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Preliminary results from the September 2012 and 2013 bottom-trawl surveys of the southern Gulf of St. Lawrence and comparisons with previous 1971 to 2011 surveys

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Foreword

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ABSTRACT

Each autumn since 1971, a standardized research vessel bottom-trawl survey has been conducted in the southern Gulf of St. Lawrence (NAFO Division 4T). The primary objective of this survey is to obtain abundance indices for the major demersal fish resources in the area. This report presents the preliminary results of the survey conducted from 4-27 September 2012 and from 4-28 September in 2013 and comparisons with previous 1971 to 2011 surveys.

The biomass indices for southern Gulf cod, in 2011 and 2012 were at the lowest levels observed in the 43-year survey record, indicating that the abundance and biomass of this stock continue to be very low compared to the levels observed in the late 1970s and during the 1980s. The biomass index for 2013 increased to near the value observed in 2009.

Indices from the 2012 and 2013 surveys suggest that the abundance and biomass of white hake remain extremely low compared to the indices observed in the late 1980s and early 1990s.

The abundance and biomass indices of American plaice reached their highest levels in the late 1970s. The stock has since declined and has reached its lowest level in recent years. In 2011-2013, the overall biomass index for American plaice remained near the lowest levels observed in the survey.

The abundance and biomass survey indices for witch flounder have fluctuated between relatively low and high values during the 2004 to 2013 period. In 2013, the abundance and biomass indices were above the long-term average.

The survey index for winter flounder abundance has been below the long term average in recent years and the biomass index has been generally declining since the late 1980s.

The abundance index of yellowtail flounder in 2012 and 2013 remained comparable to the long-term average. In contrast, the biomass index has declined since the mid-1990s, reaching a value in 2012 that was one-half of the long-term mean, though the 2013 value was near the mean. The abundance and biomass indices for the areas surrounding the Magdalen Islands (strata 428 and 434 to 436) have increased in the past six years.

Bottom temperatures were colder over the central Magdalen Shallows and increased shoreward as depth decreased and along the Laurentian Channel as depth increased. Almost no sub-zero bottom temperatures have been recorded in September throughout the survey area since 2005 and the area covered by waters colder than 1°C decreased in 2013.

RÉSUMÉ

Chaque automne depuis 1971, un relevé normalisé au chalut de fond est effectué à bord d'un navire de recherche dans le sud du golfe du Saint-Laurent (division 4T de l'OPANO). Son principal objectif est d'obtenir des indices d'abondance des principales espèces de poisson de fond de la région. Dans le présent rapport, les résultats préliminaires du relevé de septembre, effectué du 4 au 27 septembre 2012 et du 4 au 28 septembre 2013 et comparaison avec les relevés précédents de 1971 à 2011.

Les indices de la biomasse pour la morue du sud du golfe, en 2011 et 2012, étaient au plus bas niveau observé au cours des 43 années du relevé, indiquant que l'abondance de ce stock continue d'être inférieure à celles observées à la fin des années 1970 et durant les années 1980. L'indice de biomasse pour 2013 a augmenté de près de la valeur en observée en 2009.

Les indices d'abondance et de biomasse de la merluche blanche des relevés de 2012 et 2013 demeurent extrêmement bas en comparaison avec les indices observés à la fin des années 1980 et au début des années 1990.

Les indices d'abondance et biomasse de la plie canadienne ont atteint leur sommet vers la fin des années 1970. Le stock a décliné depuis cette période, atteignant son plus bas niveau au cours des récentes années. En 2011-2013, l'indice de la biomasse globale de la plie canadienne est resté près des plus bas niveaux observés dans le relevé.

Les indices d'abondance et de biomasse de la plie grise ont fluctué, allant de valeurs relativement élevées à des valeurs relativement basses durant la période de 2004 à 2013. En 2013, l'indice d'abondance et de biomasse étaient au-dessus de la moyenne à long terme.

Les récentes valeurs de l'indice d'abondance de la plie rouge étaient inférieurs à la moyenne à long terme, tandis que l'indice de biomasse à généralement décliné depuis la fin des années 1980.

Les indices d'abondance de limande à queue jaune en 2012 et 2013 sont restés comparable à la moyenne à long terme. En revanche, l'indice de biomasse a diminué depuis le milieu des années 1990, atteignant une valeur en 2012 qui était de la moitié de la moyenne à long terme. Cependant la valeur observée en 2013 était comparable à cette moyenne. L'abondance aux environs de les îles de la Madeleine (strates 428 et 434 à 436) a augmenté au cours des six dernières années et l'indice de biomasse suivi la même tendance.

Les plus froides températures au fond ont été enregistrées dans la zone centrale du plateau madelinien et à l'approche de la côte, où la profondeur diminue, ainsi que dans les eaux profondes du chenal Laurentien. Presque aucune température du fond sous zéro n'a été enregistrée en septembre lors des relevés depuis 2005 et la zone couverte par les eaux froides de 1°C a diminué en 2013.

SURVEY DESCRIPTION

A stratified-random groundfish trawl survey of the southern Gulf of St. Lawrence has been conducted annually in September since 1971. Fishing was by the *E.E. Prince* using a Yankee 36 trawl from 1971 to 1985, by the *Lady Hammond* using a Western IIA trawl from 1985 to 1991, and by the *CCGS Alfred Needler* using a Western IIA trawl from 1992 to 2002. In 2004 and 2005, the survey was conducted by two vessels, the *CCGS Teleost* and *CCGS Alfred Needler*, both using the Western IIA trawl. During both surveys, comparative fishing experiments were conducted, with the two vessels trawling side-by-side. Stratified abundance estimates for 2004 and 2005 were calculated by averaging catches of the two vessels that occurred at the same location. Since 2006 surveys were done by the *CCGS Teleost*.

When gear and/or vessels were changed, comparative fishing experiments were conducted and conversion factors have been applied where necessary (Nielsen 1989; Nielsen 1994; Swain and al. 1995; Benoît and Swain 2003; Benoît 2006) to maintain the consistency of the time series.

In 2003, the regular survey vessel, the *CCGS Alfred Needler*, was disabled by a fire and the survey was conducted by the *CCGS Wilfred Templeman*. However, the start of the survey was delayed, and only 83 fishing stations were surveyed. Three strata (402, 425, 436 – see Figure 1) were sampled with only one fishing set and two strata (438, 439) were missed altogether. The catches made during the 2003 survey by the *CCGS Wilfred Templeman* cannot presently be converted or interpreted because the fishing efficiency of this vessel has not been evaluated relative to that of either the *CGS Teleost* or the *CCGS Alfred Needler* when fishing the Western IIA.

The 2012 and 2013 autumn bottom-trawl surveys of the southern Gulf of St. Lawrence were conducted from September 4–27 and September 4-28, respectively, aboard the research vessel *CCGS Teleost* (Mission TEL-2012-105 and Mission TEL-2013-118).

During the 2012 survey, 162 standard sets (30 minutes long at a speed of 3.5 knots) were attempted, of which 153 were successful. For the 2013 survey, 145 standard sets were attempted of which 132 were successful. All sets were made in Northwest Atlantic Fisheries Organization (NAFO) Division 4T. The trawl geometry (door-spread, wing-spread, opening, clearance and depth) were monitored during every set with Scanmar™ acoustic sensors (the data were logged but were not used to adjust swept area calculations).

Data entry, validation and primary edits were conducted aboard the vessel as in previous years. Basic oceanographic data (profiles of temperature, salinity, dissolved oxygen, fluorescence and irradiance), as well as water samples for salinity, nutrients, dissolved CO_2 and chlorophyll determinations, were collected at each fishing station. Temperature at depth measurements were also made during each fishing set using a sensor attached to the survey trawl. Additional oceanographic sampling was conducted at 16 fishing stations and at the Shediac Valley fixed hydrographic station for the Atlantic Zone Monitoring Program. This sampling included vertical zooplankton net tows from the bottom to the surface and the collection of water samples from a variety of depths using Niskin™ water bottles.

Special collections were made for eleven different projects in 2012 and ten in 2013 including: studies of the condition and growth of Atlantic cod; studies of the biology of smooth skate; samples for the stock assessment and biology of Atlantic herring; samples to determine the species composition of shrimp from each survey tow; American plaice, Atlantic cod and longhorn sculpin for a seal worm survey; observations on the frequency of deformed, diseased or scarred Atlantic cod; a study of the diet of Atlantic halibut; a collection of capelin; a collection various species of fish for observer training; and, collections of different cnidarian specimens for

a genetic study. Digital photographs were taken of a variety of fish and invertebrate species and of survey operations.

The location of the fishing sets, stratification scheme and place names cited in the text are shown in Figure 1. Set locations, depths and the catches (standardized to a 30-minute tow) for ten fish species are presented in the main body of the report and in Appendix I and II. Stratified mean catches (numbers and weights) are presented in the main body of the report and in Appendix III and IV, and the total number and weight of each species of fish and invertebrate caught are listed in Appendix V and VI.

SUMMARY RESULTS

COD

The biomass indices for southern Gulf cod, in 2011 and 2012 were at the lowest levels observed in the 43-year record for the survey (Table 1; Fig. 2). The biomass index for 2013 increased to near the value in 2009.

The biomass index for commercial-sized cod in 2013 remained near the lowest levels observed (Table 1; Fig. 3). The biomass index for smaller juvenile cod increased substantially in 2013, from values near the lowest levels observed in 2010-2012 to a value near the relatively high 2009 level, though there is considerable uncertainty surrounding the 2013 estimate (Table 1; Fig. 3). Furthermore, it is important to note that the relatively high biomass index for juvenile cod in 2009 was not reflected in increased biomass at larger sizes in 2010-2012.

About 45% and 47 % of the catch rates occurred between lengths of 28 and 42 cm for 2012 and 2013, respectively, consisting largely of cod aged 4 and 5 years (the 2008 and 2009 year-classes) (Fig. 4). The 2011 year-class is strong representing about 43% of the catch rate indices between lengths of 14 and 28 cm for 2013. However catch rates of cod larger than the minimum commercial size of 43 cm have been very low since 2010.

The average length of cod varied without trend over the period from the late 1970s to 2008 (Table 2; Fig. 5) but has shown a rapid decline from 2008 to 2013. Abundance of fish greater than 35 cm has decreased since the early 1990s, however abundance of fish under 20 cm has been generally greater since 2000 than previous periods (Fig. 6).

The geographic distribution of cod observed during the 2012 and 2013 surveys were comparable to that observed in previous years (Fig. 7). Cod densities were highest in the Shediac Valley off Miscou Island, to the west of Orphan Bank off the Gaspe Peninsula, north of Prince Edward Island (P.E.I.), and to the north and east of the Magdalen Islands. Relatively few cod were caught on Bradelle Bank (stratum 423) and in the waters off eastern, western and southern P.E.I.

WHITE HAKE

During September, white hake have tended to exhibit a disjoint distribution, with concentrations occurring in the warmer waters of the survey area: either in shallow inshore areas around the Northumberland Strait or in the deep waters of the Laurentian Channel and Cape Breton Trough. The abundance and biomass indices for white hake use sets from strata 401, 403 and 415 to 439, and extend from 1984 to present (Table 3; Fig. 8). In 2012 and 2013, the indices of abundance and biomass for white hake in the NAFO 4T survey area remained below the long-term average (1984-2013; 5.3 fish per tow and 3.4 kg per tow) (Table 3; Fig. 8).

The biomass index for commercial-sized white hake in 2013 remained at the lowest levels observed (Table 3; Fig. 9). The biomass index for smaller juvenile white hake has varied without trend since declining from a relatively higher level in the early 1990s (Table 3; Fig. 9).

The length frequency distribution for 2012 and 2013 (Fig. 10) indicates that the majority of white hake were in the 28-45 cm length range. The proportion of fish larger than the commercial size (≥ 45 cm) remained very low. The abundance of incoming size-classes (≤ 30 cm) for 2012 and 2013 remained below the average for the 2001-2013 period.

The average length of white hake decreased over the 1984-1995 period (Table 4; Fig. 11) but has stabilized around 38 cm thereafter. There was a large decrease in the abundance index for hake ≥ 45 cm and especially ≥ 60 cm after the early 1990s (Fig. 12).

The geographic distribution of white hake observed during the 2012 and 2013 surveys was comparable to that observed in recent years (Fig. 13). However, there has been a notable decrease in the catch rates of white hake in St. George's Bay (stratum 403) and surrounding areas during the 2000s. In 2012 and 2013, the main areas of concentration were in the Cape Breton Trough (stratum 437), and along the Laurentian Channel (strata 415, 425, and 439). White hake have seldom been caught in the shallow, central zone adjacent to Magdalen Islands. Few white hake have been caught in the western part of the southern Gulf since 1991, suggesting that there has been a major contraction of the geographic range.

AMERICAN PLAICE

In 2011-2013, the overall biomass index for American plaice remained near the lowest levels observed in the September survey of the southern Gulf (Table 5; Fig. 14). This was also the case for the indices for pre-commercial (< 30 cm) and commercial (≥ 30 cm) lengths of plaice (Table 5; Fig. 15). The decline in biomass over the past 25 years has been more substantial for the larger sizes of plaice. The average biomass index in 2011-2013 was 47% of the average index in 1985-1989 for small (< 30 cm) plaice and 23% of the 1985-1989 average for larger (≥ 30 cm) plaice.

Length frequency distributions for plaice in this survey do not usually indicate strong modes at lengths less than 10 cm and it may be difficult to detect strong incoming recruitment based on length data. However surveys, since 2007, have recorded modes occurring at less than 10 cm (Fig. 16) and this recruitment could be followed throughout the years (the 2007 and 2010 year-classes). In 2012 and 2013, the modal length of plaice was between 20 and 30 cm, similar to the size distribution since 2001. The proportion of fish larger than the commercial size (≥ 30 cm) remained very low (Fig. 16).

The average length of American plaice was relatively stable from 1971 to the late 1980s (Table 6; Fig. 17) but has shown a steady decrease since the beginning of the 1990s due mainly to an increase in the abundance of small fish (≤ 10 cm) and the decrease in the abundance of fish ≥ 40 cm in the catch (Fig. 18).

American plaice are widely distributed in the southern Gulf at intermediate depths. In recent years they appear principally on the Magdalen Shallows, off the north coast of P.E.I., off the west coast of Cape Breton (Fig. 19).

WITCH FLOUNDER

Witch flounder are found primarily in the deep waters of the Laurentian Channel. The southern Gulf of St. Lawrence survey provides an indication of abundance only in 4T, and not for the entire stock area which comprises NAFO 4RST. Data from the survey of the northern Gulf

undertaken by DFO's Quebec Region are also used to follow trends in the abundance of this stock (information from that survey are available separately).

The abundance and biomass indices for witch flounder in 4T have fluctuated between relatively low and high values during the 2004 to 2013 period (Table 7; Fig. 20). In 2013, the abundance and biomass indices were above the long-term average (3.2 fish per tow and1.4 kg per tow). Those fluctuations in the indices are mainly due to larger witch flounder (≥ 30 cm), because indices for smaller fish (< 30 cm) remained very stable during this period (Table7; Fig. 21).

Juvenile witch flounder tend to be distributed in deep water, mostly outside of the area covered by the September survey. Thus, most of the witch flounder caught in the survey tends to be adult fish (≥ 30 cm). In 2013, 96% of the catches were composed of fish 30 cm and greater. Witch flounder catch rates in the 2012 and 2013 surveys peaked at lengths of 33 to 36 cm (Fig. 22).

The average length of witch flounder from 1971 to the mid-1980s varied around 43 cm, declining progressively thereafter to reach values around 33 cm in recent years (Table 8; Fig. 23). The decline in the average length, for the 1992-2013 period, is due mainly to a decrease in the abundance of large fish (≥ 40 cm) and an increase in the abundance of fish 30-40 cm in length in the catch (Fig. 24).

The distribution of catches in 2012 and 2013 were similar to that observed in recent years. Catch rates of witch flounder were highest along the slope of the Laurentian Channel and in the Cape Breton Trough (Fig. 25).

WINTER FLOUNDER

Winter flounder is found inshore, from the shoreline to approximately 20 fathoms. The abundance index for this species comprises sets from all strata (401-439) and does not cover a large portion of its inshore distribution. Yearly fluctuations in the index are common and confidence intervals on mean estimates are wide (Table 9; Fig. 26).Though the abundance index has largely fluctuated without trend, its values since 2011 were at the lowest in the series at one-half of the long-term average (35.9 fish per tow). The biomass index has followed a declining trend since the late 1980s, reaching values in 2012-2013 that are one-third of the long-term average (6.3 kg per tow).

Trends in the biomass index mainly reflect decreases in the abundance and biomass of large (≥ 25 cm) winter flounder (Table 7; Fig. 27). The abundance and biomass of smaller winter flounder has varied without trend.

Length frequency distributions of winter flounder in this survey vary from year to year, but tend to be dome-shaped, composed of fish up to 40 cm, with most ranging between 15 and 30 cm (Fig. 28). Modal size is usually at around 21 cm. For winter flounder in this survey, length frequencies have not provided reliable indicators of recruitment in the past.

The average length of winter flounder varied without trend during the 1984-1994 period, declining slightly before levelling off at around 21 cm since 1996 (Table 10; Fig. 29). The smaller mean length observed since the mid-1990s is the results of an increase in the abundance of small fish (≤20 cm) and a decline in the abundance of commercial fish (≥ 25 cm) (Fig. 30).

The distribution of winter flounder catches in the 2012 and 2013 surveys were similar to that of most previous years. The stock is distributed in coastal waters off north-eastern New Brunswick and northern P.E.I., the Magdalen Islands, and between eastern P.E.I. and Cape Breton, including St. George's Bay (Fig. 31).

YELLOWTAIL FLOUNDER

The abundance index of yellowtail flounder in 2012 and 2013 remained comparable to the long-term average of 19.1 fish per tow. In contrast, the biomass index has declined since the mid-1990s, reaching a value in 2012 that was one-half of the long-term average of 2.7 kg per tow but was comparable to that average in 2013 (Table 11; Fig. 32). The abundance index for the area near the Magdalen Islands (strata 428 and 434 to 436) remained high in 2012 and 2013, compared to the low values observed in the 1980s. In contrast, the biomass index in that area has been relatively low since 2007, compared to the values observed in 1993-2006 (Table 12; Fig. 32).

Despite a steady increase in the abundance and biomass indices of smaller yellowtail flounder (< 25 cm), larger fish (≥ 25 cm) continued to decrease in the whole survey area (Table 12; Fig. 33). Those indices for smaller yellowtail flounder (< 25 cm), in the area near the Magdalen Islands, follow the same trend, but differ for larger fish (≥ 25 cm) (Table 12; Fig. 34). The indices for larger fish (≥ 25 cm) have fluctuated between relatively low and high values during the 1971 to 1983 and 1991 to 2006 periods, but have been stable at low values since 2007. Before 2007, the average indices were 30.5 fish and 6.2 kg per tow. Since 2007, we have observed a decrease of 79% (average of 6.3 in fish per tow) in the abundance index and a decrease of 83% (average of 1.0 kg per tow) in the biomass index.

The modal length of yellowtail flounder caught in the surveys decreased from 23 cm in 2001 to 19-20 cm in 2013, and the proportion of yellowtail below the legal size of 25 cm has increased yearly, from 69% in 2000 to 95% in 2013 (Fig. 35).

The average length of yellowtail flounder has shown a constant decline since 1984 (Table 13; Fig. 36) due to a decrease in the abundance of commercial fish (≥ 25 cm) and an increase in the abundance of smaller fish (≤ 25 cm) in the catch (Fig. 37). The average length for catches made in the area surrounding the Magdalen Islands (strata 428 and 434 to 436) has followed a similar trend (Table 14; Fig. 36 and 37).

As in previous years, yellowtail flounder were found around the Magdalen Islands, off the western and northern coasts of P.E.I. and inshore of the Shediac Valley (Fig. 38).

HERRING

The 2012 mean number and mean weight per tow values were 14 times higher than the long-term average but returned to the average in 2013 (Table 15; Fig. 39). There was approximately a 600% increase in the mean number and mean weight per tow from 2011, but the confidence intervals around these estimates were very large in 2012, indicative of a few sets with very high catches. This high value is driven mainly by a large catch made at sunrise for which the application of the correction factor for diel differences in catchability caused a large inflation in its value. Smaller (< 26 cm) and larger herring (≥ 26 cm) followed a similar trend in abundance and biomass (Table 15; Fig. 40).

The length frequency distribution in 2012 consisted of a substantial proportion of fish at around 22 cm, which would mainly be herring at age 2 and 3 (the 2009 and 2010 year-classes, spring and fall spawners combined), and a large proportion from 26 to 30 cm that would be herring at age 4 and older (Fig. 41). That last group of fish was also observed in 2013. There were very few catches of herring larger than 30 cm.

The average length of herring varied around 26 cm until the mid-1990s, and has varied around 23 cm since then (Table 16; Fig. 42). This decrease is due an increase in the abundance of smaller fish (≤ 15 cm) in the catch (Fig. 43).

Herring were caught primarily near shore in waters less than 30 fathoms, mostly west and east of P.E.I., west of Cape Breton, in St. George's Bay, and in the northeast coast of New Brunswick (Fig. 44).

ATLANTIC HALIBUT

The mean catch abundance and weight per tow of Atlantic halibut has increased steadily since the mid-1990s (Table 17; Fig. 45). The increase in the halibut abundance is mainly due to an increase of small halibut (< 85 cm) since 2002 (Table 17; Fig. 46) but the biomass is driven by increases for the larger fish (≥ 85 cm).

Since the distribution of Atlantic halibut is highly localized, very few are caught in any given year. As a consequence, the length-frequency distributions for halibut are very noisy and no recruitment patterns are visible (Fig. 47).

The average length of halibut has varied without trend since 1994 (Table 18; Fig. 48).

In 2012 and 2013, as in previous years, Atlantic halibut catches occurred off northern Cape Breton, along the Laurentian channel, north of P.E.I., the Shediac Valley area and off Gaspe (Fig. 50).

GASPEREAU

The abundance and biomass indices for gaspereau varied without trend during the 1990-2004 period (Table 19; Fig. 51) but have shown an increase since then. In 2013, the indices (9.9 fish per tow and 0.6 kg per tow) remained above their long-term averages (1984-2013, 5.2 fish per tow and 0.5 kg per tow). The indices in 2013 for smaller gaspareau (< 20 cm) were the highest of the time series (Table 19; Fig. 52).

The length frequency distribution in the survey is characterized by modal sizes between 19 cm and 23 cm (Fig. 53; Appendix VII).

The average length of gaspereau has largely fluctuated without trend since 1984 (Table 20, Fig. 54), even with a decrease in the abundance of large fish (≥ 25 cm) (Fig. 55).

Gaspereau were caught primarily near shore in waters less than 30 fathoms, mostly in the shallow waters of the Shediac Valley, north and west of P.E.I., the Northumberland Strait and in St. George's Bay (Fig. 56; Appendix VIII).

RAINBOW SMELT

The abundance and biomass indices for rainbow smelt were high in the mid-1980s (171.3 fish per tow and 4.1 kg per tow) but remained relatively stable at 36.5 fish per tow and 0.9 kg per tow during the 1988-2002 period (Table 21; Fig. 57). From 2004 to 2006 those indices increased and then stabilized around 75.7 fish per tow and 1.5 kg per tow. The catches for this species are mainly comprised of adult fish (≥ 12 cm) (Table 21; Fig. 58).

The modal length of smelt has been relatively constant during the 1984-2013 period (Fig. 59; Appendix IX).

The average length of smelt has varied without trend since 1984 around 14 cm (Table 22; Fig. 60). During the 1984-2013 period, we observed a decrease in the abundance of large fish (≥ 20 cm) and an increase in the abundance of small fish (≤ 10 cm) in the catch (Fig. 61).

Smelt were caught primarily in the Northumberland Strait, St. George's Bay and Chaleur Bay (Fig. 62; Appendix X).

BOTTOM TEMPERATURE

A Gaussian spatial field model (Diggle and Ribeiro 2007) was fitted to the bottom temperature data which specified the distribution within the study area as being multivariate normal with a non-linear mean and covariance matrix given by a scaled Matèrn correlation function (which relates the degree of correlation between locations as a function of their separation distance). A fourth-order rational polynomial function was used to model the relationship between temperature and water depth. The mean and covariance parameters were simultaneously estimated using maximum likelihood. Bottom water temperatures were estimated over a fine-meshed (500 x 500) grid over the survey area. We thus obtained an interpolated map based on the fitted model and conditioned on the observed temperature data. Surface areas of cold-water regions below the 0°C and 1°C thresholds were then derived. This method yielded results that were similar to those obtained in previous years with kriging.

Bottom temperatures were coldest over the central Magdalen Shallows and increased shoreward as depth decreased and along the Laurentian Channel as depth increased (Fig. 63). Almost no sub-zero bottom temperatures have been recorded in September throughout the survey area since 2005 and the area covered by waters colder than 1°C decreased in 2013 (Fig. 64).

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TABLES

Table 1a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 42 cm and ≥42 cm) and overall for Atlantic cod in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013. Strata 415 to 439 are those used for the cod abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	<42 cm	≥42 cm	Total	<42 cm	≥42 cm	Total
1971	12.67	26.49	39.16	2.84	8.35	10.48
1972	19.81	30.90	50.72	6.75	7.06	11.60
1973	21.09	25.94	47.02	7.48	9.26	14.99
1974	22.11	23.71	45.82	5.67	8.43	11.18
1975	19.74	18.53	38.26	10.76	8.01	14.17
1976	56.60	19.35	75.53	15.40	8.05	18.73
1977	69.47	23.19	92.65	31.66	5.63	35.54
1978	82.95	62.15	137.53	44.30	46.85	68.93
1979	101.21	91.29	192.50	28.78	18.07	40.39
1980	75.83	112.52	188.13	32.73	38.58	65.17
1981	90.77	177.40	268.16	29.27	57.07	76.28
1982	101.11	137.09	238.19	54.01	54.95	88.85
1983	132.46	83.64	214.86	28.70	18.39	42.25
1984	94.90	67.09	162.17	25.50	13.12	36.04
1985	142.62	141.10	281.08	43.48	75.95	112.44
1986	133.93	102.72	236.10	45.48	23.29	60.00
1987	77.77	87.83	165.68	18.25	19.86	31.19
1988	177.91	118.47	301.25	104.02	27.76	127.54
1989	119.16	95.70	214.81	42.58	21.45	53.95
1990	71.65	54.23	125.83	18.18	11.01	25.66
1991	69.63	40.35	110.25	30.04	12.04	41.57
1992	35.08	19.77	54.87	10.06	5.00	13.73
1993	39.98	26.10	66.14	10.47	4.79	13.30
1994	27.59	27.08	54.67	7.26	5.41	11.40
1995	35.14	30.70	65.75	10.64	6.79	14.24
1996	28.22	38.93	67.12	12.12	11.86	21.05
1997	22.90	29.95	52.85	6.76	13.39	18.25
1998	25.05	27.01	52.06	6.55	7.11	12.34
1999	36.79	33.00	69.78	15.99	15.69	29.78
2000	21.78	27.89	49.67	7.60	14.95	19.54
2001	17.80	26.05	121.25	6.55	16.46	156.41
2002	42.16	42.30	84.46	26.08	31.02	54.69
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	43.67	24.61	68.07	32.06	19.10	41.74
2005	25.21	8.82	34.03	14.79	1.99	16.19
2006	18.92	18.98	37.91	7.09	11.43	17.33
2007	15.82	17.78	33.60	8.37	10.64	17.85
2008	14.71	19.32	34.04	4.93	16.60	19.26
2009	33.59	12.26	45.85	33.45	10.01	41.38
2010	15.09	7.79	22.88	4.45	4.06	7.10
2011	11.07	4.47	15.54	4.78	2.89	6.50
2012	14.22	3.50	17.71	4.68	1.31	5.48
2013	56.13	10.27	66.40	48.39	5.59	49.45

Table 1b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 42 cm and ≥42 cm) and overall for Atlantic cod in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013. Strata 415 to 439 are those used for the cod abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	<42 cm	≥42 cm	Total	<42 cm	≥42 cm	Total
1971	5.44	45.20	50.24	1.26	13.79	14.40
1972	8.10	50.78	58.31	2.69	12.58	14.27
1973	6.47	46.54	53.36	2.20	17.18	18.62
1974	9.35	41.45	51.11	2.18	13.63	14.70
1975	5.34	31.26	36.24	2.78	13.34	14.82
1976	14.06	30.26	45.37	3.95	13.65	15.94
1977	18.85	45.87	64.01	7.23	16.48	18.71
1978	28.03	90.38	116.19	15.37	67.01	67.25
1979	28.74	106.74	146.88	7.34	19.54	28.09
1980	27.71	128.56	158.71	11.91	40.49	48.75
1981	29.94	205.52	244.67	9.03	62.51	74.99
1982	28.70	170.56	205.87	15.43	62.40	75.72
1983	35.41	109.19	151.94	8.82	27.13	34.78
1984	34.21	82.12	119.72	10.36	13.10	23.96
1985	52.27	146.39	207.07	18.70	67.93	92.40
1986	46.42	111.55	163.20	13.52	23.05	34.27
1987	25.35	84.64	121.27	5.85	19.83	25.06
1988	62.34	120.19	200.40	32.49	27.05	59.30
1989	35.05	102.22	145.93	10.04	21.82	28.61
1990	26.81	58.27	91.69	6.79	11.25	17.66
1991	25.82	40.50	70.38	12.20	10.62	20.25
1992	11.89	19.55	34.61	3.34	4.89	8.59
1993	14.58	25.84	42.11	3.53	4.71	6.83
1994	10.46	28.64	40.58	2.77	6.24	8.59
1995	9.96	33.36	44.86	2.75	7.26	9.75
1996	9.87	45.62	57.04	4.87	13.69	17.90
1997	5.76	37.19	43.68	2.15	15.83	17.99
1998	6.71	36.06	44.12	1.73	9.97	11.87
1999	10.41	39.81	51.29	5.07	18.76	23.59
2000	7.65	33.40	42.42	2.85	17.87	20.85
2001	6.17	31.83	39.85	3.09	17.51	20.53
2002	15.35	45.94	58.97	11.61	30.35	36.92
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	10.98	30.25	42.75	6.63	22.76	28.28
2005	8.19	10.10	18.39	5.34	2.16	6.77
2006	7.10	18.52	26.23	3.38	11.28	14.54
2007	4.77	17.84	22.67	2.86	10.02	12.63
2008	4.03	21.56	26.01	1.86	18.21	20.03
2009	11.59	13.20	25.22	12.19	10.60	21.69
2010	3.93	9.11	13.42	1.72	4.72	5.78
2011	2.24	4.79	7.09	1.20	2.86	3.64
2012	2.89	3.94	6.83	1.18	1.44	2.42
2013	13.67	10.97	24.94	10.52	5.79	13.39

Table 2. Length (cm; mean and two standard errors) per tow of Atlantic cod in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439), 1971 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1971	47.96	33.62
1972	45.44	30.35
1973	44.37	33.25
1974	44.72	31.55
1975	39.92	34.34
1976	35.07	29.30
1977	36.16	36.84
1978	40.81	27.45
1979	40.17	24.32
1980	42.94	20.77
1981	43.32	22.87
1982	41.70	23.61
1983	39.11	28.21
1984	40.97	22.58
1985	40.11	20.93
1986	38.72	22.54
1987	40.61	19.07
1988	38.88	19.38
1989	38.28	22.72
1990	39.86	18.68
1991	38.37	18.51
1992	37.63	18.63
1993	38.85	18.55
1994	40.64	19.11
1995	37.26	25.03
1996	42.05	21.19
1997	40.42	25.94
1998	40.76	26.84
1999	38.91	25.08
2000	42.64	21.01
2001	24.37	40.23
2002	40.02	20.46
2003	N/A	N/A
2004	36.63	26.17
2005	35.82	20.85
2006	40.08	17.80
2007	39.12	20.46
2008	39.94	22.97
2009	37.25	18.55
2010	35.14	27.38
2011	32.22	27.69
2012	29.55	29.18
2013	31.79	22.49

Table 3a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 45 cm and ≥ 45 cm) and overall for white hake in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 .Strata 401, 403 and 415 to 439 are those used for the white hake abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	<45 cm	≥45 cm	Total	<45 cm	≥45 cm	Total
1984	1.39	2.96	4.35	0.63	1.02	1.46
1985	3.41	4.22	7.64	2.89	2.78	4.59
1986	5.29	6.40	11.70	2.35	2.48	4.52
1987	2.77	3.31	6.09	1.30	1.33	2.29
1988	4.32	4.56	8.88	2.38	1.59	3.68
1989	8.10	3.52	11.62	3.17	1.22	4.22
1990	5.43	3.71	9.14	3.14	1.31	3.81
1991	6.09	3.61	9.70	5.58	1.98	7.33
1992	5.41	2.19	7.60	4.04	1.08	4.92
1993	2.54	1.84	4.37	1.46	1.14	2.50
1994	1.85	1.46	3.31	1.50	0.83	2.17
1995	2.68	0.69	3.37	0.88	0.27	0.97
1996	2.47	0.70	3.17	1.07	0.25	1.20
1997	2.11	0.89	3.00	1.21	0.40	1.52
1998	2.73	0.91	3.64	1.11	0.42	1.18
1999	4.22	1.18	5.40	2.73	0.78	3.19
2000	8.06	0.92	8.98	5.55	0.30	5.71
2001	2.85	0.71	3.56	1.32	0.35	1.52
2002	2.49	0.49	2.98	1.52	0.27	1.66
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	1.22	0.52	1.74	0.59	0.22	0.71
2005	3.44	0.63	4.07	1.73	0.24	1.82
2006	1.40	0.30	1.71	0.54	0.16	0.64
2007	8.54	0.95	9.49	9.11	0.53	9.49
2008	2.71	0.56	3.26	1.33	0.28	1.46
2009	3.37	0.64	4.01	1.95	0.51	2.37
2010	3.13	0.67	3.80	1.46	0.28	1.57
2011	2.44	0.42	2.86	1.62	0.18	1.69
2012	2.79	0.50	3.29	2.25	0.41	2.40
2013	1.16	0.27	1.43	0.72	0.26	0.84

