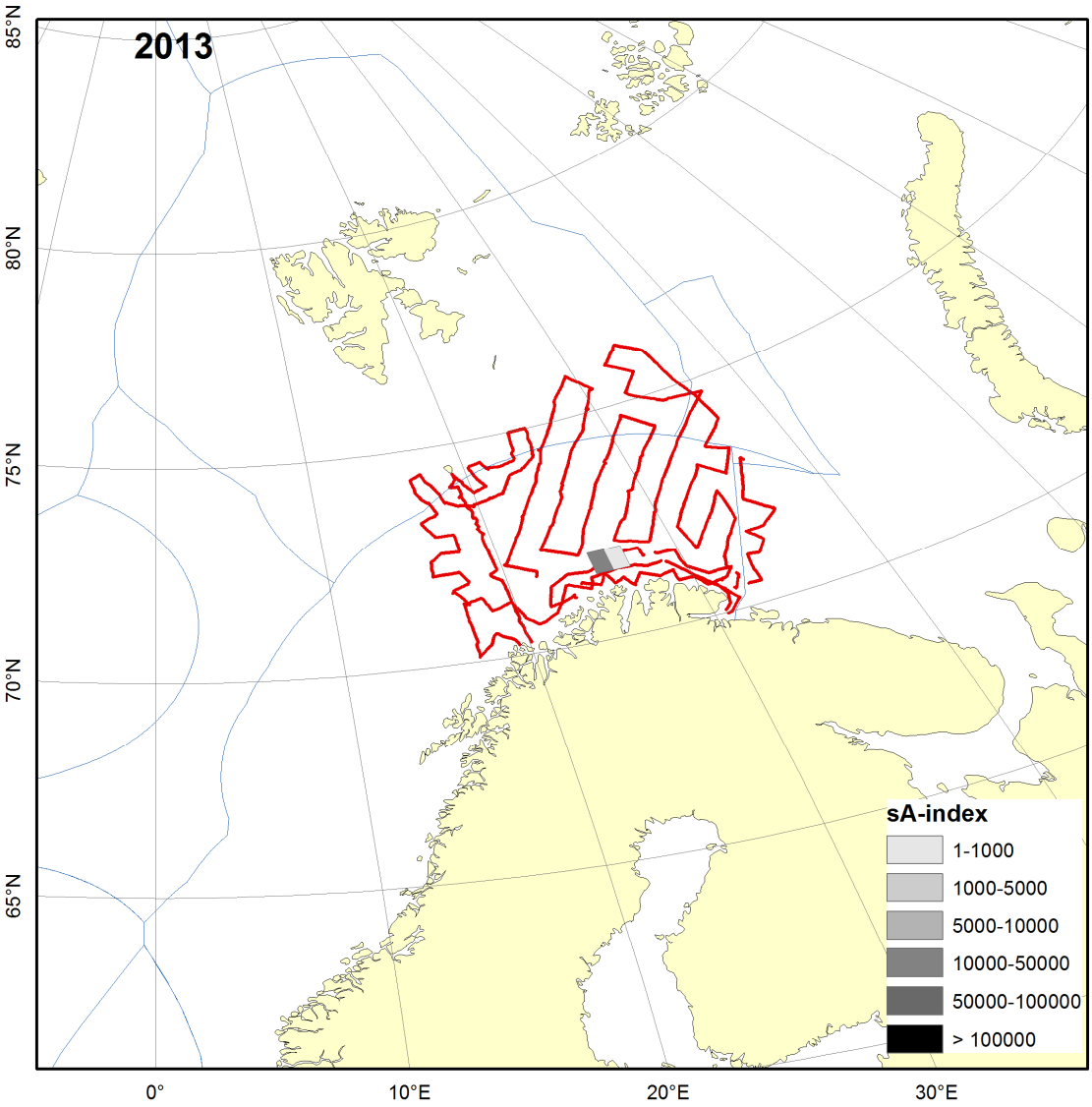


Figure 4.1.1 *continued*. Norwegian spring spawning herring. Distribution of juveniles in the Barents Sea in 2013, based on the winter survey in February.

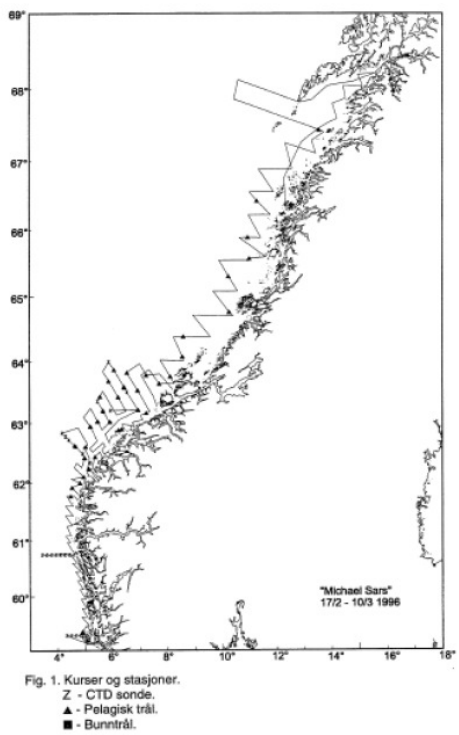


Fig. 1. Kurser og stasjoner.
Z - CTD sonde.
▲ - Pelagisk trål.
■ - Bunntrål.

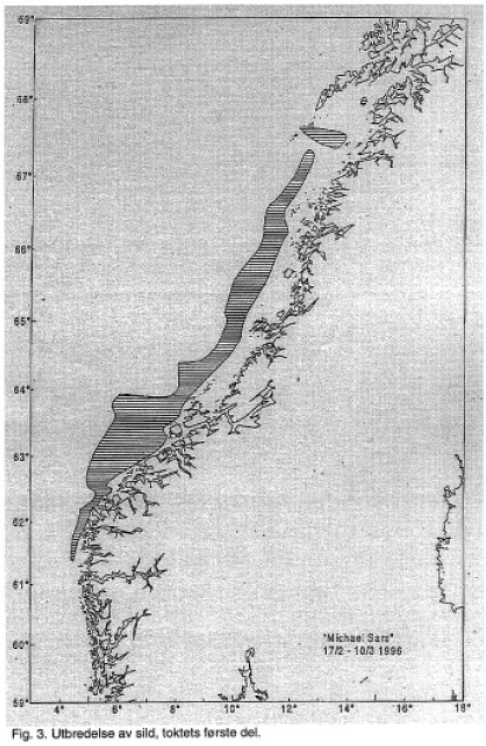


Fig. 3. Utbredelse av sild, toktets første del.

Figure 4.2.1. Norwegian spring spawning herring. Left, cruise track and, right, distribution of herring on the first part of the acoustic survey on the spawning grounds in 1996.

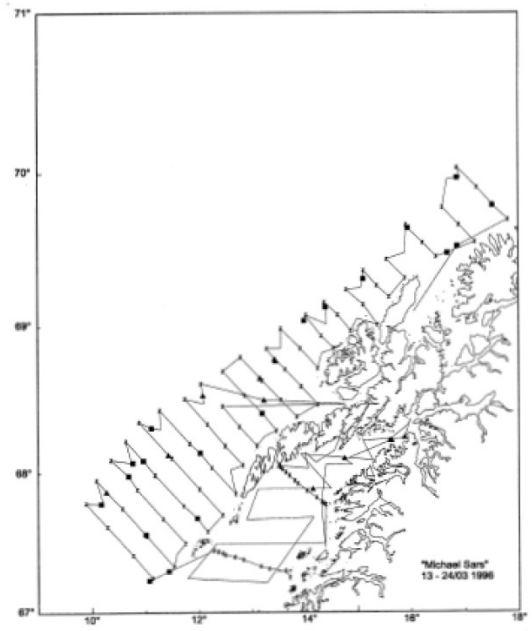


Fig. 2. Kurser og stasjoner.
Z - CTD sonde.
▲ - Pelagisk trål.
■ - Bunntrål.

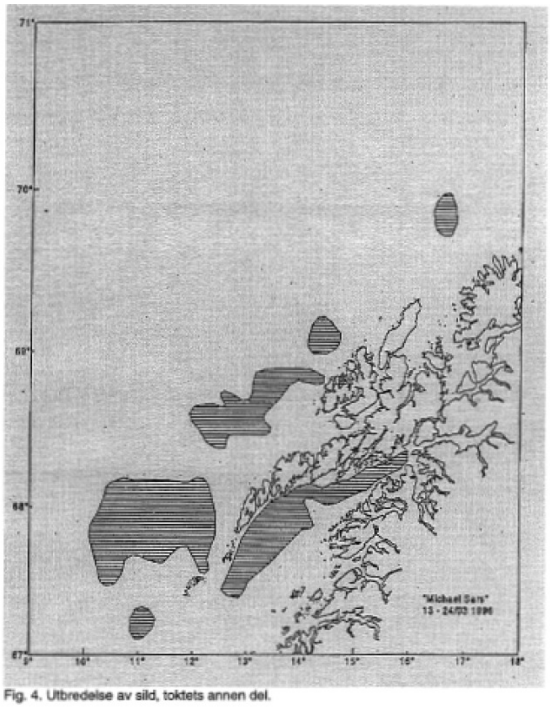


Fig. 4. Utbredelse av sild, toktets annen del.

Figure 4.2.1 *continued*. Norwegian spring spawning herring. Left, cruise track and, right, distribution of herring on second part of the acoustic survey on the spawning grounds in 1996.

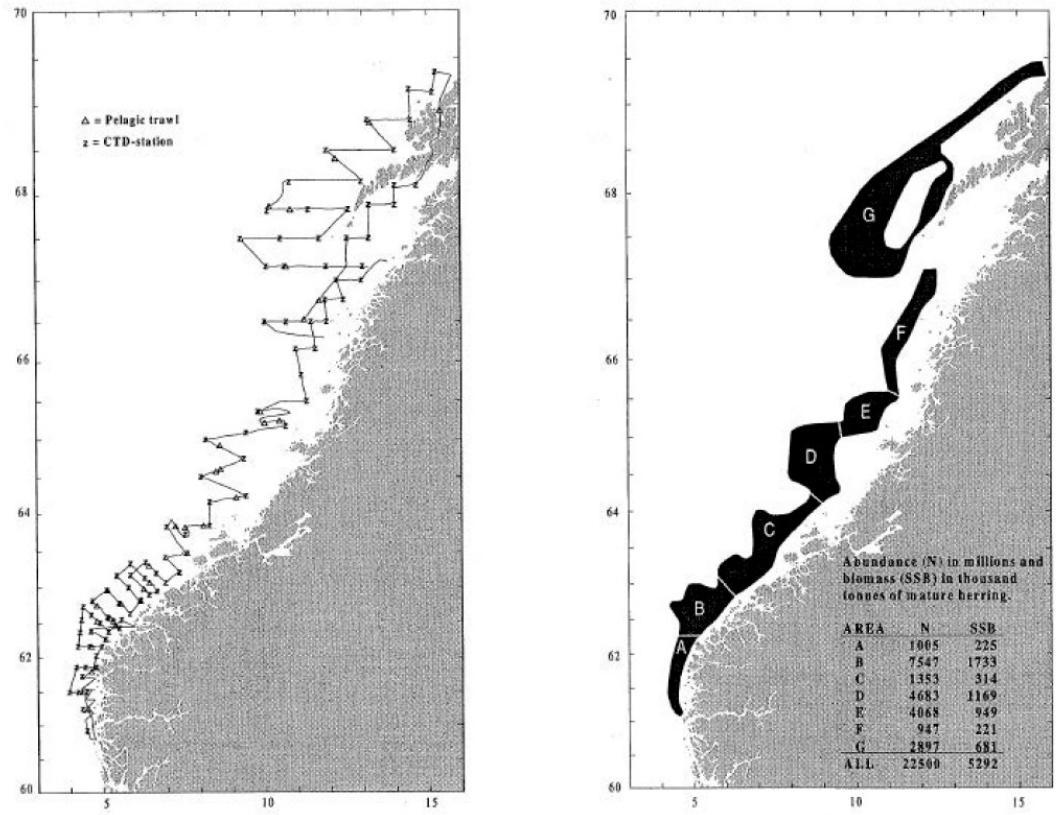


Figure 4.2.1 *continued*. Norwegian spring spawning herring. Left, cruise track and, right, distribution, abundance and biomass of herring on the acoustic survey on the spawning grounds in 1998.

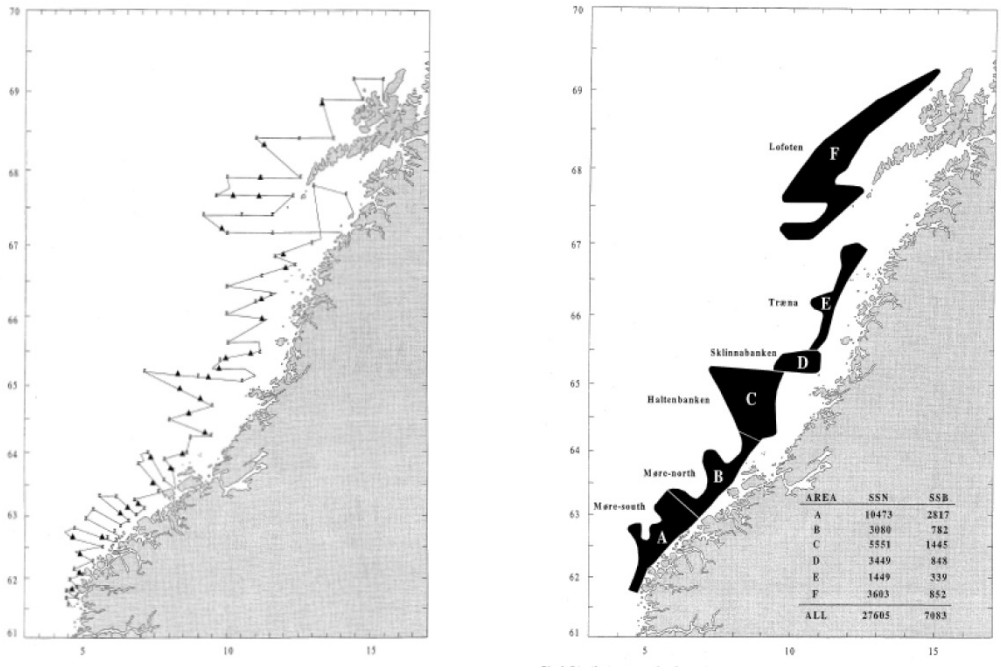


Figure 4.2.1 *continued*. Norwegian spring spawning herring. Left, cruise track and, right, distribution, abundance and biomass of herring on the acoustic survey on the spawning grounds in 1999.

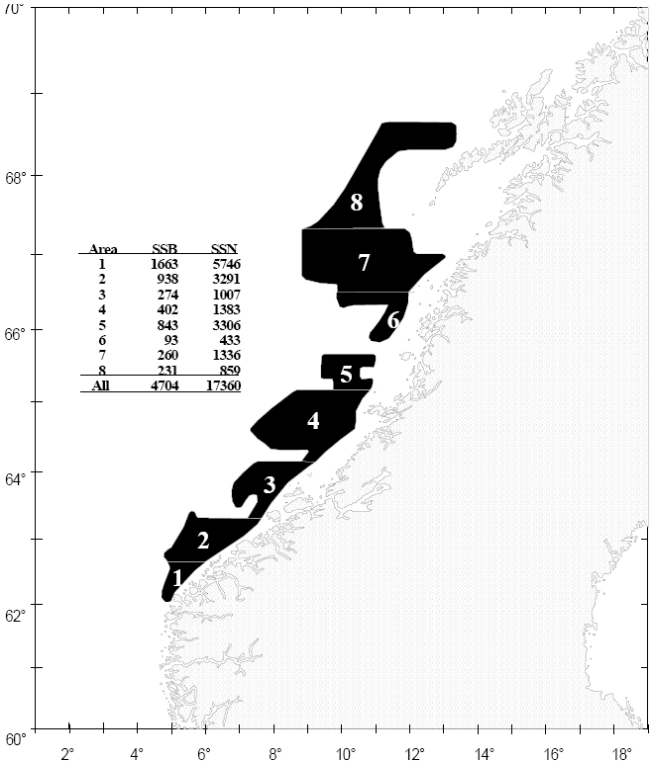


Figure 4.2.1 *continued*. Norwegian spring spawning herring. Distribution, abundance and biomass of herring on the acoustic survey on the spawning grounds in 2000.

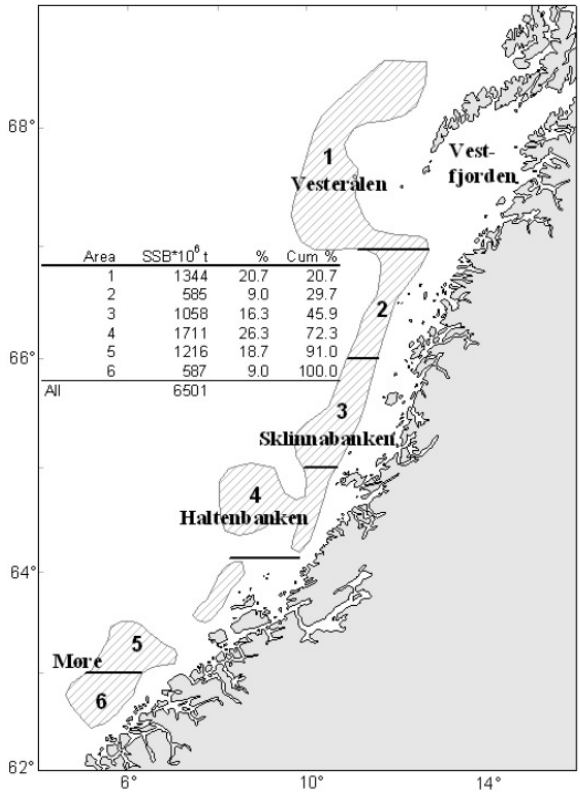


Figure 4.2.1 *continued*. Norwegian spring spawning herring. Distribution, abundance and biomass of herring on the acoustic survey on the spawning grounds in 2005.

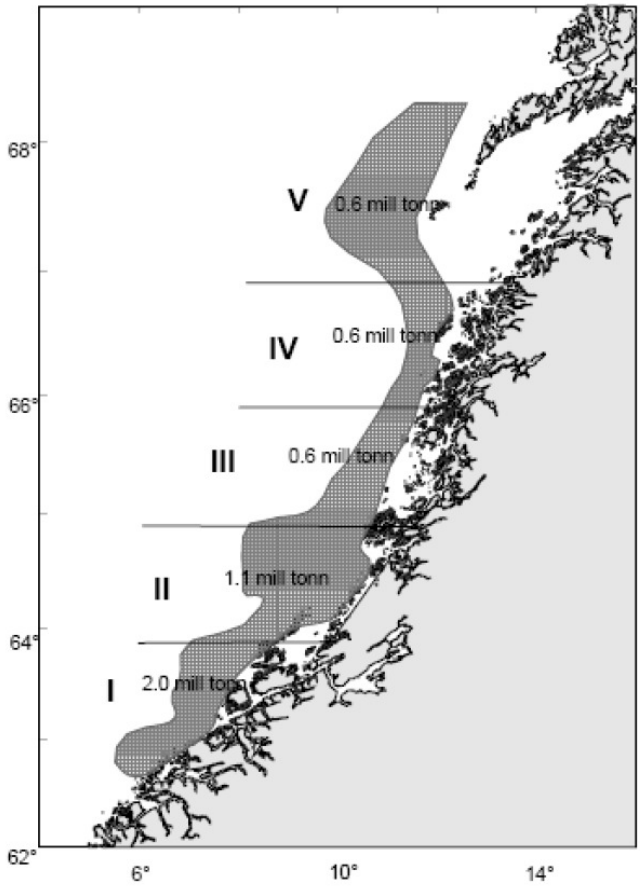


Figure 4.2.1 *continued*. Norwegian spring spawning herring. Distribution, abundance and biomass of herring on the acoustic survey on the spawning grounds in 2006.

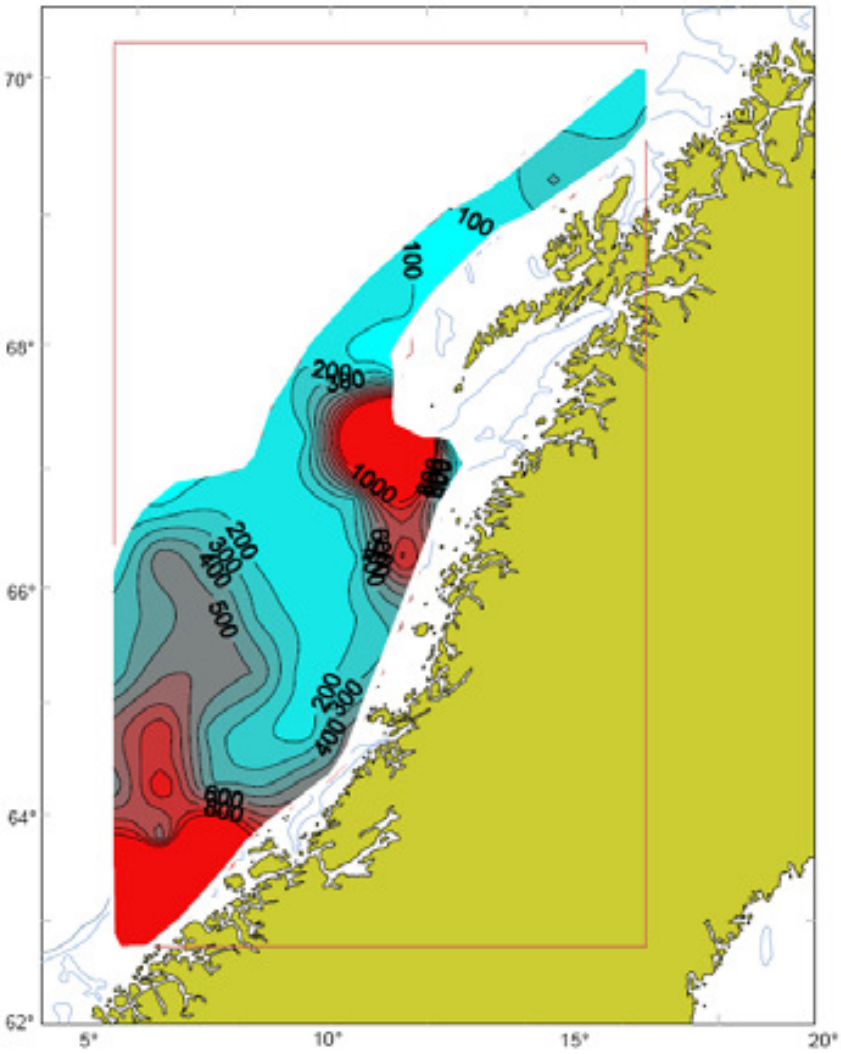


Figure 4.2.1 *continued*. Norwegian spring spawning herring. Distribution, abundance and biomass of herring on the acoustic survey on the spawning grounds in 2007.

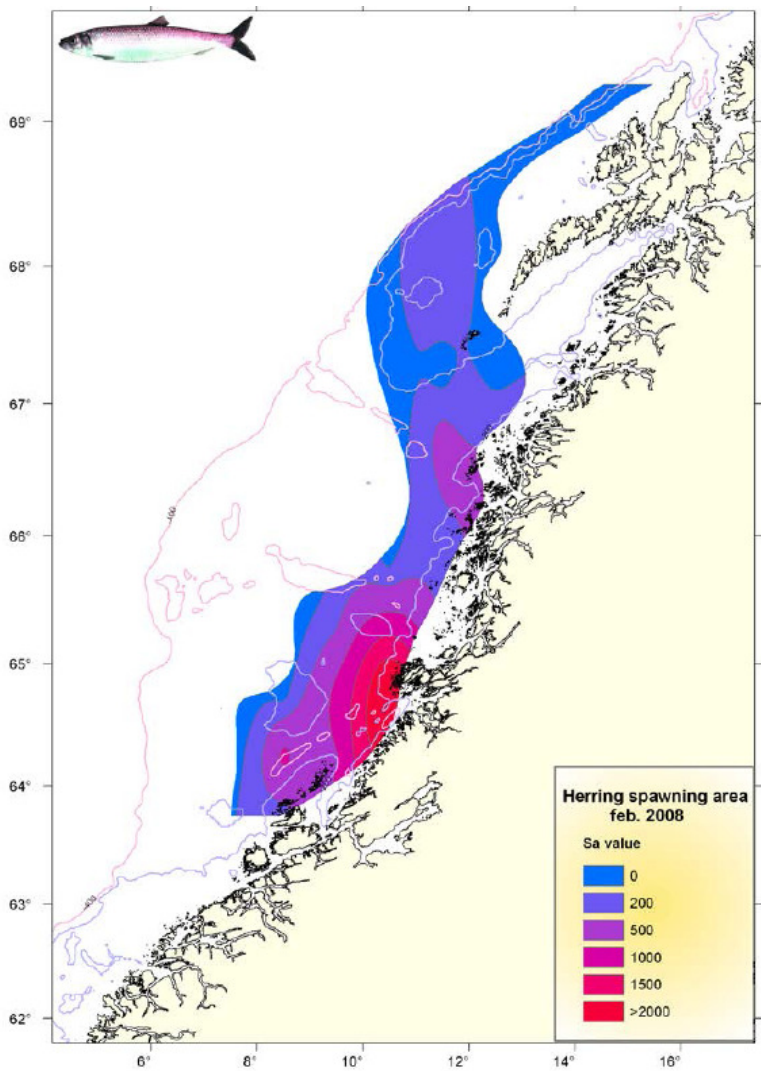


Figure 4.2.1 *continued*. Norwegian spring spawning herring. Distribution of herring (s_A -value) on the acoustic survey on the spawning grounds in 2008.

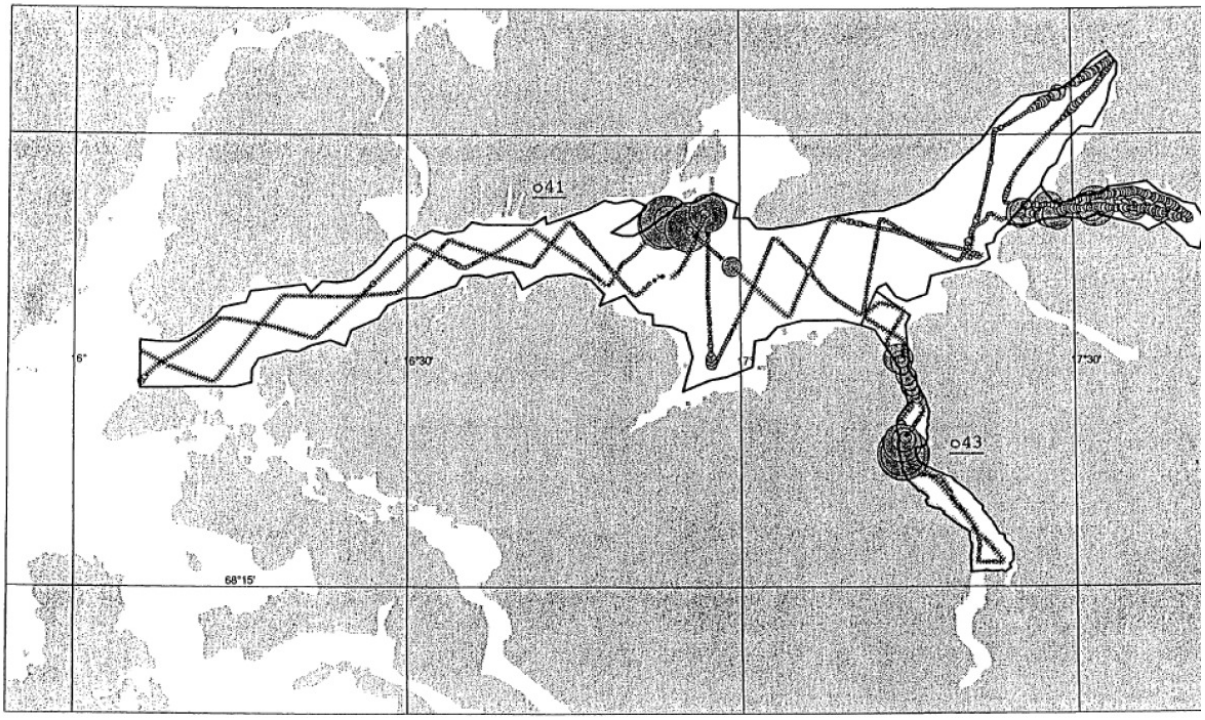


Figure 4.3.1. Norwegian spring spawning herring. Distribution of herring in Ofotfjord in the wintering survey January 1996. The radius of a circle is proportional to the square root of the extinction-adjusted s_A-value. The maximum s_A -value shown is 0.8338 x 106 m^2/NM^2.

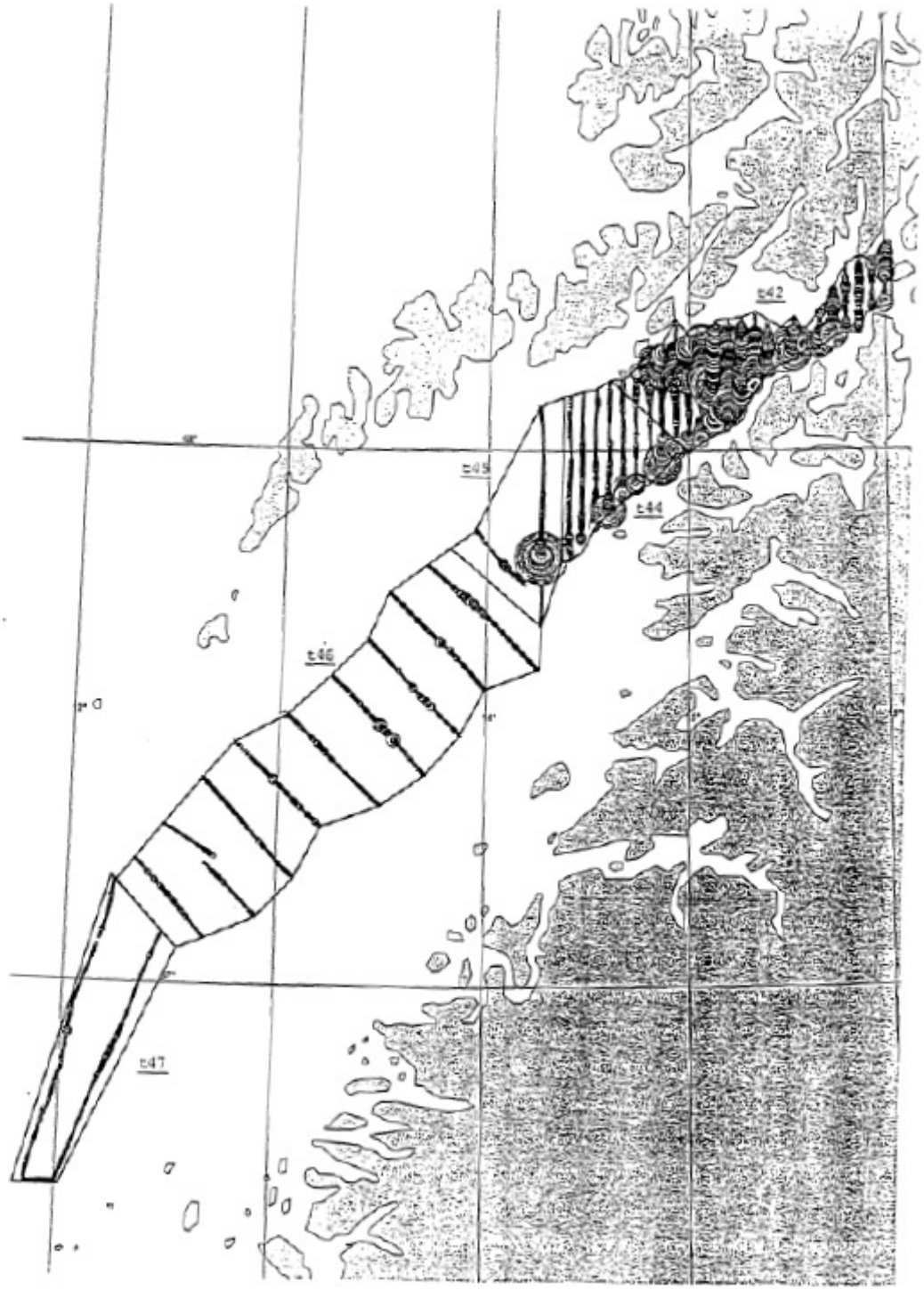


Figure 4.3.1 *continued*. Norwegian spring spawning herring. Distribution of herring in Vestfjord in the wintering survey January 1996. The radius of a circle is proportional to the square root of the extinction-adjusted s_A-value. The maximum s_A -value shown is 0.8338 x 106 m^2/NM^2.

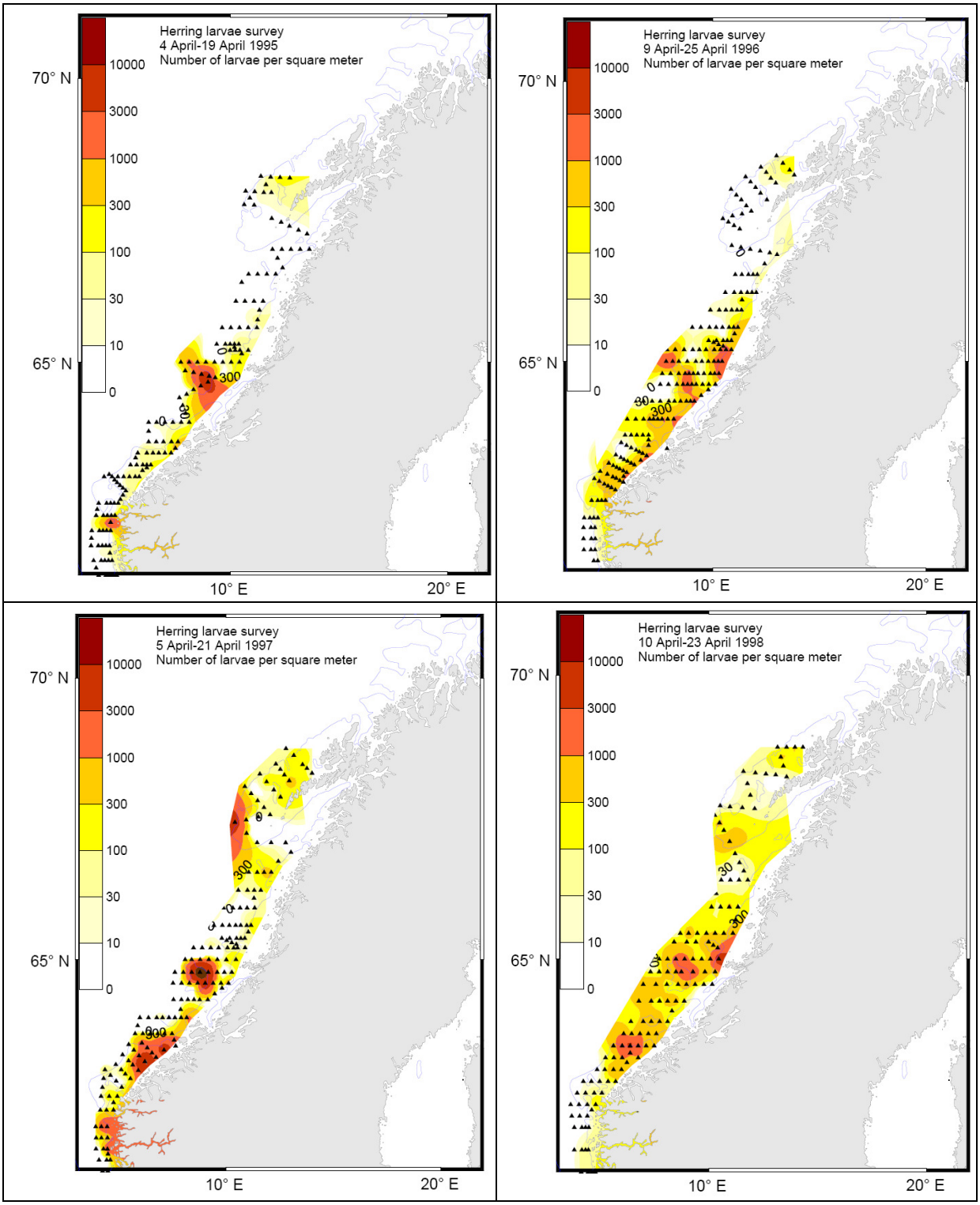


Figure 4.4.1. Norwegian spring spawning herring. Larval index from the larval survey along the Norwegian coast in April 1995-1998. Abundance measured in number of larvae per m^2.

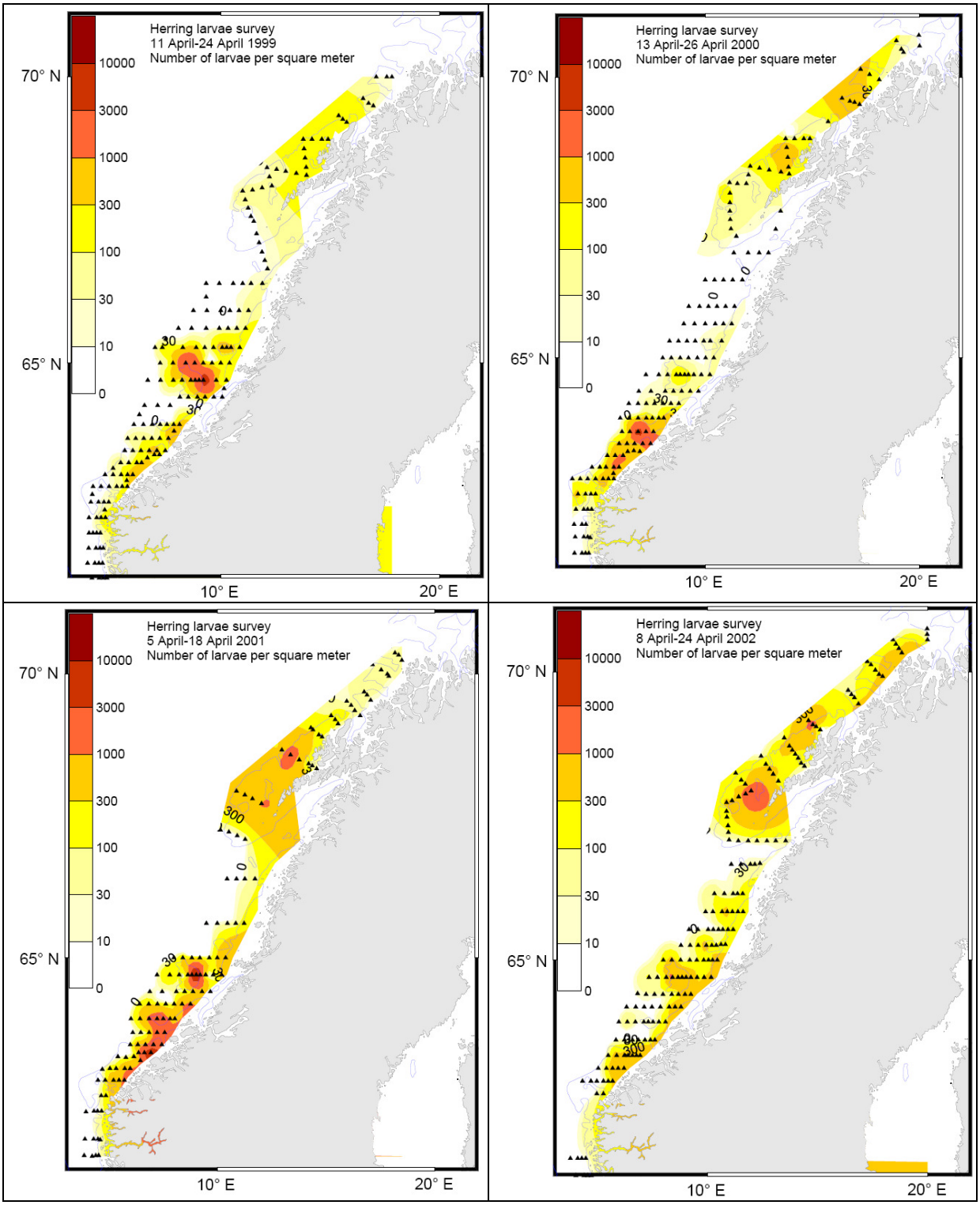


Figure 4.4.1 *continued*. Norwegian spring spawning herring. Larval index from the larval survey along the Norwegian coast in April 1999-2002. Abundance measured in number of larvae per m^2.

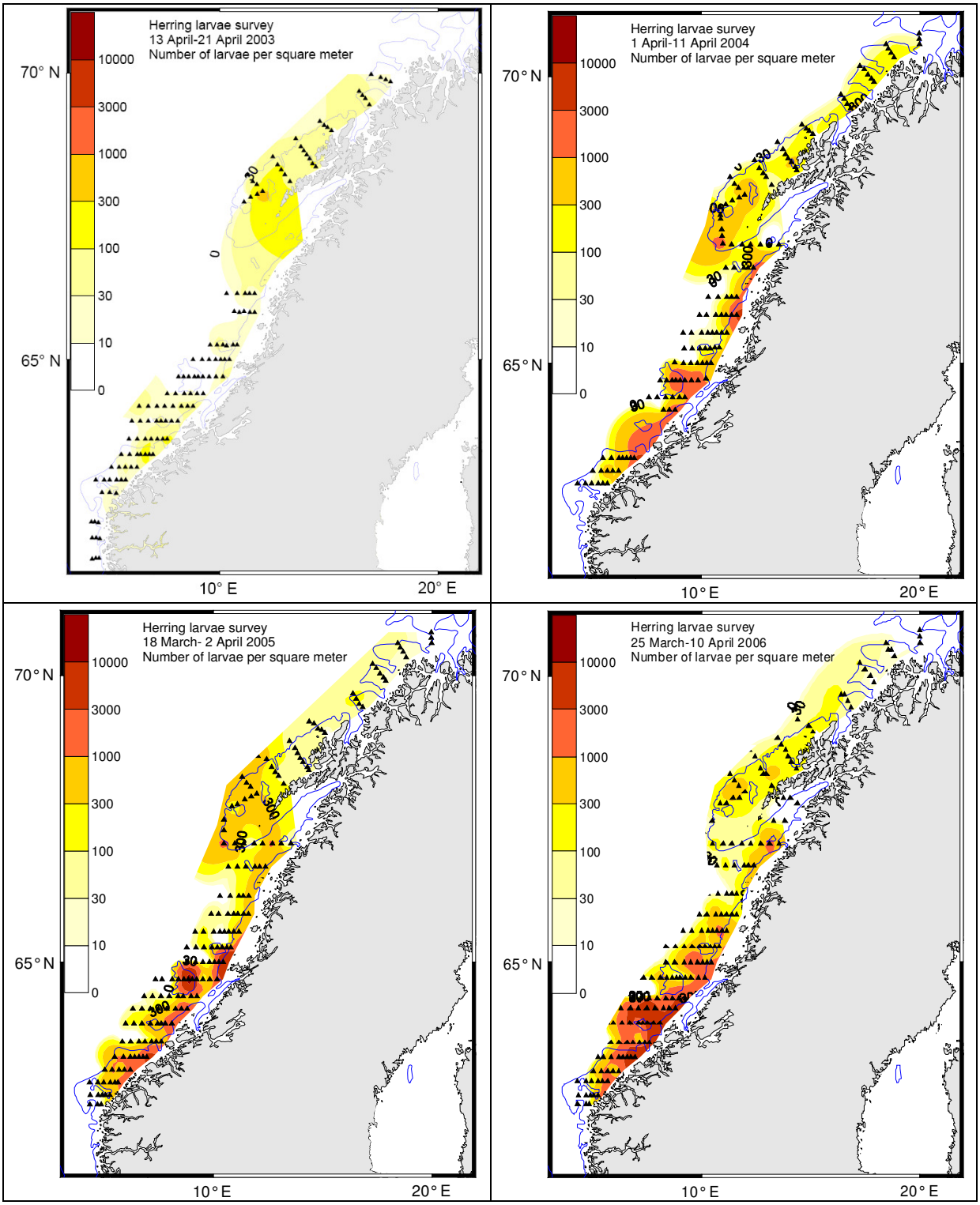


Figure 4.4.1 *continued*. Norwegian spring spawning herring. Larval index from the larval survey along the Norwegian coast in April 2003-2006. Abundance measured in number of larvae per m^2.

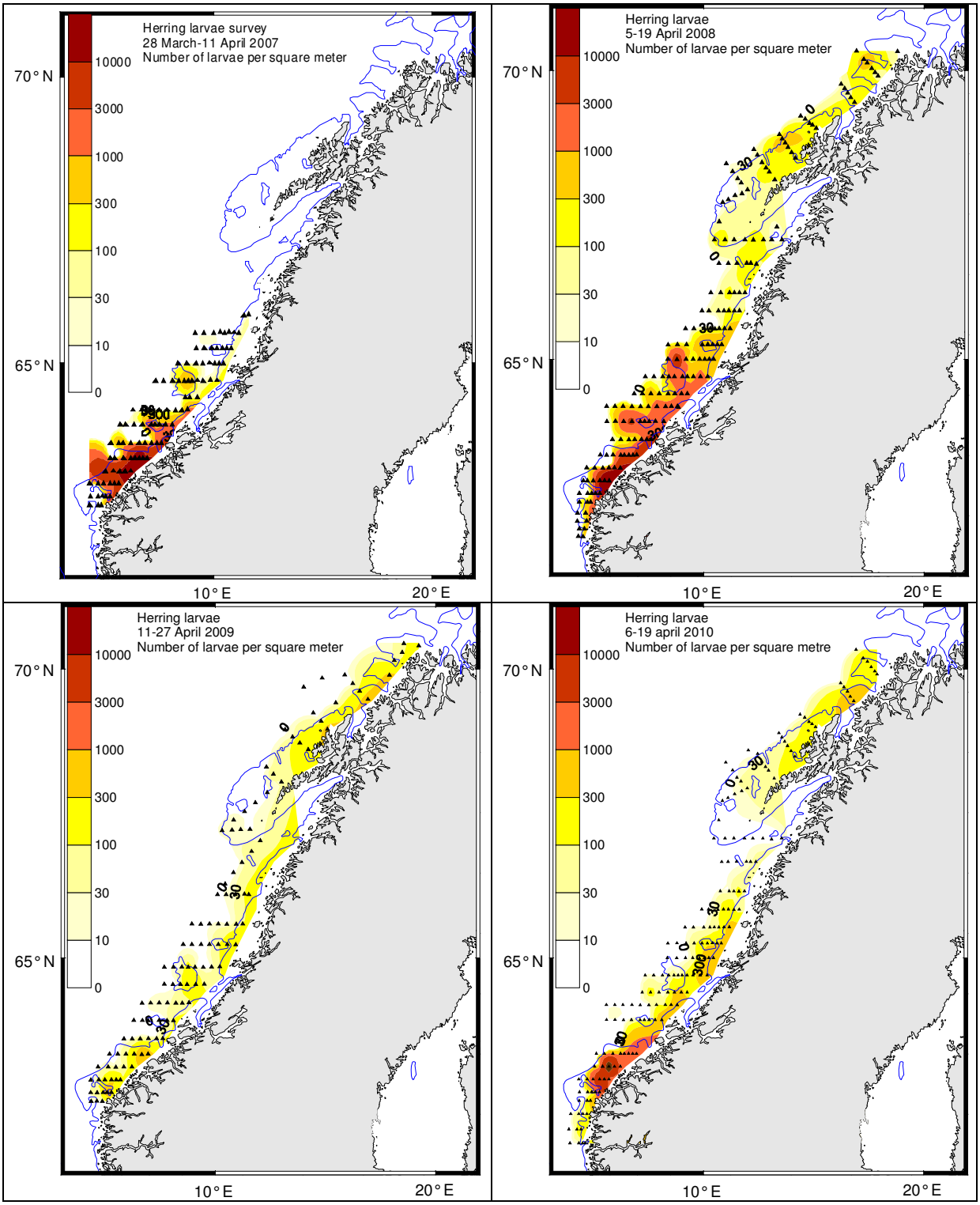


Figure 4.4.1 *continued*. Norwegian spring spawning herring. Larval index from the larval survey along the Norwegian coast in April 2007-2010. Abundance measured in number of larvae per m^2.

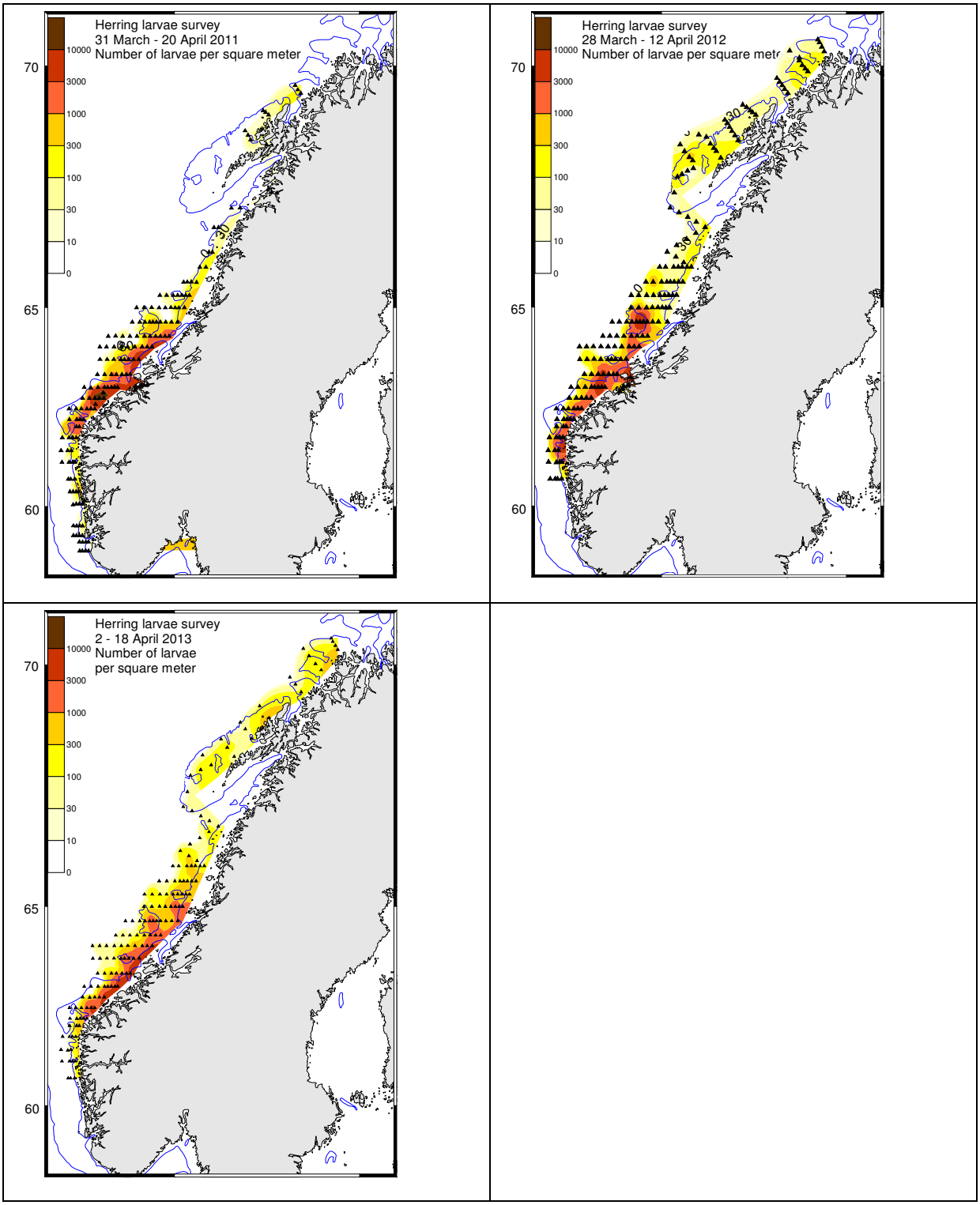


Figure 4.4.1 *continued*. Norwegian spring spawning herring. Larval index from the larval survey along the Norwegian coast in April 2011-2013. Abundance measured in number of larvae per m^2.

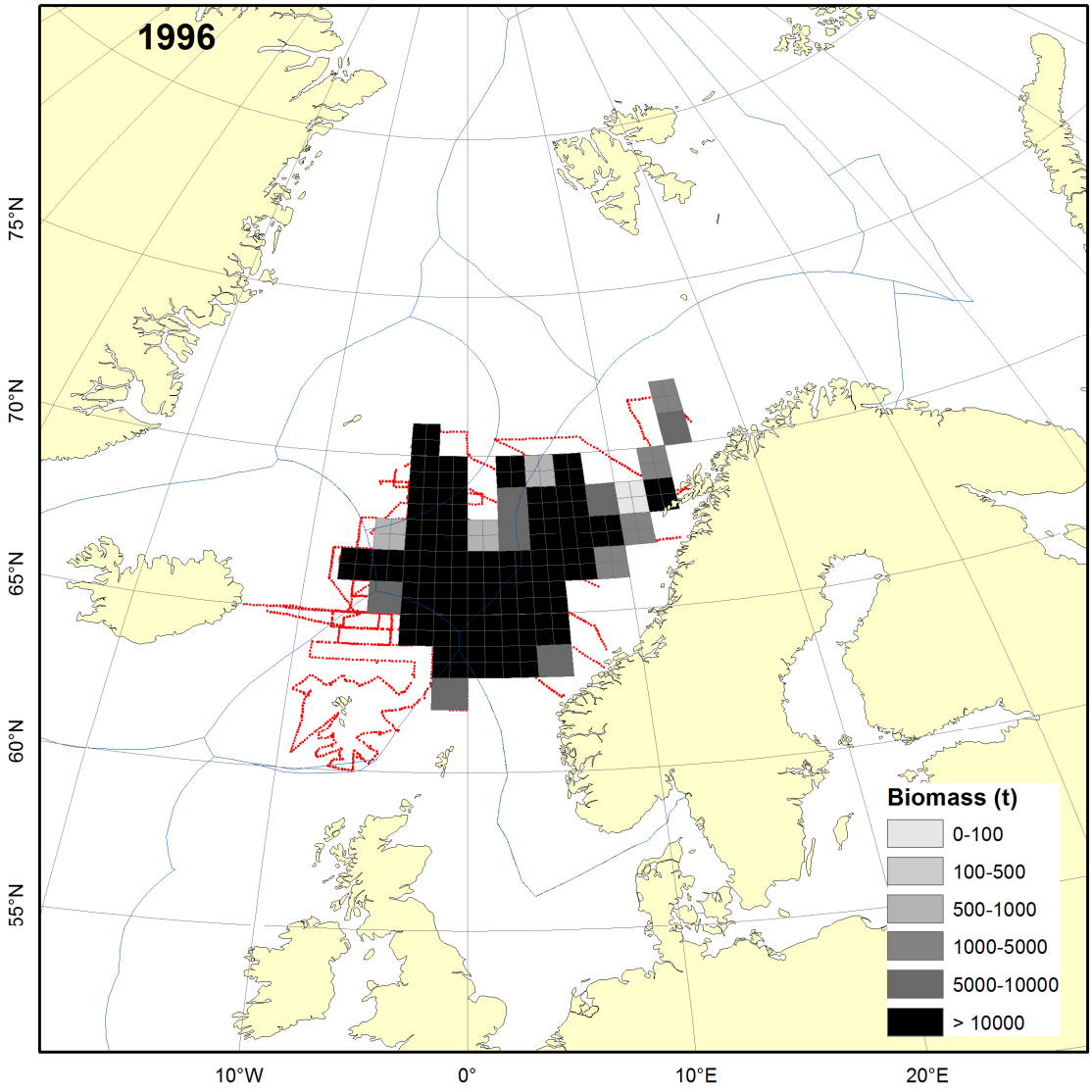


Figure 4.5.1. Norwegian spring spawning herring. Distribution in 1996 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

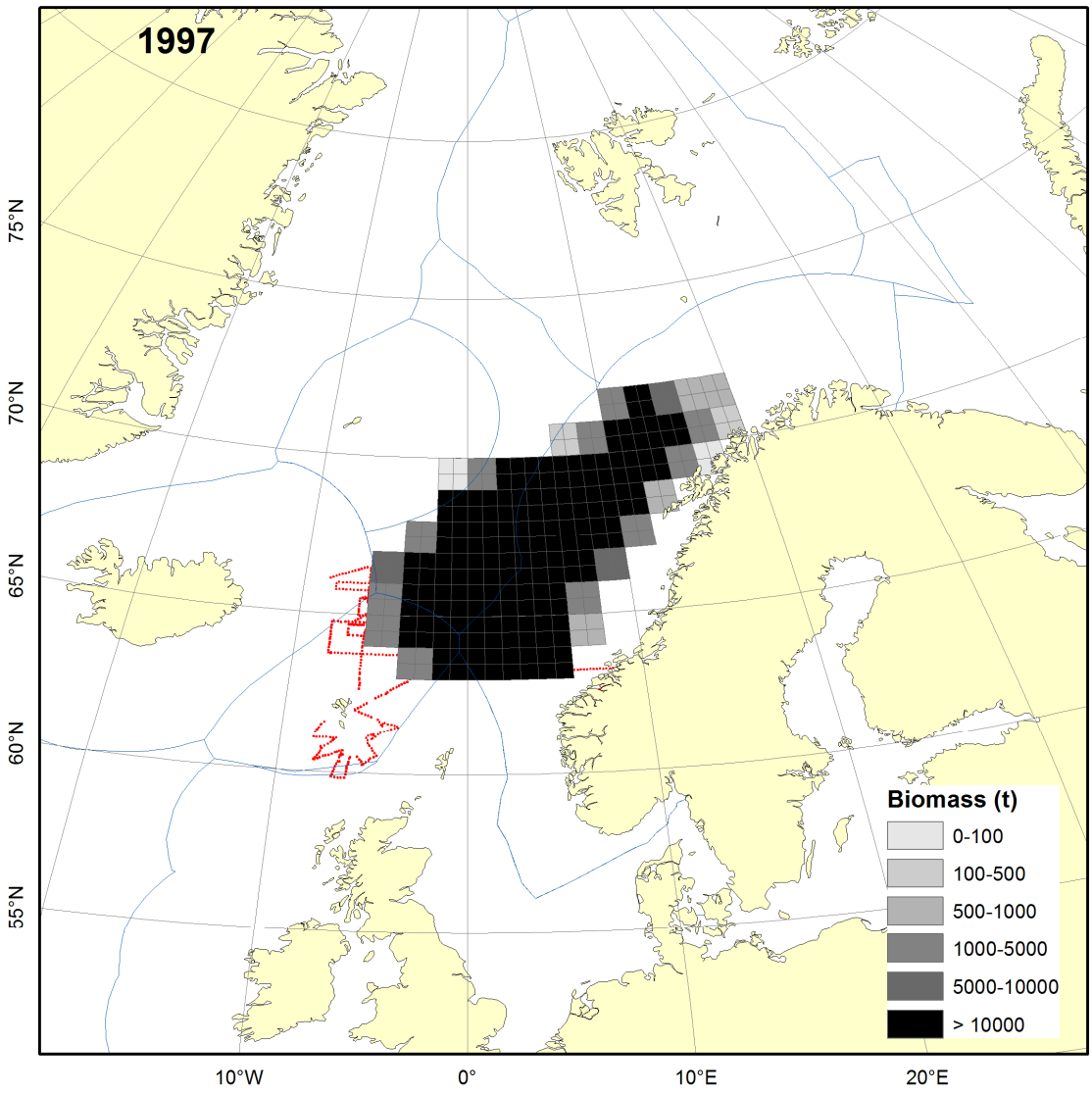


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 1997 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

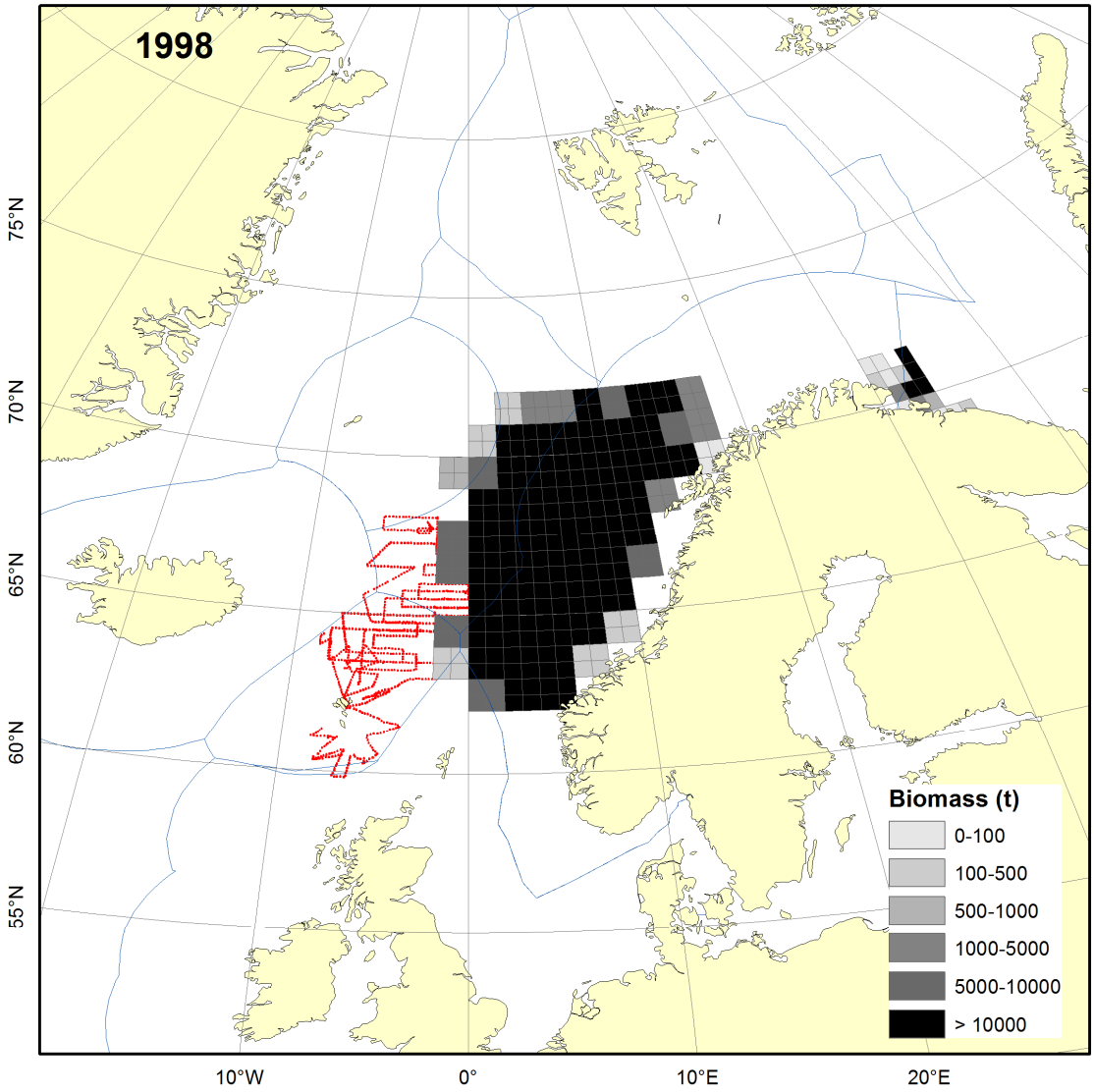


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 1998 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

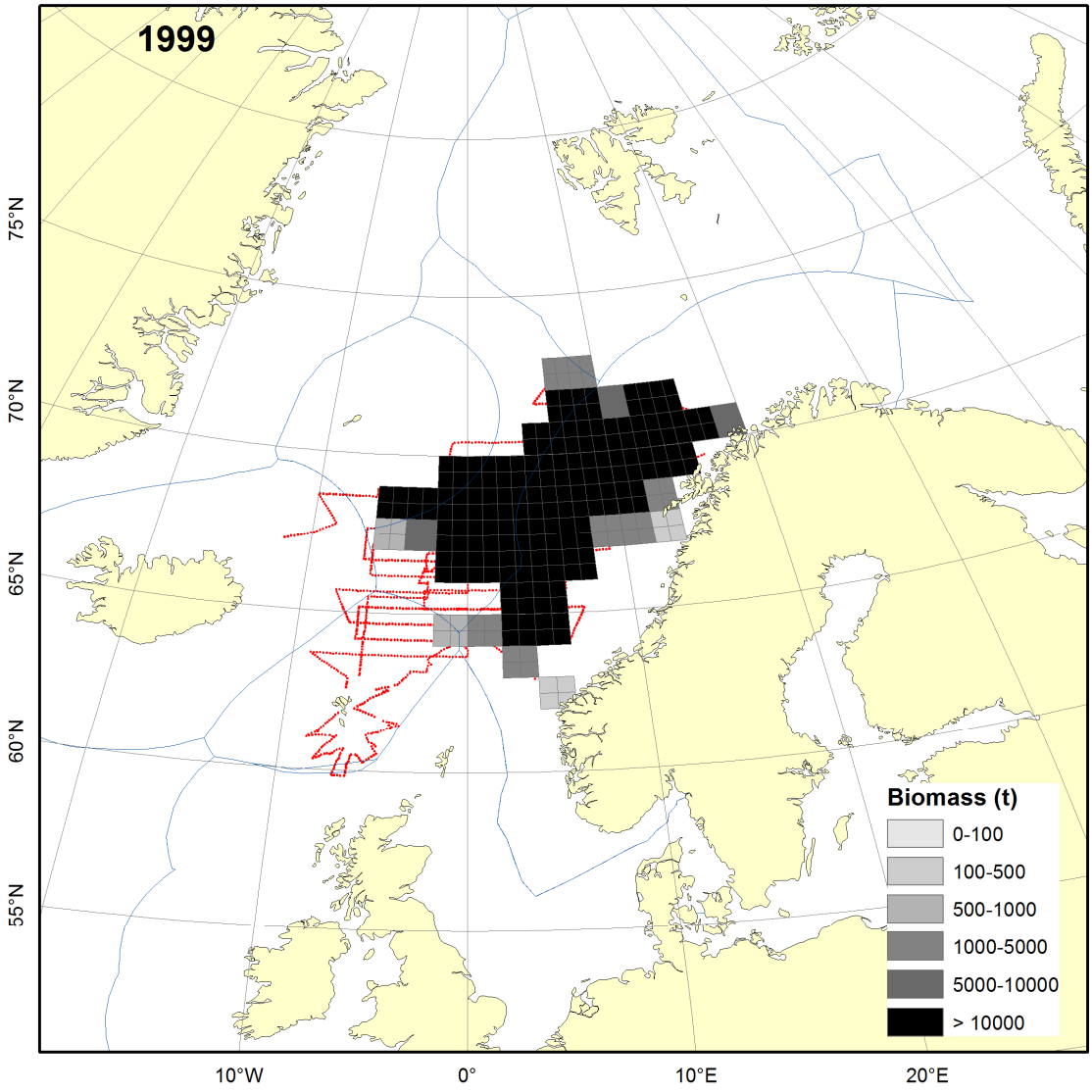


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 1999 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

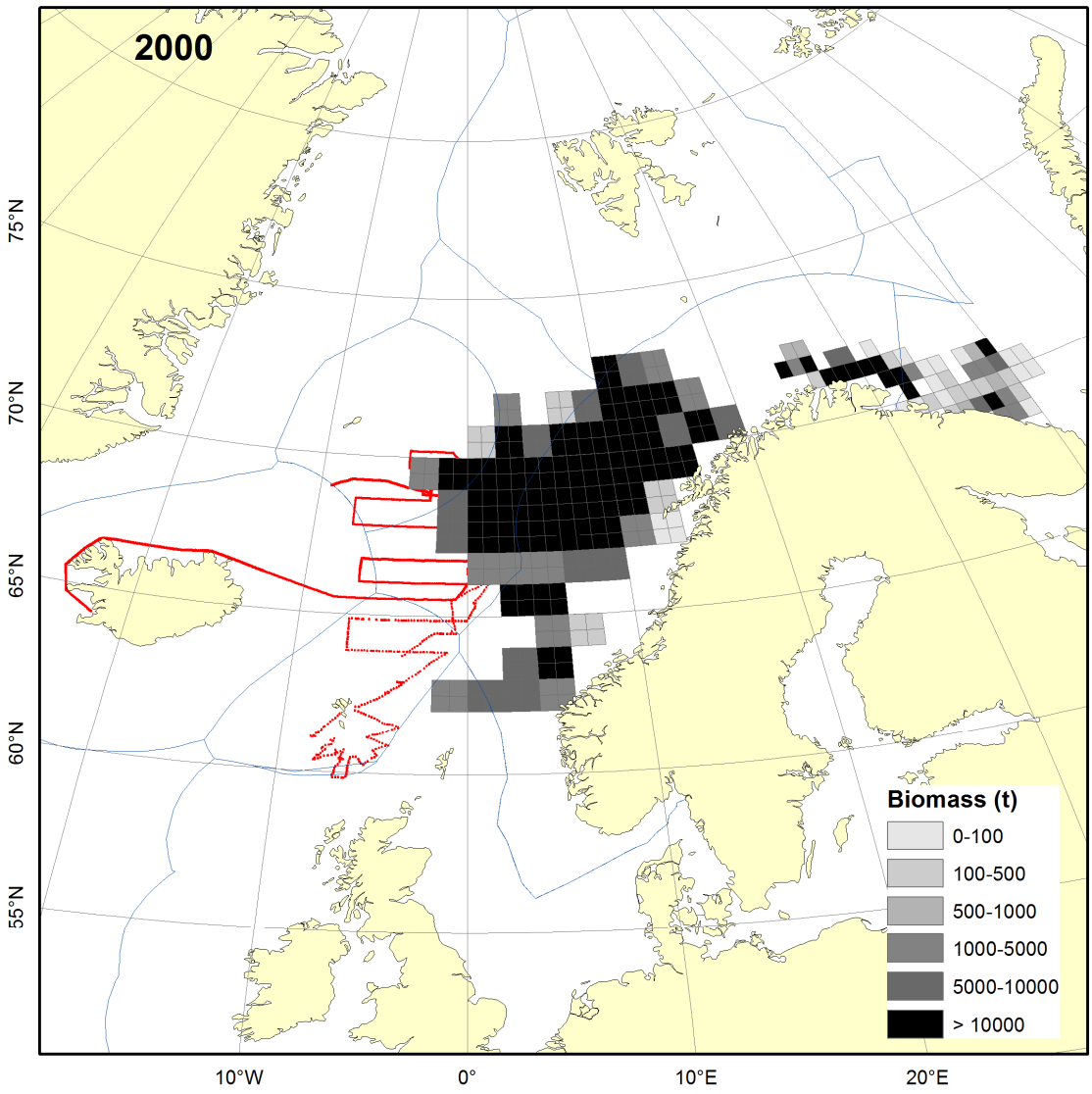


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2000 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