Table 3b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 45 cm and ≥ 45 cm) and overall for white hake in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 .Strata 401, 403 and 415 to 439 are those used for the white hake abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	<45 cm	≥45 cm	Total	<45 cm	≥45 cm	Total
1984	0.60	4.87	5.47	0.28	1.75	1.87
1985	1.32	7.77	9.09	1.28	6.36	6.62
1986	2.22	9.40	11.63	1.03	3.23	3.86
1987	1.16	4.71	5.87	0.55	1.84	2.17
1988	1.66	5.51	7.18	0.96	1.63	2.30
1989	3.19	4.32	7.51	1.21	1.58	2.56
1990	1.84	4.21	6.04	1.01	1.43	2.03
1991	2.41	4.23	6.64	2.43	1.94	4.07
1992	2.19	1.93	4.13	1.69	0.91	2.40
1993	1.01	1.70	2.71	0.69	0.97	1.62
1994	0.69	1.48	2.17	0.57	0.86	1.29
1995	0.81	0.73	1.54	0.25	0.30	0.44
1996	0.88	0.70	1.58	0.44	0.24	0.60
1997	0.67	0.85	1.52	0.42	0.37	0.75
1998	0.87	1.10	1.97	0.36	0.54	0.65
1999	1.17	1.37	2.54	0.72	0.99	1.51
2000	2.77	0.88	3.65	1.77	0.26	1.91
2001	1.06	0.69	1.75	0.50	0.35	0.75
2002	0.78	0.50	1.28	0.46	0.27	0.66
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	0.45	0.59	1.05	0.23	0.27	0.42
2005	1.15	0.57	1.72	0.74	0.22	0.85
2006	0.48	0.27	0.75	0.18	0.14	0.30
2007	2.86	0.90	3.75	3.22	0.51	3.59
2008	1.05	0.56	1.60	0.53	0.27	0.69
2009	0.98	0.59	1.58	0.67	0.46	1.06
2010	0.99	0.63	1.61	0.41	0.26	0.58
2011	0.82	0.39	1.21	0.49	0.18	0.59
2012	0.86	0.51	1.37	0.60	0.38	0.85
2013	0.31	0.28	0.59	0.20	0.26	0.37

Table 4. Length (cm; mean and two standard errors) per tow of white hake in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401, 403 and 415 to 439), 1984 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1984	51.18	26.30
1985	47.09	32.24
1986	44.58	26.48
1987	48.07	25.51
1988	44.36	22.98
1989	42.06	22.21
1990	42.43	22.60
1991	43.20	21.57
1992	41.67	12.78
1993	42.69	15.94
1994	43.05	16.69
1995	38.15	19.39
1996	39.23	16.49
1997	40.28	16.98
1998	39.70	19.45
1999	38.78	19.84
2000	37.71	13.95
2001	39.80	13.36
2002	37.25	15.71
2003	N/A	N/A
2004	41.49	17.18
2005	38.15	14.42
2006	38.35	14.78
2007	36.98	12.86
2008	39.77	13.89
2009	36.08	17.40
2010	37.52	15.21
2011	37.78	14.87
2012	37.50	15.74
2013	37.73	18.36

Table 5a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 30 cm and ≥ 30 cm) and overall for American plaice in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013. Strata 415 to 439 are those used for the plaice abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 30 cm	≥ 30 cm	Total	< 30 cm	≥ 30 cm	Total
1971	146.87	52.84	199.70	70.56	20.28	96.12
1972	130.88	66.89	197.76	63.65	30.80	99.15
1973	131.17	58.35	189.52	48.34	14.74	62.86
1974	308.24	119.68	427.92	73.03	40.50	106.11
1975	300.97	104.69	405.67	93.37	31.60	133.82
1976	554.74	156.94	711.68	185.49	36.83	216.02
1977	789.88	127.40	917.29	343.96	34.84	398.88
1978	350.43	113.43	463.86	280.16	70.27	335.96
1979	522.82	172.58	695.41	148.18	48.05	196.65
1980	365.90	122.50	488.41	114.35	47.78	174.45
1981	393.01	87.30	480.31	200.70	43.19	265.12
1982	191.76	72.92	264.67	76.43	33.10	114.27
1983	207.12	80.05	287.17	63.28	30.20	91.47
1984	124.60	39.42	164.02	33.92	6.90	41.33
1985	146.19	48.71	194.91	31.38	8.32	42.76
1986	177.52	55.63	233.16	56.10	11.38	70.67
1987	195.41	49.68	245.10	61.95	9.61	75.33
1988	181.90	63.27	245.17	63.61	23.58	97.91
1989	155.11	47.62	202.73	34.91	10.65	46.89
1990	287.34	59.74	347.09	66.42	10.54	81.54
1991	276.01	81.47	357.48	58.63	17.00	76.18
1992	203.11	48.42	251.53	39.00	7.31	49.24
1993	171.43	38.26	209.69	30.40	6.89	38.78
1994	166.86	42.25	209.12	42.19	7.30	52.45
1995	139.45	36.65	176.11	22.31	6.49	29.18
1996	129.76	40.95	170.71	21.40	6.86	29.05
1997	106.97	24.47	131.44	17.55	3.52	22.30
1998	116.83	32.13	148.96	20.07	5.23	26.49
1999	103.32	27.16	130.47	17.72	4.92	25.23
2000	95.03	25.52	120.56	21.89	5.59	30.59
2001	98.24	20.27	118.50	28.52	4.13	34.64
2002	87.10	17.23	104.32	11.78	2.23	14.59
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	90.04	18.69	108.73	14.86	3.63	20.09
2005	109.53	19.23	128.75	17.29	2.85	21.98
2006	106.35	17.81	124.16	16.59	3.04	21.58
2007	112.01	19.49	131.50	17.64	3.00	21.94
2008	149.68	28.01	177.69	22.89	5.36	30.97
2009	99.45	15.19	114.64	18.26	3.18	24.13
2010	170.69	20.89	191.57	71.32	9.02	91.41
2011	133.31	18.37	151.68	23.90	3.50	30.40
2012	119.19	13.57	132.76	21.88	2.51	27.35
2013	167.07	17.75	184.83	26.31	3.28	33.06

Table 5b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 30 cm and ≥ 30 cm) and overall for American plaice in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013. Strata 415 to 439 are those used for the plaice abundance and biomass indices. Strata 415 to 439 are those used for the plaice abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 30 cm	≥ 30 cm	Total	< 30 cm	≥ 30 cm	Total
1971	17.50	22.59	40.10	7.81	7.72	16.74
1972	16.31	29.83	46.14	7.44	13.65	24.26
1973	17.05	35.67	52.73	5.36	17.42	24.00
1974	30.21	51.80	82.02	5.12	15.43	21.91
1975	34.71	45.00	79.72	10.60	13.50	25.37
1976	64.28	70.74	135.03	15.80	16.23	29.74
1977	80.33	51.19	131.52	29.78	12.83	44.66
1978	42.75	52.72	95.47	28.09	21.33	55.69
1979	57.85	77.08	134.93	12.35	19.44	38.29
1980	41.01	51.30	92.31	12.35	18.51	33.71
1981	44.45	32.27	76.73	20.34	16.31	37.75
1982	24.70	29.37	54.08	10.11	12.55	21.54
1983	22.02	31.34	53.36	5.34	12.78	14.77
1984	15.81	17.77	33.59	3.89	3.18	6.20
1985	17.24	22.60	39.84	3.62	3.84	7.57
1986	22.53	23.12	45.66	7.78	4.64	11.21
1987	23.55	19.28	42.82	7.25	3.23	11.19
1988	22.90	24.75	47.64	7.52	7.23	20.60
1989	18.39	17.38	35.77	4.25	3.43	7.96
1990	32.12	21.25	53.37	7.62	3.37	11.10
1991	34.44	26.66	61.10	8.15	4.94	12.87
1992	22.69	15.82	38.51	4.35	2.24	6.66
1993	19.61	13.50	33.11	3.34	2.26	8.09
1994	19.00	13.43	32.43	4.73	2.11	7.11
1995	14.64	11.41	26.05	2.46	1.86	4.53
1996	13.40	13.07	26.47	2.17	2.19	4.50
1997	10.18	7.83	18.00	1.69	1.07	2.86
1998	10.23	10.43	20.66	1.80	1.66	3.55
1999	8.58	8.80	17.38	1.46	1.55	3.31
2000	8.32	8.53	16.85	1.86	1.82	3.98
2001	9.80	6.63	16.42	2.93	1.26	4.42
2002	7.35	5.50	12.85	1.02	0.73	1.72
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	7.90	5.60	13.50	1.26	1.07	2.51
2005	10.81	5.86	16.67	1.76	0.85	2.77
2006	10.22	5.38	15.61	1.59	0.92	2.74
2007	9.86	5.87	15.73	1.63	0.88	2.60
2008	12.79	8.07	20.86	2.15	1.49	4.00
2009	7.24	4.38	11.62	1.72	0.88	2.85
2010	14.60	6.49	21.10	7.44	2.53	12.20
2011	9.93	5.56	15.49	1.74	1.09	3.09
2012	8.49	3.94	12.43	1.58	0.74	2.53
2013	10.82	5.47	16.29	1.73	0.90	3.23

Table 6. Length (cm; mean and two standard errors) per tow of American plaice in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439), 1971 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1971	25.94	16.08
1972	27.11	15.48
1973	27.05	20.99
1974	25.39	16.46
1975	25.82	15.35
1976	25.37	14.86
1977	23.92	13.13
1978	26.47	14.28
1979	26.50	13.75
1980	26.20	14.78
1981	25.37	12.65
1982	27.00	14.28
1983	26.77	14.96
1984	26.63	14.42
1985	25.95	15.74
1986	25.84	14.39
1987	25.72	12.06
1988	26.39	12.55
1989	25.58	12.91
1990	24.25	12.61
1991	25.59	11.42
1992	24.59	11.95
1993	24.10	12.70
1994	24.96	11.32
1995	24.61	11.96
1996	24.94	12.66
1997	23.42	13.28
1998	23.52	14.33
1999	23.41	14.48
2000	23.67	14.46
2001	23.49	12.99
2002	22.54	14.43
2003	N/A	N/A
2004	23.20	12.71
2005	23.75	11.30
2006	23.60	11.57
2007	22.48	13.55
2008	22.44	13.75
2009	21.26	14.39
2010	21.77	12.60
2011	21.52	13.89
2012	20.79	13.99
2013	19.47	15.67

Table 7a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 30 cm and ≥ 30 cm) and overall for witch flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013. Strata 415 to 439 are those used for the witch flounder abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 30 cm	≥ 30 cm	Total	< 30 cm	≥ 30 cm	Total
1971	0.14	4.59	4.73	0.10	2.16	4.64
1972	0.03	1.70	1.73	0.04	1.02	1.13
1973	0.05	3.11	3.16	0.04	1.56	3.29
1974	0.06	3.68	3.74	0.02	0.64	1.37
1975	0.04	2.92	2.96	0.04	0.63	1.27
1976	0.00	3.07	3.07	<0.01	0.77	1.55
1977	0.00	4.28	4.28	<0.01	1.50	3.14
1978	0.06	2.26	2.32	0.04	0.83	1.88
1979	0.07	3.40	3.48	0.07	1.15	2.55
1980	0.00	1.78	1.78	<0.01	0.53	0.97
1981	0.06	1.22	1.28	0.04	0.29	0.64
1982	0.02	1.10	1.13	0.03	0.25	0.52
1983	0.14	0.89	1.03	0.11	0.18	0.46
1984	0.06	1.03	1.09	0.03	0.21	0.49
1985	0.16	1.02	1.18	0.04	0.16	0.47
1986	0.16	2.81	2.97	0.05	0.54	1.23
1987	0.28	2.09	2.37	0.08	0.36	0.72
1988	0.35	3.54	3.89	0.08	0.63	1.65
1989	0.10	2.70	2.81	0.04	0.44	1.00
1990	0.38	2.13	2.51	0.11	0.60	1.47
1991	0.24	1.42	1.66	0.05	0.16	0.44
1992	0.26	0.86	1.12	0.12	0.15	0.45
1993	0.45	1.48	1.93	0.28	0.80	1.01
1994	0.74	2.42	3.16	0.34	0.88	1.99
1995	0.53	1.73	2.25	0.15	0.49	0.97
1996	0.93	3.85	4.77	0.37	1.69	2.23
1997	0.29	1.55	1.84	0.11	0.57	1.12
1998	2.25	3.01	5.26	0.84	1.07	3.28
1999	0.86	6.51	7.37	0.35	3.84	9.07
2000	1.49	3.54	5.03	0.38	2.00	3.92
2001	1.26	3.18	4.44	0.42	0.72	2.29
2002	2.20	6.39	8.59	0.73	2.91	6.73
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	0.50	1.52	2.02	0.41	1.14	1.48
2005	0.93	3.36	4.28	0.42	0.75	2.17
2006	1.39	2.00	3.39	0.54	0.71	2.24
2007	0.69	1.18	1.87	0.27	0.32	0.79
2008	0.94	4.45	5.39	0.30	1.73	3.22
2009	0.81	2.33	3.13	0.44	1.19	1.45
2010	1.03	2.39	3.42	0.42	0.71	1.83
2011	0.89	3.73	4.62	0.59	1.23	2.64
2012	1.17	3.60	4.77	0.30	1.45	2.69
2013	0.64	5.73	6.38	0.15	2.00	4.30

Table 7b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 30 cm and ≥ 30 cm) and overall for witch flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013. Strata 415 to 439 are those used for the witch flounder abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 30 cm	≥ 30 cm	Total	< 30 cm	≥ 30 cm	Total
1971	0.02	2.35	2.37	0.01	1.07	2.22
1972	<0.01	1.17	1.17	<0.01	1.04	1.03
1973	0.01	2.21	2.22	0.01	1.12	2.56
1974	0.01	2.10	2.11	<0.01	0.37	0.78
1975	<0.01	1.79	1.79	<0.01	0.43	0.82
1976	0.00	2.54	2.54	<0.01	0.63	1.39
1977	0.00	3.67	3.67	<0.01	1.36	3.13
1978	<0.01	1.66	1.67	<0.01	0.60	1.35
1979	0.01	2.38	2.39	0.01	0.68	1.47
1980	0.00	1.22	1.22	<0.01	0.38	0.85
1981	0.01	1.04	1.04	0.01	0.22	0.51
1982	<0.01	0.83	0.83	<0.01	0.16	0.36
1983	0.01	0.59	0.61	0.01	0.13	0.29
1984	0.01	0.72	0.73	<0.01	0.14	0.33
1985	0.02	0.85	0.87	<0.01	0.14	0.41
1986	0.02	2.36	2.37	<0.01	0.39	0.94
1987	0.10	1.48	1.58	0.07	0.20	0.51
1988	0.03	2.04	2.06	0.01	0.31	0.83
1989	0.01	1.59	1.60	<0.01	0.27	0.61
1990	0.04	1.34	1.38	0.01	0.23	0.76
1991	0.02	1.05	1.07	<0.01	0.10	0.32
1992	0.03	0.52	0.55	0.01	0.07	0.17
1993	0.05	0.64	0.69	0.03	0.29	0.34
1994	0.06	1.00	1.06	0.02	0.33	0.70
1995	0.05	0.62	0.67	0.02	0.17	0.33
1996	0.09	1.28	1.37	0.04	0.62	0.71
1997	0.03	0.54	0.57	0.01	0.20	0.38
1998	0.20	0.97	1.17	0.09	0.33	0.69
1999	0.09	2.59	2.68	0.04	1.49	3.75
2000	0.11	1.43	1.54	0.03	0.84	1.79
2001	0.10	1.12	1.23	0.03	0.25	0.62
2002	0.24	2.38	2.62	0.08	1.16	2.67
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	0.05	0.51	0.57	0.04	0.39	0.48
2005	0.10	1.15	1.25	0.04	0.24	0.69
2006	0.15	0.60	0.75	0.05	0.21	0.48
2007	0.06	0.36	0.42	0.03	0.09	0.20
2008	0.10	1.35	1.45	0.03	0.52	0.99
2009	0.09	0.68	0.77	0.04	0.35	0.36
2010	0.09	0.62	0.71	0.04	0.19	0.34
2011	0.09	1.05	1.14	0.06	0.34	0.55
2012	0.13	1.08	1.20	0.03	0.43	0.74
2013	0.07	1.79	1.86	0.02	0.61	1.33

Table 8. Length (cm; mean and two standard errors) per tow of witch flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439), 1971 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1971	40.44	10.36
1972	42.54	17.71
1973	43.75	10.21
1974	41.07	13.16
1975	41.49	12.53
1976	45.46	10.98
1977	46.32	11.43
1978	44.05	9.77
1979	43.82	12.36
1980	44.74	8.51
1981	45.58	12.34
1982	44.30	10.64
1983	41.75	16.90
1984	42.13	15.54
1985	43.09	16.45
1986	42.79	16.05
1987	40.50	16.28
1988	39.26	15.32
1989	41.29	14.52
1990	38.03	15.79
1991	39.55	18.22
1992	35.08	18.99
1993	34.64	14.75
1994	34.70	14.55
1995	33.73	13.27
1996	34.08	12.70
1997	34.61	12.55
1998	30.51	14.36
1999	36.50	10.58
2000	33.37	14.85
2001	32.87	13.14
2002	34.03	12.12
2003	N/A	N/A
2004	33.55	11.44
2005	34.01	10.08
2006	31.11	11.95
2007	31.55	11.62
2008	33.50	10.29
2009	32.62	10.03
2010	30.40	11.86
2011	32.67	10.25
2012	33.02	9.73
2013	34.67	7.75

Table 9a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 25 cm and ≥ 25 cm) and overall for winter flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the winter flounder abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 25 cm	≥ 25 cm	Total	< 25 cm	≥ 25 cm	Total
1984	7.98	11.76	19.75	6.64	8.22	12.25
1985	12.24	14.94	27.18	8.25	9.01	15.10
1986	17.71	21.36	39.07	11.06	8.61	13.93
1987	14.13	9.83	23.96	13.34	4.88	14.61
1988	15.33	19.07	34.41	12.32	11.20	21.48
1989	24.25	22.65	46.89	12.40	13.10	22.99
1990	38.47	21.59	60.06	17.66	11.01	27.80
1991	24.98	12.86	37.84	28.83	6.76	29.34
1992	27.57	20.25	47.82	18.79	9.39	26.77
1993	18.89	18.49	37.38	9.82	5.90	15.07
1994	12.46	11.90	24.36	6.88	5.26	10.53
1995	48.81	16.94	65.75	33.61	5.36	38.40
1996	22.37	13.56	35.93	12.09	4.93	14.07
1997	24.29	10.80	35.09	14.46	4.64	17.09
1998	19.33	6.76	26.09	11.46	2.43	12.22
1999	23.36	14.17	37.54	9.63	5.98	13.53
2000	32.30	15.10	47.40	14.47	7.03	19.77
2001	21.90	11.03	32.93	18.69	4.27	21.39
2002	31.32	19.77	51.09	15.79	11.77	19.84
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	24.41	13.67	38.08	10.03	5.34	13.67
2005	43.62	10.41	54.02	51.11	5.84	62.64
2006	23.39	9.69	33.08	9.62	5.14	14.09
2007	24.23	9.39	33.62	11.77	5.75	13.68
2008	19.80	7.31	27.11	7.48	2.75	9.52
2009	36.26	8.58	44.84	30.85	6.96	37.23
2010	24.94	7.76	32.70	13.24	3.77	15.94
2011	10.50	4.77	15.27	6.54	3.43	9.88
2012	10.48	4.13	14.61	4.31	2.09	6.12
2013	11.78	4.17	15.95	7.23	2.77	8.28

Table 9b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 25 cm and ≥ 25 cm) and overall for winter flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the winter flounder abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 25 cm	≥ 25 cm	Total	< 25 cm	≥ 25 cm	Total
1984	0.92	4.79	5.70	0.71	3.84	4.37
1985	1.47	5.40	6.86	1.02	2.71	3.48
1986	2.00	7.76	9.76	1.28	3.16	3.28
1987	1.70	3.49	5.19	1.38	1.37	2.22
1988	1.95	6.53	8.48	1.59	3.03	4.41
1989	3.58	7.84	11.42	1.58	3.53	5.05
1990	4.99	6.23	11.22	2.69	2.95	5.16
1991	2.66	3.87	6.53	2.88	1.98	3.34
1992	3.68	6.31	9.99	2.33	2.38	4.71
1993	2.27	5.96	8.22	1.13	1.88	3.21
1994	1.40	4.21	5.61	0.58	1.65	2.94
1995	3.51	5.49	9.00	2.20	1.65	4.02
1996	2.00	4.38	6.37	0.91	1.52	2.13
1997	2.06	3.05	5.11	1.06	1.21	2.13
1998	1.91	2.00	3.91	1.11	0.70	1.42
1999	2.12	4.33	6.45	0.77	1.59	2.21
2000	3.01	4.22	7.23	1.41	1.78	3.05
2001	2.10	3.08	5.18	1.74	1.17	2.54
2002	2.71	6.49	9.20	1.31	4.55	5.04
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	2.39	3.79	6.18	0.99	1.45	2.18
2005	2.85	2.90	5.75	2.47	1.44	4.52
2006	2.01	2.66	4.68	0.76	1.30	1.93
2007	2.08	2.94	5.02	0.95	2.09	2.64
2008	1.84	1.92	3.76	0.71	0.70	1.32
2009	2.62	2.37	5.00	2.13	1.80	3.71
2010	2.23	2.18	4.41	1.09	1.01	2.00
2011	0.98	1.28	2.25	0.63	0.85	1.49
2012	1.04	1.09	2.13	0.42	0.52	0.93
2013	0.96	1.49	2.45	0.52	0.77	1.22

Table 10. Length (cm; mean and two standard errors) per tow of winter flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1984	26.02	13.25
1985	24.46	11.08
1986	24.56	11.32
1987	23.11	10.81
1988	24.84	9.67
1989	24.55	8.57
1990	23.22	8.00
1991	22.67	9.47
1992	23.93	8.49
1993	24.47	9.99
1994	23.56	11.03
1995	20.15	12.89
1996	21.44	12.93
1997	21.67	11.01
1998	21.83	10.04
1999	21.29	11.48
2000	21.41	10.67
2001	22.11	9.95
2002	22.21	12.61
2003	N/A	N/A
2004	22.34	9.87
2005	19.04	12.23
2006	21.26	11.06
2007	20.94	12.32
2008	21.34	9.98
2009	19.11	11.35
2010	20.90	10.26
2011	21.65	10.25
2012	21.85	9.25
2013	17.06	15.50

Table 11a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 25 cm and ≥ 25 cm) and overall for yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys. Strata 401 to 439 are those used for the yellowtail flounder abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 25 cm	≥ 25 cm	Total	< 25 cm	≥ 25 cm	Total
1984	0.61	3.77	4.38	0.65	1.64	2.08
1985	2.33	12.38	14.72	1.76	6.96	8.62
1986	2.94	17.71	20.65	1.59	8.76	9.92
1987	4.04	11.87	15.91	2.44	6.64	8.77
1988	4.98	18.76	23.73	1.98	9.92	11.47
1989	3.62	9.02	12.64	1.76	4.64	6.04
1990	7.44	12.45	19.89	3.21	4.33	6.90
1991	5.77	15.55	21.31	2.56	6.49	8.38
1992	6.89	9.62	16.51	2.40	2.95	4.86
1993	13.41	14.70	28.11	6.26	4.28	9.43
1994	8.23	10.20	18.44	4.13	4.05	7.43
1995	8.68	18.41	27.09	3.99	7.54	9.52
1996	6.58	13.44	20.02	2.21	3.69	5.53
1997	8.44	6.14	14.58	3.78	1.84	5.33
1998	8.84	6.74	15.58	3.26	2.30	5.14
1999	12.59	10.38	22.97	6.12	4.38	9.61
2000	10.58	11.46	22.04	4.45	4.62	8.38
2001	10.28	11.96	22.24	4.13	4.43	7.64
2002	10.30	7.57	17.88	3.15	2.99	5.69
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	14.84	9.30	24.14	7.07	4.57	11.15
2005	11.81	6.22	18.03	5.04	3.05	7.78
2006	18.24	6.93	25.18	5.92	2.62	7.89
2007	14.68	5.00	19.68	4.24	1.58	5.41
2008	16.25	4.31	20.57	6.39	1.87	8.08
2009	12.89	2.60	15.49	3.92	1.47	5.00
2010	17.98	2.91	20.89	4.96	1.00	5.45
2011	12.31	1.75	14.06	2.99	0.55	3.43
2012	14.49	1.52	16.01	4.81	0.59	5.29
2013	20.03	2.94	22.97	8.02	1.37	8.79

Table 11b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 25 cm and ≥ 25 cm) and overall for yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys. Strata 401 to 439 are those used for the yellowtail flounder abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 25 cm	≥ 25 cm	Total	< 25 cm	≥ 25 cm	Total
1984	0.06	0.88	0.93	0.06	0.36	0.40
1985	0.21	2.95	3.16	0.15	1.60	1.75
1986	0.29	4.46	4.75	0.16	2.28	2.38
1987	0.29	2.53	2.82	0.17	1.36	1.51
1988	0.48	4.61	5.09	0.20	2.65	2.77
1989	0.36	1.87	2.23	0.18	0.96	1.09
1990	0.67	2.70	3.37	0.35	0.95	1.17
1991	0.50	3.36	3.86	0.23	1.34	1.49
1992	0.62	2.02	2.65	0.21	0.63	0.79
1993	1.18	2.79	3.98	0.57	0.82	1.23
1994	0.78	2.02	2.80	0.39	0.79	1.08
1995	0.77	3.66	4.43	0.34	1.56	1.69
1996	0.52	2.59	3.11	0.17	0.71	0.84
1997	0.62	1.13	1.75	0.28	0.32	0.56
1998	0.72	1.26	1.99	0.26	0.43	0.64
1999	1.10	1.96	3.06	0.55	0.85	1.26
2000	0.92	2.07	3.00	0.39	0.83	1.14
2001	0.94	2.28	3.21	0.38	0.86	1.12
2002	0.83	1.37	2.21	0.26	0.55	0.77
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	1.29	1.64	2.94	0.66	0.79	1.39
2005	0.99	1.06	2.05	0.45	0.51	0.93
2006	1.44	1.16	2.60	0.50	0.44	0.86
2007	1.07	0.84	1.91	0.30	0.27	0.53
2008	1.16	0.68	1.84	0.49	0.28	0.75
2009	0.90	0.41	1.31	0.29	0.24	0.49
2010	1.18	0.49	1.67	0.32	0.17	0.42
2011	0.84	0.27	1.11	0.20	0.09	0.27
2012	1.00	0.23	1.24	0.34	0.09	0.42
2013	1.85	0.67	2.52	0.71	0.31	0.93

Table 12a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 25 cm and ≥ 25 cm) and overall for yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys in the area of the Magdalen Islands that includes strata 428 and 434 to 436, 1971 to 2013. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 25 cm	≥ 25 cm	Total	< 25 cm	≥ 25 cm	Total
1971	3.52	10.97	14.49	4.94	7.75	12.41
1972	4.52	17.86	22.38	6.53	20.05	25.36
1973	2.21	7.67	9.88	3.42	10.15	12.31
1974	14.64	38.83	53.47	7.23	46.37	52.45
1975	27.62	17.86	45.48	41.20	14.07	55.13
1976	7.22	8.88	16.10	9.91	12.98	21.52
1977	64.68	68.46	133.14	32.52	59.25	91.53
1978	11.74	24.50	36.24	21.30	24.47	45.51
1979	10.74	25.84	36.58	15.29	31.97	47.08
1980	6.73	43.07	49.81	7.09	29.56	36.15
1981	11.86	65.27	77.13	16.39	55.43	71.78
1982	6.10	18.46	24.56	0.49	5.59	6.08
1983	3.13	25.85	28.98	3.37	41.47	44.66
1984	0.90	7.18	8.08	0.77	5.78	6.47
1985	1.63	6.47	8.11	1.23	8.47	9.63
1986	2.51	10.09	12.60	1.15	6.79	6.34
1987	4.86	13.04	17.91	2.58	15.56	17.33
1988	10.06	35.51	45.57	8.67	21.12	29.79
1989	2.16	9.14	11.29	1.26	7.16	7.90
1990	5.94	7.15	13.09	3.93	4.65	4.88
1991	10.60	23.34	33.95	7.24	14.96	17.44
1992	20.44	22.76	43.20	14.56	13.07	25.28
1993	41.42	57.12	98.54	10.67	18.93	17.90
1994	22.14	39.60	61.74	14.60	25.33	37.47
1995	32.30	98.88	131.18	18.96	77.03	81.82
1996	26.81	61.45	88.27	13.14	28.37	40.77
1997	34.21	26.27	60.48	20.75	9.52	24.89
1998	33.20	25.95	59.15	21.73	15.77	35.09
1999	54.08	49.91	103.99	24.86	35.75	48.88
2000	63.40	49.81	113.21	34.52	25.46	53.92
2001	47.91	43.54	91.46	24.03	22.29	35.96
2002	51.97	29.10	81.08	16.88	17.60	30.26
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	60.45	25.45	85.91	55.96	28.87	84.77
2005	70.48	26.83	97.31	49.30	26.37	72.82
2006	104.18	25.23	129.41	41.19	15.59	51.08
2007	57.82	7.06	64.88	29.92	2.42	30.59
2008	35.04	4.48	39.52	20.03	3.00	22.54
2009	55.79	6.79	62.58	22.61	4.42	25.37
2010	83.94	7.34	91.28	27.87	4.51	31.17
2011	68.18	5.77	73.95	23.92	2.97	26.45
2012	74.62	6.22	80.85	41.06	3.59	44.20
2013	87.45	6.38	93.83	72.14	8.34	79.87

Table 12b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 25 cm and ≥ 25 cm) and overall for yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys in the area of the Magdalen Islands that includes strata 428 and 434 to 436, 1971 to 2013. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 25 cm	≥ 25 cm	Total	< 25 cm	≥ 25 cm	Total
1971	0.40	2.75	3.15	0.55	1.65	2.16
1972	0.48	4.33	4.81	0.67	4.87	5.36
1973	0.23	2.08	2.31	0.32	3.08	3.21
1974	1.24	7.95	9.19	0.68	9.44	10.01
1975	2.02	3.83	5.85	2.89	2.78	5.66
1976	0.71	1.78	2.49	0.98	2.67	3.45
1977	6.34	13.14	19.48	3.20	11.90	15.07
1978	1.00	4.56	5.56	1.83	3.71	5.48
1979	0.87	4.19	5.06	1.25	4.31	5.51
1980	0.66	10.01	10.68	0.69	6.95	7.53
1981	1.35	13.21	14.56	1.82	9.71	11.51
1982	0.59	3.91	4.50	0.05	1.61	1.66
1983	0.26	5.28	5.54	0.26	8.61	8.85
1984	0.09	1.93	2.02	0.06	1.48	1.53
1985	0.14	1.85	1.99	0.09	2.31	2.39
1986	0.21	3.17	3.38	0.09	2.13	2.10
1987	0.29	3.56	3.85	0.14	4.31	4.42
1988	0.93	7.92	8.86	1.04	1.70	2.74
1989	0.18	2.14	2.33	0.11	1.56	1.63
1990	0.49	1.83	2.32	0.34	0.86	0.79
1991	0.88	5.69	6.58	0.58	3.57	3.73
1992	1.78	4.86	6.65	1.30	2.93	3.85
1993	3.39	11.33	14.73	0.73	4.02	3.79
1994	2.09	8.37	10.45	1.41	5.04	6.07
1995	3.05	20.02	23.06	1.84	16.15	16.50
1996	2.15	12.02	14.17	0.97	5.58	6.40
1997	2.48	4.86	7.34	1.39	1.86	2.54
1998	2.62	5.00	7.62	1.65	3.04	4.46
1999	4.35	9.96	14.31	1.99	7.60	8.42
2000	5.43	8.74	14.18	2.97	4.56	6.75
2001	4.30	8.13	12.44	2.07	4.55	5.40
2002	4.17	5.05	9.22	1.45	3.13	4.15
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	5.45	4.22	9.67	5.62	4.62	10.23
2005	5.98	4.38	10.36	4.49	4.30	8.51
2006	8.22	3.99	12.21	3.75	2.50	5.57
2007	4.08	1.07	5.15	2.05	0.37	2.18
2008	2.42	0.67	3.09	1.49	0.46	1.89
2009	3.85	1.03	4.88	1.57	0.71	2.08
2010	5.46	1.16	6.62	1.88	0.71	2.38
2011	4.59	0.87	5.45	1.61	0.46	2.01
2012	5.01	0.88	5.89	2.88	0.50	3.32
2013	7.58	1.42	8.99	6.28	1.87	8.07

Table 13. Length (cm; mean and two standard errors) per tow of yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1984	28.12	7.03
1985	26.16	9.11
1986	25.65	10.03
1987	24.92	9.66
1988	26.54	9.50
1989	26.12	6.95
1990	23.41	10.35
1991	24.04	10.18
1992	23.52	9.31
1993	22.55	8.71
1994	24.50	7.61
1995	24.27	9.02
1996	23.21	10.15
1997	22.25	9.59
1998	21.44	9.41
1999	22.95	7.93
2000	23.01	7.99
2001	23.07	8.39
2002	21.39	8.82
2003	N/A	N/A
2004	22.19	7.51
2005	21.80	7.72
2006	20.57	7.95
2007	20.09	8.24
2008	19.64	8.55
2009	19.35	7.35
2010	19.15	7.32
2011	19.31	6.90
2012	18.80	6.96
2013	19.19	7.62