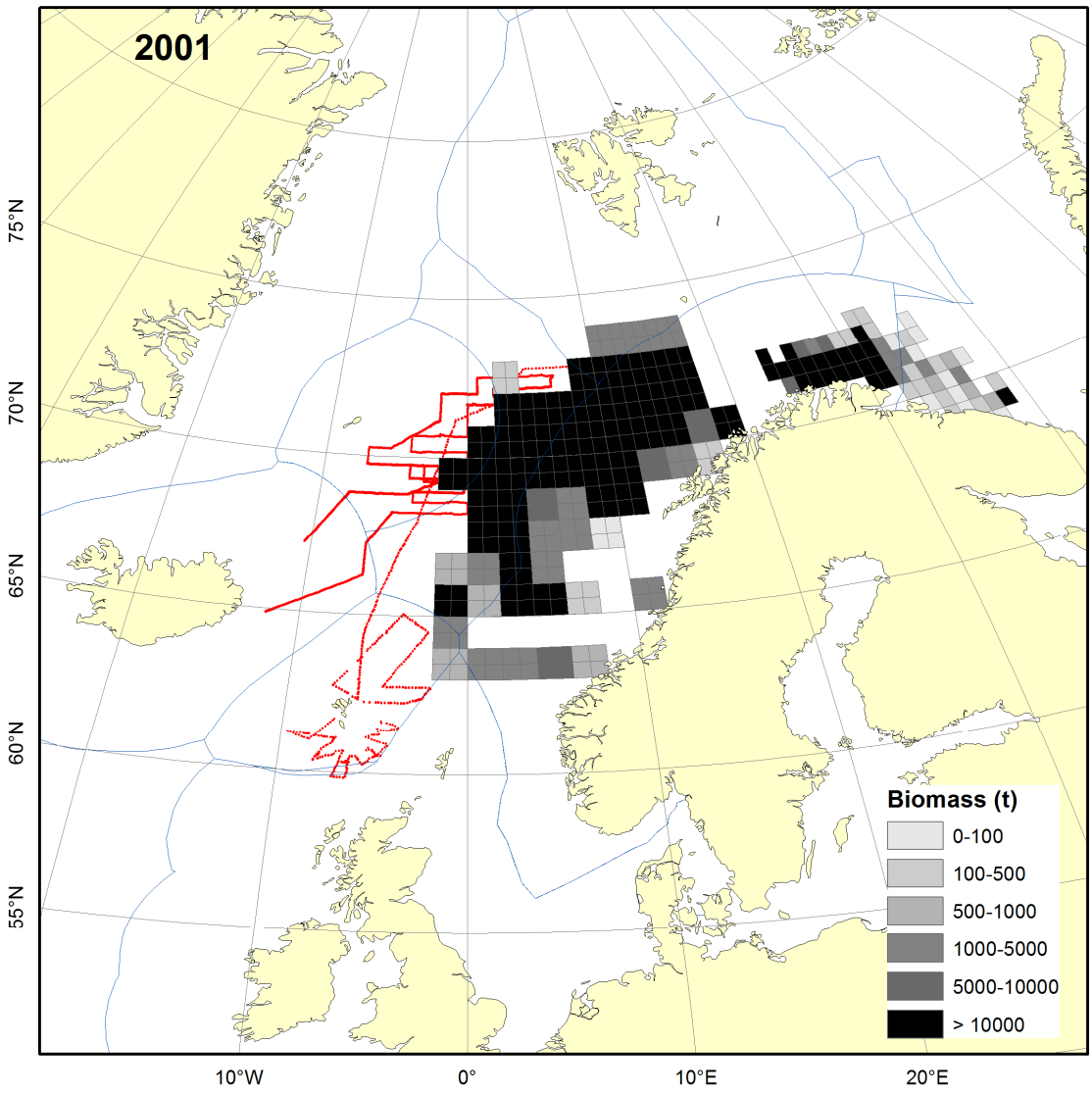


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2001 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

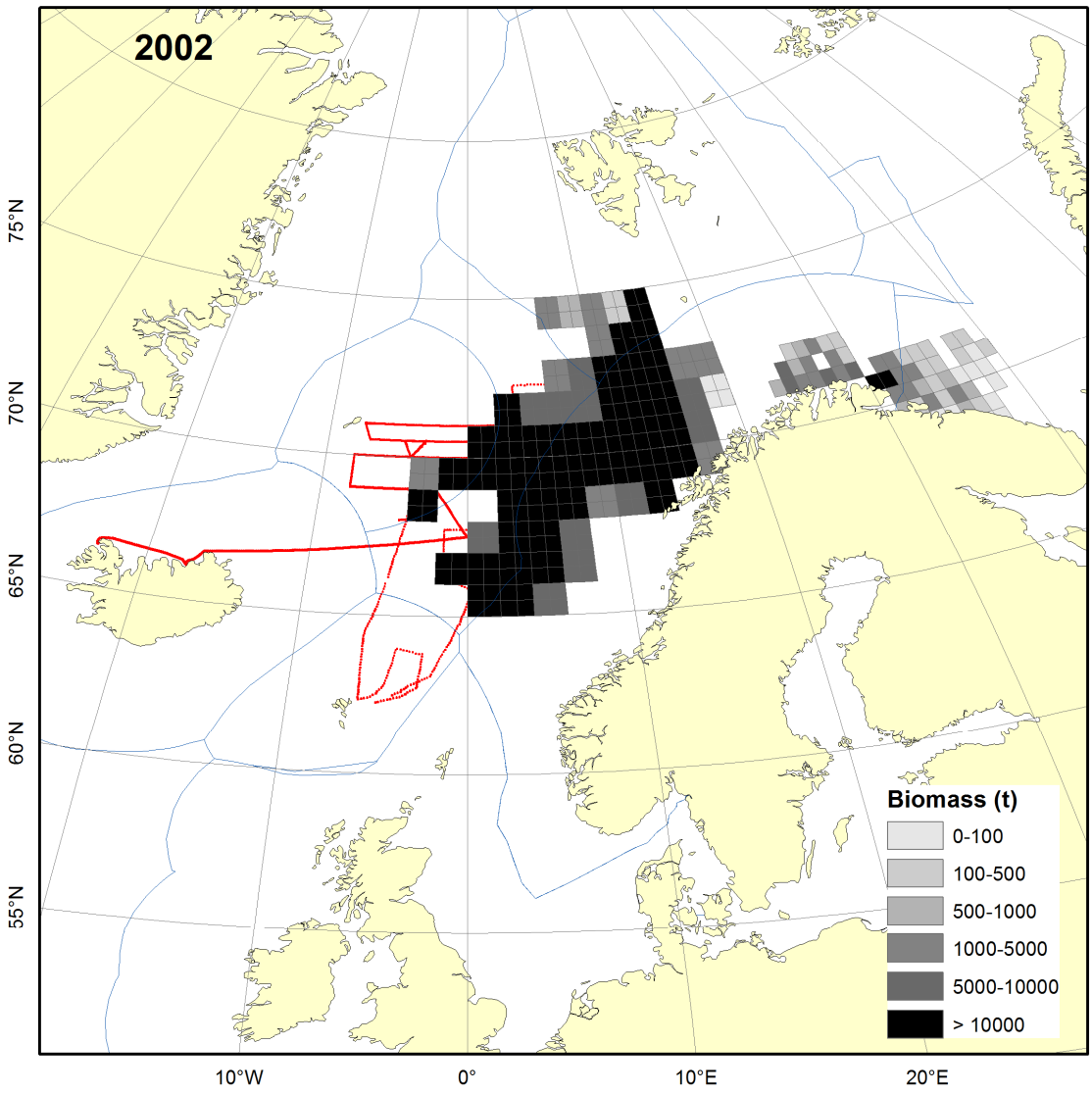


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2002 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

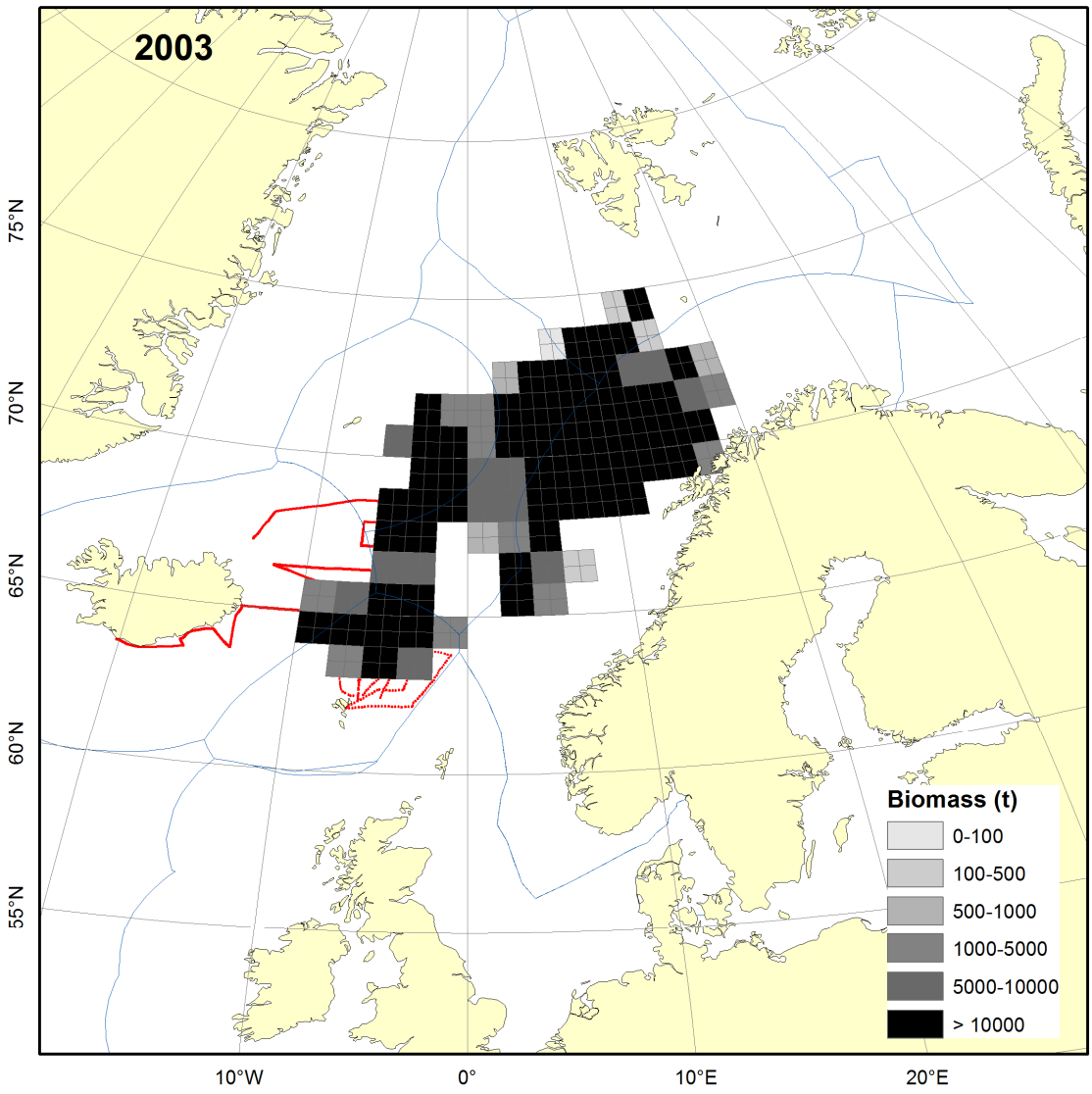


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2003 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

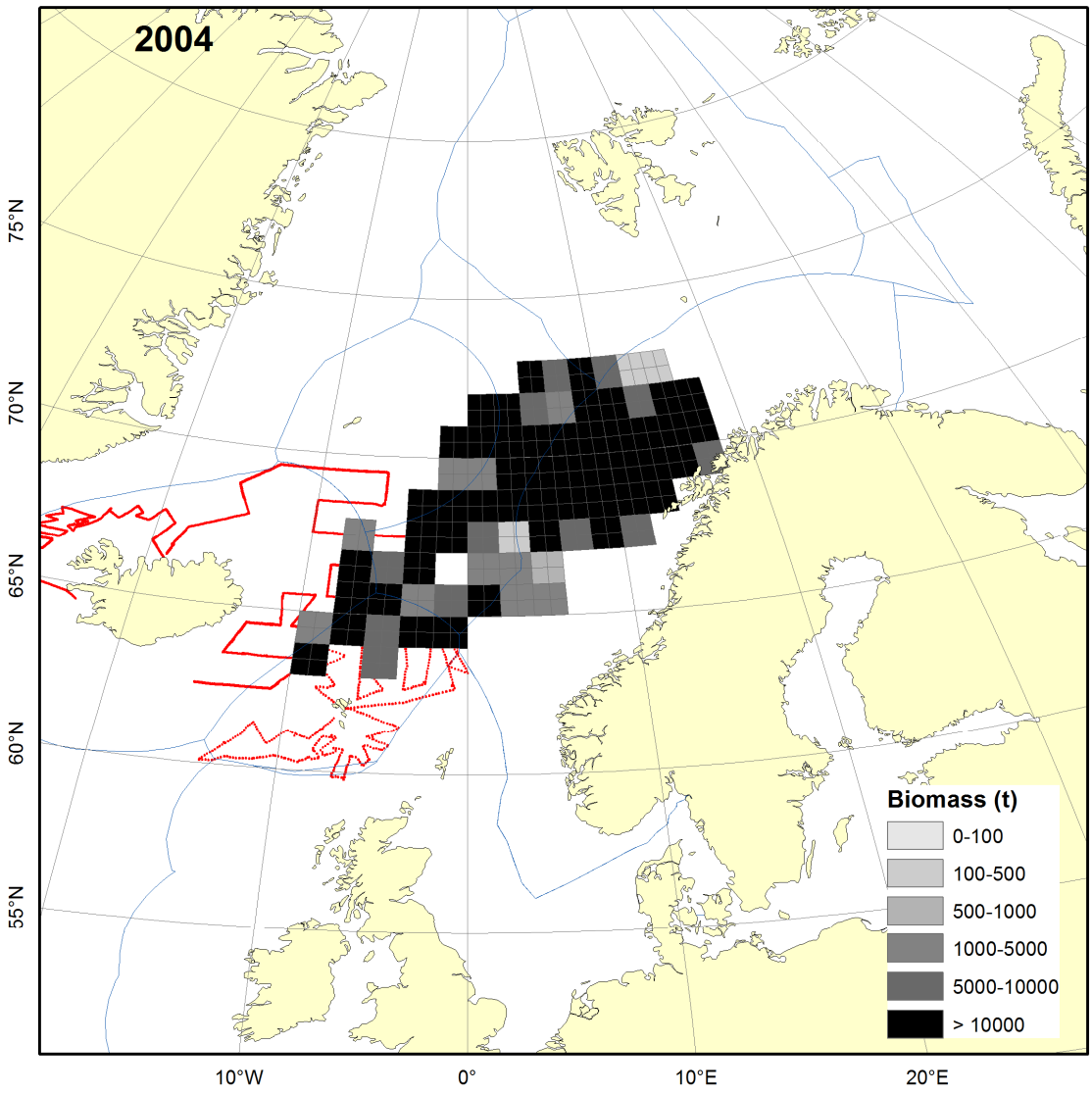


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2004 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

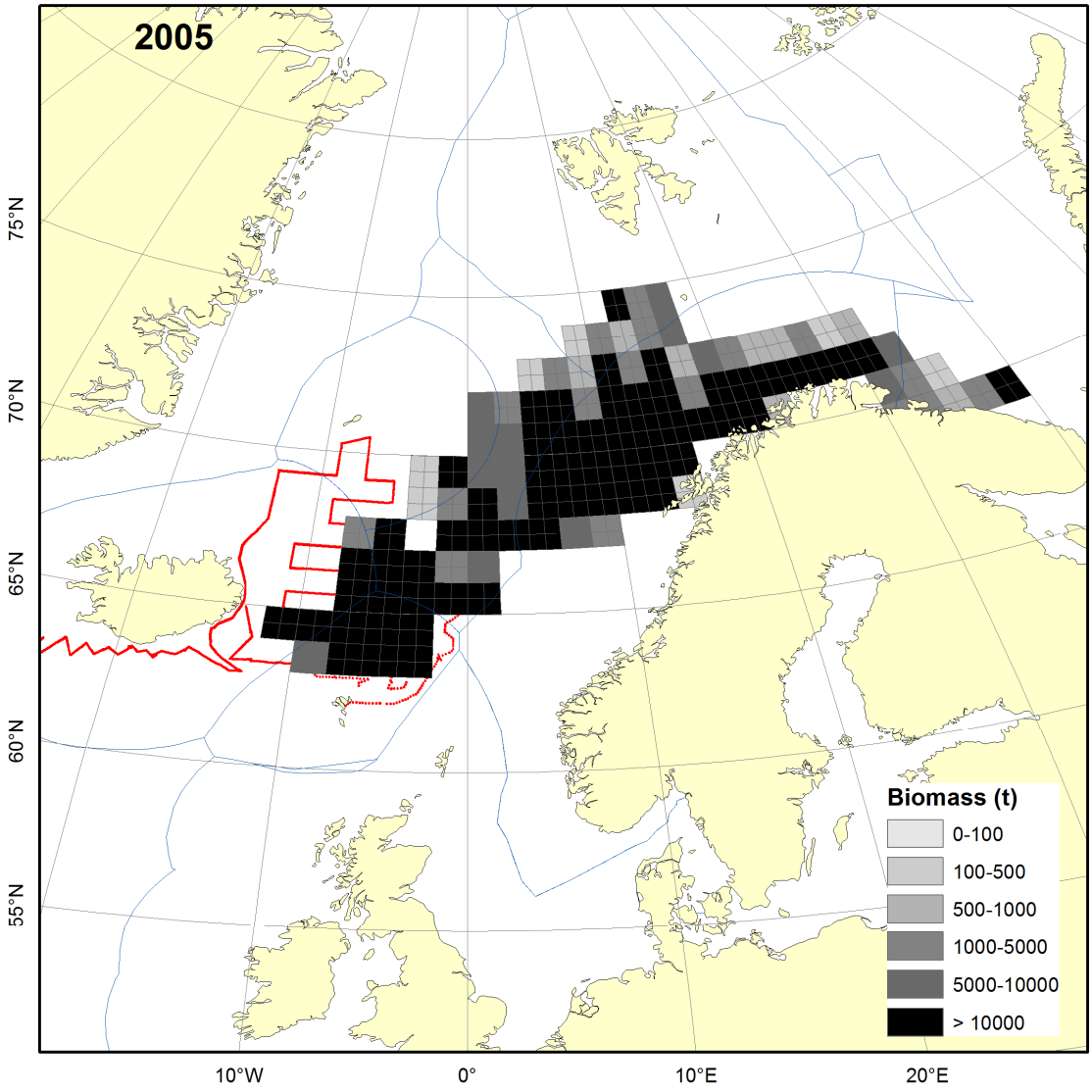


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2005 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

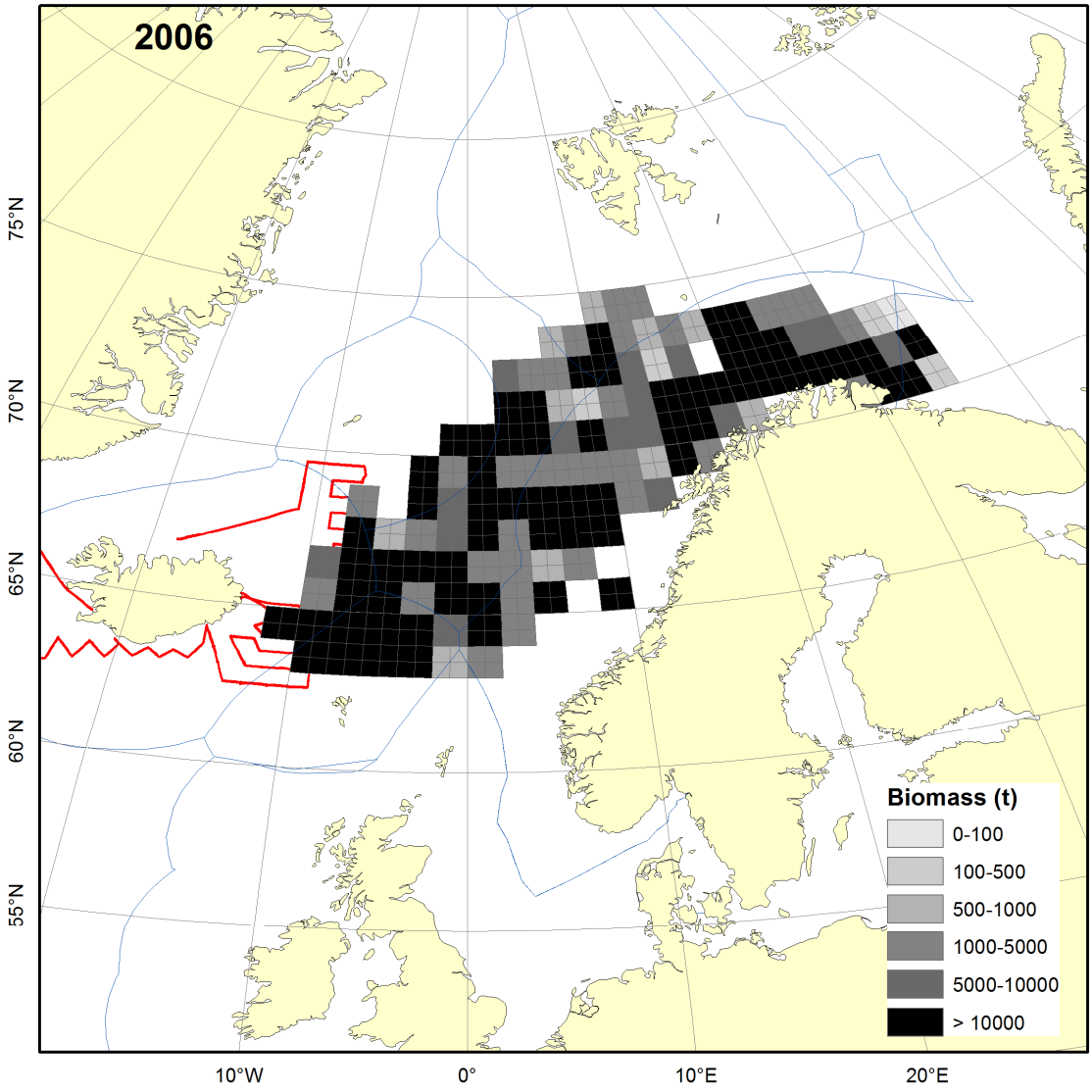


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2006 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

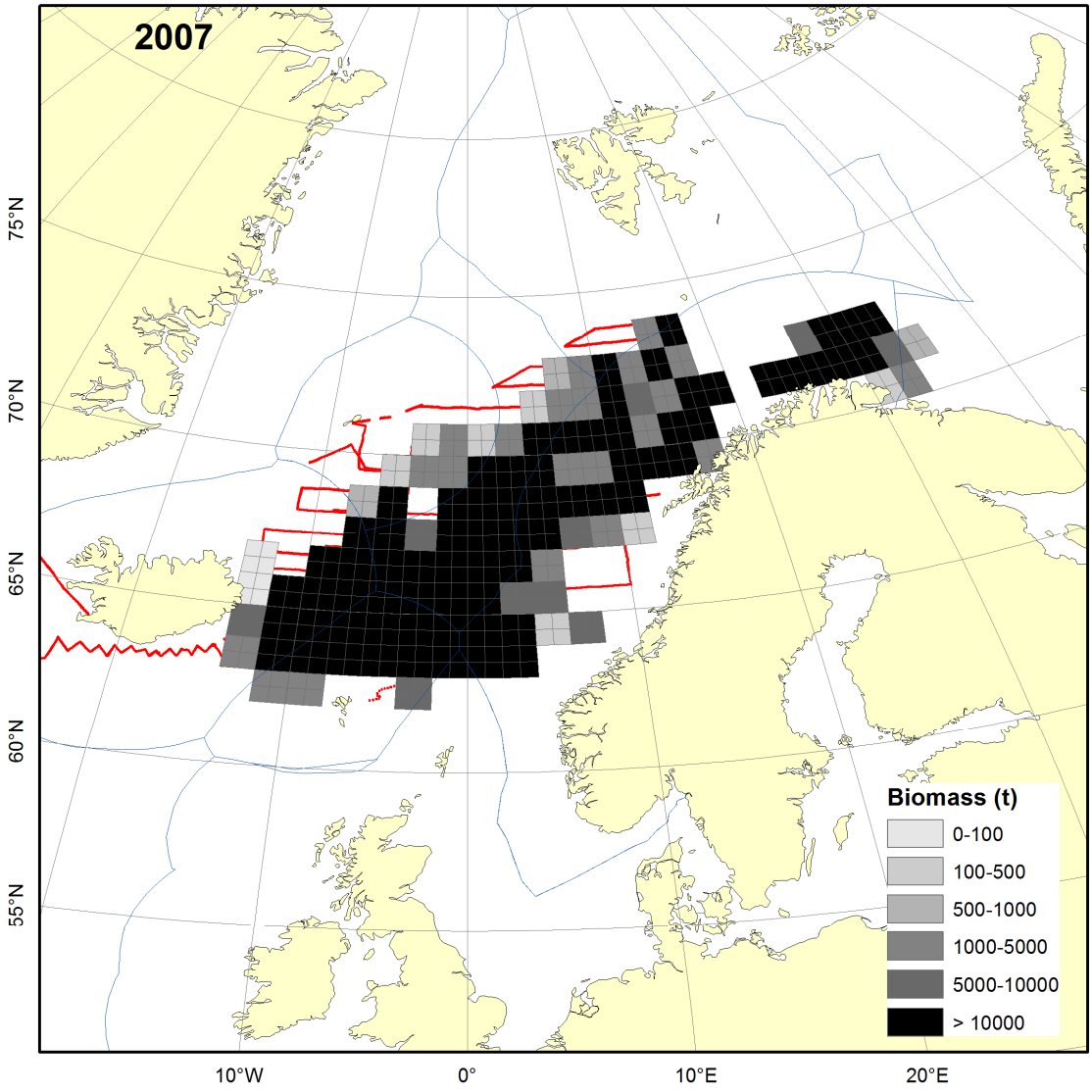


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2007 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

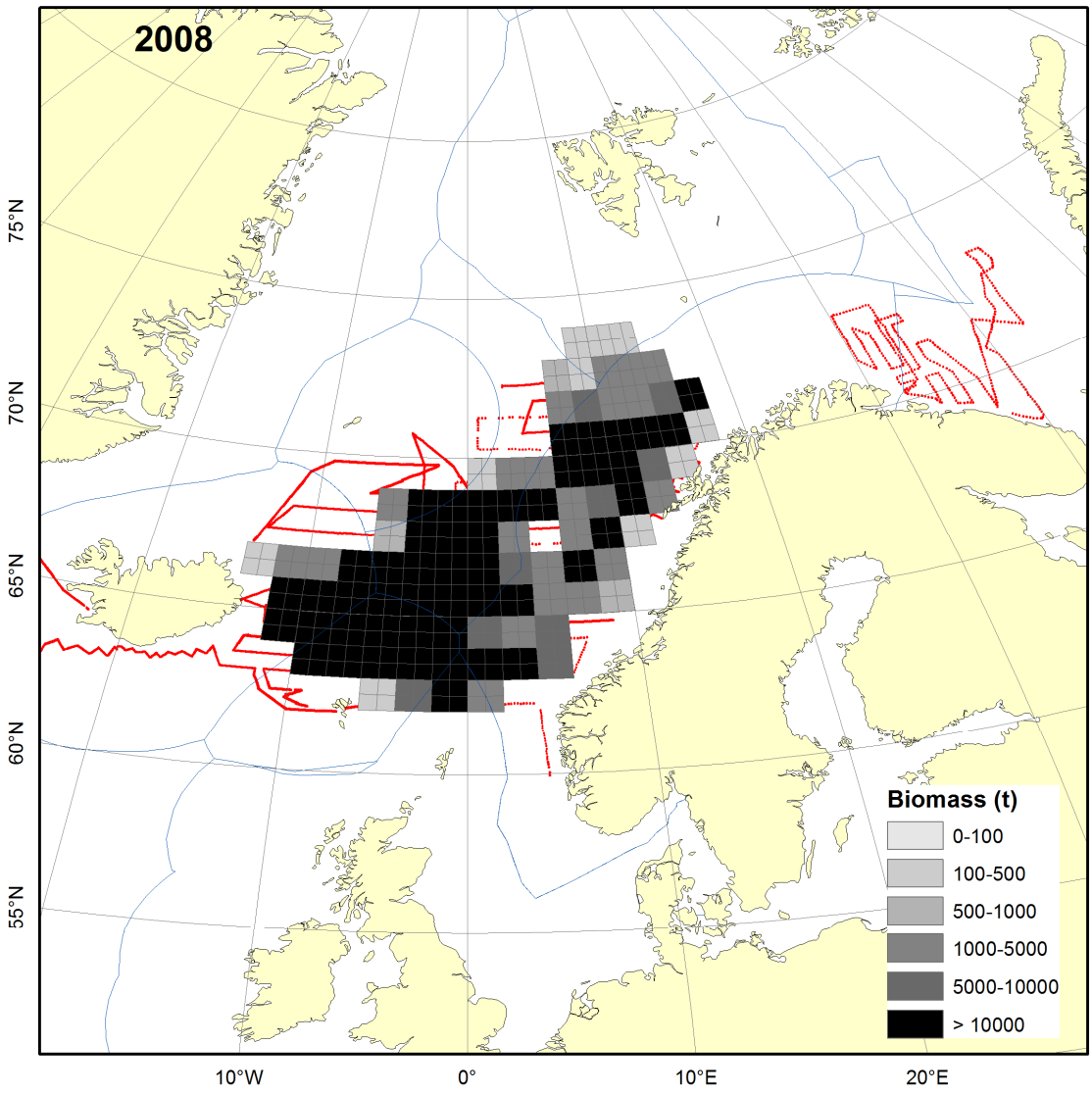


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2008 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

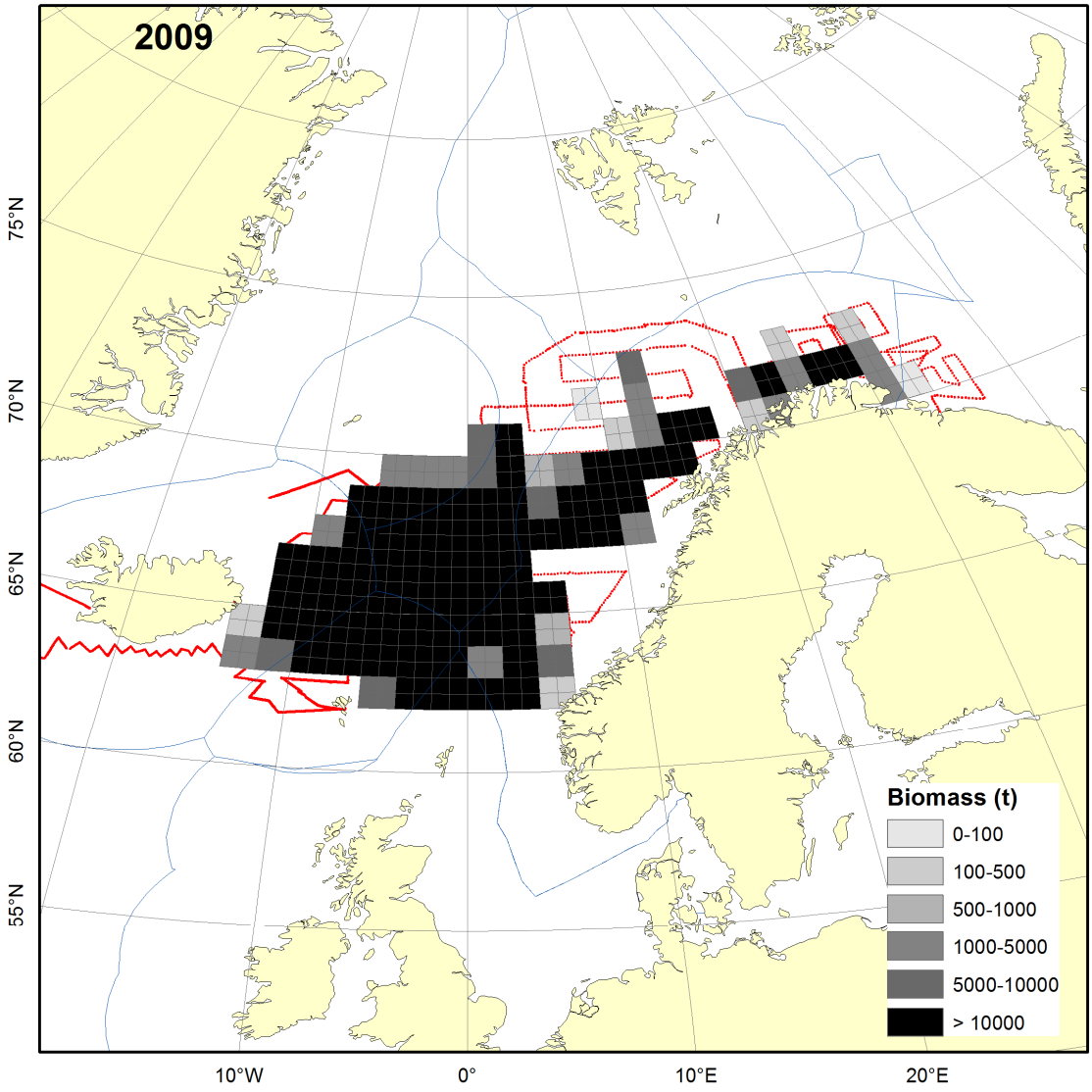


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2009 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

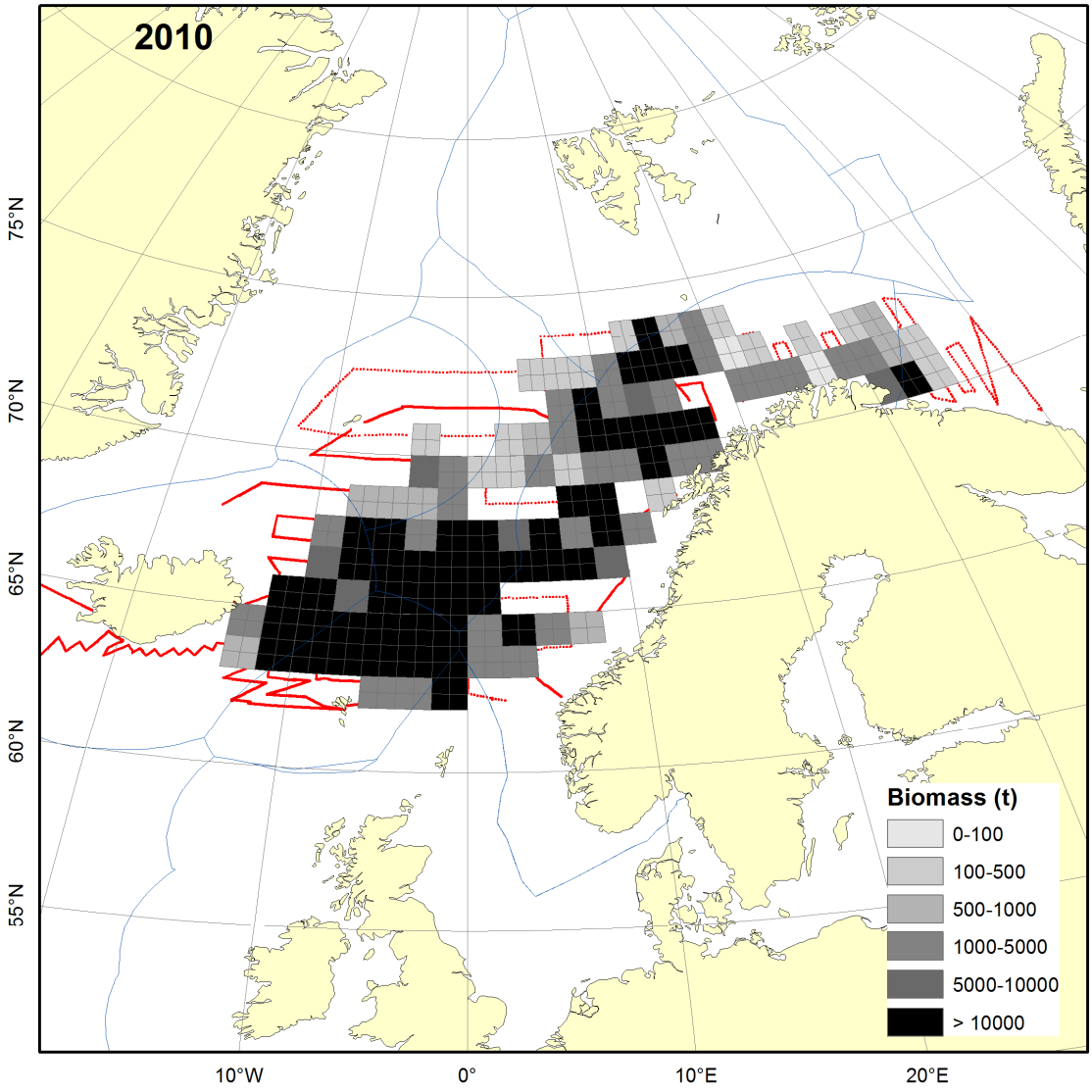


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2010 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

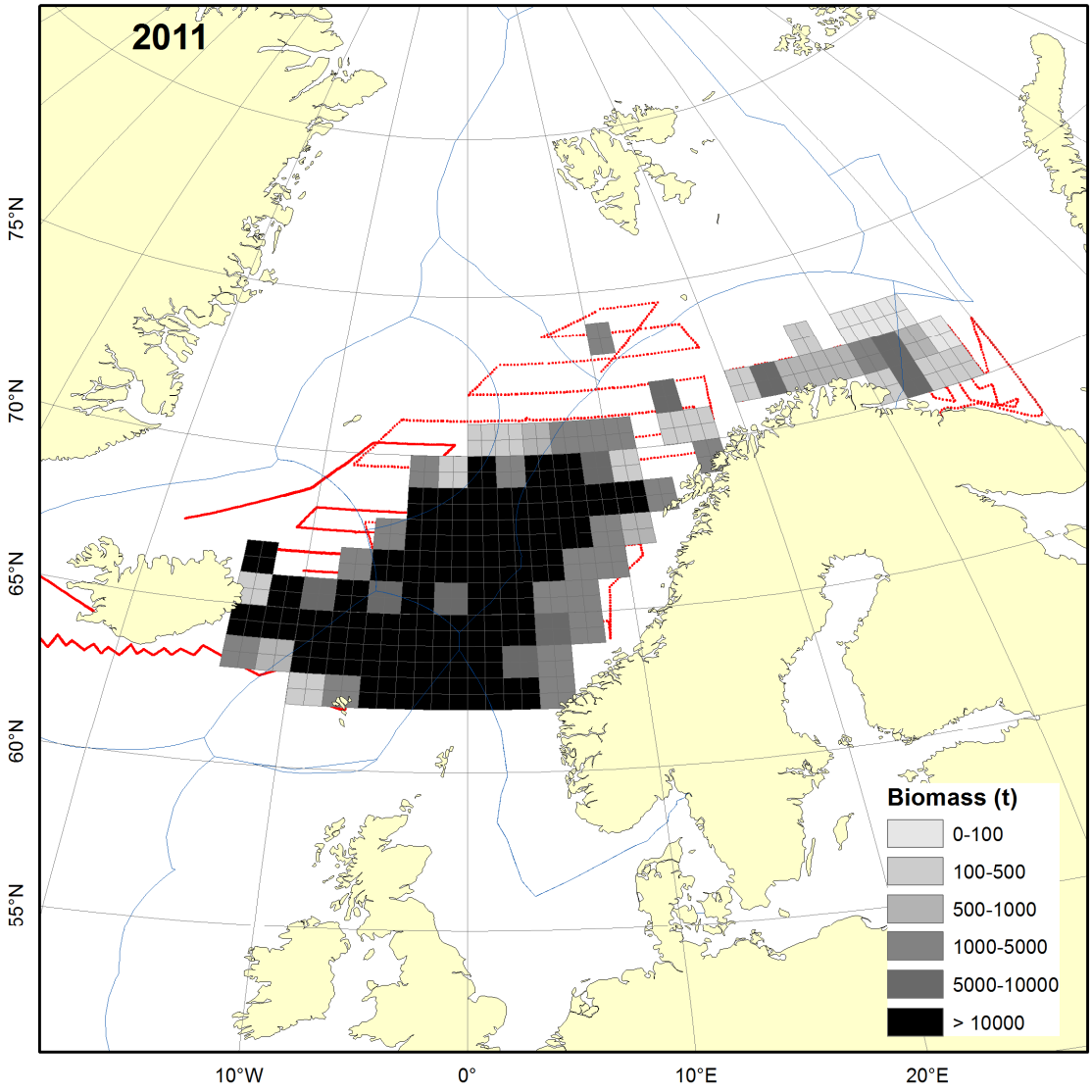


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2011 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

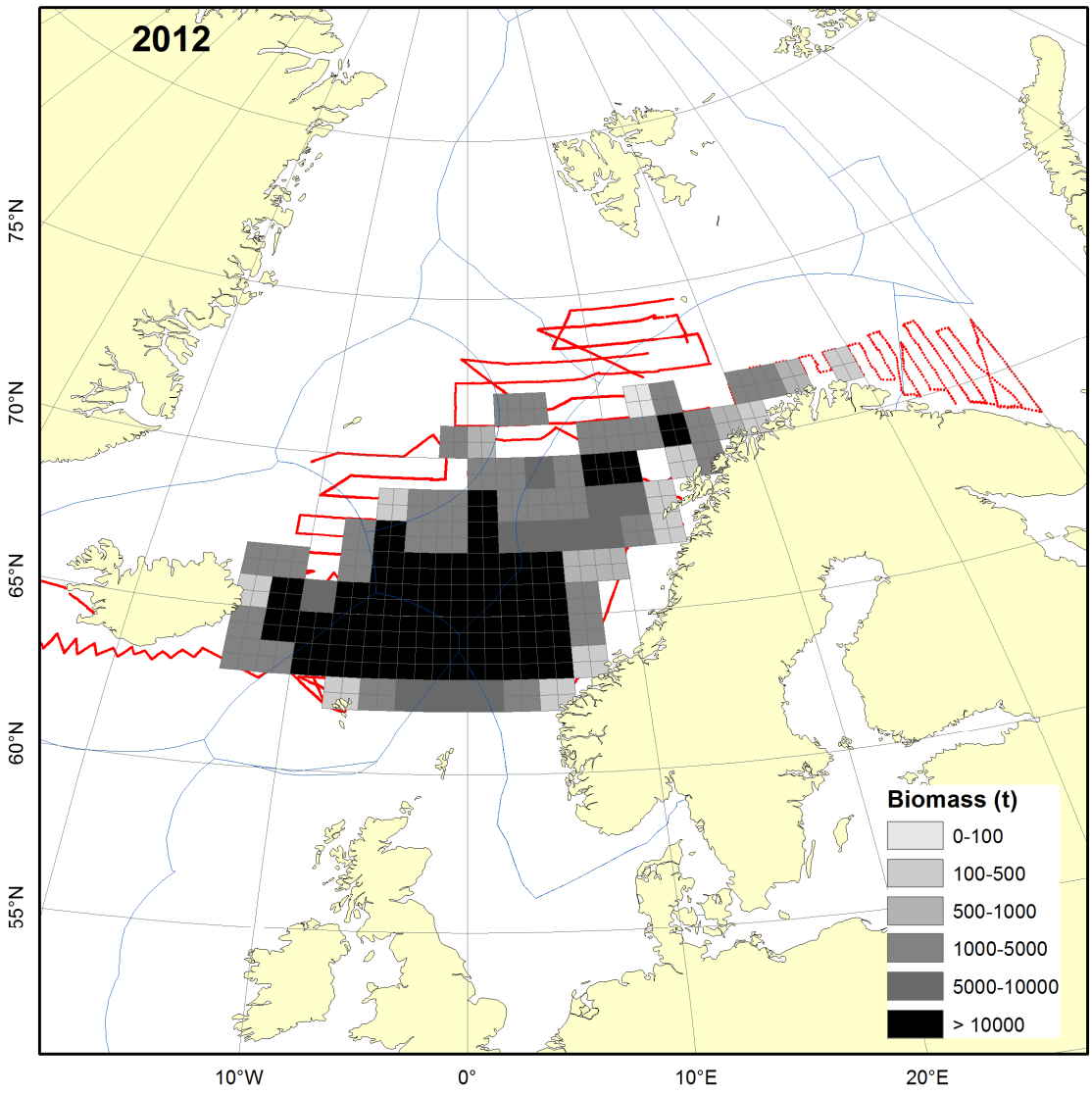


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2012 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

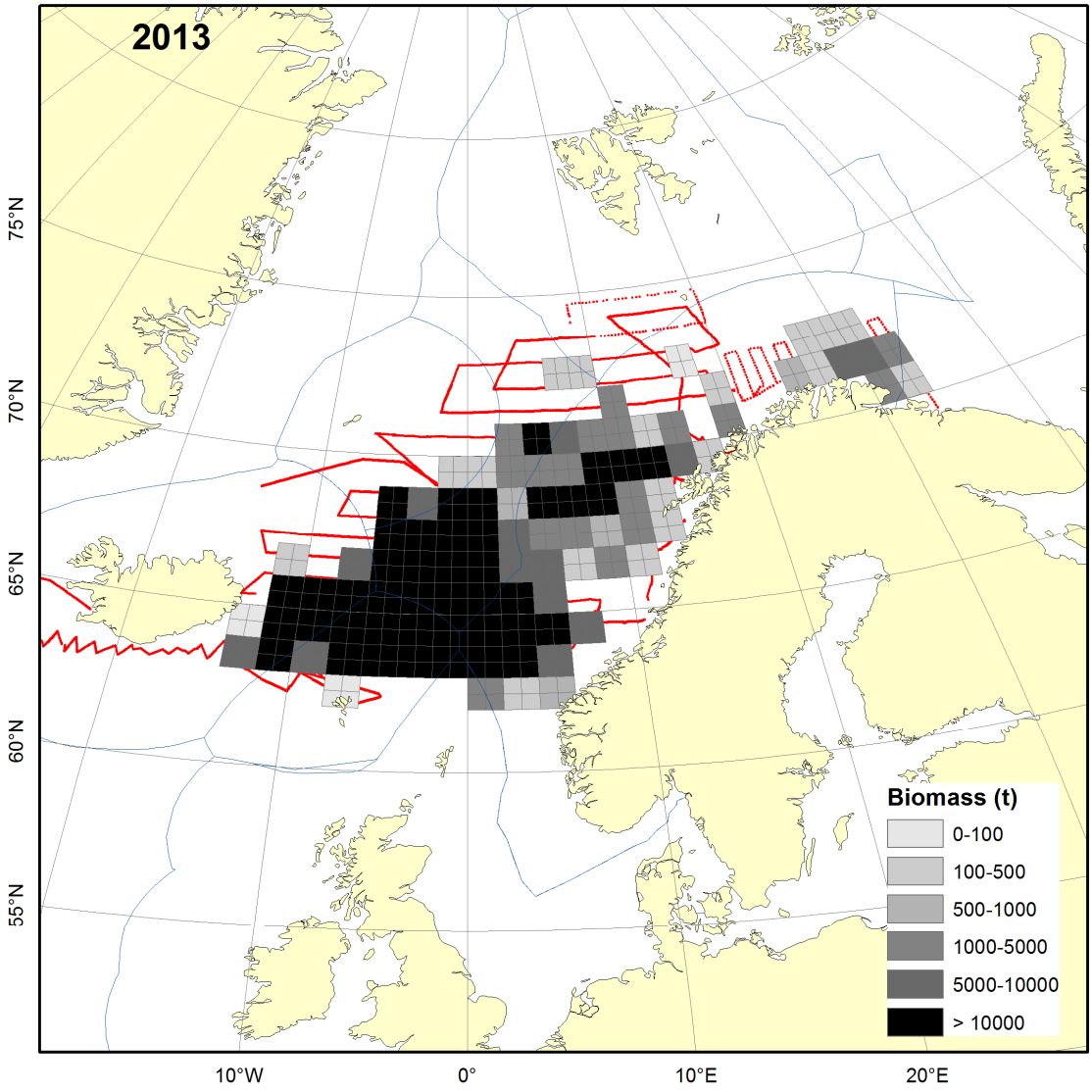


Figure 4.5.1 *continued*. Norwegian spring spawning herring. Distribution in 2013 of juveniles (in the Barents Sea) and adults based on the International Ecosystem survey in the Nordic Seas in May (IESNS). This figure is described in sections 4.5 (juveniles) and 4.6 (adults).

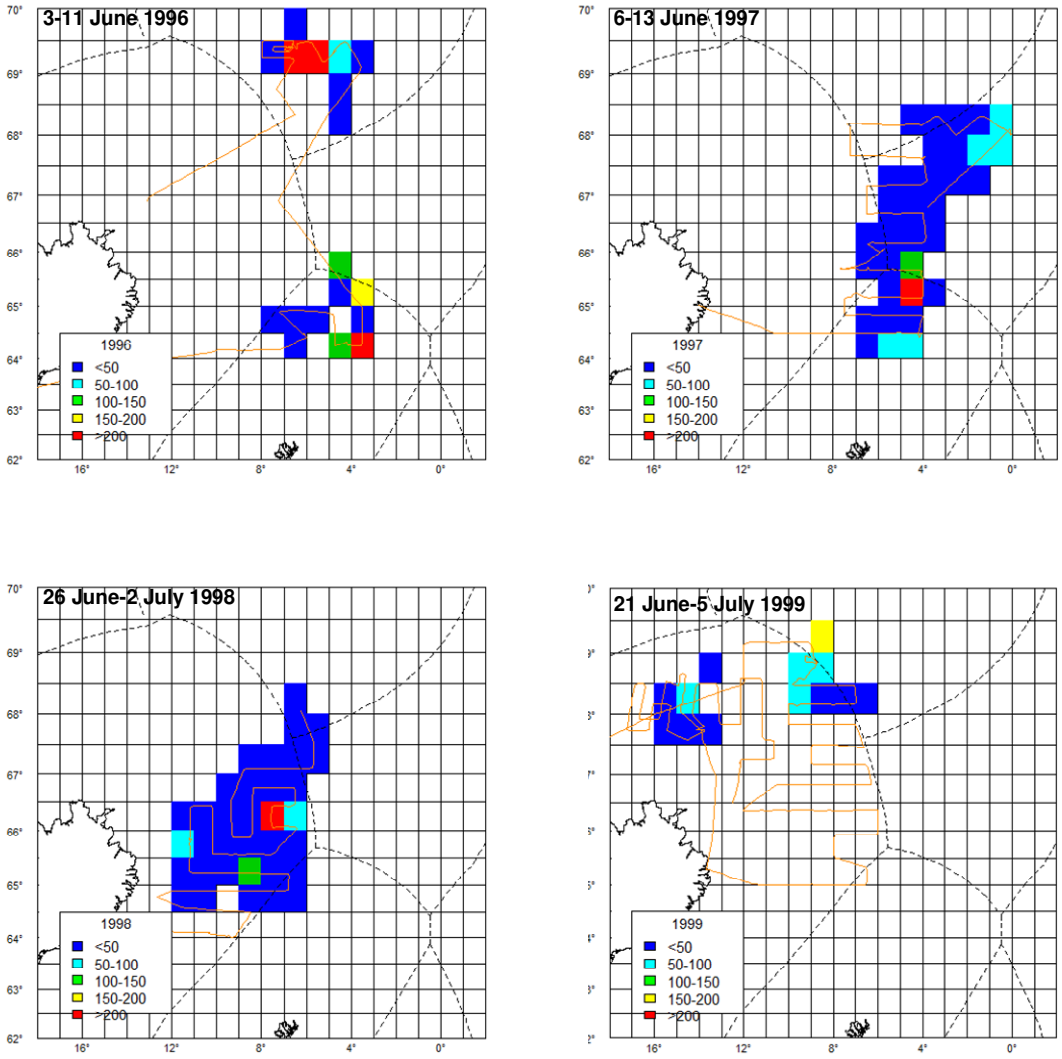


Figure 4.7.1. Norwegian spring spawning herring. Biomass of NSS-herring by ICES rectangle according to Icelandic surveys in June in 1996-1999. The survey tracks are indicated with orange lines.

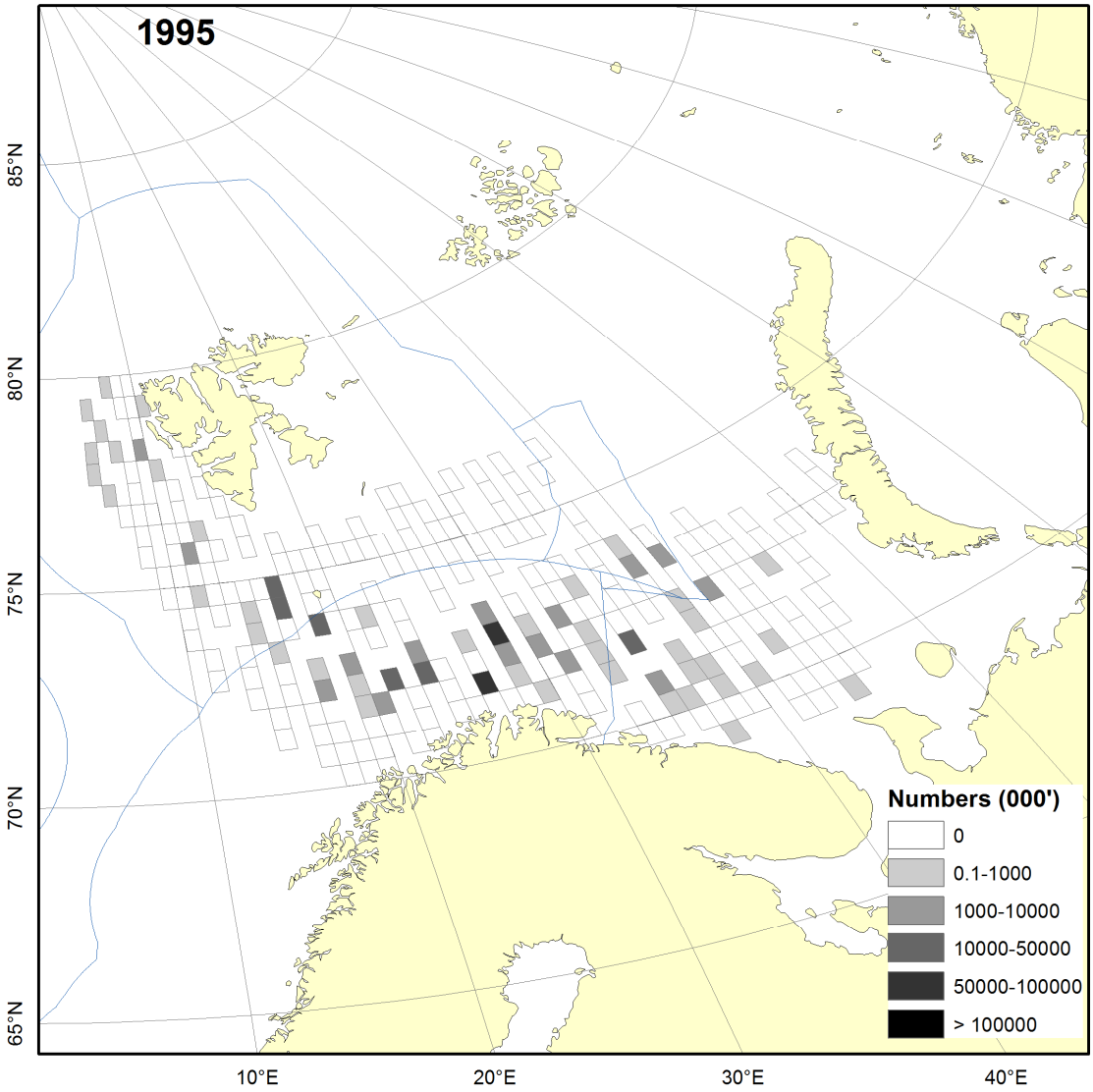


Figure 4.8.1. Norwegian spring spawning herring. Distribution in 1995 of 0-group herring in the Ecosystem survey in the Barents Sea in August.

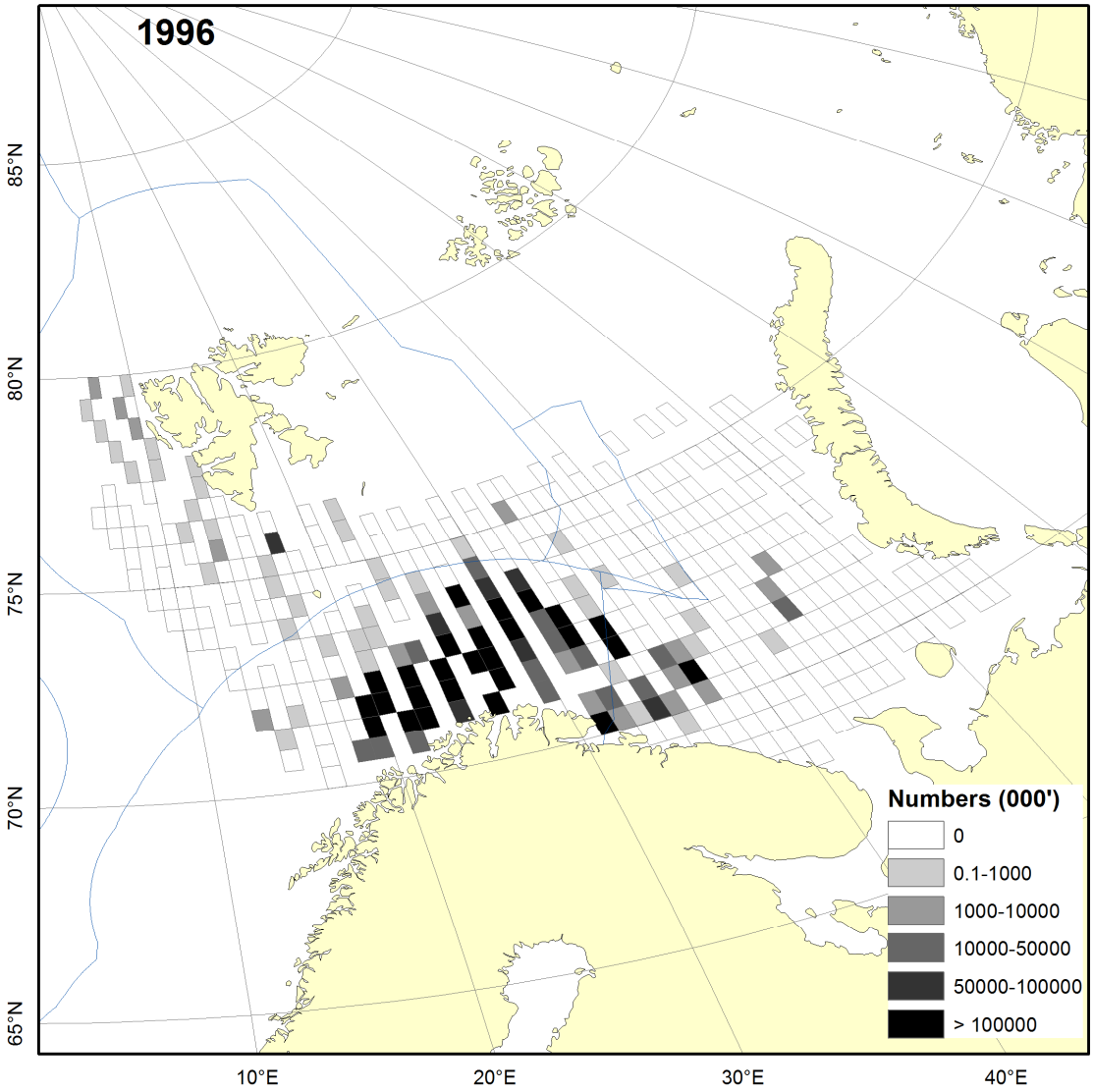
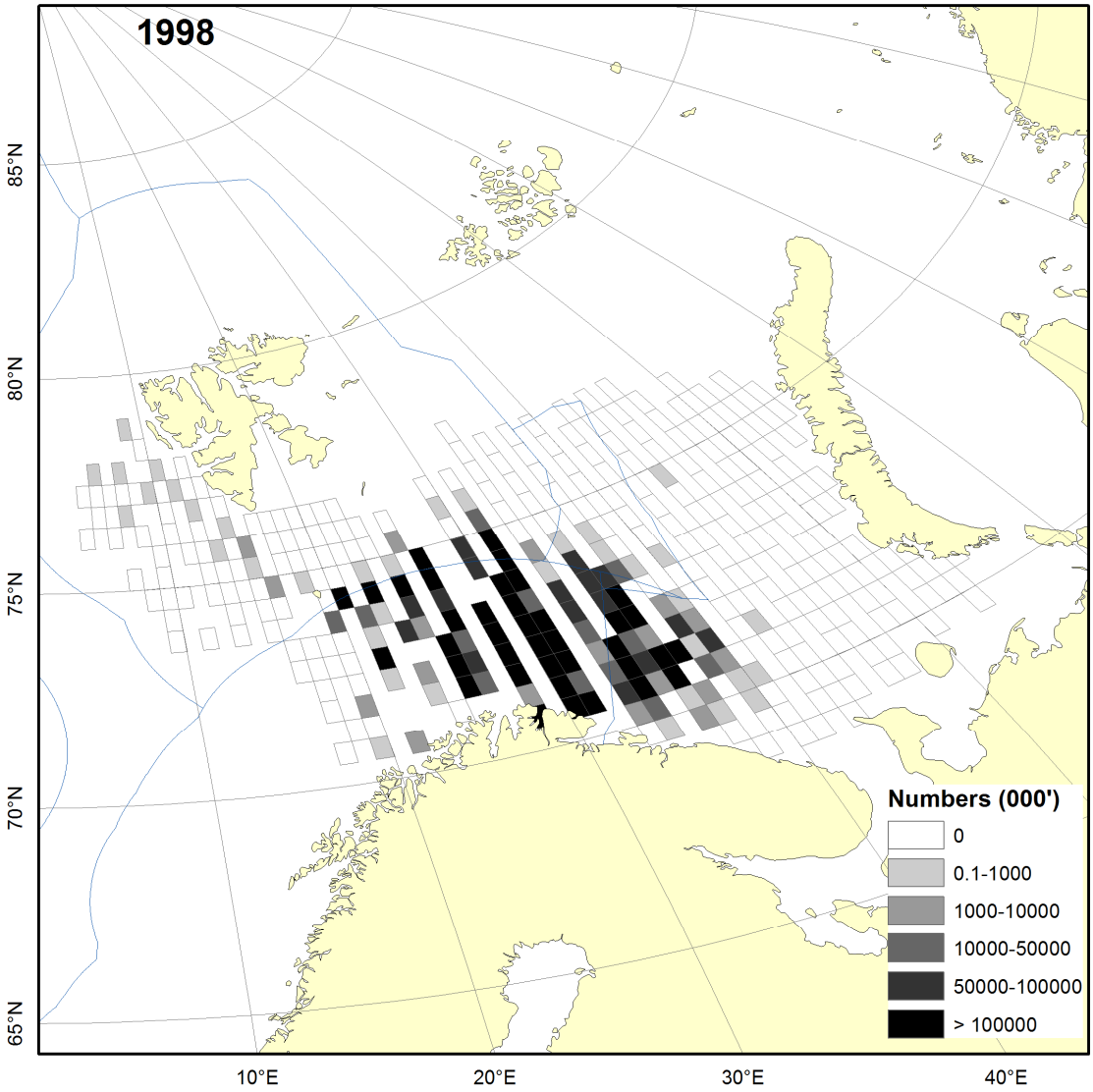


Figure 4.8.1 *continued*. Norwegian spring spawning herring. Distribution in 1996 of 0-group herring in the Ecosystem survey in the Barents Sea in August.