Table 14. Length (cm; mean and two standard errors) per tow of yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys in the area of the Magdalen Islands (Strata 428 and 434 to 436), 1971 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1971	27.48	9.13
1972	27.85	7.55
1973	28.48	10.83
1974	26.03	7.01
1975	23.50	9.58
1976	25.02	7.19
1977	24.80	6.80
1978	26.36	7.26
1979	26.15	6.30
1980	28.40	7.27
1981	27.40	5.85
1982	26.48	7.54
1983	28.28	5.79
1984	29.66	7.48
1985	26.06	11.68
1986	22.83	15.91
1987	23.79	13.28
1988	24.80	10.06
1989	26.70	9.05
1990	20.94	12.17
1991	22.81	13.07
1992	22.35	10.64
1993	21.93	10.81
1994	25.84	7.87
1995	25.67	7.48
1996	24.67	8.98
1997	21.63	10.60
1998	20.80	10.65
1999	22.66	9.20
2000	22.76	8.02
2001	22.73	8.34
2002	21.54	8.05
2003	N/A	N/A
2004	22.64	6.58
2005	22.39	6.74
2006	20.05	7.48
2007	19.84	7.29
2008	19.71	6.63
2009	19.58	6.29
2010	19.70	5.61
2011	19.43	6.25
2012	18.12	6.84
2013	20.09	5.92

Table 15a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 26 cm and ≥ 26 cm) and overall for Atlantic herring in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the herring abundance and biomass index. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 26 cm	≥ 26 cm	Total	< 26 cm	≥ 26 cm	Total
1984	25.99	31.83	57.82	27.42	17.30	36.73
1985	23.85	27.48	51.33	8.18	15.37	17.17
1986	24.63	50.10	74.74	24.76	34.75	52.47
1987	127.12	59.09	186.21	179.83	29.77	184.82
1988	7.84	43.42	51.26	1.15	36.35	36.48
1989	17.97	22.49	40.45	15.23	14.77	23.61
1990	37.30	76.90	114.20	30.96	75.78	80.80
1991	165.36	64.31	229.66	257.97	33.03	260.21
1992	150.37	27.46	177.83	143.26	17.69	146.30
1993	41.85	25.01	66.86	25.37	13.72	29.91
1994	30.04	54.90	84.94	40.59	32.62	56.62
1995	70.16	91.92	162.07	58.28	66.01	91.70
1996	40.87	11.02	51.88	30.23	4.95	30.68
1997	141.89	43.35	185.24	99.66	29.68	103.56
1998	52.12	19.27	71.39	42.88	13.07	44.52
1999	234.89	24.85	259.74	192.72	19.61	192.83
2000	102.86	49.09	151.94	58.40	33.87	72.52
2001	77.63	55.06	132.69	58.54	45.68	92.14
2002	230.70	81.18	311.88	135.25	68.79	153.74
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	76.78	155.26	232.04	39.70	137.16	164.66
2005	97.73	182.92	280.65	52.29	114.63	146.68
2006	114.09	52.61	166.71	54.33	49.06	87.23
2007	671.57	366.89	1038.45	496.60	440.35	722.23
2008	198.48	122.70	321.18	114.34	84.13	164.91
2009	203.77	169.79	373.55	216.87	183.61	328.40
2010	792.68	538.44	1331.12	428.25	688.22	1017.46
2011	363.47	266.72	630.19	208.86	163.00	315.63
2012	2170.56	1402.34	3572.90	3608.00	1548.26	5122.37
2013	102.67	117.15	219.82	72.63	80.60	149.05

Table 15b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 26 cm and ≥ 26 cm) and overall for Atlantic herring in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the herring abundance and biomass index. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 26 cm	≥ 26 cm	Total	< 26 cm	≥ 26 cm	Total
1984	2.06	8.20	10.27	1.43	4.44	5.81
1985	1.68	8.03	9.70	0.98	4.50	4.92
1986	1.54	11.51	13.05	1.89	7.38	8.74
1987	5.42	14.44	19.86	5.24	7.32	10.22
1988	0.18	12.38	12.56	0.09	10.60	10.62
1989	1.39	6.10	7.49	1.31	4.17	4.67
1990	2.30	19.55	21.85	1.76	18.51	18.55
1991	3.07	17.17	20.23	3.98	9.08	10.01
1992	6.60	6.73	13.33	5.90	4.55	8.00
1993	1.00	6.27	7.27	0.78	3.41	3.68
1994	1.60	11.70	13.30	1.76	5.91	6.76
1995	2.78	17.62	20.39	2.05	12.73	13.41
1996	0.79	2.77	3.55	0.67	1.34	1.52
1997	3.70	10.06	13.77	3.28	6.89	7.64
1998	1.29	4.22	5.51	0.94	2.77	2.96
1999	7.11	5.33	12.44	4.34	4.60	6.38
2000	2.91	9.28	12.19	1.74	6.42	7.35
2001	5.82	10.09	15.92	5.46	7.81	11.97
2002	5.32	14.90	20.23	2.42	12.17	13.17
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	3.04	30.37	33.41	3.07	26.09	28.65
2005	3.67	35.54	39.21	3.07	22.55	24.69
2006	2.96	10.52	13.47	1.91	9.72	10.43
2007	47.82	69.36	117.19	41.04	82.96	101.64
2008	10.47	21.20	31.67	6.85	14.53	19.47
2009	16.71	25.93	42.64	19.58	27.77	39.64
2010	38.15	82.44	120.59	32.04	103.47	132.69
2011	24.21	38.52	62.72	14.98	23.67	33.22
2012	153.35	224.65	377.99	245.49	257.46	499.94
2013	9.28	17.80	27.09	7.50	12.07	19.12

Table 16. Length (cm; mean and two standard errors) per tow of Atlantic herring in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1984	25.51	9.05
1985	26.94	9.92
1986	28.06	9.65
1987	22.39	14.26
1988	31.55	7.03
1989	29.99	10.03
1990	29.82	9.44
1991	26.77	16.98
1992	28.00	14.86
1993	25.08	19.36
1994	29.52	8.80
1995	26.46	11.13
1996	19.68	21.18
1997	22.02	17.90
1998	22.20	17.15
1999	18.92	13.11
2000	25.05	10.59
2001	26.90	7.77
2002	21.11	15.41
2003	N/A	N/A
2004	26.38	9.19
2005	24.73	13.03
2006	19.00	16.76
2007	21.53	10.61
2008	21.05	14.81
2009	24.20	8.65
2010	19.48	15.44
2011	24.01	8.58
2012	25.18	6.46
2013	25.75	5.83

Table 17a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 85 cm and ≥ 85 cm) and overall for Atlantic halibut in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the Atlantic halibut abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 85 cm	≥ 85 cm	Total	< 85 cm	≥ 85 cm	Total
1984	0.03	<0.01	0.04	0.04	0.01	0.04
1985	0.04	0.00	0.04	0.04	<0.01	0.05
1986	0.02	0.00	0.02	0.03	<0.01	0.03
1987	0.01	0.00	0.01	0.02	<0.01	0.02
1988	0.01	0.02	0.03	0.02	0.03	0.04
1989	0.00	0.00	0.00	<0.01	<0.01	<0.01
1990	0.00	0.00	0.00	<0.01	<0.01	<0.01
1991	<0.01	<0.01	0.01	<0.01	0.01	0.01
1992	0.01	0.01	0.02	0.02	0.02	0.01
1993	<0.01	0.00	<0.01	0.01	<0.01	0.01
1994	<0.01	0.00	<0.01	0.01	<0.01	0.01
1995	0.02	0.00	0.02	0.02	<0.01	0.02
1996	0.01	<0.01	0.01	0.01	0.01	0.01
1997	0.01	<0.01	0.01	0.01	<0.01	0.01
1998	0.02	<0.01	0.02	0.05	0.01	0.02
1999	0.02	0.01	0.03	0.02	0.01	0.02
2000	0.08	<0.01	0.08	0.06	0.01	0.05
2001	0.05	0.01	0.06	0.07	0.02	0.07
2002	0.19	0.02	0.20	0.15	0.02	0.15
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	0.14	<0.01	0.14	0.14	0.01	0.07
2005	0.08	<0.01	0.08	0.07	0.01	0.05
2006	0.14	0.02	0.16	0.09	0.03	0.07
2007	0.22	0.02	0.24	0.19	0.02	0.14
2008	0.15	0.01	0.16	0.10	0.02	0.06
2009	0.12	0.02	0.14	0.08	0.02	0.08
2010	0.18	0.03	0.21	0.16	0.04	0.10
2011	0.20	0.06	0.26	0.13	0.05	0.13
2012	0.20	0.05	0.26	0.20	0.06	0.20
2013	0.16	0.03	0.20	0.18	0.03	0.10

Table 17b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 85 cm and ≥ 85 cm) and overall for Atlantic halibut in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the Atlantic halibut abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 85 cm	≥ 85 cm	Total	< 85 cm	≥ 85 cm	Total
1984	0.04	0.05	0.09	0.06	0.09	0.11
1985	0.04	0.00	0.04	0.04	<0.01	0.06
1986	0.03	0.00	0.03	0.05	<0.01	0.05
1987	0.14	0.00	0.14	0.09	<0.01	0.23
1988	0.06	1.87	1.93	0.06	1.88	3.35
1989	0.00	0.00	0.00	<0.01	<0.01	<0.01
1990	0.00	0.00	0.00	<0.01	<0.01	<0.01
1991	0.01	0.24	0.25	0.01	0.26	0.39
1992	0.01	0.87	0.87	0.01	1.02	1.37
1993	0.01	0.00	0.01	0.02	<0.01	0.03
1994	<0.01	0.00	<0.01	0.01	<0.01	0.01
1995	0.03	0.00	0.03	0.04	<0.01	0.05
1996	0.02	0.04	0.06	0.03	0.07	0.08
1997	0.01	0.01	0.02	0.02	0.03	0.03
1998	0.08	0.01	0.09	0.20	0.04	0.09
1999	0.06	0.05	0.10	0.08	0.08	0.09
2000	0.12	0.02	0.14	0.12	0.06	0.11
2001	0.02	0.29	0.31	0.03	0.43	0.31
2002	0.08	0.25	0.33	0.10	0.68	0.32
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	0.20	0.05	0.25	0.19	0.10	0.18
2005	0.15	0.04	0.19	0.21	0.07	0.15
2006	0.23	0.19	0.42	0.19	0.25	0.26
2007	0.35	0.29	0.65	0.19	0.28	0.43
2008	0.25	0.11	0.36	0.15	0.12	0.19
2009	0.17	0.19	0.36	0.17	0.22	0.20
2010	0.47	0.29	0.76	0.53	0.47	0.42
2011	0.63	1.42	2.05	0.39	1.32	1.84
2012	0.40	0.78	1.18	0.48	1.18	0.84
2013	0.39	0.92	1.31	0.59	1.09	0.88

Table 18. Length (cm; mean and two standard errors) per tow of Atlantic halibut in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1984	46.88	70.50
1985	40.26	33.95
1986	46.96	60.32
1987	69.49	40.03
1988	256.83	126.84
1989	0.00	0.00
1990	0.00	0.00
1991	178.50	192.84
1992	138.14	272.40
1993	71.00	0.00
1994	48.00	0.00
1995	48.19	138.71
1996	65.34	113.45
1997	58.18	34.98
1998	66.71	52.89
1999	61.67	72.96
2000	47.88	45.43
2001	49.84	122.96
2002	33.69	88.96
2003	N/A	N/A
2004	44.17	55.06
2005	51.15	58.32
2006	52.95	53.32
2007	46.90	62.13
2008	47.58	58.04
2009	52.07	54.79
2010	62.46	44.61
2011	74.41	71.37
2012	66.65	64.92
2013	66.36	83.74

Table 19a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 20 cm and ≥ 20 cm) and overall for gaspereau in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the gaspereau abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 20 cm	≥ 20 cm	Total	< 20 cm	≥ 20 cm	Total
1984	0.02	0.31	0.33	0.02	0.32	0.33
1985	1.98	7.04	9.02	1.88	8.27	8.61
1986	3.36	1.82	5.18	3.54	1.25	4.10
1987	0.72	1.31	2.03	1.41	1.29	1.91
1988	6.44	0.83	7.27	<0.01	0.96	0.96
1989	0.62	11.36	11.98	0.22	13.81	13.81
1990	1.62	0.59	2.22	1.70	0.79	1.88
1991	0.22	1.92	2.15	0.19	1.79	1.81
1992	0.00	1.35	1.35	0.00	1.54	1.54
1993	1.29	2.21	3.50	1.83	1.38	2.28
1994	0.39	1.50	1.90	0.69	0.88	1.18
1995	1.13	0.87	1.99	1.45	1.13	2.54
1996	2.98	1.87	4.84	2.03	1.97	3.28
1997	3.67	1.62	5.29	3.00	1.28	3.37
1998	1.12	2.80	3.92	1.30	1.81	2.53
1999	1.06	1.94	3.00	0.71	2.56	3.01
2000	0.93	3.10	4.03	0.60	3.48	3.86
2001	0.66	3.67	4.33	0.54	2.39	2.84
2002	0.55	3.61	4.16	0.26	2.17	2.27
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	1.29	2.50	3.78	0.67	1.38	1.53
2005	0.67	4.56	5.23	0.69	6.75	7.34
2006	1.86	1.15	3.02	2.11	0.70	2.19
2007	3.48	5.57	9.05	4.85	3.85	6.72
2008	0.41	6.29	6.70	0.38	3.74	3.87
2009	2.42	7.49	9.91	1.40	4.28	4.82
2010	2.03	3.35	5.37	1.71	2.39	3.61
2011	1.92	9.75	11.67	1.61	4.52	4.27
2012	2.85	6.14	8.99	3.19	7.17	8.41
2013	6.84	3.03	9.86	9.03	2.07	10.18

Table 19b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 20 cm and ≥ 20 cm) and overall for gaspereau in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the gaspereau abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 20 cm	≥ 20 cm	Total	< 20 cm	≥ 20 cm	Total
1984	<0.01	0.06	0.06	<0.01	0.06	0.06
1985	0.03	1.18	1.21	0.03	1.35	1.36
1986	0.09	0.26	0.35	0.13	0.21	0.26
1987	0.03	0.25	0.28	0.06	0.25	0.26
1988	0.11	0.16	0.27	<0.01	0.20	0.20
1989	0.10	1.72	1.81	0.11	2.00	2.01
1990	0.05	0.10	0.14	0.05	0.12	0.14
1991	0.01	0.40	0.41	<0.01	0.36	0.36
1992	0.00	0.19	0.19	0.00	0.22	0.22
1993	0.02	0.45	0.47	0.03	0.29	0.29
1994	0.01	0.31	0.32	0.02	0.20	0.20
1995	0.03	0.14	0.17	0.05	0.13	0.17
1996	0.09	0.21	0.30	0.06	0.20	0.25
1997	0.05	0.25	0.30	0.04	0.20	0.21
1998	0.06	0.46	0.52	0.07	0.27	0.29
1999	0.04	0.30	0.34	0.04	0.40	0.42
2000	0.03	0.36	0.39	0.03	0.38	0.40
2001	0.05	0.49	0.54	0.04	0.34	0.38
2002	0.03	0.54	0.57	0.02	0.31	0.32
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	0.09	0.35	0.44	0.05	0.20	0.20
2005	0.04	0.59	0.63	0.05	0.85	0.90
2006	0.06	0.15	0.21	0.06	0.09	0.11
2007	0.13	0.85	0.98	0.15	0.65	0.69
2008	0.02	0.85	0.87	0.02	0.49	0.50
2009	0.15	1.02	1.17	0.09	0.61	0.64
2010	0.10	0.40	0.51	0.08	0.25	0.31
2011	0.12	1.11	1.23	0.11	0.52	0.50
2012	0.10	0.66	0.75	0.10	0.71	0.78
2013	0.28	0.31	0.60	0.33	0.21	0.47

Table 20. Length (cm; mean and two standard errors) per tow of gaspereau in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1984	24.94	6.37
1985	20.21	12.30
1986	15.57	14.42
1987	19.34	16.21
1988	12.60	8.86
1989	24.29	5.45
1990	14.80	13.45
1991	24.73	8.19
1992	25.03	5.73
1993	15.73	15.93
1994	24.83	7.34
1995	16.31	10.99
1996	17.09	9.51
1997	12.83	10.07
1998	22.95	7.21
1999	18.11	11.28
2000	20.94	6.48
2001	21.19	4.04
2002	22.11	5.98
2003	N/A	N/A
2004	21.51	5.43
2005	22.09	4.67
2006	17.12	10.83
2007	20.88	8.17
2008	22.73	3.91
2009	21.47	6.60
2010	18.48	9.21
2011	21.73	4.03
2012	20.33	5.97
2013	16.68	8.99

Table 21a. Annual catch abundance (number per tow; mean and two standard errors) for two size groups (< 12 cm and ≥ 12 cm) and overall for rainbow smelt in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the rainbow smelt abundance and biomass indices. N/A indicates data not available.

Year	Number					
	Mean			2 Standard errors		
	< 12 cm	≥ 12 cm	Total	< 12 cm	≥ 12 cm	Total
1984	12.41	87.86	100.27	14.13	87.60	96.98
1985	16.76	281.06	297.82	15.92	301.00	303.53
1986	8.55	132.26	140.81	12.02	126.86	133.06
1987	10.89	135.41	146.30	10.11	123.56	132.04
1988	0.18	27.31	27.49	0.16	3.19	3.21
1989	0.00	32.43	32.43	0.00	24.46	24.46
1990	1.66	22.92	24.58	2.65	28.02	28.16
1991	0.00	27.48	27.48	0.00	27.24	27.24
1992	5.25	53.86	59.10	6.51	50.63	56.88
1993	1.09	10.28	11.37	2.09	10.85	11.69
1994	0.20	6.33	6.54	0.40	5.76	5.78
1995	0.98	31.15	32.14	1.93	30.11	31.95
1996	1.14	53.48	54.61	1.73	62.05	62.43
1997	3.45	51.49	54.94	5.18	53.57	57.83
1998	0.41	43.37	43.78	0.32	45.76	46.05
1999	9.96	56.21	66.17	5.52	51.10	53.16
2000	0.60	29.42	30.02	0.66	33.78	33.81
2001	2.95	37.82	40.77	0.24	54.26	54.32
2002	17.86	79.49	97.35	29.03	82.75	111.16
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	18.29	67.28	85.57	28.41	56.42	66.44
2005	44.31	92.42	136.73	58.76	106.11	163.14
2006	1.86	206.88	208.74	1.53	228.78	228.99
2007	7.83	61.92	69.75	5.92	25.02	26.15
2008	0.23	40.43	40.66	0.35	30.74	30.82
2009	14.56	88.19	102.75	11.87	52.28	56.06
2010	11.37	103.49	114.86	3.78	70.21	70.08
2011	0.73	55.87	56.60	0.35	59.32	59.28
2012	11.04	58.22	69.26	10.18	53.65	61.47
2013	1.36	42.31	43.67	1.36	39.01	39.37

Table 21b. Annual catch abundance (kg per tow; mean and two standard errors) for two size groups (< 12 cm and ≥ 12 cm) and overall for rainbow smelt in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013. Strata 401 to 439 are those used for the rainbow smelt abundance and biomass indices. N/A indicates data not available.

Year	Weight (kg)					
	Mean			2 Standard errors		
	< 12 cm	≥ 12 cm	Total	< 12 cm	≥ 12 cm	Total
1984	0.12	2.35	2.47	0.13	2.45	2.51
1985	0.16	7.71	7.87	0.16	8.16	8.18
1986	0.07	2.91	2.98	0.11	2.59	2.62
1987	0.07	2.84	2.91	0.07	2.23	2.27
1988	<0.01	0.54	0.54	<0.01	0.09	0.09
1989	0.00	1.48	1.48	0.00	1.12	1.12
1990	<0.01	0.75	0.76	0.01	0.94	0.94
1991	0.00	1.05	1.05	0.00	1.14	1.14
1992	0.04	1.04	1.08	0.05	0.81	0.85
1993	<0.01	0.32	0.33	0.01	0.38	0.38
1994	<0.01	0.13	0.13	<0.01	0.12	0.12
1995	0.01	0.75	0.76	0.02	0.64	0.66
1996	0.01	1.33	1.33	0.01	1.68	1.68
1997	0.01	0.82	0.83	0.02	0.78	0.79
1998	<0.01	0.84	0.85	<0.01	0.88	0.88
1999	0.05	1.07	1.13	0.03	0.94	0.95
2000	<0.01	0.68	0.69	<0.01	0.77	0.77
2001	0.01	1.09	1.10	<0.01	1.51	1.51
2002	0.17	1.43	1.60	0.28	1.32	1.59
2003	N/A	N/A	N/A	N/A	N/A	N/A
2004	0.07	1.36	1.43	0.09	1.23	1.24
2005	0.19	1.71	1.89	0.25	1.69	1.89
2006	0.01	4.66	4.67	0.01	5.61	5.61
2007	0.03	1.14	1.17	0.02	0.54	0.55
2008	<0.01	1.15	1.15	<0.01	0.84	0.85
2009	0.07	1.89	1.96	0.07	1.26	1.28
2010	0.05	2.03	2.08	0.03	1.45	1.46
2011	<0.01	1.57	1.57	<0.01	1.71	1.71
2012	0.04	0.86	0.90	0.04	0.72	0.76
2013	0.01	0.87	0.88	0.01	0.79	0.80

Table 22. Length (cm; mean and two standard errors) per tow of rainbow smelt in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013. N/A indicates data not available.

Year	Length (cm)	
	Mean	2 Standard errors
1984	13.89	5.15
1985	14.56	4.61
1986	14.08	5.46
1987	14.04	5.37
1988	14.17	2.54
1989	19.08	4.77
1990	14.92	5.96
1991	17.64	4.56
1992	13.08	4.65
1993	14.42	6.32
1994	14.56	4.39
1995	15.01	4.48
1996	14.81	4.44
1997	13.05	3.45
1998	13.95	3.18
1999	12.56	4.65
2000	14.32	3.49
2001	14.12	7.14
2002	12.65	3.25
2003	N/A	N/A
2004	13.38	4.93
2005	11.92	5.83
2006	14.21	4.16
2007	13.21	4.56
2008	15.24	3.89
2009	13.39	5.59
2010	13.64	4.94
2011	15.34	4.08
2012	12.12	4.15
2013	13.58	2.80

FIGURES

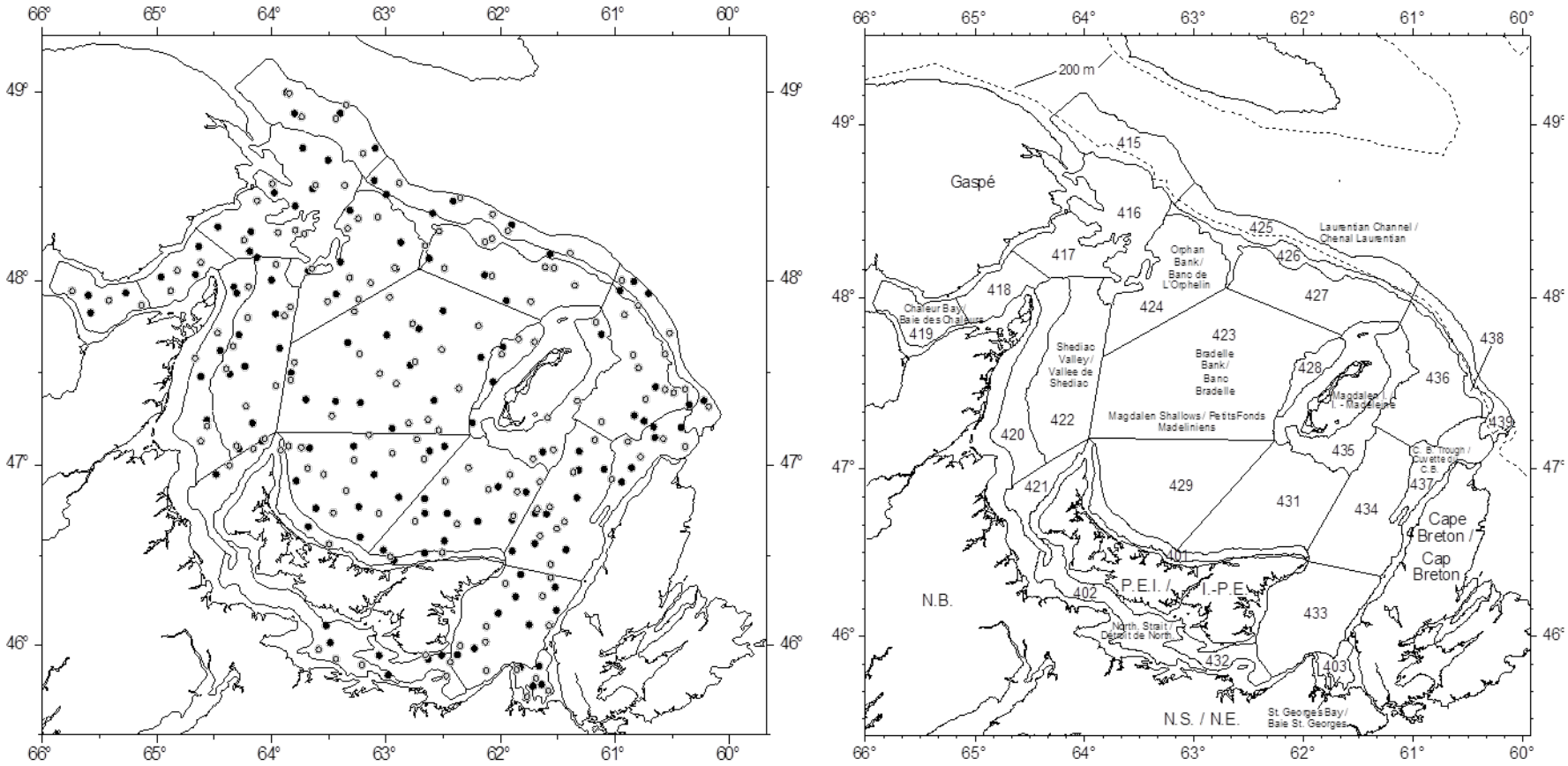


Figure 1. Location of the CCGS Teleost fishing sets for the 2012 (gray), 2013 (black) survey (left panel) and the stratification scheme and place names cited in the text (right panel).

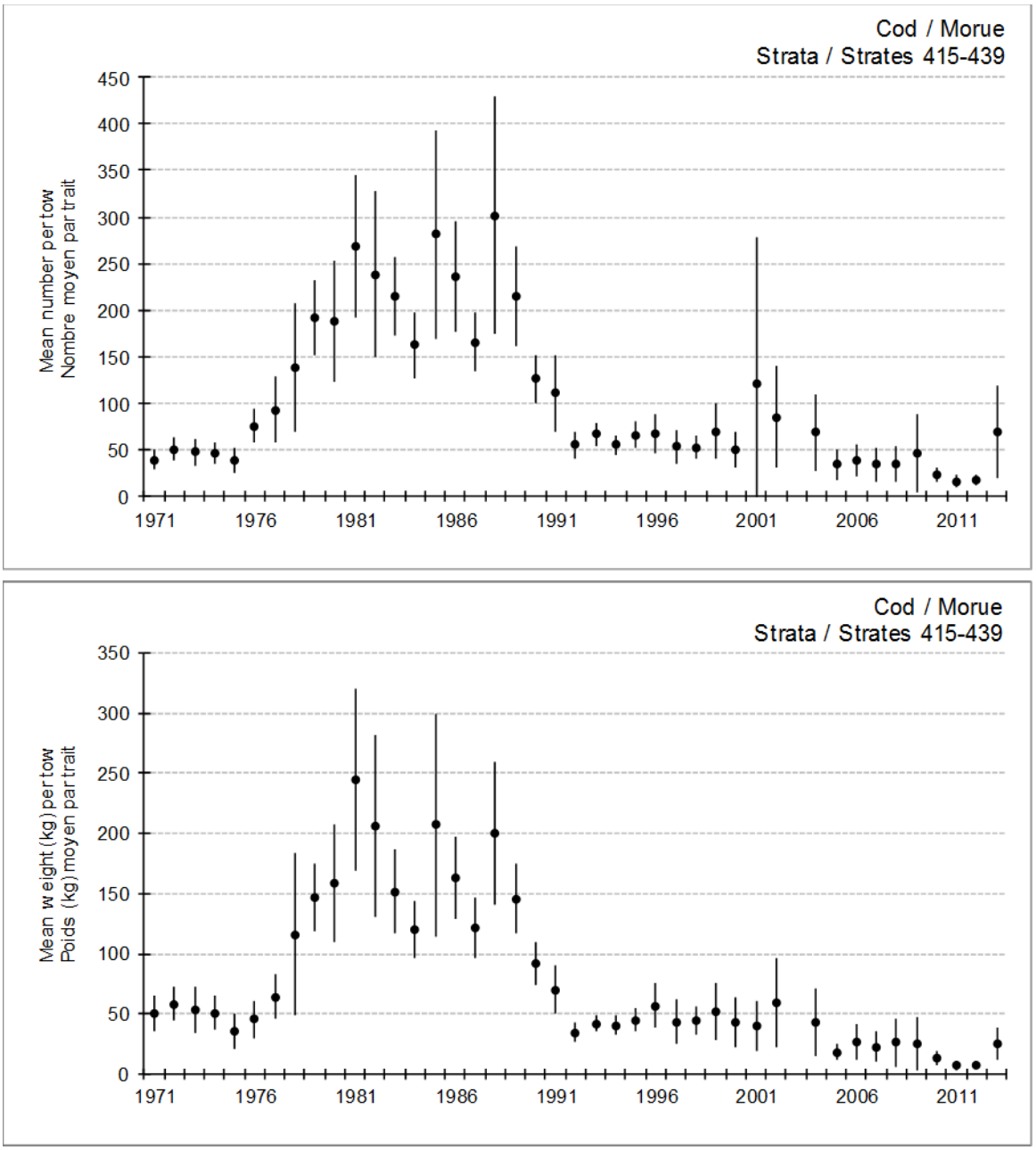


Figure 2. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of Atlantic cod in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

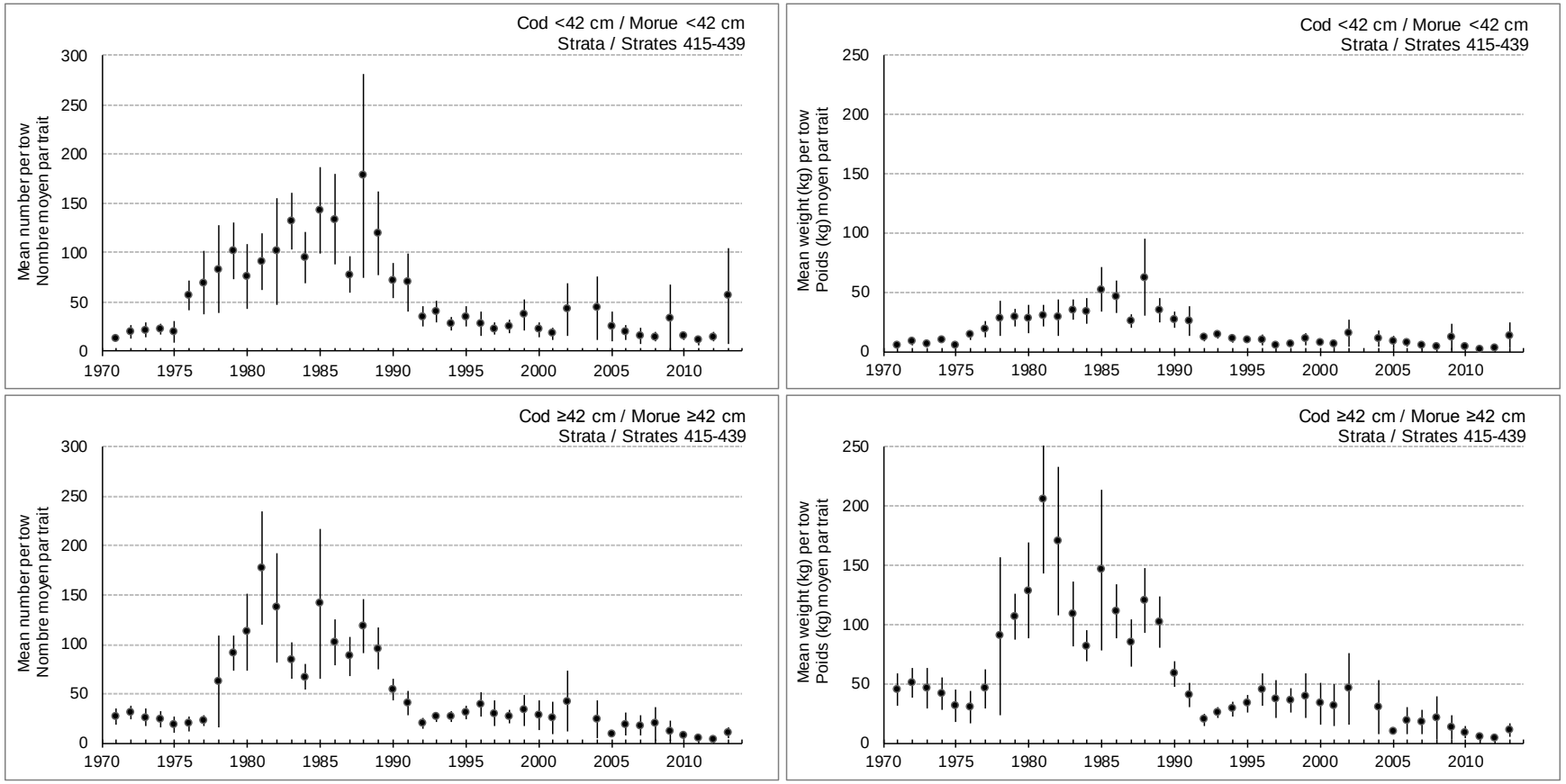


Figure 3. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of Atlantic cod for two size groups (< 42 cm length in top row; ≥ 42 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

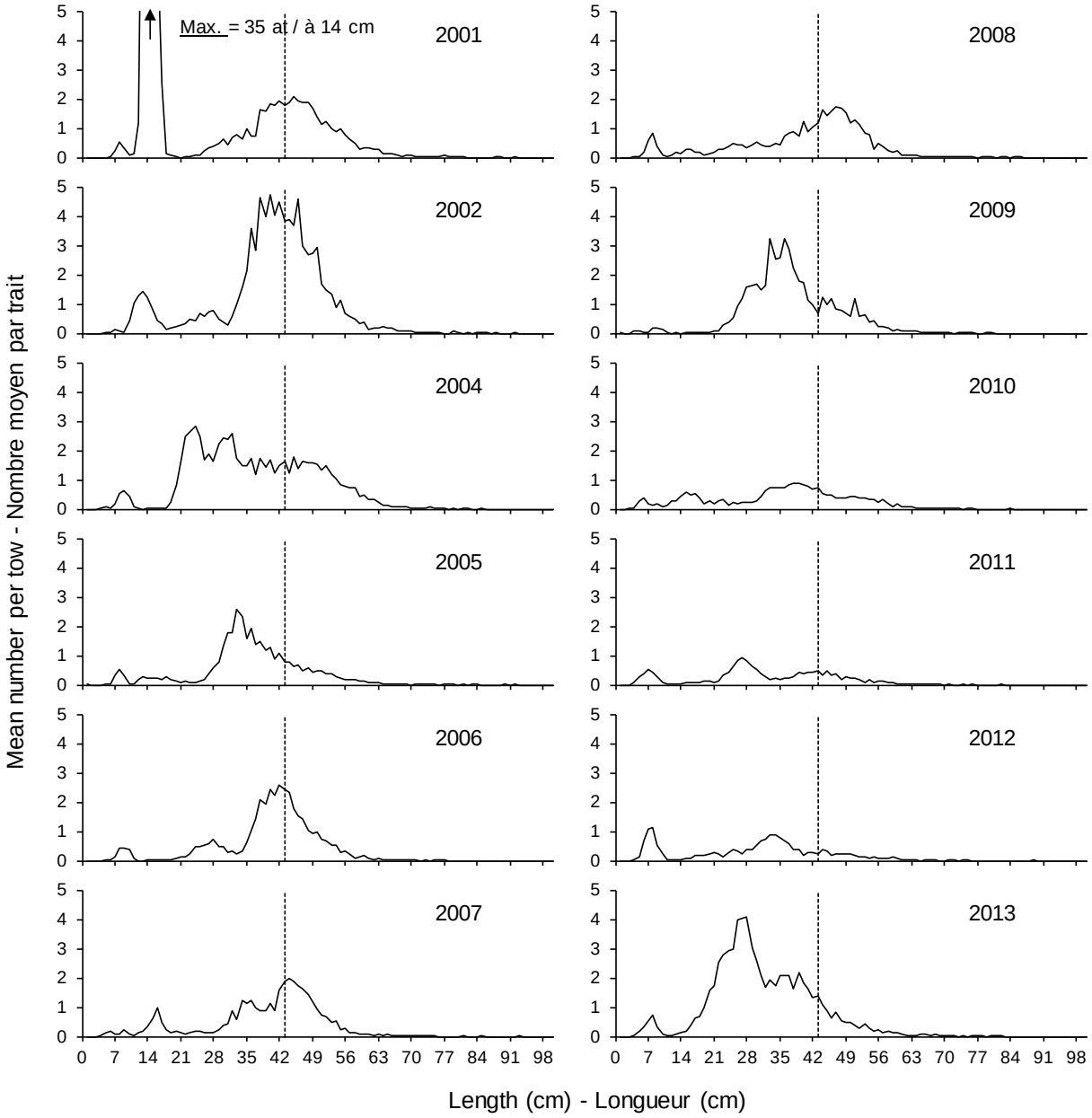


Figure 4. Length frequency distributions expressed in mean number per tow of Atlantic cod in the southern Gulf of St. Lawrence bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 415 to 439 are those used for the cod abundance index. The dashed vertical line indicates the regulated minimum size of 43 cm in the fishery.