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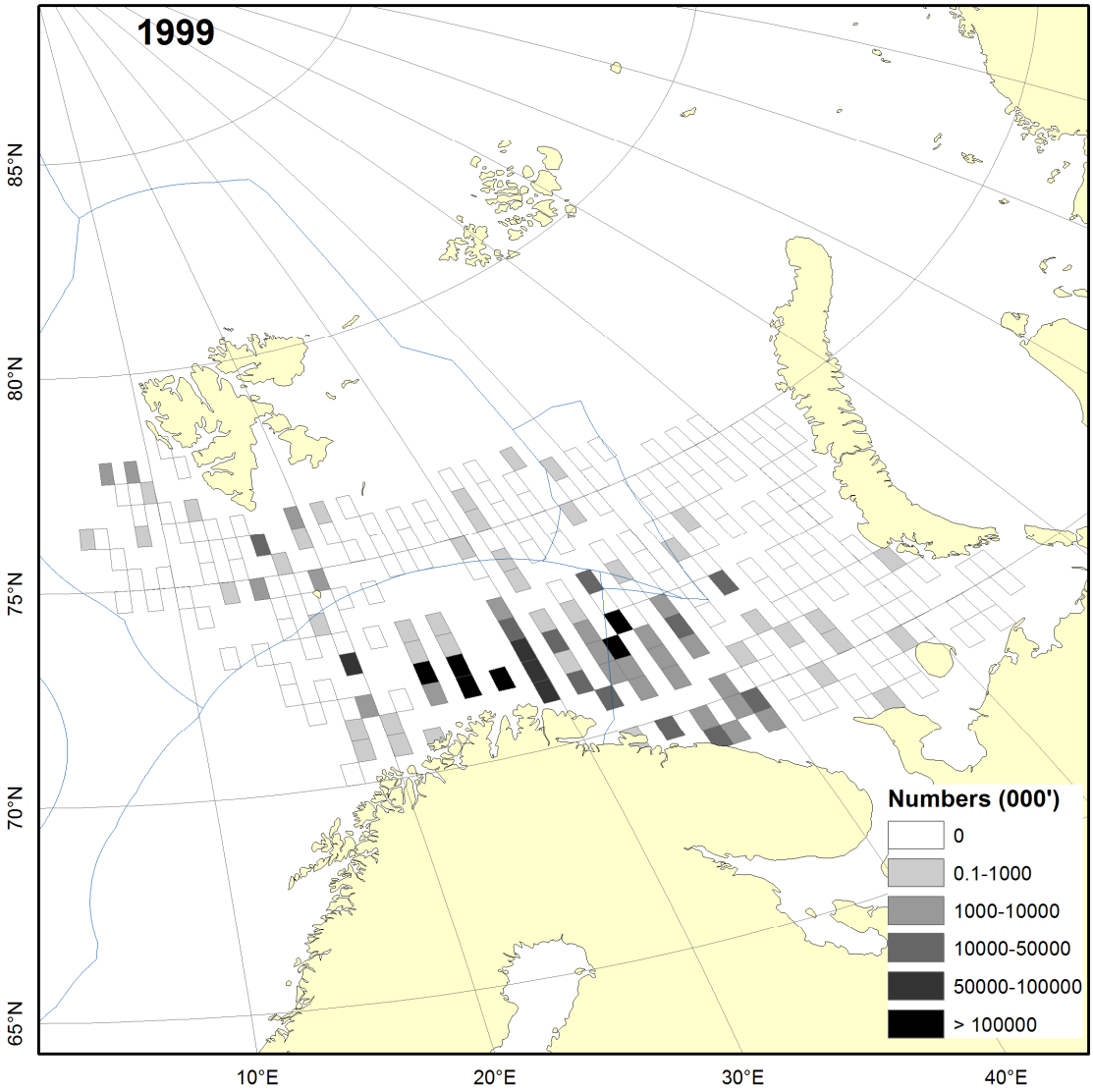

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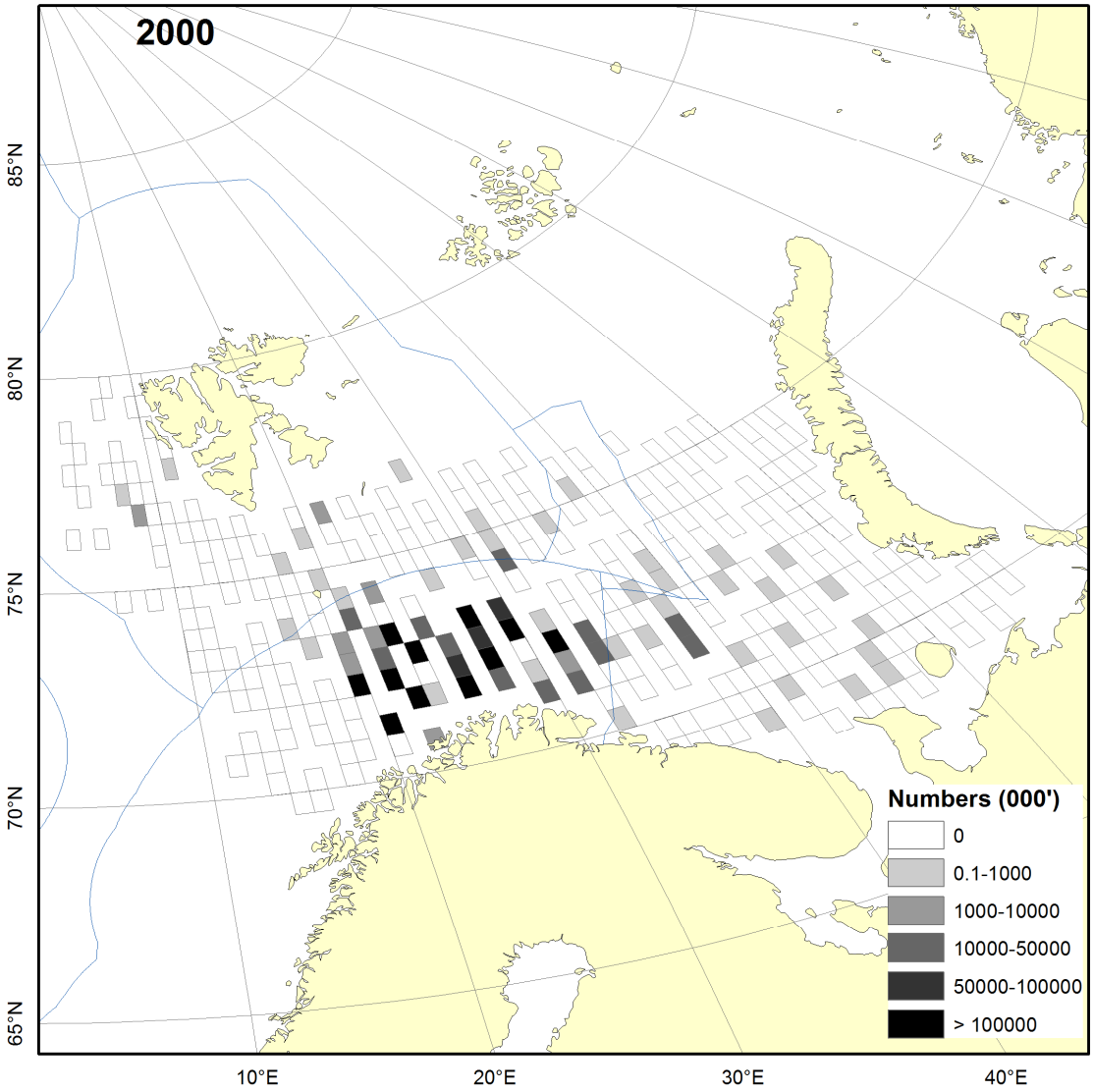

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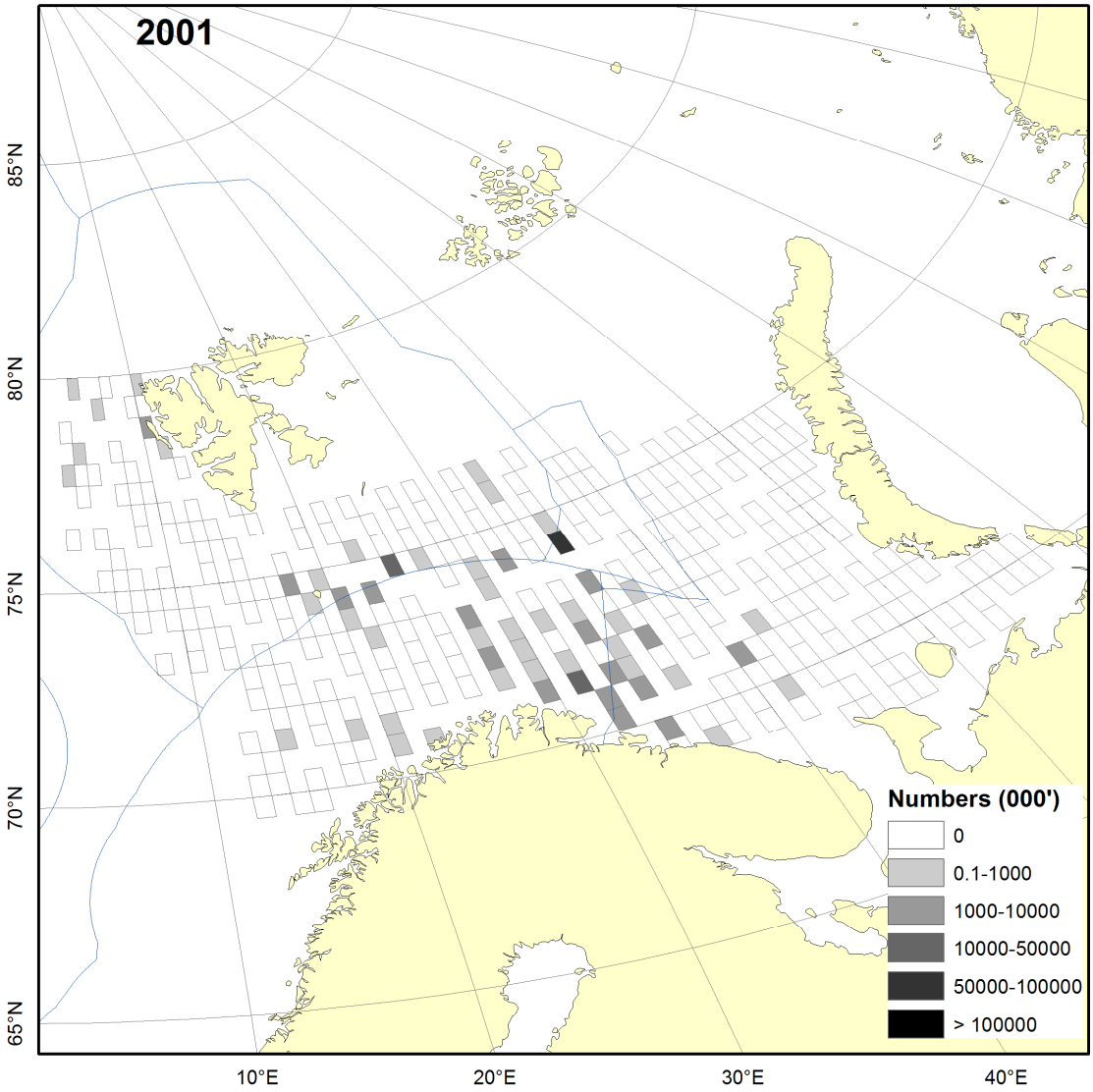

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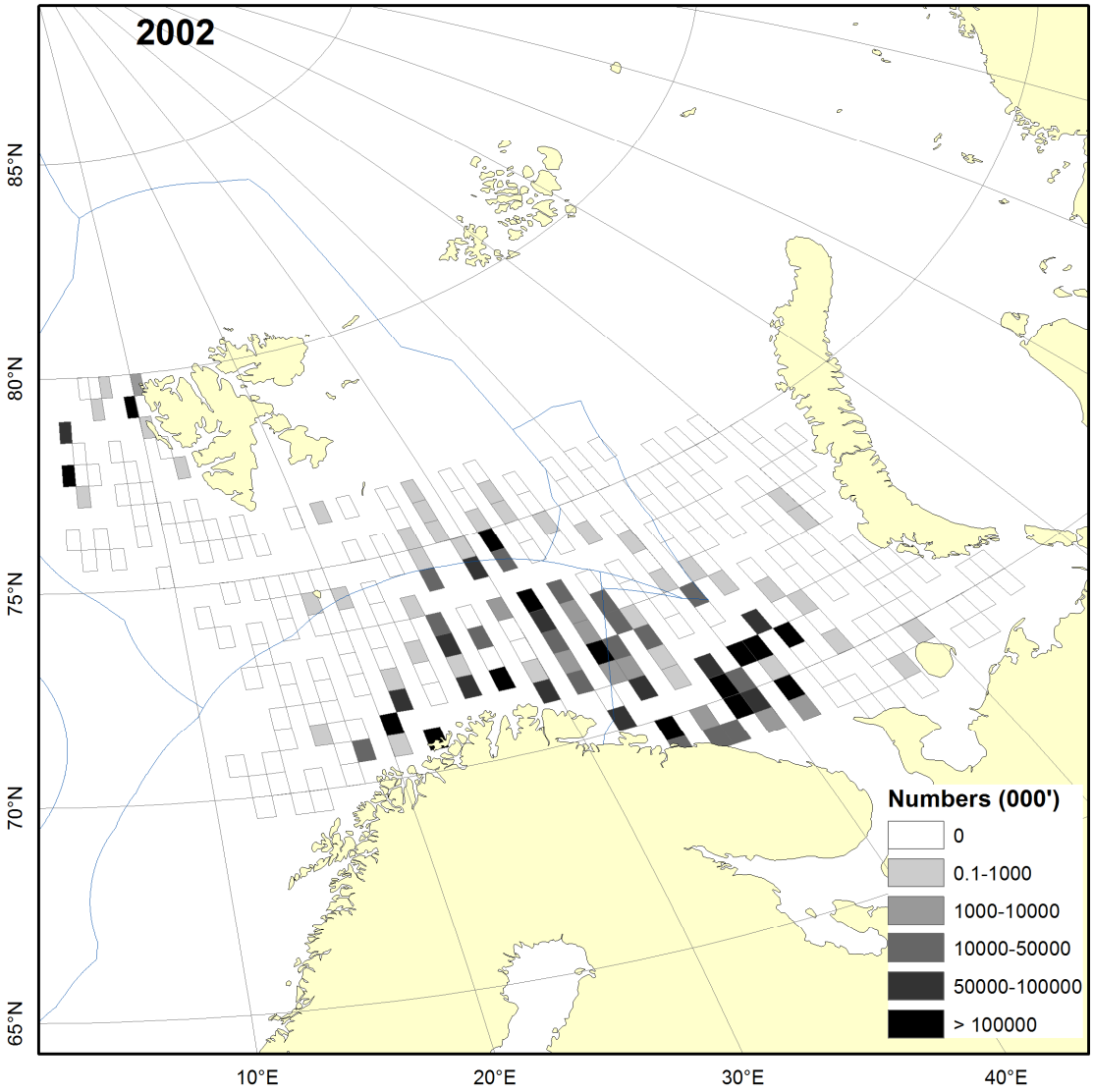

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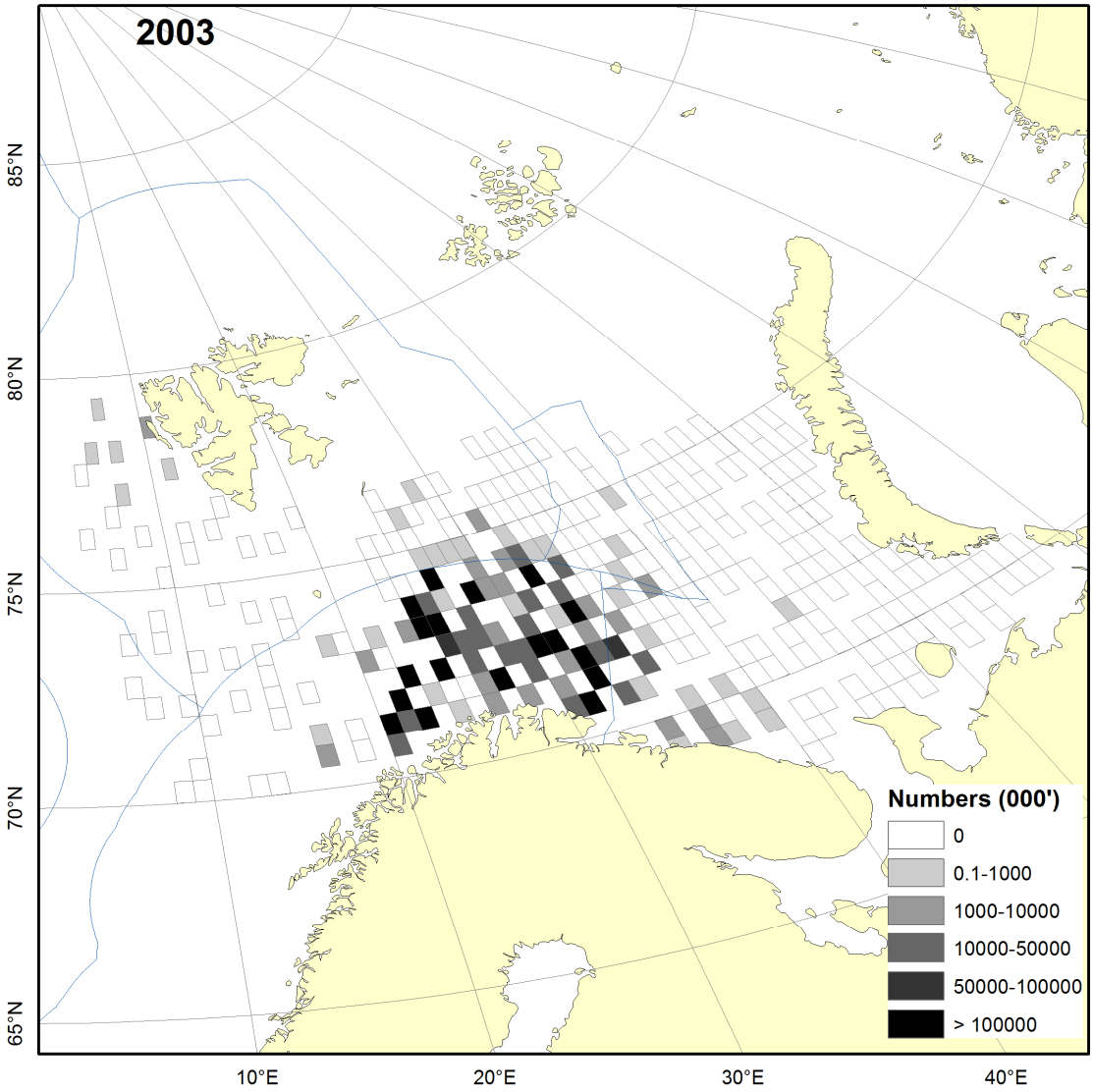

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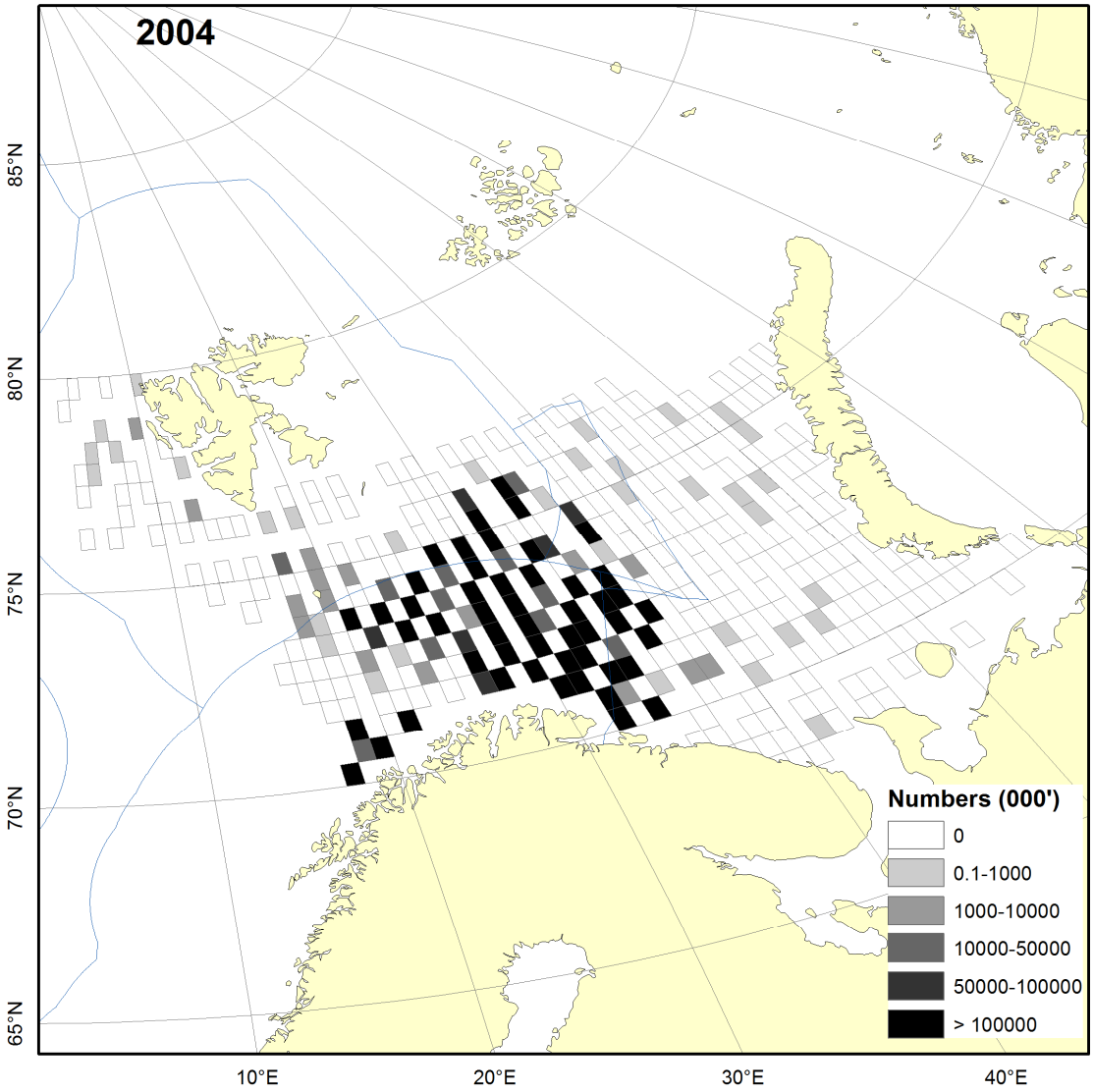

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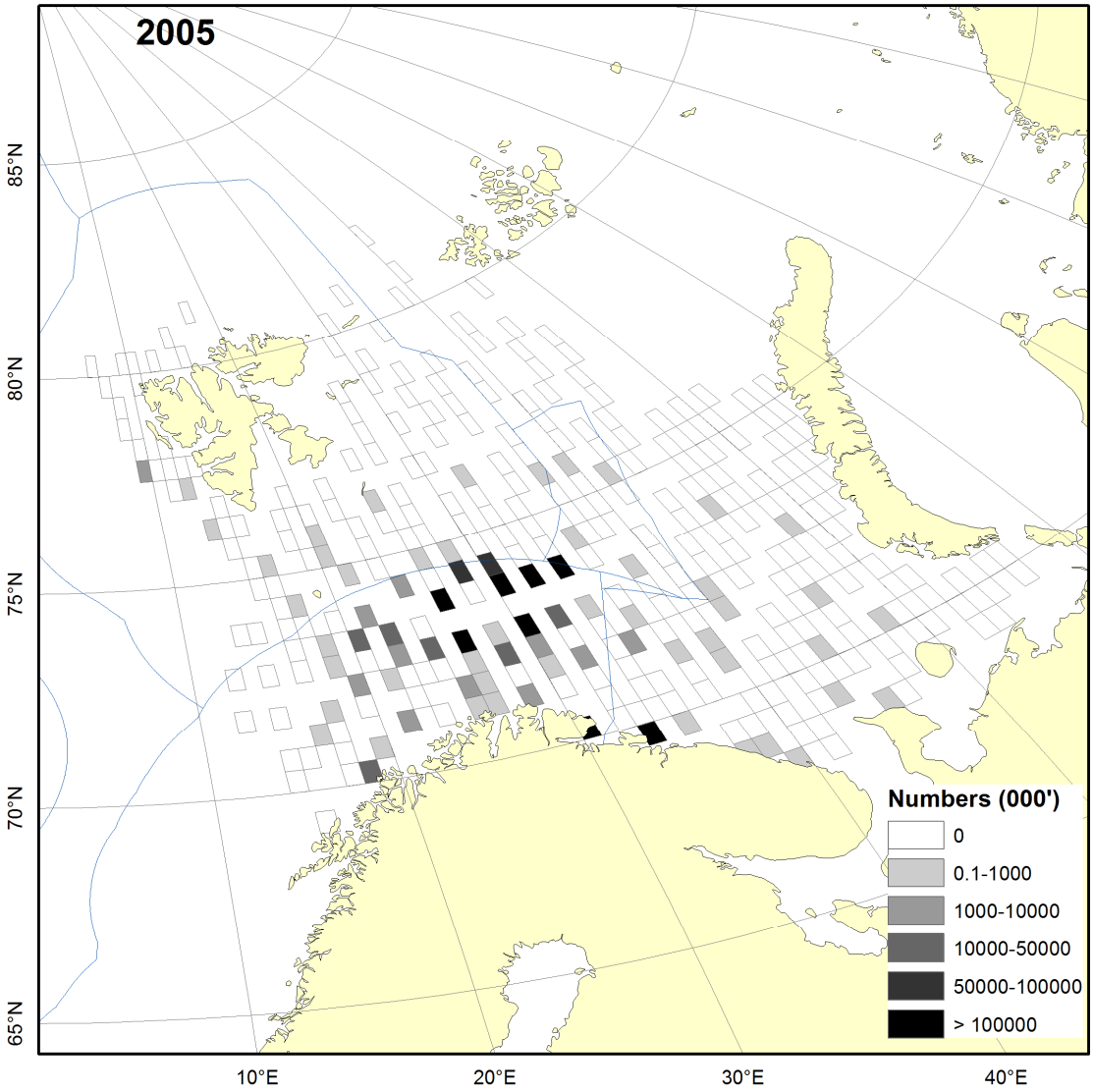

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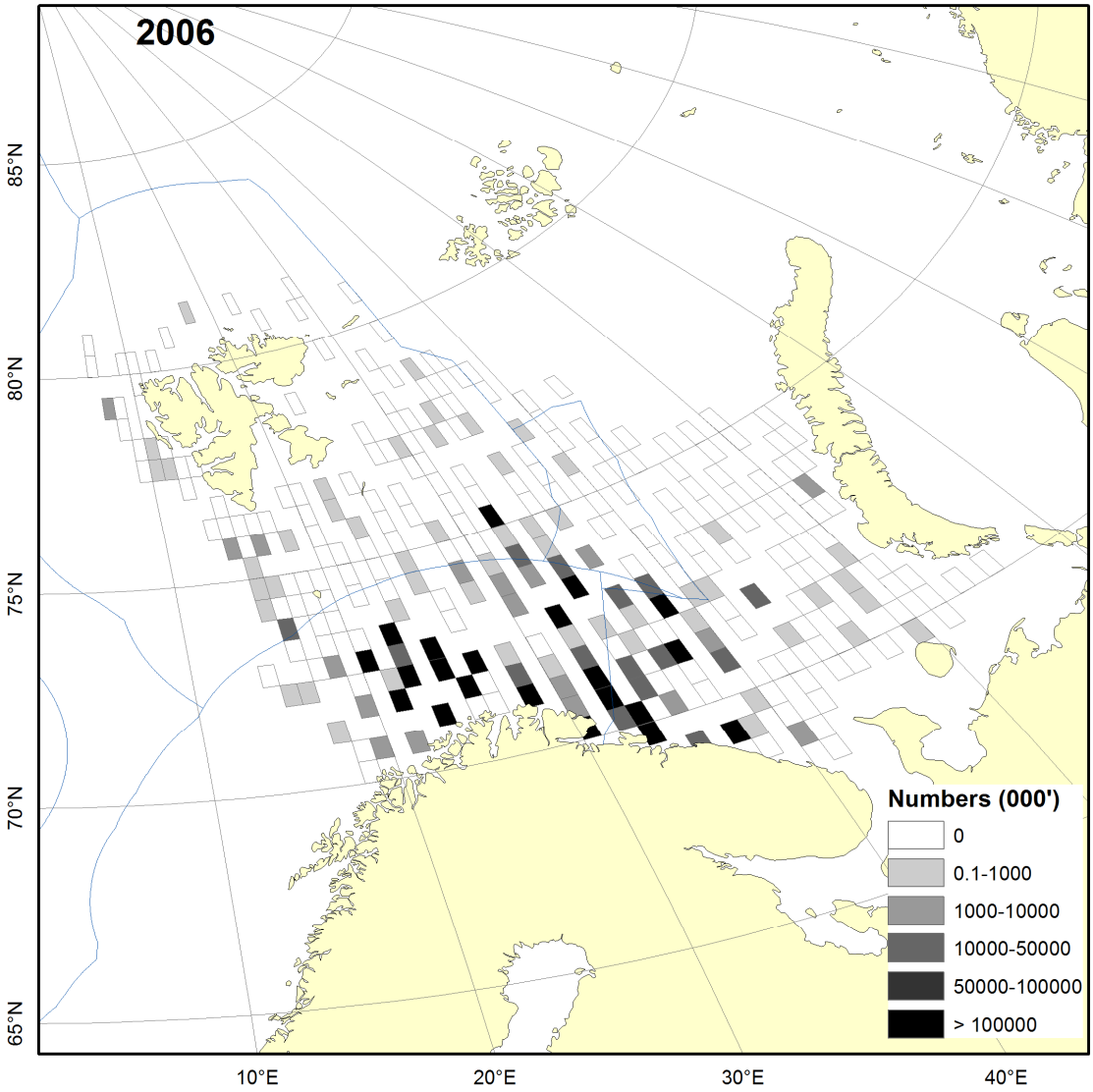

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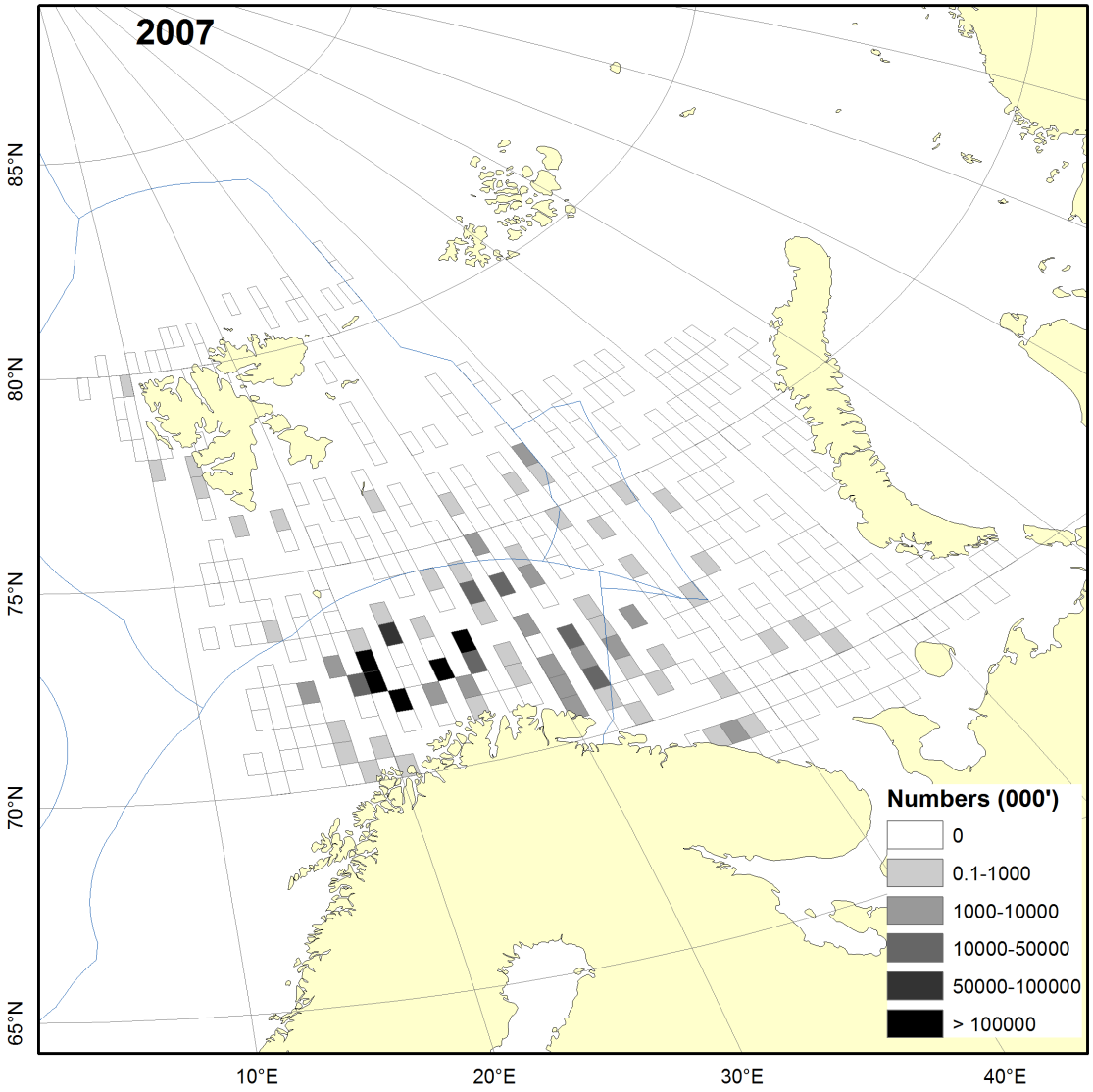

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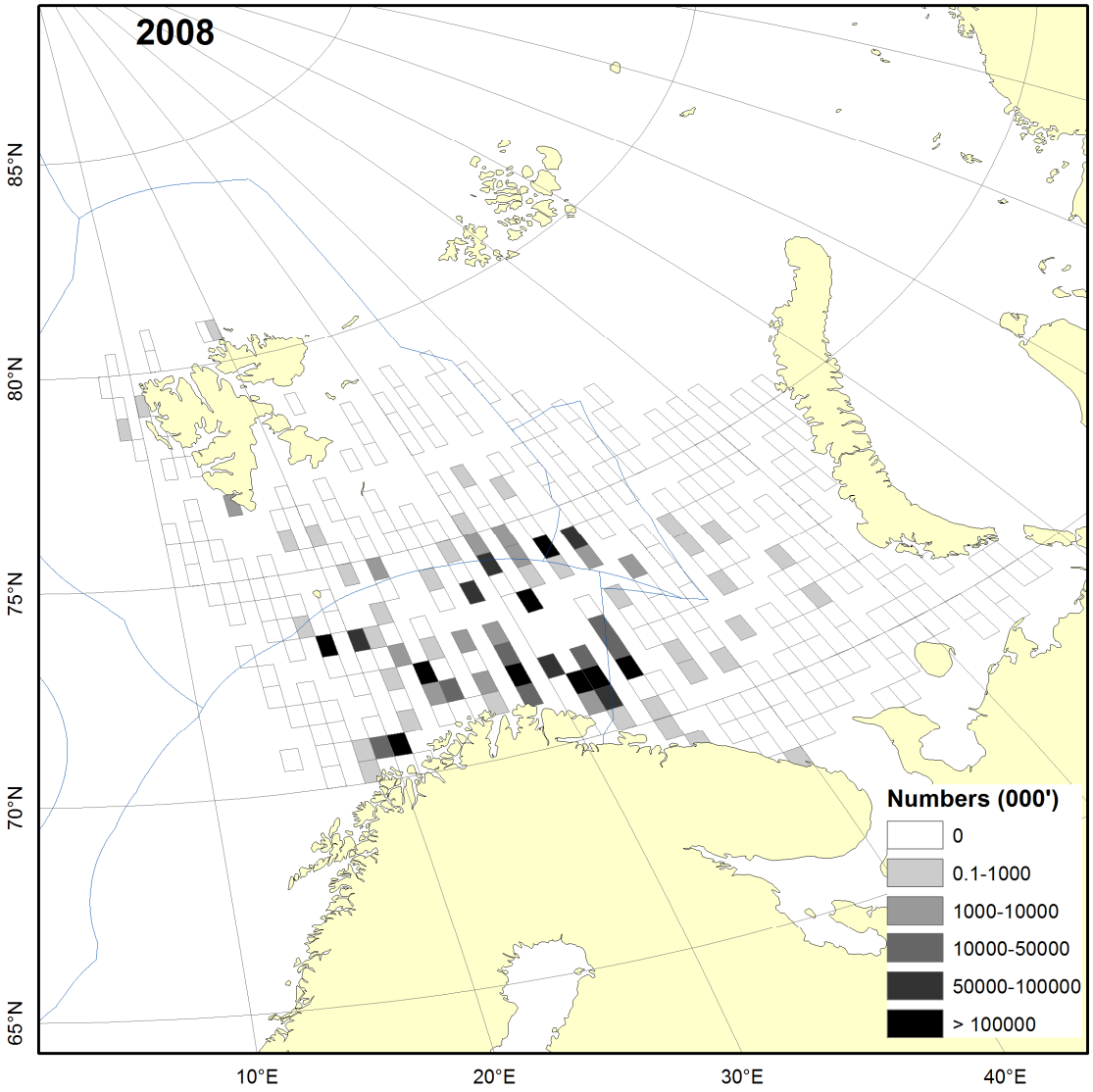

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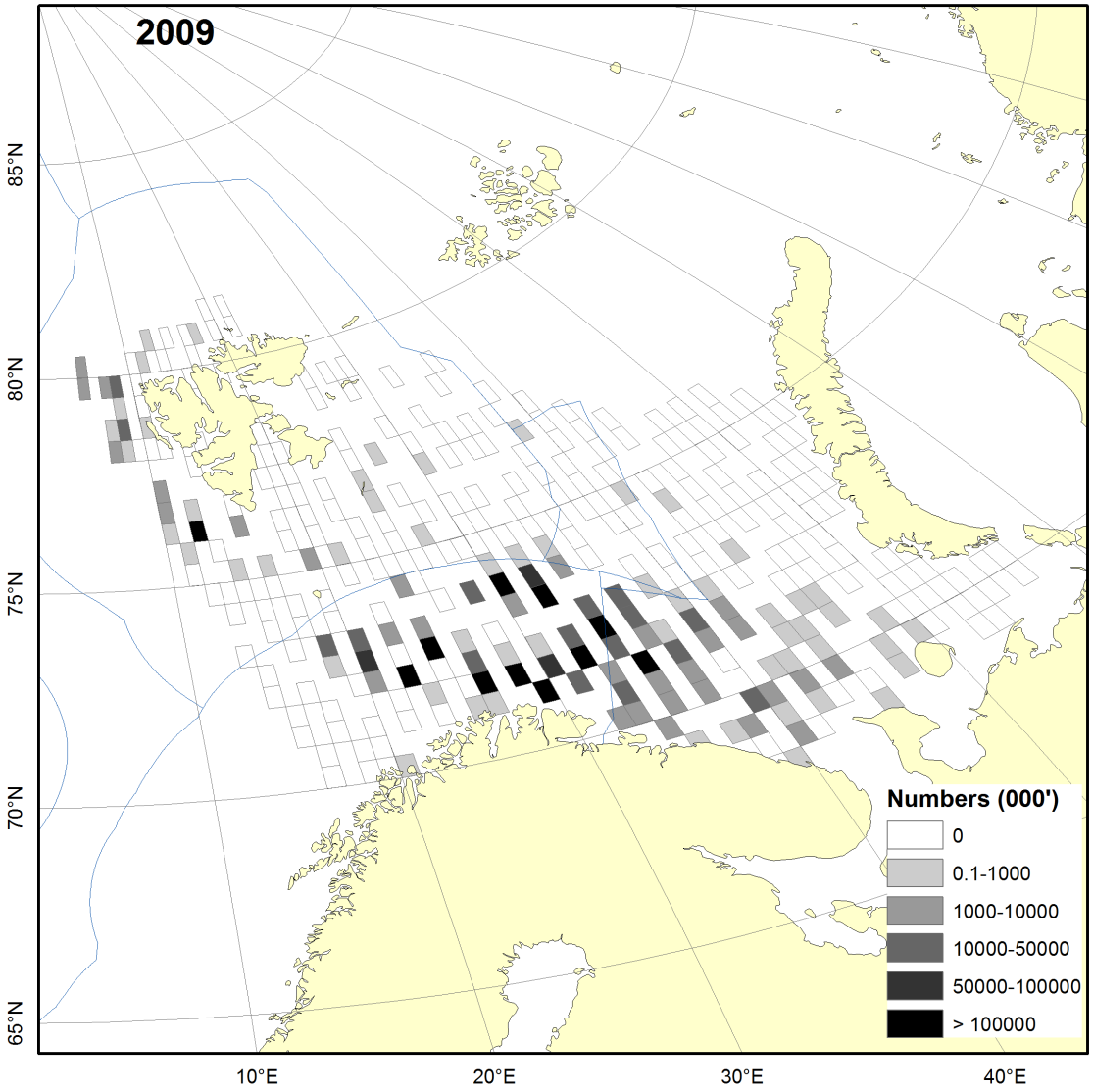

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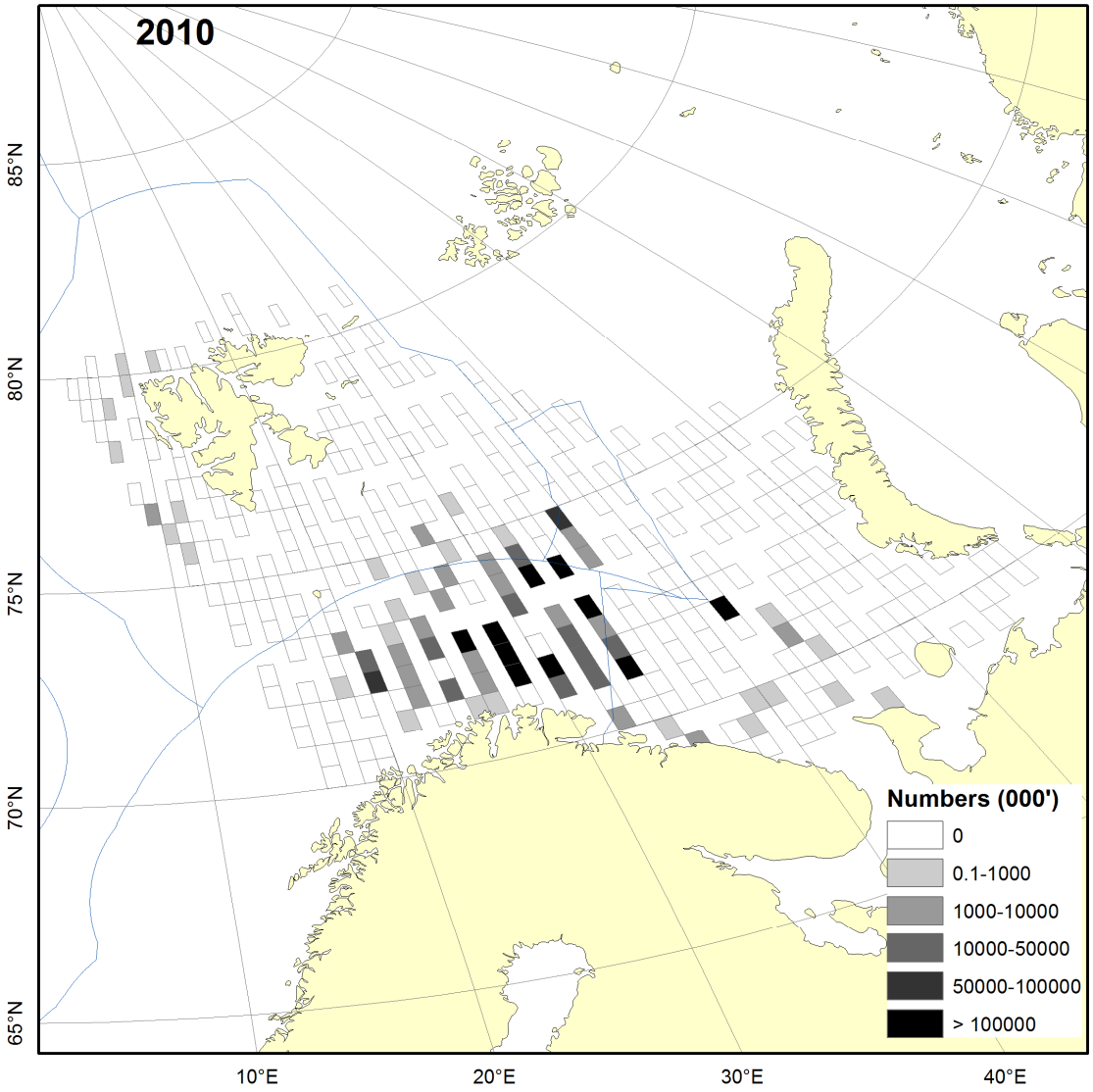
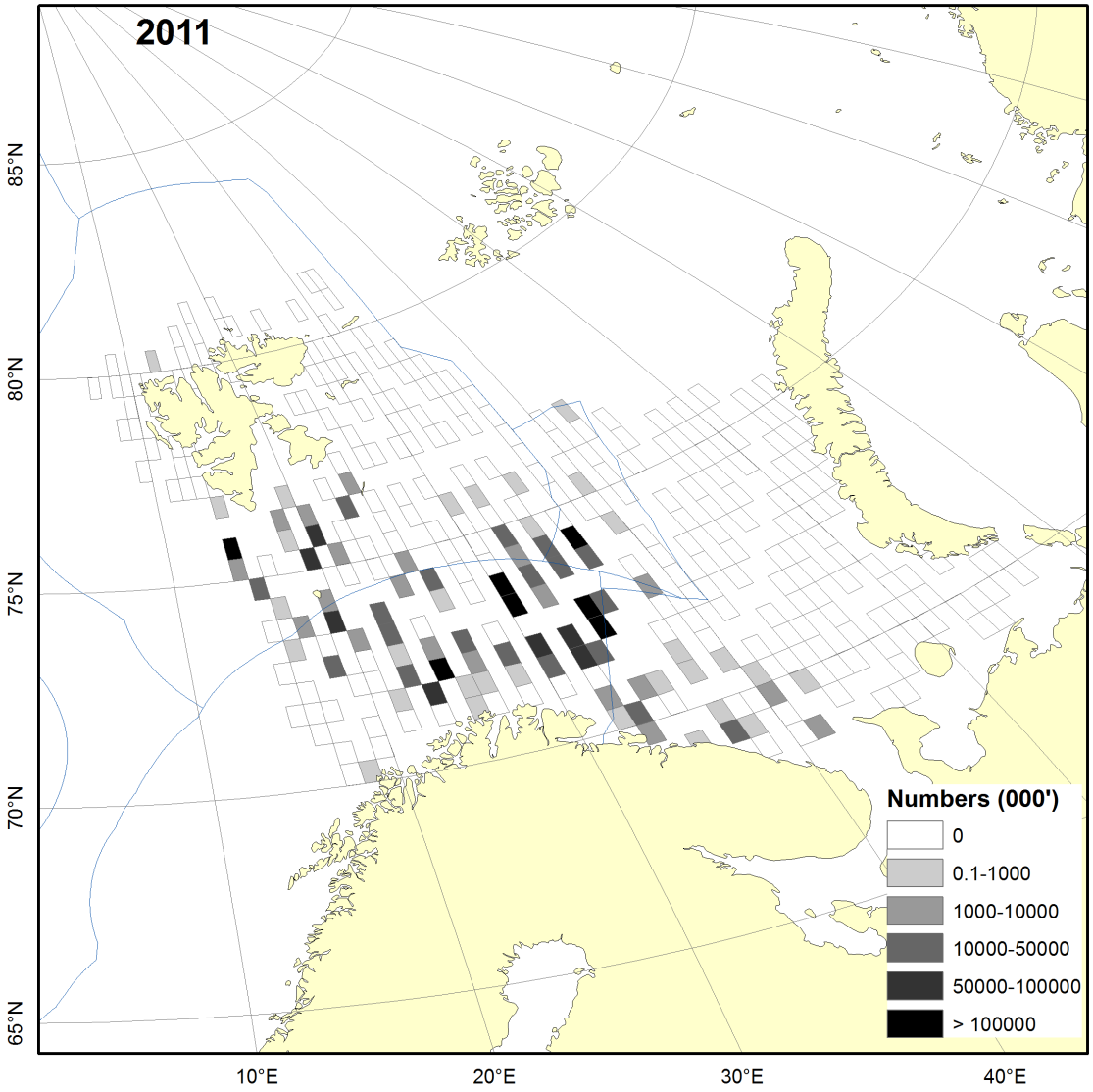


Figure 4.8.1 *continued*. Norwegian spring spawning herring. Distribution in 2010 of 0-group herring in the Ecosystem survey in the Barents Sea in August.



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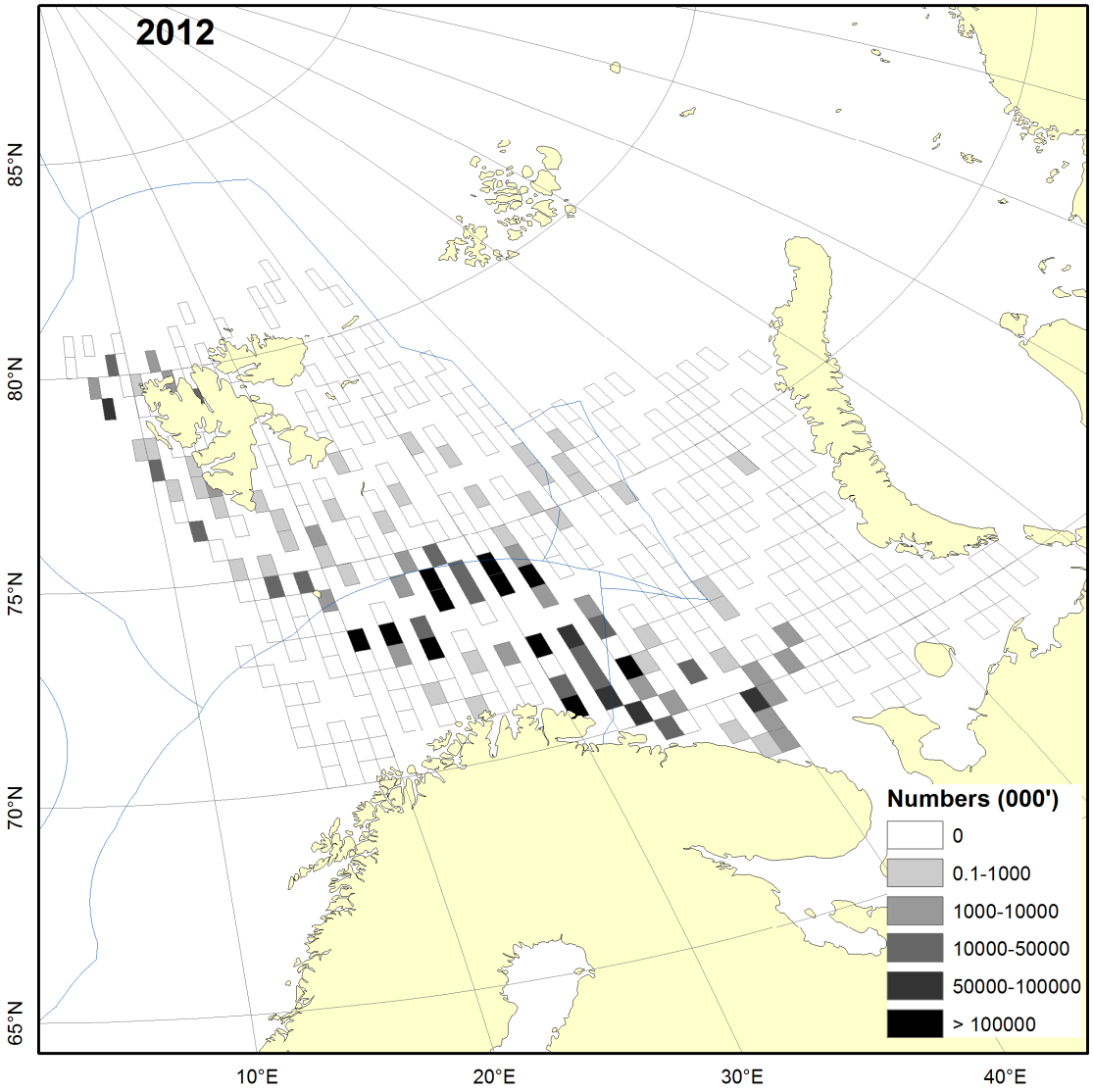

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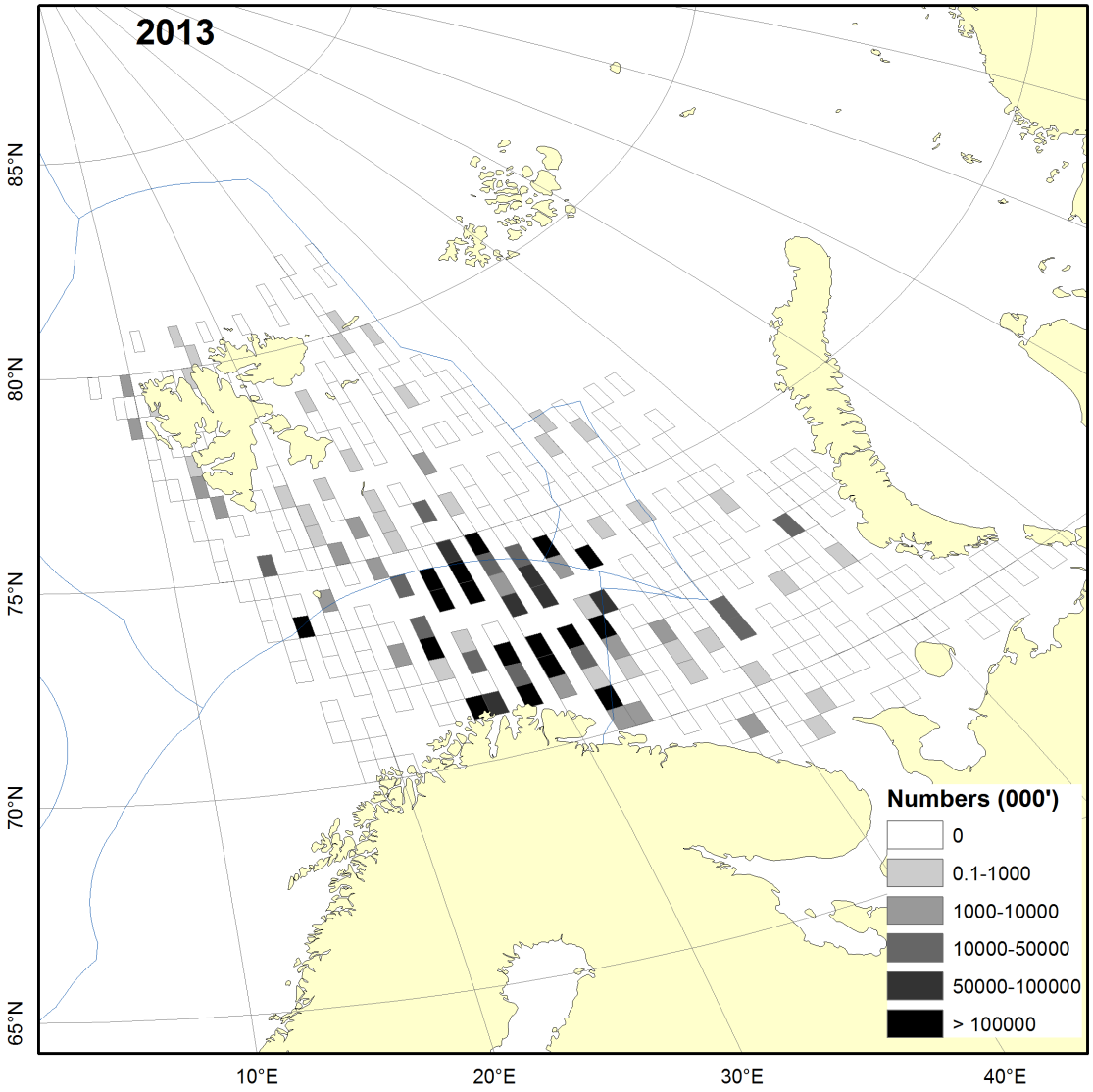

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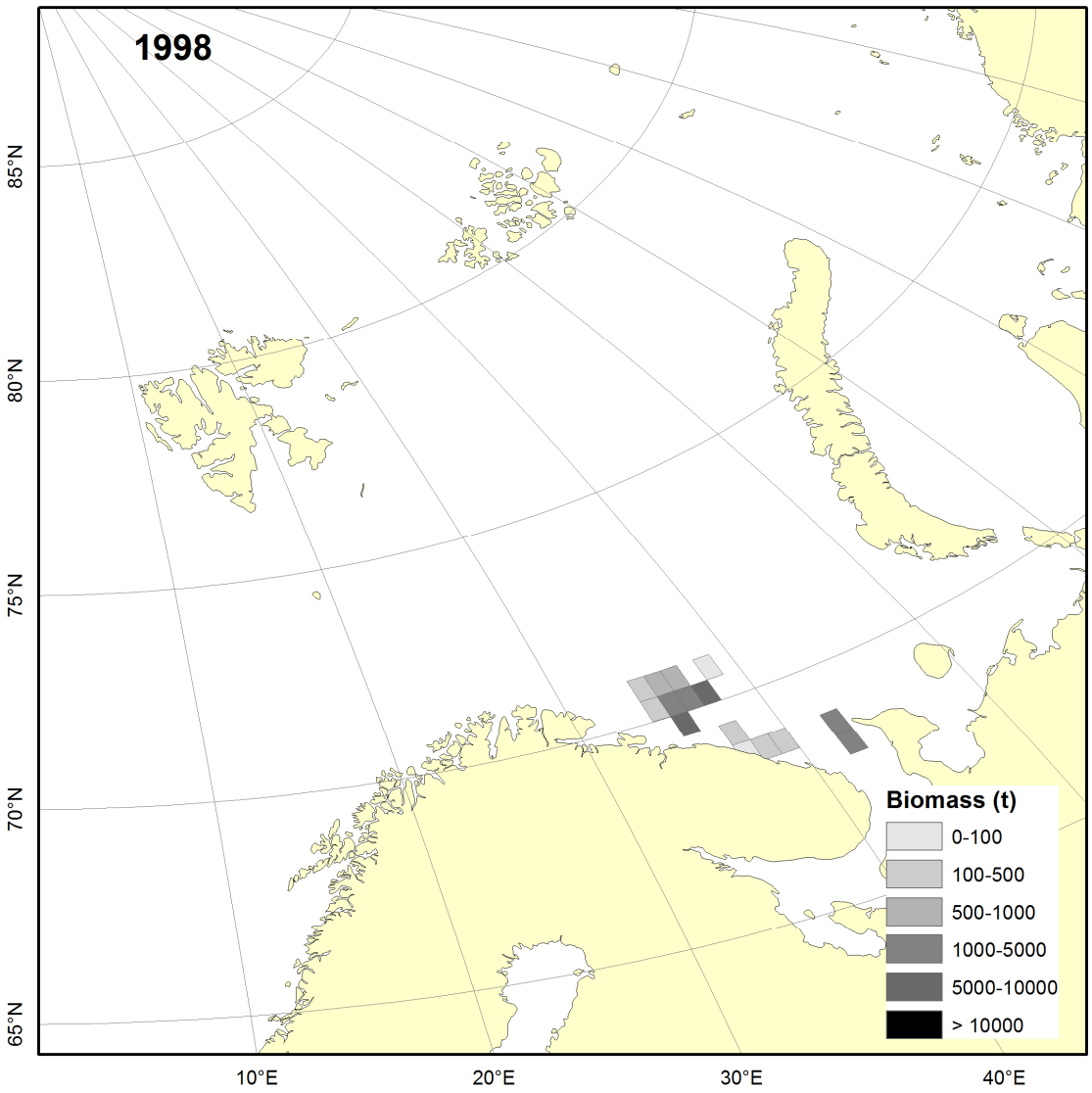


Figure 4.8.2. Norwegian spring spawning herring. Distribution in 1998 of juvenile herring in the Russian Ecosystem survey in the Barents Sea in August.

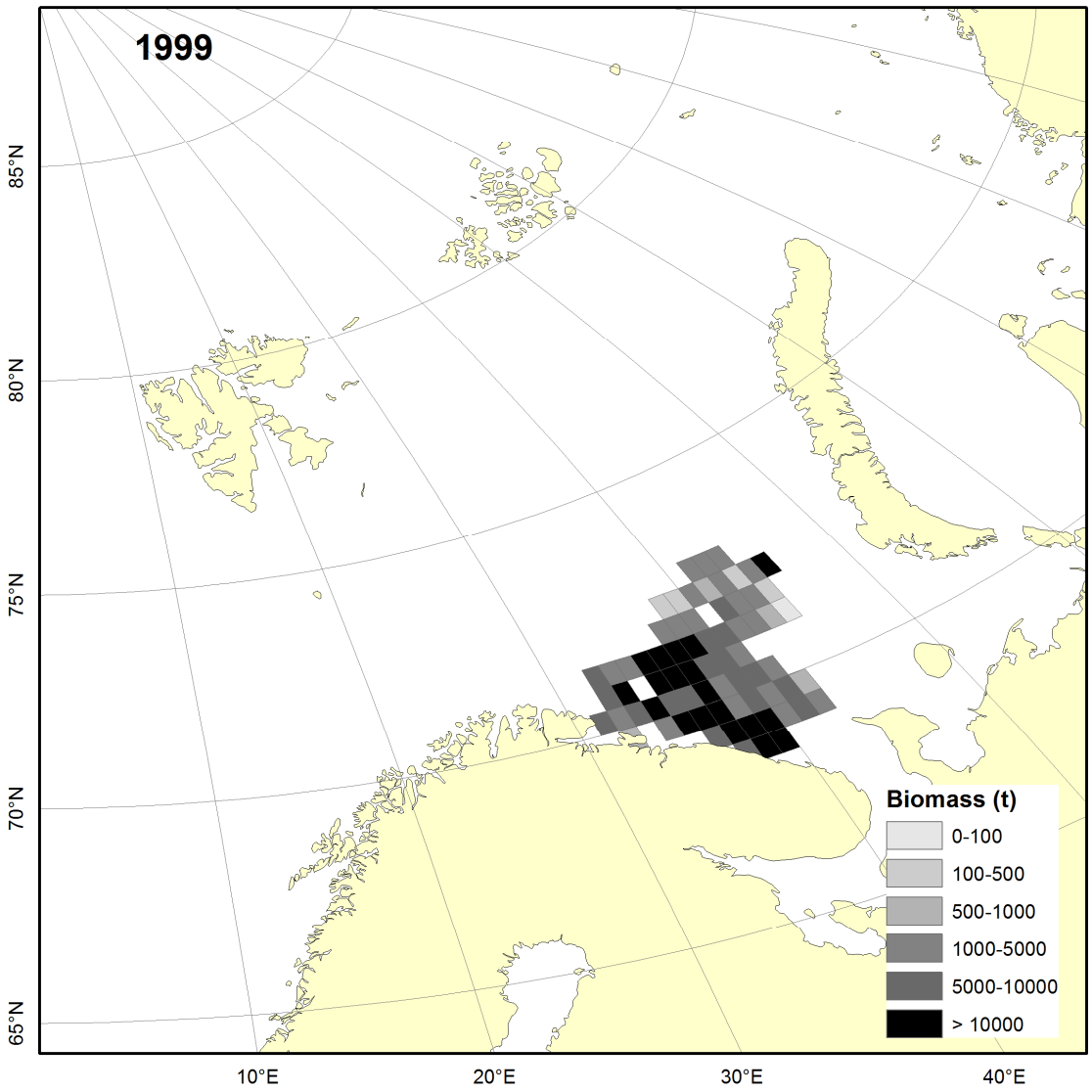
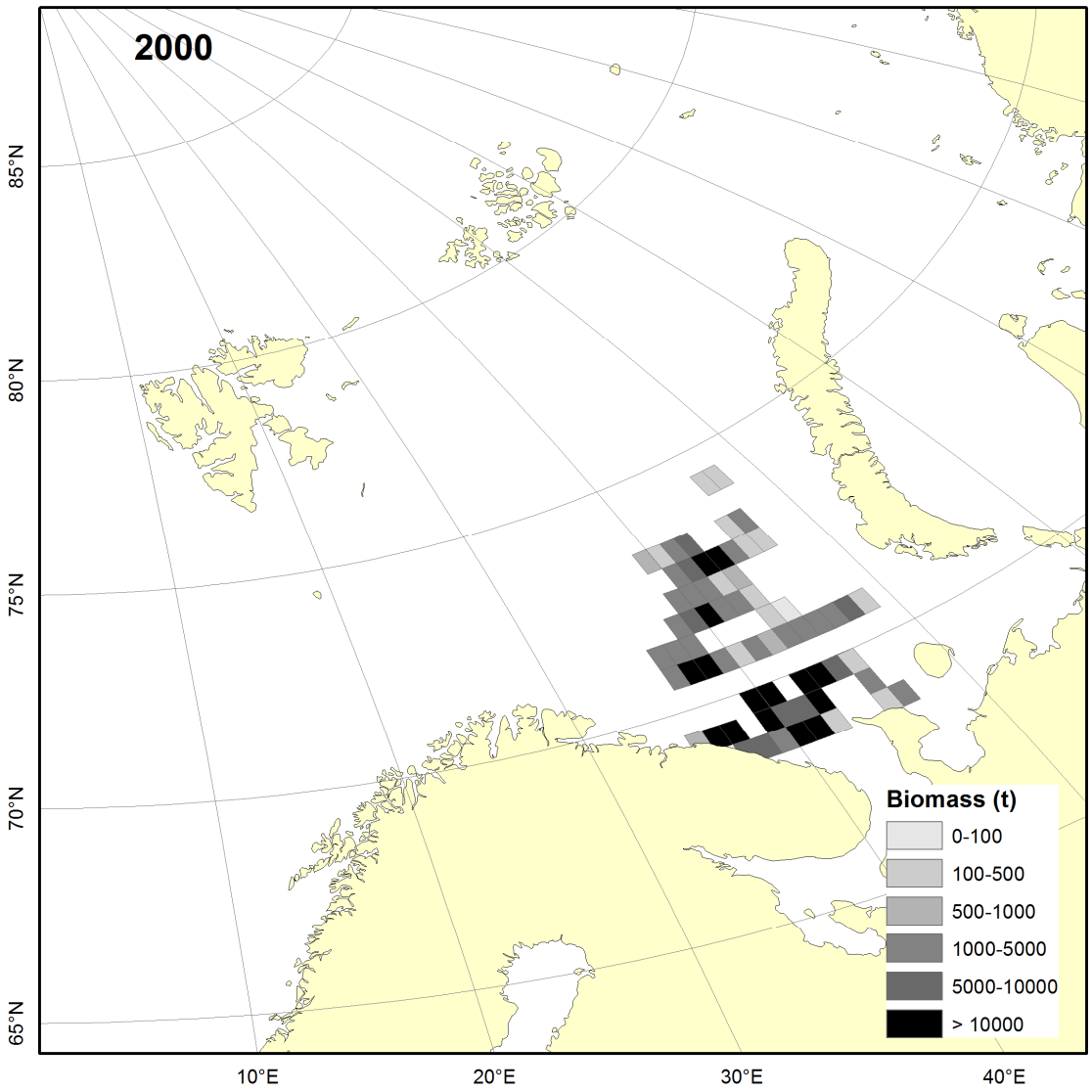


Figure 4.8.2 *continued*. Norwegian spring spawning herring. Distribution in 1999 of juvenile herring in the Russian Ecosystem survey in the Barents Sea in August.



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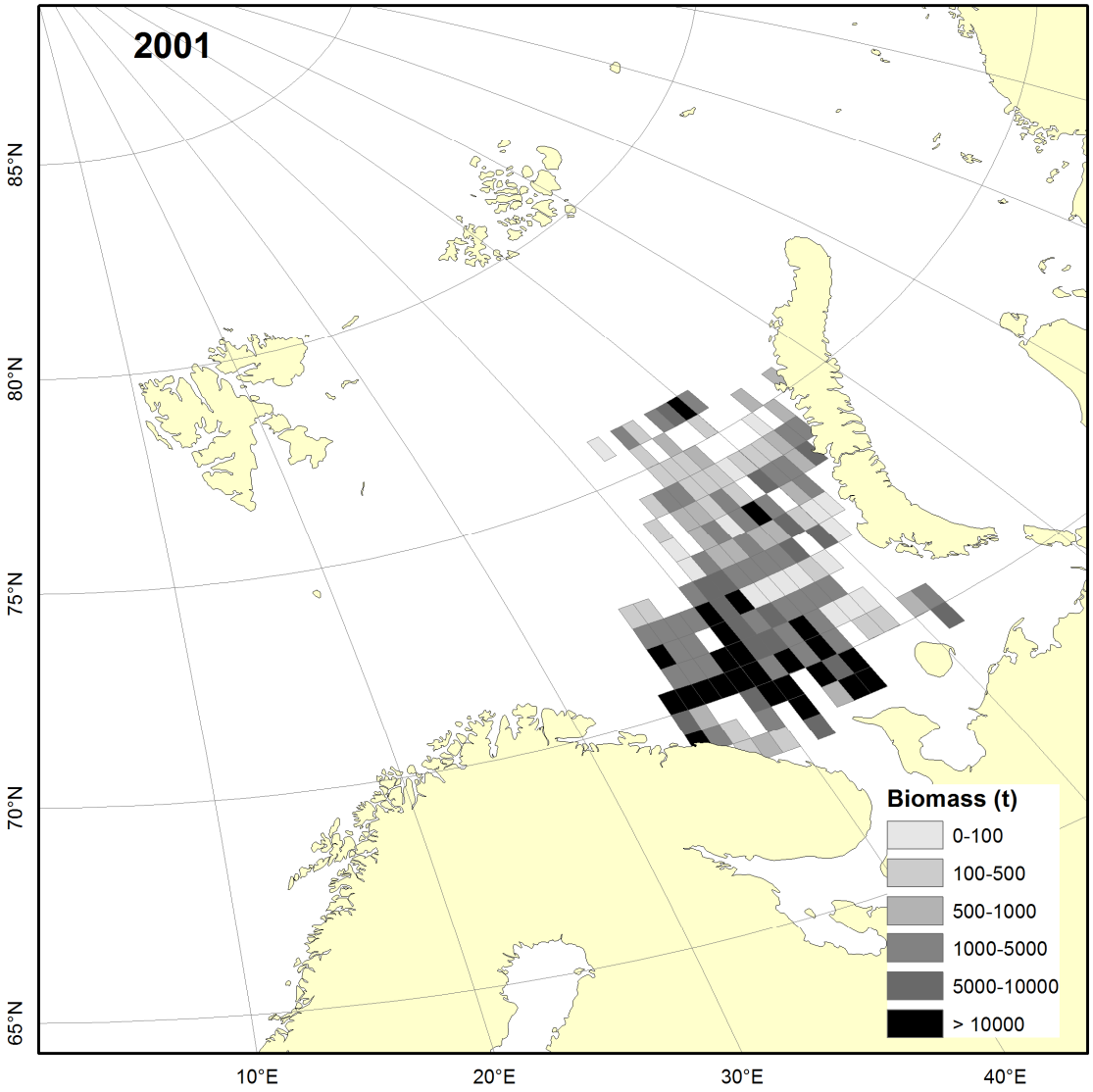

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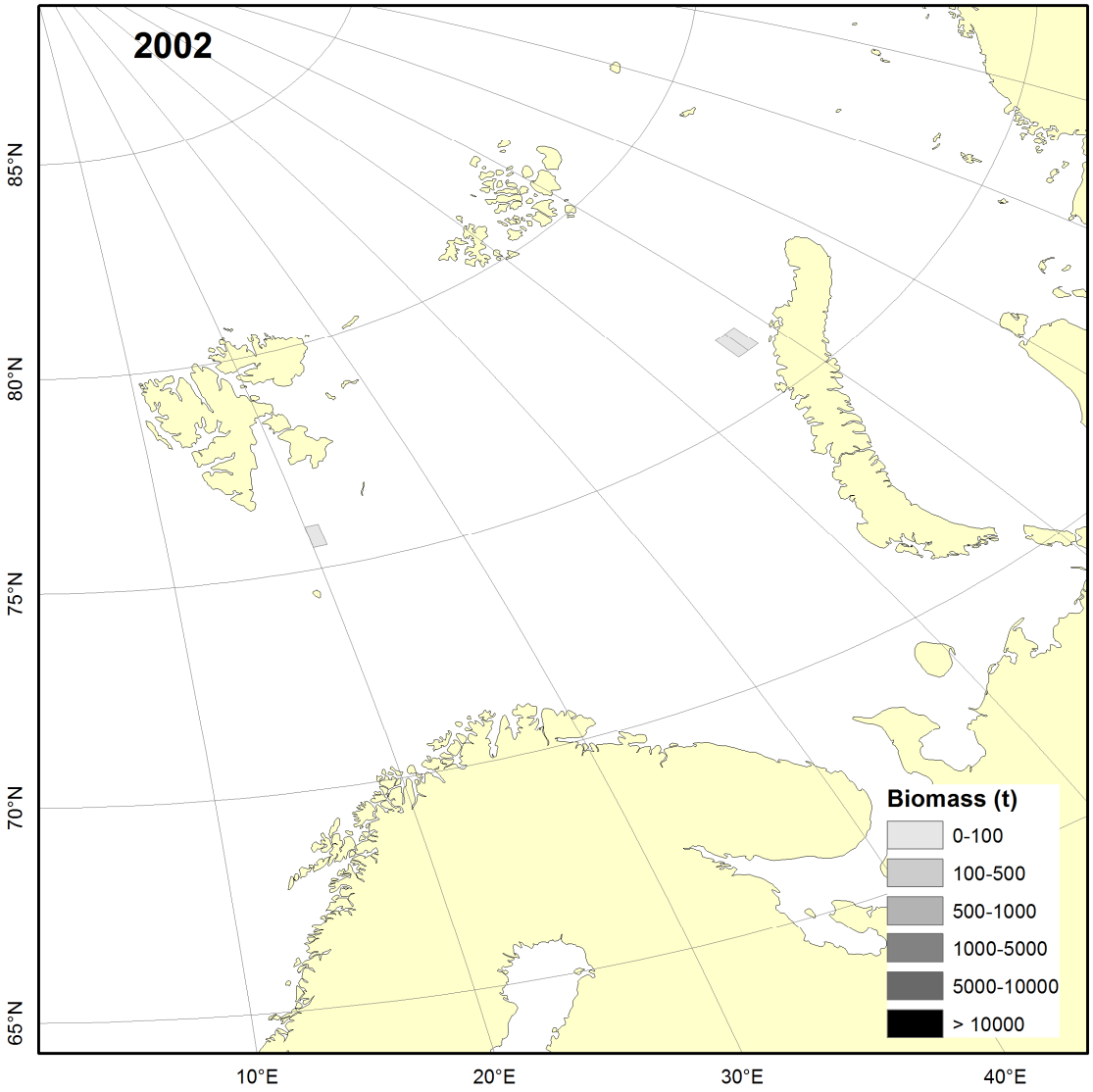

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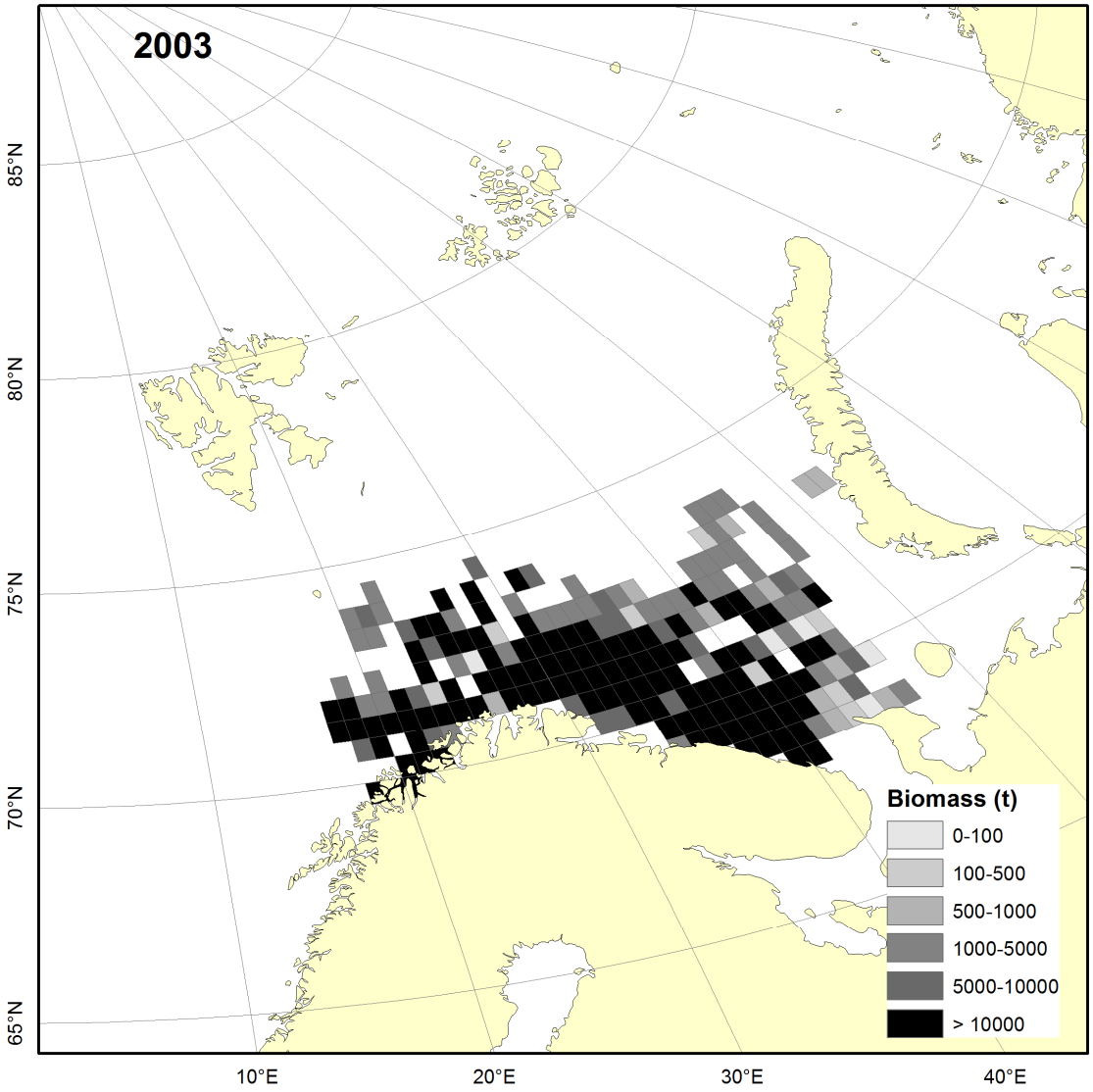

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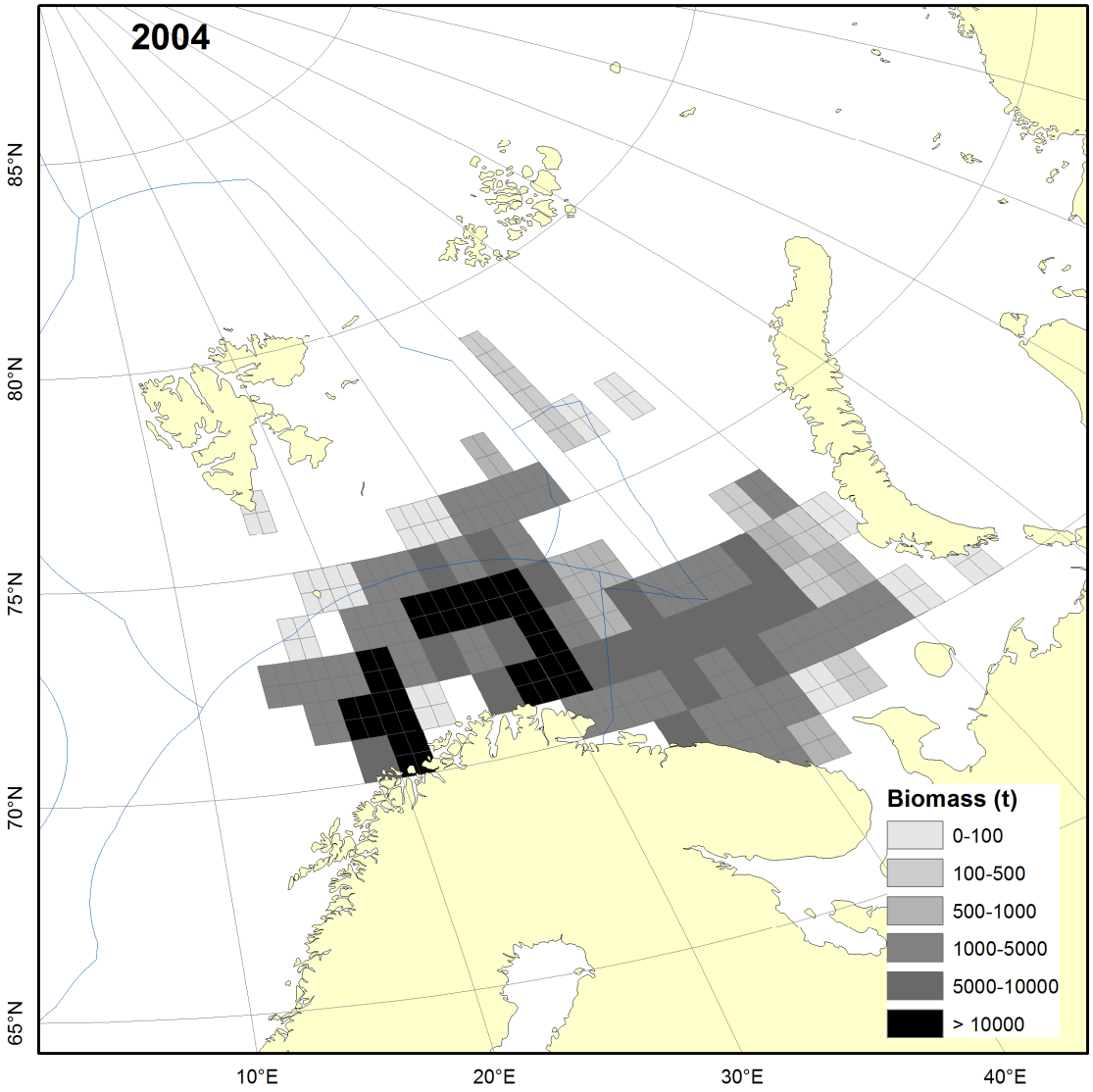
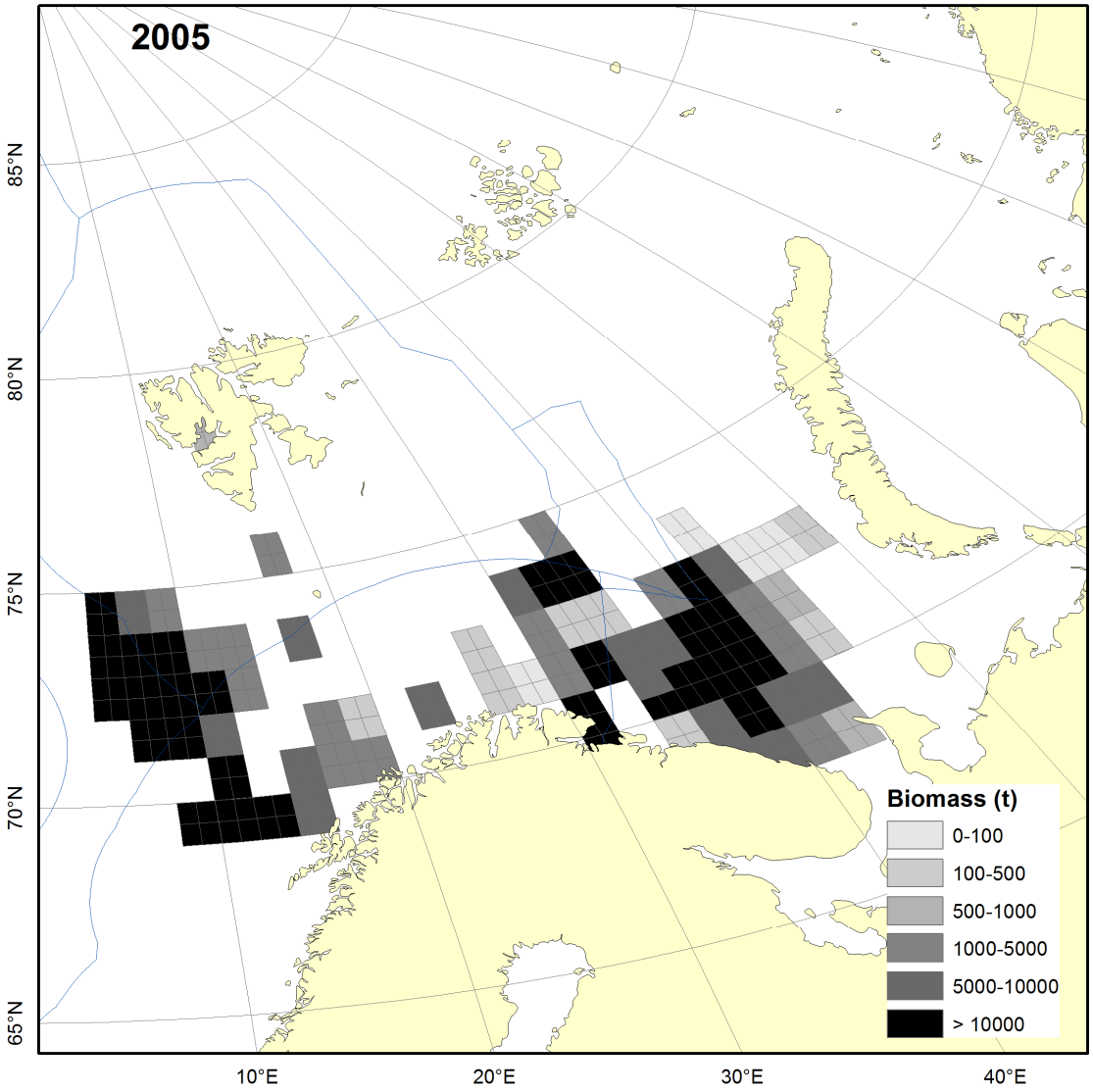


Figure 4.8.3. Norwegian spring spawning herring. Distribution in 2004 of juvenile herring in the joint Russian/Norwegian Ecosystem survey in the Barents Sea in August.