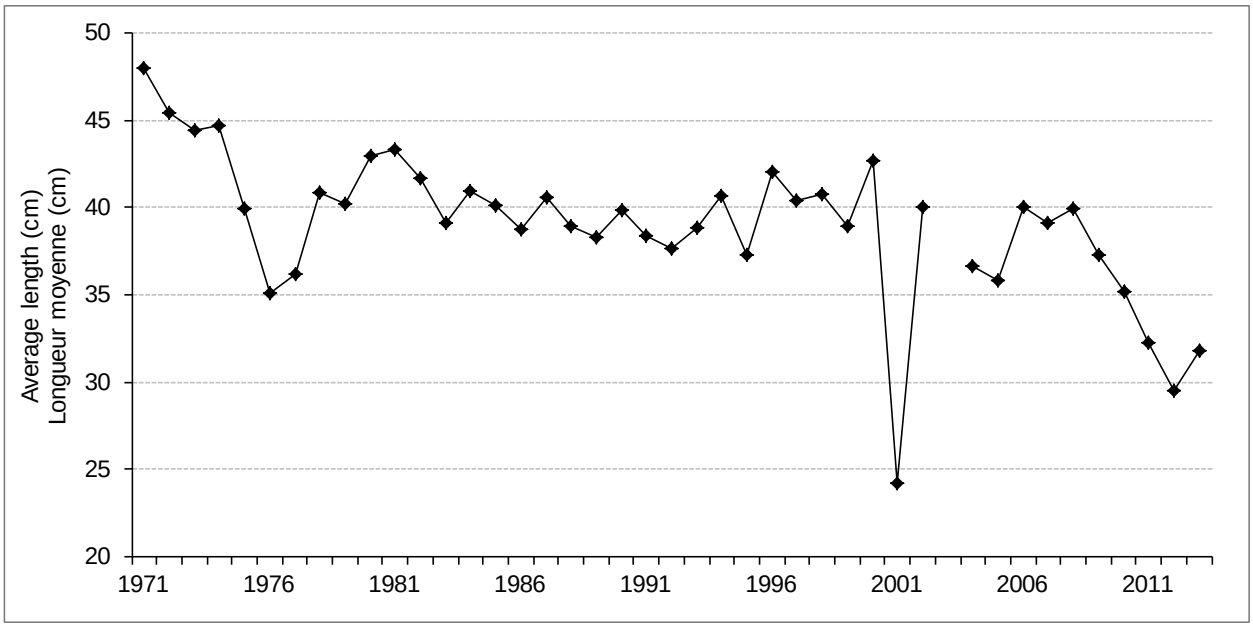


Figure 5. Annual mean length (cm) per tow of Atlantic cod in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439), 1971 to 2013 (except 2003).

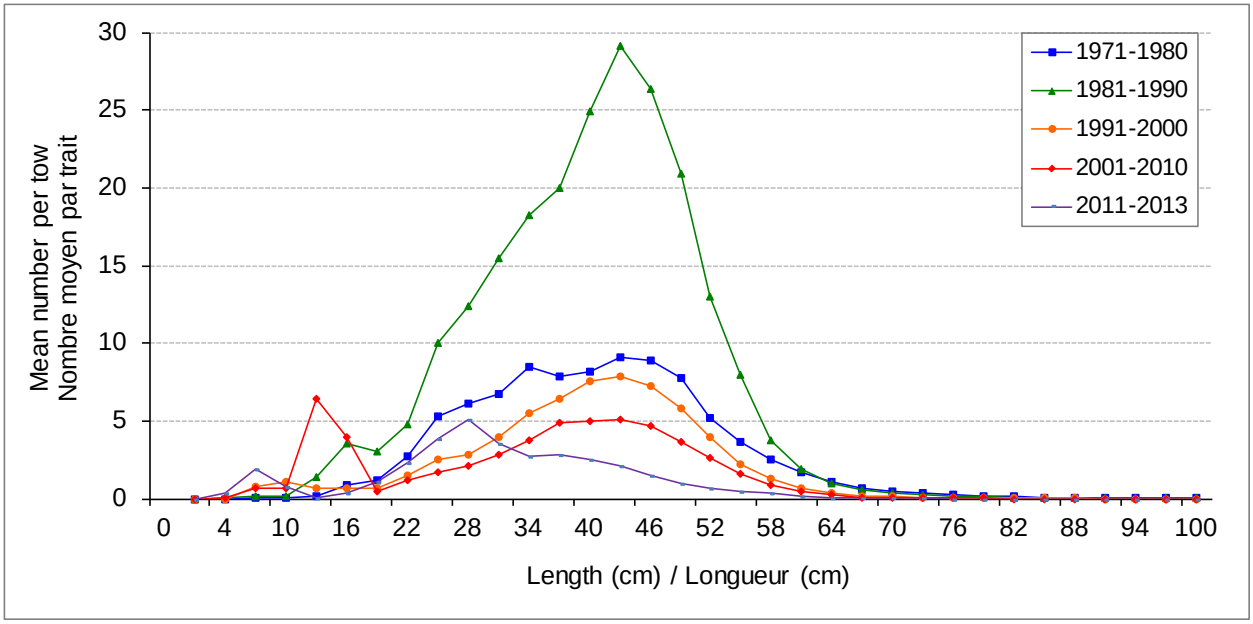


Figure 6. Length frequency distributions expressed as mean number per tow of Atlantic cod from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439) from five time periods (1971-1980; 1981-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

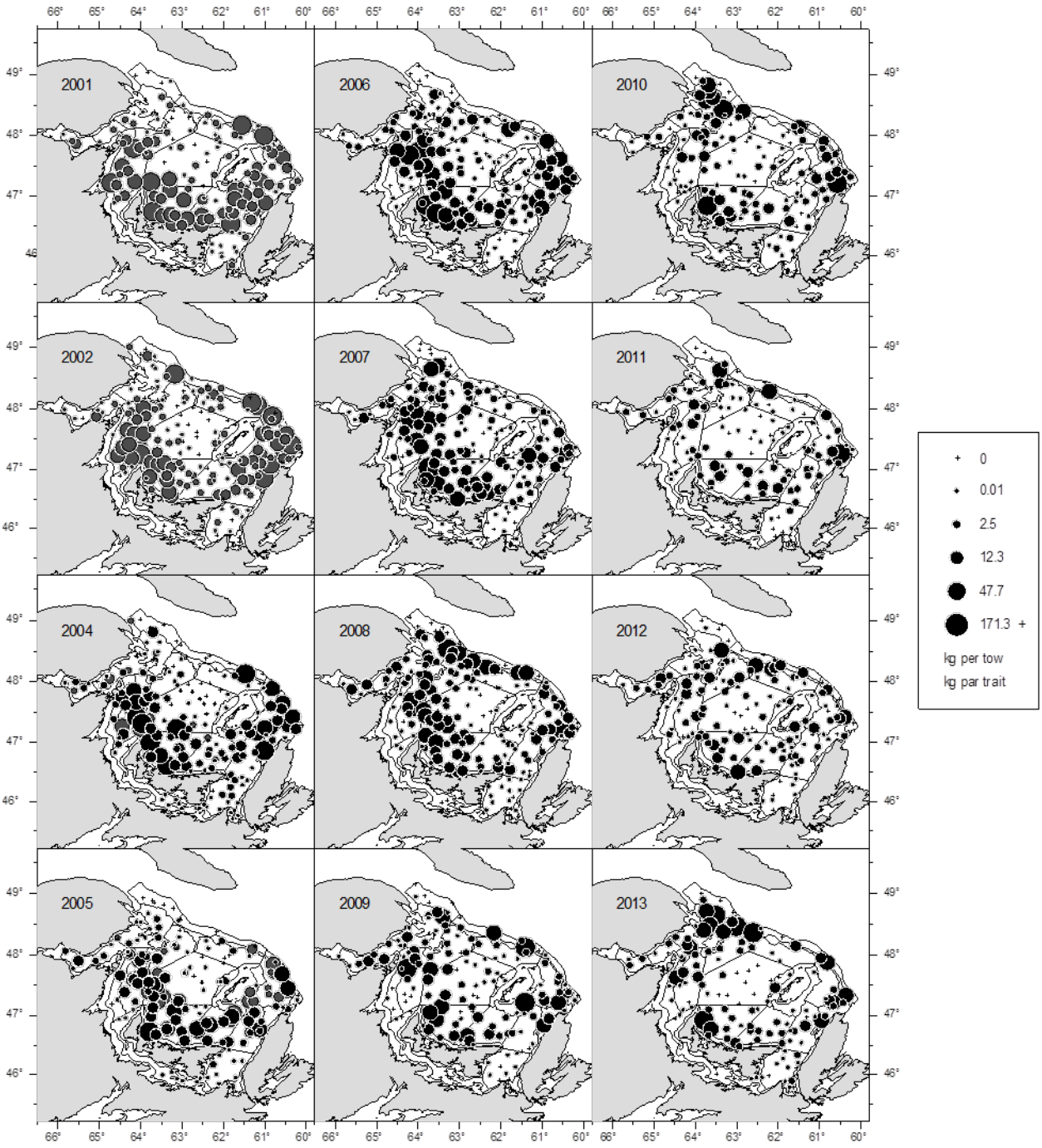


Figure 7. Atlantic cod abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

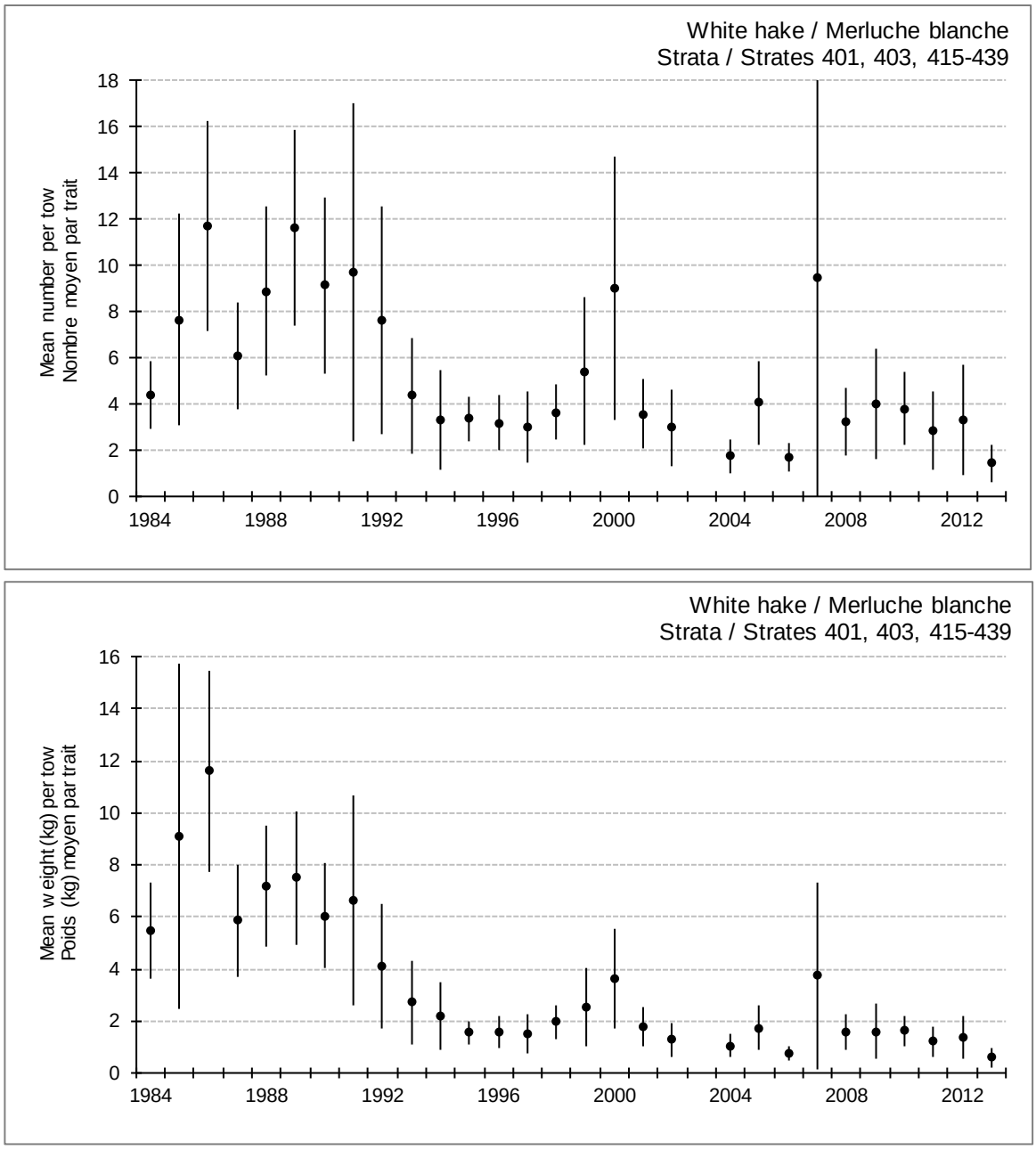


Figure 8. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of white hake in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

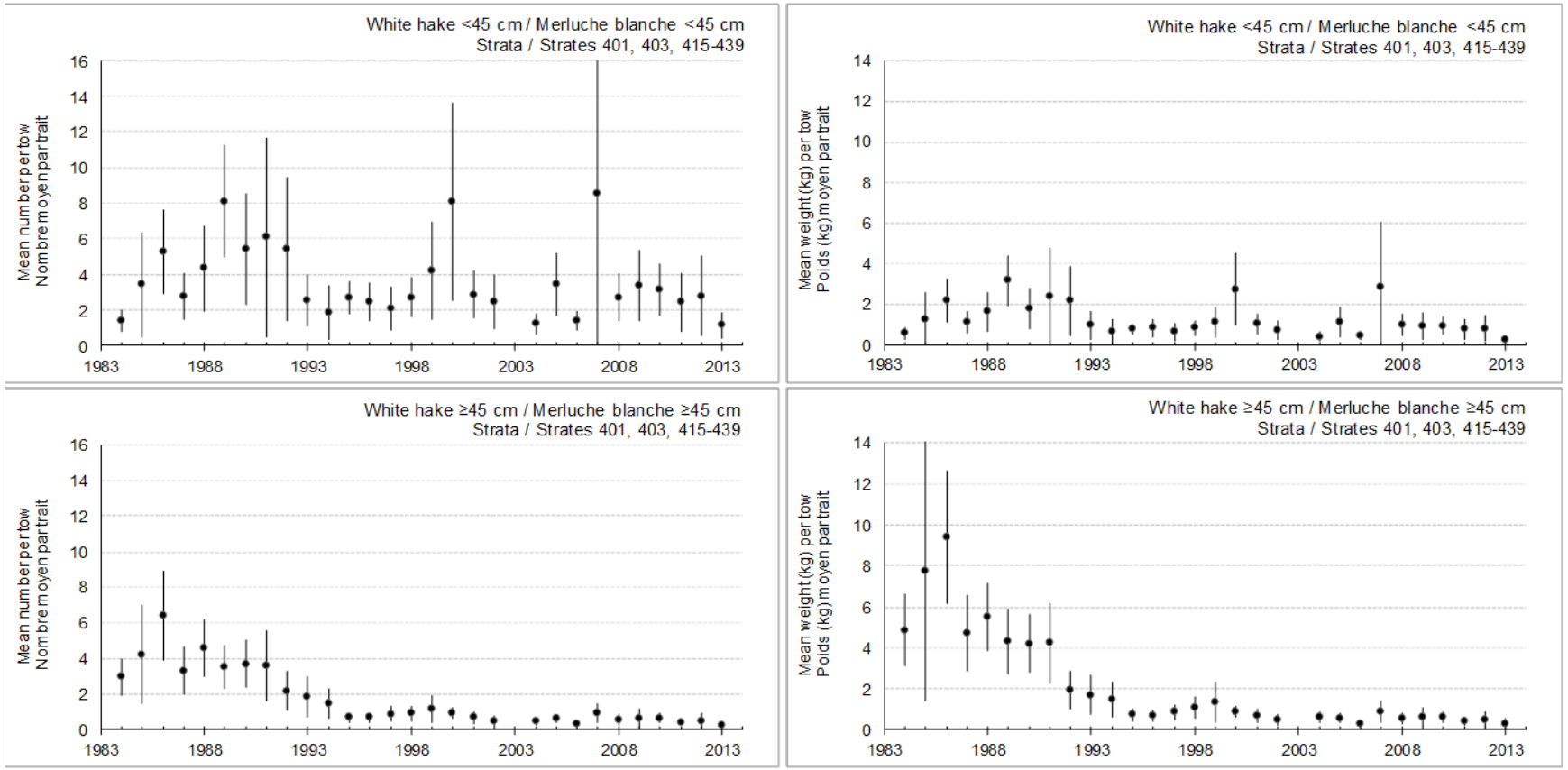


Figure 9. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of white hake for two size groups (< 45 cm length in top row; ≥ 45 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

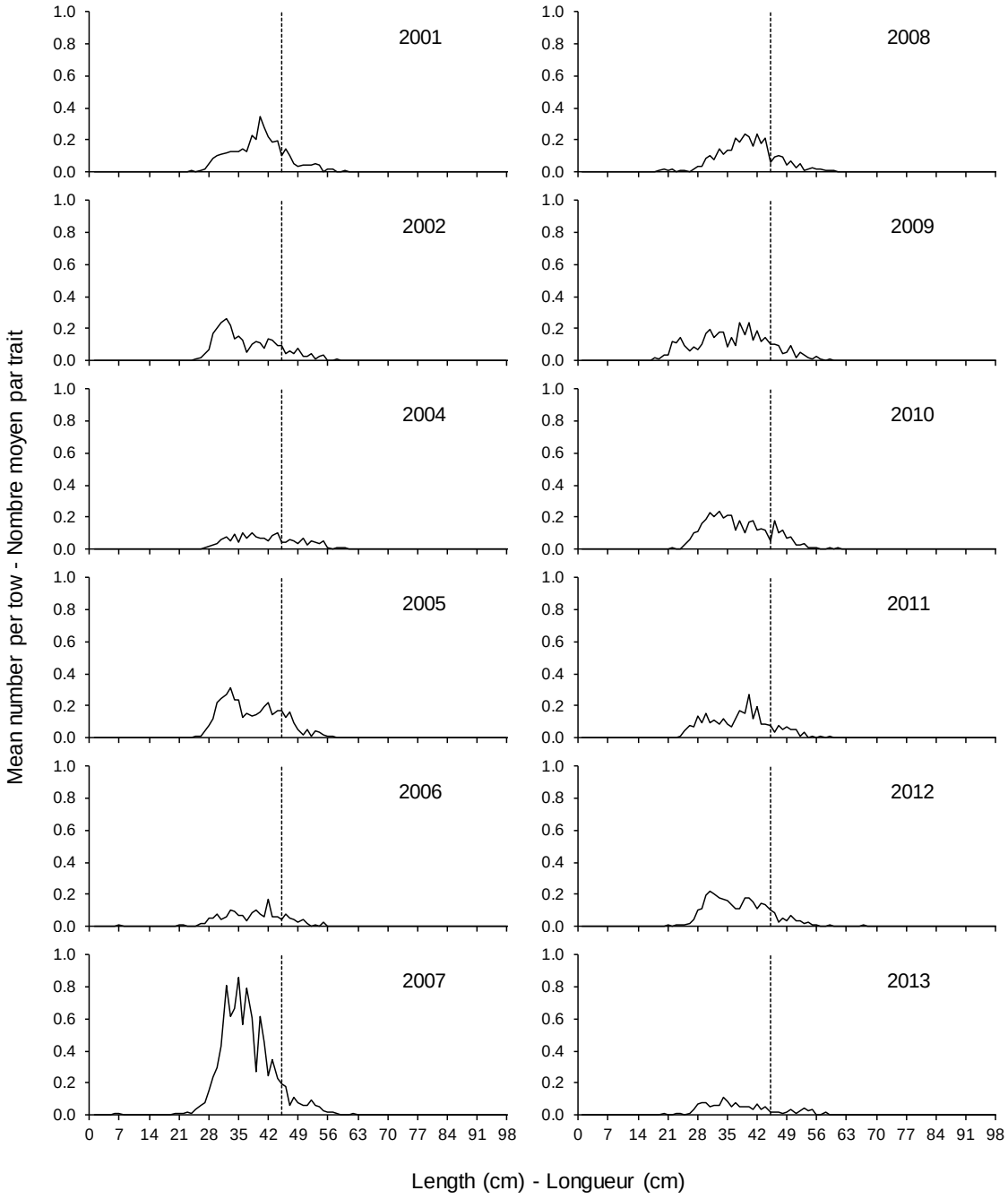


Figure 10. Length frequency distributions expressed in mean number per tow of white hake in the southern Gulf of St. Lawrence bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 401, 403 and 415 to 439 are those used for the white hake abundance index. The dashed vertical line indicates the regulated minimum size of 45 cm in the fishery when it was last open in 1995.

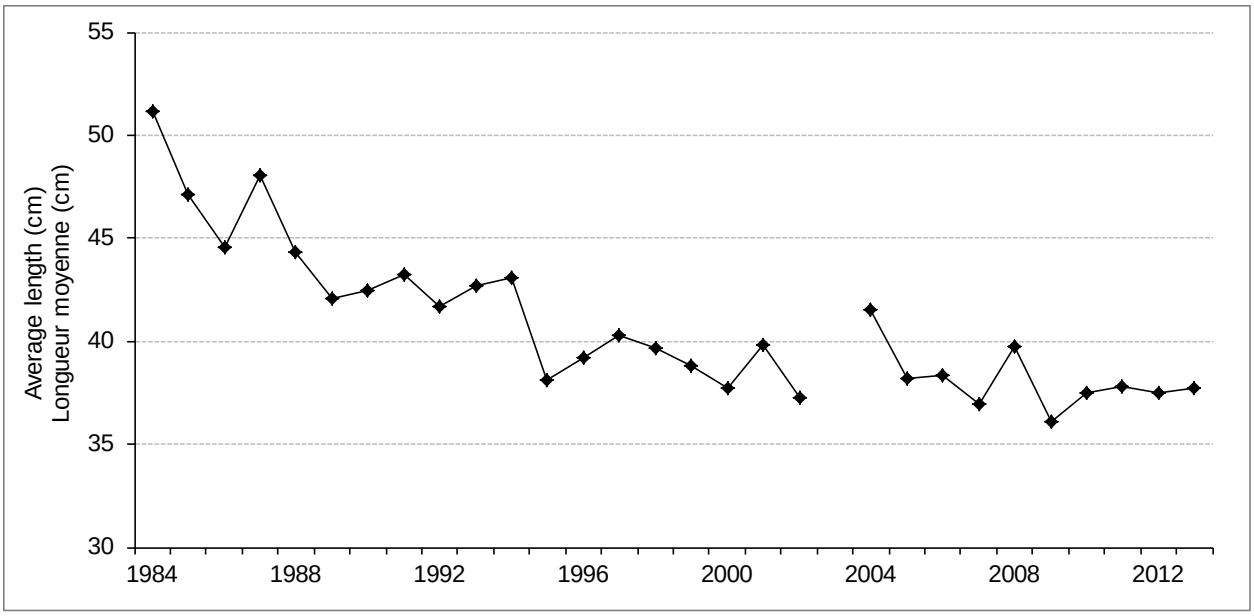


Figure 11. Annual mean length (cm) per tow of white hake in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401, 403 and 415 to 439), 1984 to 2013 (except 2003).

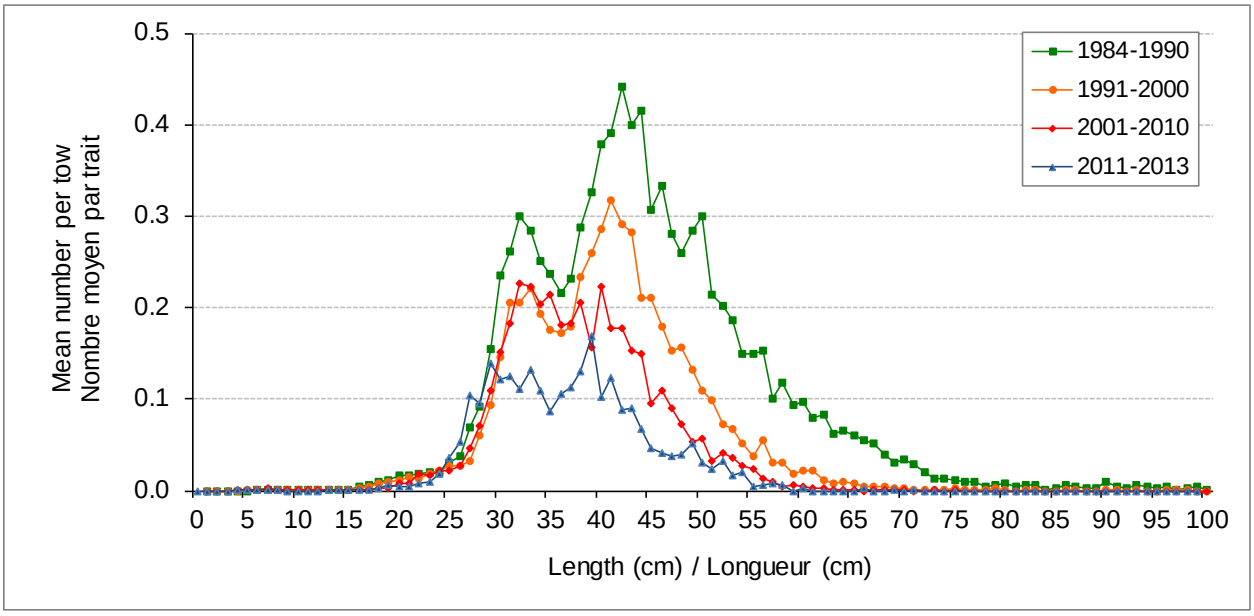


Figure 12. Length frequency distributions expressed as mean number per tow of white hake from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401, 403 and 415 to 439) from four time periods (1984-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

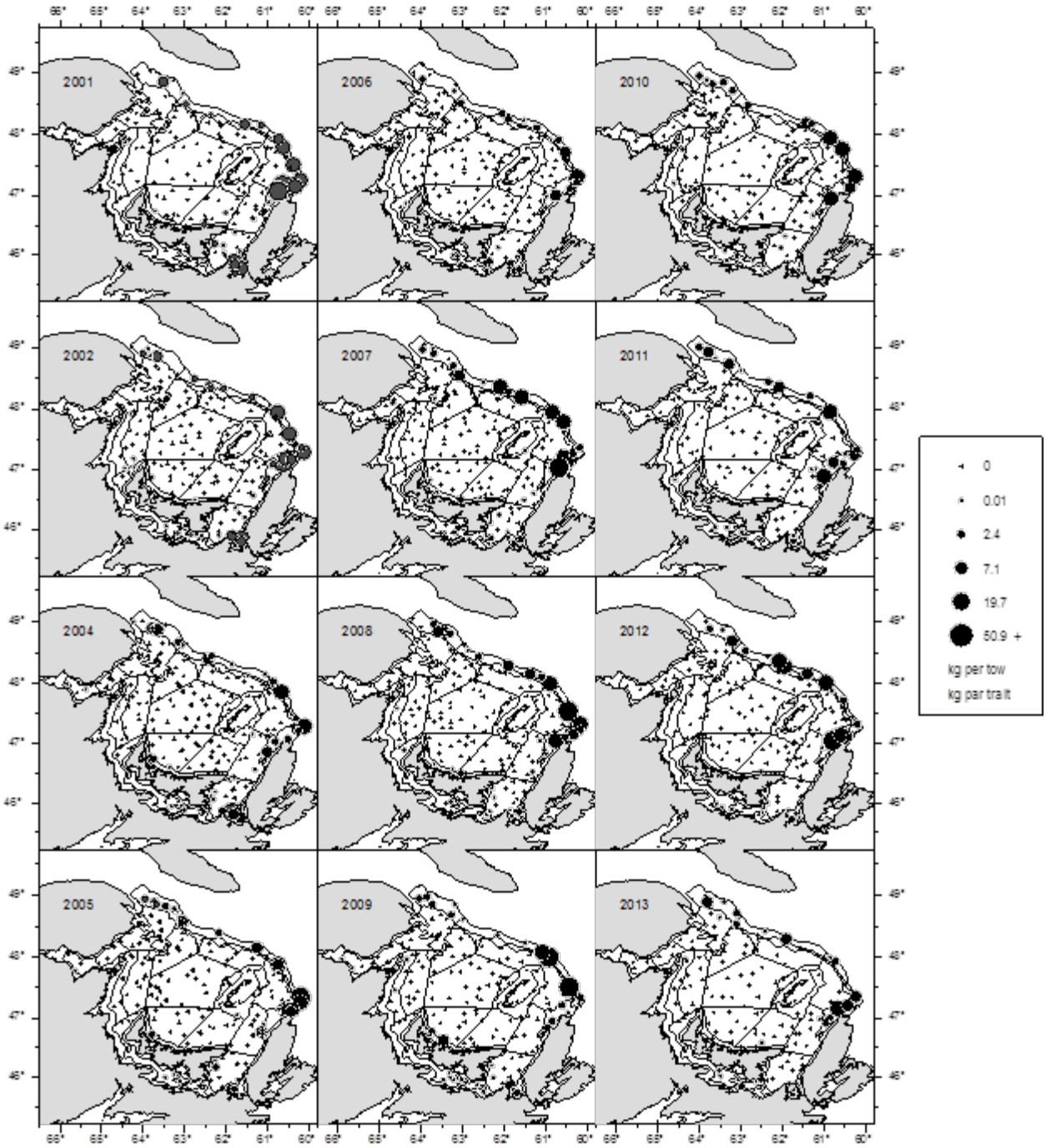


Figure 13. White hake abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

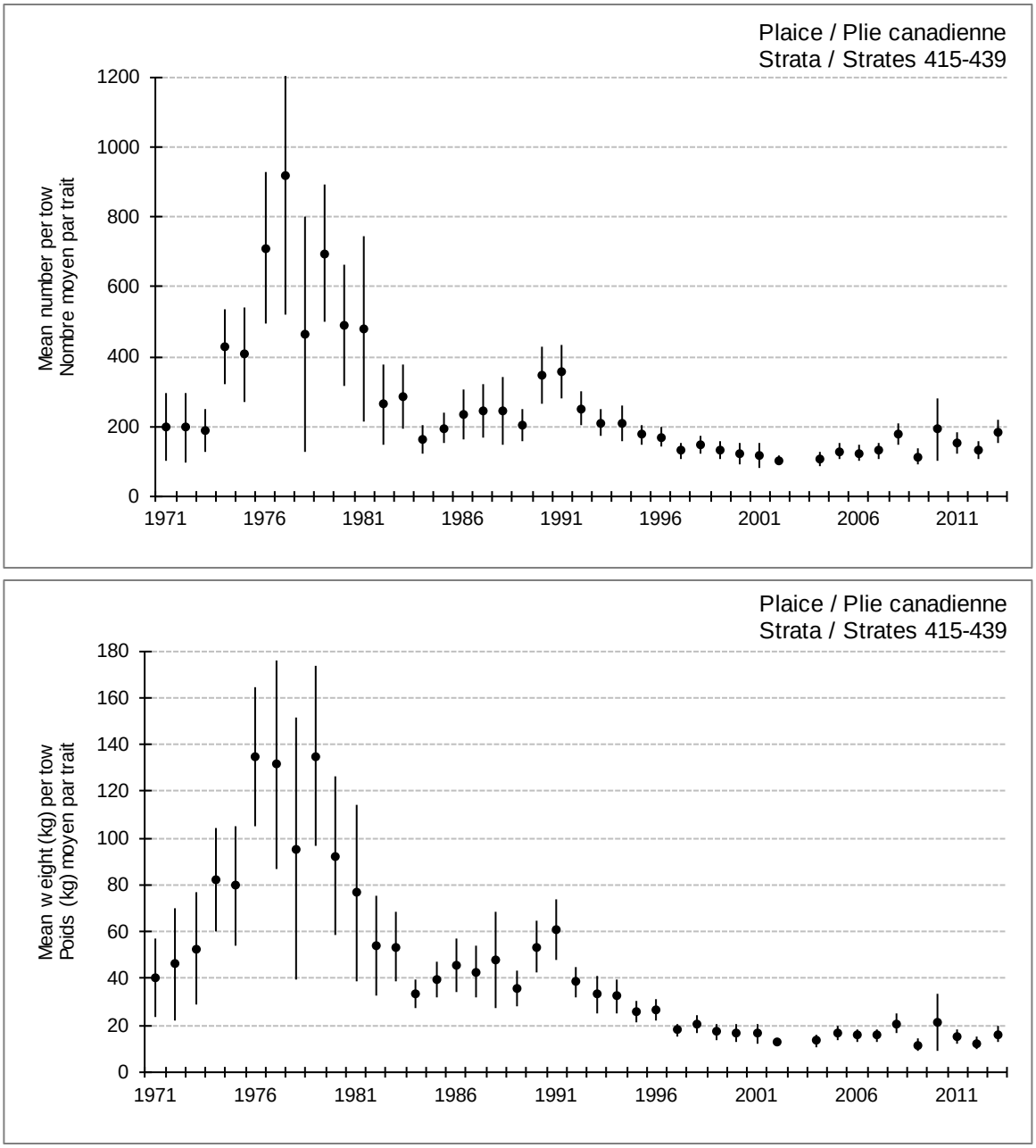


Figure 14. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of American plaice in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

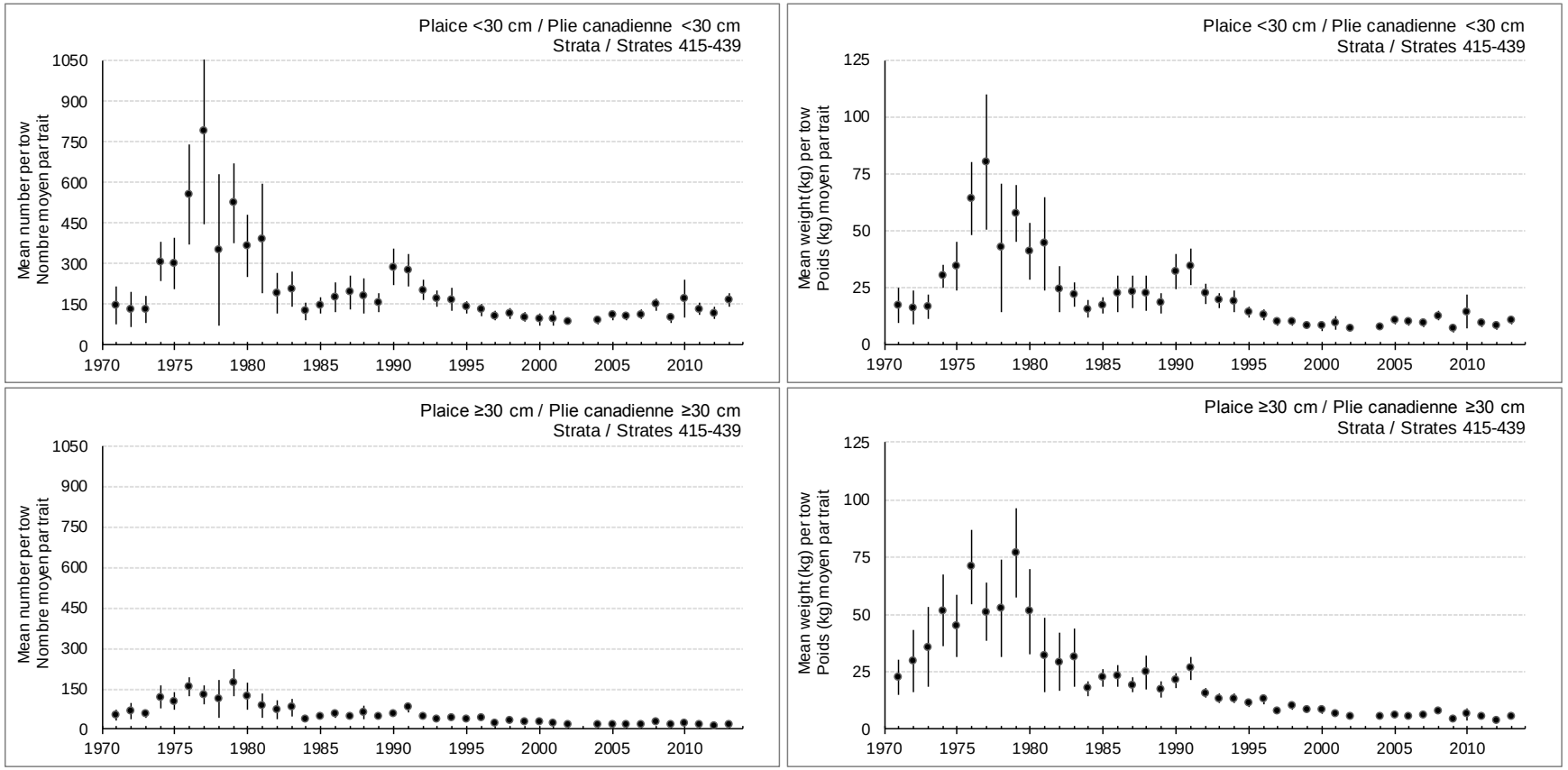


Figure 15. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of American plaice for two size groups (< 30 cm length in top row; ≥ 30 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

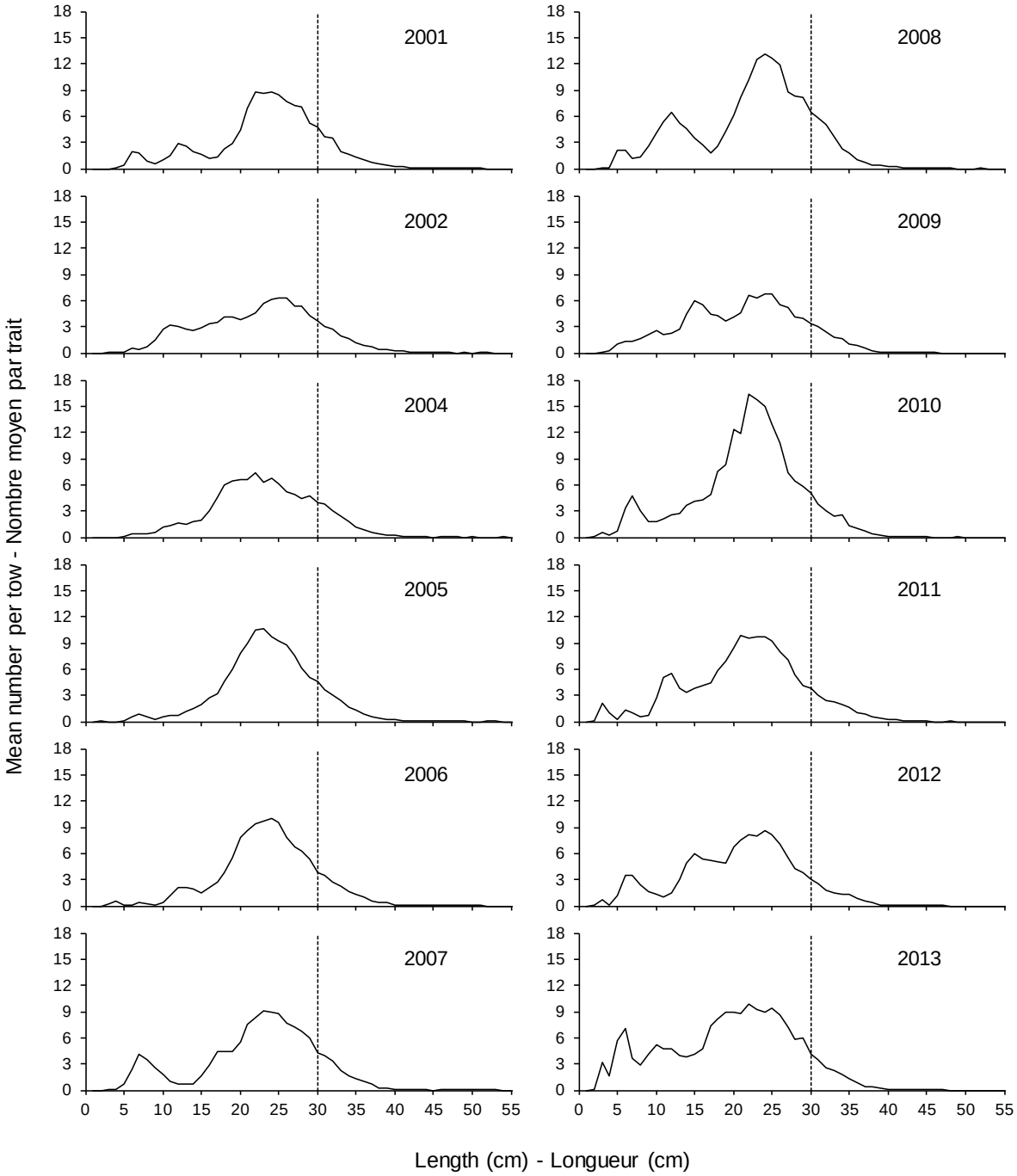


Figure 16. Length frequency distributions expressed in mean number per tow of American plaice in the southern Gulf of St. Lawrence bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 415 to 439 are those used for the plaice abundance index. The dashed vertical line indicates the regulated minimum size of 30 cm in the fishery.

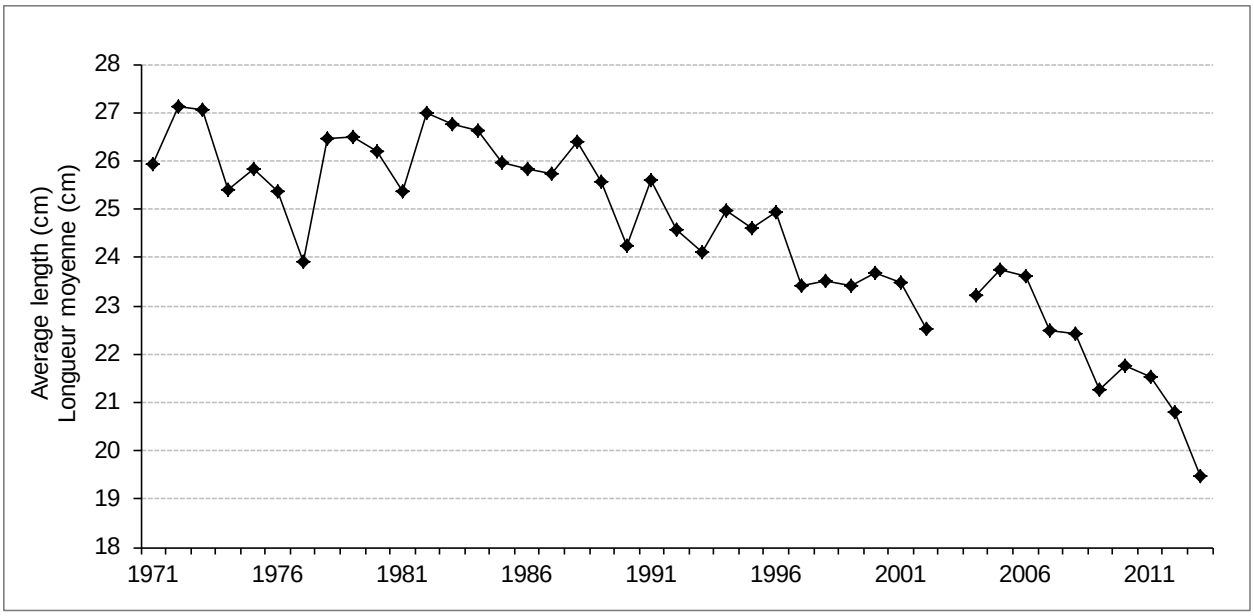


Figure 17. Annual mean length (cm) per tow of American plaice in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439), 1971 to 2013 (except 2003).

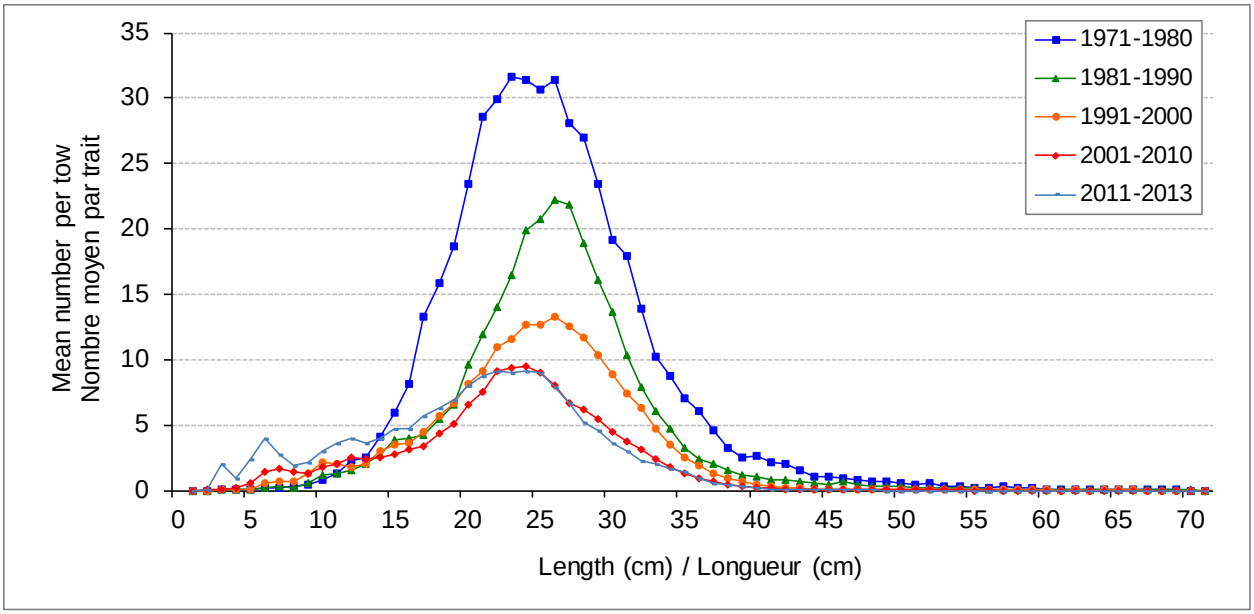


Figure 18. Length frequency distributions expressed as mean number per tow of American plaice from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439) from five time periods (1971-1980; 1981-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

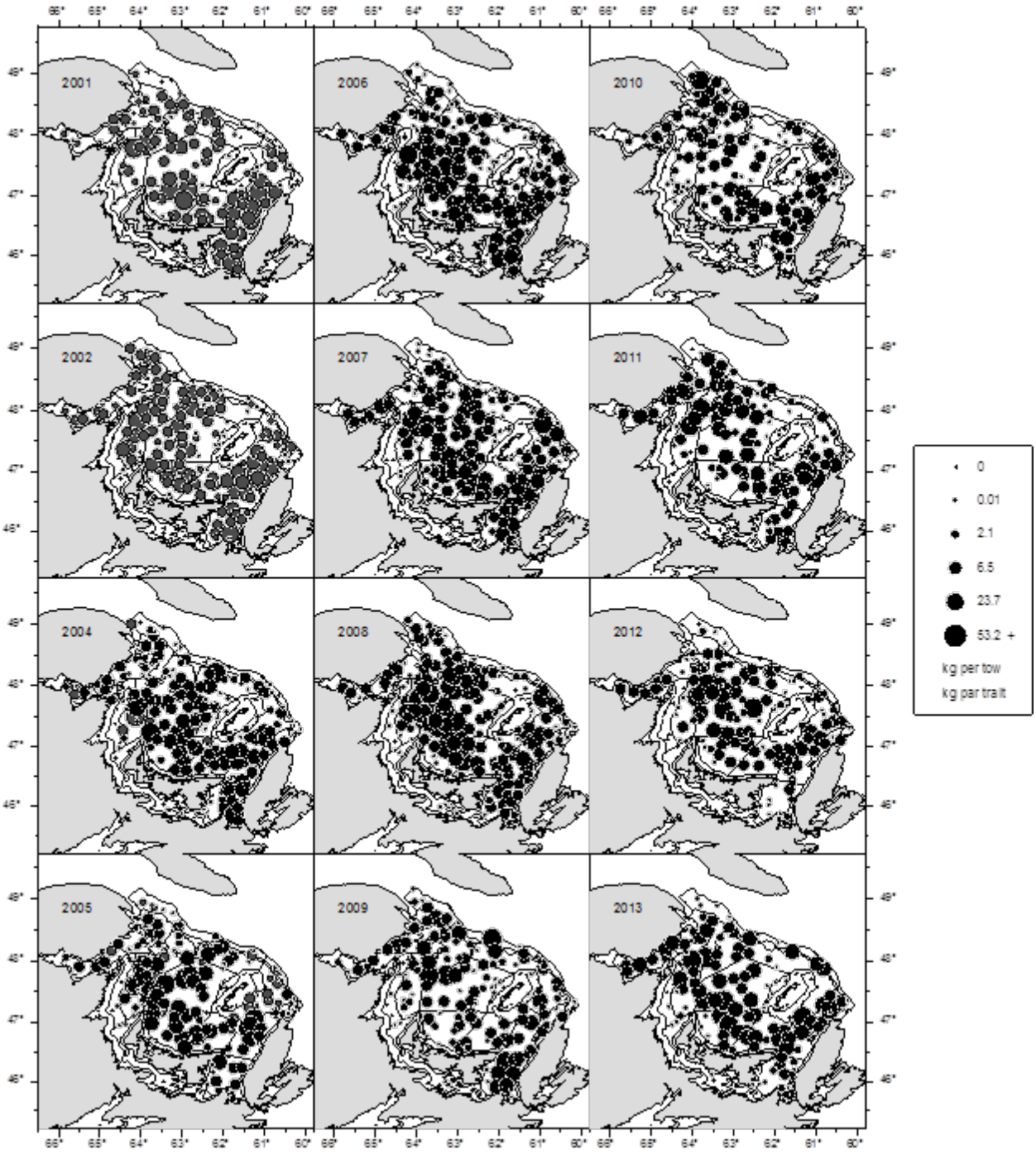


Figure 19. American plaice abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

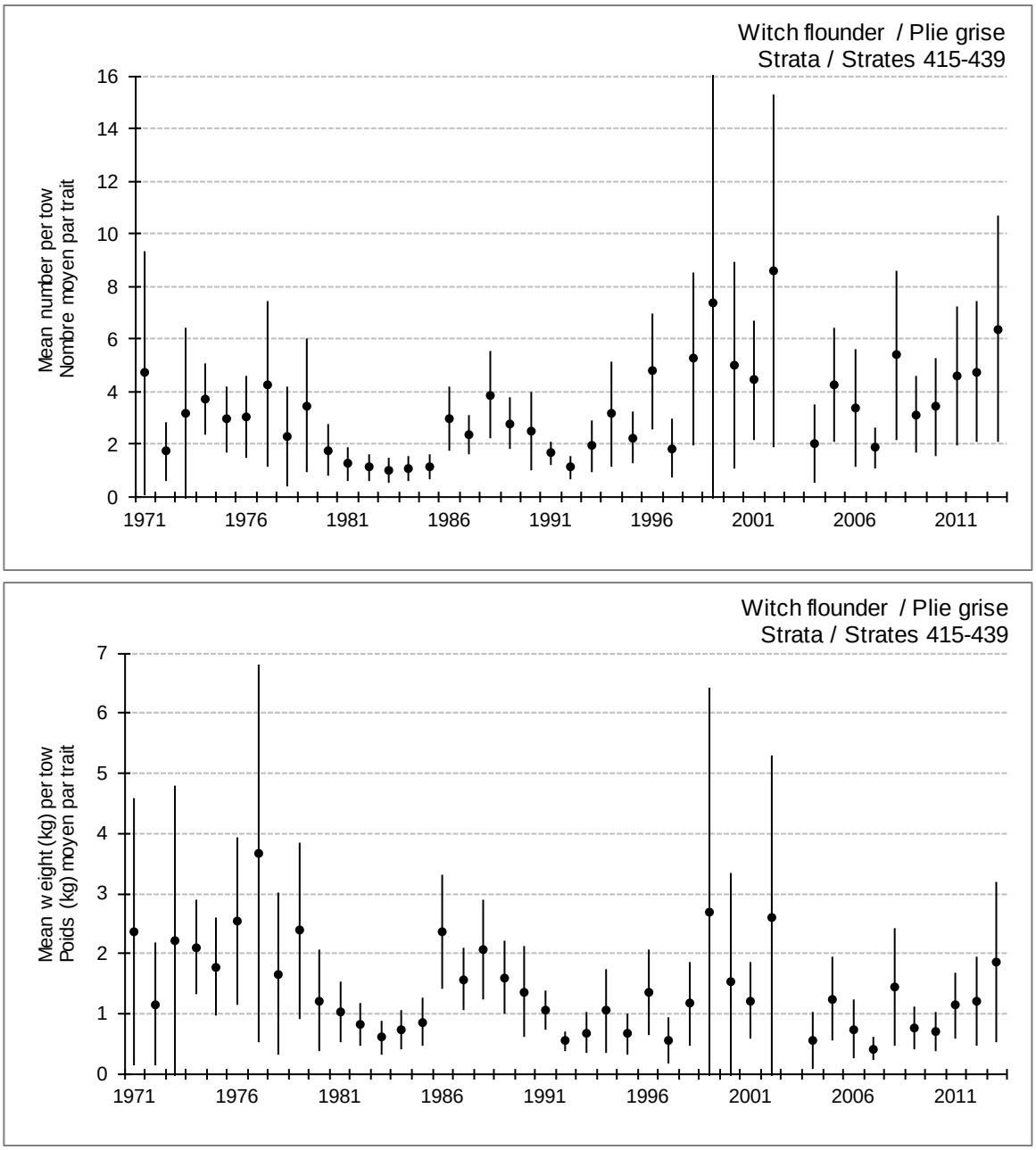


Figure 20. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of witch flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

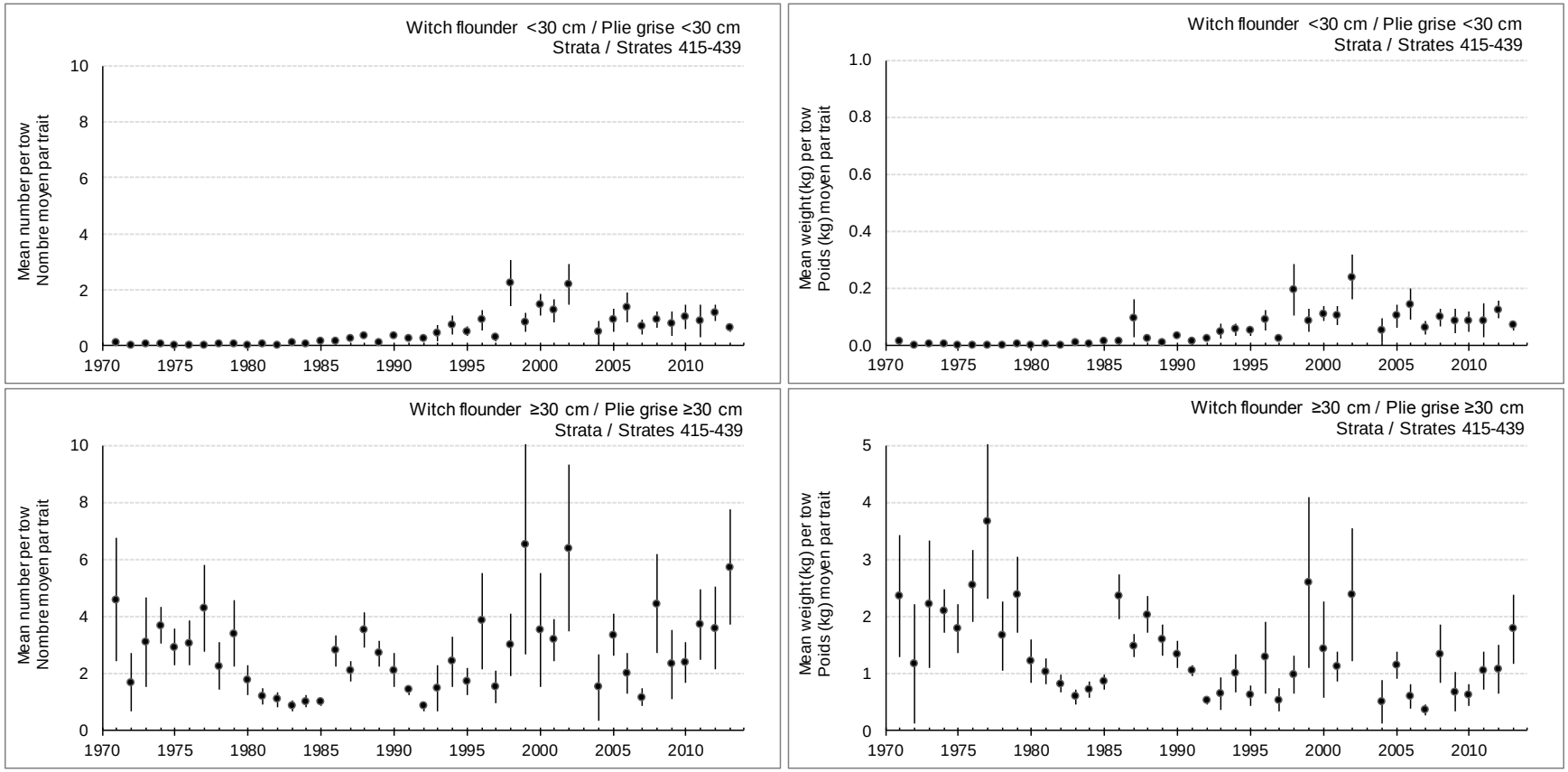


Figure 21. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of witch flounder for two size groups (< 30 cm length in top row; ≥ 30 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1971 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

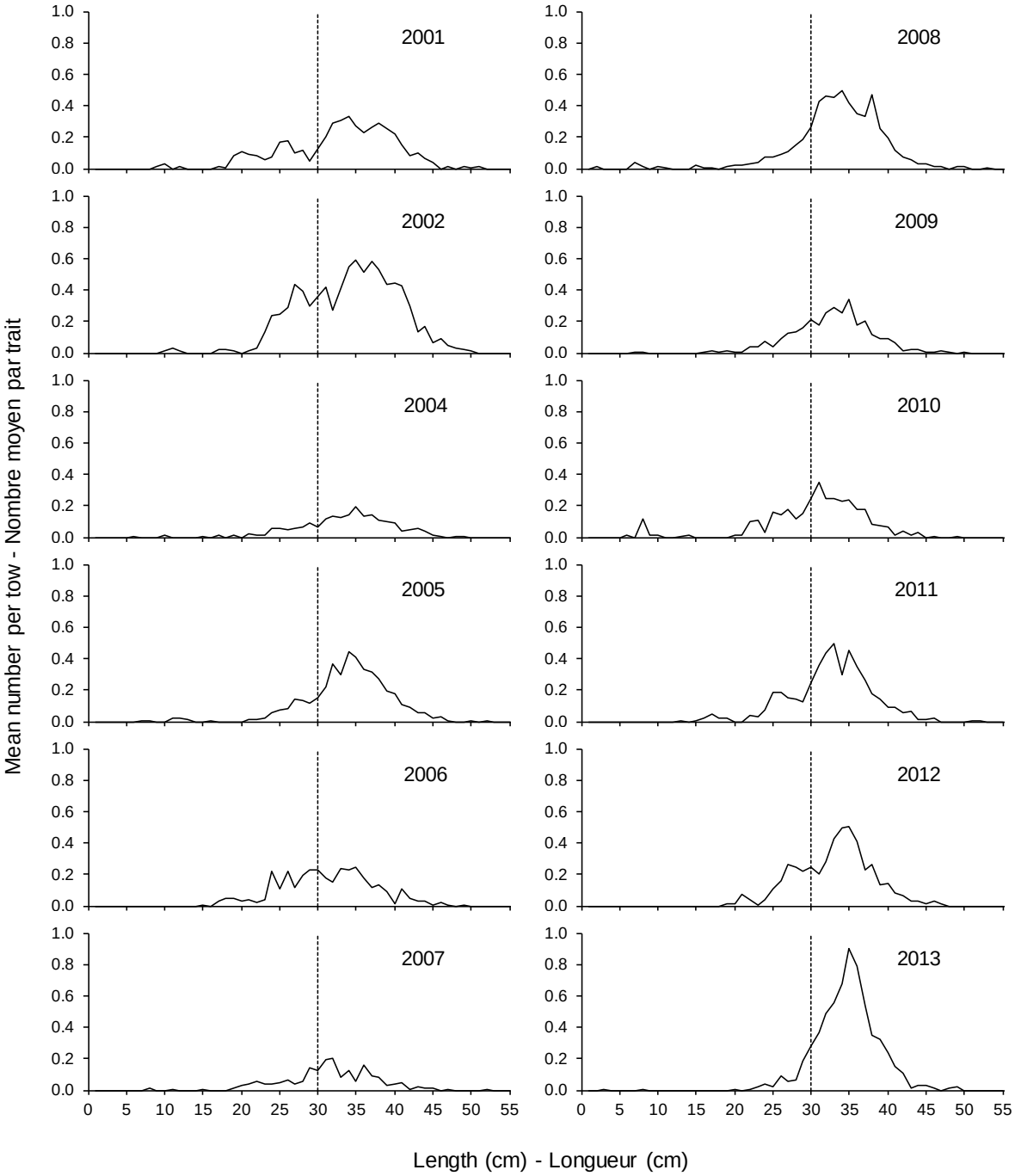


Figure 22. Length frequency distributions expressed in mean number per tow of witch flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 415 to 439 are those used for the witch flounder abundance index. The dashed vertical line indicates the regulated minimum size of 30 cm in the fishery.