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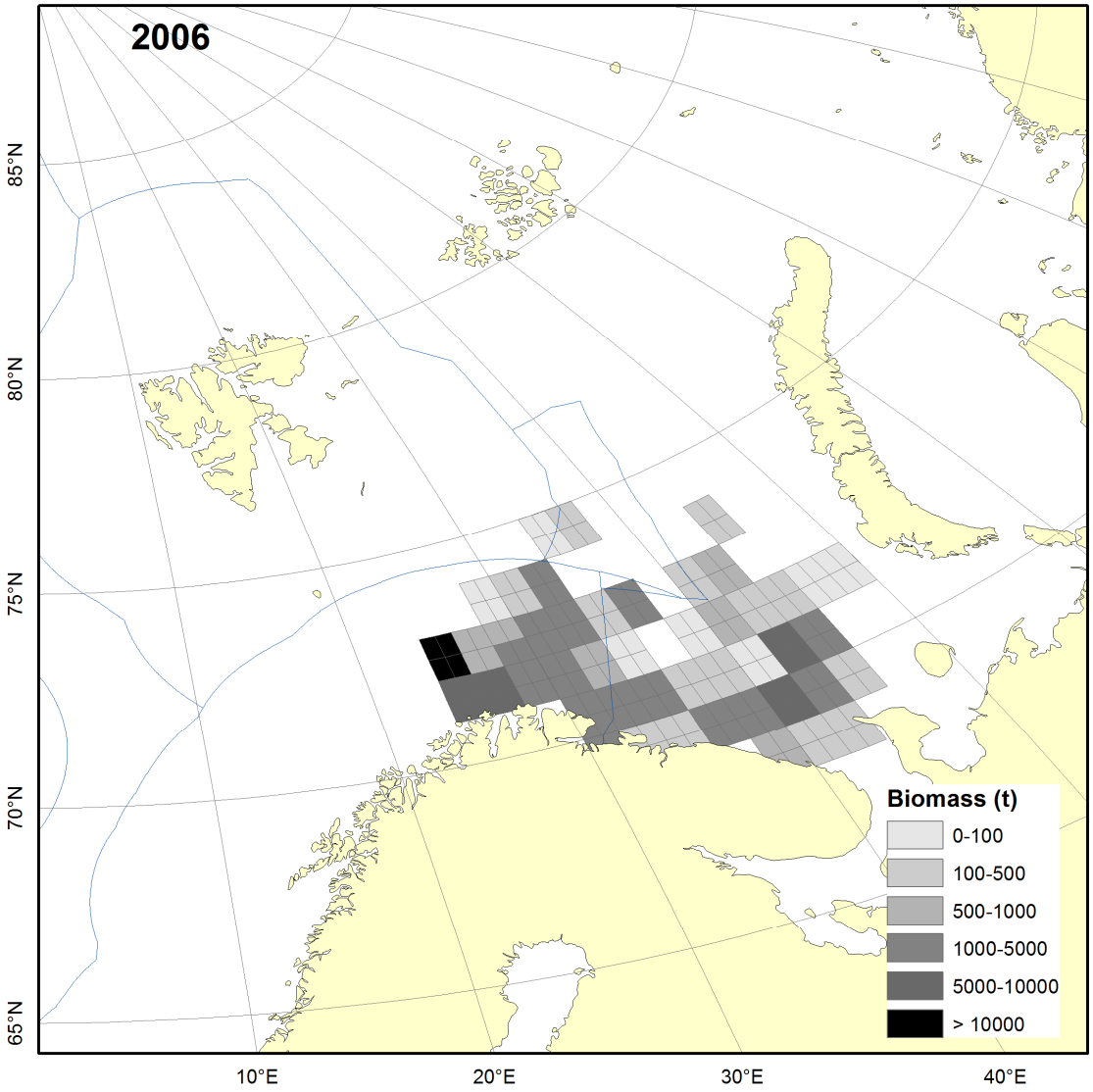

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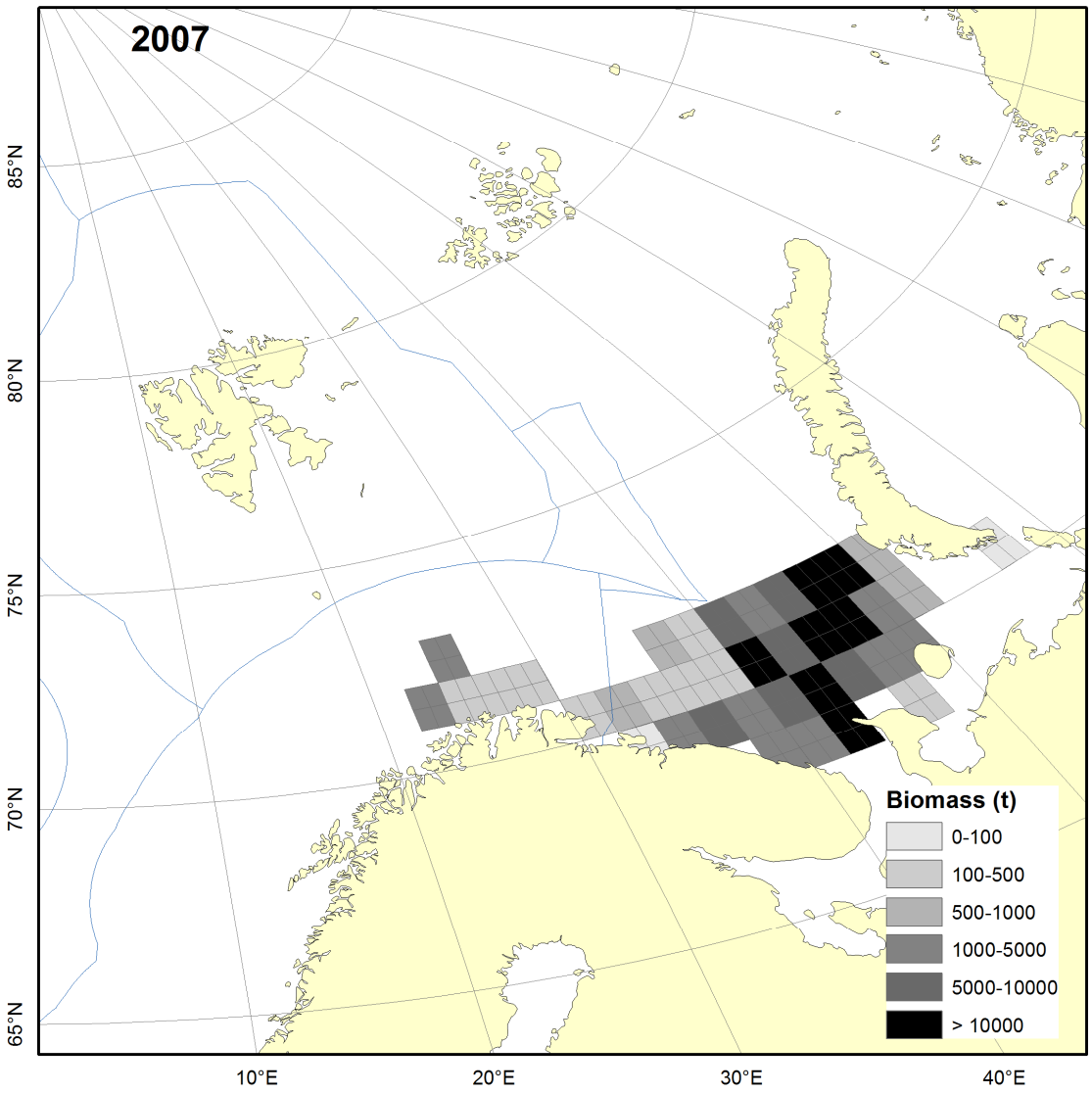

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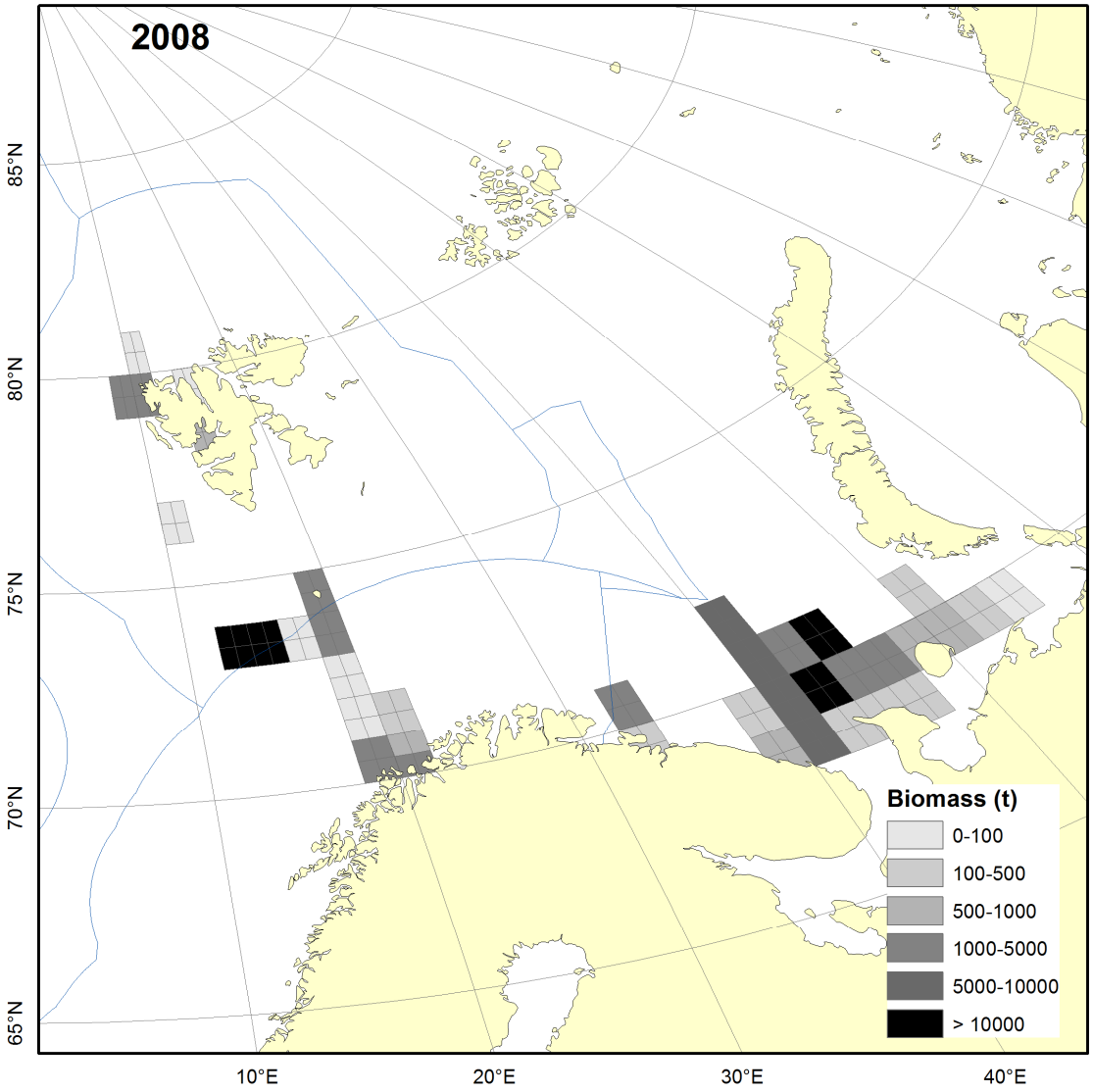

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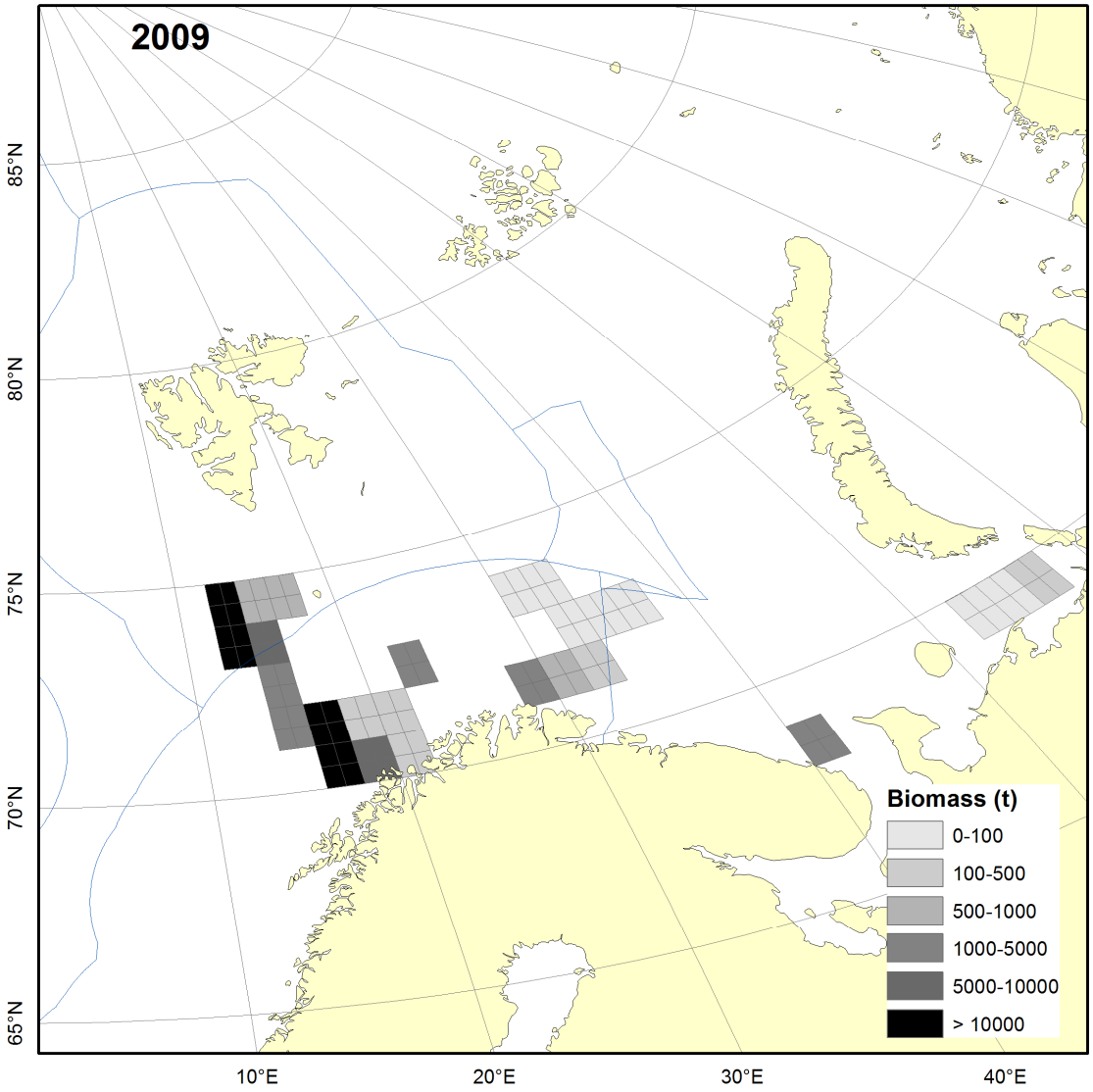

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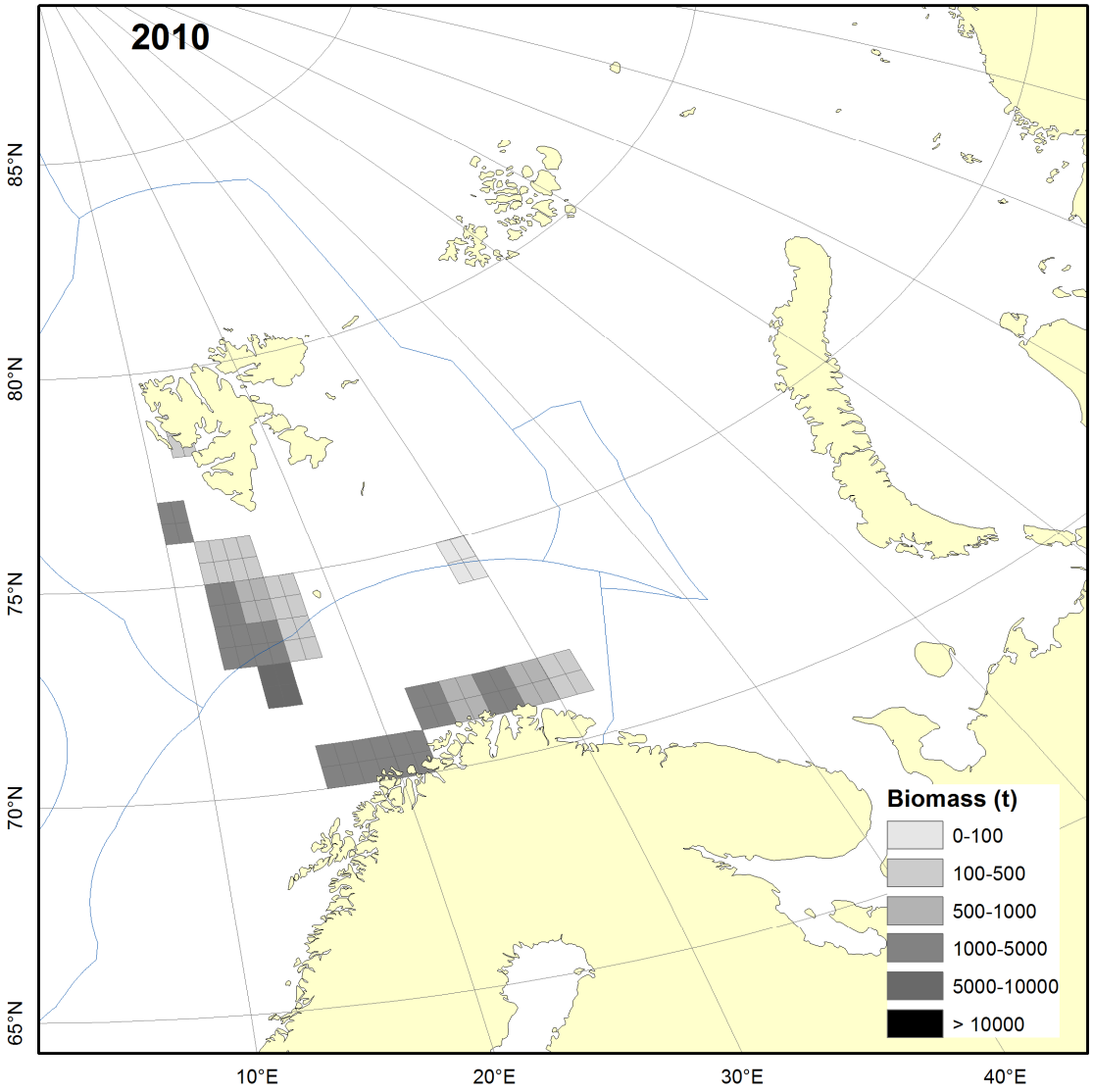

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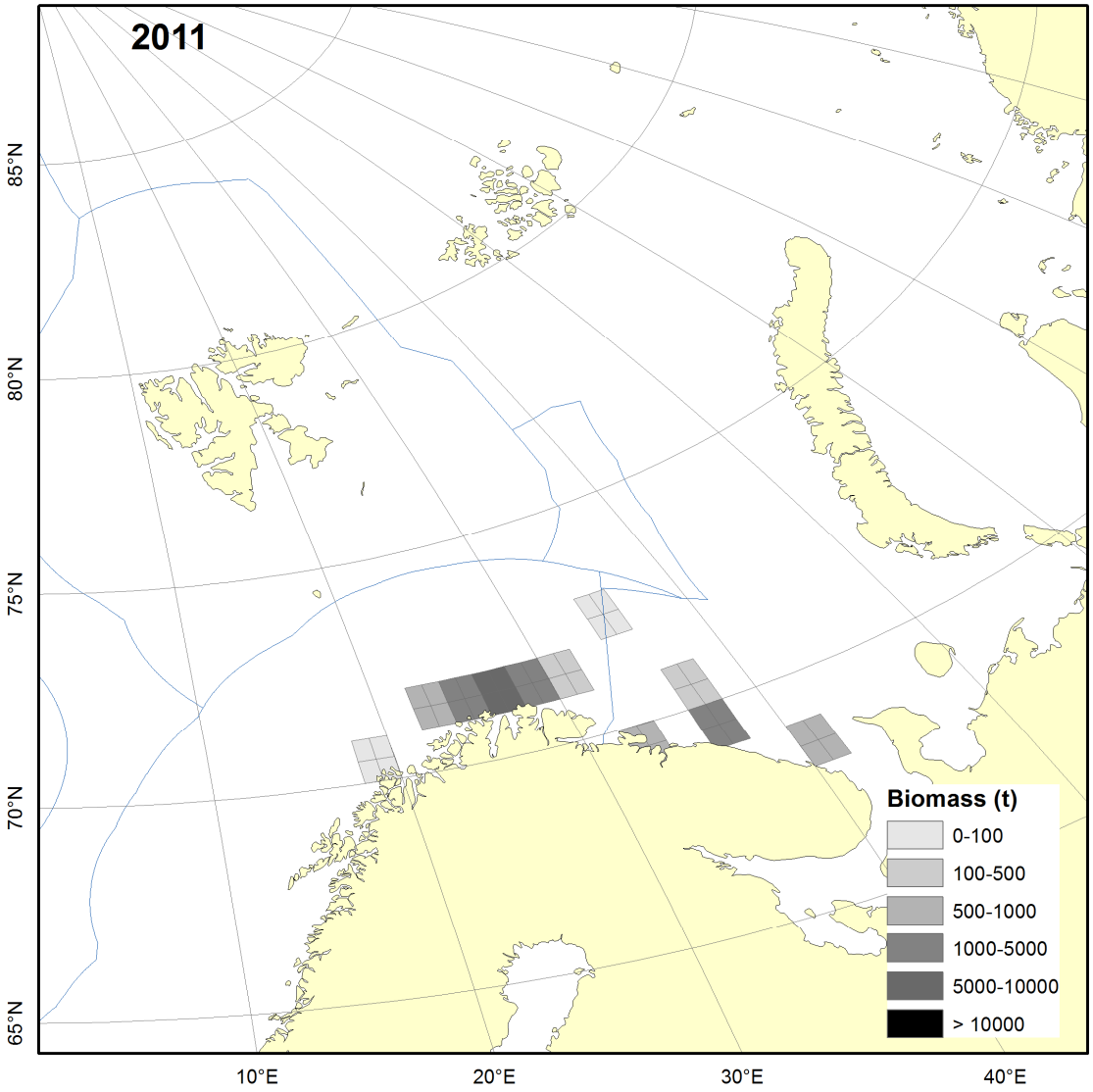


Figure 4.8.3 *continued*. Norwegian spring spawning herring. Distribution in 2011 of juvenile herring in the joint Russian/Norwegian Ecosystem survey in the Barents Sea in August.

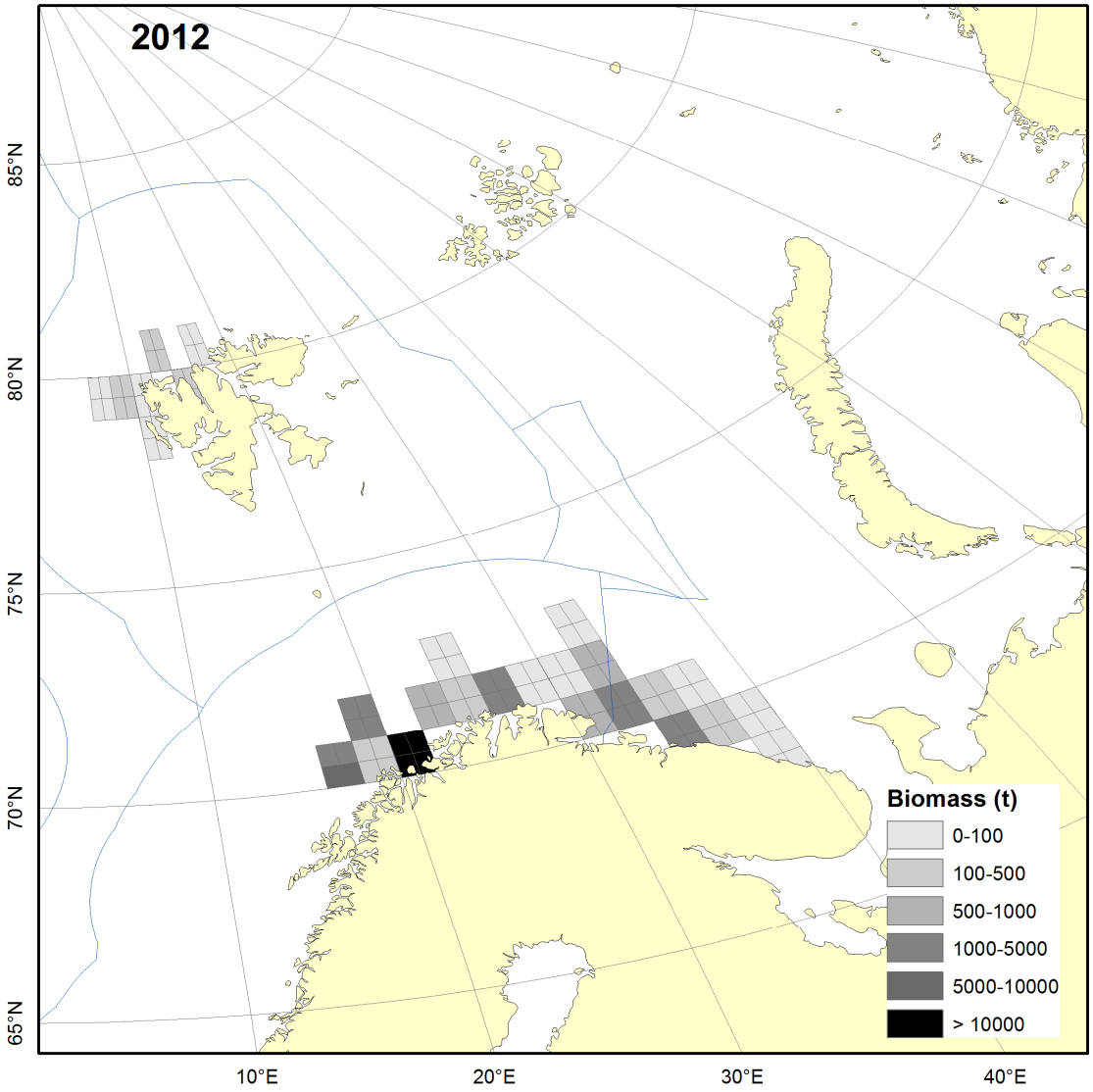
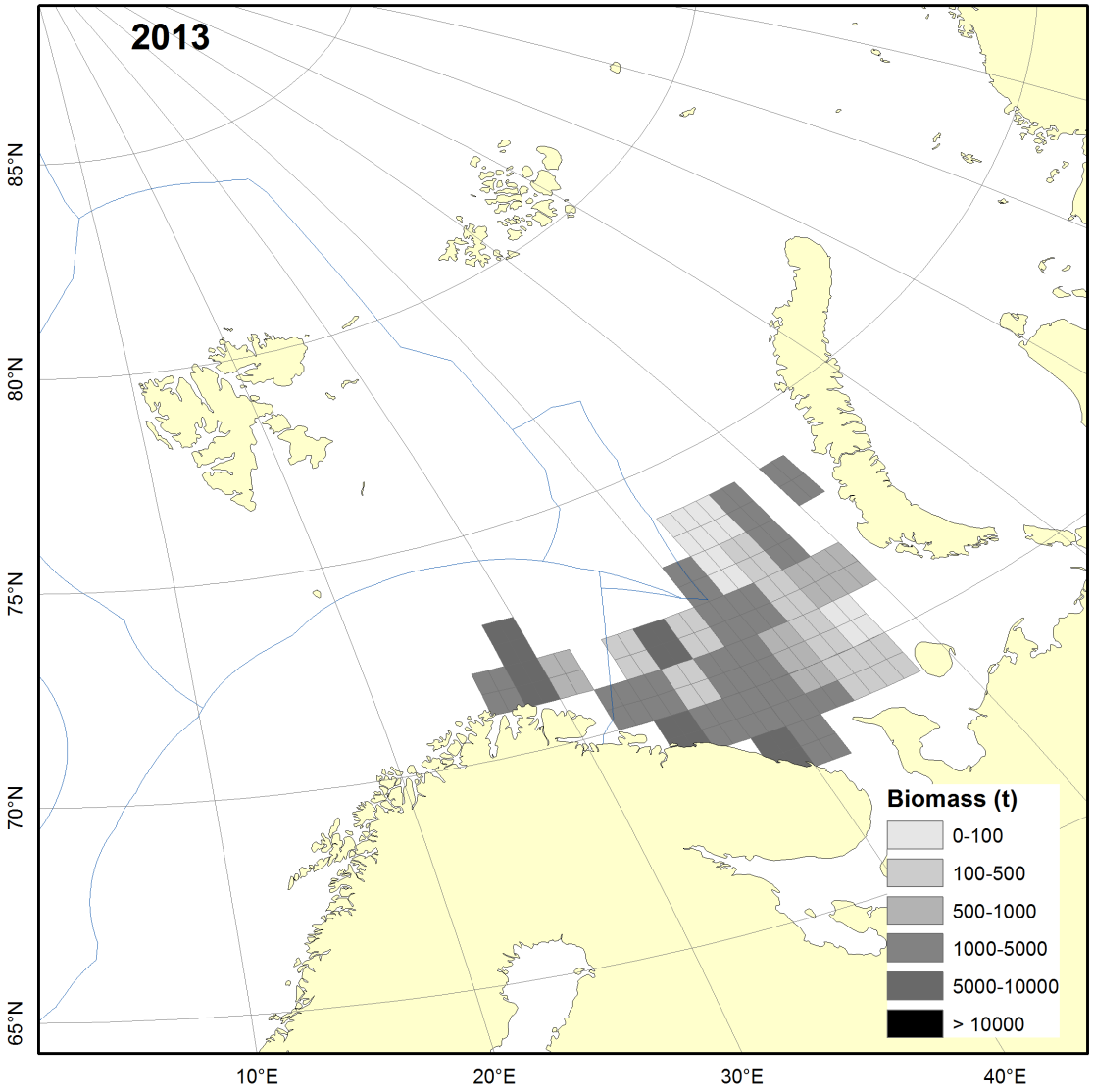


Figure 4.8.3 *continued*. Norwegian spring spawning herring. Distribution in 2012 of juvenile herring in the joint Russian/Norwegian Ecosystem survey in the Barents Sea in August.



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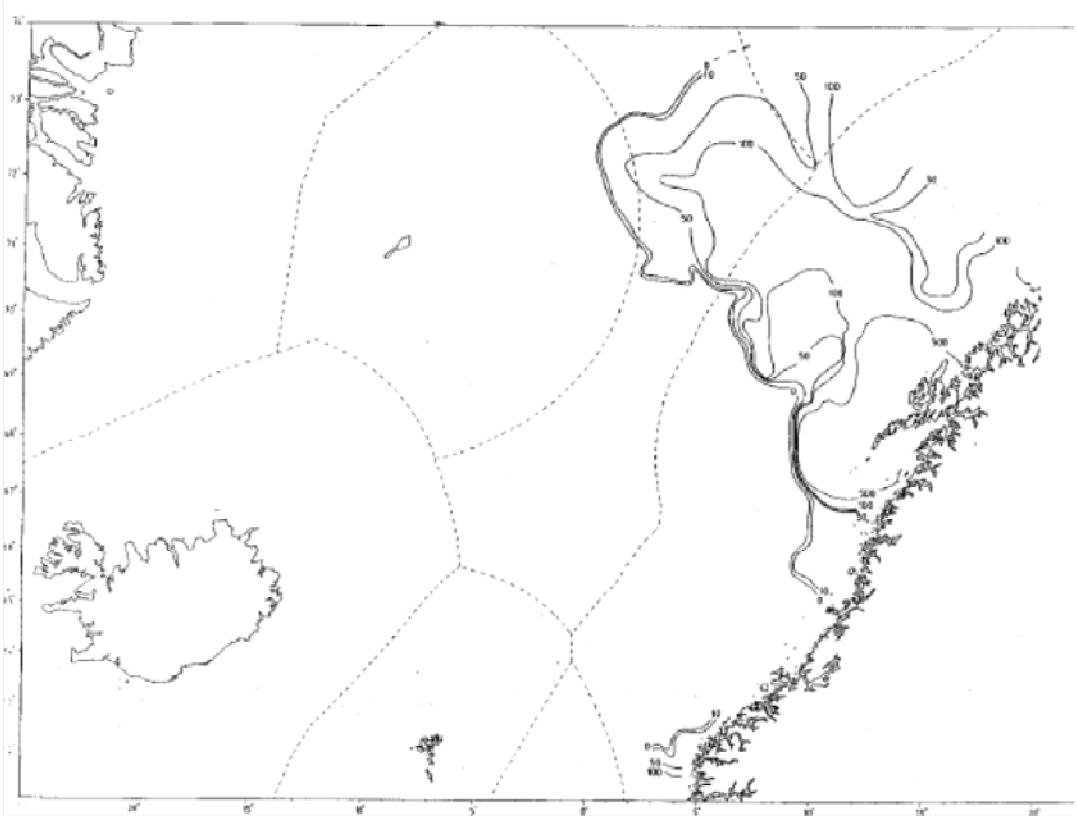
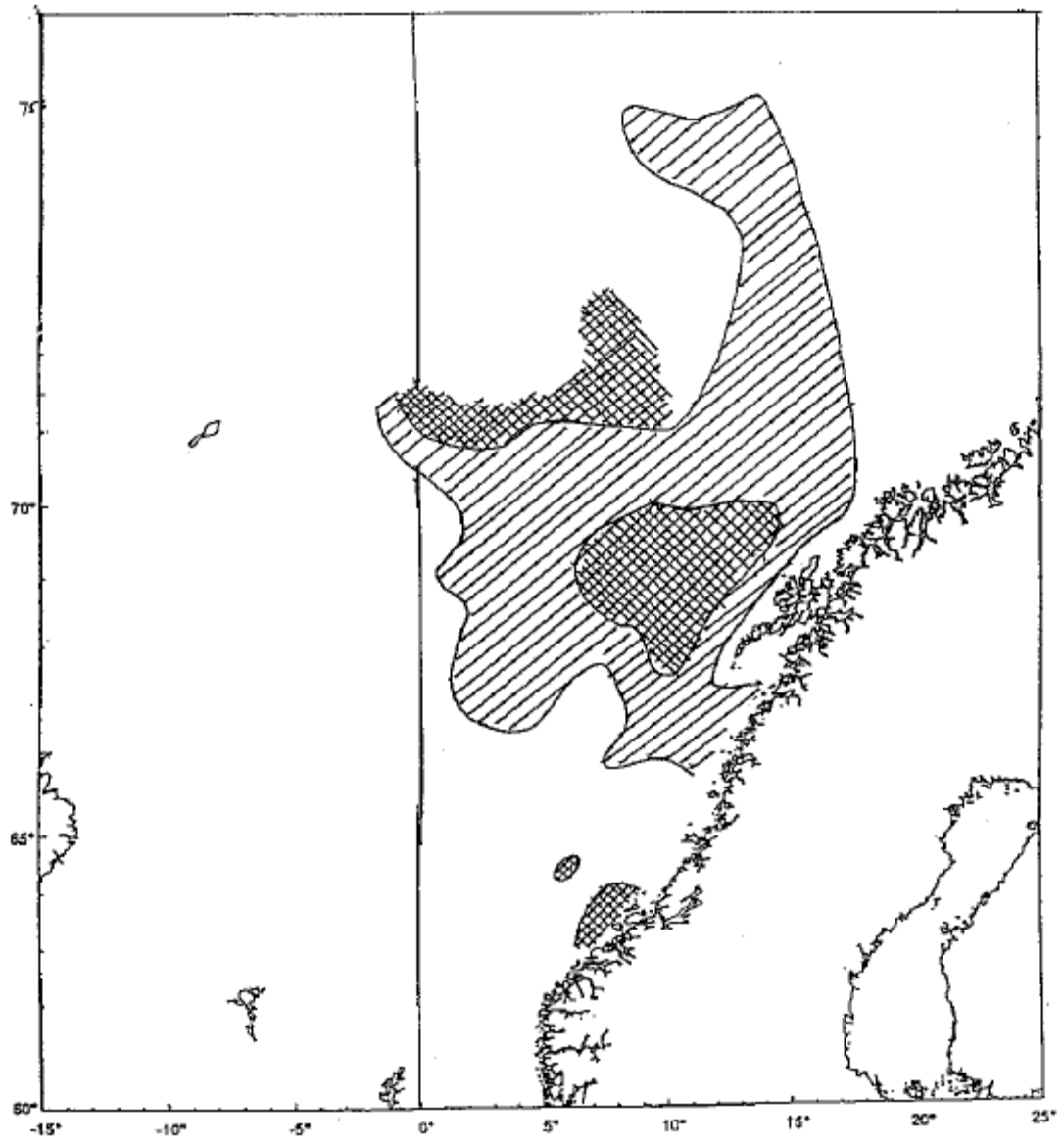


Figure 4.9.1. Norwegian spring spawning herring. Herring distribution (s_A values) 29/7-15/8 1995 in the Norwegian acoustic survey.



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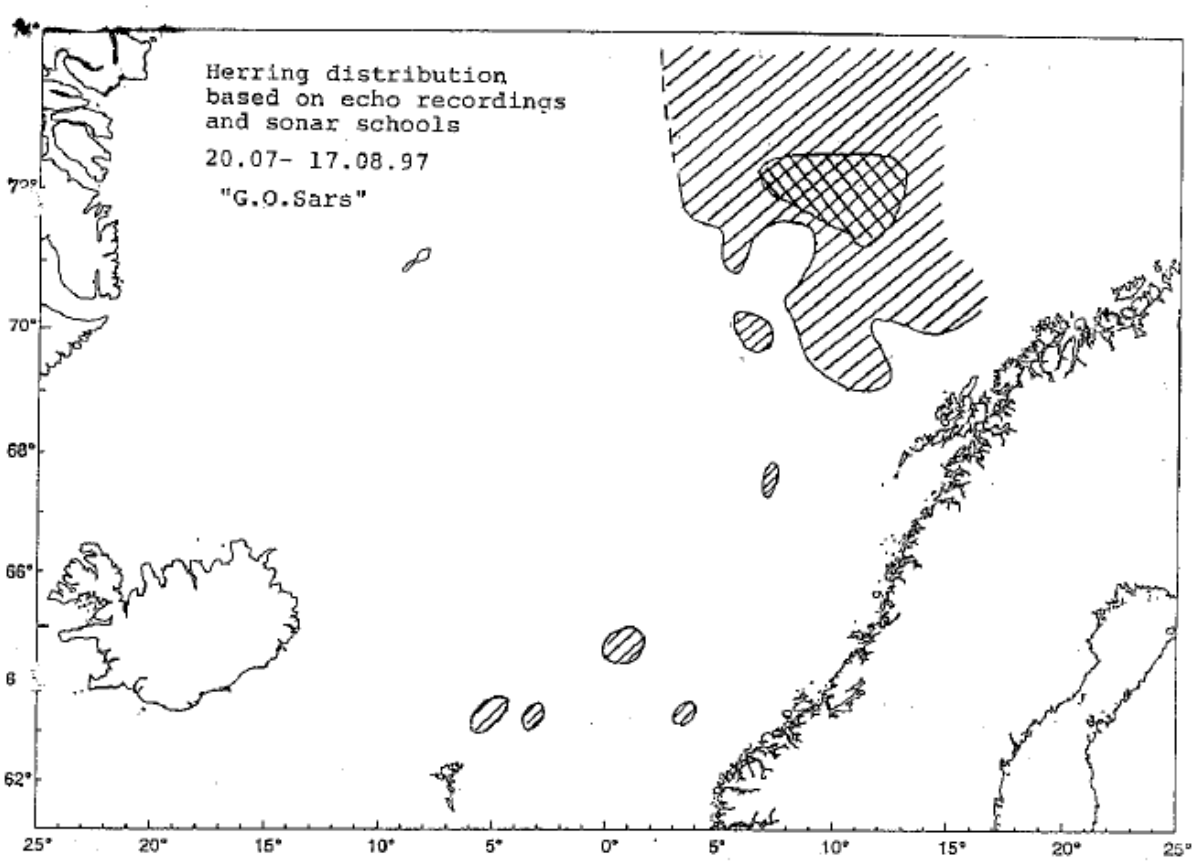

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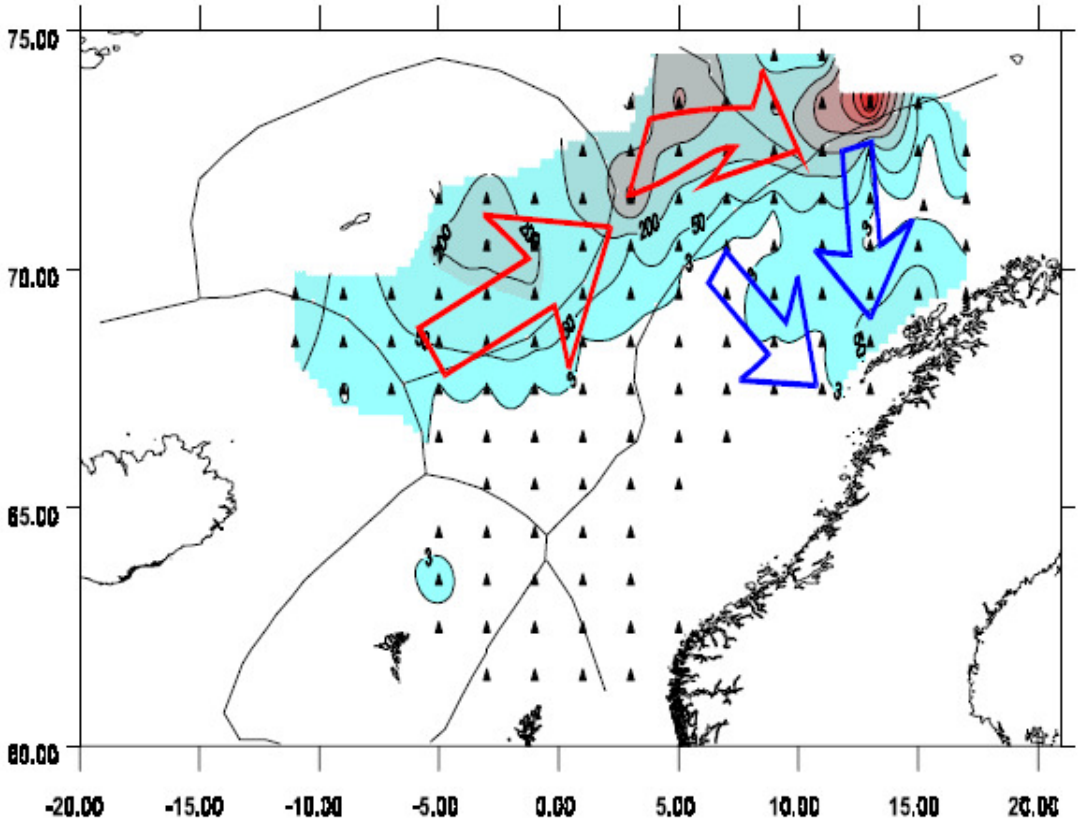

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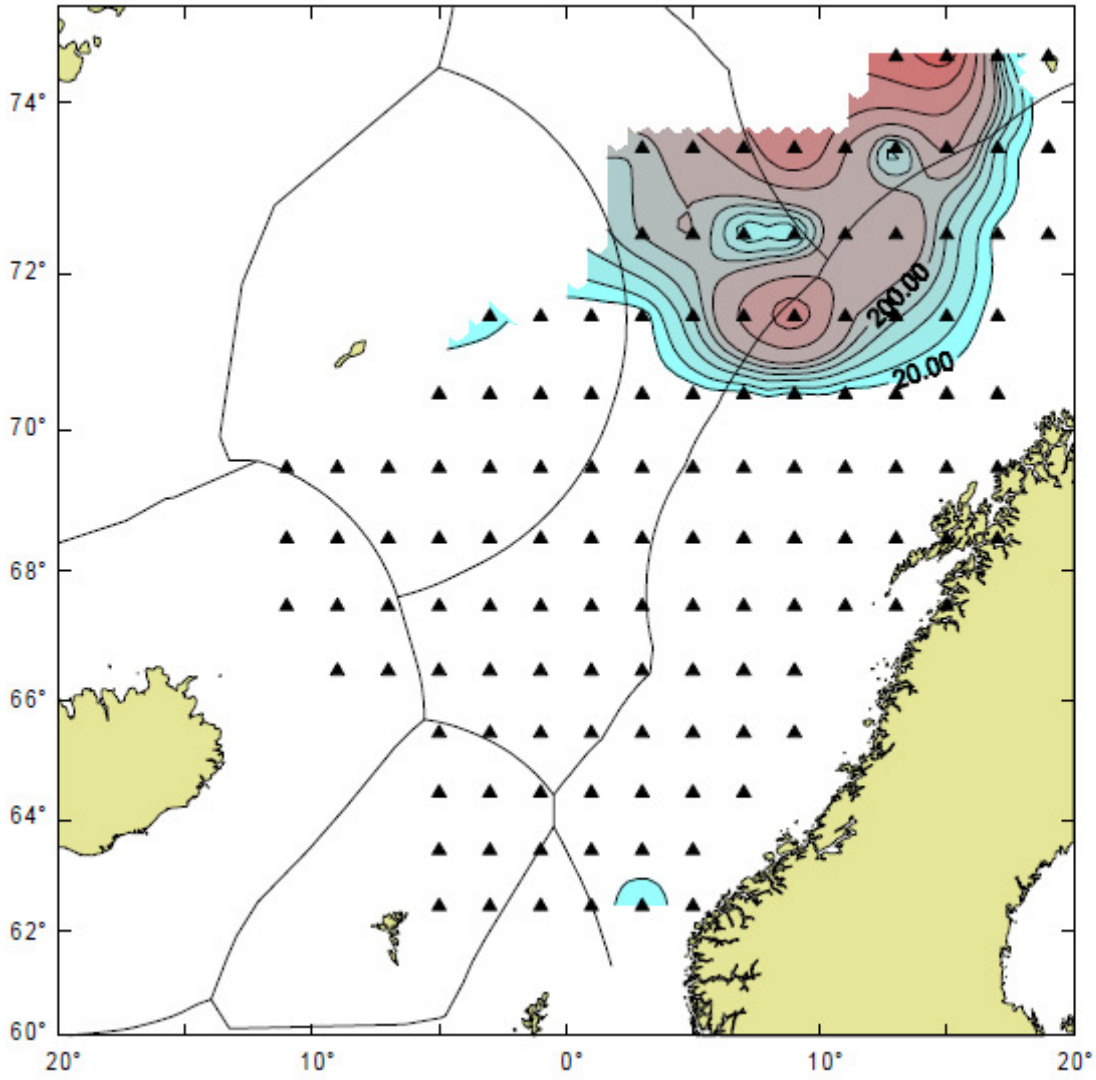

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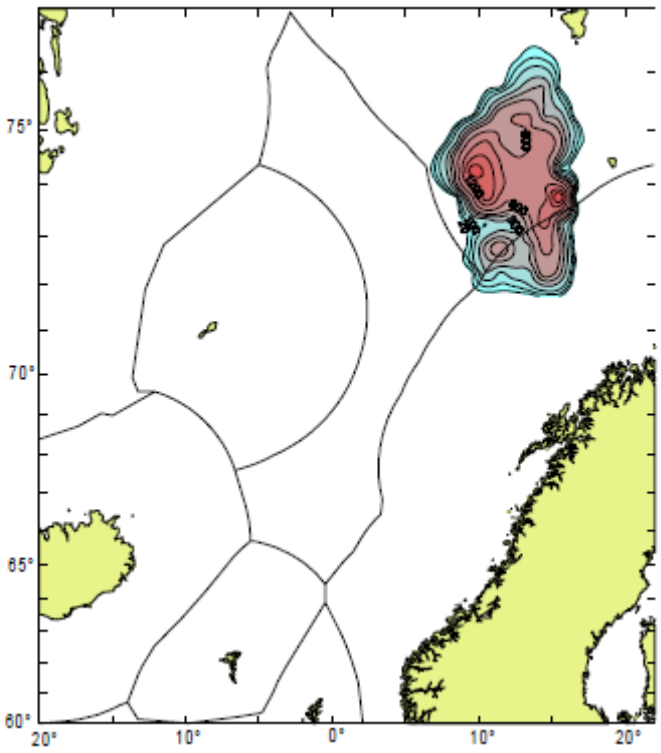

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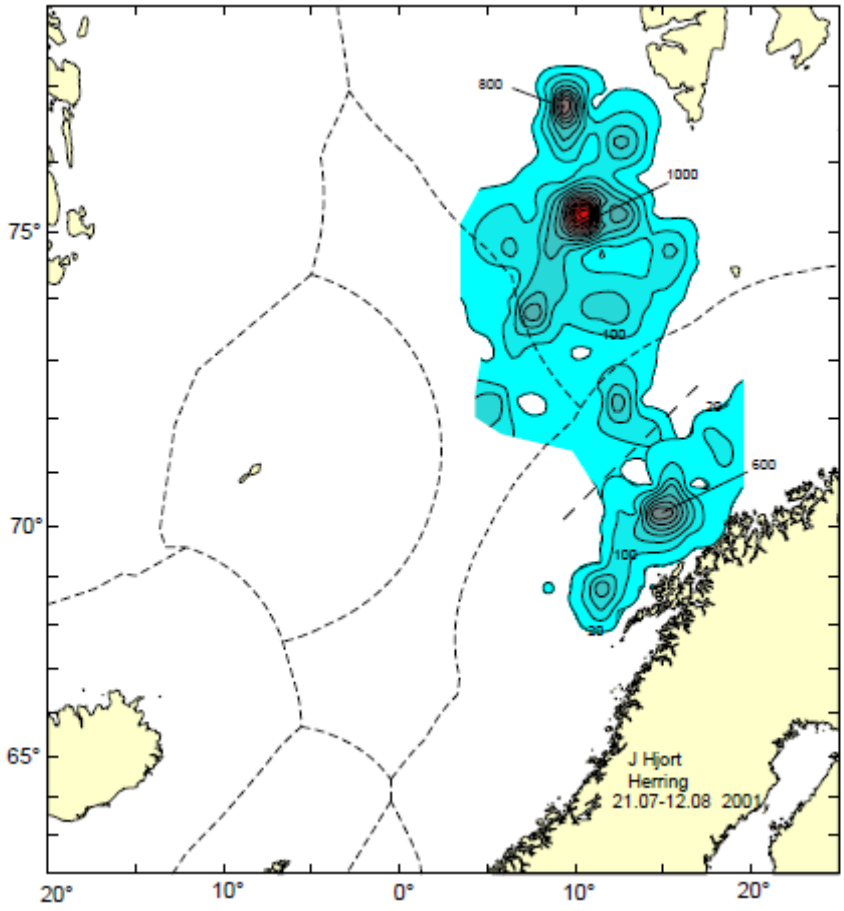

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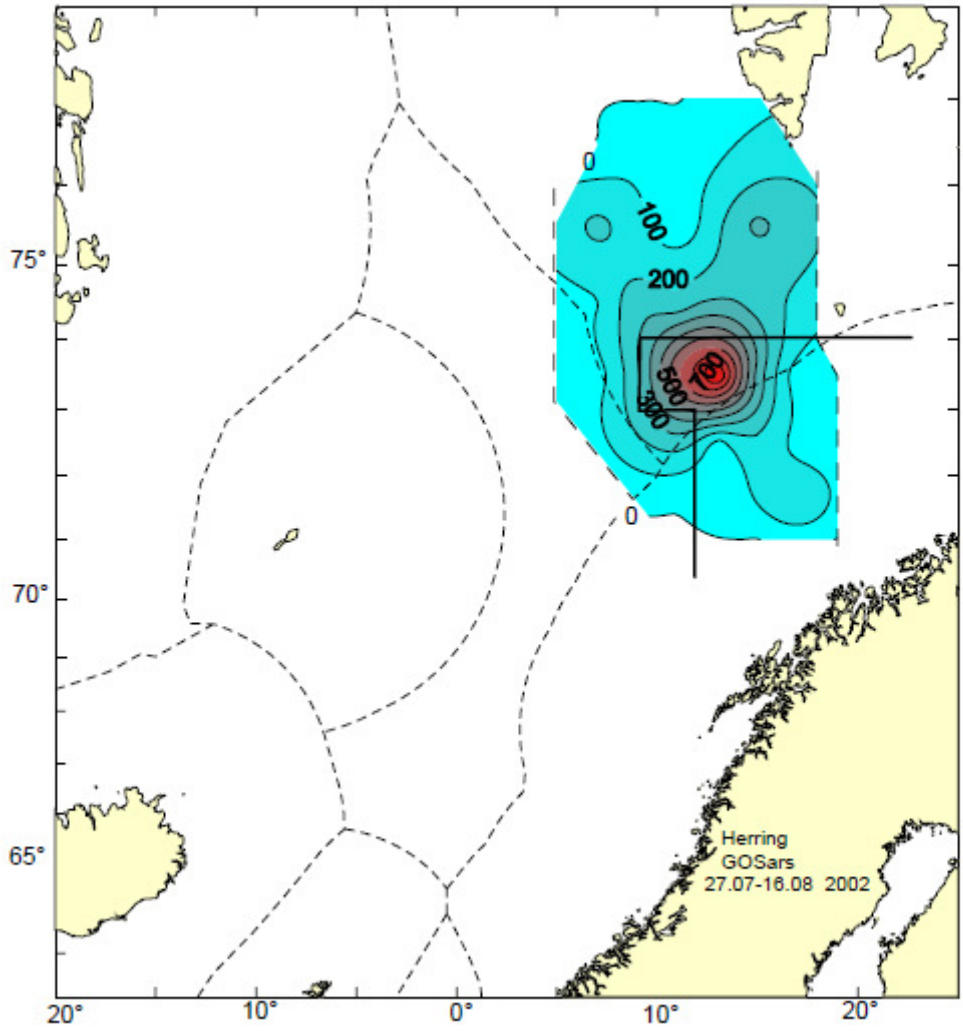

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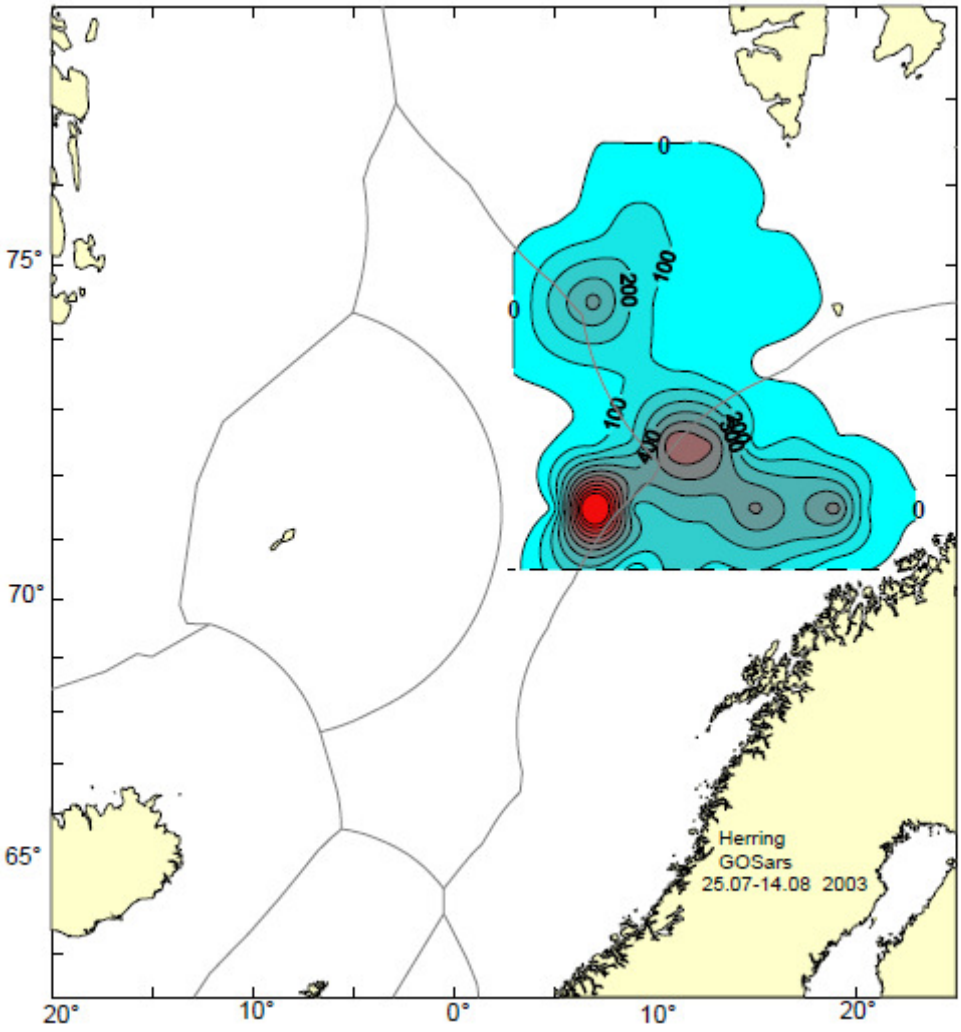

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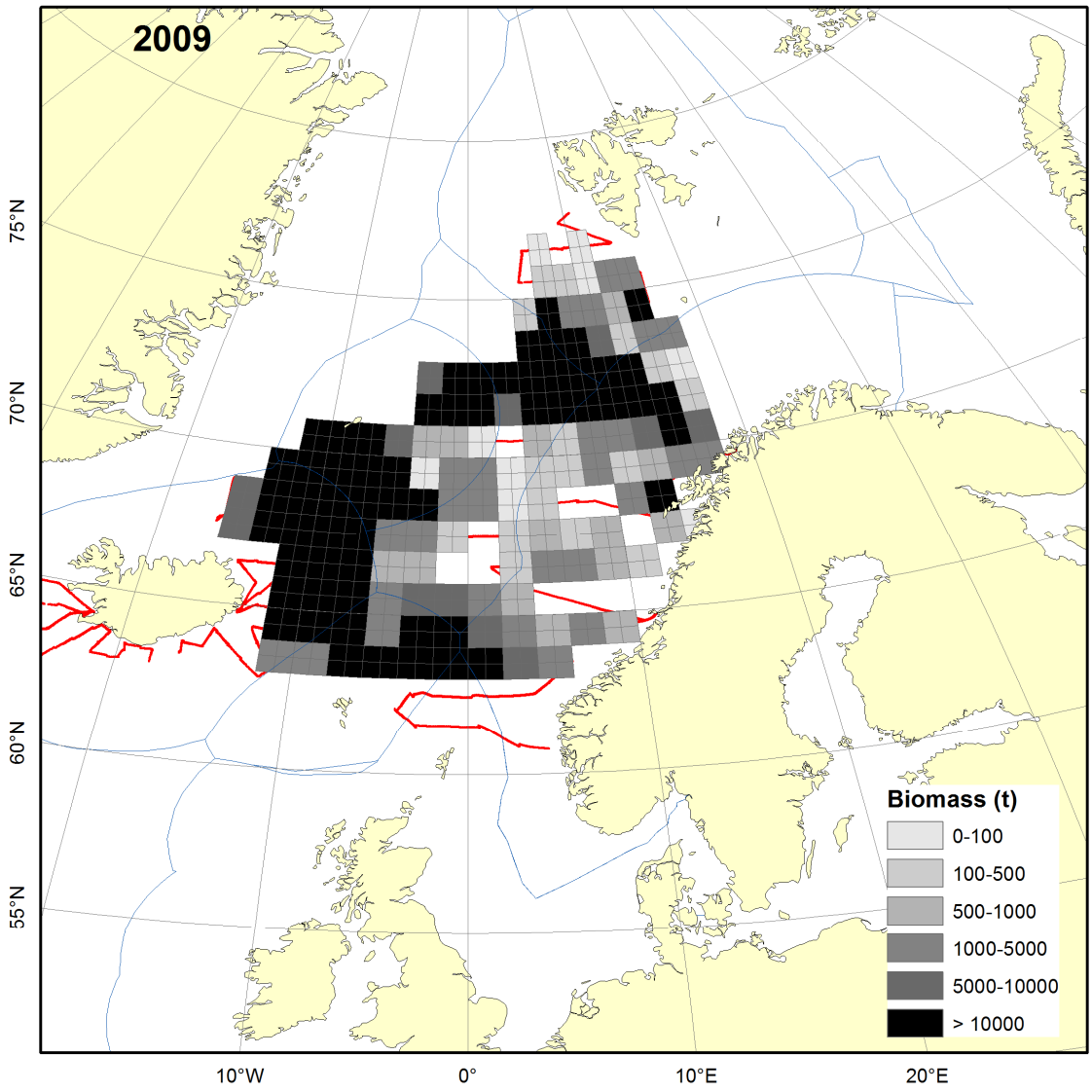


Figure 4.10.1. Norwegian spring spawning herring. Distribution in 2009 of adults based on the International Ecosystem summer survey in the Nordic Seas in July/August (IESSNS).

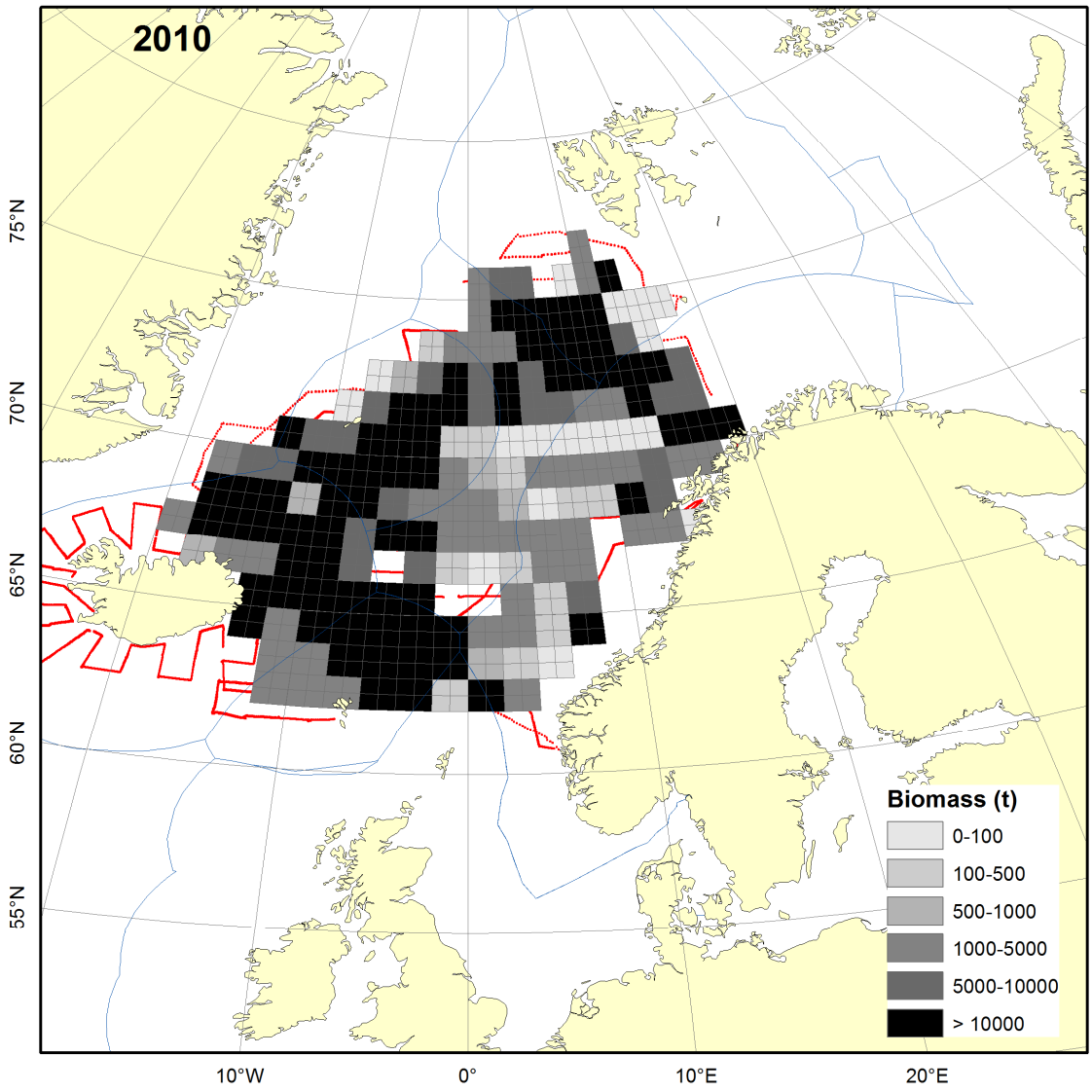


Figure 4.10.1 *continued*. Norwegian spring spawning herring. Distribution in 2010 of adults based on the International Ecosystem summer survey in the Nordic Seas in July/August (IESSNS).

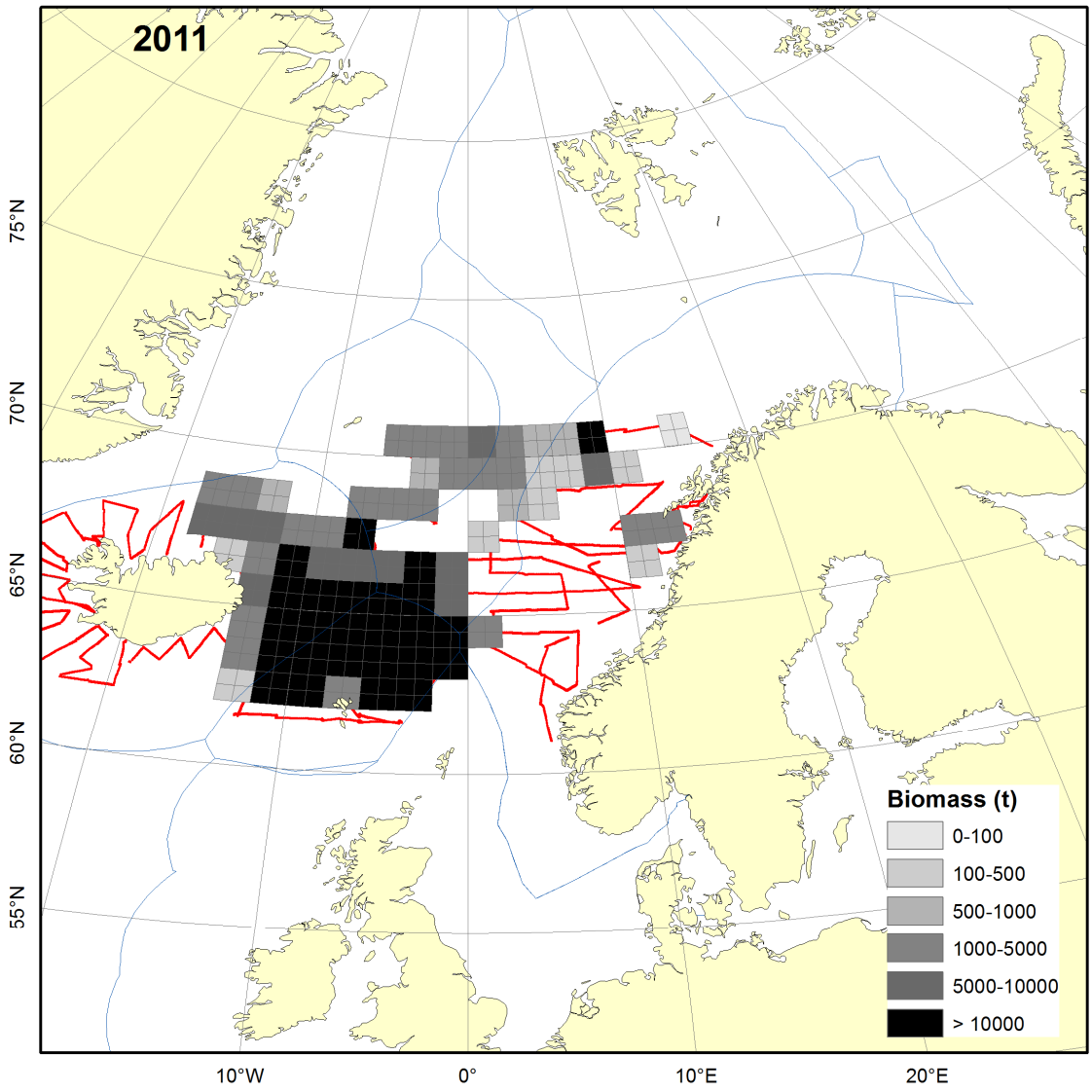


Figure 4.10.1 *continued*. Norwegian spring spawning herring. Distribution in 2011 of adults based on the International Ecosystem summer survey in the Nordic Seas in July/August (IESSNS).

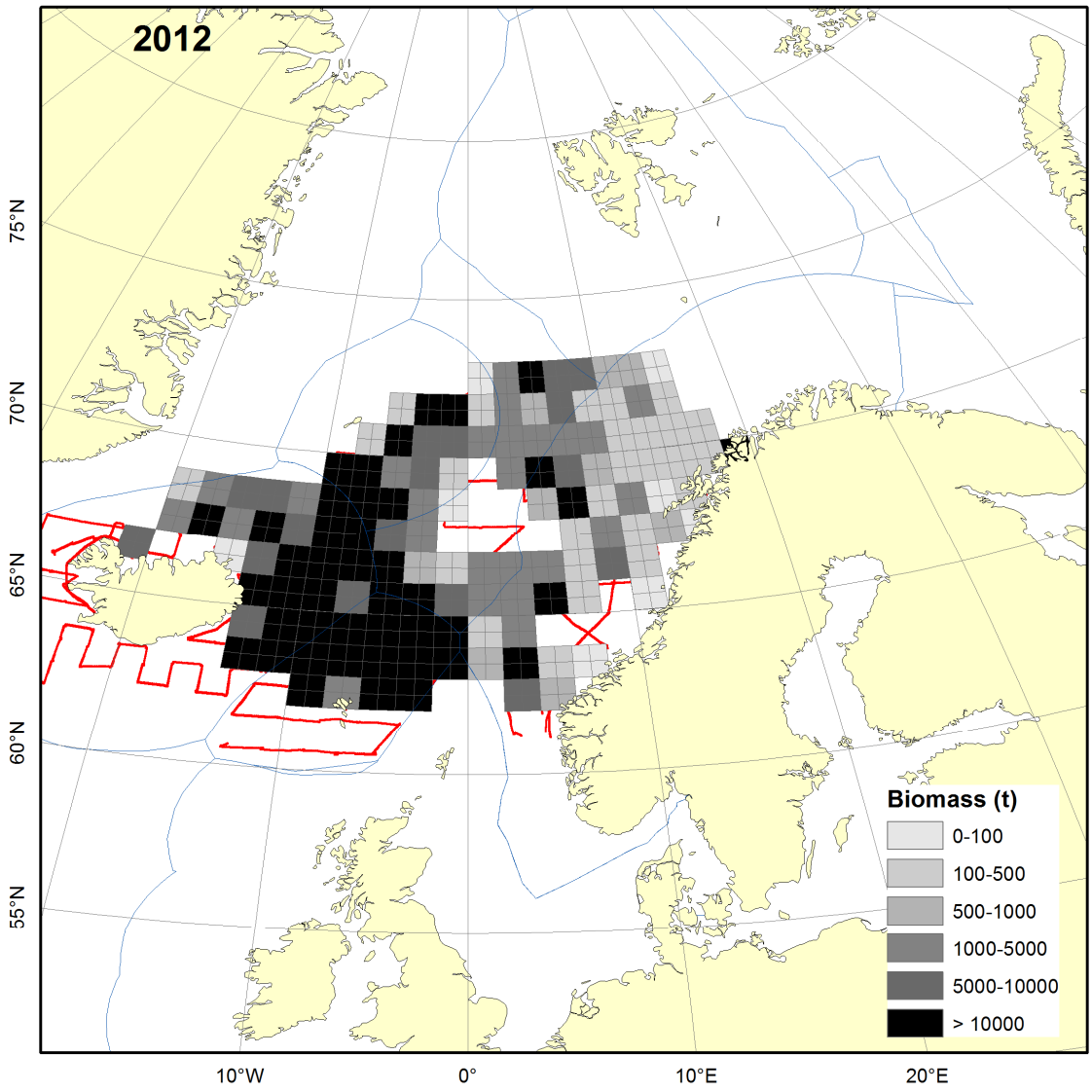


Figure 4.10.1 *continued*. Norwegian spring spawning herring. Distribution in 2012 of adults based on the International Ecosystem summer survey in the Nordic Seas in July/August (IESSNS).

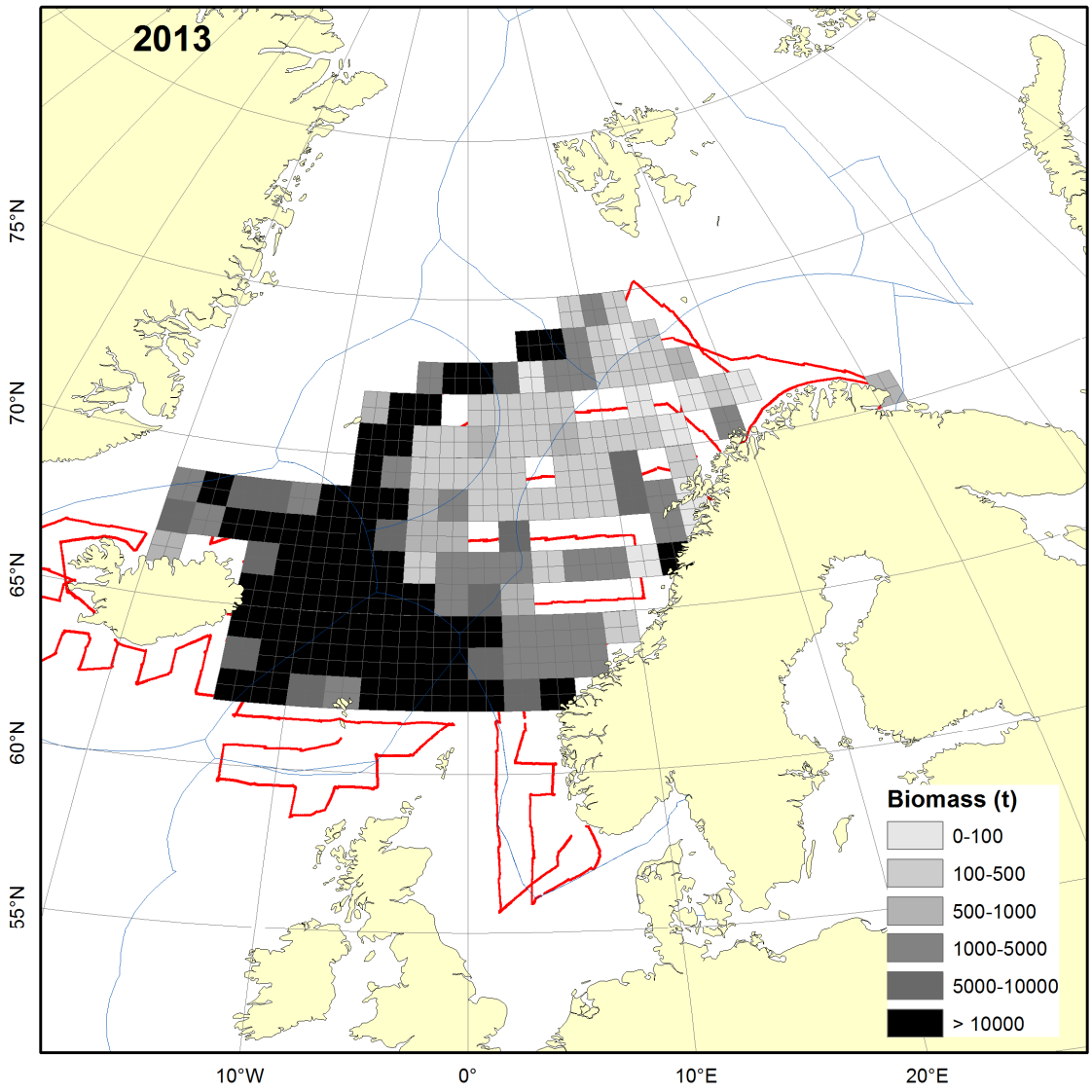


Figure 4.10.1 *continued*. Norwegian spring spawning herring. Distribution in 2013 of adults based on the International Ecosystem summer survey in the Nordic Seas in July/August (IESSNS).

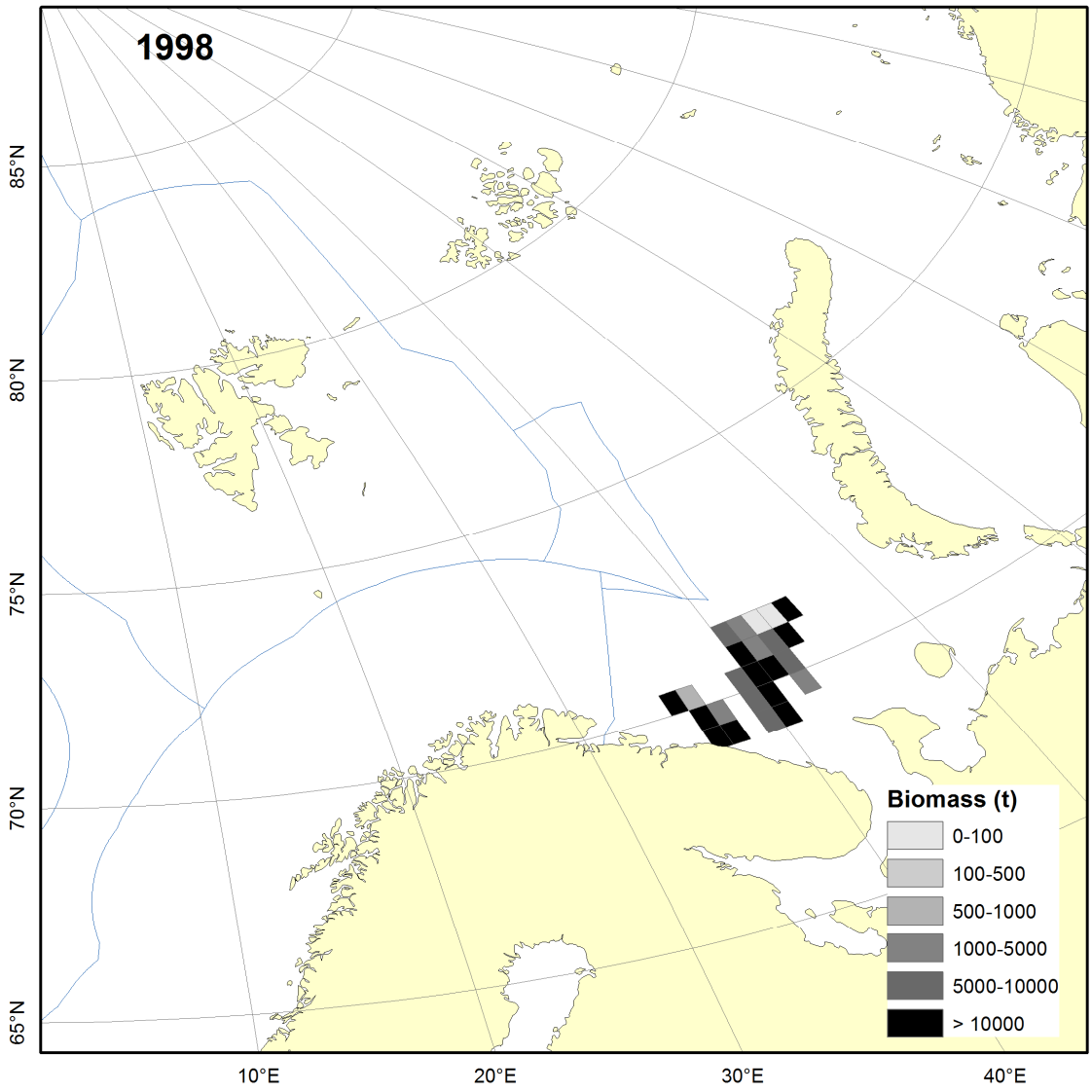


Figure 4.11.1. Norwegian spring spawning herring. Distribution in 1998 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

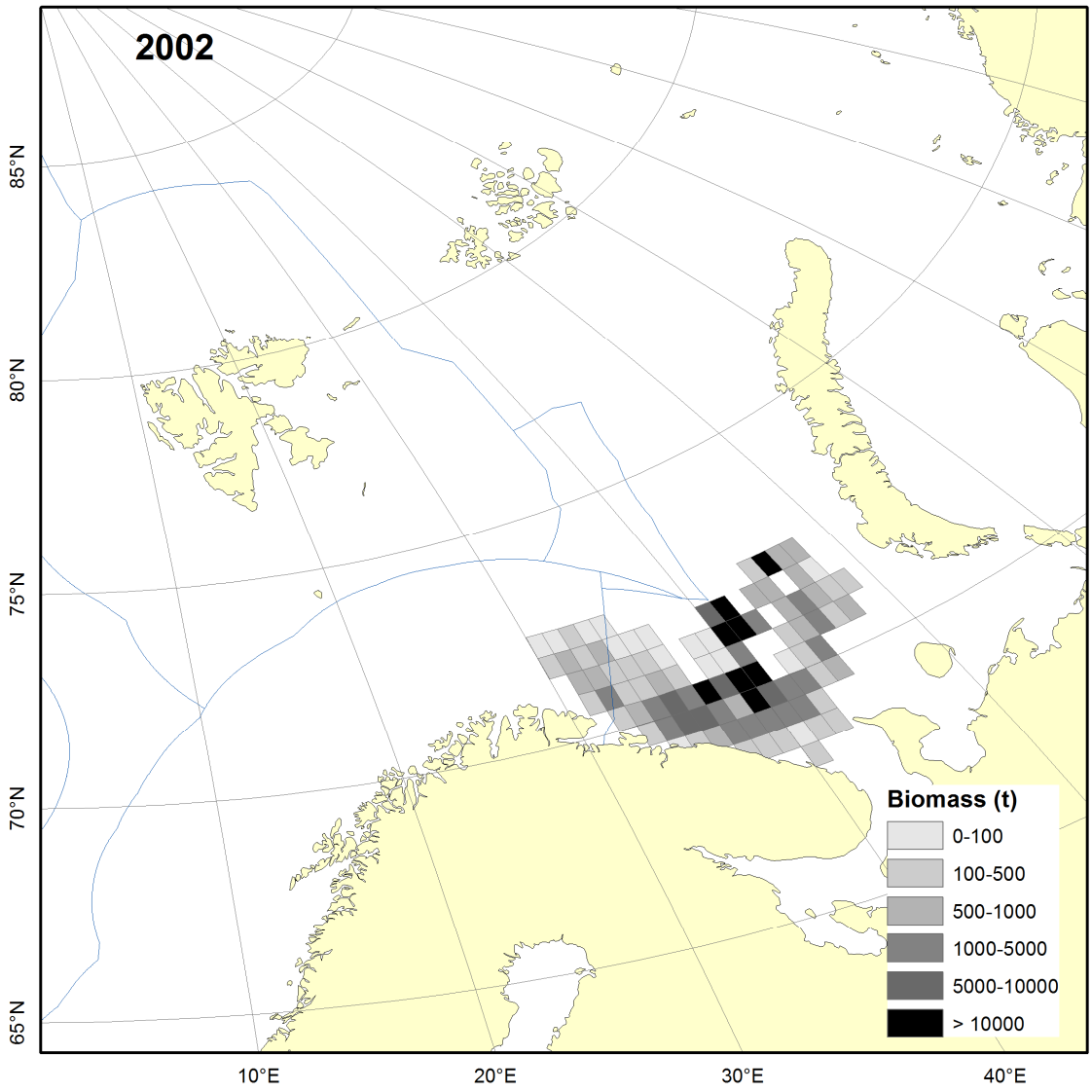


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2002 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

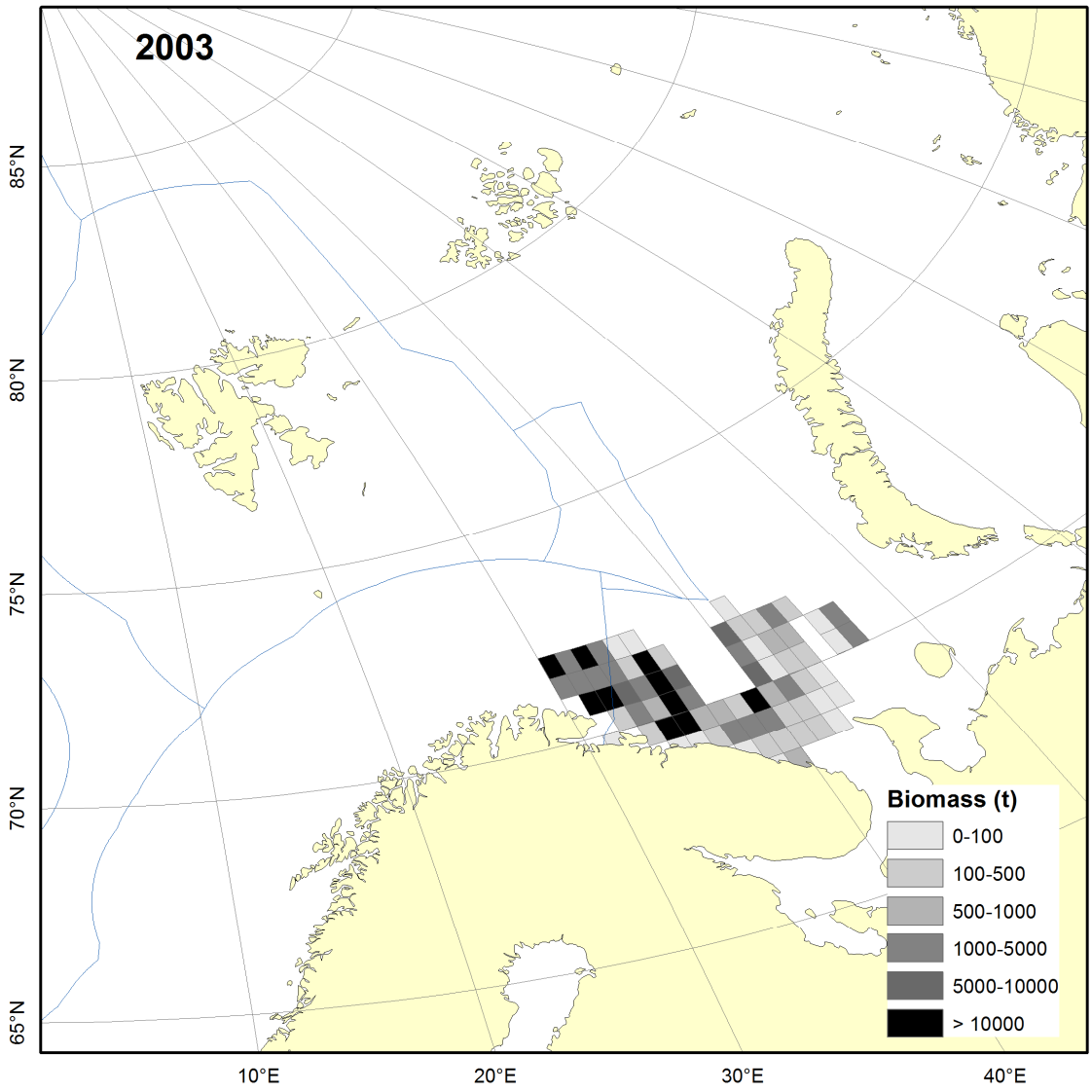


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2003 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

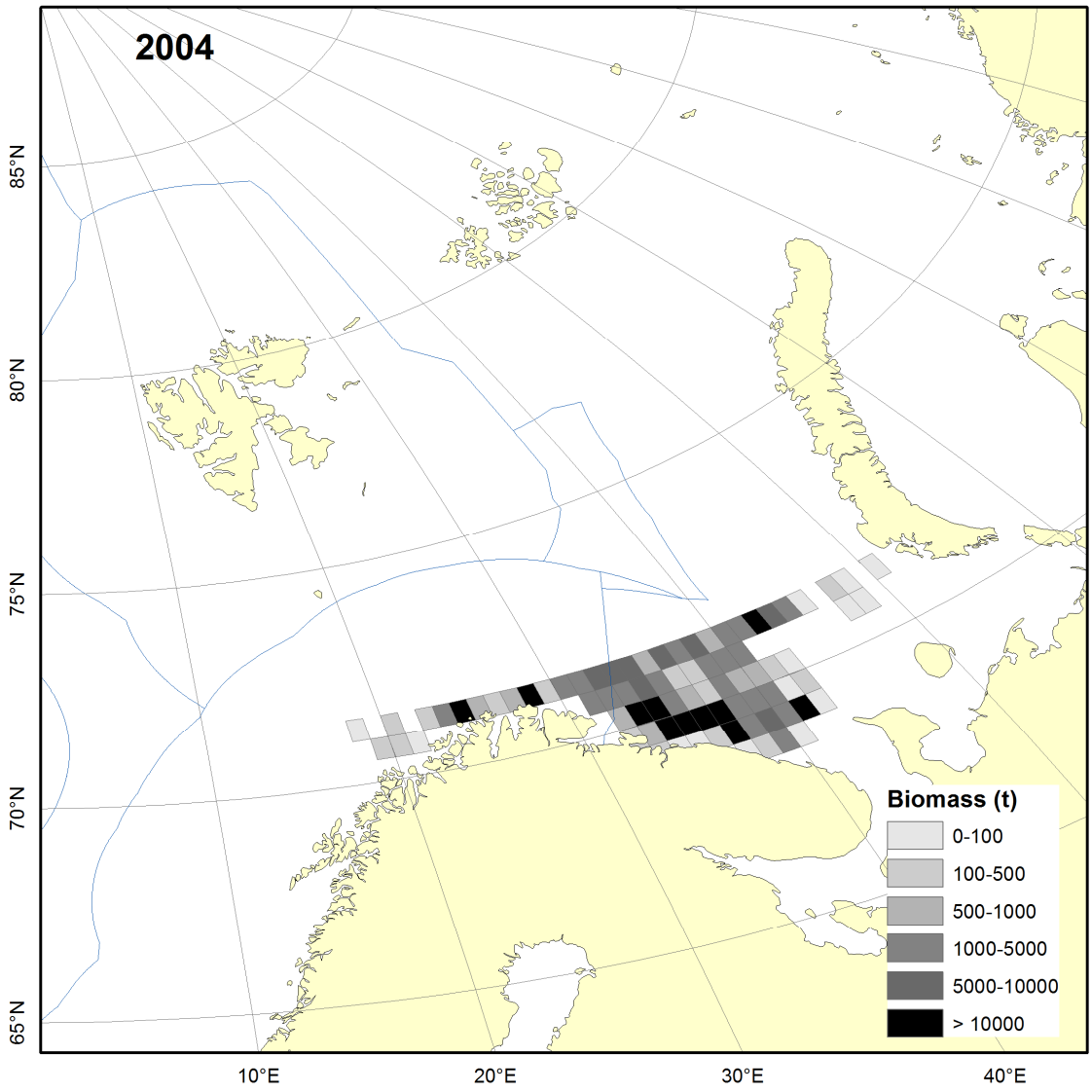


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2004 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

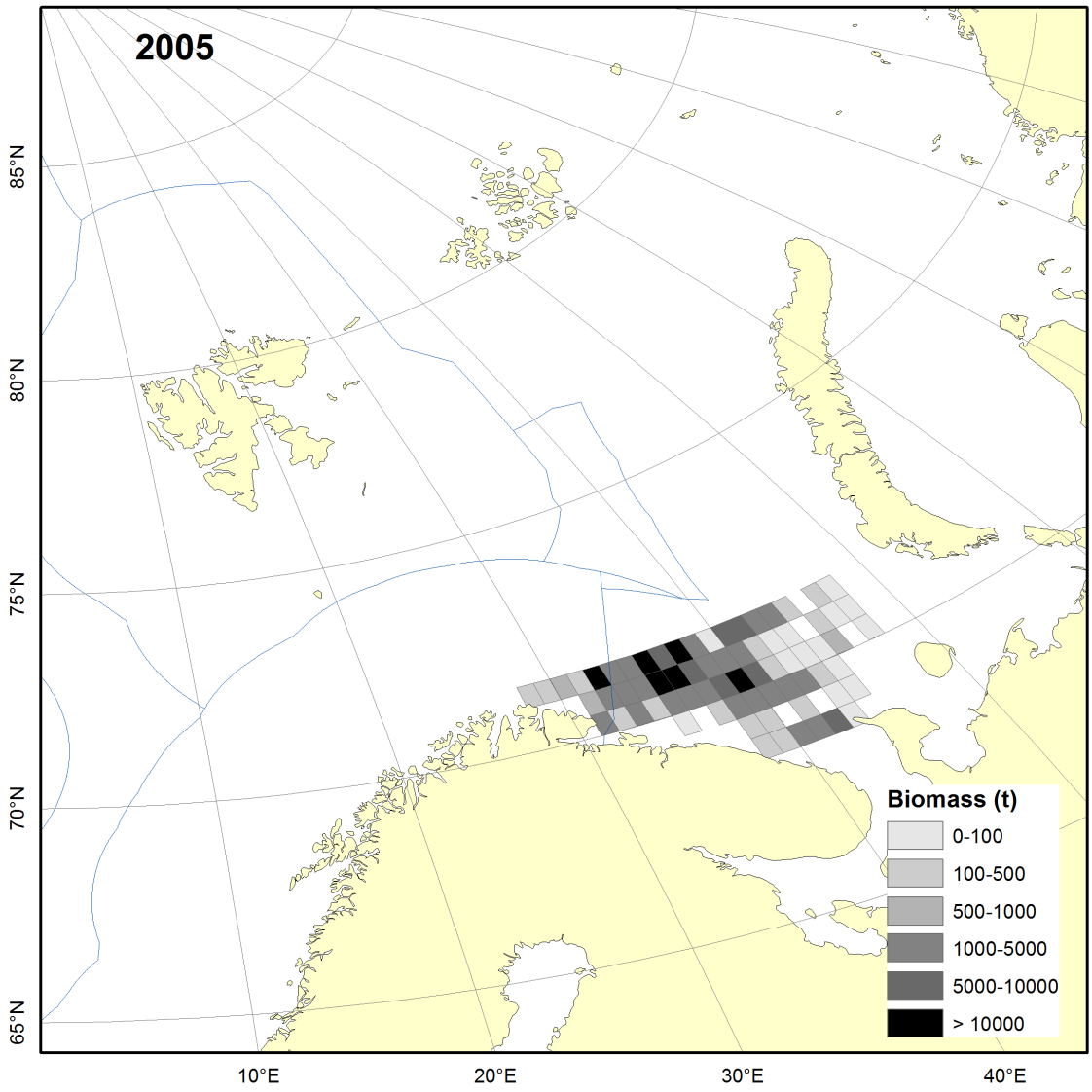


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2005 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

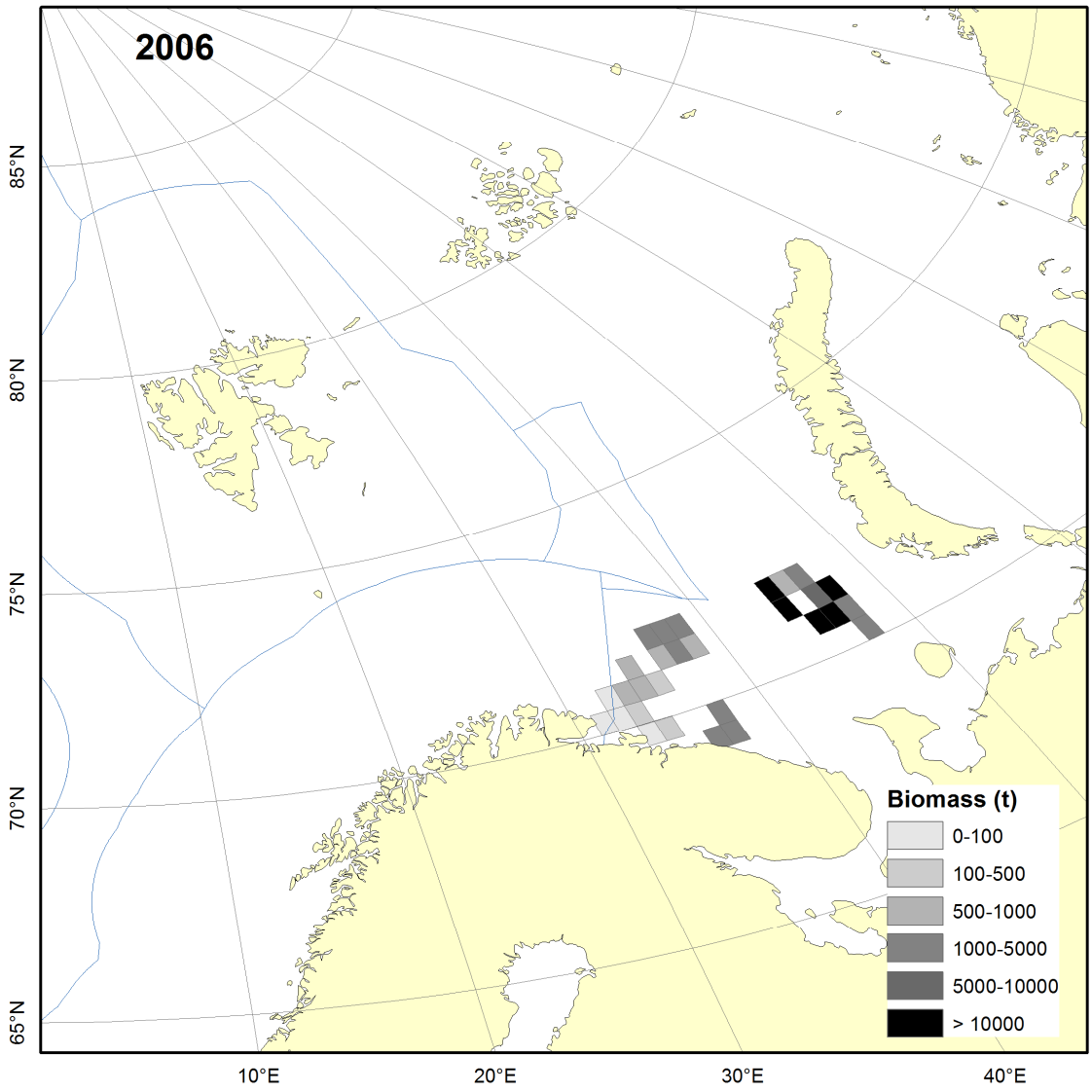


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2006 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

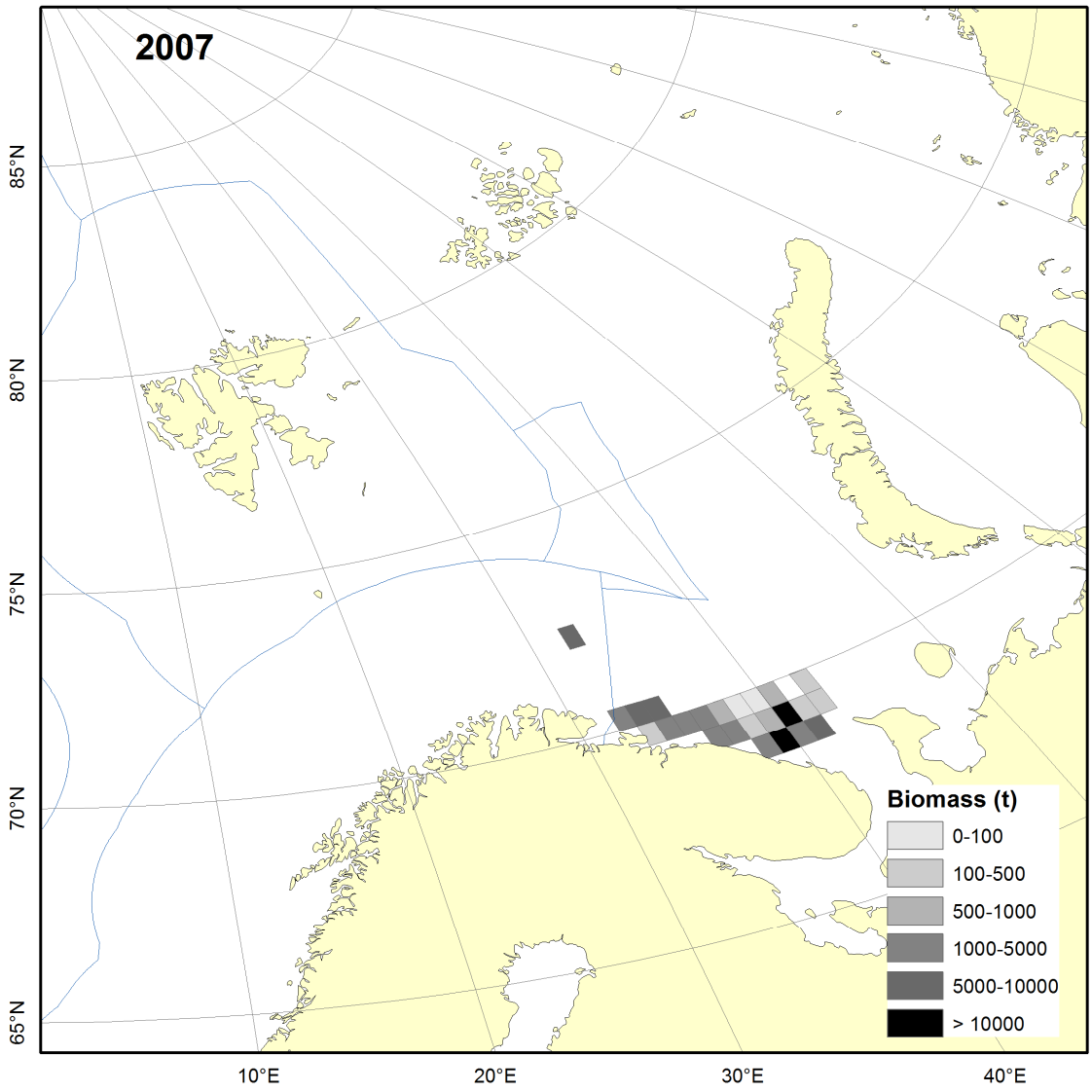


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2007 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

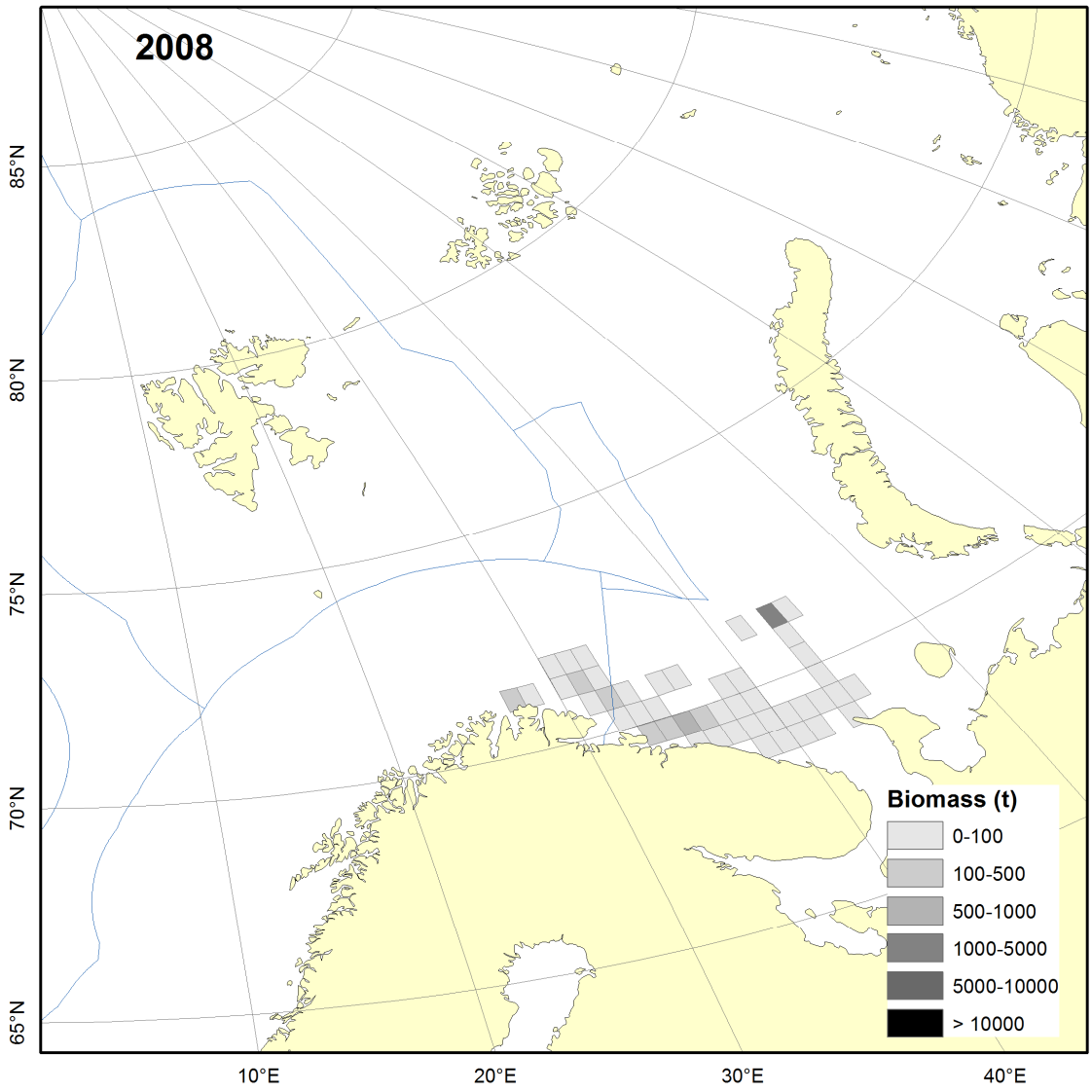


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2008 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

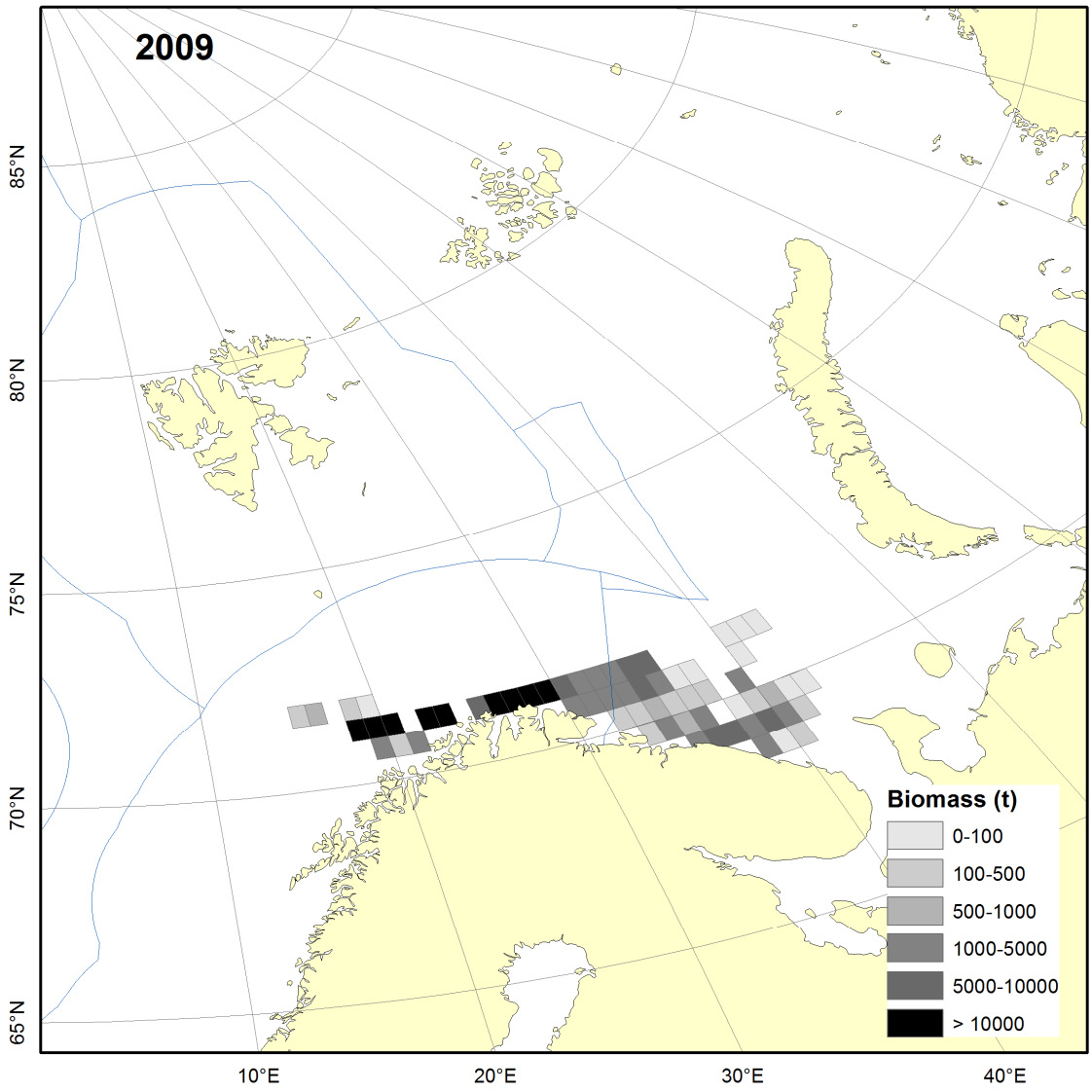


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2009 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

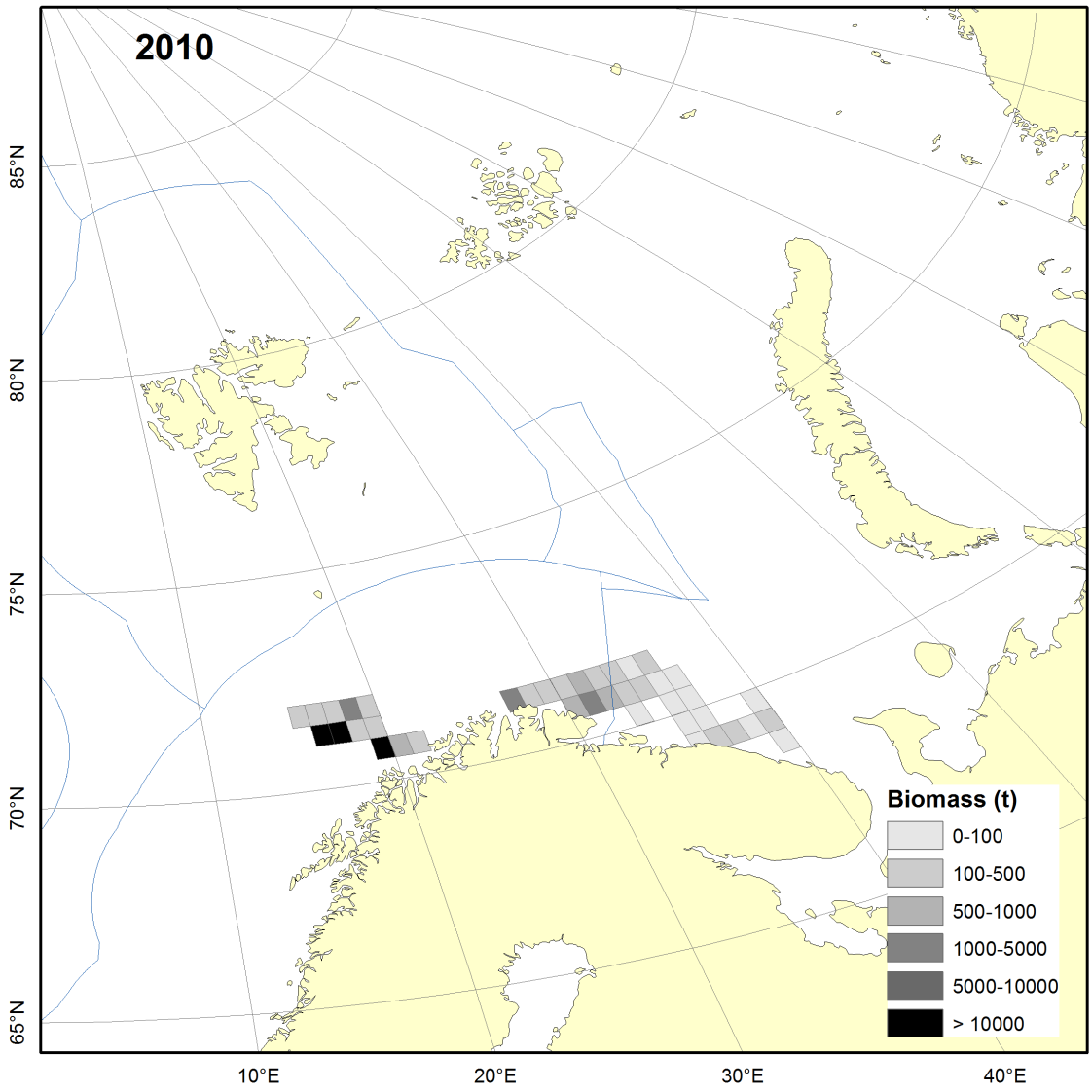


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2010 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

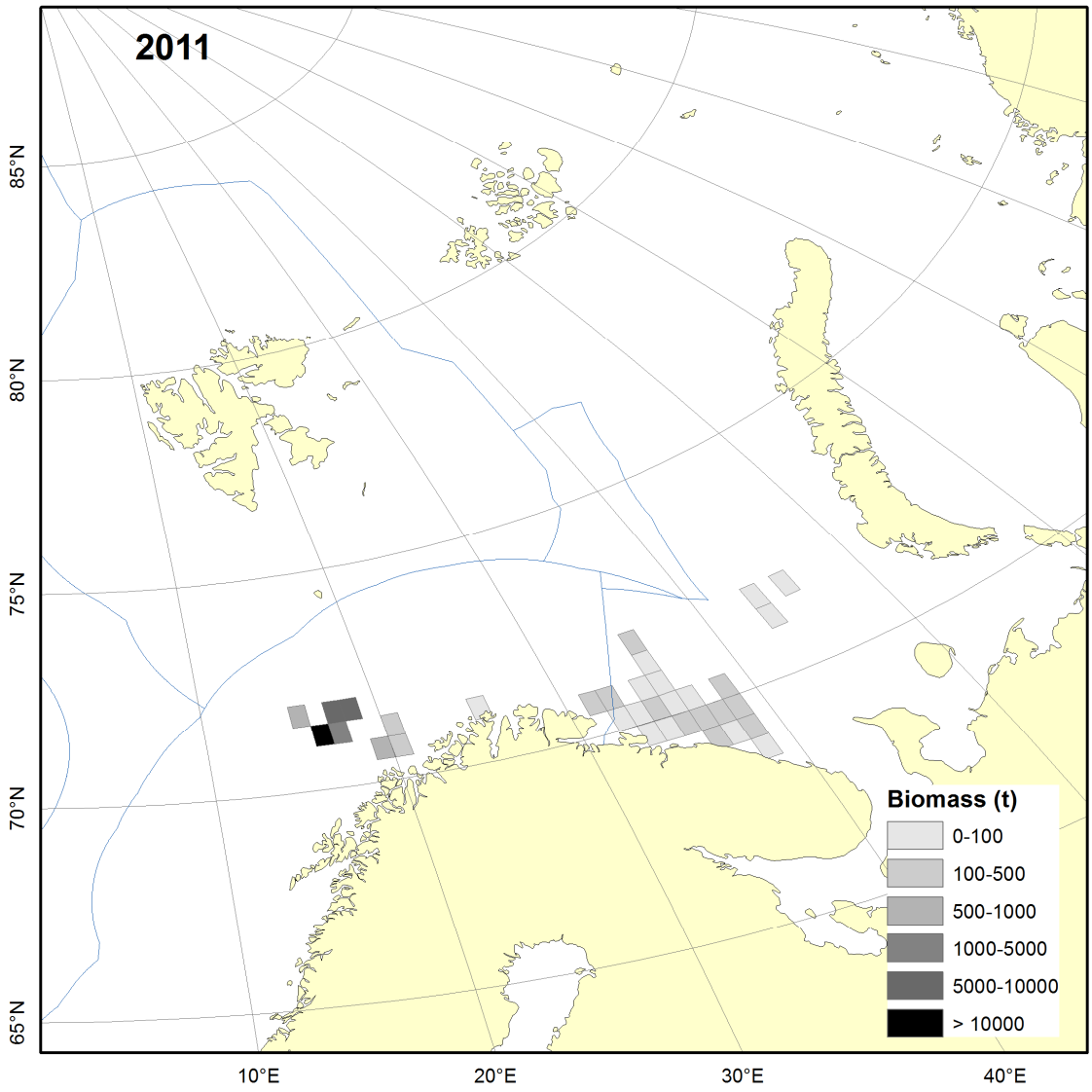


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2011 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

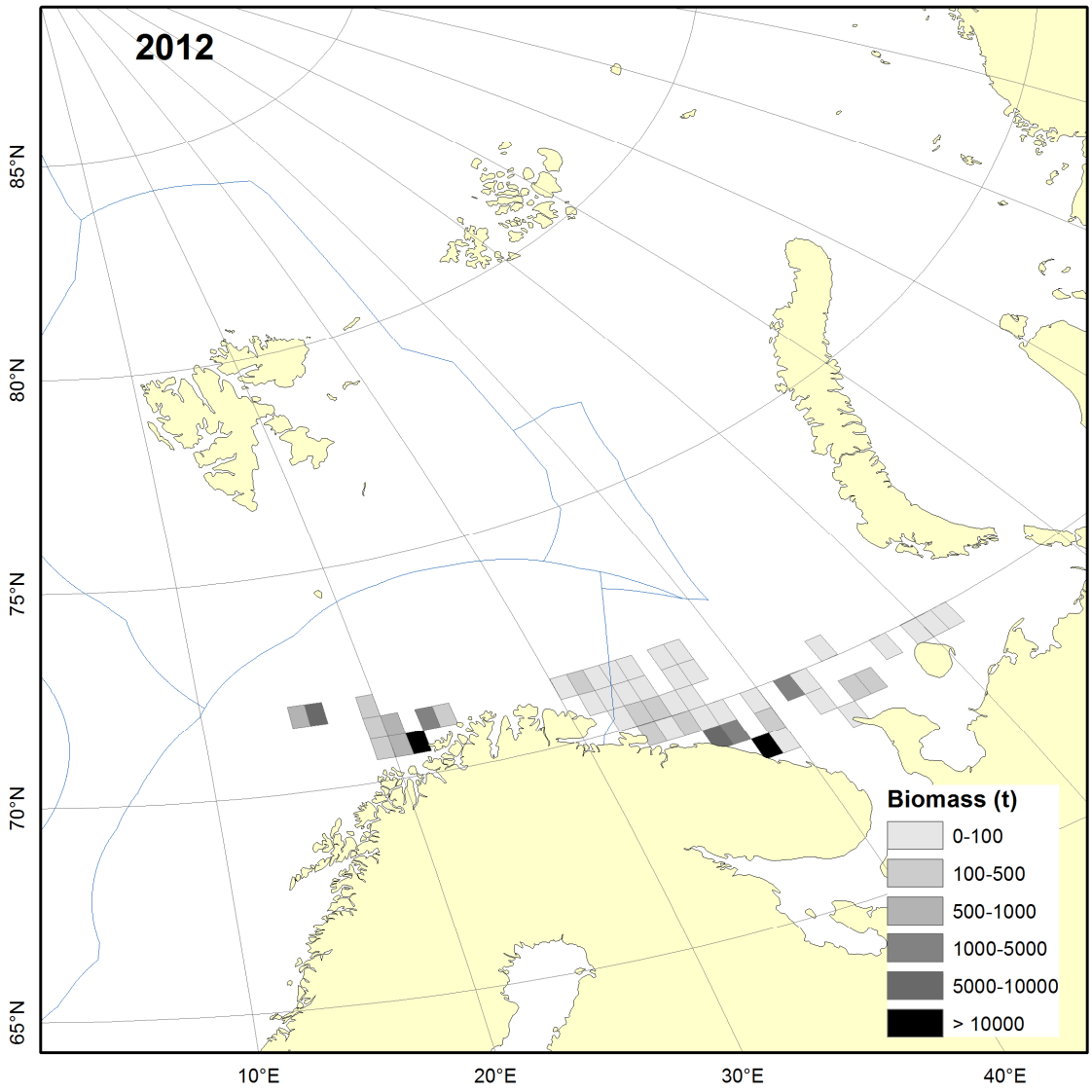


Figure 4.11.1 *continued*. Norwegian spring spawning herring. Distribution in 2012 of juvenile herring in the Barents Sea from Russian bottom trawl survey.

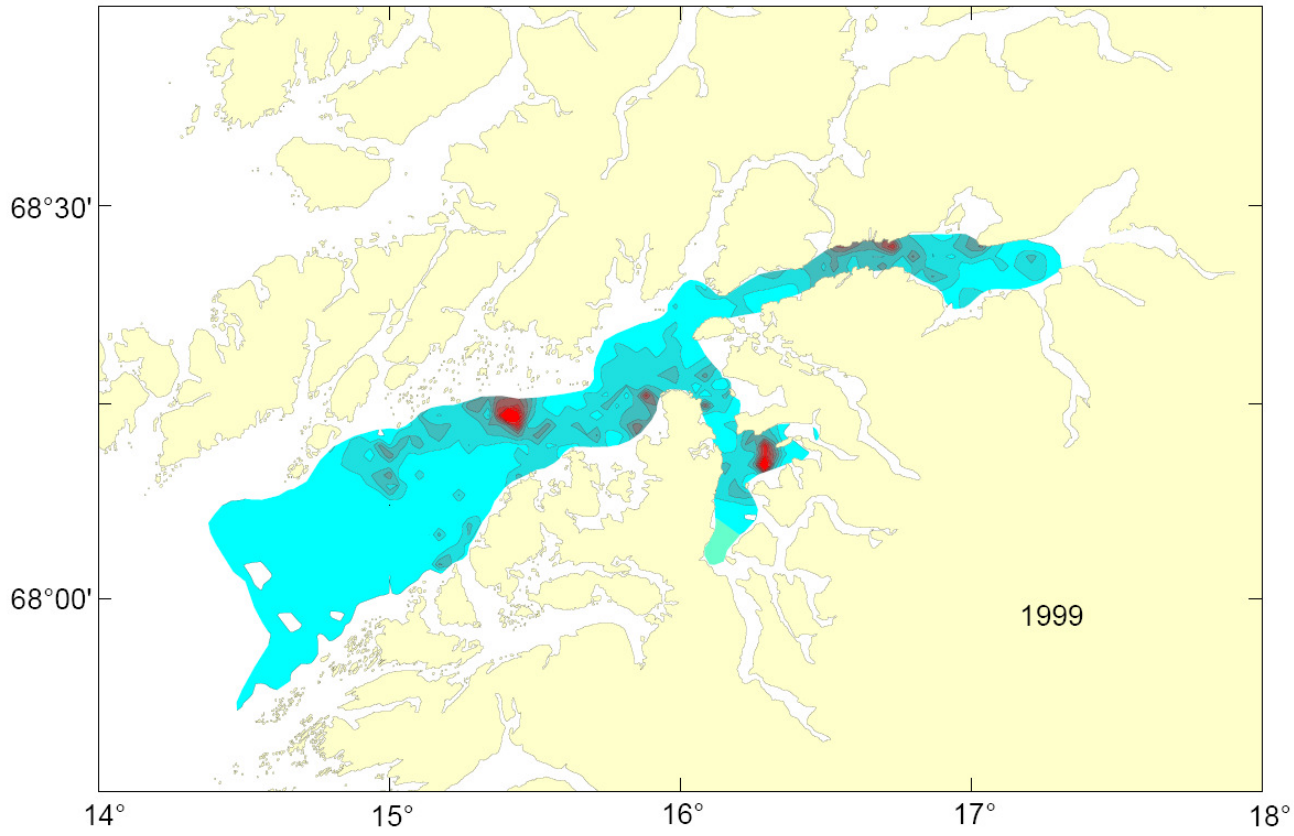


Figure 4.12.1. Norwegian spring spawning herring. Distribution of herring in Ofotfjord November/December 1999 in the wintering survey in Norwegian fjords and adjacent waters.

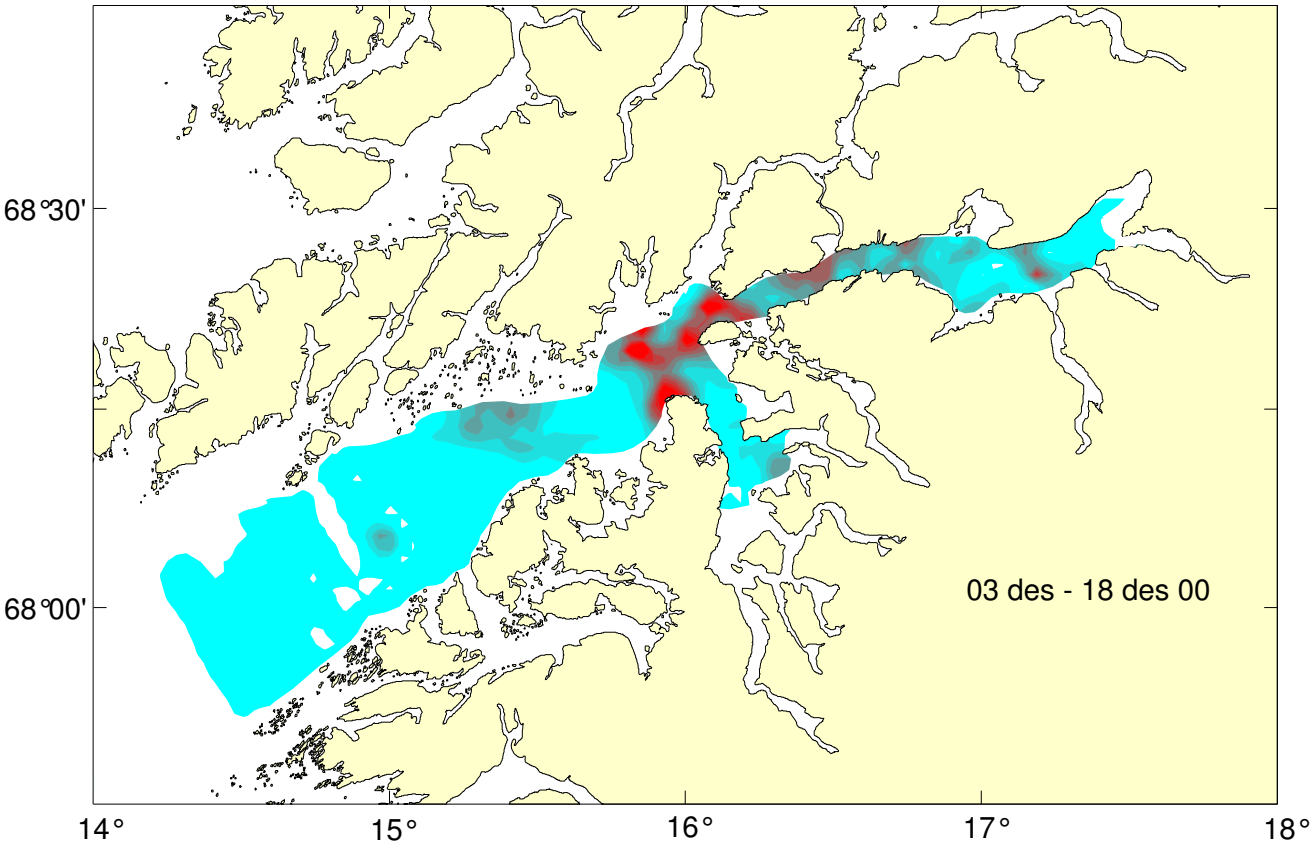


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Distribution of herring in Ofotfjord November/December 2000 in the wintering survey in Norwegian fjords and adjacent waters.

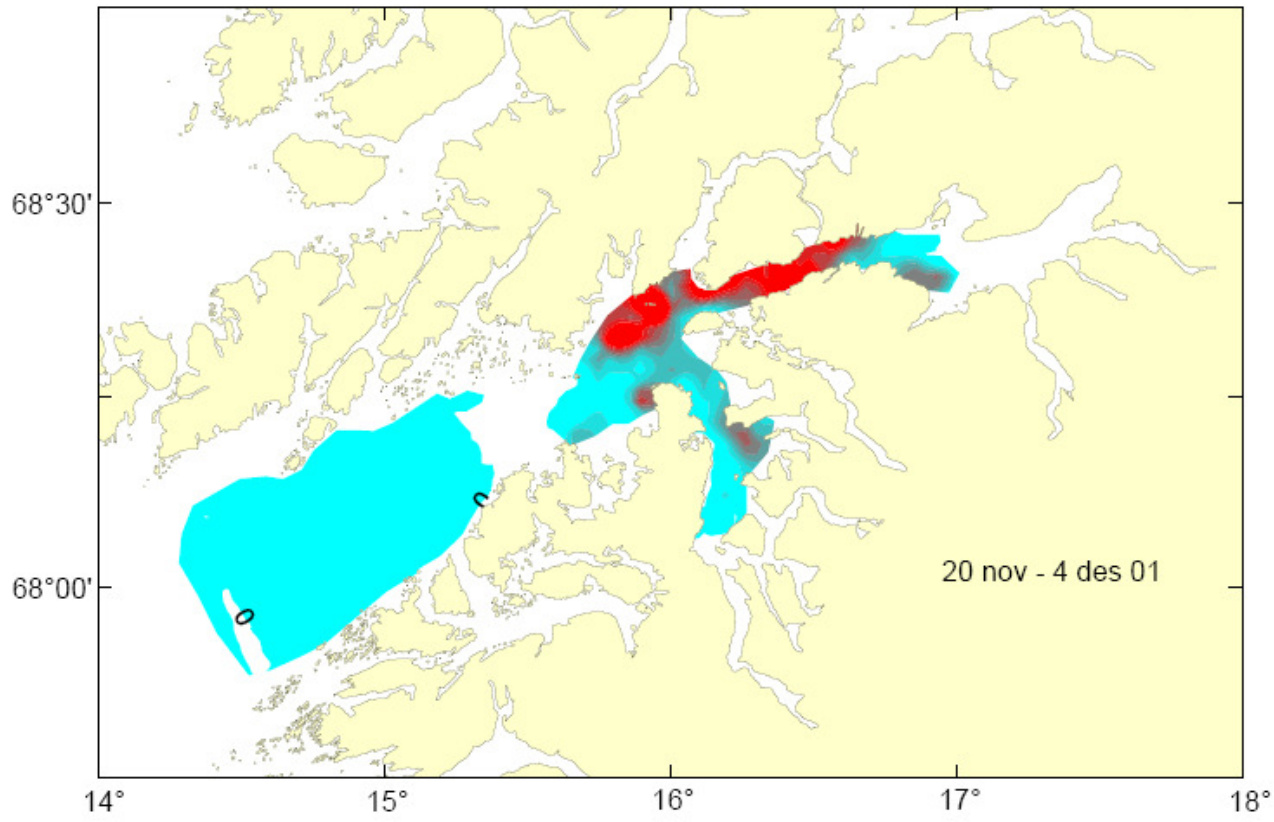


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Distribution of herring in Ofotfjord November/December 2001 in the wintering survey in Norwegian fjords and adjacent waters.

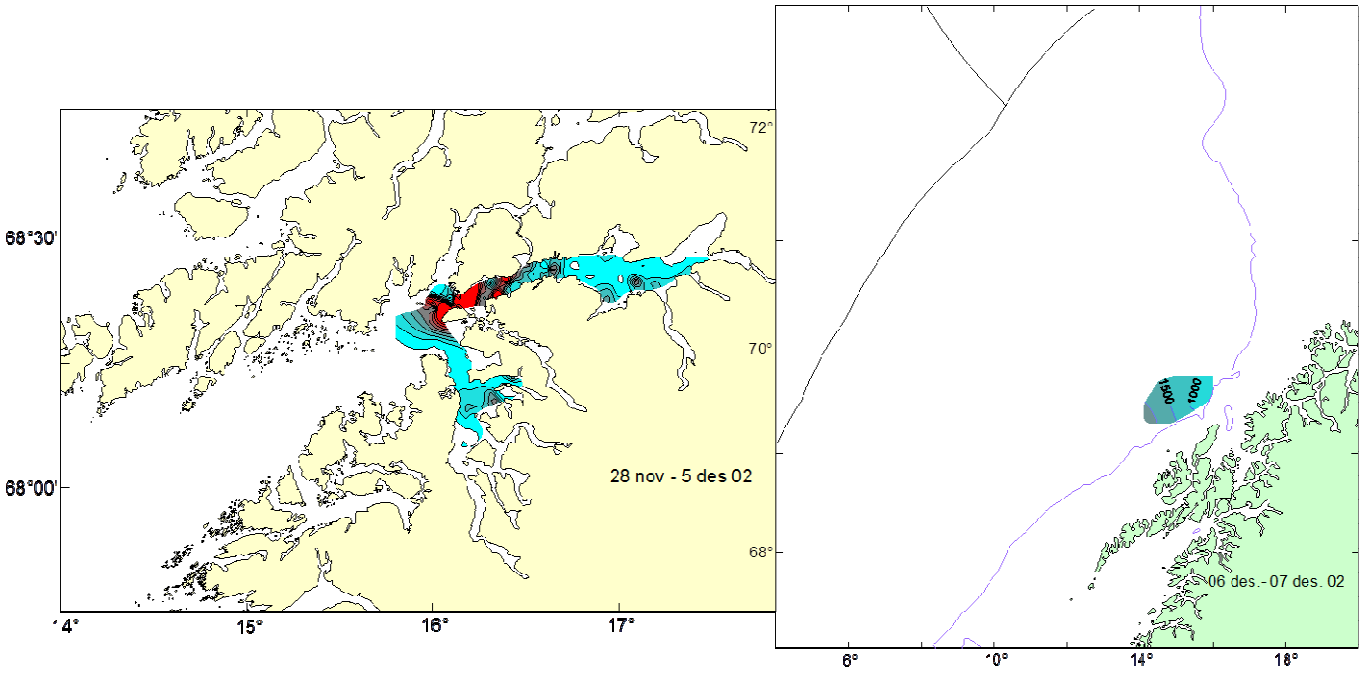


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Left, distribution of herring in Ofotfjord and, right, distribution of herring off the Norwegian coast in November/December 2002 in the wintering survey in Norwegian fjords and adjacent waters.

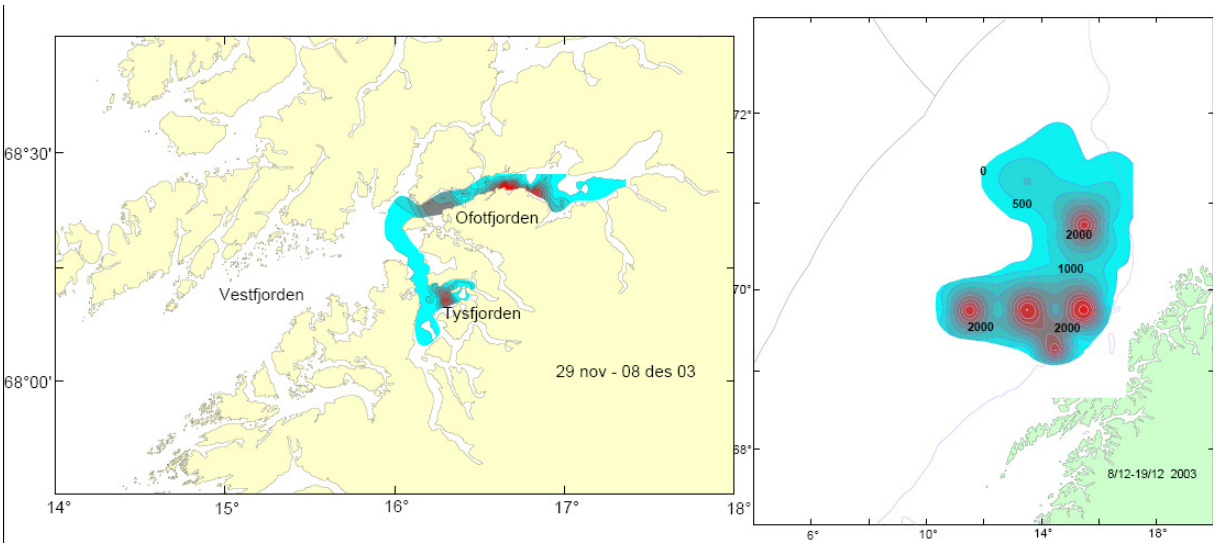


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Left, distribution of herring in Ofotfjord and, right, distribution of herring off the Norwegian coast in November/December 200 in the wintering survey in Norwegian fjords and adjacent waters.