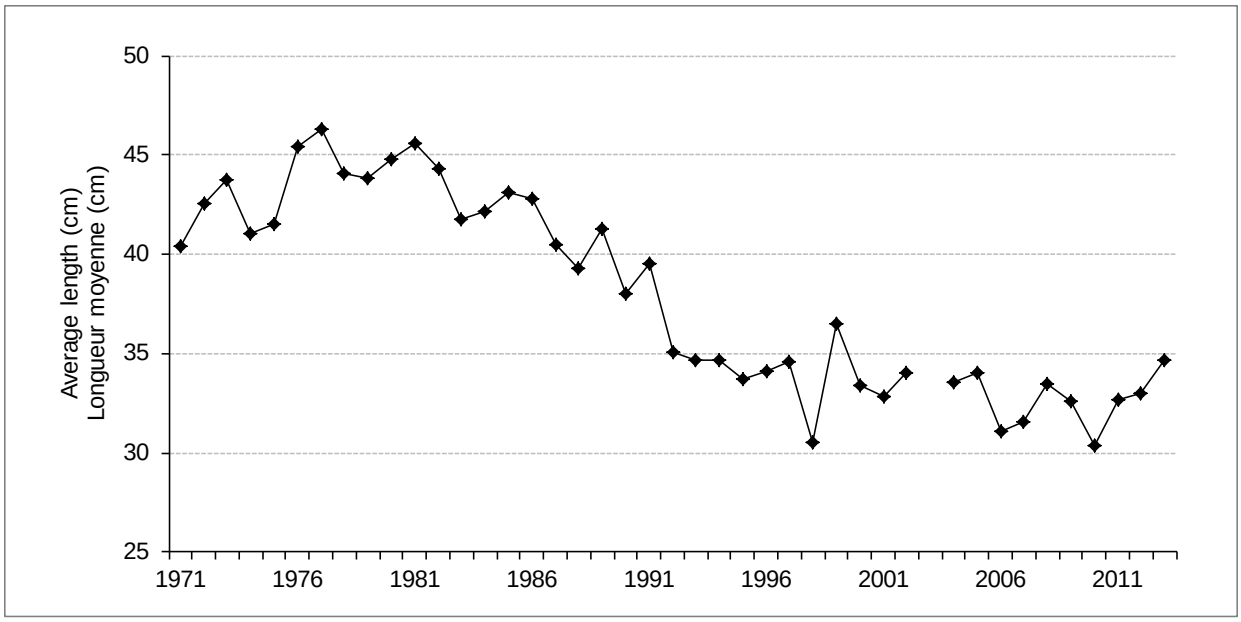


Figure 23. Annual mean length (cm) per tow of witch flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439), 1971 to 2013 (except 2003).

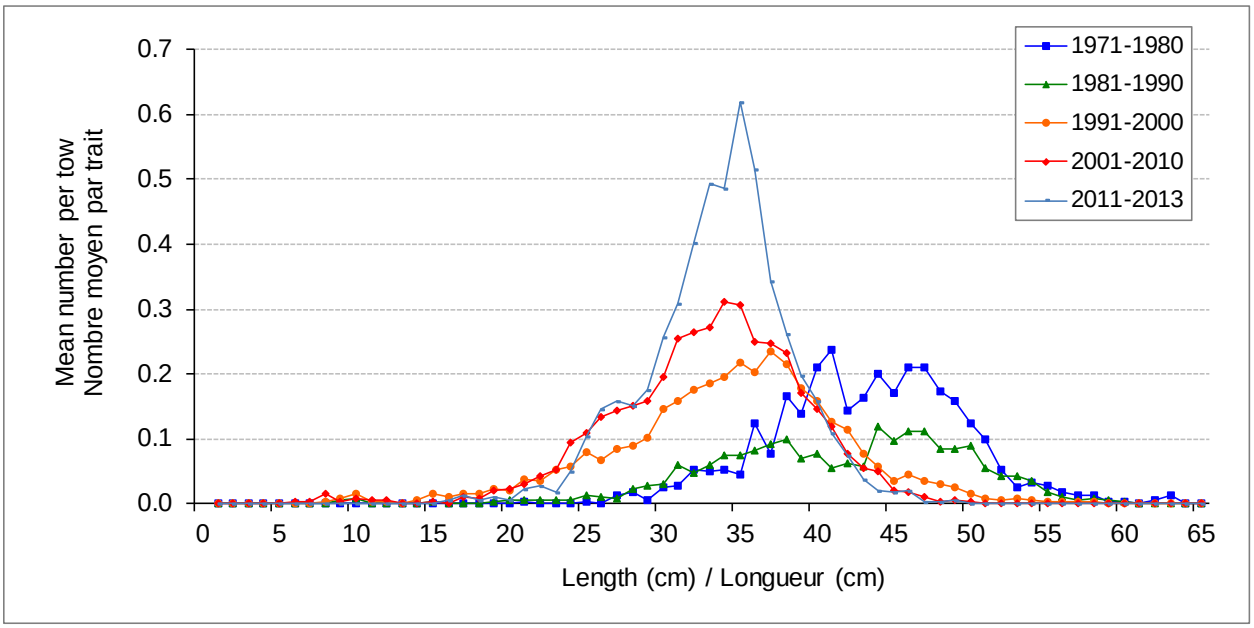


Figure 24. Length frequency distributions expressed as mean number per tow of witch flounder from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 415 to 439) from five time periods (1971-1980; 1981-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

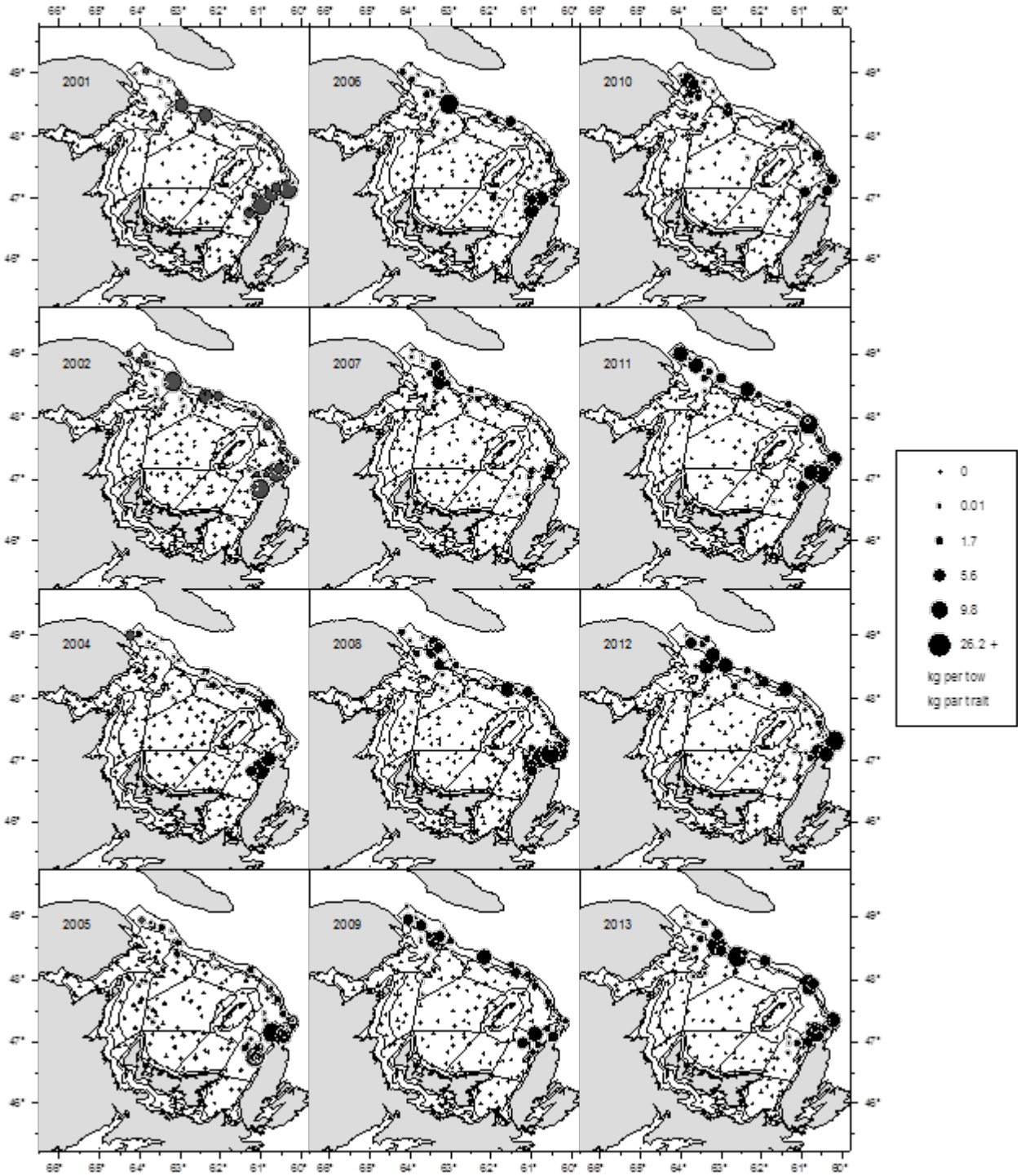


Figure 25. Witch flounder abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

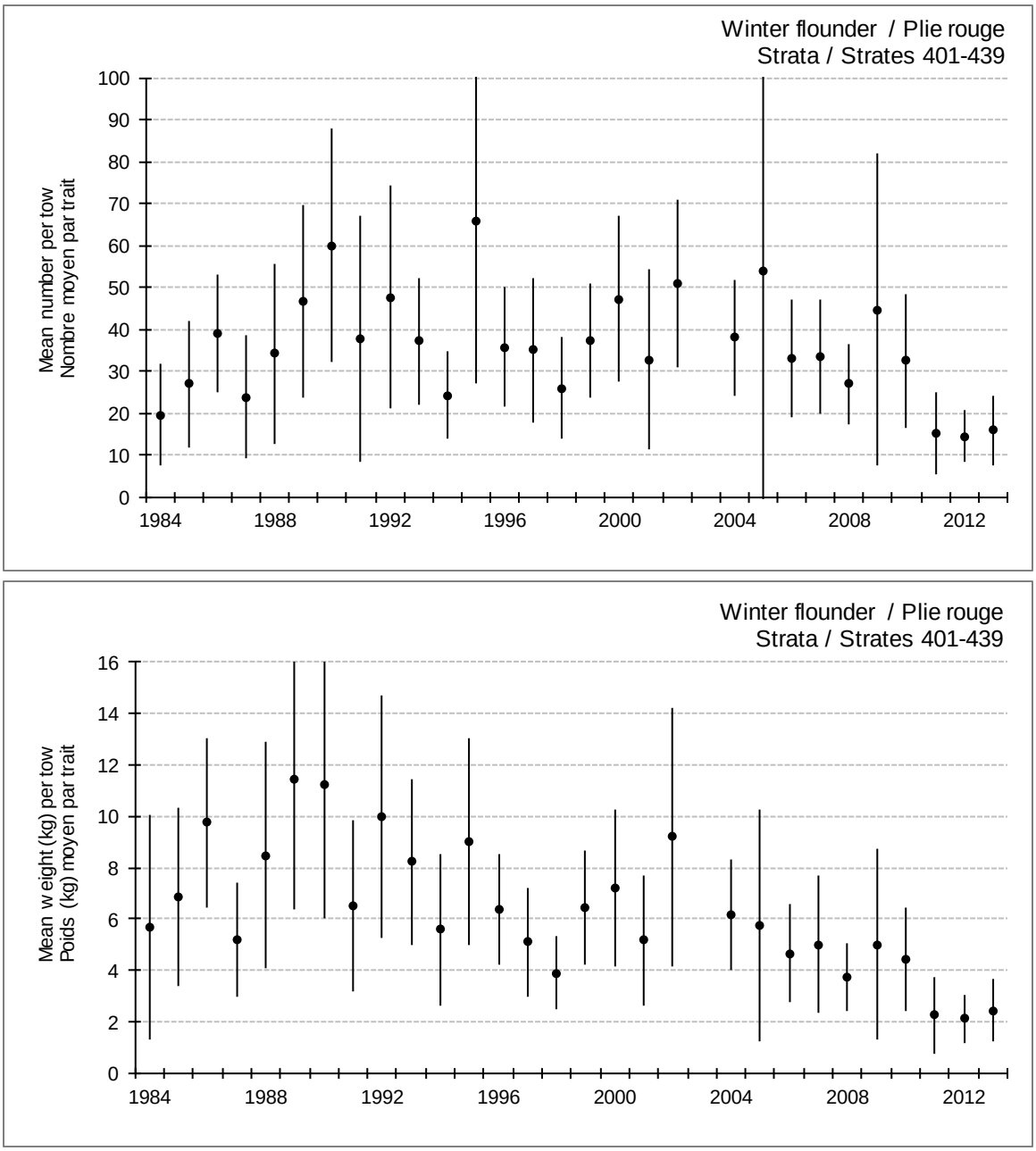


Figure 26. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of winter flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

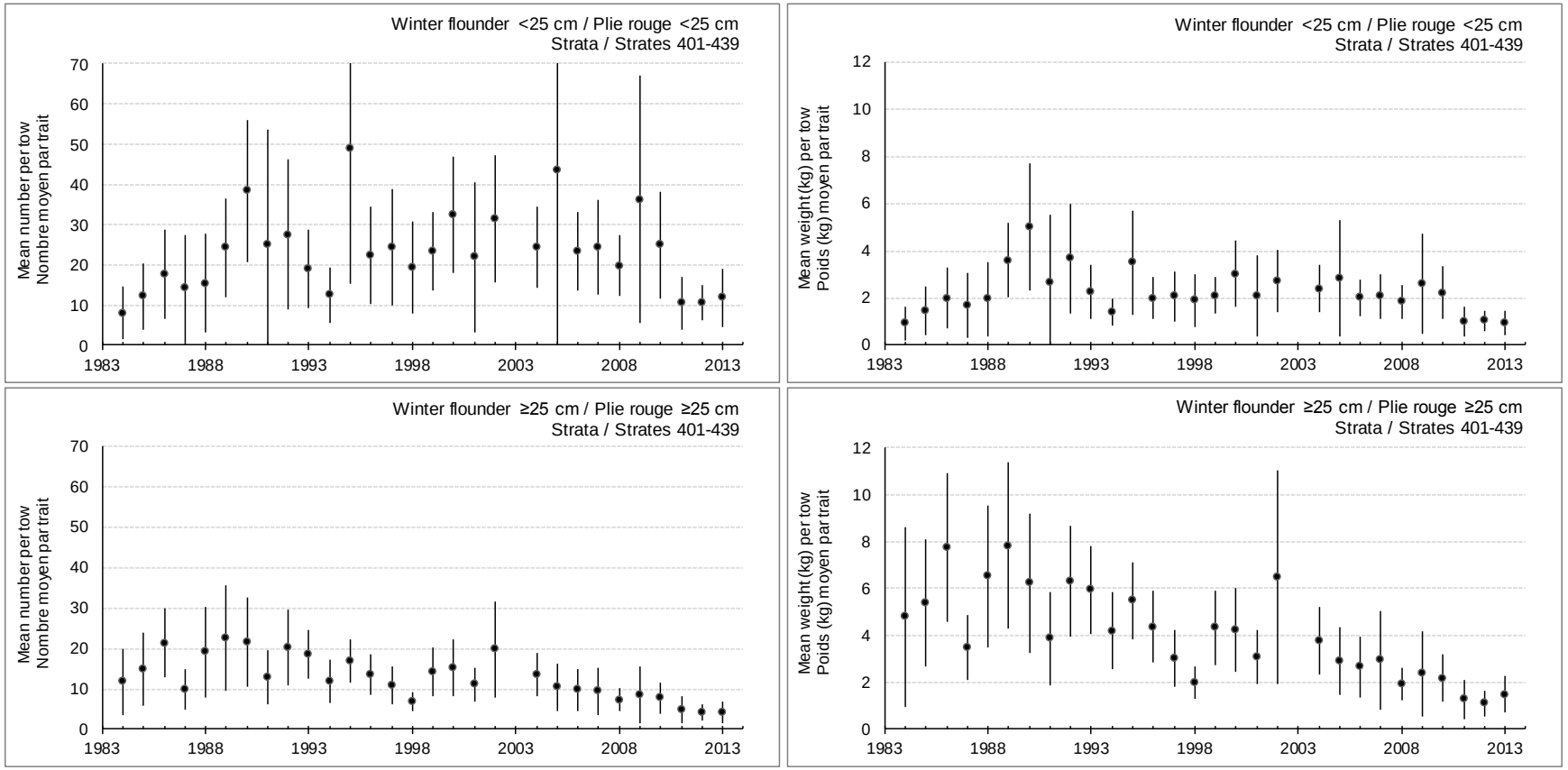


Figure 27 Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of winter flounder for two size groups (< 25 cm length in top row; ≥ 25 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

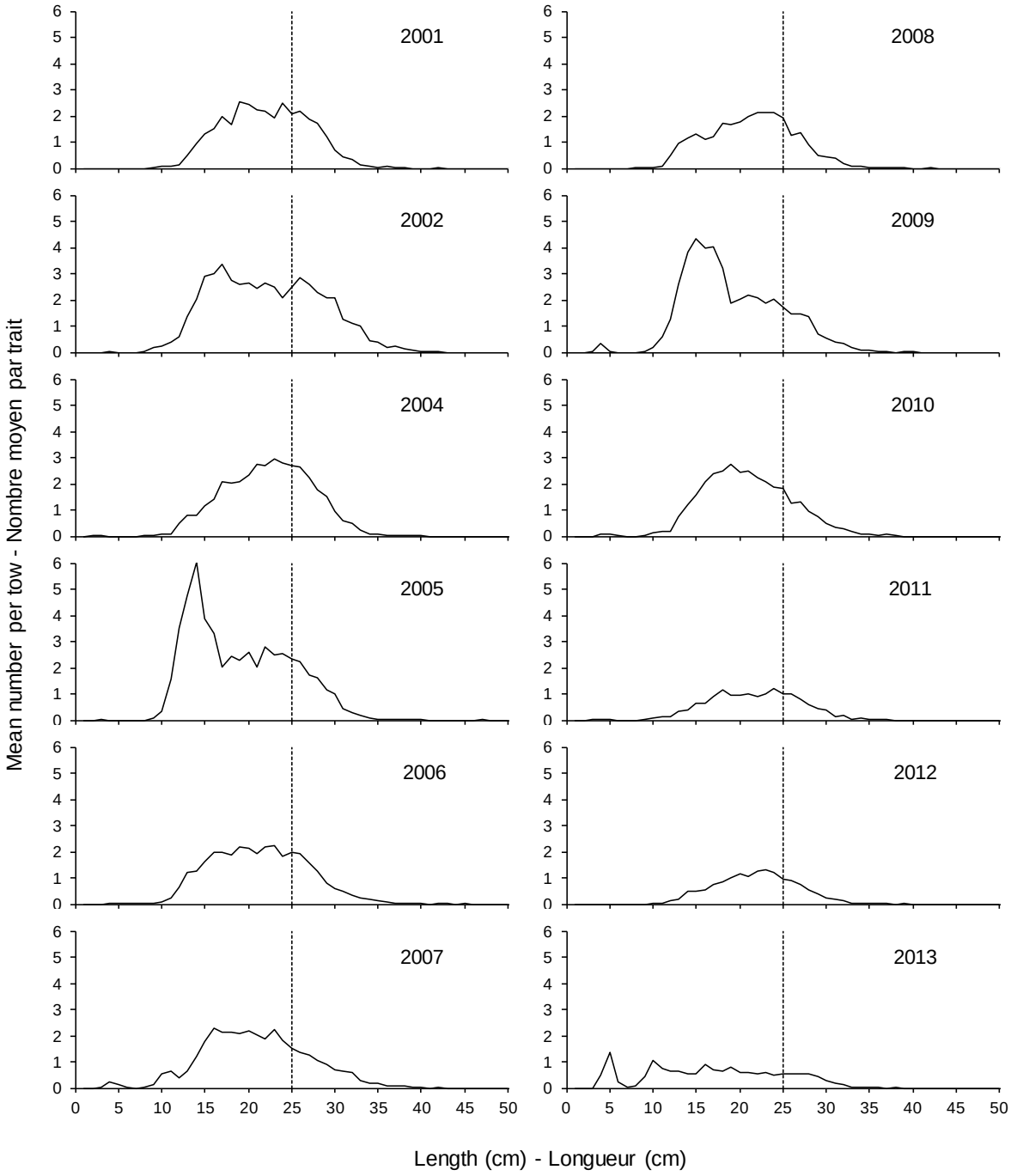


Figure 28. Length frequency distributions expressed in mean number per tow of winter flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 401 to 439 are those used for the winter flounder abundance index. The dashed vertical line indicates the regulated minimum size of 25 cm in the fishery.

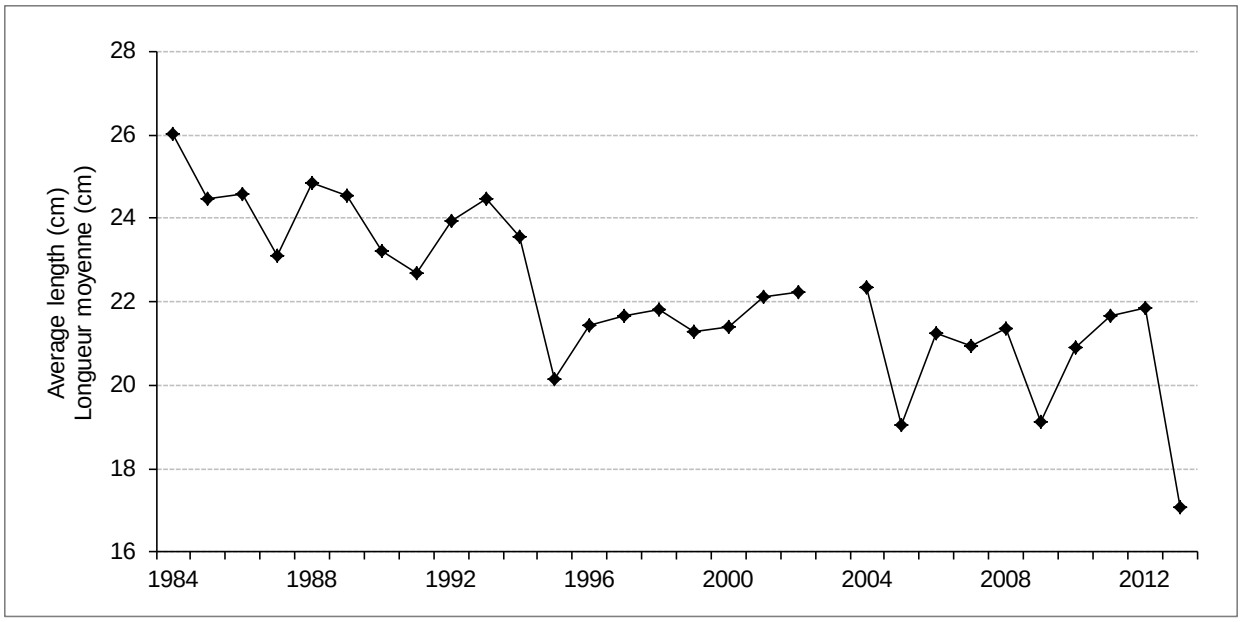


Figure 29. Annual mean length (cm) per tow of winter flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013 (except 2003).

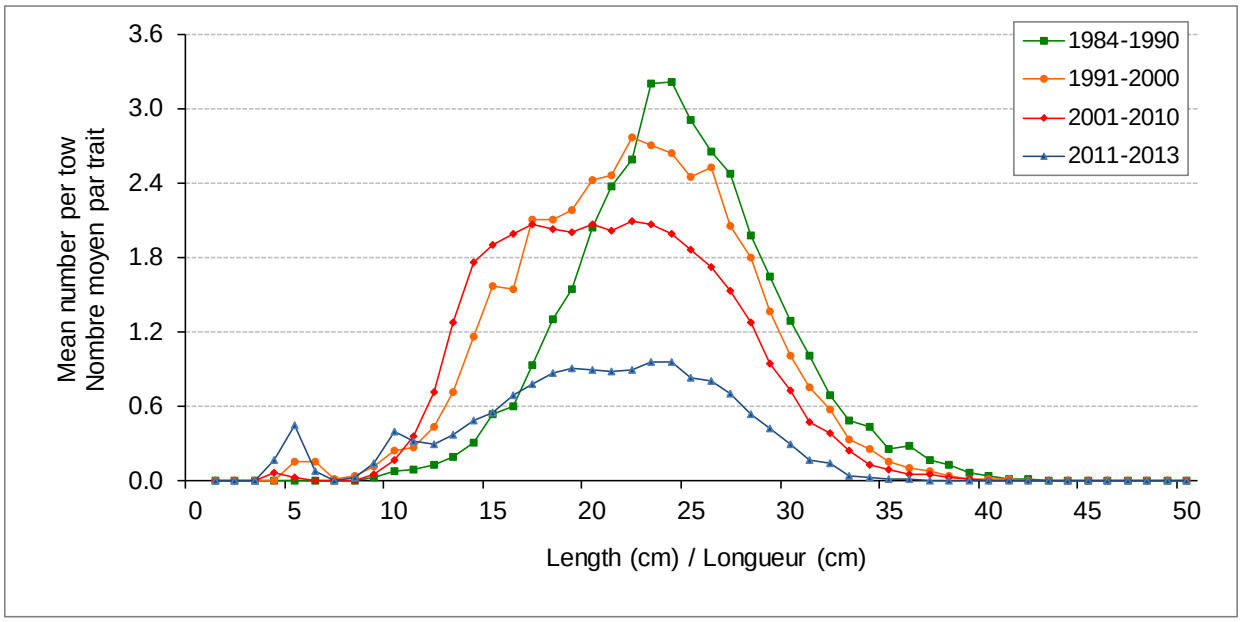


Figure 30. Length frequency distributions expressed as mean number per tow of winter flounder from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439) from four time periods (1984-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

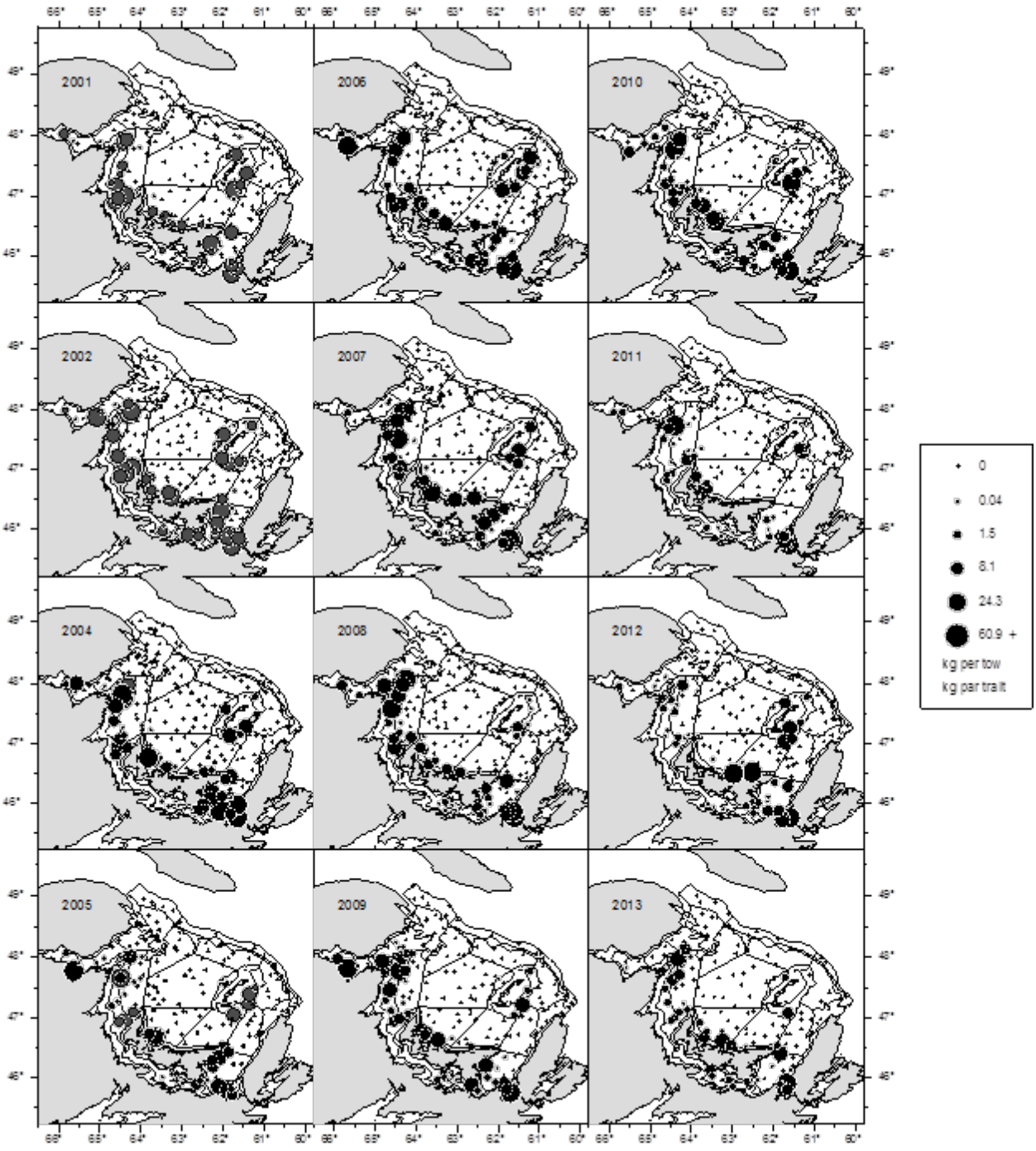


Figure 31. Winter flounder abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

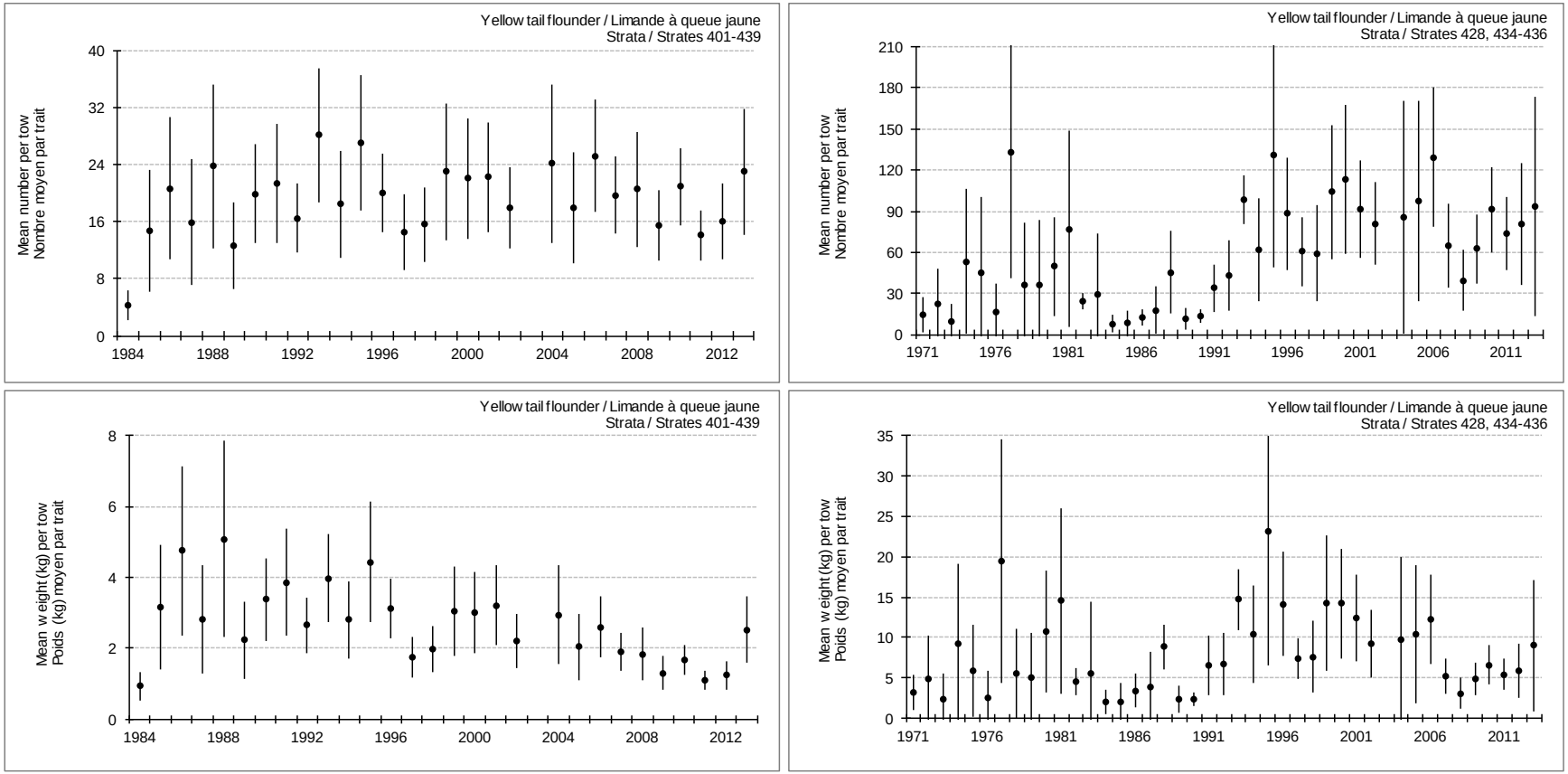


Figure 32. Annual catch abundance (mean and standard error bars) in number per tow (top row) and weight per tow (bottom row) of yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys strata 401-439 for 1984 to 2013 (except 2003) (left panels) and strata 428 and 434 to 436 near the Magdalen Islands for 1971 to 2013 (except 2003) (right panels). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