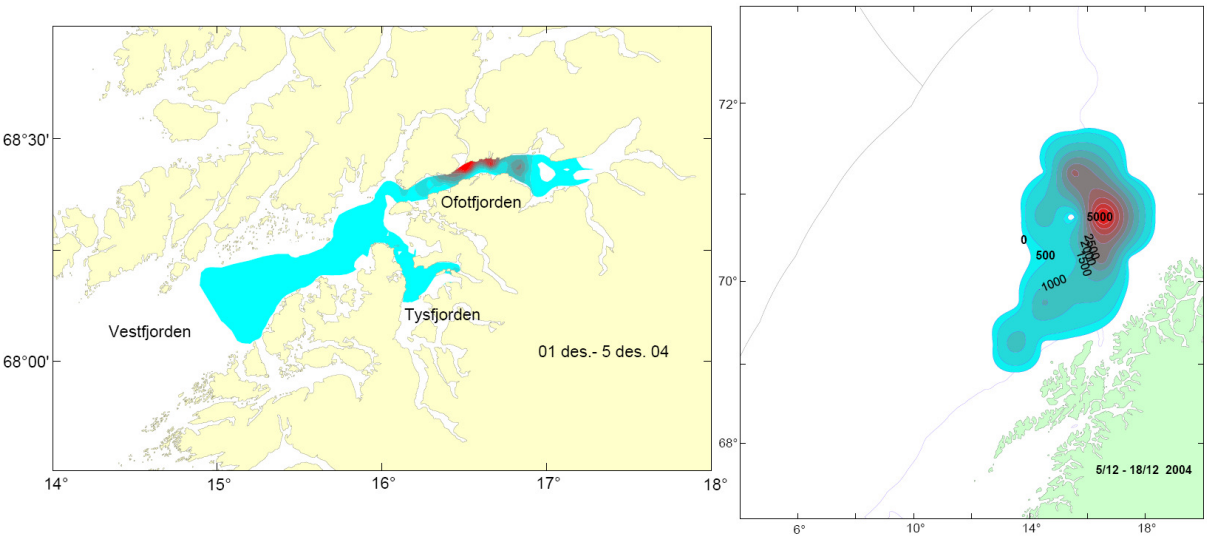


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Left, distribution of herring in Ofotfjord and, right, distribution of herring off the Norwegian coast in November/December 2004 in the wintering survey in Norwegian fjords and adjacent waters.

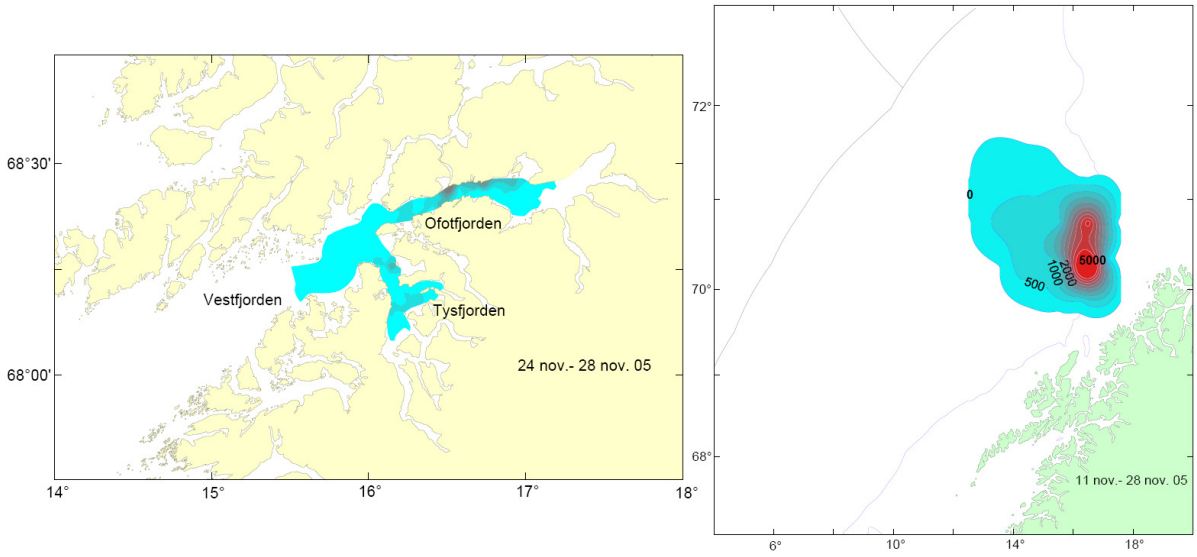


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Left, distribution of herring in Ofotfjord and, right, distribution of herring off the Norwegian coast in November/December 2005 in the wintering survey in Norwegian fjords and adjacent waters.

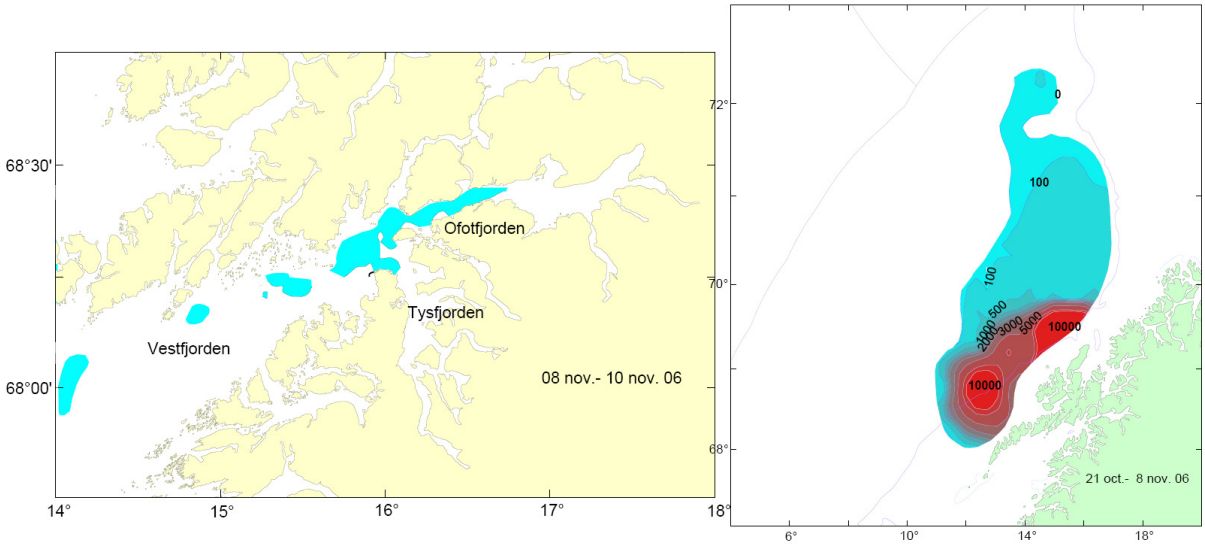


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Left, distribution of herring in Ofotfjord and, right, distribution of herring off the Norwegian coast in November/December 2006 in the wintering survey in Norwegian fjords and adjacent waters.

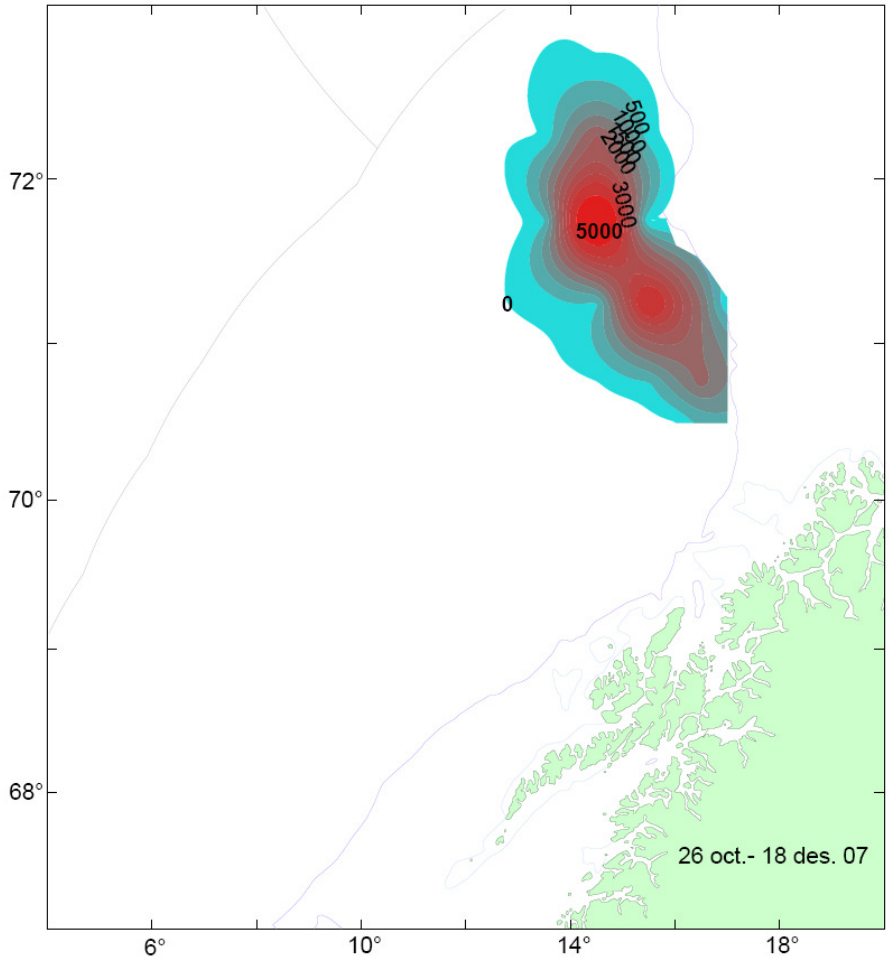


Figure 4.12.1 *continued*. Norwegian spring spawning herring. Distribution of herring off the Norwegian coast in November/December 2007 in the wintering survey in Norwegian fjords and adjacent waters.

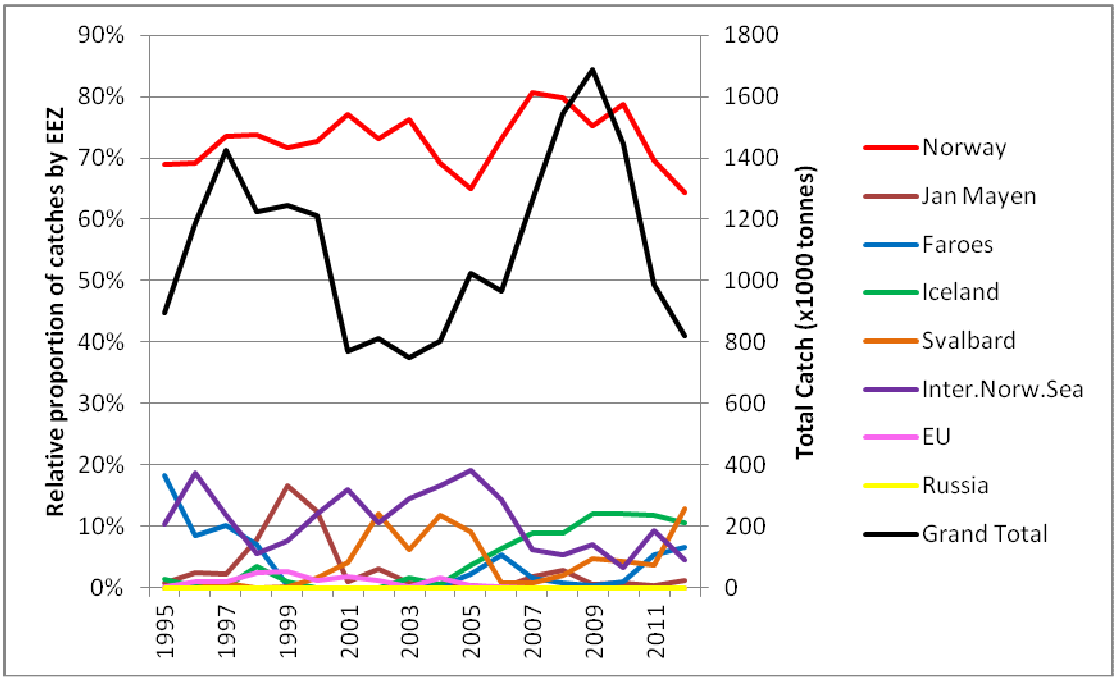


Figure 5.1.1. Norwegian Spring spawning herring. Total catch of NSS herring 1995-2012 and the relative catch by EEZs.

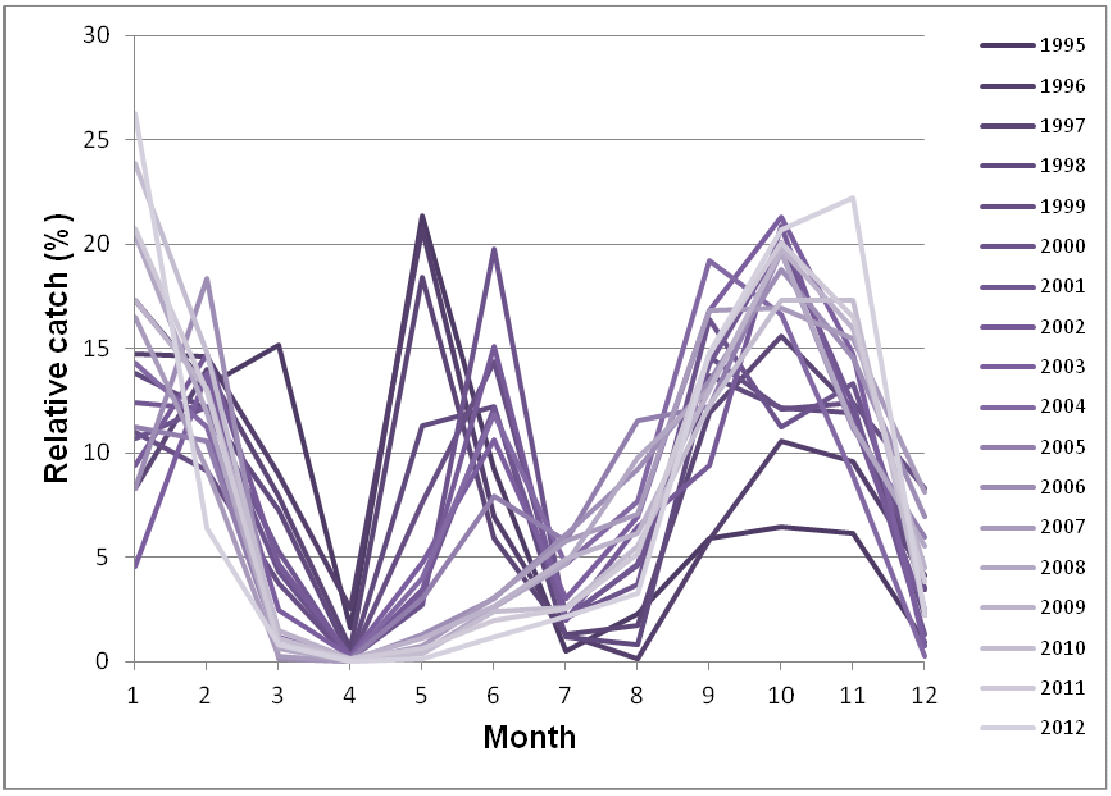


Figure 5.4.1a. Norwegian Spring spawning herring. Percentage distribution of the fishery by month for each year 1995-2012 (thin lines graded from dark purple in 1995 to light purple in 2012).

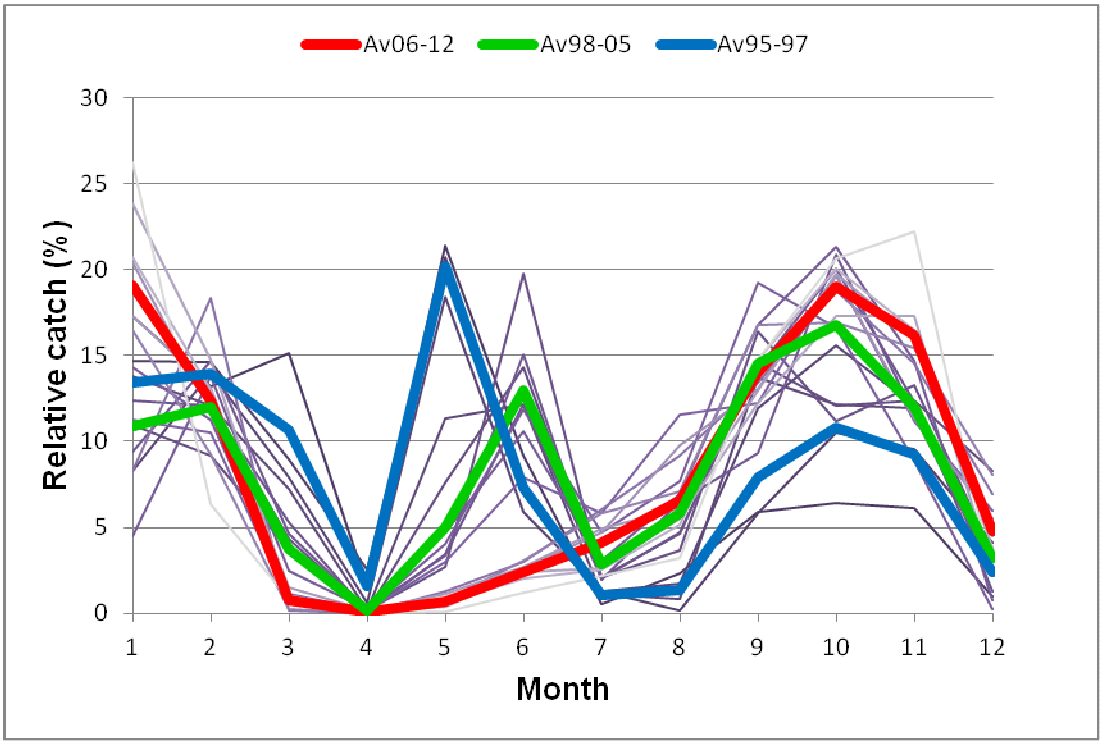


Figure 5.4.1b. Norwegian Spring spawning herring. Percentage distribution of the fishery by month for each year 1995-2012 (thin lines as above) overlaid with three periods with different seasonal fishing pattern (coloured bold lines) representing average distribution for three periods: Early 1995-1997 (blue), mid 1998-2005 (green), and late 2006-2012 (red).

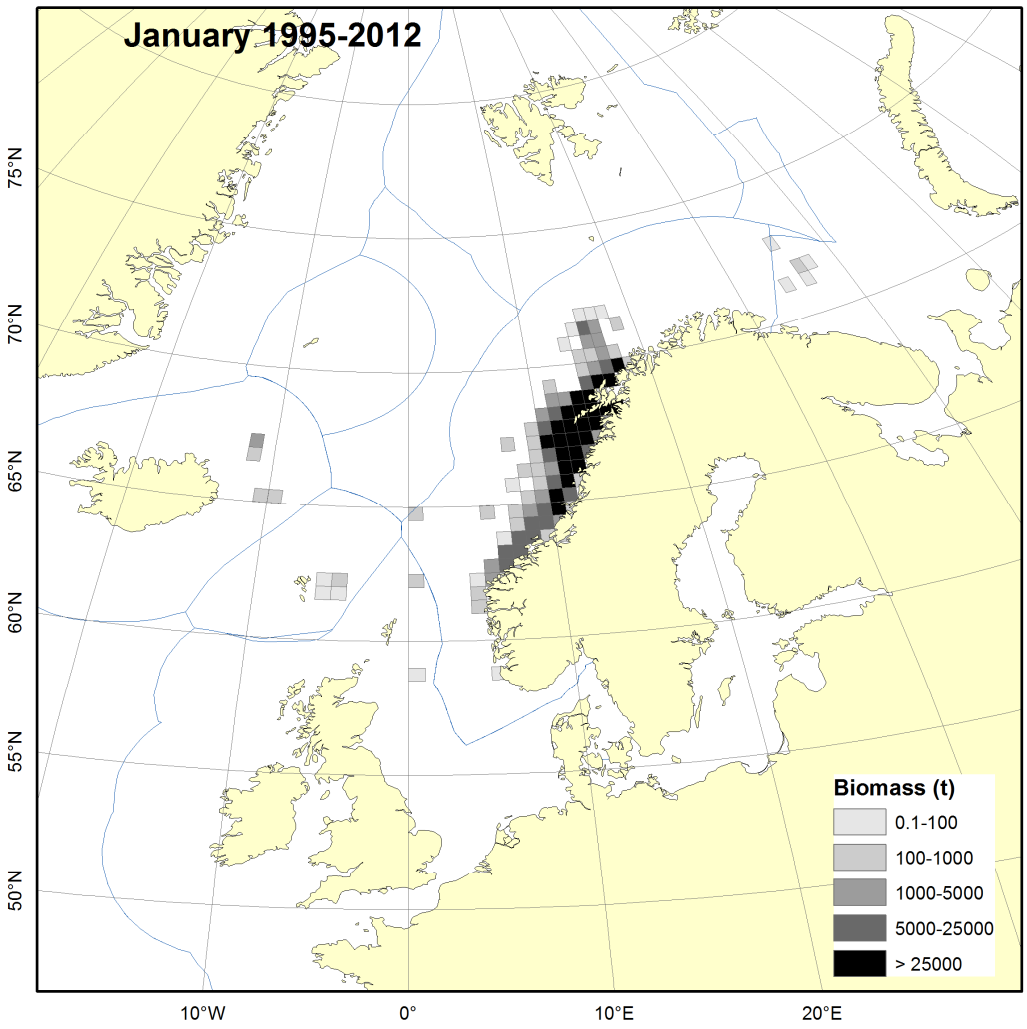


Figure 5.4.2. Norwegian spring spawning herring fishery in January for the whole period 1995-2012 combined (catches added over the years).

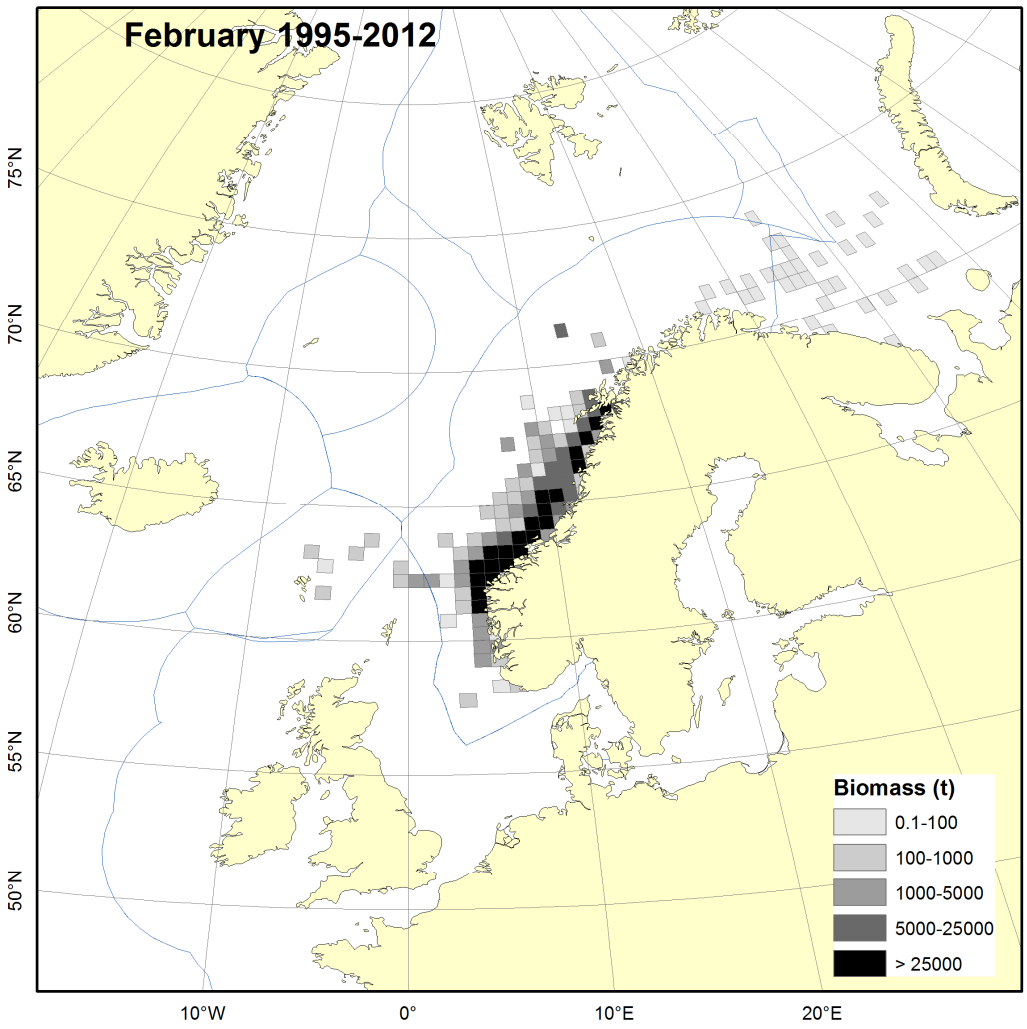


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in February for the whole period 1995-2012 combined (catches added over the years).

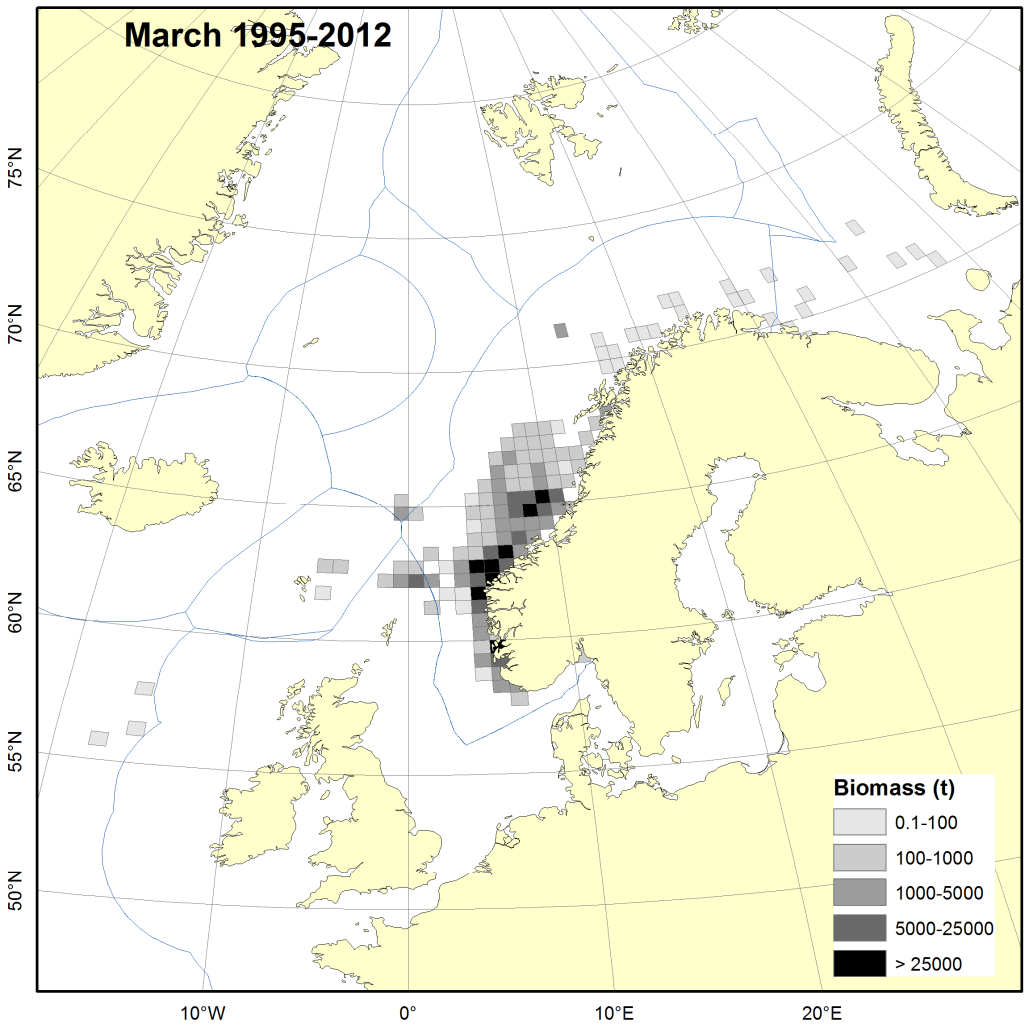


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in March for the whole period 1995-2012 combined (catches added over the years).

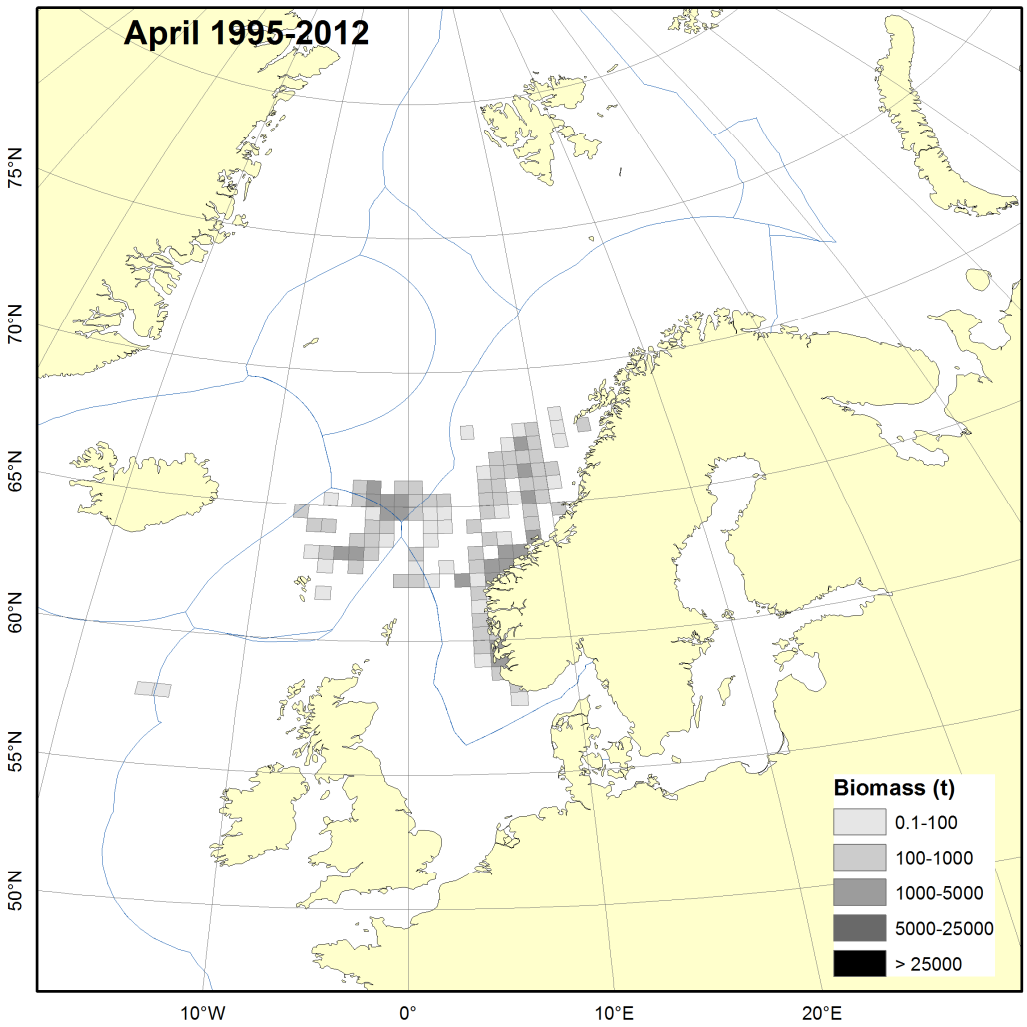


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in April for the whole period 1995-2012 combined (catches added over the years).

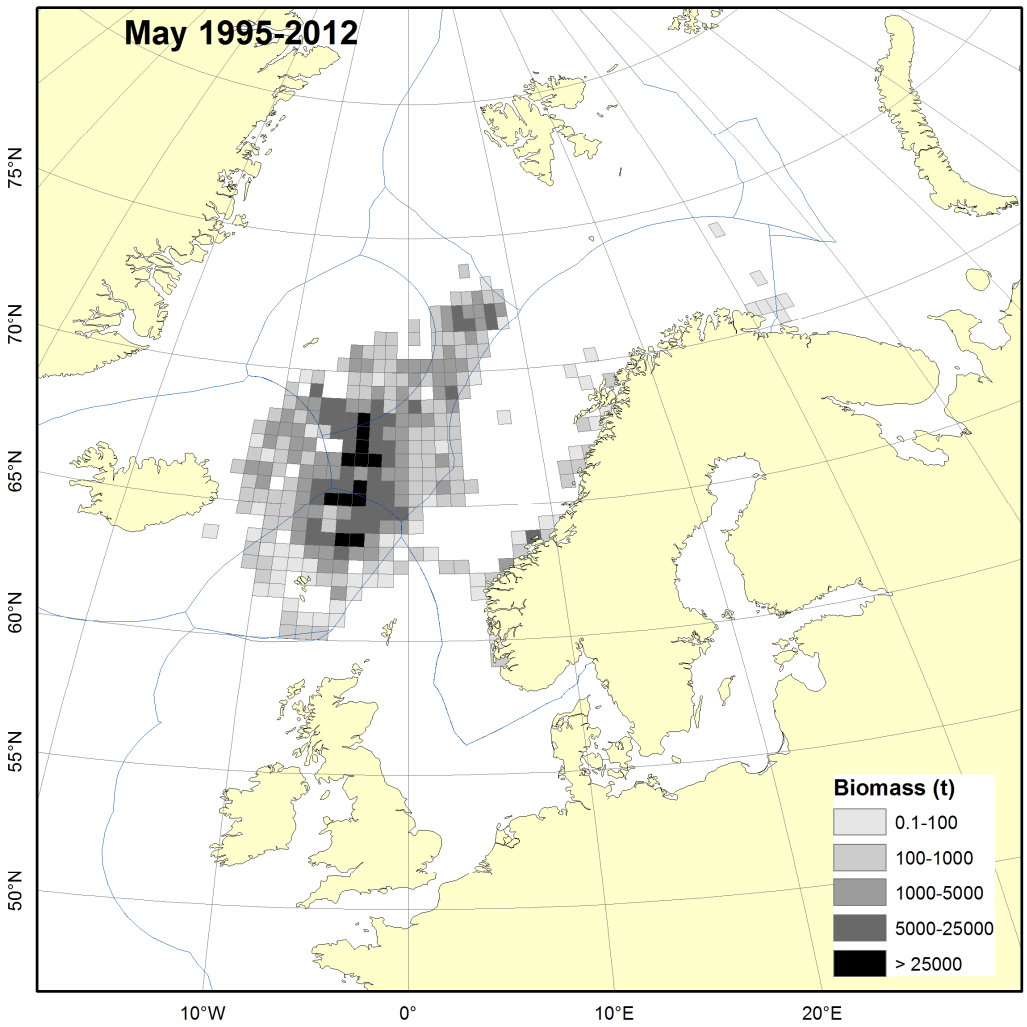


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in May for the whole period 1995-2012 combined (catches added over the years).

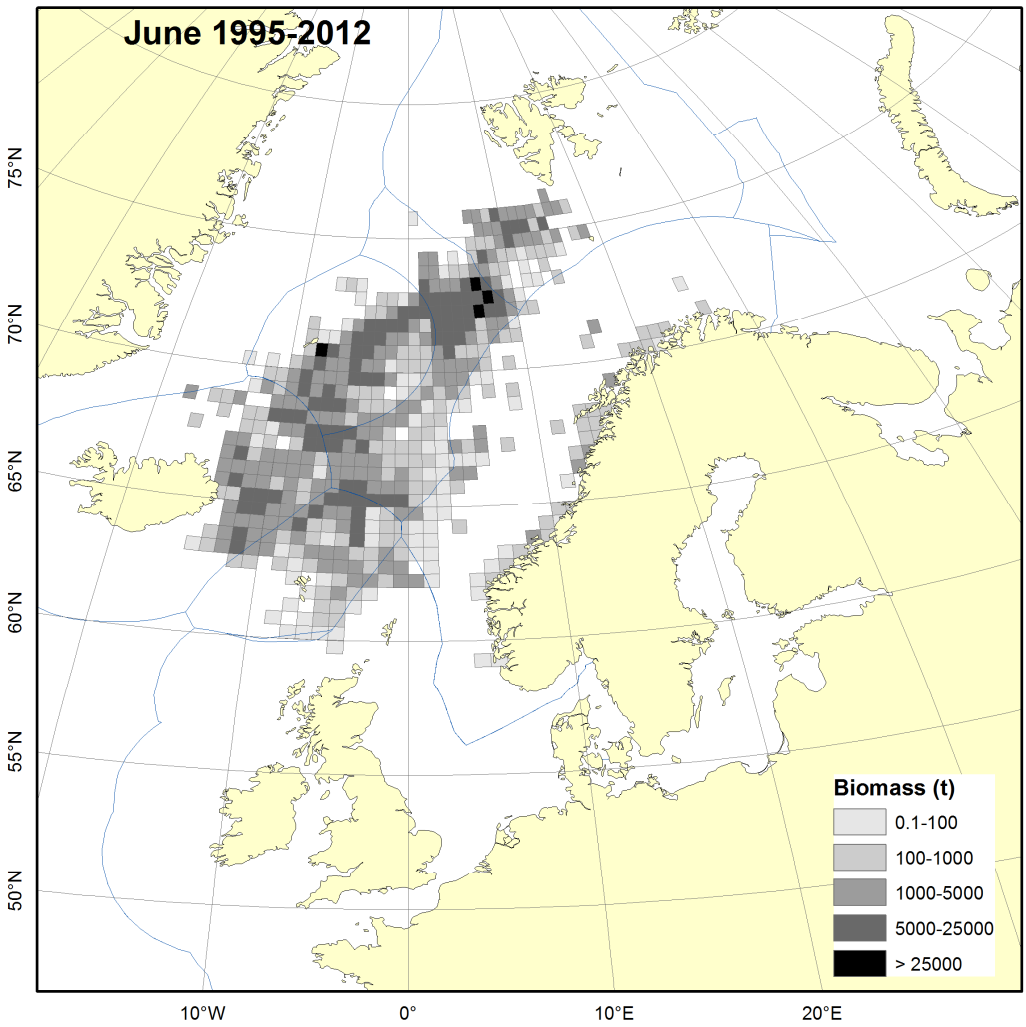


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in June for the whole period 1995-2012 combined (catches added over the years).

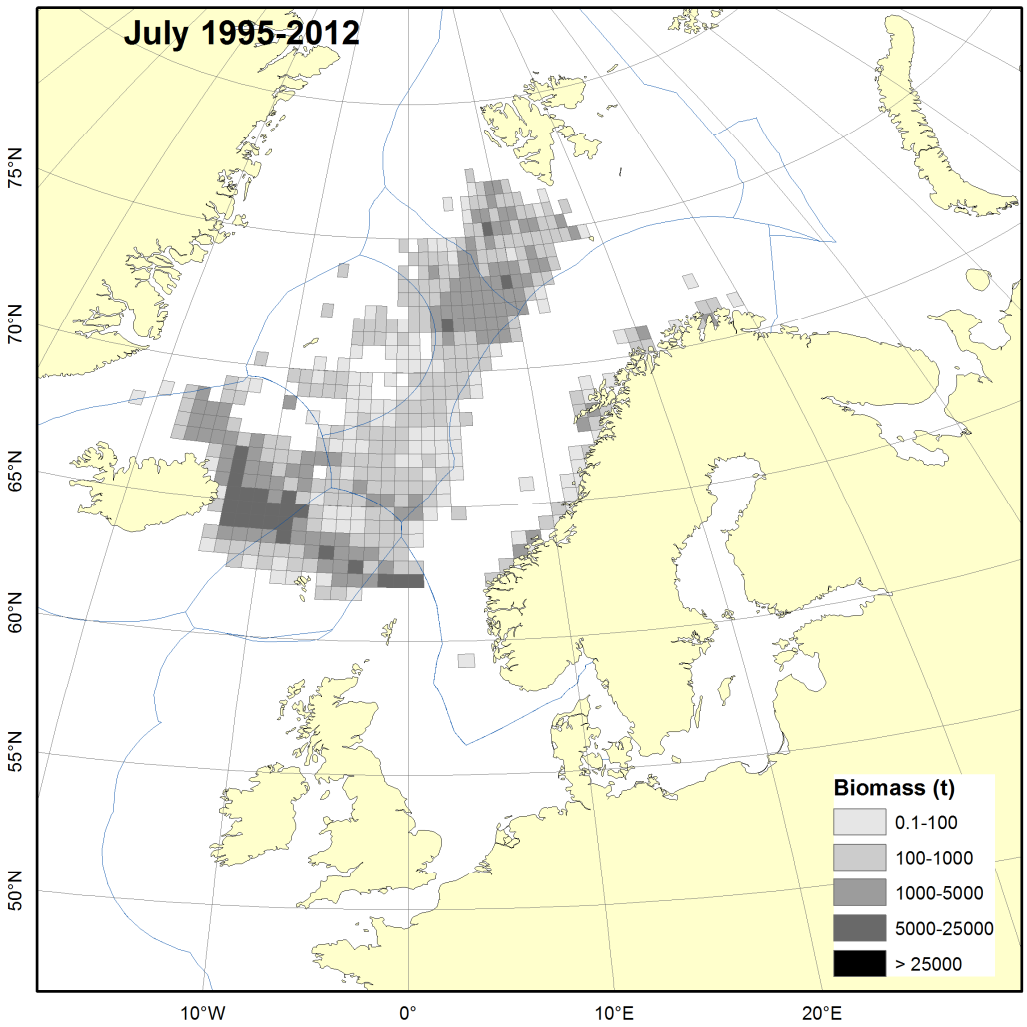


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in July for the whole period 1995-2012 combined (catches added over the years).

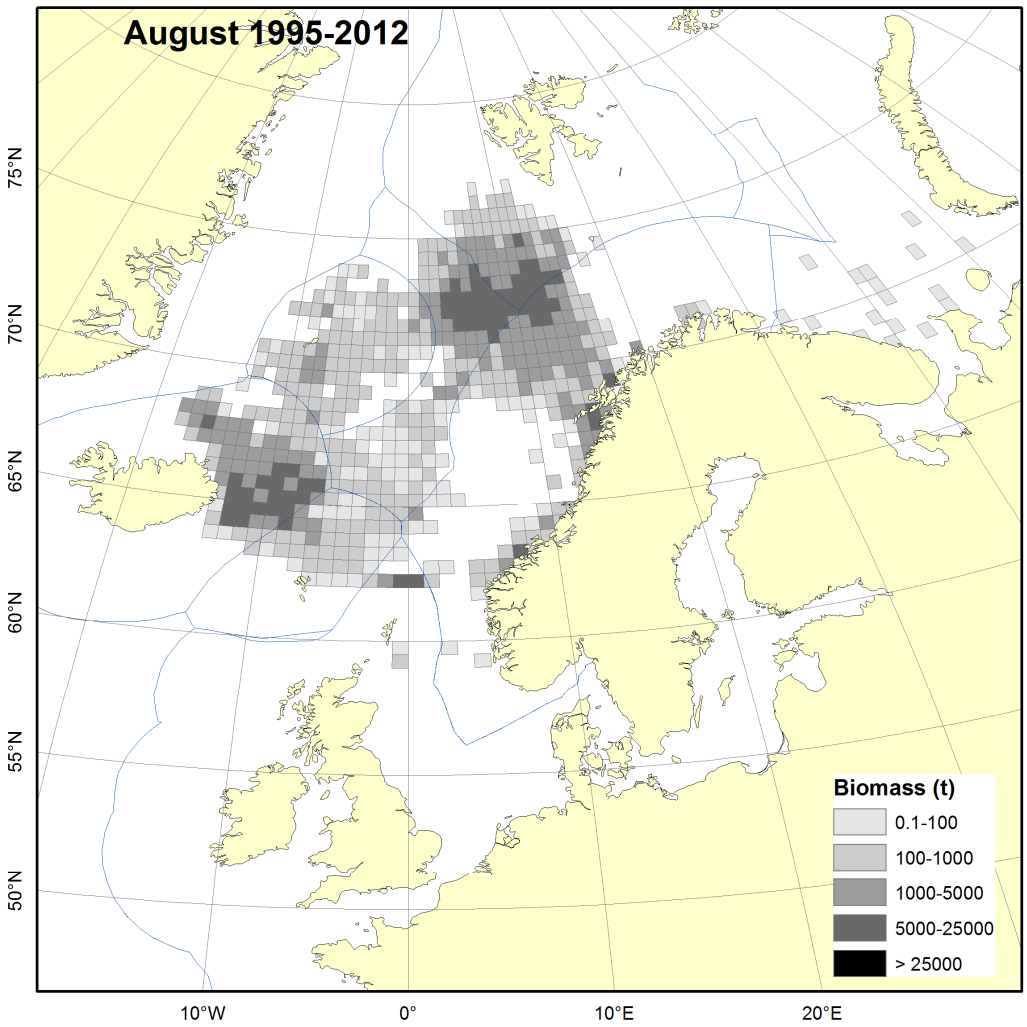


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in August for the whole period 1995-2012 combined (catches added over the years).

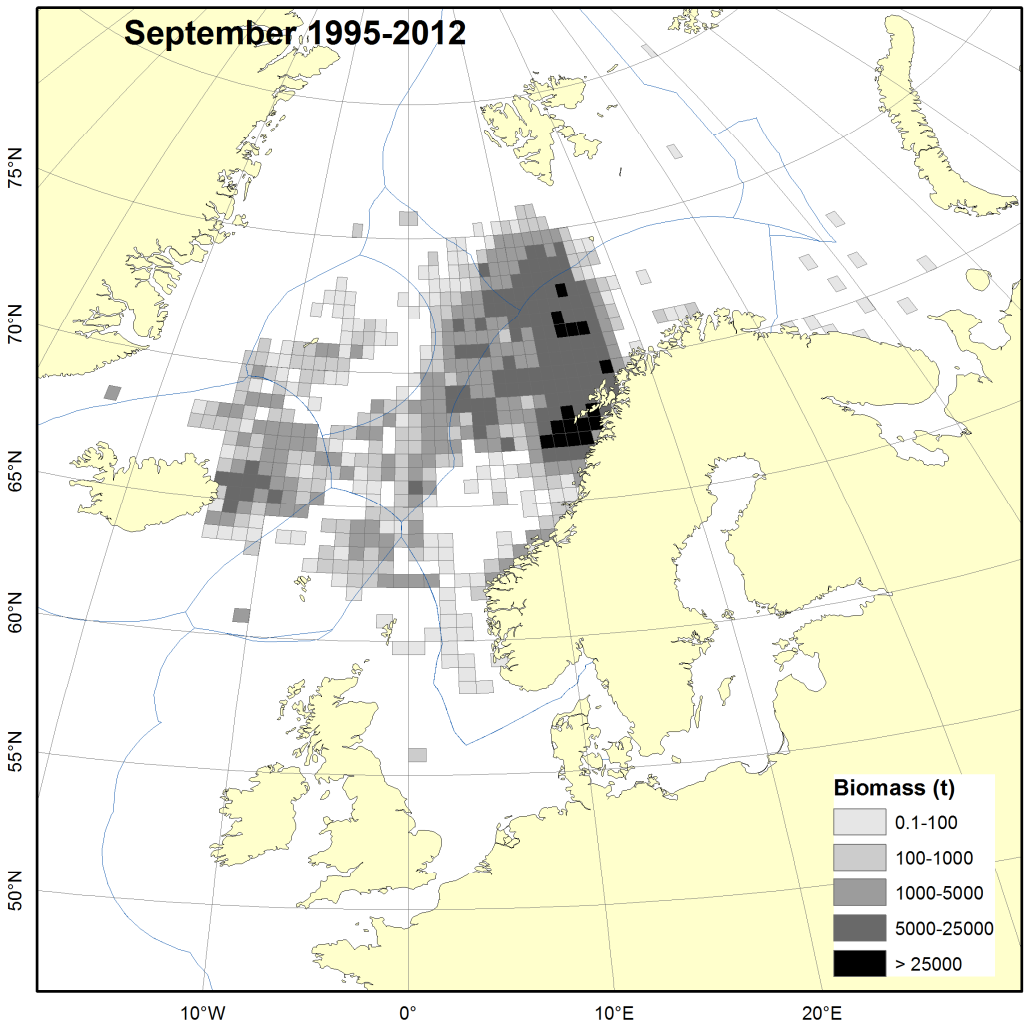


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in September for the whole period 1995-2012 combined (catches added over the years).

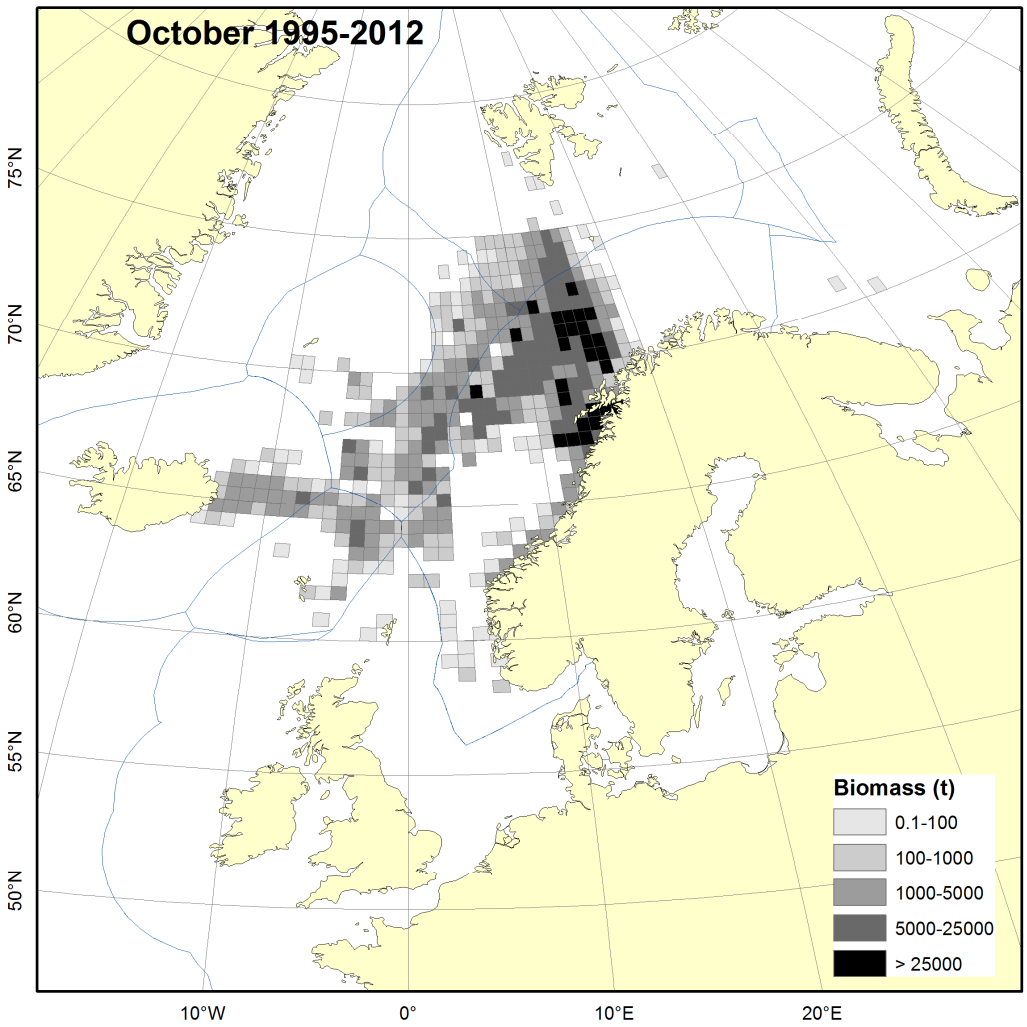


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in October for the whole period 1995-2012 combined (catches added over the years).

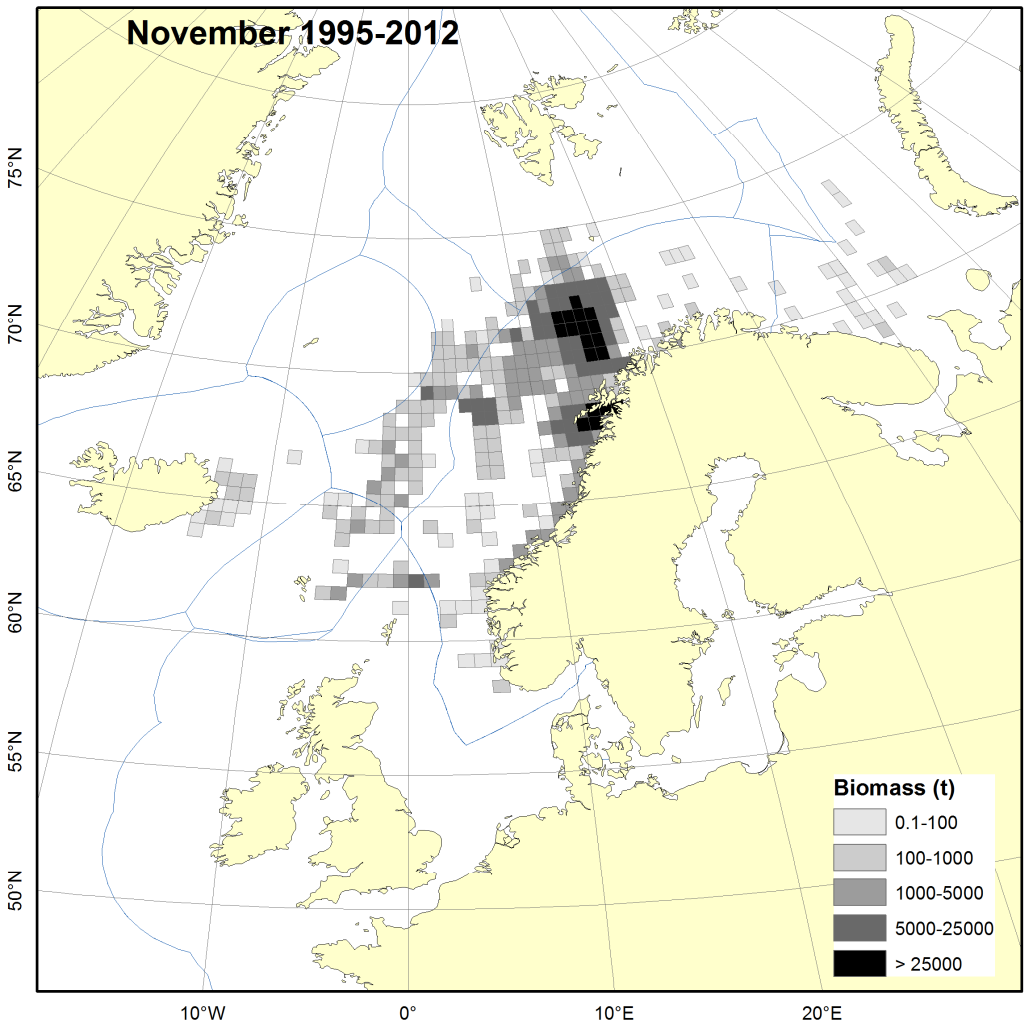


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in November for the whole period 1995-2012 combined (catches added over the years).

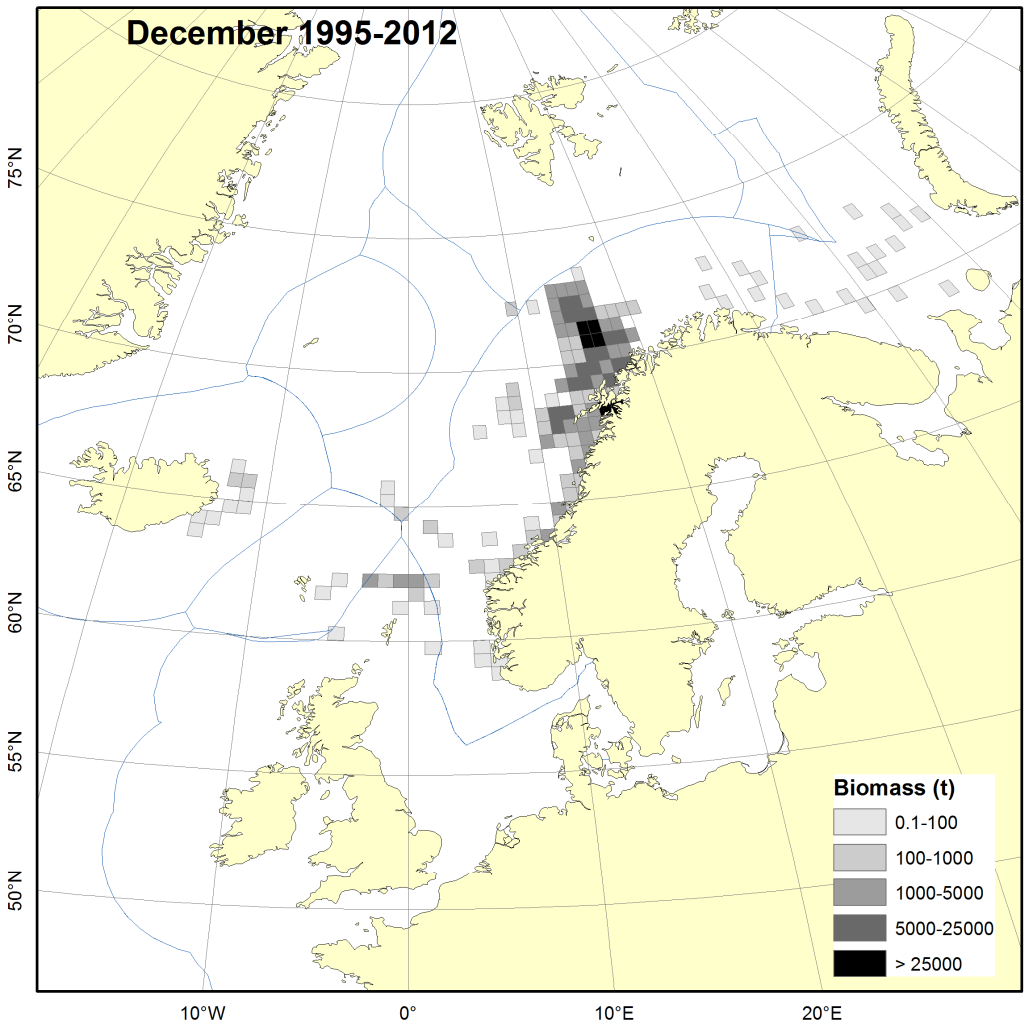


Figure 5.4.2 *continued*. Norwegian spring spawning herring fishery in December for the whole period 1995-2012 combined (catches added over the years).

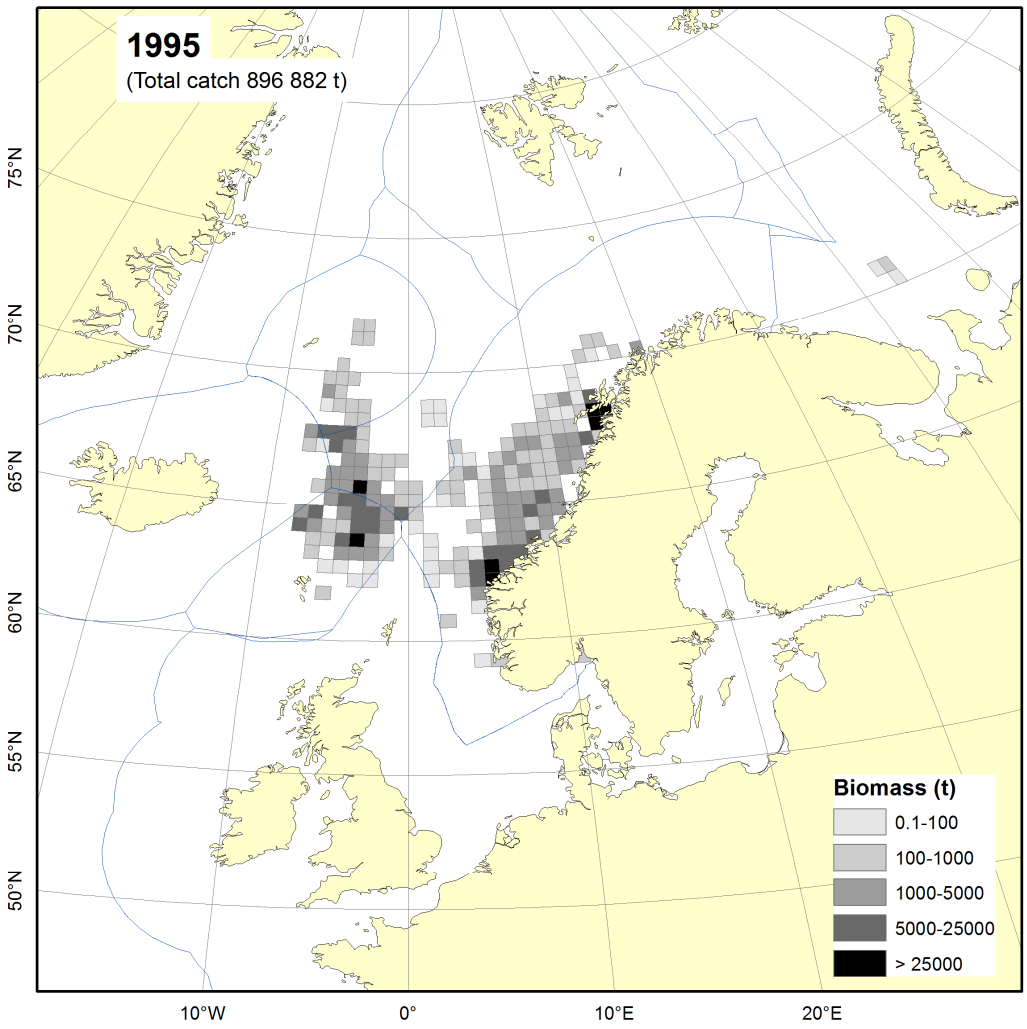


Figure 5.5.1. Norwegian spring spawning herring fishery in 1995 (catches from all months added).

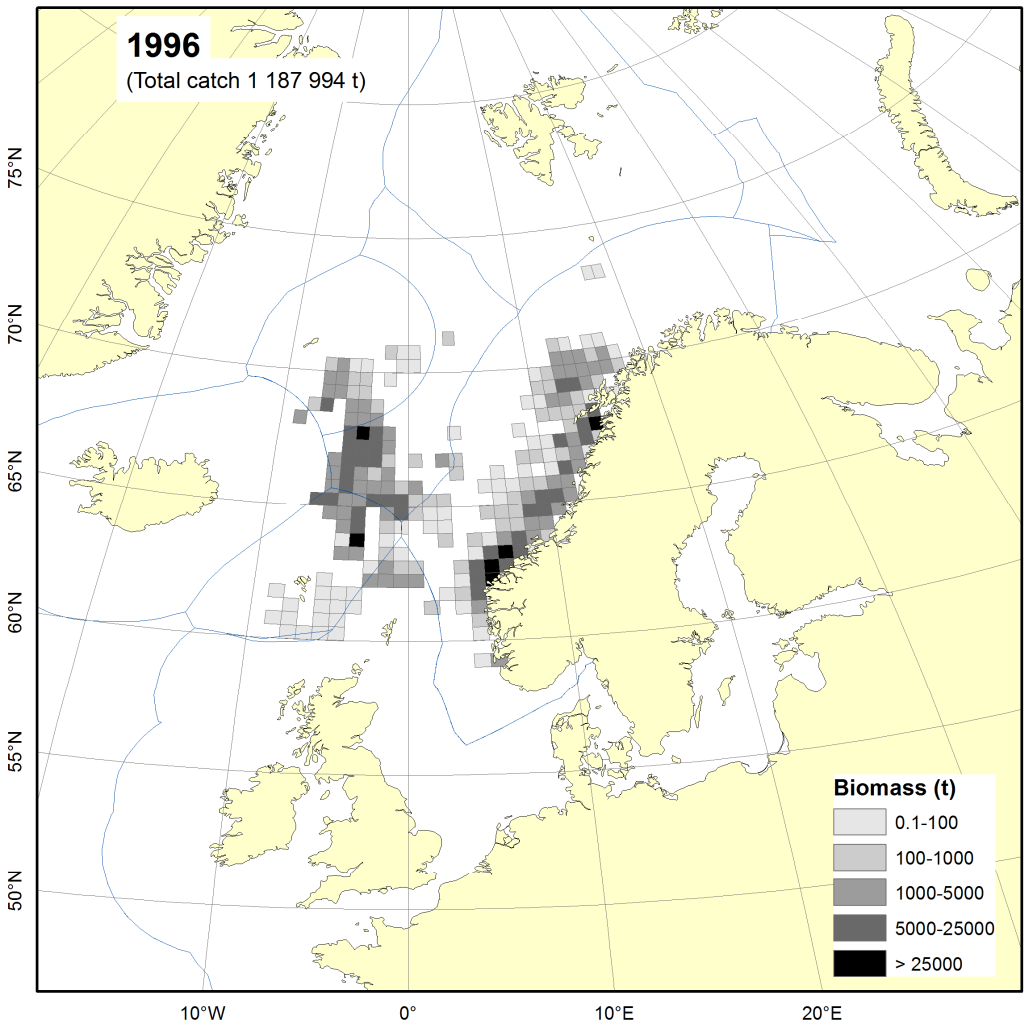


Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 1996 (catches from all months added).

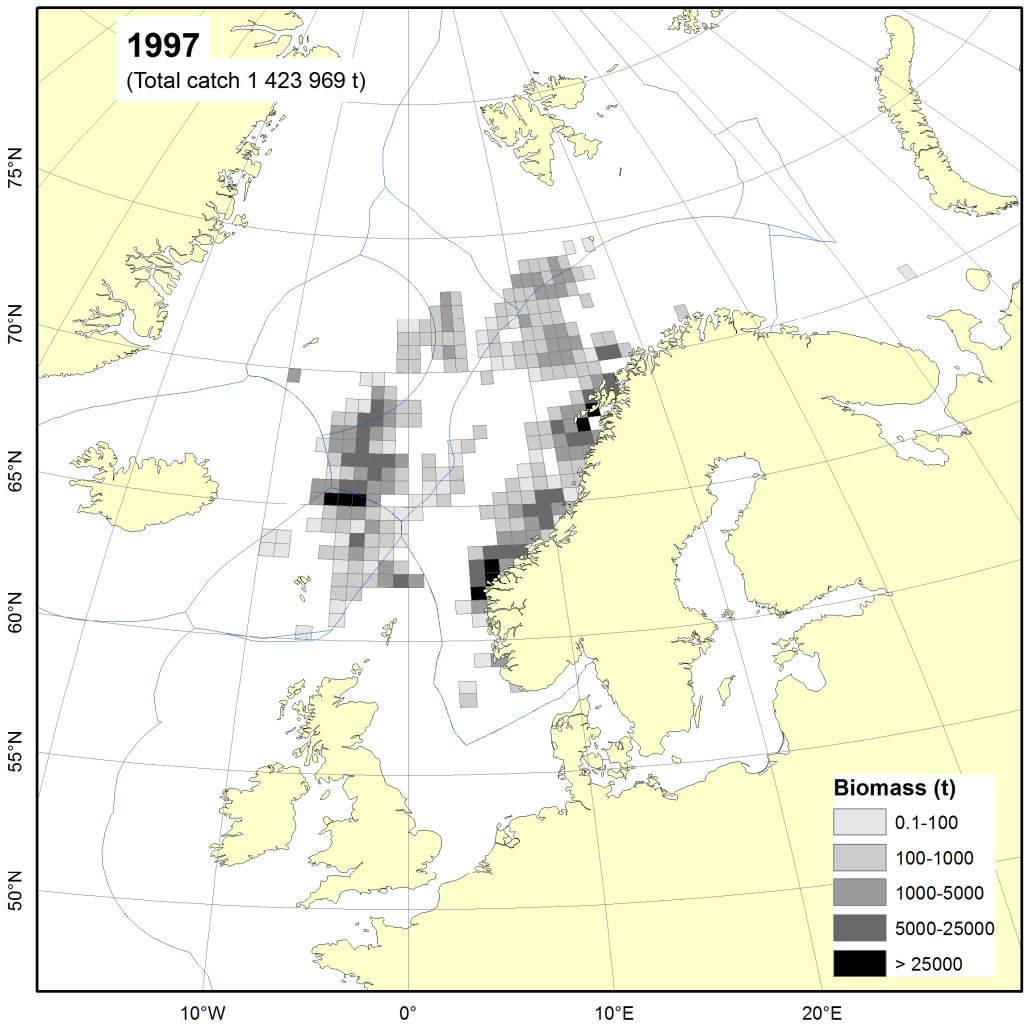


Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 1997 (catches from all months added).

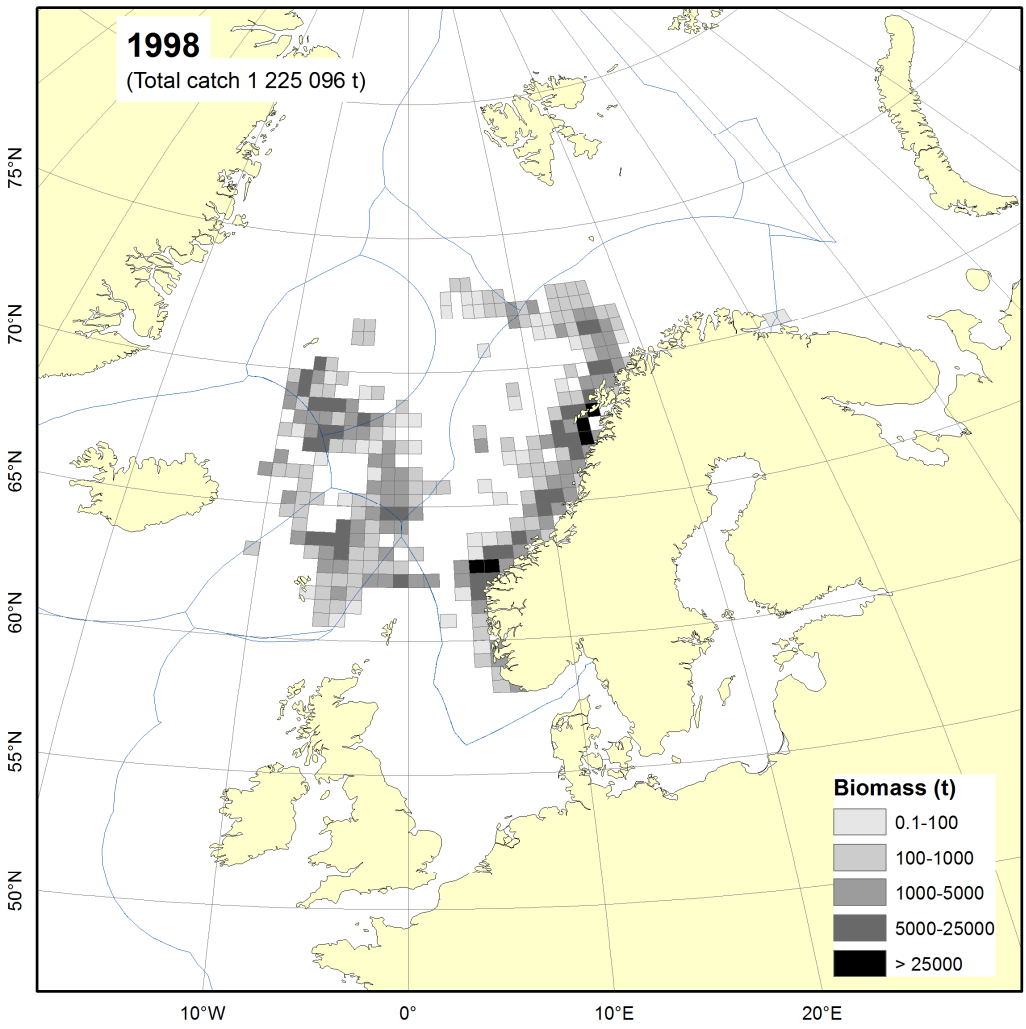


Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 1998 (catches from all months added).

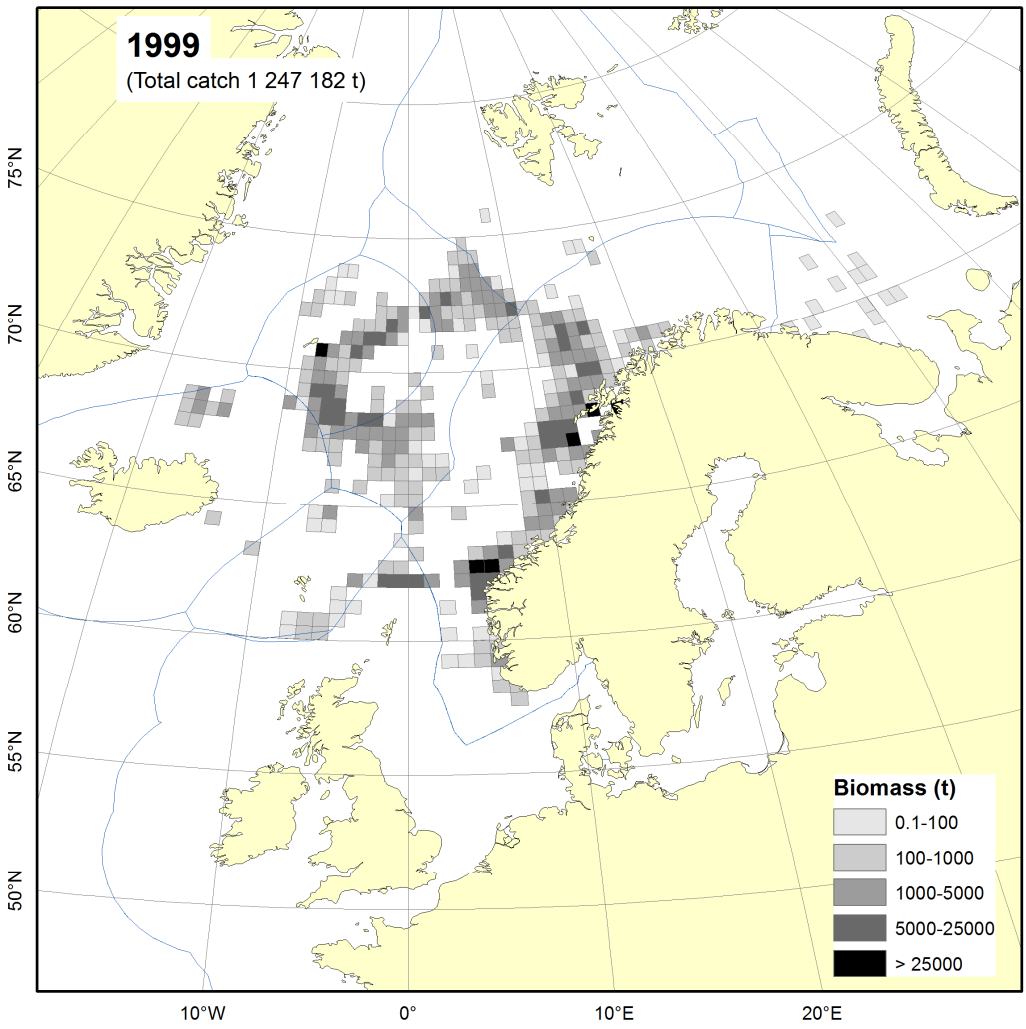


Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 1999 (catches from all months added).

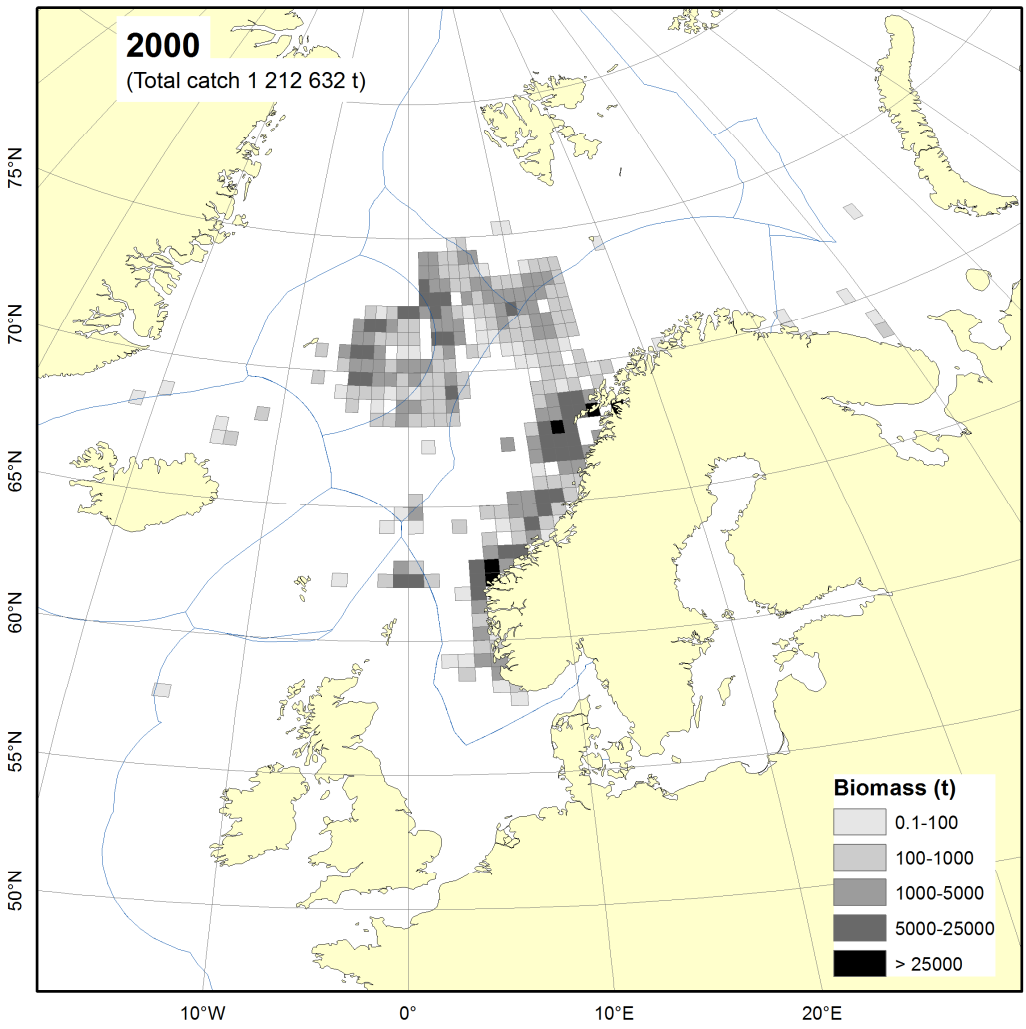


Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2000 (catches from all months added).

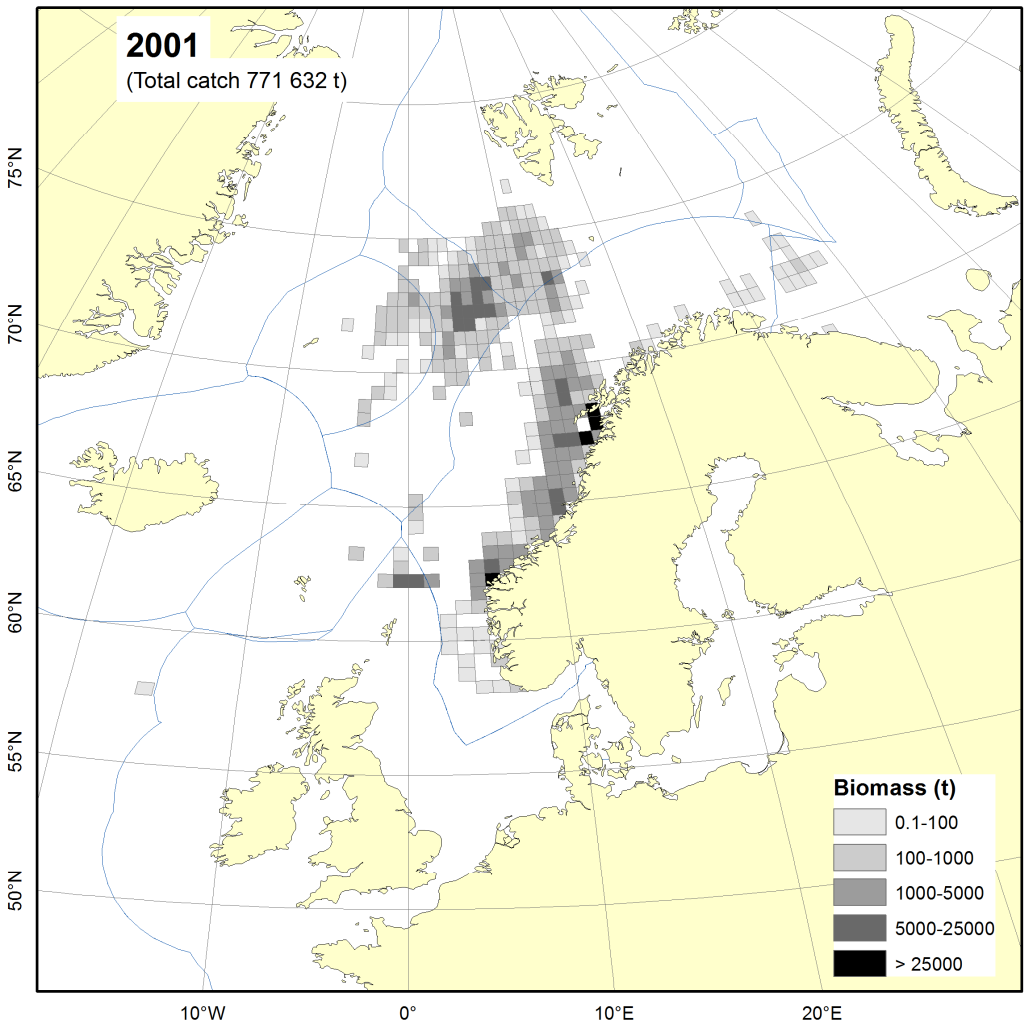


Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2001 (catches from all months added).

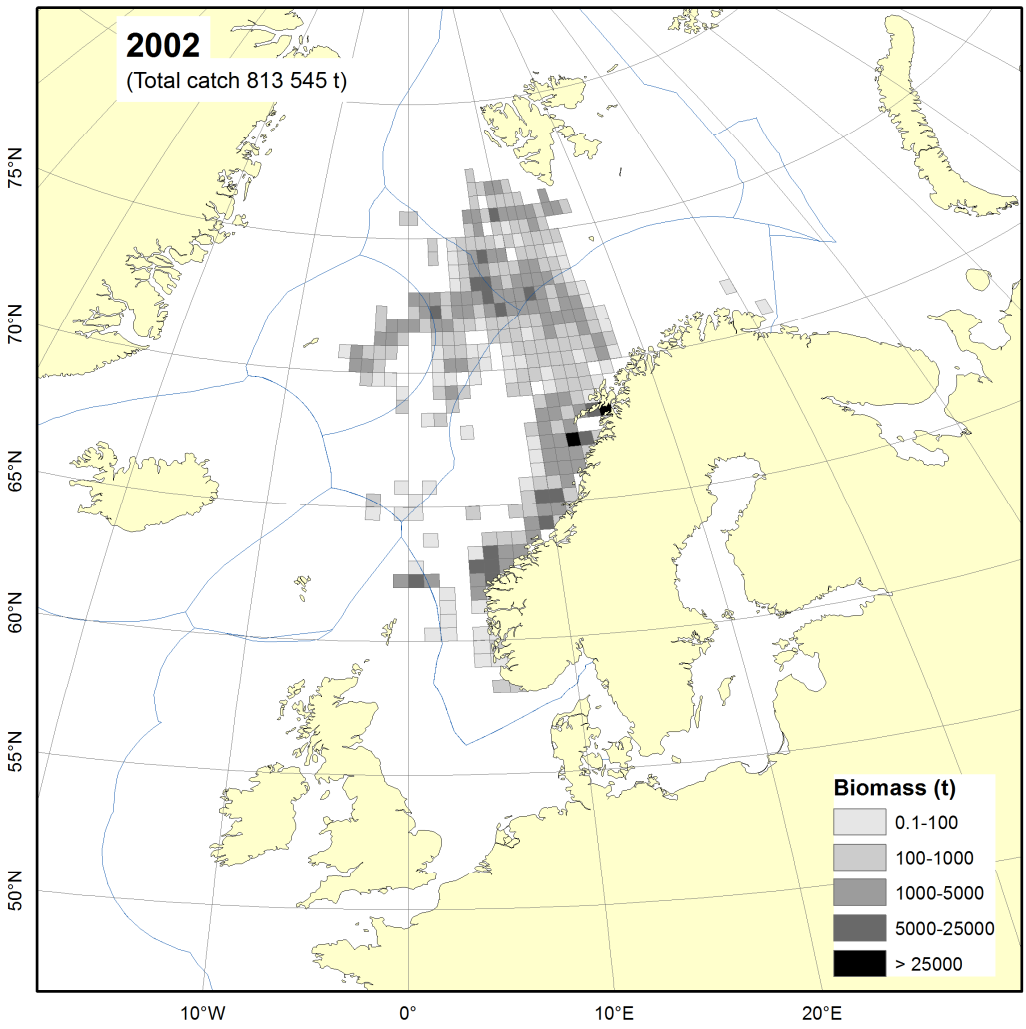
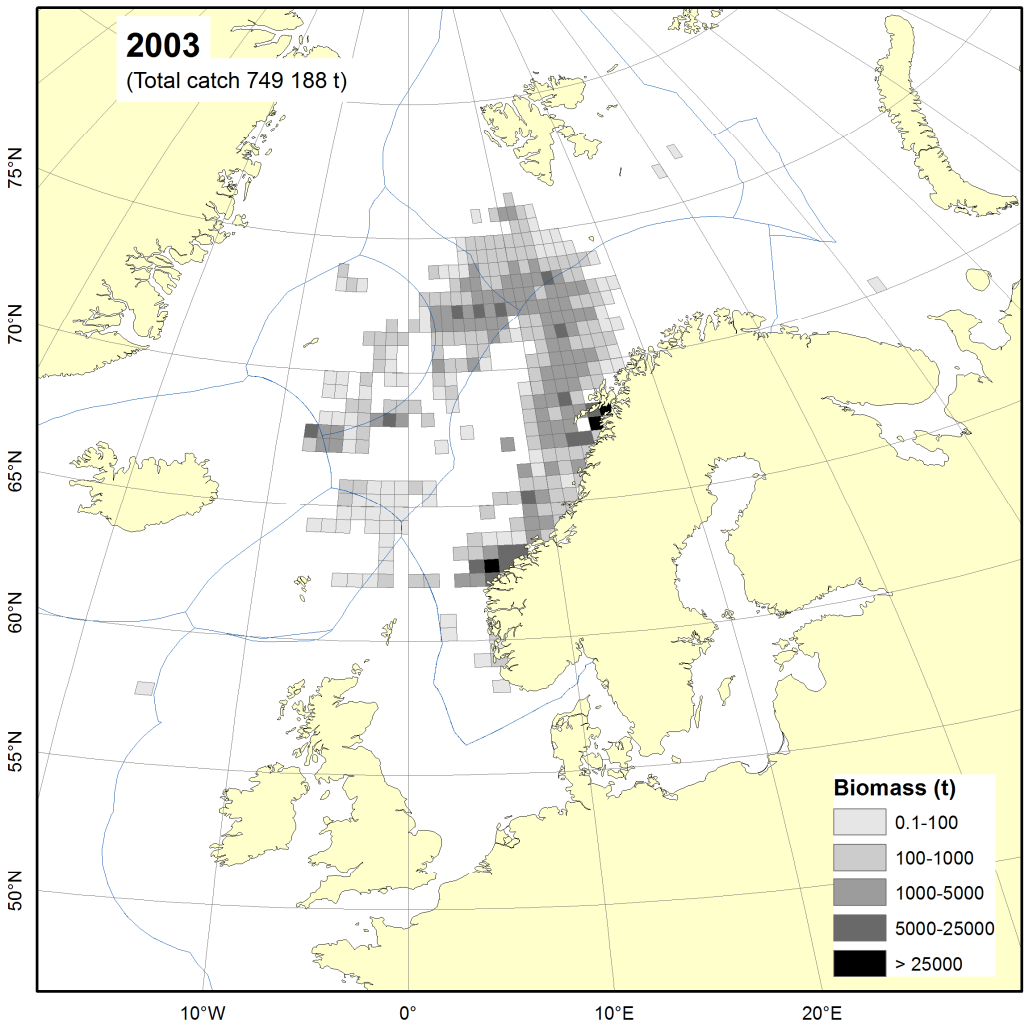


Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2002 (catches from all months added).



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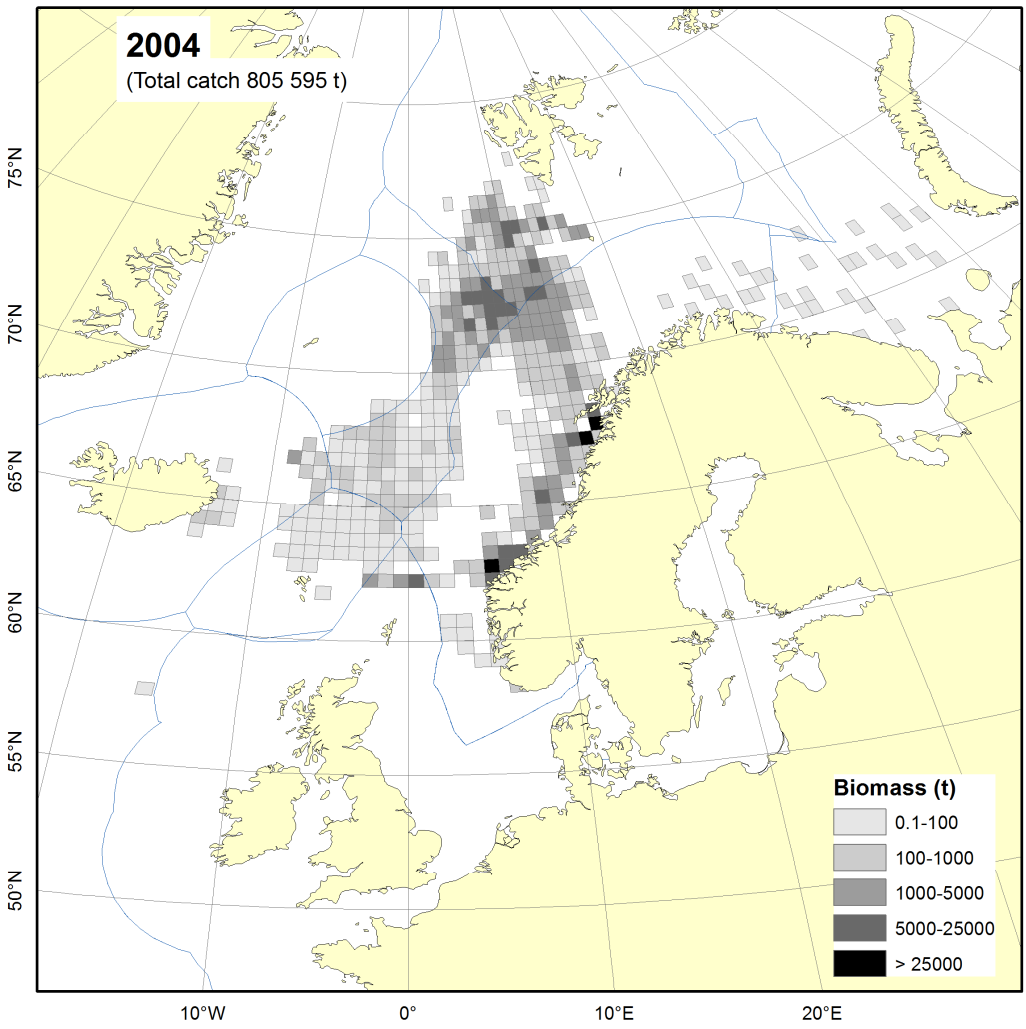

Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2004 (catches from all months added).

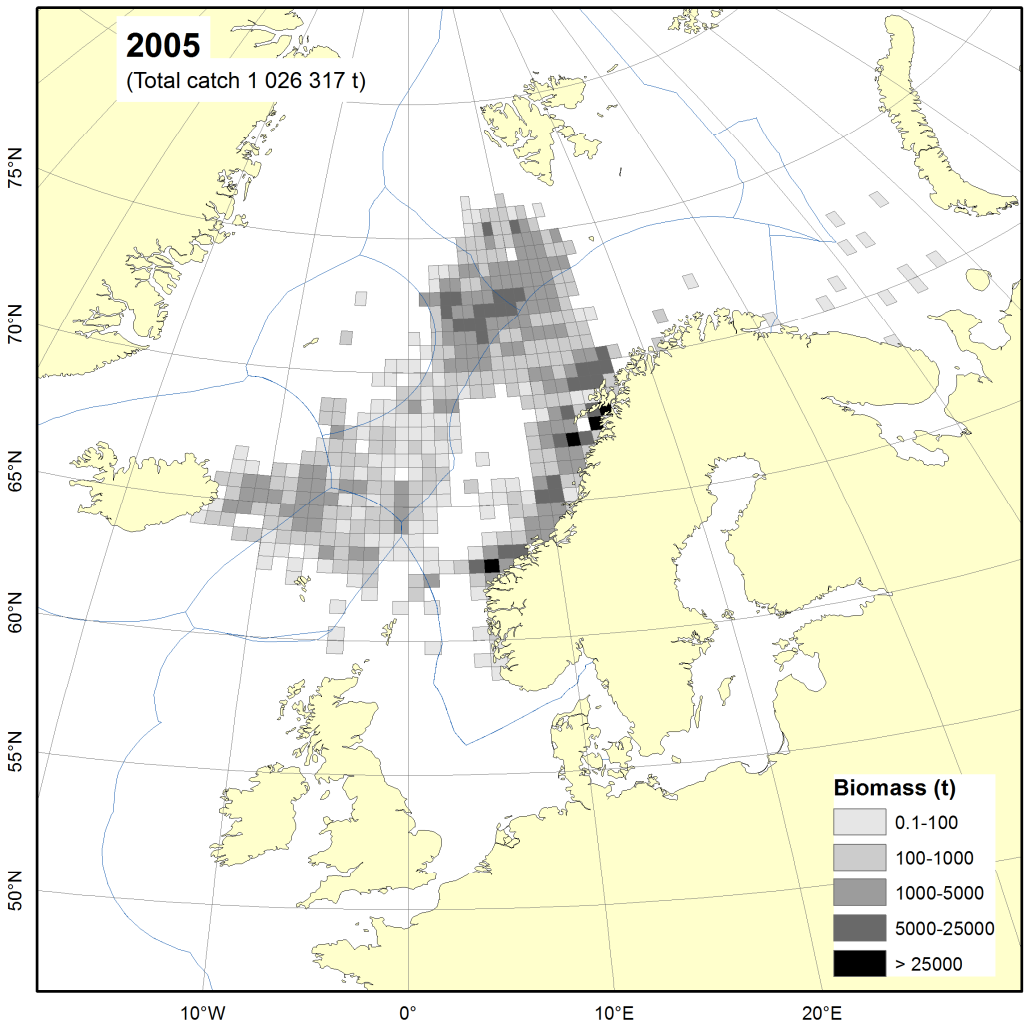

Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2005 (catches from all months added).

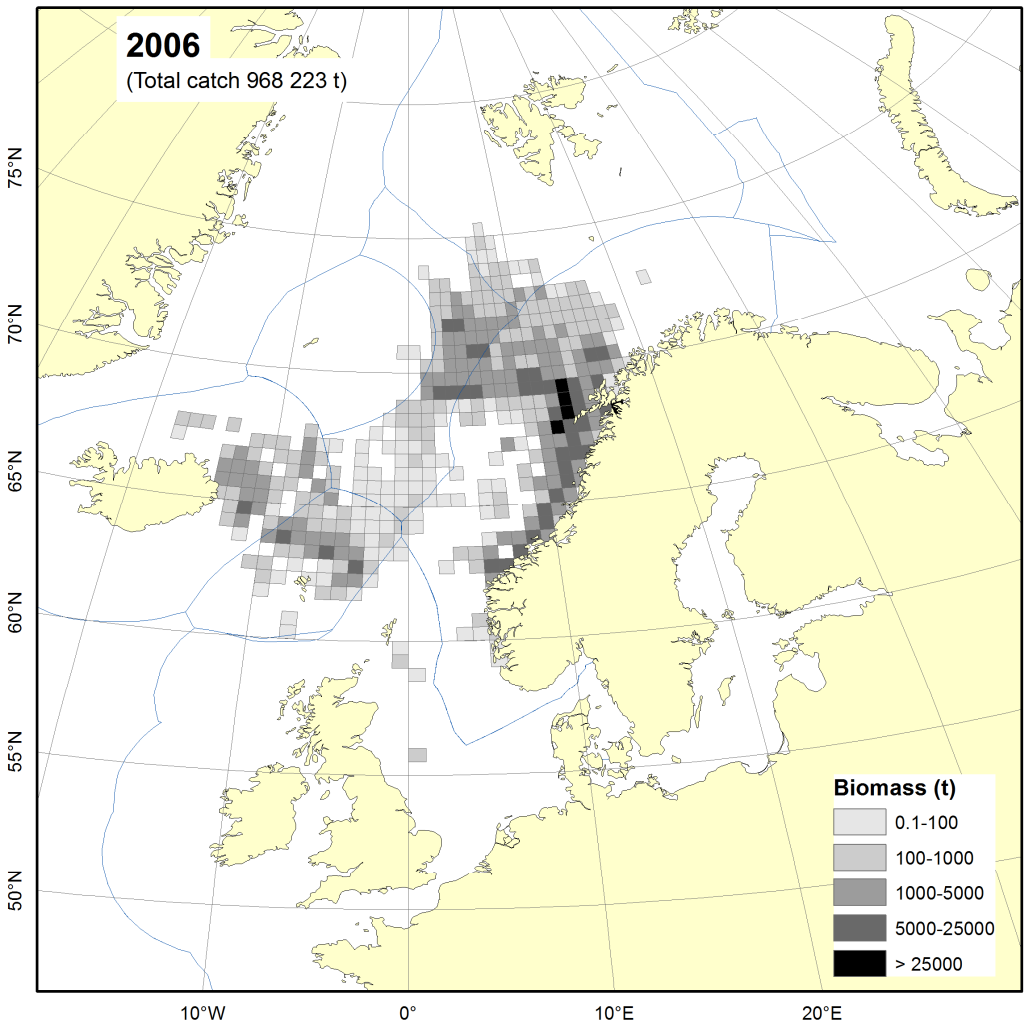

Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2006 (catches from all months added).

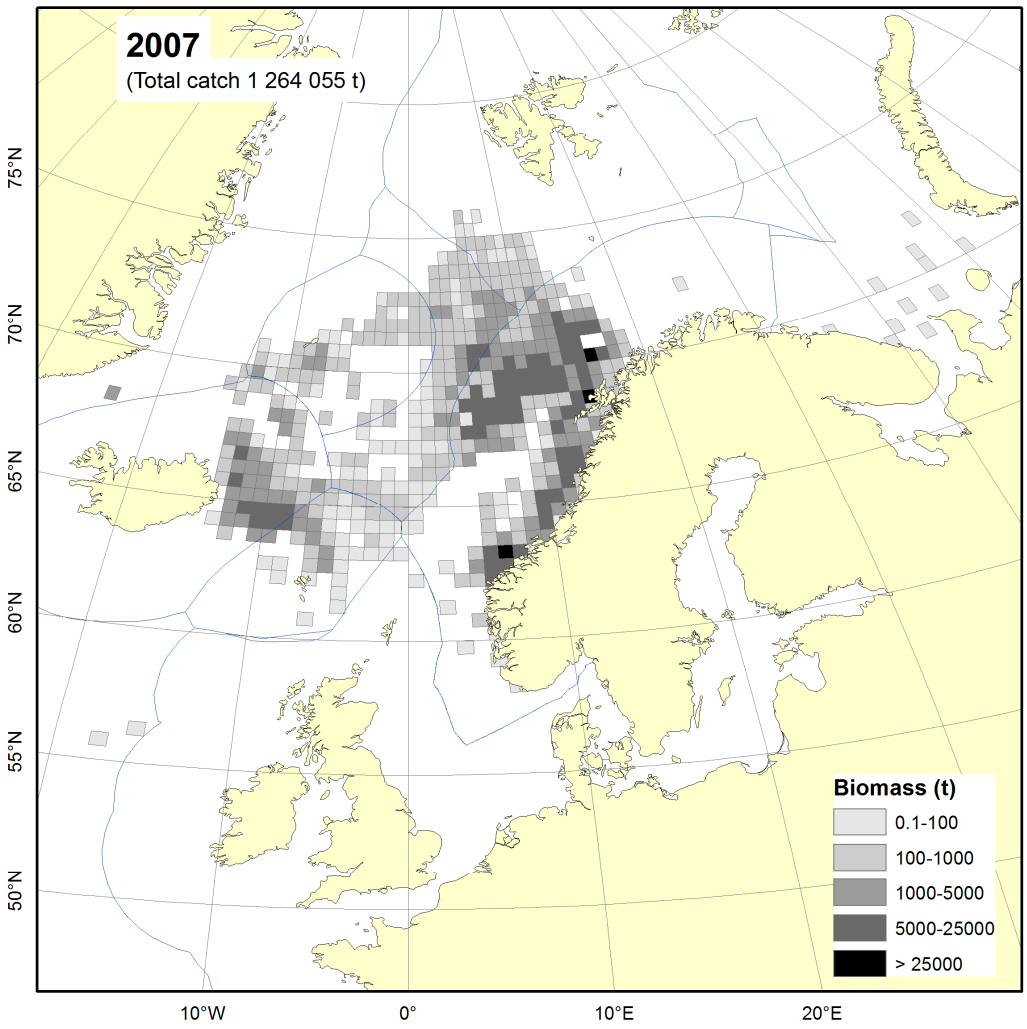

Figure 5.5.1 *continued*. NSS herring fishery in 2007 (catches from all months added).

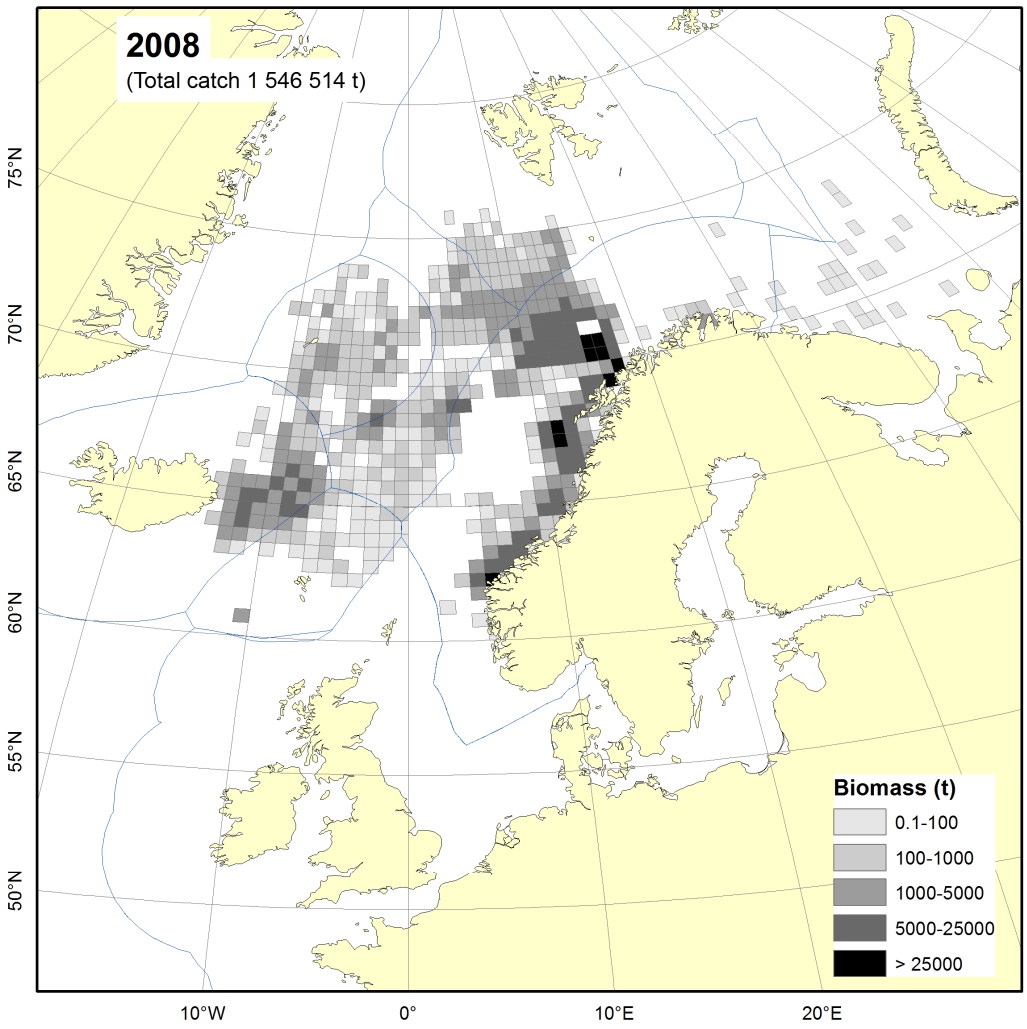

Figure 5.5.1 *continued*. NSS herring fishery in 2008 (catches from all months added).

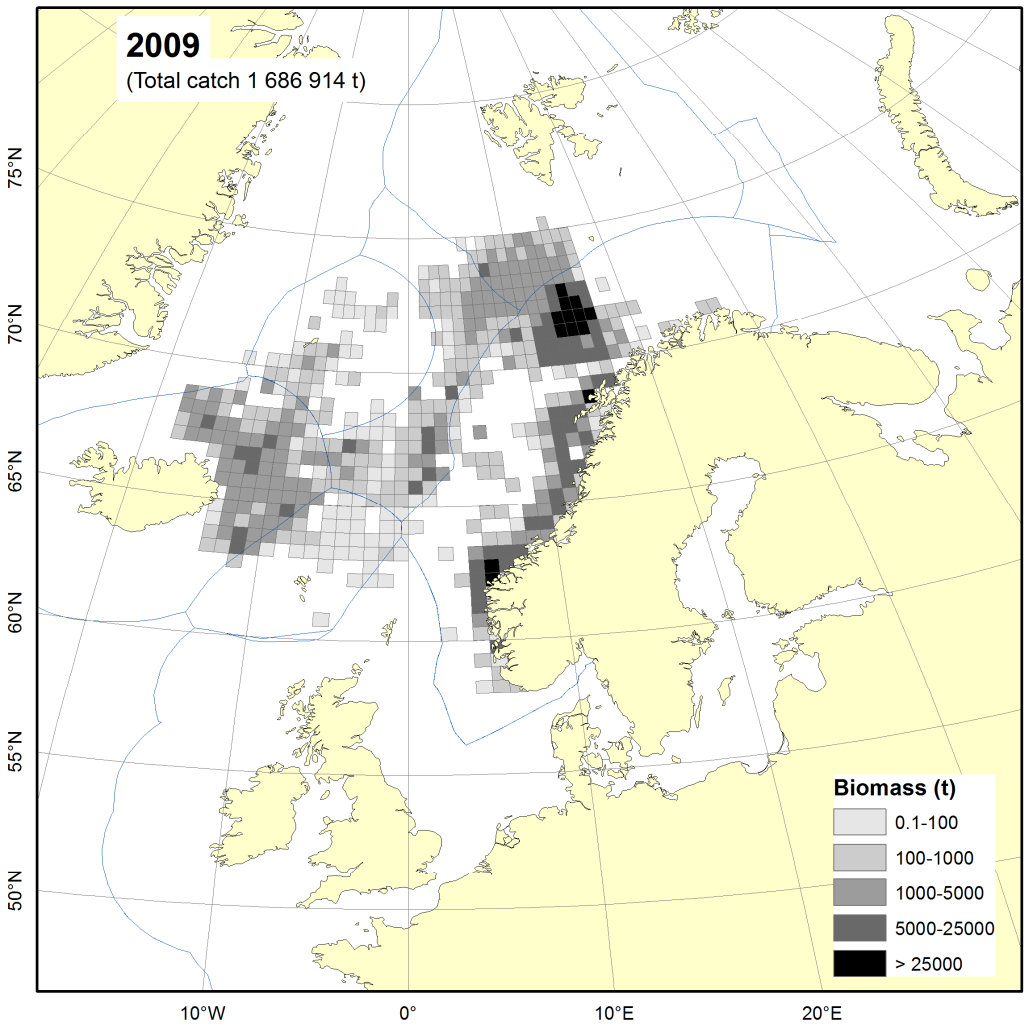

Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2009 (catches from all months added).

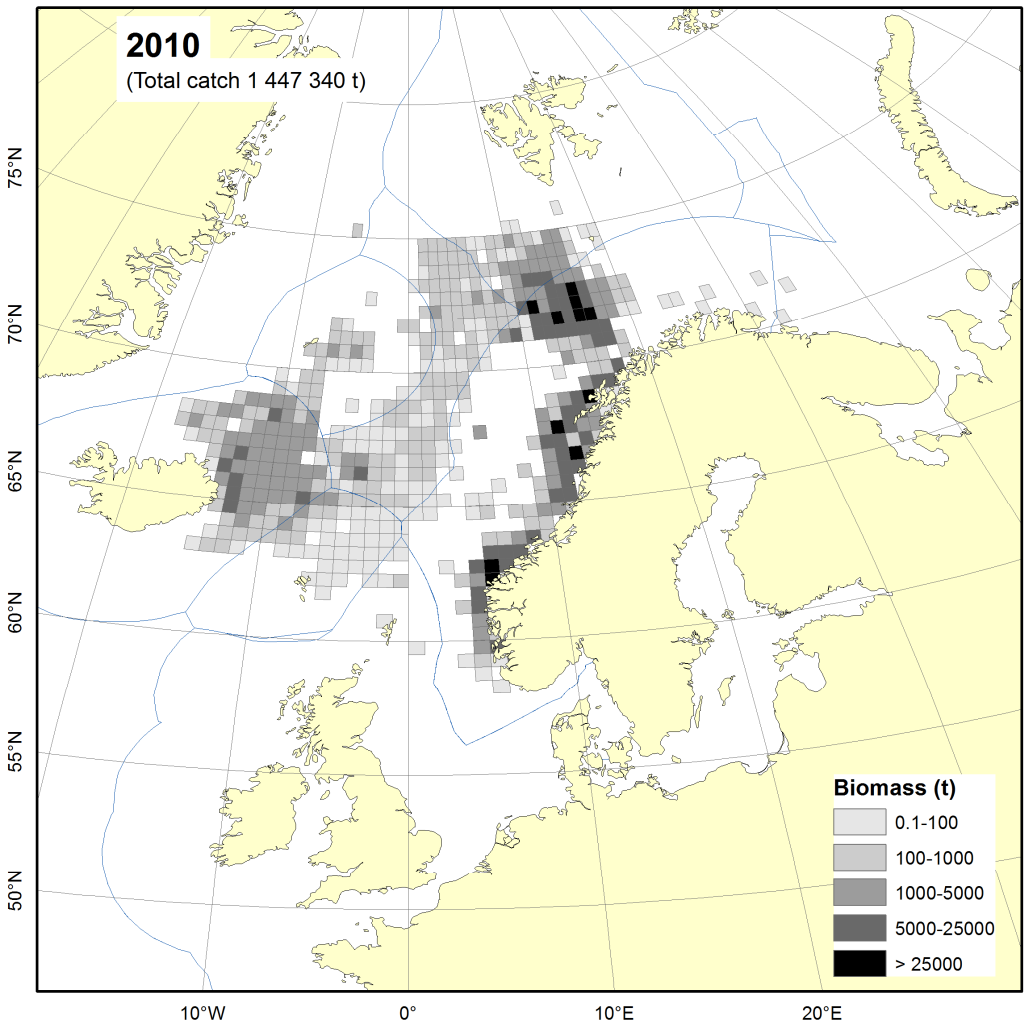

Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2010 (catches from all months added).

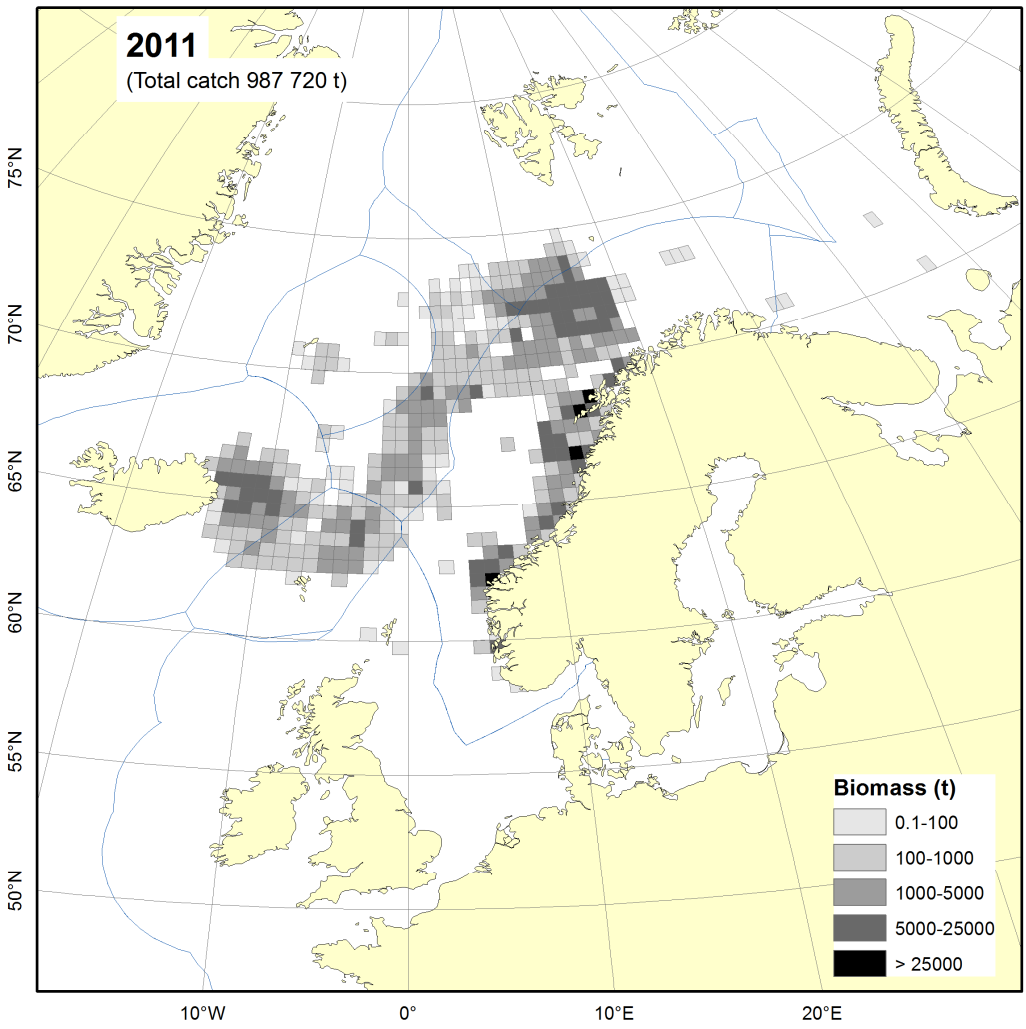

Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2011 (catches from all months added).

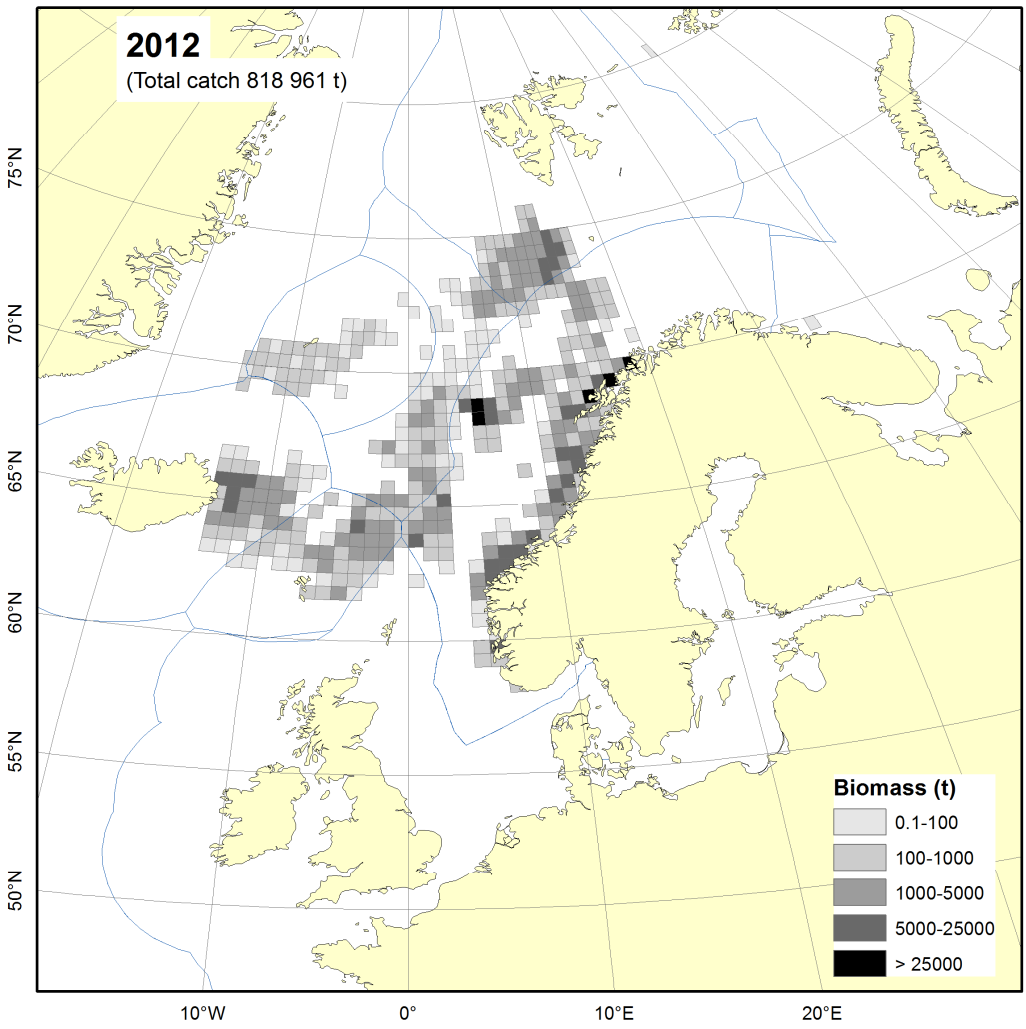

Figure 5.5.1 *continued*. Norwegian spring spawning herring fishery in 2012 (catches from all months added).

Table A1. Catches (tonnes) of Norwegian spring spawning herring by zones for each year, month and country for the years 1995-2012

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
1993	1	Norway								20,939				20,939
1993	1	Russia								17	16			33
1993	2	Norway								34,972				34,972
1993	2	Russia		117						15,138	536			15,791
1993	3	Norway								21,125				21,125
1993	3	Russia								16,019	159			16,178
1993	4	Norway								6,794				6,794
1993	4	Russia								4	230			234
1993	5	Norway								1,592				1,592
1993	5	Russia	5	9										13
1993	6	Norway								860				860
1993	6	Russia	15	131			14			13				174
1993	7	Norway								592				592
1993	7	Russia		8			74			20				102
1993	8	Norway								8,098				8,098
1993	9	Norway								16,634				16,634
1993	9	Russia		41										41
1993	10	Norway								35,423				35,423
1993	11	Norway								31,493				31,493
1993	12	Norway								17,900				17,900
1993	12	Russia									79			79
1994	1	Norway								90,501				90,501
1994	2	Norway								94,643				94,643
1994	2	Russia								15,498				15,498
1994	3	Norway								23,357				23,357
1994	3	Russia					4			53,713			104	53,821
1994	4	Norway								7,656				7,656
1994	4	Russia								3,424				3,424
1994	5	Norway								1,414				1,414
1994	6	Faroe Island					2,911							2,911
1994	6	Iceland				670	20,261		213					21,144
1994	6	Norway					59		2,490	2,098				4,646
1994	6	Russia	12	120						3		69		205
1994	7	Norway					18		18	3,066				3,102
1994	7	Russia	39	165						1		3		209
1994	8	Denmark	271				1,933							2,204
1994	8	Norway								12,181				12,181
1994	8	Russia		88		20								108
1994	9	Denmark					849							849
1994	9	Norway								21,970				21,970
1994	9	Russia		125										125
1994	10	Norway								49,208				49,208
1994	11	Norway								66,518				66,518
1994	11	Russia									918			918
1994	12	Norway								21,763				21,763
1994	12	Russia									46			46
1995	1	Norway								155,139				155,139
1995	2	Faroe Island		186										186
1995	2	Norway								104,186				104,186
1995	2	Russia		382						13,744				14,127
1995	3	Denmark					2,184							2,184
1995	3	Faroe Island		25										25
1995	3	Norway								65,039				65,039
1995	3	Russia								68,601				68,601
1995	4	Norway					543			4,783				5,325
1995	4	Russia								9,136				9,136
1995	5	Denmark	130				14,701							14,831
1995	5	Faroe Island		31,066										31,066
1995	5	Germany					556							556
1995	5	Iceland		110,033			31,072							141,105
1995	5	Norway					671			1,775				2,445
1995	5	Russia		1,651										1,651
1995	6	Denmark					14,258							14,258
1995	6	Faroe Island		18,455		2,608	4,719							25,782
1995	6	Iceland		1,205		10,371	19,445		1,292					32,313
1995	6	Norway					3,920		3,411	1,808				9,140
1995	6	Russia	26	170						23				218
1995	6	UK		881										881
1995	7	Norway					370		2,331	1,871				4,572
1995	7	Russia					0			4				4
1995	8	Denmark	283											283

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
1995	8	Norway								20,295				20,295
1995	8	Russia		4										4
1995	9	Denmark	174				417							591
1995	9	Norway								43,915				43,915
1995	9	Russia								8,094				8,094
1995	10	Norway								57,605				57,605
1995	11	Norway								54,633				54,633
1995	11	Russia									152			152
1995	12	Faroe Island		25										25
1995	12	Norway								8,513				8,513
1996	1	Faroe Island		33										33
1996	1	Norway								174,813				174,813
1996	2	Norway								141,517				141,517
1996	2	Russia								32,007				32,007
1996	3	Norway								62,870				62,870
1996	3	Russia								43,422				43,422
1996	4	Denmark					12,707							12,707
1996	4	Faroe Island		8,822			5							8,827
1996	4	Norway								4,045				4,045
1996	4	Russia								3,405				3,405
1996	4	Sweden					1,150							1,150
1996	4	UK		124										124
1996	5	Denmark					29,126							29,126
1996	5	Faroe Island		13,971			155							14,126
1996	5	Germany		23			802							825
1996	5	Iceland		7,766		284	117,363		11,868					137,281
1996	5	Norway					7,435		1,850	815				10,099
1996	5	Russia	0	34								6		41
1996	5	Sweden					16,583							16,583
1996	5	UK		38,295										38,295
1996	6	Denmark	90				20,001							20,091
1996	6	Faroe Island		6,986					355					7,341
1996	6	Germany	1,571	600			3,401			75				5,647
1996	6	Iceland		16,275		1,475	2,428		7,602					27,780
1996	6	Norway		9			914		7,557	168				8,648
1996	6	Russia	28	114			0			1		9		152
1996	6	Sweden					5,300							5,300
1996	6	UK	111	7,207			309							7,627
1996	7	Germany	3,463	293			1,605			143				5,505
1996	7	Netherland	5,232	1,205			2,323			64				8,822
1996	7	Norway							149	454				604
1996	7	UK					84							84
1996	8	Faroe Island								620				620
1996	8	Norway								1,086				1,086
1996	9	Faroe Island								17,158				17,158
1996	9	Norway								19,840				19,840
1996	9	Russia								32,574				32,574
1996	10	Faroe Island								2,138				2,138
1996	10	Norway								115,236				115,236
1996	10	Russia								7,689				7,689
1996	11	Norway								113,914				113,914
1996	12	Norway								48,838				48,838
1997	1	Norway								118,162				118,162
1997	2	Faroe Island								5,262				5,262
1997	2	Norway								146,693				146,693
1997	2	Russia								47,218				47,218
1997	3	Faroe Island								1,470				1,470
1997	3	Norway								60,185				60,185
1997	3	Russia								51,070				51,070
1997	4	Faroe Island		5,322										5,322
1997	4	Norway		285						3,475				3,760
1997	4	Russia								70				70
1997	5	Denmark					13,677			234				13,911
1997	5	Faroe Island		8,426			3,514		2,627					14,567
1997	5	Germany		866			2,177							3,043
1997	5	Iceland		80,113			83,156		22,709					185,978
1997	5	Netherland					2,890		134					3,024
1997	5	Norway		692			3,282		493	1,306				5,774
1997	5	Russia		674			106					0		780
1997	5	Sweden					13,227							13,227
1997	5	UK		22,286										22,286
1997	6	Denmark		2,886			16,918							19,804
1997	6	Faroe Island		2,569			12,841		1,021					16,432
1997	6	Germany		55										55

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
1997	6	Iceland		17,227		3,406	7,383		1,790					29,806
1997	6	Netherland	355											355
1997	6	Norway		387			3,181		3,227	3,877				10,672
1997	6	Russia	254	1,581			843							2,678
1997	6	Sweden					3,297							3,297
1997	6	UK	201	714										915
1997	7	Germany	2,986	104										3,091
1997	7	Iceland							109					109
1997	7	Netherland	6,253	111										6,363
1997	7	Norway					1,684			7,159				8,843
1997	7	Russia	23	91		1	77			71				263
1997	8	Netherland	1,796											1,796
1997	8	Norway								22,597				22,597
1997	8	Russia								1			2	3
1997	9	Denmark								9,908				9,908
1997	9	Faroe Island								7,173				7,173
1997	9	Iceland								3,190				3,190
1997	9	Netherland	49											49
1997	9	Norway								112,136				112,136
1997	9	Russia					956			22,496			12,172	35,624
1997	9	Sweden								1,020				1,020
1997	9	UK		433										433
1997	10	Denmark								2,266				2,266
1997	10	Faroe Island								9,642				9,642
1997	10	Iceland								972				972
1997	10	Norway								175,074				175,074
1997	10	Russia								31,144				31,144
1997	10	Sweden								1,980				1,980
1997	10	UK		627										627
1997	11	Denmark	1,247											1,247
1997	11	Norway								170,978				170,978
1997	11	Russia									51			51
1997	12	Denmark	20											20
1997	12	Netherland	607											607
1997	12	Norway								29,859				29,859
1997	12	UK	1,037	53										1,090
1998	1	Faroe Island		303										303
1998	1	Norway								168,790				168,790
1998	2	Denmark								6,365				6,365
1998	2	Norway								90,704				90,704
1998	2	Russia								51,363				51,363
1998	3	Denmark								2,547				2,547
1998	3	Faroe Island		1,097										1,097
1998	3	Norway								35,222				35,222
1998	3	Russia								49,570	0			49,570
1998	3	Sweden								520				520
1998	4	Denmark	490											490
1998	4	Faroe Island								215				215
1998	4	Norway								1,371				1,371
1998	5	Denmark	1,280	519			7,295							9,094
1998	5	Faroe Island		10,324			2,159			619				13,102
1998	5	Iceland		63,415		74	23,918		22,844					110,251
1998	5	Netherland					8							8
1998	5	Norway		786						484				1,270
1998	5	Russia		8										8
1998	5	Sweden		830			2,260							3,090
1998	5	UK		1,530			137							1,667
1998	6	Denmark	44	111			12,480			1,683				14,318
1998	6	Faroe Island		1,144		16,445	4,112		9,168					30,869
1998	6	Germany	303											303
1998	6	Iceland				25,562	999		57,345					83,906
1998	6	Netherland		11			540			0				551
1998	6	Norway		193		76	7		3,563	1,335				5,175
1998	6	Russia	221	3,466			0			2				3,690
1998	6	Sweden		265			5,290		400	733				6,688
1998	6	UK					1,541		2,302					3,843
1998	7	Denmark		80										80
1998	7	Germany	3,713	117										3,830
1998	7	Netherland	8,673	606					33					9,312
1998	7	Norway							366	128				494
1998	7	Russia	0	12										12
1998	7	Sweden					245							245
1998	8	Denmark					1,312							1,312
1998	8	Germany	2,870											2,870

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
1998	8	Netherland	1,701	149										1,850
1998	8	Norway					1,162			1,842				3,003
1998	8	Russia								0	0			0
1998	8	Sweden					980							980
1998	9	Denmark	855				1,179							2,034
1998	9	Faroe Island								21,822				21,822
1998	9	Iceland								5,366				5,366
1998	9	Netherland	363	269						281				912
1998	9	Norway					1,533			110,551				112,085
1998	9	Russia					655			15,970			19	16,644
1998	9	Sweden					130			3,120				3,250
1998	9	UK	2,125				953			2,536				5,614
1998	10	Iceland								706				706
1998	10	Norway								145,630				145,630
1998	10	Russia								2,761				2,761
1998	10	Sweden					90							90
1998	11	Denmark	810											810
1998	11	Norway								143,945				143,945
1998	11	UK	1,110											1,110
1998	12	Netherland	1,259											1,259
1998	12	Norway								37,035				37,035
1998	12	UK	3,645											3,645
1999	1	Denmark	916											916
1999	1	Norway								135,371				135,371
1999	1	Sweden								395				395
1999	2	Denmark								7,871				7,871
1999	2	Faroe Island								2,558				2,558
1999	2	Germany	128											128
1999	2	Netherland	373											373
1999	2	Norway								70,864				70,864
1999	2	Russia								30,469				30,469
1999	2	Sweden								2,168				2,168
1999	3	Denmark	870							304				1,174
1999	3	Faroe Island								5,852				5,852
1999	3	Norway								20,494				20,494
1999	3	Russia								17,398				17,398
1999	3	Sweden								850				850
1999	3	UK								1,214				1,214
1999	4	Norway								581				581
1999	4	Russia								562				562
1999	5	Denmark					1,110			161				1,271
1999	5	Faroe Island					4,432		1,355					5,787
1999	5	Iceland					14,873		62,088					76,961
1999	5	Netherland					1,096		93					1,189
1999	5	Norway					350		475	441				1,266
1999	5	Russia	43	604			1,848		1,151	267		185		4,098
1999	5	Sweden					3,742		177					3,919
1999	5	UK	200				329							529
1999	6	Denmark					11,196			2,883				14,079
1999	6	Faroe Island		1,495		2,203	2,694		9,427					15,819
1999	6	Germany	1,174											1,174
1999	6	Iceland				2,244	8,485		116,060					126,789
1999	6	Netherland		0		113	22		2,142					2,278
1999	6	Norway					538		7,369	2,088				9,995
1999	6	Russia	105	210			1,980		3,627	10		13		5,944
1999	6	Sweden					1,410		898					2,308
1999	6	UK	502											502
1999	7	Denmark					4,434			283				4,717
1999	7	Faroe Island				6,858	661							7,520
1999	7	Germany	2,581											2,581
1999	7	Netherland	3,516											3,516
1999	7	Norway		136			469		28	3,100				3,734
1999	7	Russia			149	732	150			561				1,592
1999	7	Sweden					2,202							2,202
1999	8	Denmark					4,377							4,377
1999	8	Faroe Island					5,731			2,116				7,847
1999	8	Germany	3,113											3,113
1999	8	Netherland	1,015	4										1,019
1999	8	Norway					2,798		982	5,127				8,907
1999	8	Russia			0		19,155		675	2,914	0		1,654	24,399
1999	8	Sweden					845							845
1999	8	UK	7,216											7,216
1999	9	Denmark	1,189							265				1,454
1999	9	Faroe Island								8,889				8,889

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
1999	9	Netherland	644											644
1999	9	Norway					40			87,446				87,486
1999	9	Russia					453		85	72,062	2		97	72,700
1999	9	Sweden					1,370							1,370
1999	9	UK	6,113	360						3,272				9,746
1999	10	Denmark	270											270
1999	10	Faroe Island								268				268
1999	10	Norway								149,963				149,963
1999	10	Russia				160								160
1999	11	Denmark	1,364	1,064										2,428
1999	11	Faroe Island								619				619
1999	11	Norway								150,197				150,197
1999	11	UK	1,133											1,133
1999	12	Norway								102,724				102,724
1999	12	Russia									6			6
1999	12	UK	396											396
2000	1	Norway								128,929				128,929
2000	1	Russia								223				223
2000	1	Sweden					510							510
2000	2	Denmark	531							7,029				7,560
2000	2	Faroe Island								1,003				1,003
2000	2	Germany								66				66
2000	2	Norway								101,665				101,665
2000	2	Russia								35,339				35,339
2000	2	Sweden								2,030				2,030
2000	2	UK								776				776
2000	3	Denmark	820							1,051				1,871
2000	3	Faroe Island								4,789				4,789
2000	3	Germany								1,910				1,910
2000	3	Norway								16,098				16,098
2000	3	Russia								21,781	0			21,782
2000	3	Sweden					390			1,443				1,833
2000	3	UK								4,034				4,034
2000	4	Norway								1,737				1,737
2000	4	Russia	8					1						9
2000	5	Denmark					3,199							3,199
2000	5	Faroe Island					8,704			90				8,794
2000	5	Germany					35							35
2000	5	Iceland					4,124		9,777					13,901
2000	5	Norway					1,288		831	1,108				3,227
2000	5	Russia					3,624			20				3,644
2000	6	Denmark	641				19,701			1,679				22,021
2000	6	Faroe Island				157	22,895		5,636					28,688
2000	6	Germany					409		878					1,287
2000	6	Iceland					38,385		124,746					163,131
2000	6	Netherland					2,128		1,381					3,509
2000	6	Norway					2,264		639	660				3,563
2000	6	Russia					5,328		4,807					10,135
2000	6	Sweden					6,545							6,545
2000	6	UK								506				506
2000	7	Denmark					222							222
2000	7	Faroe Island				243	763						105	1,111
2000	7	Germany	1,049											1,049
2000	7	Iceland					1,327							1,327
2000	7	Netherland	1,585				1,335		1,773					4,692
2000	7	Norway					204		98	1,145				1,447
2000	7	Russia					10,034			157			1,364	11,554
2000	7	Sweden					3,831							3,831
2000	7	UK	113											113
2000	8	Denmark					1,004			239				1,243
2000	8	Faroe Island					58			3,955			295	4,307
2000	8	Germany	493											493
2000	8	Iceland								317				317
2000	8	Netherland	1,826											1,826
2000	8	Norway								7,986				7,986
2000	8	Russia		6			5,476			4,996	0		12,847	23,324
2000	8	UK	5,240											5,240
2000	9	Denmark					775			657				1,432
2000	9	Faroe Island								14,710				14,710
2000	9	Germany	164							686				851
2000	9	Iceland					50			7,205				7,254
2000	9	Norway					237			113,397				113,635
2000	9	Russia					943			51,602			4,504	57,048
2000	9	UK	2,295							1,347				3,643

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2000	10	Iceland								139				139
2000	10	Norway								135,981				135,981
2000	10	Russia		8			5			3			5	22
2000	11	Norway								160,744				160,744
2000	11	Russia									181			181
2000	11	UK	251											251
2000	12	Germany	353											353
2000	12	Norway								41,960				41,960
2000	12	Russia									0			0
2001	1	Norway								95,501				95,501
2001	1	Russia								0	115			116
2001	2	Denmark								3,363				3,363
2001	2	Faroe Island								2,580				2,580
2001	2	Germany								942				942
2001	2	Norway								71,617				71,617
2001	2	Russia								9,013	49			9,062
2001	2	Sweden								2,415				2,415
2001	2	UK	1,228	275						1,761				3,264
2001	3	Denmark	3,034							2,864				5,898
2001	3	Faroe Island								3,109				3,109
2001	3	Germany								616				616
2001	3	Norway								20,446				20,446
2001	3	Russia								6,576				6,576
2001	3	UK	1,330							2,709				4,039
2001	4	Netherland								484				484
2001	4	Norway								61				61
2001	4	Russia						0						0
2001	5	Denmark	255				2,922							3,177
2001	5	Faroe Island					3,682							3,682
2001	5	Iceland					15,152		223					15,375
2001	5	Norway								210				210
2001	5	Russia					3,360		37					3,397
2001	5	Sweden					605							605
2001	6	Denmark					8,684			44				8,728
2001	6	Faroe Island					12,205		265					12,470
2001	6	Germany	1,680				292			0			11	1,983
2001	6	Iceland					48,870		724					49,593
2001	6	Netherland					1,080							1,080
2001	6	Norway					10			338				348
2001	6	Russia					9,166		2,756	85			1,252	13,258
2001	6	Sweden					5,180		148					5,328
2001	6	UK					1,052							1,052
2001	7	Denmark					846							846
2001	7	Germany	1,332											1,332
2001	7	Iceland					182		405					587
2001	7	Netherland	473				525		202					1,200
2001	7	Norway								77				77
2001	7	Russia					5,786		1,730	0			3,349	10,865
2001	7	Sweden					115		485					600
2001	8	Denmark					1,466							1,466
2001	8	Faroe Island								86			2,192	2,278
2001	8	Germany	418											418
2001	8	Iceland								111			5,187	5,298
2001	8	Netherland	750											750
2001	8	Norway								686				686
2001	8	Russia					125		23	4,918			17,685	22,751
2001	8	Sweden					200							200
2001	8	UK	2,325											2,325
2001	9	Denmark					1,584			321				1,905
2001	9	Faroe Island								9,078				9,078
2001	9	Iceland								6,228			509	6,737
2001	9	Norway								48,827				48,827
2001	9	Russia					30			41,206			1,563	42,798
2001	9	UK	717											717
2001	10	Faroe Island								972				972
2001	10	Norway								152,932				152,932
2001	10	Russia					22			188			21	231
2001	10	Sweden					670							670
2001	11	Norway								94,625				94,625
2001	11	UK	340											340
2001	12	Norway								9,744				9,744
2002	1	Norway								76,231				76,231
2002	2	Denmark	779							4,100				4,879
2002	2	Faroe Island								861				861

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2002	2	Germany								392				392
2002	2	Norway								96,351				96,351
2002	2	Russia								10,871				10,871
2002	2	Sweden								1,675				1,675
2002	2	UK	2,403							2,169				4,572
2002	3	Denmark	3,296							2,042				5,338
2002	3	Faroe Island								6,350				6,350
2002	3	Germany								911				911
2002	3	Norway								14,733				14,733
2002	3	Russia								7,741				7,741
2002	3	Sweden								325				325
2002	3	UK	1,209							1,313				2,522
2002	4	Denmark	1,174											1,174
2002	4	Norway								666				666
2002	4	Russia	5				0			22				27
2002	5	Denmark					3,685							3,685
2002	5	Faroe Island					2,937			314				3,251
2002	5	Iceland					7,174		10,244					17,418
2002	5	Norway								1,283				1,283
2002	5	Russia							165	0				165
2002	5	Sweden					1,380							1,380
2002	6	Denmark	177				4,823			4,701				9,701
2002	6	Faroe Island					4,997		754				2,884	8,635
2002	6	Germany					648		63				1,003	1,714
2002	6	Iceland					28,938		10,879				46,491	86,308
2002	6	Netherland					2,139		1,852	68				4,058
2002	6	Norway					793			328				1,121
2002	6	Poland					872							872
2002	6	Russia					3,973		575				11	4,559
2002	6	Sweden					5,771							5,771
2002	7	Iceland											9,016	9,016
2002	7	Norway								102				102
2002	7	Poland					394							394
2002	7	Russia					3,006			151			2,823	5,981
2002	7	Sweden											280	280
2002	8	Faroe Island					3,263			1,762			1,660	6,685
2002	8	Iceland					59			346			8,466	8,870
2002	8	Netherland		123			158							281
2002	8	Norway								177				177
2002	8	Russia					10,135			11,050			15,418	36,603
2002	9	Denmark	757											757
2002	9	Faroe Island								4,283				4,283
2002	9	Iceland					106			5,476				5,582
2002	9	Norway	3							21,101				21,104
2002	9	Russia		7			900			34,588			8,967	44,462
2002	10	Faroe Island								2,238				2,238
2002	10	Netherland	151											151
2002	10	Norway								163,962				163,962
2002	10	Russia					309		26	2,881			136	3,352
2002	11	Denmark	76											76
2002	11	Norway								93,831				93,831
2002	12	Norway								19,819				19,819
2003	1	Norway								33,847				33,847
2003	2	Denmark								5,969				5,969
2003	2	Faroe Island								442				442
2003	2	Norway								89,856				89,856
2003	2	Russia								5,584				5,584
2003	2	UK								1,685				1,685
2003	3	Denmark	651							5,556				6,207
2003	3	Faroe Island								974				974
2003	3	Norway								5,518				5,518
2003	3	Russia								717				717
2003	3	Sweden								1,695				1,695
2003	3	UK								3,472				3,472
2003	4	Norway								1,904				1,904
2003	4	Russia						0						0
2003	5	Faroe Island		70			2,009		840					2,919
2003	5	Iceland		574			29,040		102					29,715
2003	5	Norway					740			1,705				2,445
2003	5	Russia		141			299			23				463
2003	6	Denmark					891			191				1,082
2003	6	Faroe Island					1,836		2,853					4,689
2003	6	Germany					180							180
2003	6	Iceland				11,821	48,753			59				60,633