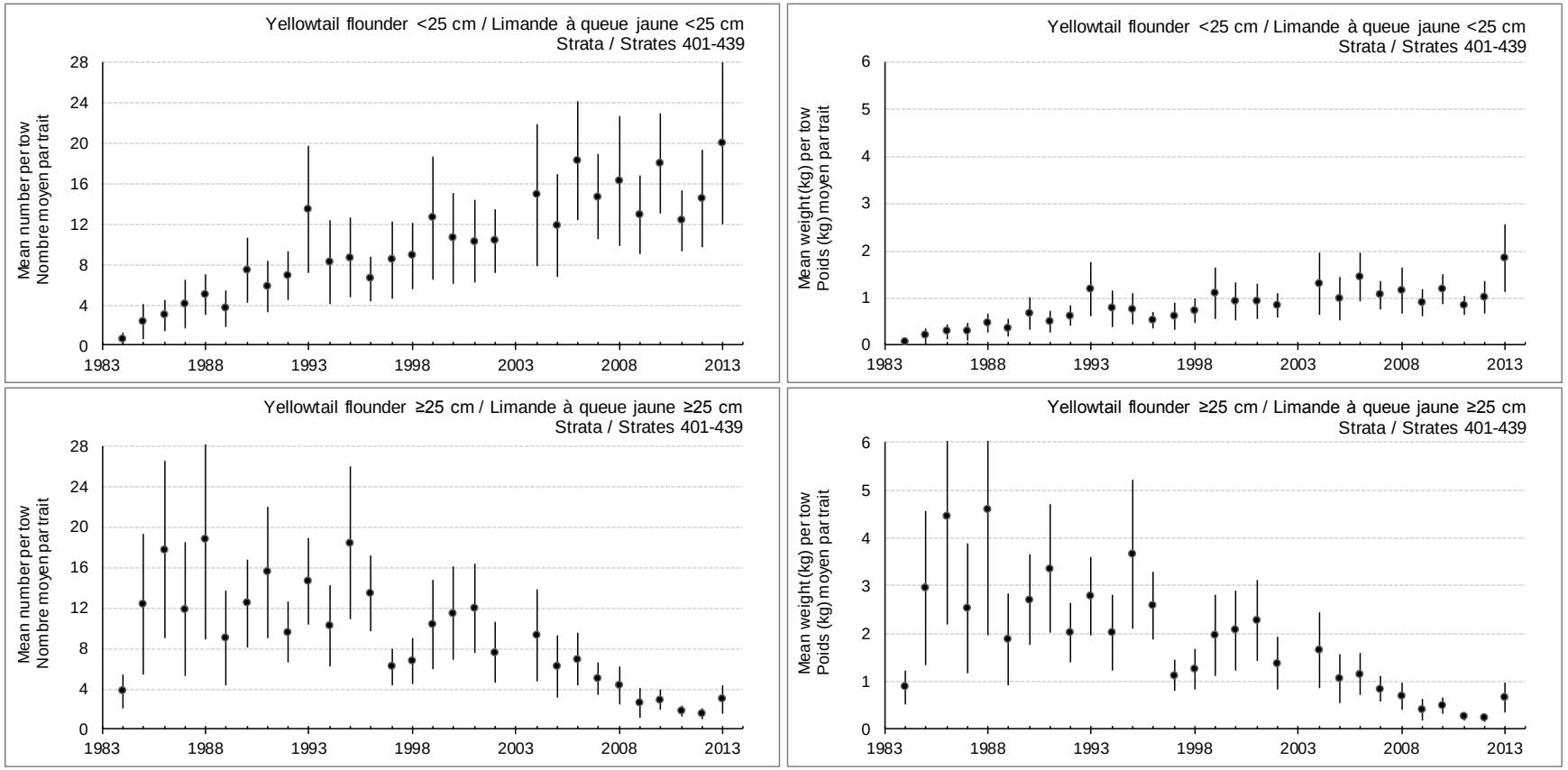


Figure 33. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of yellowtail flounder for two size groups (< 25 cm length in top row; ≥ 25 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys strata 401-439, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

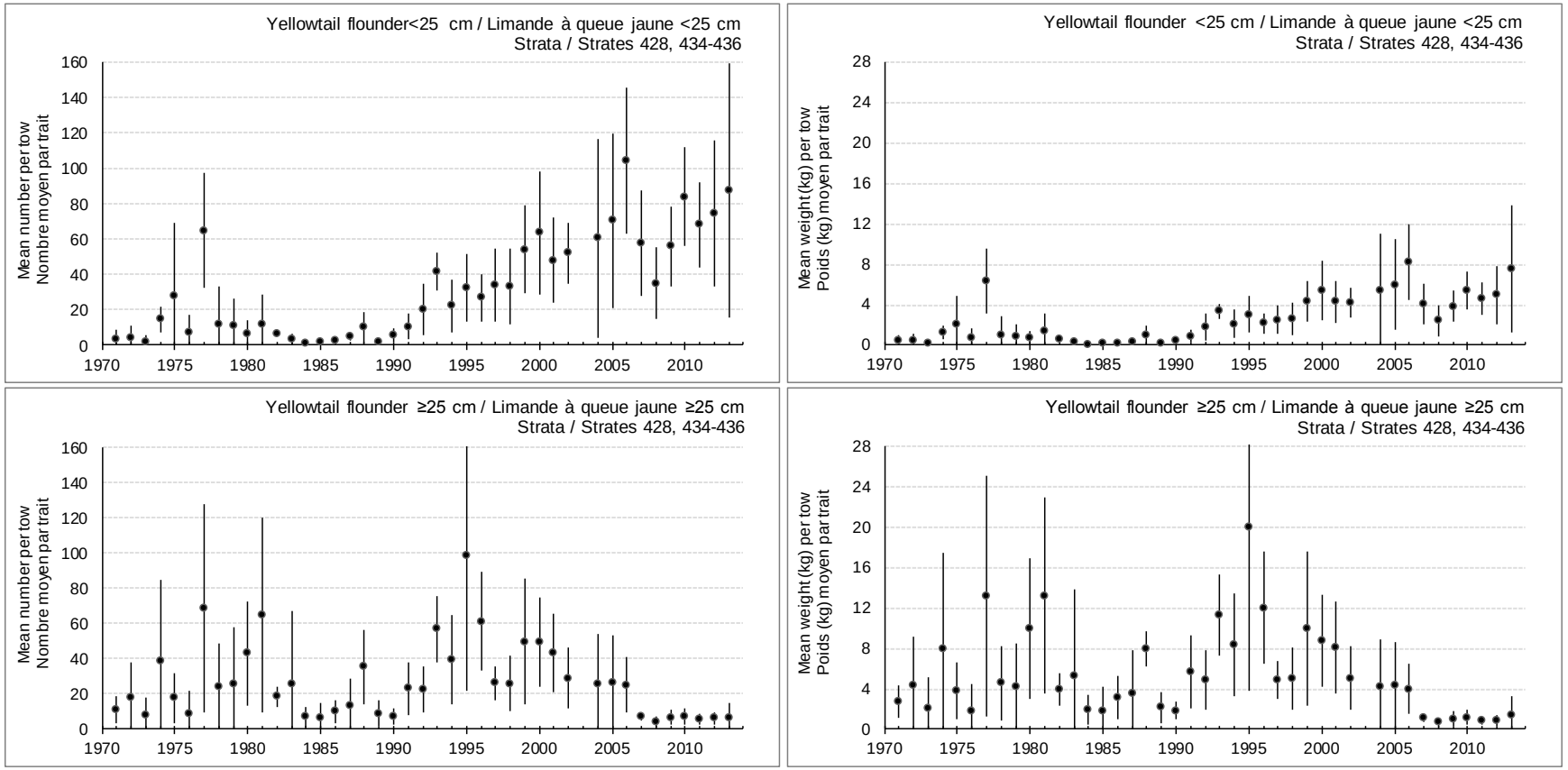


Figure 34. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of yellowtail flounder for two size groups (< 25 cm length in top row; ≥ 25 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys strata near the Magdalen Islands, 1971 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

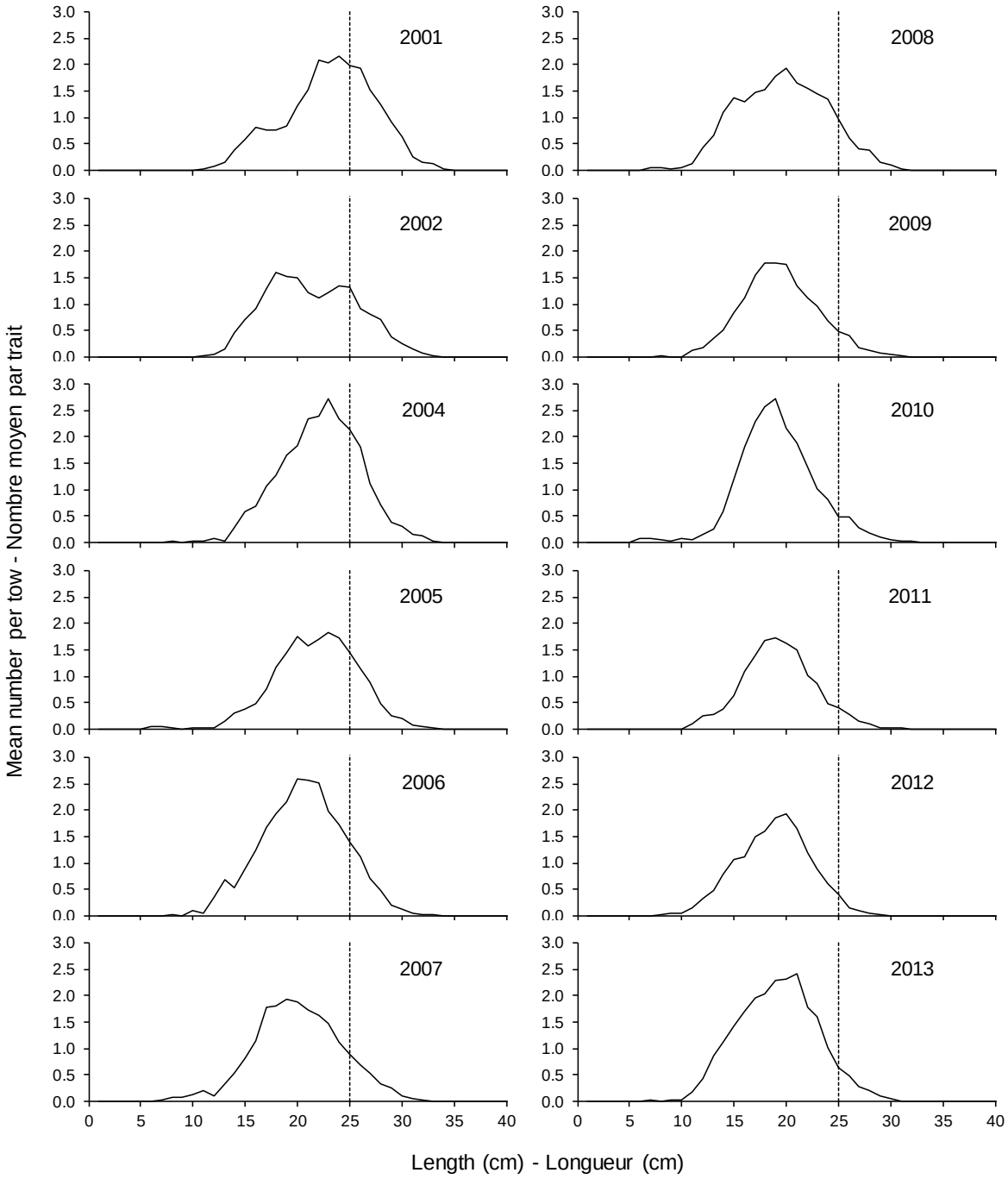


Figure 35. Length frequency distributions expressed in mean number per tow of yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 401 to 439 are those used for the yellowtail flounder abundance index. The dashed vertical line indicates the regulated minimum size of 25 cm in the fishery.

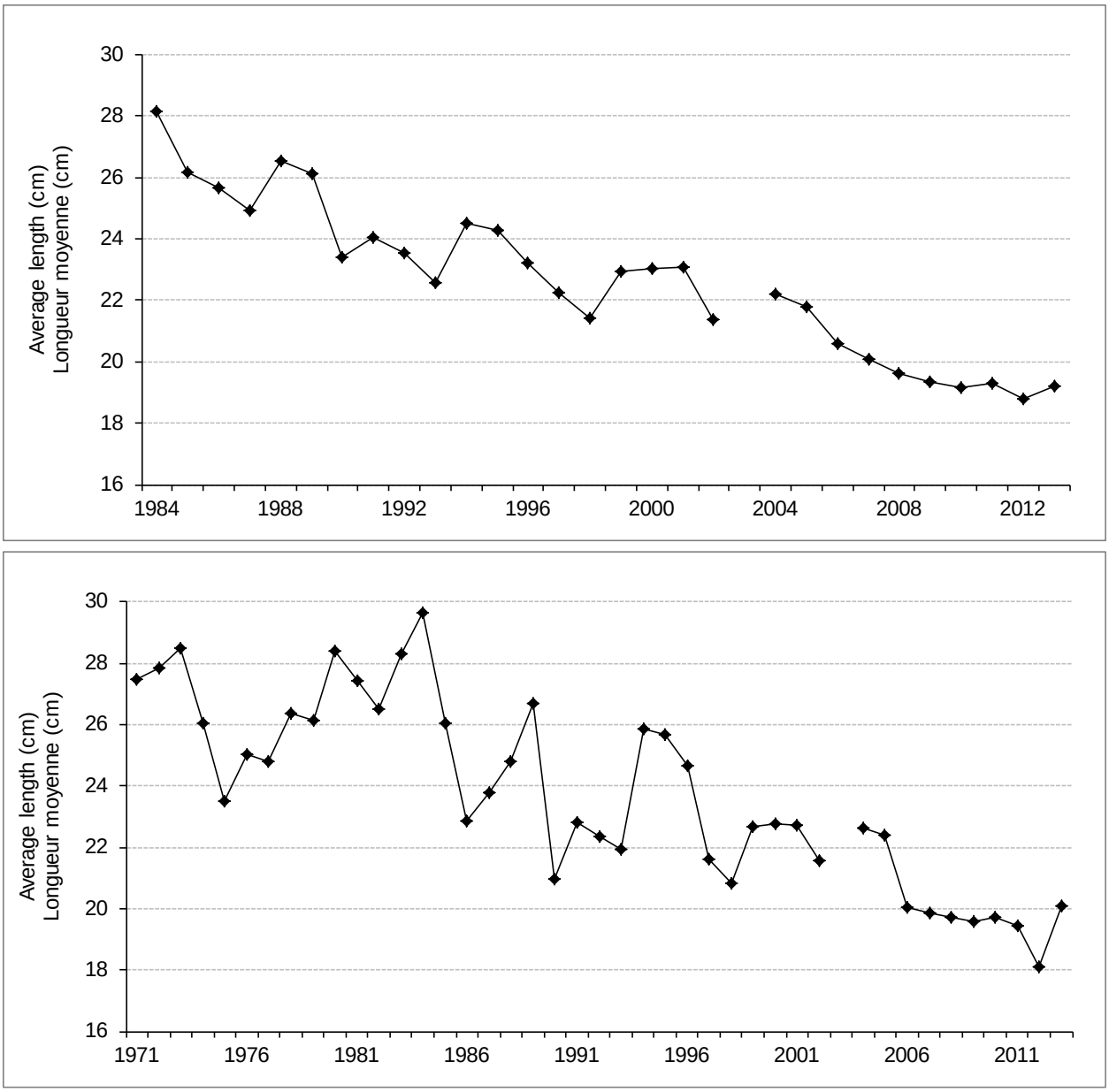


Figure 36. Annual mean length (cm) per tow of yellowtail flounder in the southern Gulf of St. Lawrence September bottom-trawl surveys that include strata 401 to 439 for 1984 to 2013 (except 2003) (top panel) and the area of the Magdalen Islands that includes strata 428 and 434 to 436 for 1971 to 2013 (except 2003) (bottom panel).

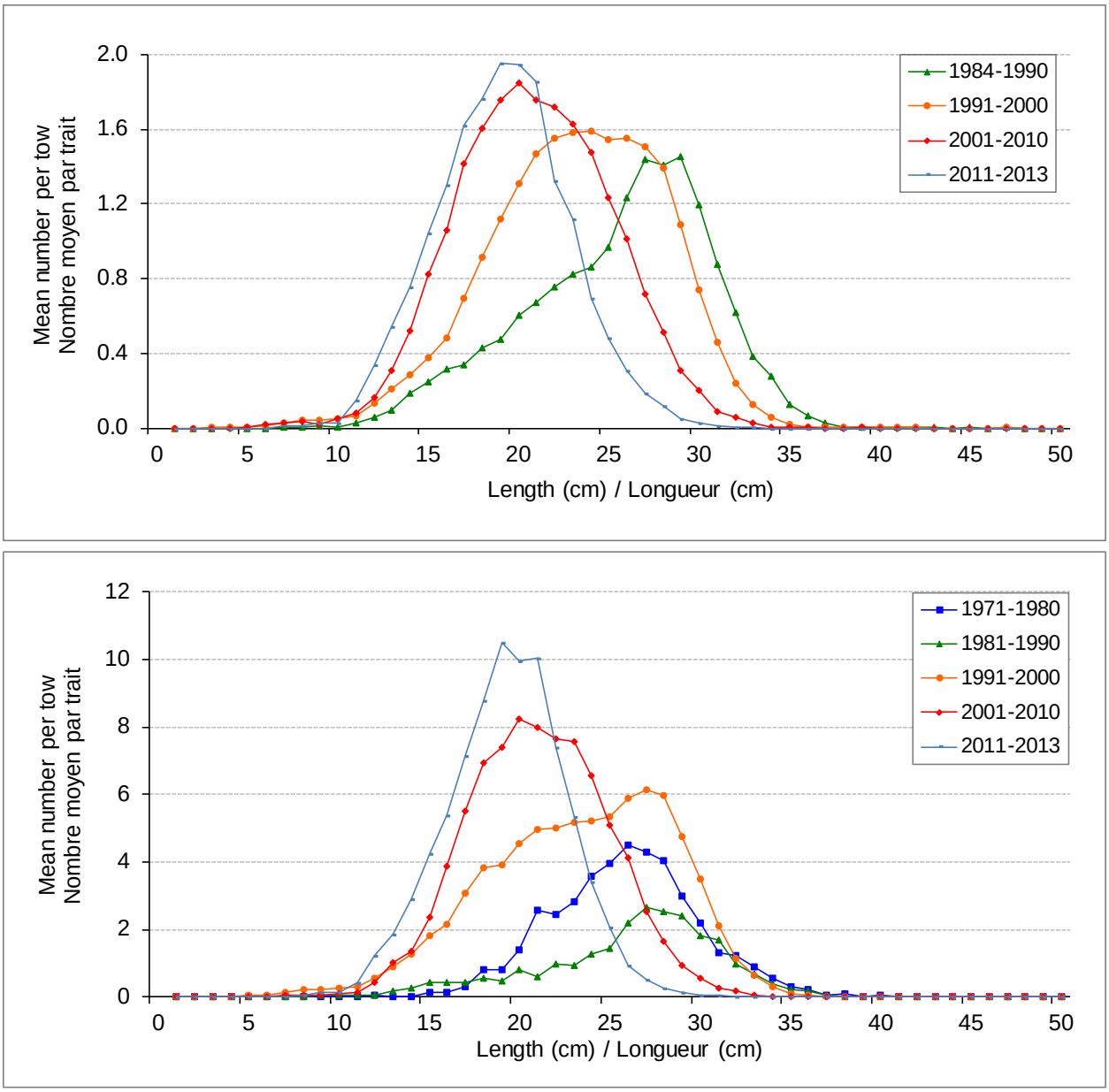


Figure 37. Length frequency distributions expressed as mean number per tow of yellowtail flounder from the southern Gulf of St. Lawrence September bottom-trawl surveys. The upper panel shows length frequency distributions from four time periods (1984-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003) for strata 401 to 439 whereas the bottom panel shows length frequencies from five time periods (1971-1980; 1981-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003) for the area of the Magdalen Islands that includes strata 428 and 434 to 436.

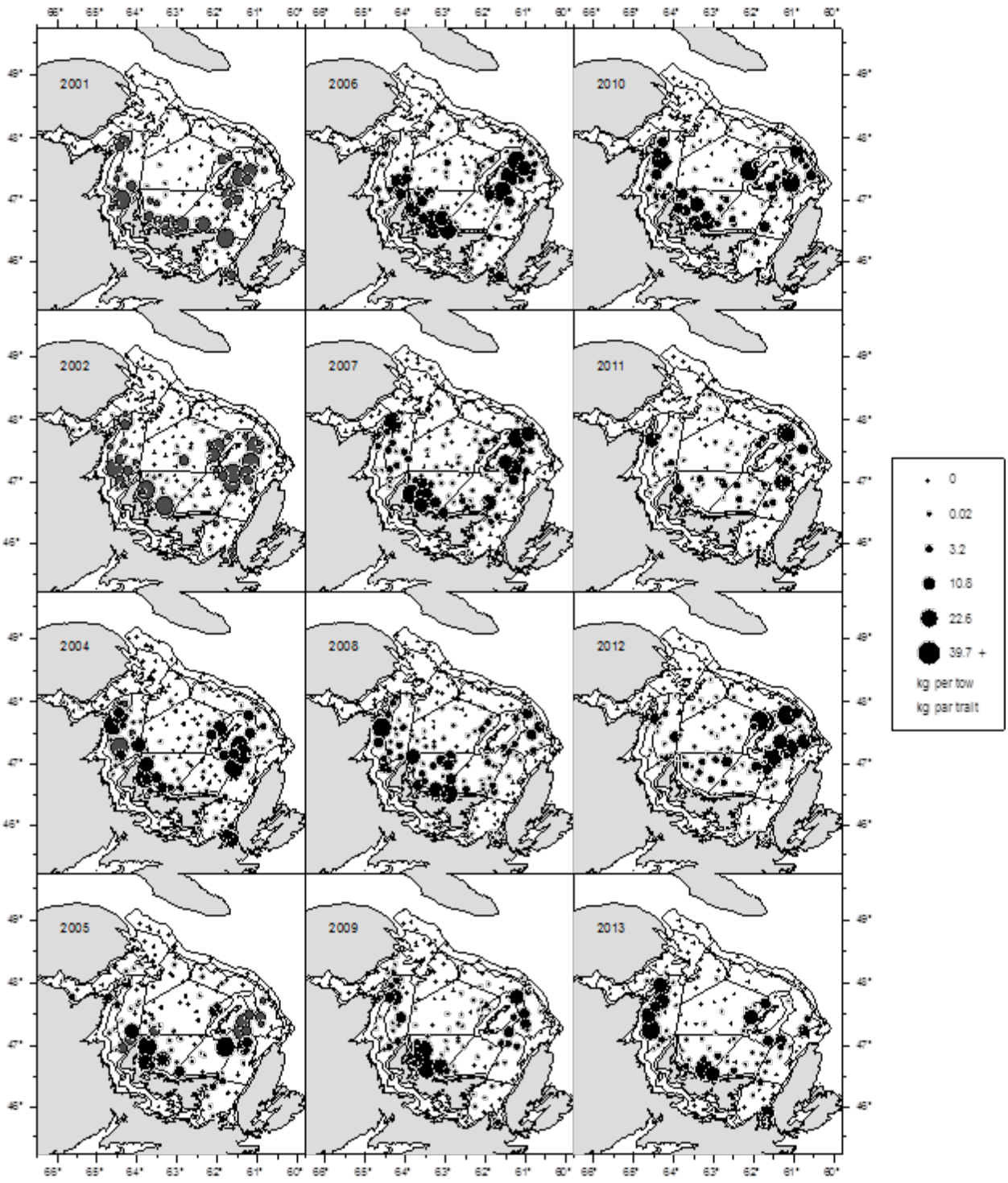


Figure 38. Yellowtail flounder abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

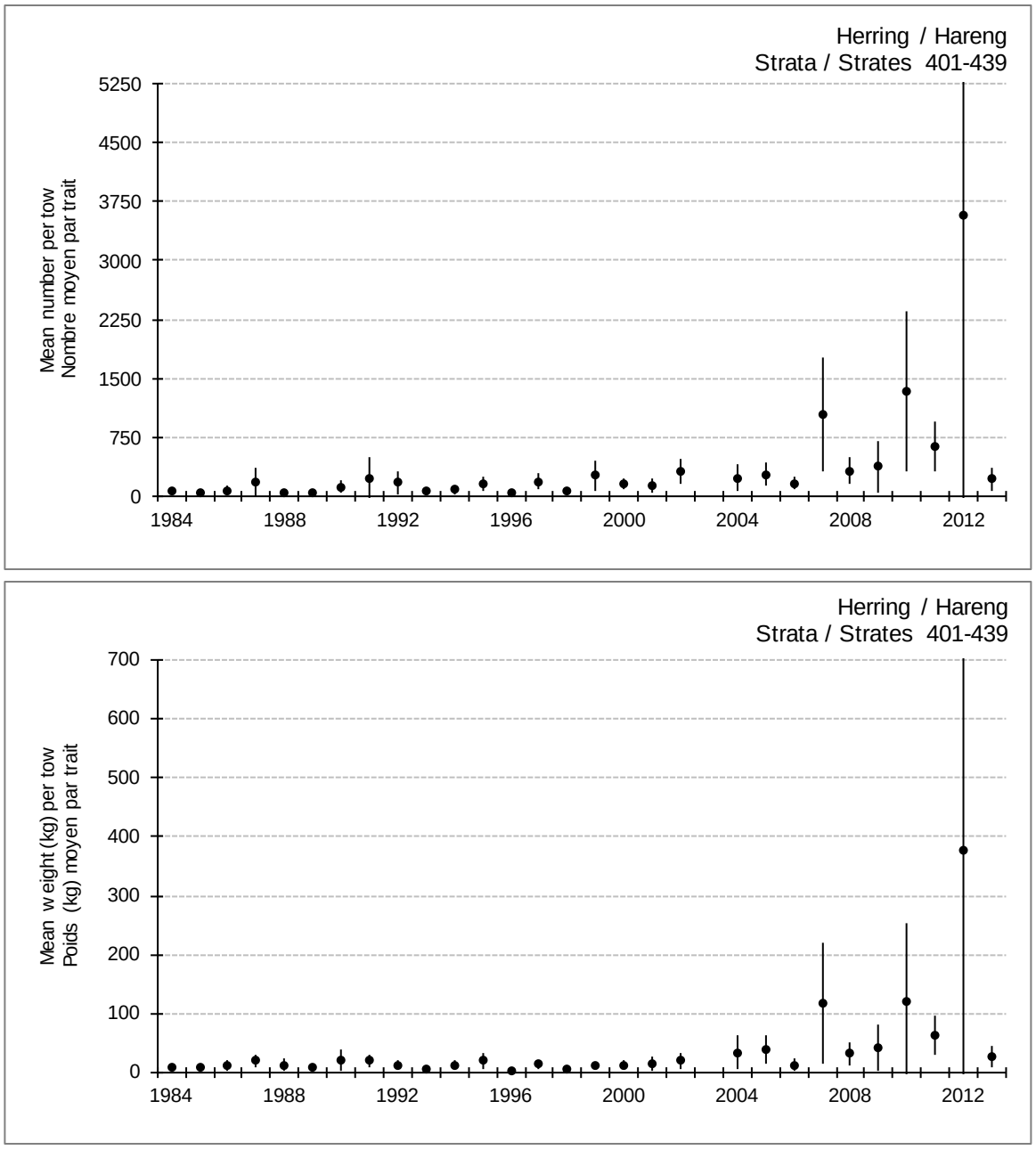


Figure 39. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of Atlantic herring in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

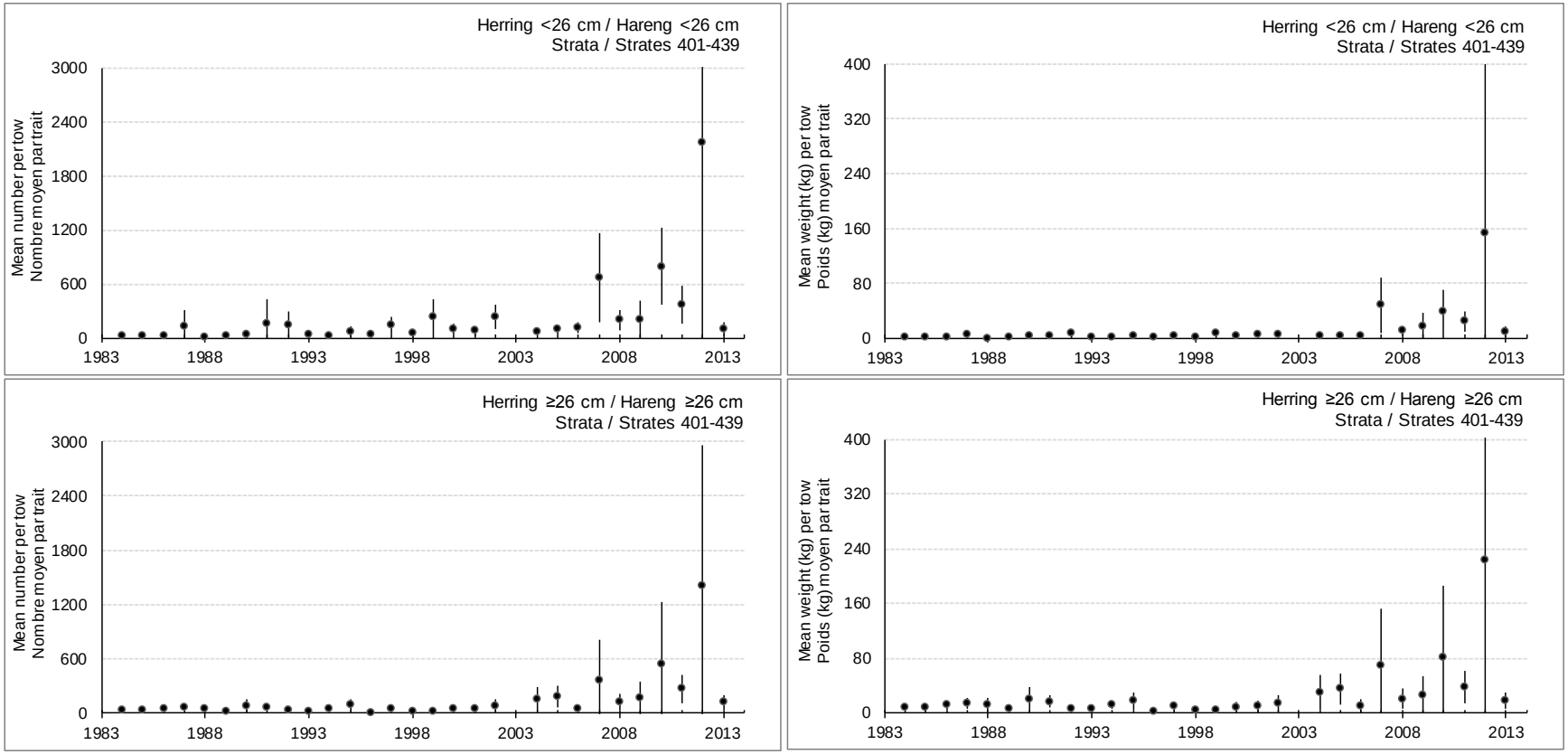


Figure 40. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of Atlantic herring for two size groups (< 26 cm length in top row; ≥ 26 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

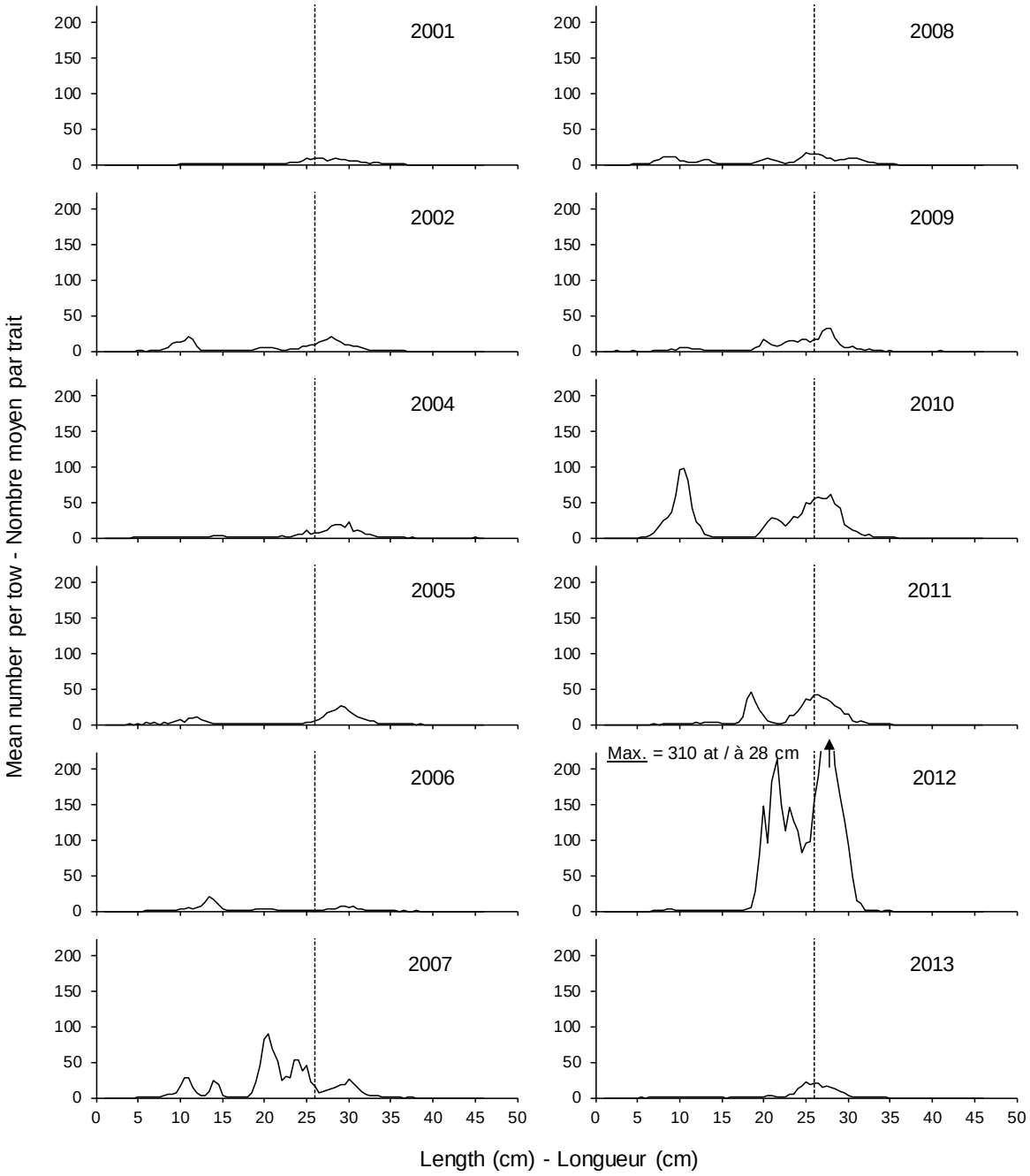


Figure 41. Length frequency distributions expressed in mean number per tow of Atlantic herring in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 401 to 439 are those used for the Atlantic herring abundance index. The dashed vertical line indicates the regulated minimum size of 26 cm total length in the fishery.