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2003	6	Netherland					6,773		447					7,219
2003	6	Norway					356		13	1,561				1,930
2003	6	Russia	34	118			3,189		189	297				3,827
2003	7	Faroe Island					190		1,603				700	2,493
2003	7	Iceland					2,553		91				12,219	14,863
2003	7	Norway					360			243				603
2003	7	Russia					3,149		308	0			1,338	4,795
2003	8	Faroe Island					152			973			2,920	4,045
2003	8	Germany					507			18			2,127	2,651
2003	8	Iceland					280			3,105			7,668	11,053
2003	8	Norway								563				563
2003	8	Russia					7,754		17	11,679			14,212	33,662
2003	9	Denmark								261				261
2003	9	Faroe Island								5,864				5,864
2003	9	Germany					76			369			92	536
2003	9	Iceland								1,646				1,646
2003	9	Netherland								1,448				1,448
2003	9	Norway								58,506				58,506
2003	9	Russia					575			46,004			5,420	51,999
2003	9	Sweden								1,670				1,670
2003	9	UK								4,057				4,057
2003	10	Denmark	233											233
2003	10	Faroe Island								5,512				5,512
2003	10	Norway								129,888				129,888
2003	10	Russia					22		1	20,416	0		359	20,798
2003	10	Sweden								3,066				3,066
2003	11	Denmark	271											271
2003	11	Netherland	269											269
2003	11	Norway								108,722				108,722
2003	11	Russia								1,000				1,000
2003	12	Denmark	120											120
2003	12	Norway								5,622				5,622
2004	1	Norway								115,089				115,089
2004	2	Norway								75,704				75,704
2004	2	Russia								14,848	0			14,848
2004	3	Denmark	3,062				549							3,611
2004	3	Norway								3,097				3,097
2004	3	Russia						0		2,481	0			2,482
2004	4	Norway								1,124				1,124
2004	5	Denmark					6,327							6,327
2004	5	Faroe Island					1,724							1,724
2004	5	Germany		0			419		86					505
2004	5	Iceland				1,830	20,522							22,352
2004	5	Norway					196			1,064				1,259
2004	5	Russia		78		5	130			1				214
2004	6	Denmark					11,810							11,810
2004	6	Faroe Island					8,795						7,892	16,687
2004	6	Germany					153						3,276	3,429
2004	6	Iceland				2,783	8,342						22,612	33,737
2004	6	Netherland					10,243		176				322	10,740
2004	6	Norway					757			1,025				1,783
2004	6	Poland					125			0			25	150
2004	6	Russia	57	293		4	8,812		134	839			957	11,096
2004	6	Sweden					2,400						2,060	4,460
2004	6	UK					1,464							1,464
2004	7	Denmark					763							763
2004	7	Faroe Island					17						5,706	5,723
2004	7	Germany											876	876
2004	7	Iceland					764						14,273	15,038
2004	7	Netherland	785	213			1,596			25			1	2,619
2004	7	Norway								557				557
2004	7	Russia	21	296		6	6,438		256	735			861	8,614
2004	7	Sweden					1						3,525	3,526
2004	8	Denmark	231				508							739
2004	8	Faroe Island					2,584						11,548	14,132
2004	8	Iceland					5,585						12,678	18,263
2004	8	Netherland	1,321	77										1,398
2004	8	Norway								1,521				1,521
2004	8	Russia	0	104		1	7,041		0	15,583	0		3,088	25,818
2004	9	Faroe Island					4,455							4,455
2004	9	Iceland					8,162							8,162
2004	9	Netherland	594	1			0			152				747
2004	9	Norway								102,262				102,262
2004	9	Russia				5	1,550		1	32,834			4,705	39,095

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2004	10	Faroe Island		8										8
2004	10	Iceland				310	4,445							4,756
2004	10	Netherland					6,439			582			133	7,154
2004	10	Norway								108,084				108,084
2004	10	Russia					768			12,642			298	13,707
2004	10	UK	112											112
2004	11	Faroe Island		7										7
2004	11	Iceland				351								351
2004	11	Norway								65,853				65,853
2004	11	Russia					1			0				1
2004	11	UK	5,383											5,383
2004	12	Denmark					644							644
2004	12	Iceland				130								130
2004	12	Netherland	660											660
2004	12	Norway								744				744
2004	12	Russia								0	0			1
2005	1	Norway								115,376				115,376
2005	2	Norway								81,637				81,637
2005	2	Russia								26,564	0			26,565
2005	3	Denmark	2,423											2,423
2005	3	Norway								810				810
2005	3	Russia								4,960				4,960
2005	4	Denmark					492							492
2005	4	Norway								859				859
2005	4	Russia								3				3
2005	5	Denmark	365				3,932							4,297
2005	5	Faroe Island		4,118		361	1,042							5,521
2005	5	Germany		1			268							269
2005	5	Iceland		4,976		12,226	1,774							18,976
2005	5	Norway					252			797				1,049
2005	5	Russia	2	14			121			3				140
2005	5	Sweden					480							480
2005	6	Denmark		1,279			5,104							6,383
2005	6	Faroe Island		1,237		4,909	970						4,804	11,921
2005	6	Germany					6,355		48	103			1,555	8,060
2005	6	Iceland		362		19,108	4,018						12,886	36,374
2005	6	Netherland		74			10,290		342	11			31	10,748
2005	6	Norway					1,323		2,018	949				4,290
2005	6	Russia	279	634		26	1,005		419	89			903	3,354
2005	6	Sweden					200							200
2005	7	Denmark	793				6,844							7,637
2005	7	Faroe Island		7,168			1,205						6,468	14,841
2005	7	Germany					90						826	916
2005	7	Iceland				2	16,305						10,343	26,650
2005	7	Norway								446			941	1,387
2005	7	Russia	7	735		18	1,930		56	129			5,127	8,001
2005	8	Denmark					6,759							6,759
2005	8	Faroe Island		908			16,254						3,060	20,222
2005	8	Germany					5,329		11	122			875	6,337
2005	8	Iceland		21			37,143						2,118	39,282
2005	8	Netherland		4			9,462			460			225	10,150
2005	8	Norway								511				511
2005	8	Russia	26	534		4	4,752		0	18,187			11,835	35,338
2005	9	Denmark					939			970				1,909
2005	9	Faroe Island					7,154						3,900	11,053
2005	9	Germany					924			169			1,001	2,094
2005	9	Iceland					21,972						7,518	29,490
2005	9	Netherland					8,482		20	407			4,788	13,697
2005	9	Norway								21,786				21,786
2005	9	Poland					535			4			22	561
2005	9	Russia					4,130		56	28,511			12,105	44,801
2005	10	Faroe Island					1,513							1,513
2005	10	Iceland				593	3,839							4,432
2005	10	Netherland					2,971			995			1,726	5,692
2005	10	Norway								181,130				181,130
2005	10	Russia		5			985		1	7,793	2		149	8,935
2005	11	Iceland				914								914
2005	11	Norway								113,896				113,896
2005	11	Poland	50											50
2005	12	Iceland				347								347
2005	12	Norway								60,322				60,322
2005	12	Poland	463	1						9		0		473
2006	1	Denmark								834				834
2006	1	Norway								78,408				78,408

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2006	1	Poland	41											41
2006	1	Russia								1,187				1,187
2006	2	Denmark								11,525				11,525
2006	2	Norway								123,813				123,813
2006	2	Poland								524				524
2006	2	Russia								26,221				26,221
2006	2	Sweden								2,876				2,876
2006	2	UK								12,523				12,523
2006	3	Norway								751				751
2006	3	Russia								500				500
2006	4	Faroe Island		215										215
2006	4	Norway								99				99
2006	5	Faroe Island		2,786		2,165								4,951
2006	5	Iceland		2,076		4,036								6,112
2006	5	Norway								281				281
2006	5	Russia		884		18	33			6		10		952
2006	6	Faroe Island		85		4,686	69							4,840
2006	6	Iceland		1,186		21,145	670							23,000
2006	6	Norway					487			58				545
2006	6	Russia	32	419			63			13				528
2006	7	Faroe Island		13,594		1,558	2,516							17,667
2006	7	Iceland		25,259		11,903	1,694						878	39,734
2006	7	Norway								140				140
2006	7	Russia	98	747			258			182				1,285
2006	8	Faroe Island		3,729		3,134	15,210							22,073
2006	8	Germany					44							44
2006	8	Iceland				13,958	24,925							38,883
2006	8	Norway								1,882				1,882
2006	8	Poland	491											491
2006	8	Russia	3	314			4,724		141	16,369			3,971	25,522
2006	9	Denmark								3,949				3,949
2006	9	Faroe Island					12,733							12,733
2006	9	Germany					7,719			573			1,114	9,406
2006	9	Iceland					39,583							39,583
2006	9	Norway								11,399				11,399
2006	9	Poland	469											469
2006	9	Russia		1			3,372			49,002			317	52,691
2006	10	Faroe Island					656							656
2006	10	Germany					508							508
2006	10	Iceland					11,835							11,835
2006	10	Netherland					10,866		13	289			381	11,550
2006	10	Norway								145,402				145,402
2006	10	Russia					506		9	11,257			39	11,812
2006	10	Sweden								70				70
2006	11	Denmark								2,141				2,141
2006	11	Iceland				245								245
2006	11	Norway								138,038				138,038
2006	11	Russia								137				137
2006	12	Iceland				152								152
2006	12	Norway								67,000				67,000
2007	1	Denmark								276				276
2007	1	Norway								207,529				207,529
2007	1	Russia								789				789
2007	2	Denmark								3,203				3,203
2007	2	Norway								86,641				86,641
2007	2	Russia								12,656				12,656
2007	2	UK		300						13,926				14,226
2007	3	Denmark	467							537				1,004
2007	3	Norway								1,678				1,678
2007	3	Russia						3		557				559
2007	4	Faroe Island		200										200
2007	4	Norway								151				151
2007	4	Russia								0				0
2007	5	Faroe Island		75		851								926
2007	5	Iceland				8,064								8,064
2007	5	Norway								472				472
2007	5	Russia		89		8	77		49	2				225
2007	6	Faroe Island				3,077	1,014							4,091
2007	6	Iceland				28,757	1,646							30,404
2007	6	Norway								150				150
2007	6	Russia	6	619		130	3,196		26	76				4,053
2007	7	Faroe Island		6,422		4,999			495					11,916
2007	7	Iceland		6,336		45,218			197					51,750
2007	7	Norway								290				290

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2007	7	Russia	65	906		1	6,867		88	694			705	9,327
2007	8	Faroe Island		3,960		168	135		5,132	43				9,438
2007	8	Germany							34					34
2007	8	Iceland		1,463		20,012	2,109		4,459	874				28,918
2007	8	Norway								3,275				3,275
2007	8	Russia	0	92		10	22,525		6,435	9,005	0		9,567	47,635
2007	9	Denmark								5,083				5,083
2007	9	Faroe Island		118		89	4,279		1,290	7,698				13,474
2007	9	Germany					525		142	875				1,542
2007	9	Greenland			1,552		143			3,202				4,897
2007	9	Iceland				2,352	4,555		1,782	15,826				24,514
2007	9	Netherland					4,846		259	3,124			131	8,360
2007	9	Norway					406			105,240				105,646
2007	9	Russia					4,951			43,879	0			48,830
2007	10	Denmark								1,093				1,093
2007	10	Faroe Island					4,348		1,732	4,365				10,445
2007	10	Germany					5			2,860				2,865
2007	10	Iceland					15,058			14,671				29,730
2007	10	Netherland					24		56	12,360				12,439
2007	10	Norway					191			121,413				121,605
2007	10	Poland					11			1,666				1,677
2007	10	Russia					372			31,706			486	32,565
2007	10	UK	47							1,887				1,934
2007	11	Denmark								8,172				8,172
2007	11	Faroe Island								12,824				12,824
2007	11	Germany								1,203				1,203
2007	11	Iceland								3,247				3,247
2007	11	Netherland								7,075				7,075
2007	11	Norway								155,330				155,330
2007	11	Poland								1,477				1,477
2007	11	Russia		5						5,789				5,794
2007	12	Denmark								4,239				4,239
2007	12	Faroe Island								936				936
2007	12	Germany								395				395
2007	12	Norway								96,786				96,786
2008	1	Denmark								11,793				11,793
2008	1	Norway								301,090				301,090
2008	1	Russia								3,079				3,079
2008	2	Denmark								13,332				13,332
2008	2	Norway								142,244				142,244
2008	2	Russia								9,336	0			9,336
2008	2	UK								18,867				18,867
2008	3	Denmark					705							705
2008	3	Faroe Island								688				688
2008	3	Norway								5,393				5,393
2008	3	Russia								1,837				1,837
2008	3	UK								870				870
2008	4	Norway								5				5
2008	5	Faroe Island		1,463		3,534			99					5,096
2008	5	Iceland				1,500								1,500
2008	5	Norway								113				113
2008	5	Russia	6	111			21			1	0			140
2008	6	Faroe Island		916		788	165		2,064					3,932
2008	6	Iceland		545		13,508	791		18,372					33,217
2008	6	Norway							526	733				1,259
2008	6	Russia	14	323			1,357		34	23				1,751
2008	7	Faroe Island					1,663		378					2,041
2008	7	Iceland		3,807		48,404								52,211
2008	7	Netherland					1,770		98	241				2,110
2008	7	Norway								2,245				2,245
2008	7	Russia		557		119	11,237		249	690			1,135	13,988
2008	8	Faroe Island		1,253		4,171	13,970		4,498	938				24,829
2008	8	Iceland		183		60,183	349		109					60,825
2008	8	Netherland					3,052		42	485			7,004	10,584
2008	8	Norway								3,068				3,068
2008	8	Russia		239		230	8,949		8,866	13,054			20,674	52,010
2008	9	Faroe Island		25			3,570		399	12,004				15,998
2008	9	Germany								6,190				6,190
2008	9	Greenland		1,508			2,278			24				3,810
2008	9	Iceland				6,852	4,158		119	15,347				26,477
2008	9	Netherland					739			1,836			2,320	4,894
2008	9	Norway					12,532		2,161	70,969				85,662
2008	9	Russia					225			57,344			1,144	58,713
2008	10	Faroe Island							208	15,837				16,045

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2008	10	Germany								2,148				2,148
2008	10	Iceland					13,979		7,037	18,441				39,457
2008	10	Netherland					150			6,904			10	7,064
2008	10	Norway								196,542				196,542
2008	10	Russia					556			41,762			419	42,737
2008	11	Denmark								4,048				4,048
2008	11	Faroe Island								4,280				4,280
2008	11	Iceland							298	8,550				8,848
2008	11	Netherland								4,386				4,386
2008	11	Norway								144,109				144,109
2008	11	Russia								9,113	24			9,138
2008	12	Denmark								1,552				1,552
2008	12	Faroe Island								1,350				1,350
2008	12	Iceland								266				266
2008	12	Norway								82,253				82,253
2008	12	Russia		0						388	1			389
2009	1	Denmark								7,781				7,781
2009	1	Faroe Island				1,323				10,776				12,099
2009	1	Iceland								2,643				2,643
2009	1	Norway								250,424				250,424
2009	1	Russia								18,491				18,491
2009	2	Denmark								9,721				9,721
2009	2	Faroe Island								1,120				1,120
2009	2	Iceland								1,468				1,468
2009	2	Netherland								3,193				3,193
2009	2	Norway								172,002				172,002
2009	2	Russia								13,869				13,869
2009	2	UK								19,647				19,647
2009	3	Norway								24,527				24,527
2009	3	Russia								114				114
2009	3	UK								709				709
2009	4	Norway								2,362				2,362
2009	5	Iceland				17,330	590		456					18,376
2009	5	Norway								217				217
2009	5	Russia	32	84			456							572
2009	6	Faroe Island		185		110			1,124					1,418
2009	6	Iceland		4,900		30,396	58		3,960					39,314
2009	6	Norway							119	2,217				2,335
2009	6	Russia	42	309			1,604			24				1,979
2009	7	Faroe Island		265		1,074								1,339
2009	7	Iceland		8		72,572	1,102							73,682
2009	7	Norway								921				921
2009	7	Russia	0	431		75	5,238		298	368			360	6,769
2009	8	Faroe Island				2,785	49		429				4,818	8,080
2009	8	Iceland				51,372								51,372
2009	8	Netherland					274			238			2,935	3,447
2009	8	Norway								3,352				3,352
2009	8	Russia		135		254	11,509		2,435	9,013			13,615	36,961
2009	9	Faroe Island					4,821		0	8,890			8,934	22,646
2009	9	Germany					349			1,981			7,379	9,709
2009	9	Iceland		150		26,287	8,661							35,099
2009	9	Netherland					49			459			4,350	4,858
2009	9	Norway					6,688			78,697				85,385
2009	9	Russia					12,994			15,911			32,638	61,543
2009	10	Denmark								3,970				3,970
2009	10	Faroe Island					1,089		330	8,778				10,197
2009	10	Germany								3,447				3,447
2009	10	Greenland					811			2,919				3,730
2009	10	Iceland					7,998			12,836				20,833
2009	10	Netherland					322			6,599			1,029	7,950
2009	10	Norway					49,308			184,738				234,046
2009	10	Russia		12			4,519		0	38,461			2,105	45,097
2009	10	UK								3,900				3,900
2009	11	Denmark								9,155				9,155
2009	11	Faroe Island								23,457				23,457
2009	11	Germany								1,296				1,296
2009	11	Iceland								17,408				17,408
2009	11	Netherland					11			7,309				7,321
2009	11	Norway								187,462				187,462
2009	11	Russia								21,375			401	21,775
2009	11	UK								1,221				1,221
2009	12	Denmark								1,693				1,693
2009	12	Faroe Island								4,743				4,743
2009	12	Iceland								5,286				5,286

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2009	12	Norway								60,453				60,453
2009	12	Russia								2,933				2,933
2010	1	Faroe Island				942				15,959				16,902
2010	1	Iceland								1,499				1,499
2010	1	Norway								312,643				312,643
2010	1	Russia								14,389				14,389
2010	2	Denmark								10,796				10,796
2010	2	Faroe Island								2,933				2,933
2010	2	Norway								174,600				174,600
2010	2	Russia								4,345	1			4,346
2010	2	UK								21,095				21,095
2010	3	Norway								15,735				15,735
2010	3	Russia								3				3
2010	4	Faroe Island		41										41
2010	4	Norway								1,071				1,071
2010	4	Russia		0										0
2010	5	Faroe Island		20		234								254
2010	5	Iceland				4,058								4,058
2010	5	Norway								39				39
2010	5	Russia	1	0			937			0	0			937
2010	6	Faroe Island		555		1,145			650					2,349
2010	6	Iceland		14		23,861								23,875
2010	6	Norway							650	93				743
2010	6	Russia	34	102			6,003		651	660				7,450
2010	7	Faroe Island		840										840
2010	7	Iceland				29,465								29,465
2010	7	Norway								77				77
2010	7	Russia	2	435		1	6,416		152	225			46	7,276
2010	8	Faroe Island		657										657
2010	8	Germany					15		558	92			1,868	2,533
2010	8	Iceland		1,798		40,629	1,280							43,707
2010	8	Netherland	213				2,047		11	8			203	2,481
2010	8	Norway								814				814
2010	8	Russia	6	122		71	10,547		3,846	4,908			10,151	29,651
2010	9	Denmark					13							13
2010	9	Faroe Island		56		27				4,438				4,521
2010	9	Germany								2,566			4,109	6,674
2010	9	Iceland				42,997	2		41					43,040
2010	9	Netherland			155		1,186		4,097	4,213			8,719	18,368
2010	9	Norway	1			3,131				42,076				45,208
2010	9	Russia					759		1	28,287			30,528	59,575
2010	10	Denmark								6,476				6,476
2010	10	Faroe Island		1,892		1,909	2,213			7,820				13,834
2010	10	Germany								1,926				1,926
2010	10	Greenland								3,453				3,453
2010	10	Iceland		6,047		24,724	2,372			7,429				40,572
2010	10	Netherland								4,304				4,304
2010	10	Norway	1				12,122			116,048				128,170
2010	10	Russia					71			41,507			7,350	48,928
2010	10	UK								3,056				3,056
2010	11	Denmark								9,507				9,507
2010	11	Faroe Island		337			125			21,530				21,991
2010	11	Iceland								16,617				16,617
2010	11	Netherland								1,541				1,541
2010	11	Norway								175,565				175,565
2010	11	Russia								24,940			31	24,971
2010	12	Faroe Island								10,506				10,506
2010	12	Iceland								3,029				3,029
2010	12	Norway								20,290				20,290
2010	12	Russia								1,946				1,946
2011	1	Denmark								6,152				6,152
2011	1	Faroe Island								6,355				6,355
2011	1	Iceland								1,889				1,889
2011	1	Norway								174,225				174,225
2011	1	Russia								15,285				15,285
2011	1	UK								745				745
2011	2	Denmark								12,694				12,694
2011	2	Faroe Island								3,486				3,486
2011	2	Norway								94,757				94,757
2011	2	Russia								3,820	0			3,820
2011	2	UK								13,300				13,300
2011	3	Denmark								970				970
2011	3	Norway								7,046				7,046
2011	4	Norway								54				54

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2011	4	Russia		319			613							931
2011	5	Faroe Island		2,293										2,293
2011	5	Iceland		23		38								60
2011	5	Norway							672	1				673
2011	5	Russia		28			2,740		28	0	0			2,795
2011	6	Faroe Island		5,269										5,269
2011	6	Iceland		4,740		8,145			231					13,116
2011	6	Norway								48				48
2011	6	Russia		49		0	1,080			101				1,230
2011	7	Faroe Island		5,389										5,389
2011	7	Greenland					160			2				162
2011	7	Iceland				18,702								18,702
2011	7	Norway								544				544
2011	7	Russia		5		1	276			40			25	347
2011	8	Faroe Island		3,874										3,874
2011	8	Greenland					160			2				162
2011	8	Iceland		21		23,780								23,801
2011	8	Norway								7,001				7,001
2011	8	Russia	4	11		17	8,100		1,761	1,075			4,856	15,824
2011	9	Faroe Island		5,347		289								5,636
2011	9	Germany					2			6,279			409	6,691
2011	9	Greenland					160			2				162
2011	9	Iceland		107		46,832	115							47,054
2011	9	Netherland								1,295			0	1,296
2011	9	Norway	0				20,770			8,975				29,745
2011	9	Russia					4,055			39,995			11,041	55,091
2011	10	Denmark								2,151				2,151
2011	10	Faroe Island		14,588		126	2,126			765				17,604
2011	10	Germany					138			4,118			1,333	5,589
2011	10	Greenland					816			1			163	980
2011	10	Iceland		10,059		19,183	186			1,299				30,726
2011	10	Netherland					104			4,497			703	5,304
2011	10	Norway	1				13,866		167	84,816				98,849
2011	10	Russia					8,815		1,066	14,206			12,853	36,939
2011	11	Denmark								2,778				2,778
2011	11	Faroe Island		46			2,466			852				3,364
2011	11	Germany								250			766	1,016
2011	11	Greenland					816			1			163	980
2011	11	Iceland					8,048			3,022				11,069
2011	11	Netherland								1,748				1,748
2011	11	Norway					12,678			117,880				130,558
2011	11	Russia					2,522		174	5,003			3,806	11,504
2011	12	Denmark								1,997				1,997
2011	12	Greenland					816			1			163	980
2011	12	Iceland								5,721				5,721
2011	12	Norway								28,523				28,523
2011	12	Russia								662				662
2012	1	Denmark								9,235				9,235
2012	1	Faroe Island								480				480
2012	1	Norway								195,510				195,510
2012	1	Russia								9,870				9,870
2012	2	Denmark								2,245				2,245
2012	2	Norway								35,325				35,325
2012	2	Russia								2,164				2,164
2012	2	UK								12,310				12,310
2012	3	Norway								6,623				6,623
2012	3	Russia								1				1
2012	4	Norway								72				72
2012	5	Faroe Island		242										242
2012	5	Iceland		15										15
2012	5	Norway		655						11				666
2012	6	Faroe Island		4,254										4,254
2012	6	Iceland		1,754		3,425								5,179
2012	6	Norway								170				170
2012	6	Russia					48			16				64
2012	7	Faroe Island		4,318										4,318
2012	7	Iceland		17		12,449								12,466
2012	7	Norway								683				683
2012	7	Russia	1	0			301		7	9				318
2012	8	Faroe Island		1,046										1,046
2012	8	Iceland		104		17,091								17,195
2012	8	Norway								3,814				3,814
2012	8	Russia	1	22		216	351		3,985	5	0			4,580
2012	9	Faroe Island		2,443										2,443

Year	Month	Country	EU	Faroes	Greenland	Iceland	Inter.Norw.Sea	Inter.West	Jan Mayen	Norway	Russia	Special area EU/FO	Svalbard	Total
2012	9	Germany					8			572			9,912	10,492
2012	9	Iceland		6,481		50,033								56,514
2012	9	Norway	0							9,617				9,617
2012	9	Russia			162	339	7,008		6,169	2,055	0		26,127	41,862
2012	10	Denmark					879			1,290				2,169
2012	10	Faroe Island		7,873			68							7,942
2012	10	Germany		6			1,447							1,453
2012	10	Greenland		2			111			383				497
2012	10	Iceland		16,420		2,246	3,196			452				22,313
2012	10	Netherland					11						6,080	6,092
2012	10	Norway					4,315			56,654			19,834	80,803
2012	10	Russia					8,400			1,239			37,616	47,255
2012	10	Sweden								705				705
2012	11	Denmark								7,311				7,311
2012	11	Faroe Island		8,079			4,843			2,889				15,811
2012	11	Greenland		2			111			383				497
2012	11	Iceland				0	4,851							4,851
2012	11	Norway								145,565				145,565
2012	11	Russia					480			1,888			5,630	7,999
2012	12	Denmark								795				795
2012	12	Greenland		2			111			383				497
2012	12	Norway								12,150				12,150
2012	12	Russia								4,482				4,482

Appendix A

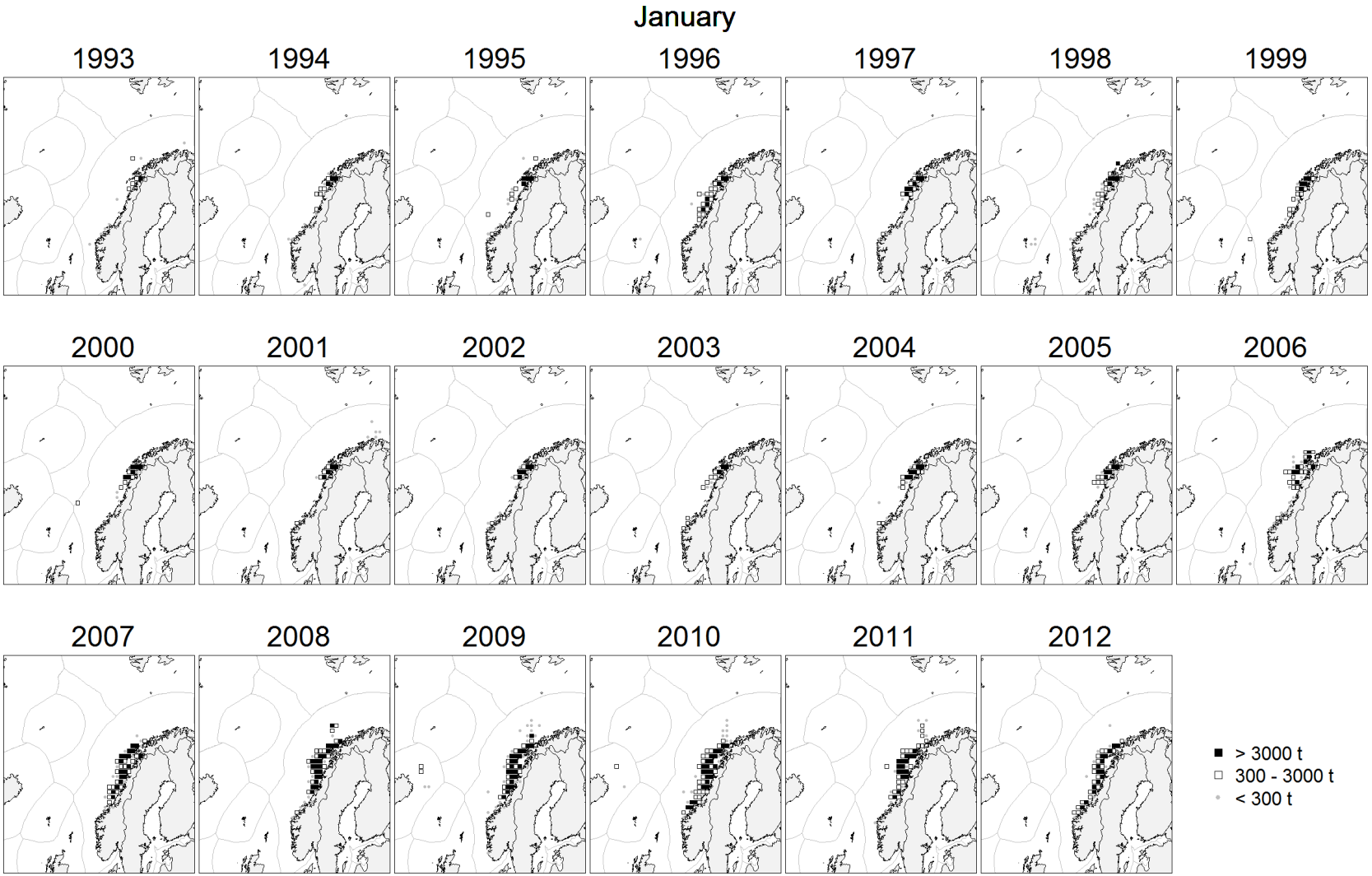

Figure A1. Annual catches of Norwegian spring spawning herring in January for the years 1993-2012. Dots represent catches below 300 t, open squares 300-3000 t, filled squares above 3000 t.

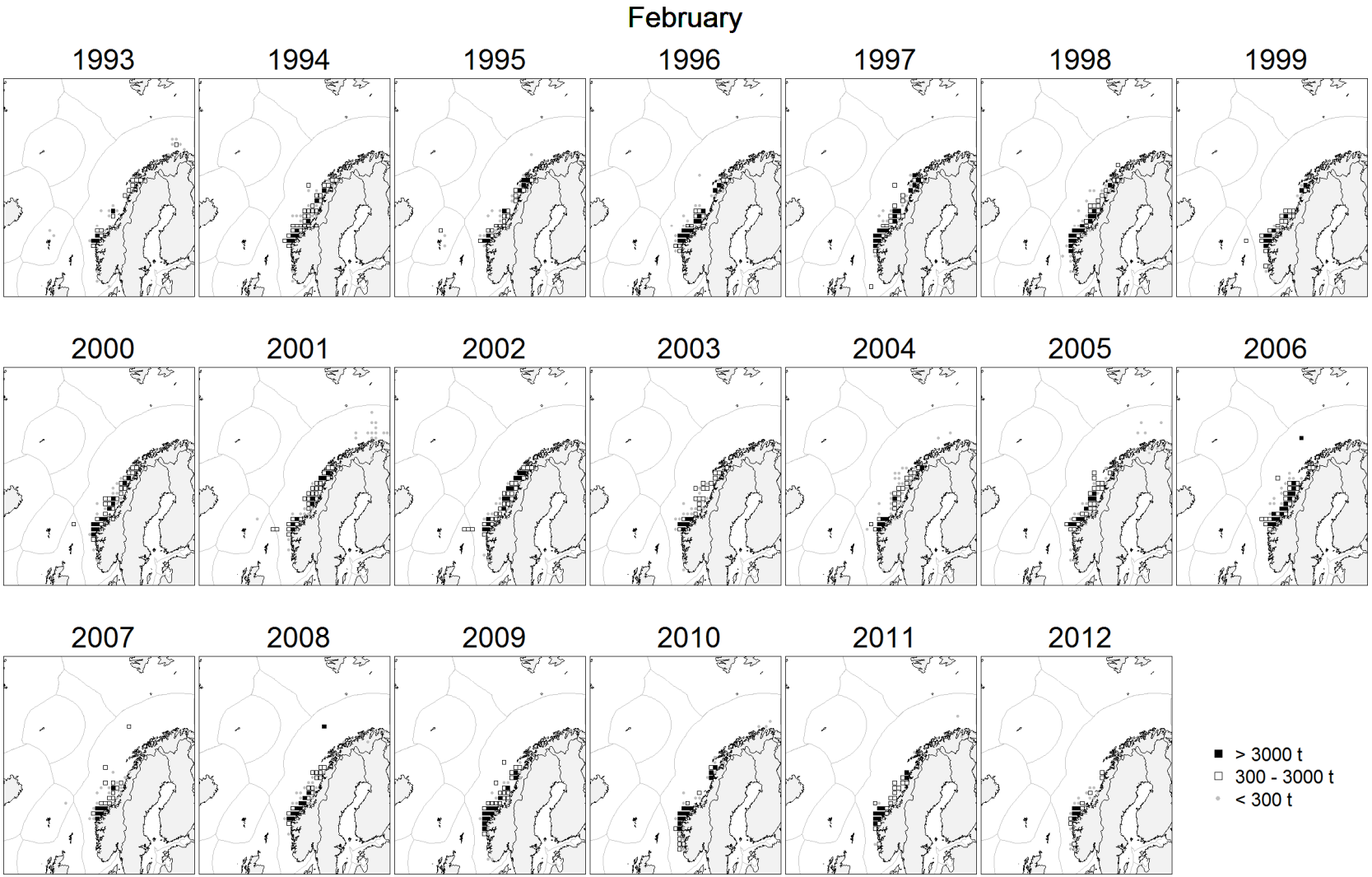

Figure A2. Annual catches of Norwegian spring spawning herring in February for the years 1993-2012.

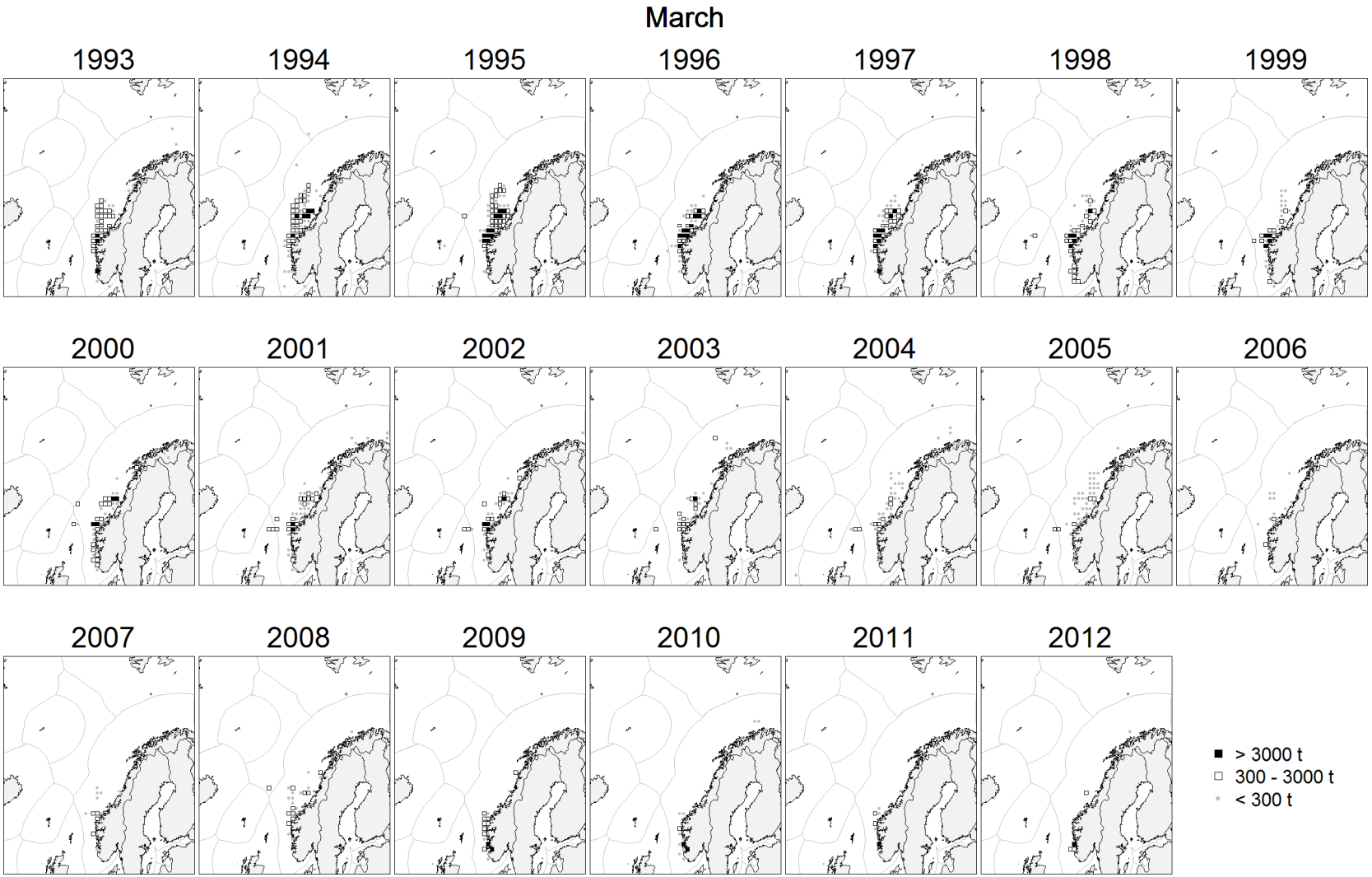

Figure A3. Annual catches of Norwegian spring spawning herring in March for the years 1993-2012.

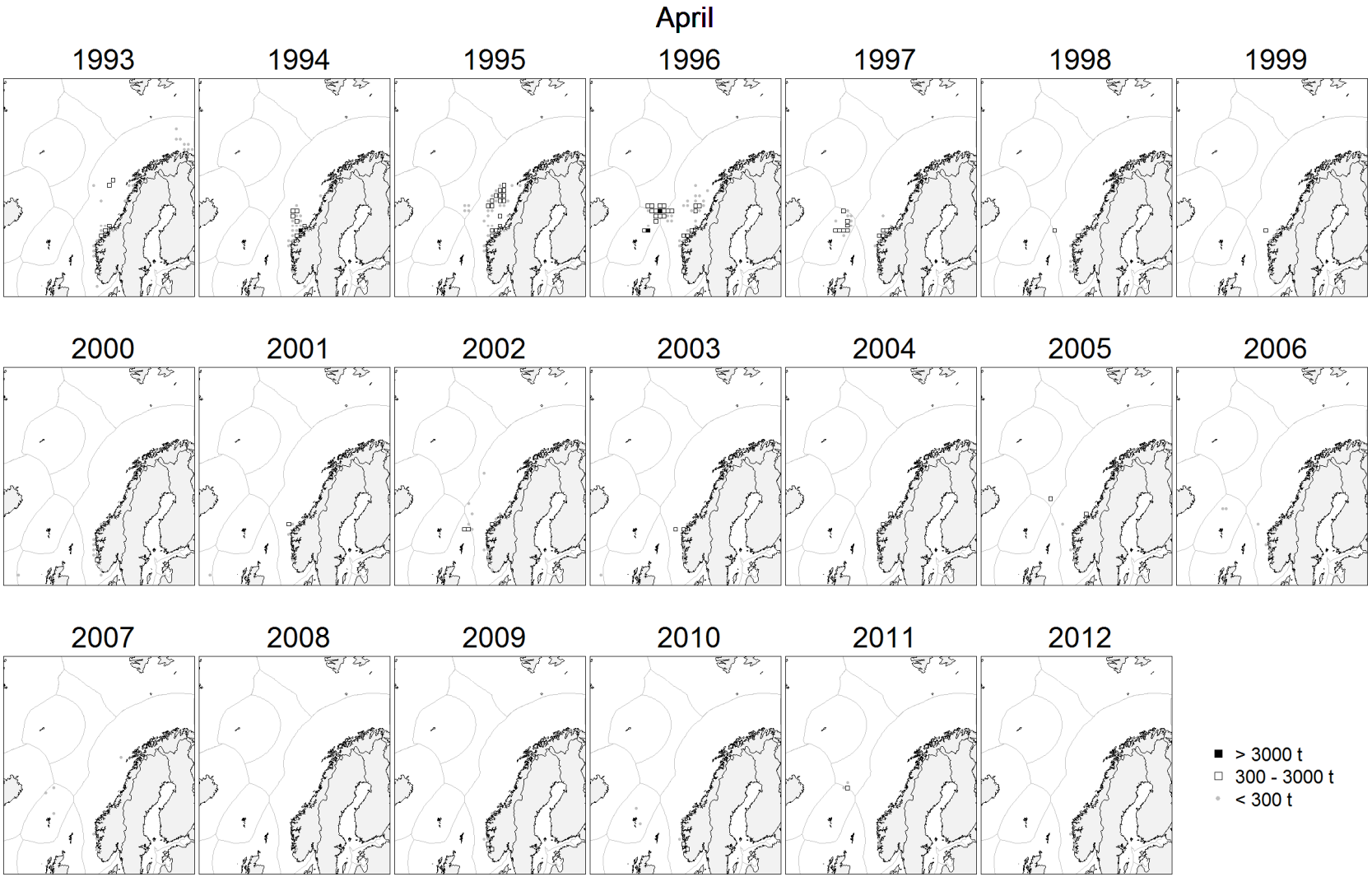

Figure A4. Annual catches of Norwegian spring spawning herring in April for the years 1993-2012.

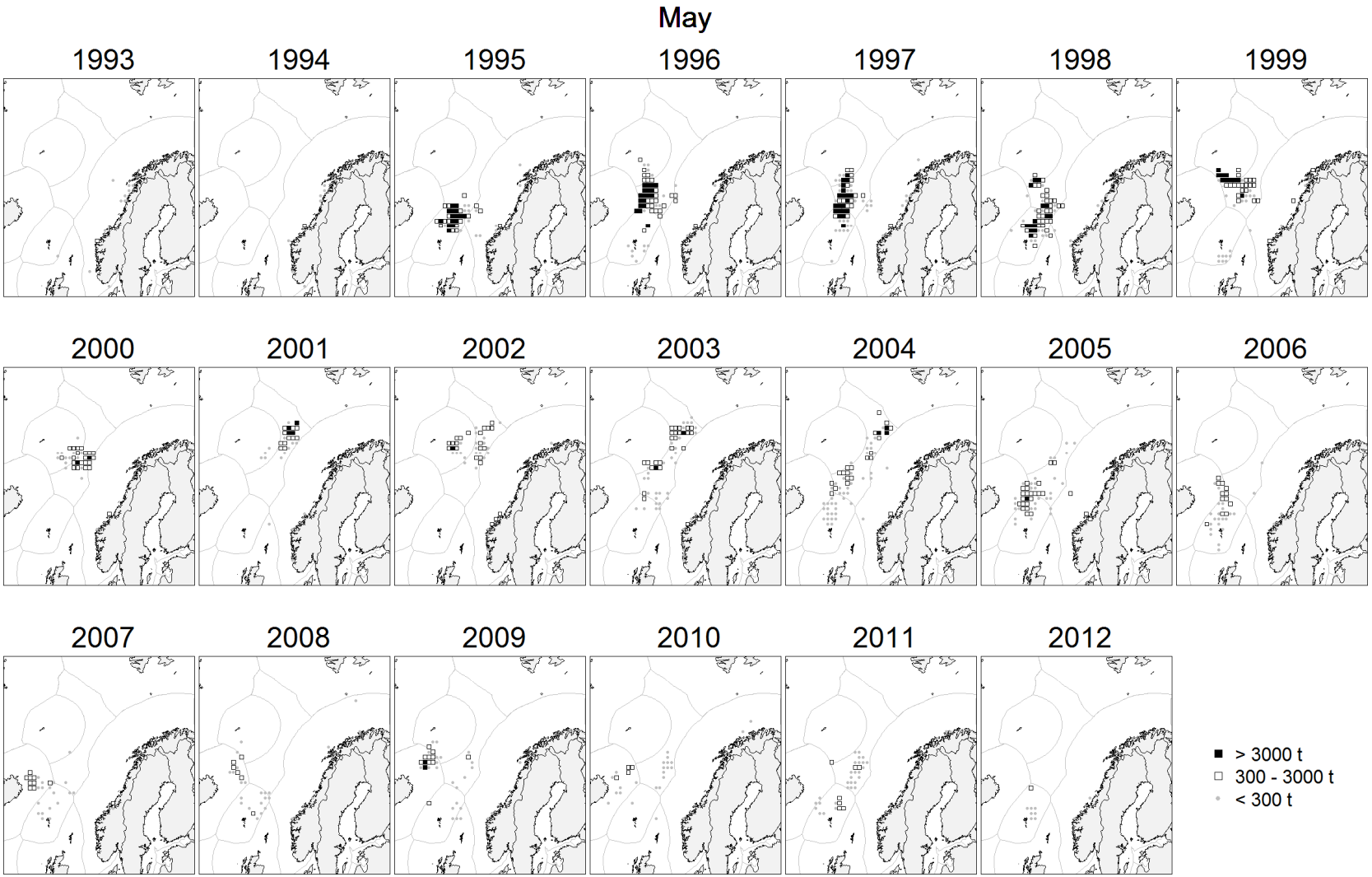

Figure A5. Annual catches of Norwegian spring spawning herring in May for the years 1993-2012.

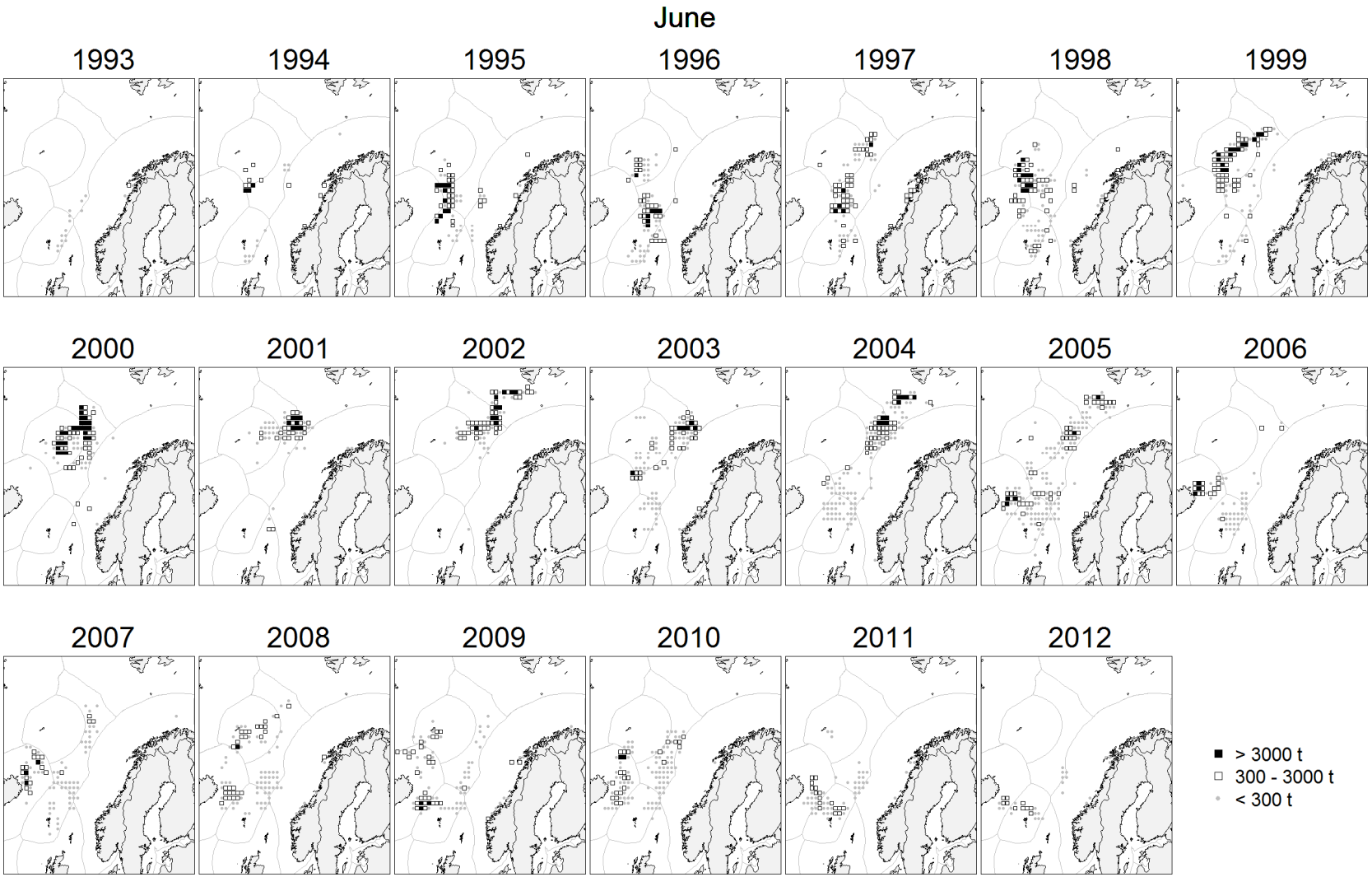

Figure A6. Annual catches of Norwegian spring spawning herring in June for the years 1993-2012.

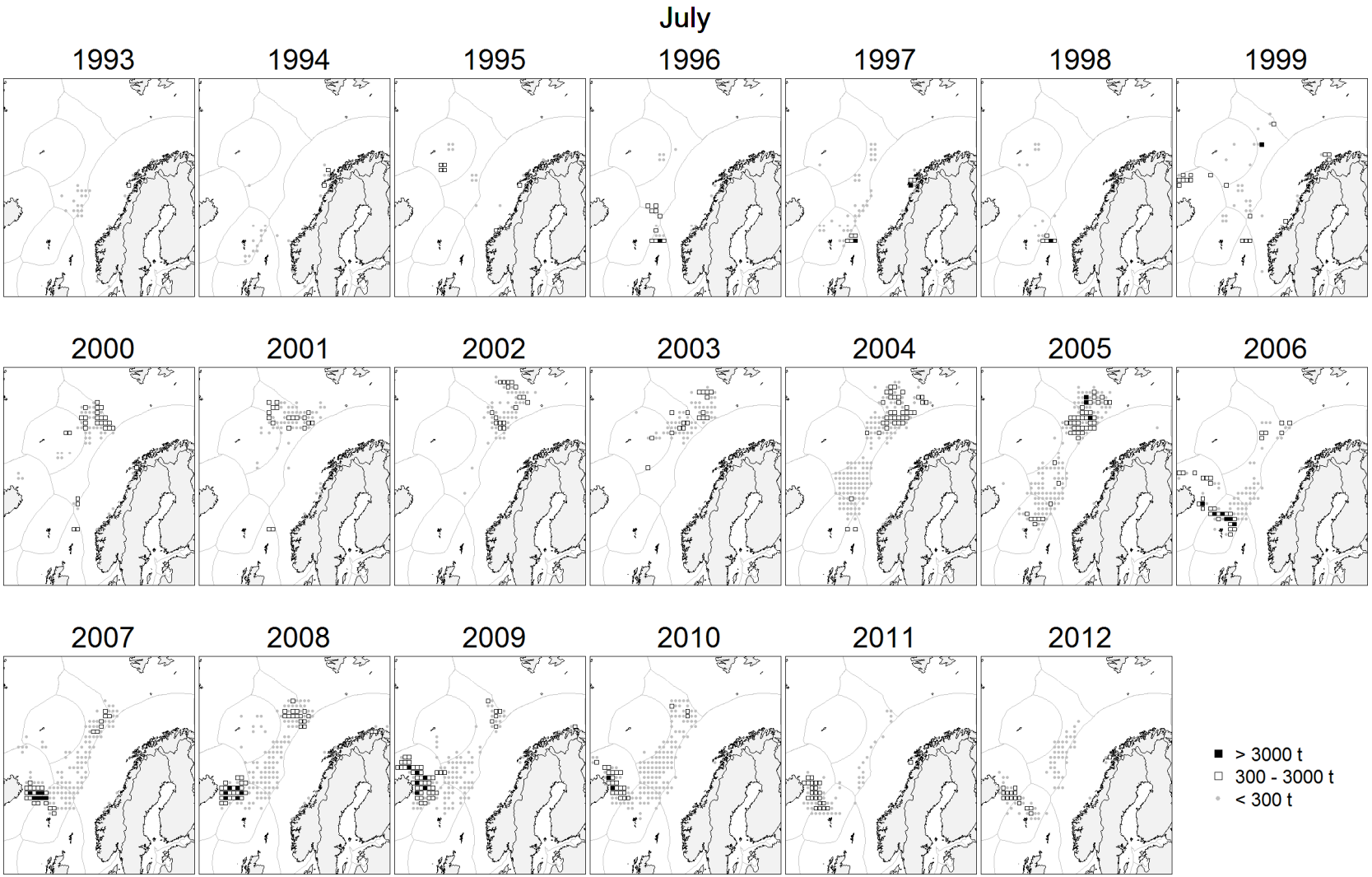

Figure A7. Annual catches of Norwegian spring spawning herring in July for the years 1993-2012.

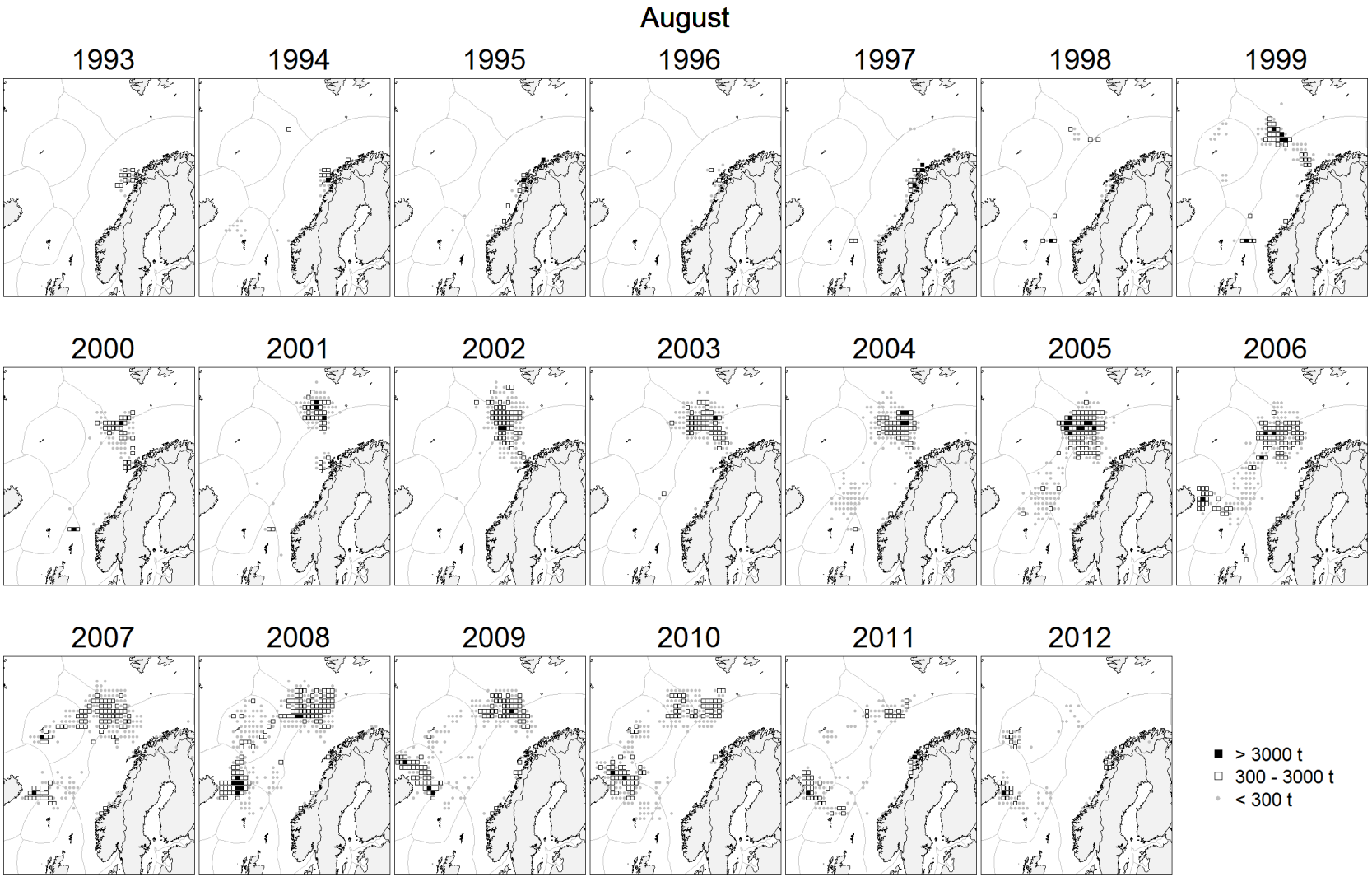

Figure A8. Annual catches of Norwegian spring spawning herring in August for the years 1993-2012.

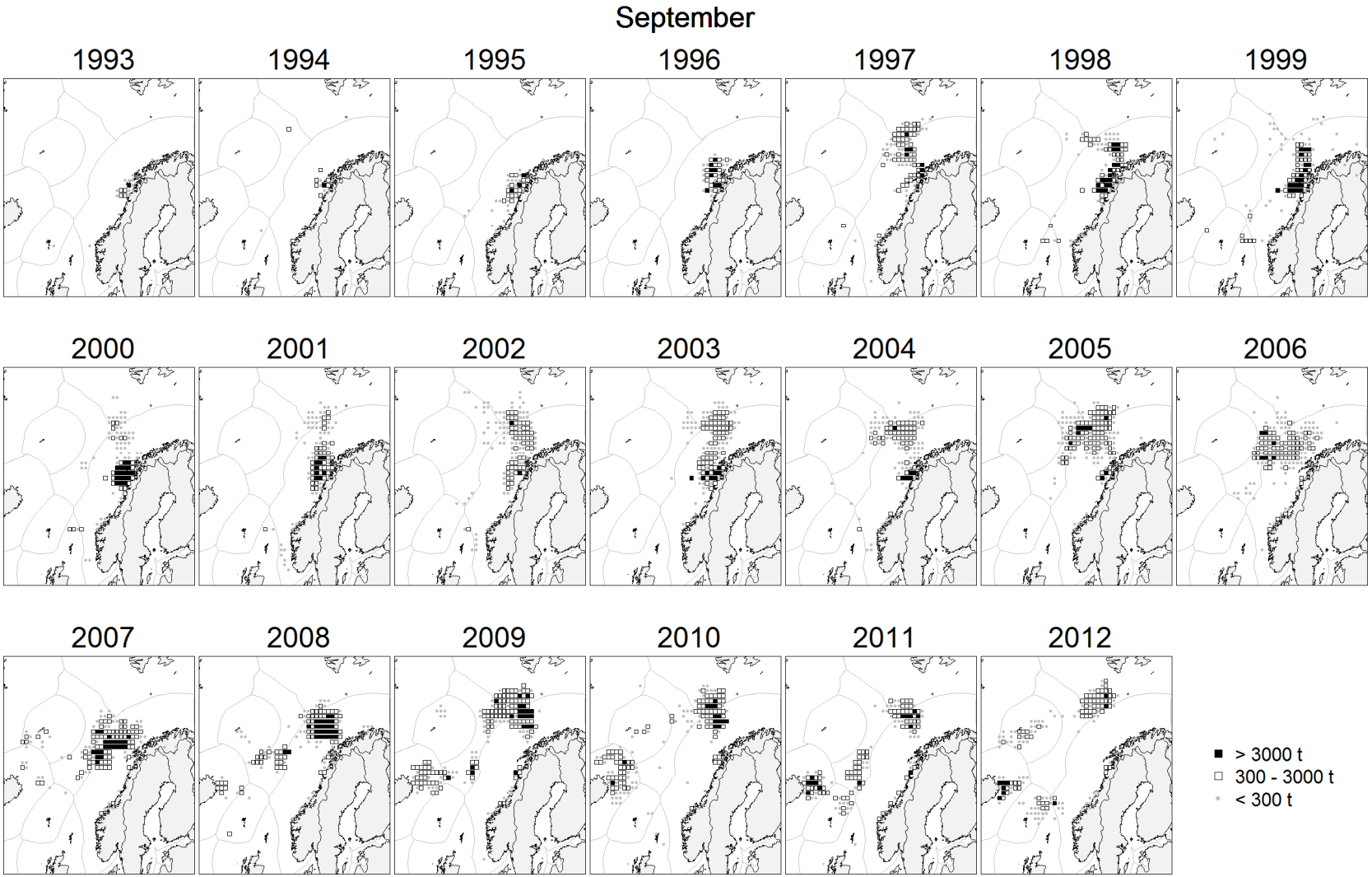

Figure A9. Annual catches of Norwegian spring spawning herring in September for the years 1993-2012.

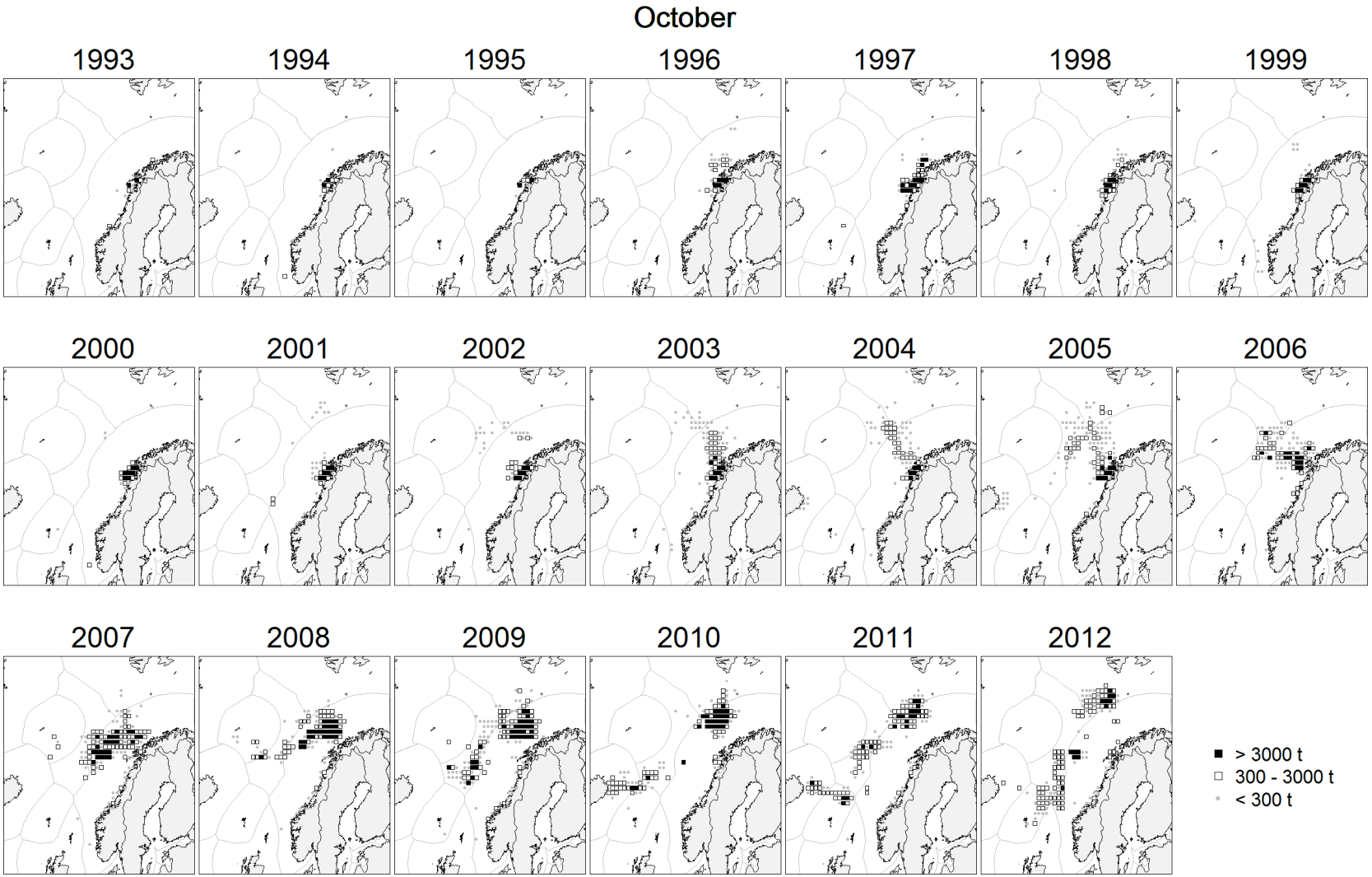

Figure A10. Annual catches of Norwegian spring spawning herring in October for the years 1993-2012.

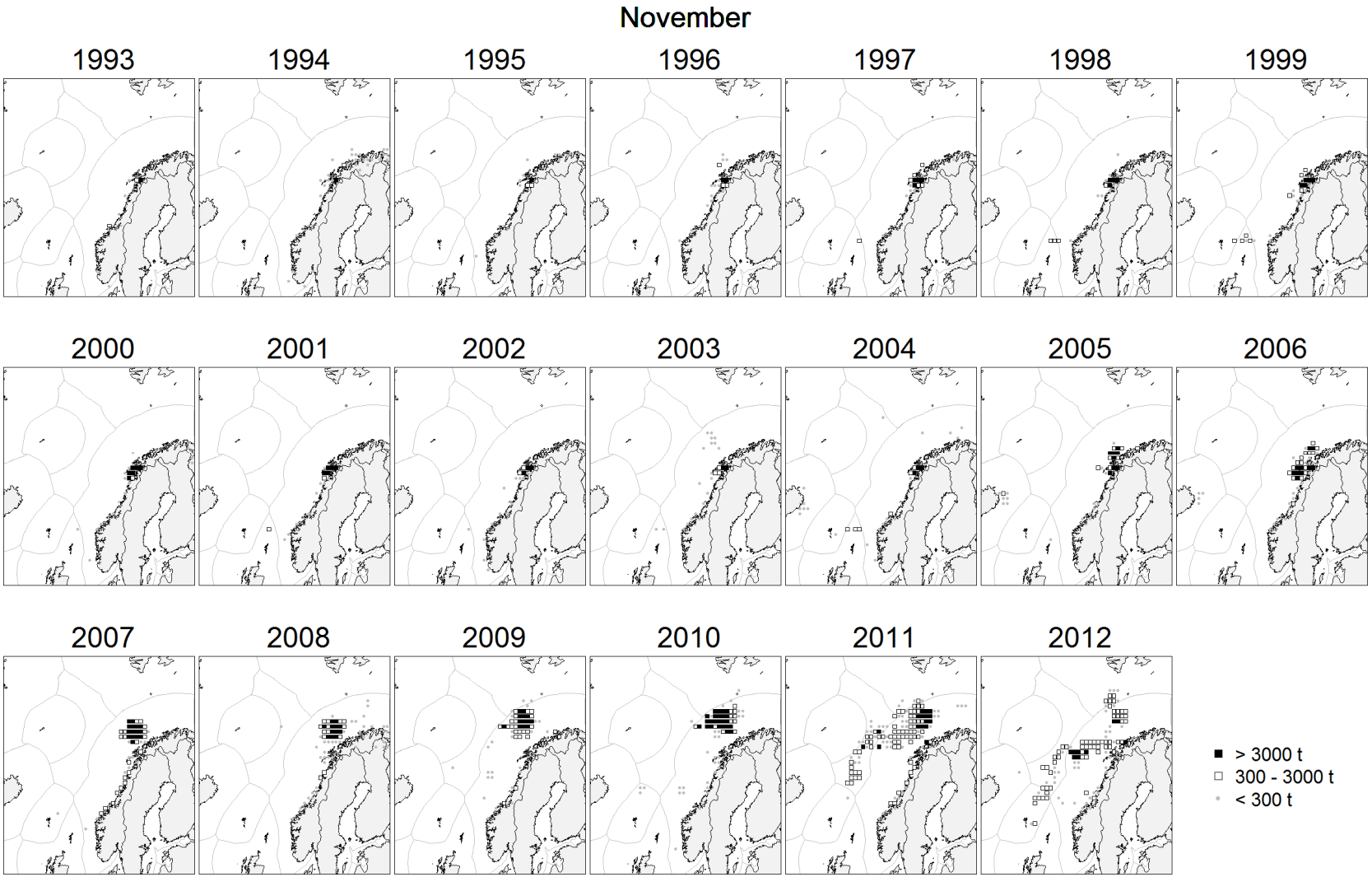

Figure A11. Annual catches of Norwegian spring spawning herring in November for the years 1993-2012.

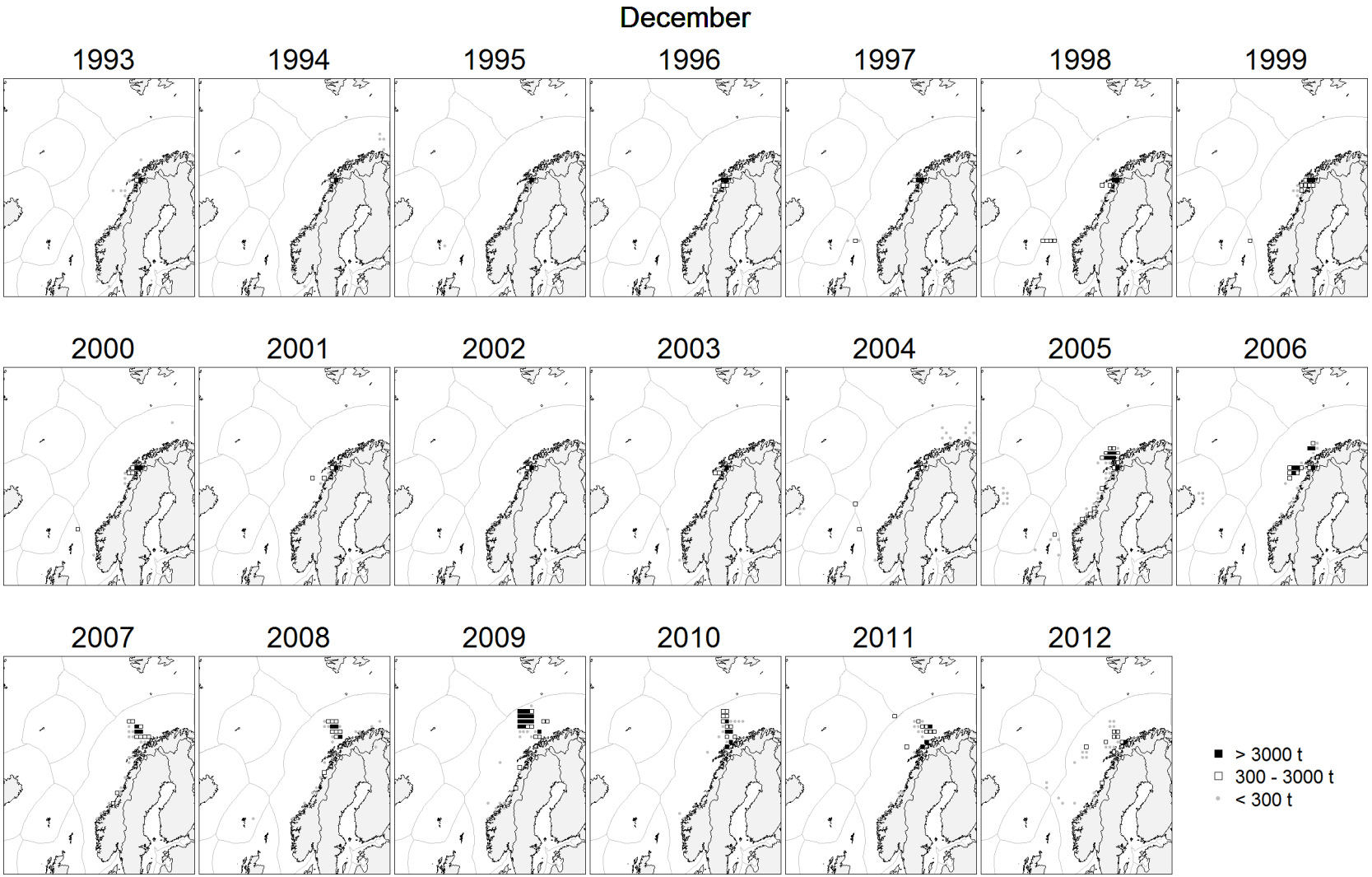

Figure A12. Annual catches of Norwegian spring spawning herring in December for the years 1993-2012.

Appendix B

List of participants

The working group met in Copenhagen, 13 – 14 November 2013 and 4 – 7 March 2014, with the following participants:

Asta Gudmundsdottir, chair November meeting (Iceland)
Gudmundur Óskarsson (Iceland)
Alexander Krysov (Russia)
Are Salthaug (Norway)
Rune Paulsrud Mjørlund (Norway)
Åge Høines (Norway)
Erling Kåre Stenevik (Norway)
Henrik Mosegaard (Denmark)
Frans van Beek (Netherlands)
Norbert Rohlf (Germany)
Eydna í Homrum, chair March meeting (Faroe Islands)
Jan Arge Jacobsen (Faroe Islands)