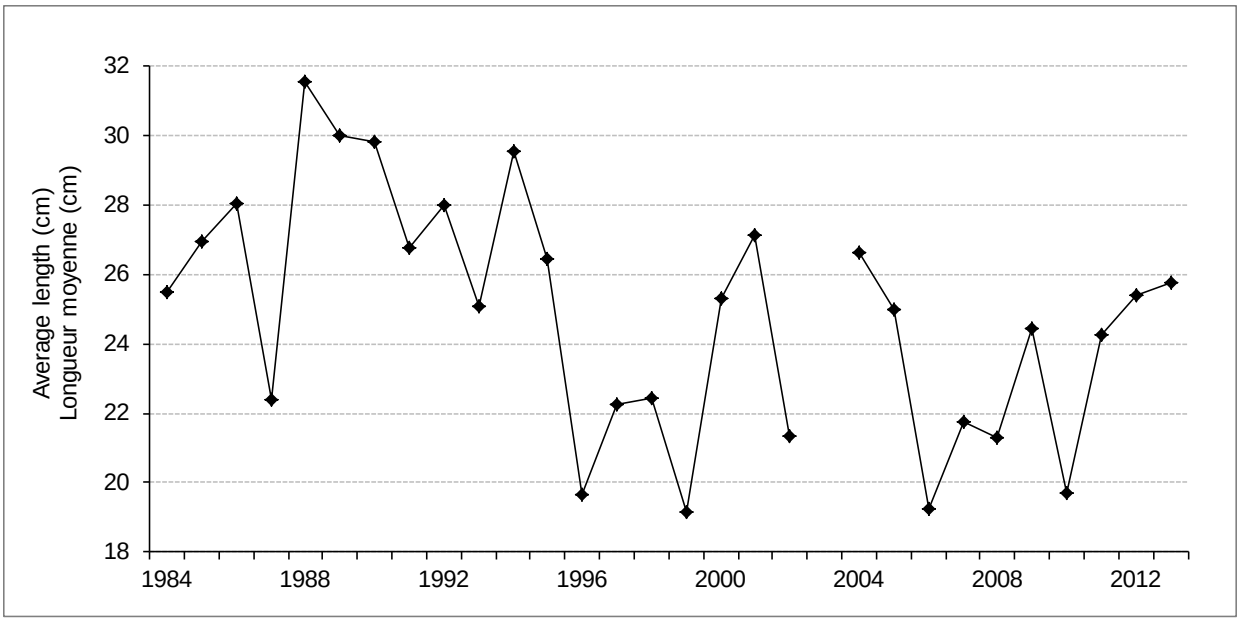


Figure 42. Annual mean length (cm) per tow of Atlantic herring in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013 (except 2003).

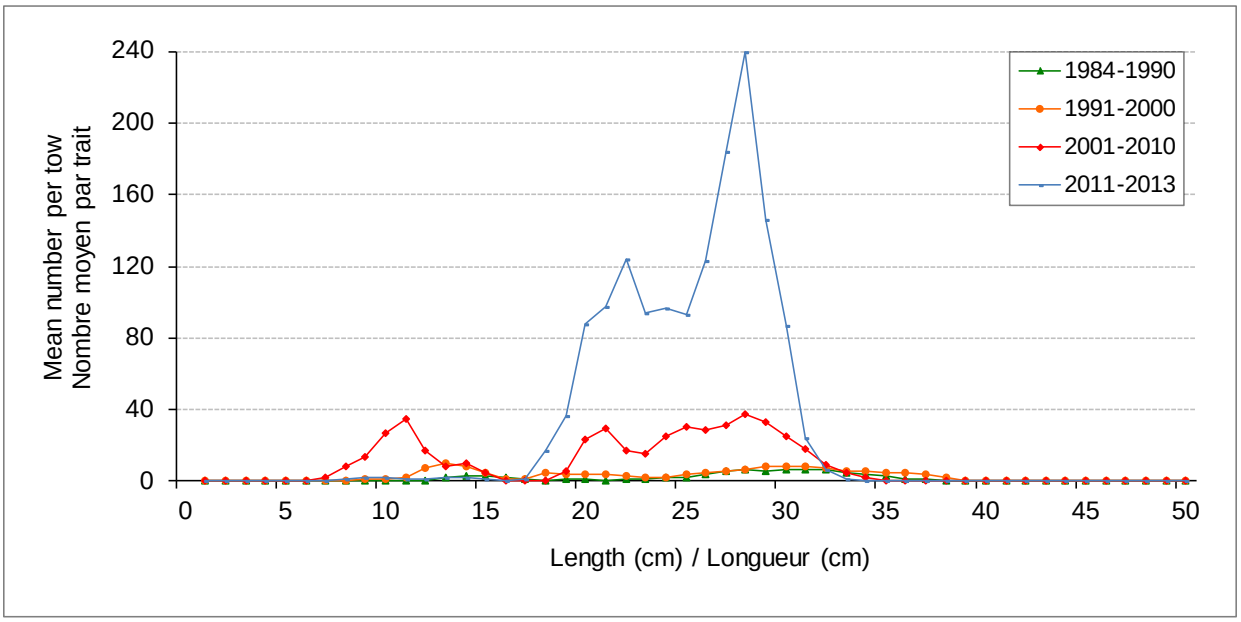


Figure 43. Length frequency distributions expressed as mean number per tow of Atlantic herring from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439) from four time periods (1984-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

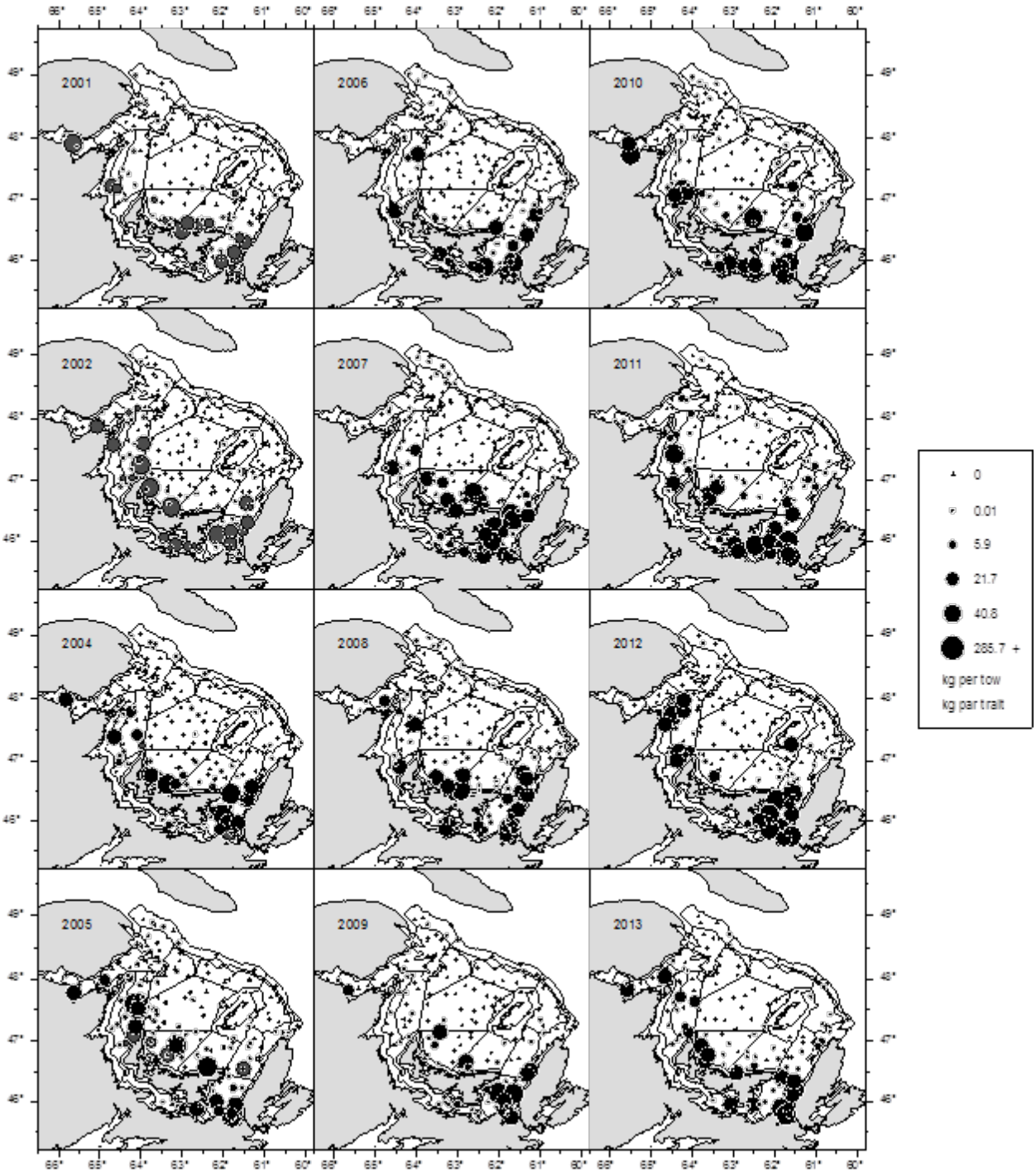


Figure 44. Atlantic herring abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

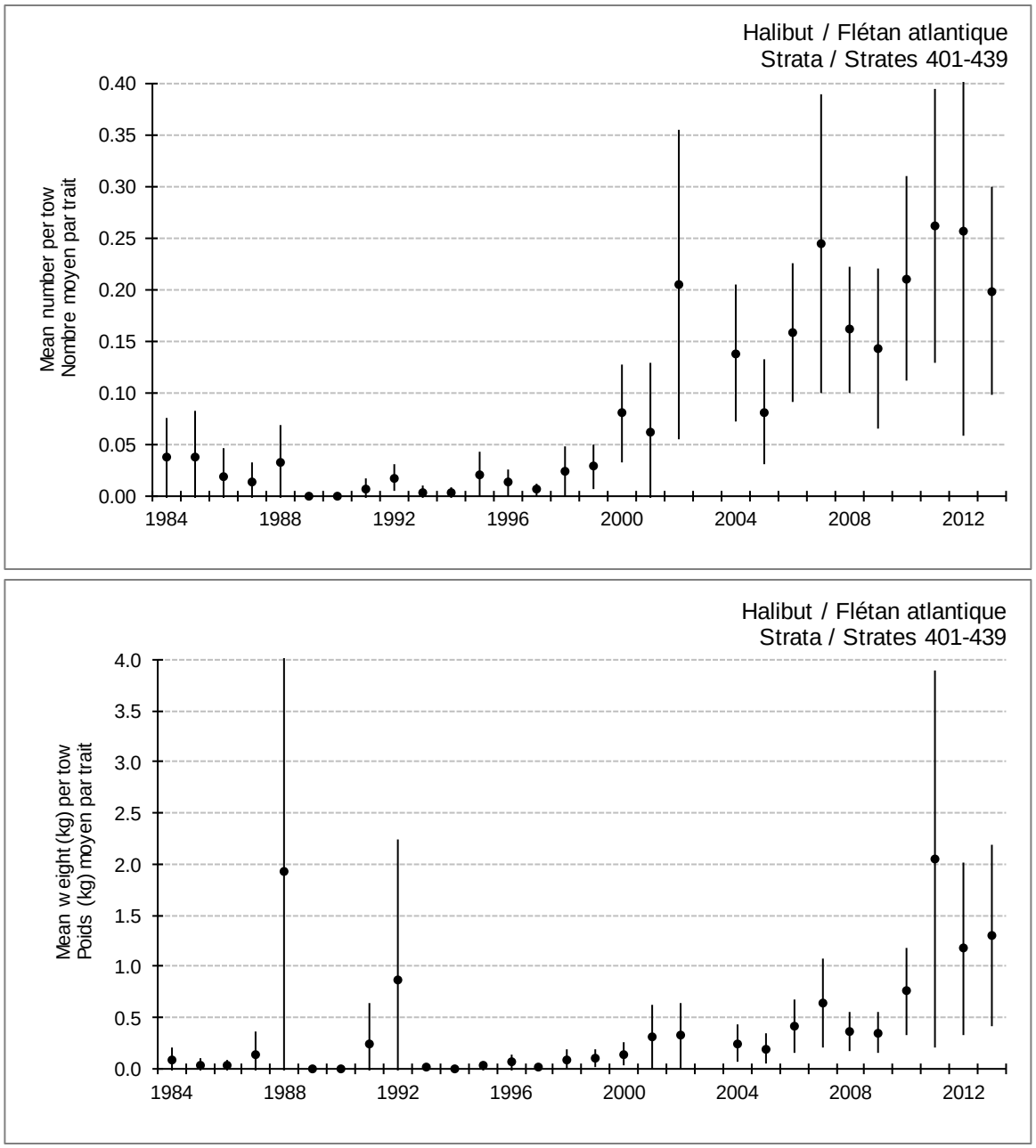


Figure 45. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of Atlantic halibut in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

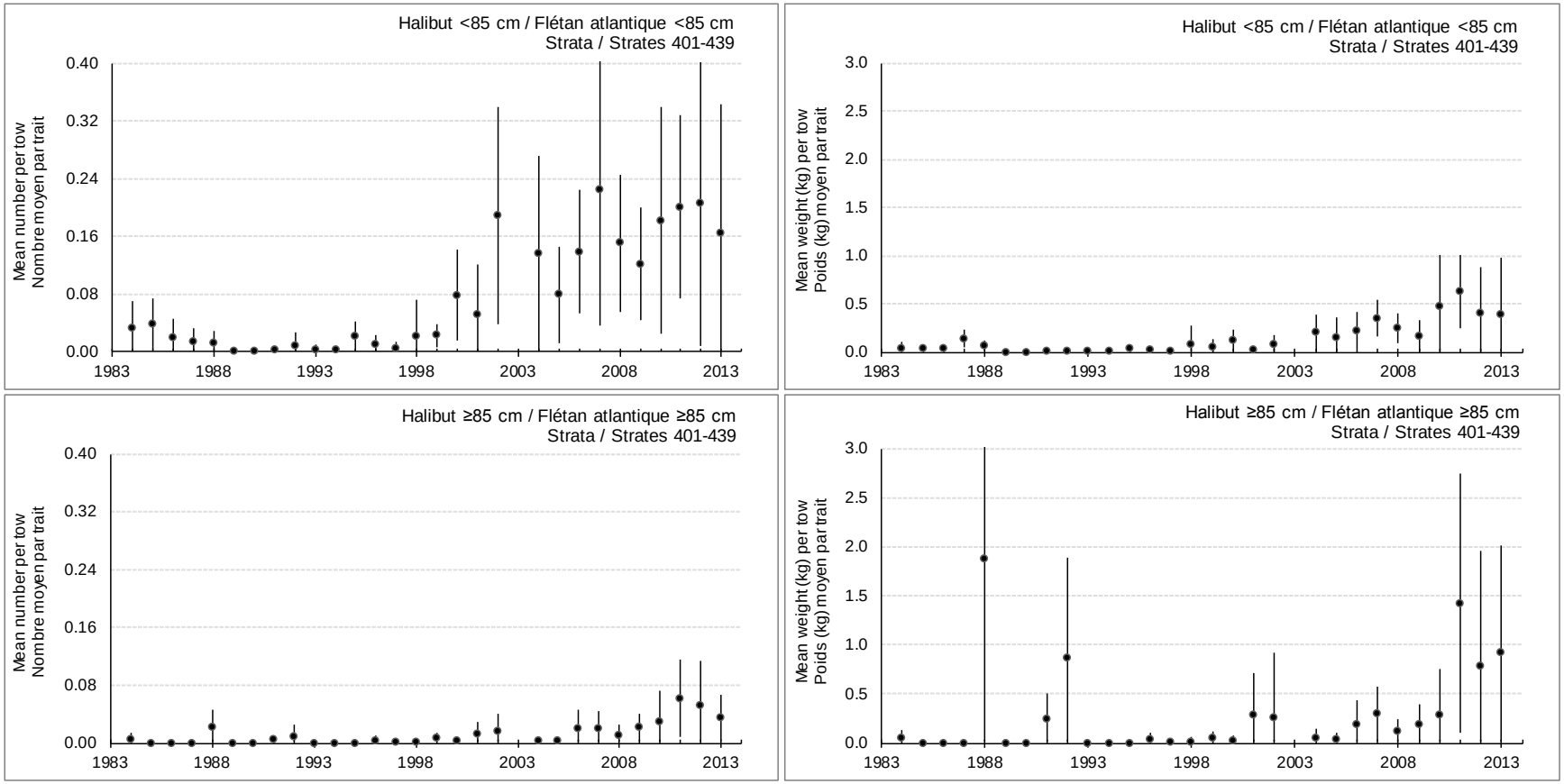


Figure 46. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of Atlantic halibut for two size groups (< 85 cm length in top row; ≥ 85 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

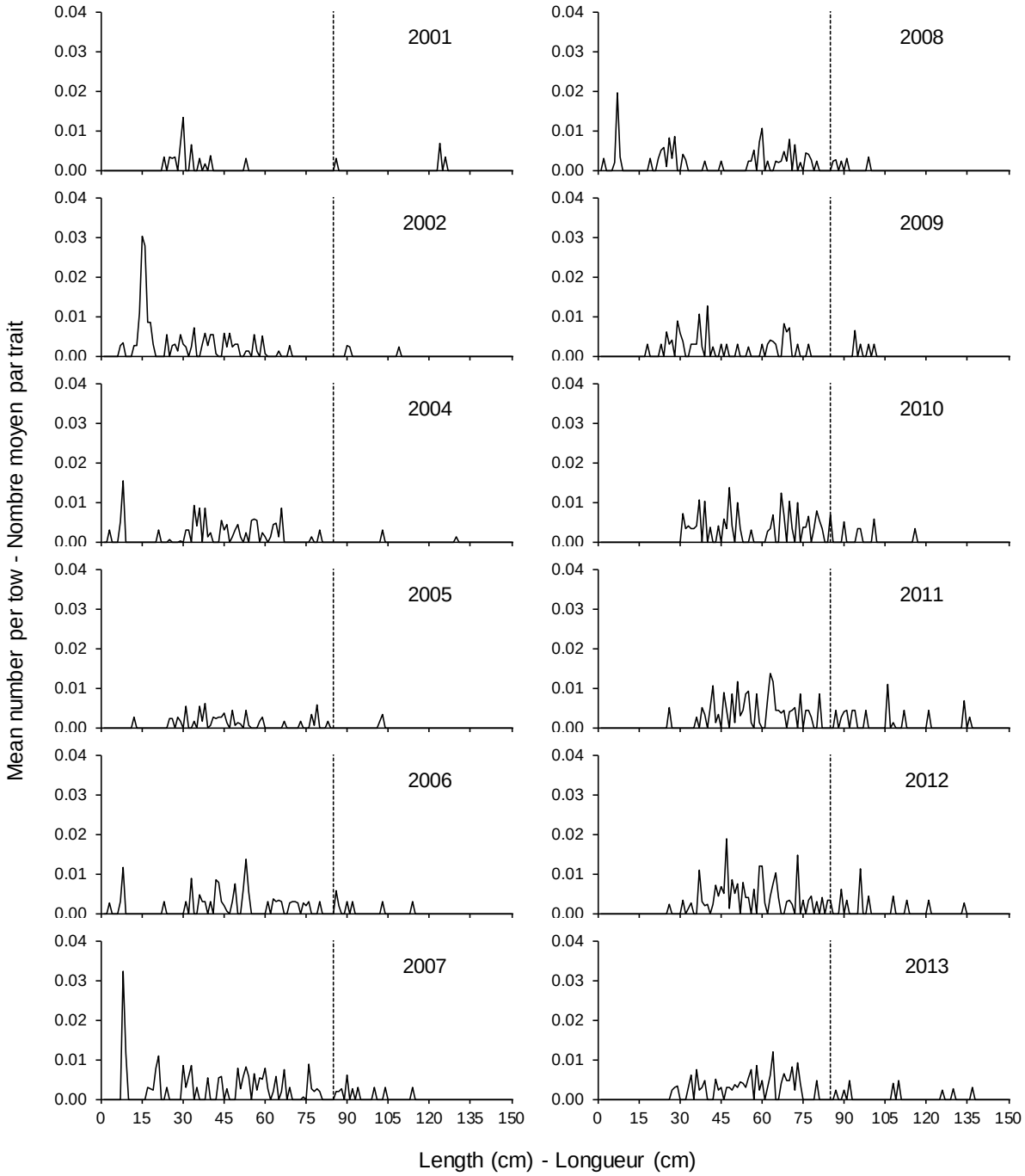


Figure 47. Length frequency distributions expressed in mean number per tow of Atlantic halibut in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 401 to 439 are those used for the Atlantic halibut abundance index. The dashed vertical line indicates the regulated minimum size of 85 cm in the fishery.

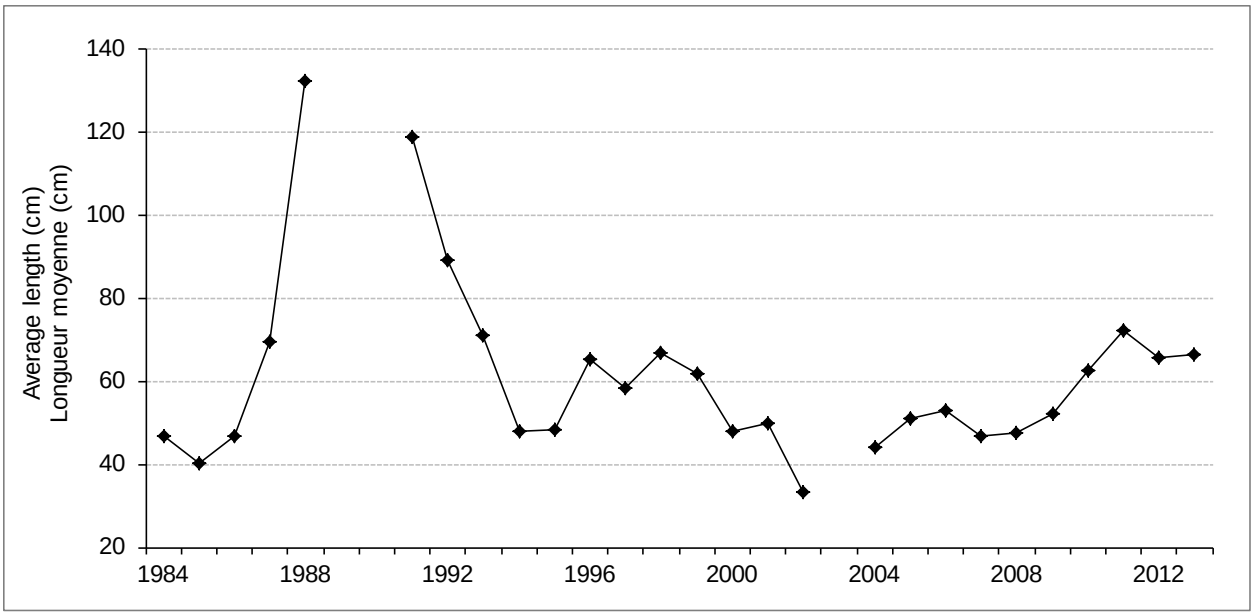


Figure 48. Annual mean length (cm) per tow of Atlantic halibut in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013 (except 2003).

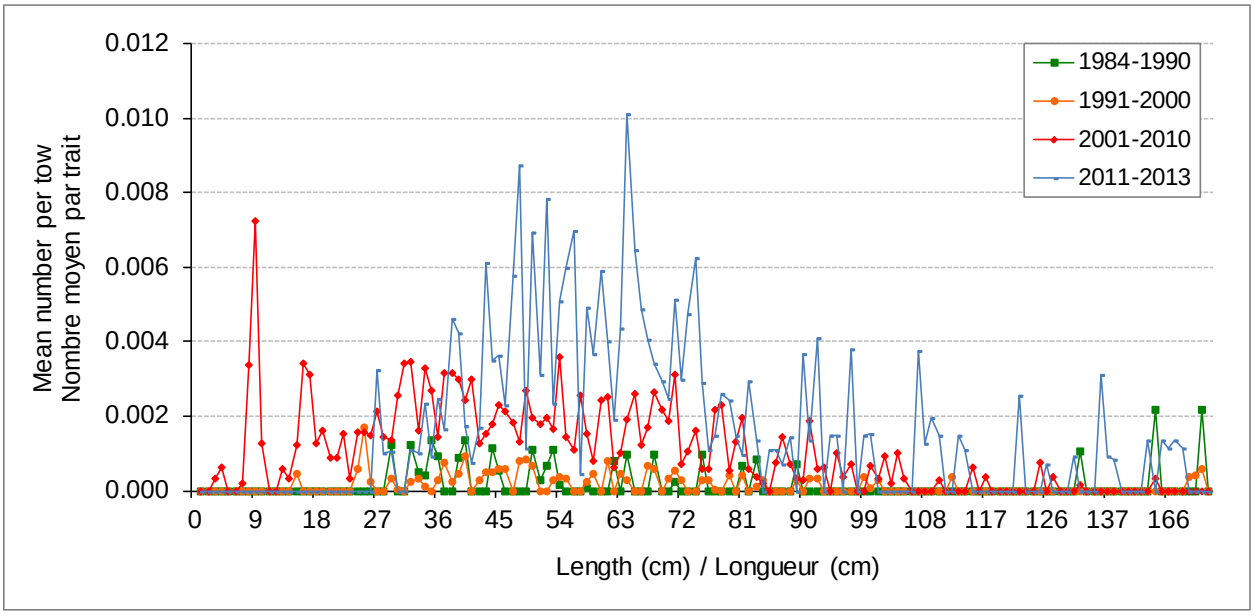


Figure 49. Length frequency distributions expressed as mean number per tow of Atlantic halibut from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439) from four time periods (1984-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

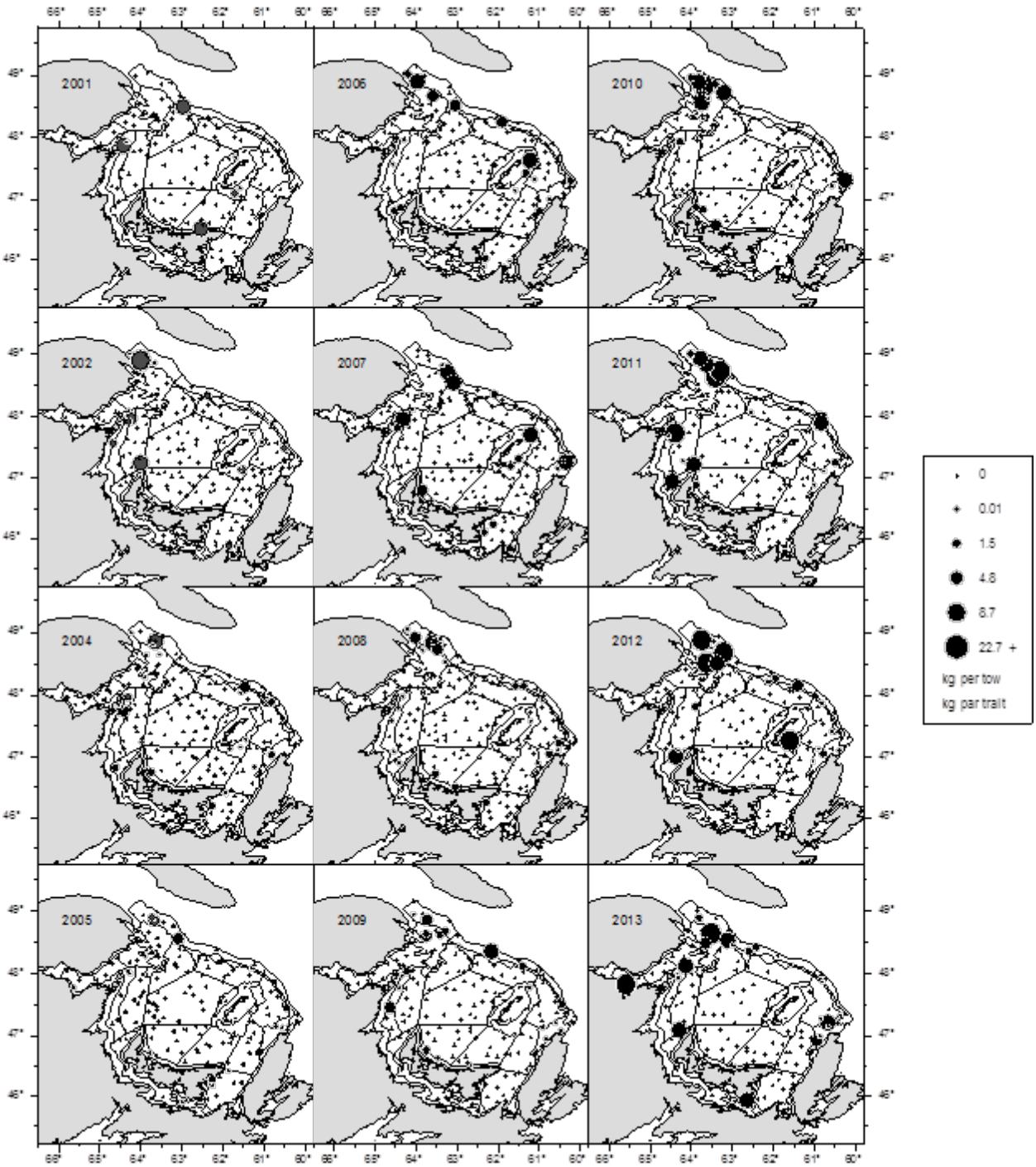


Figure 50. Atlantic halibut abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

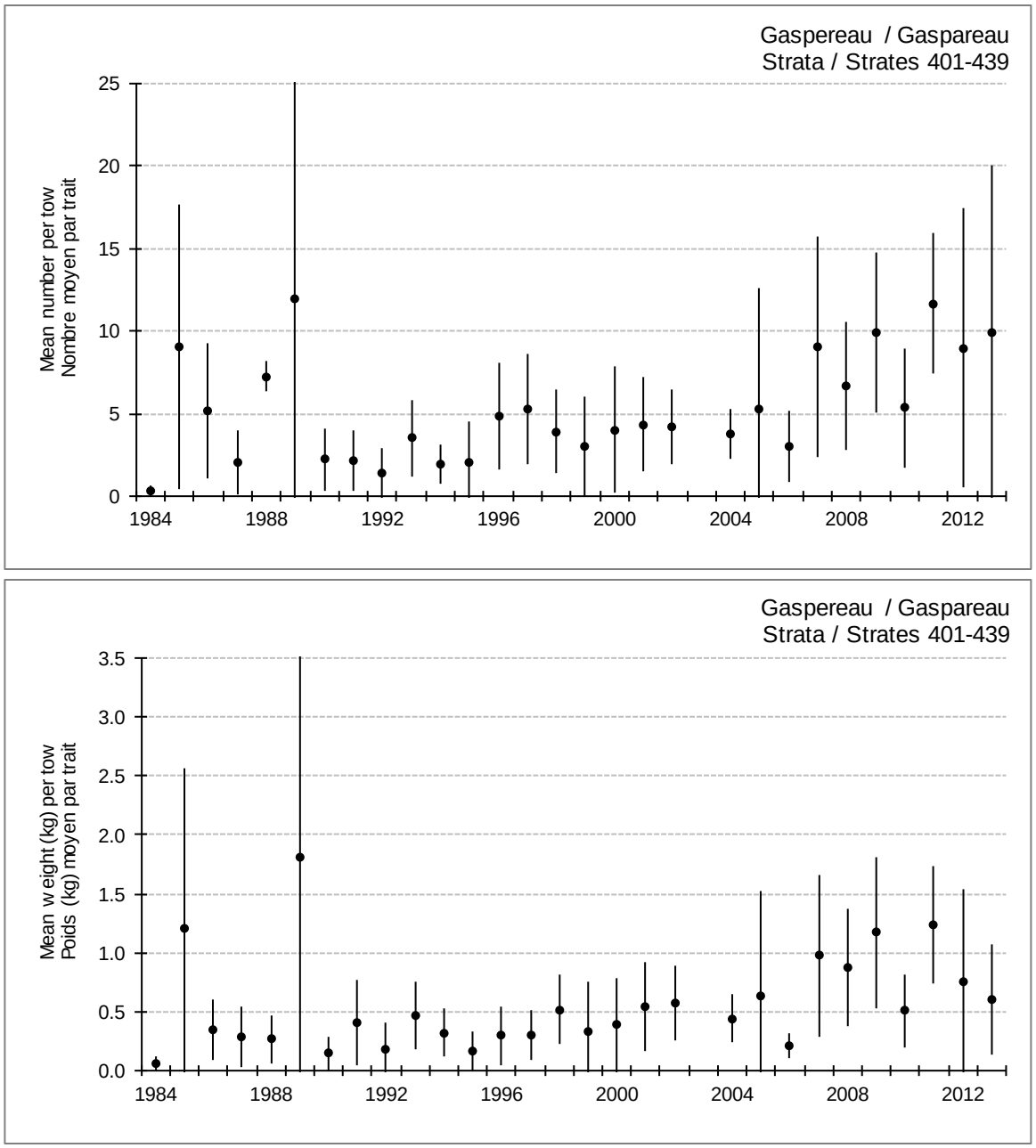


Figure 51. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of gaspereau in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

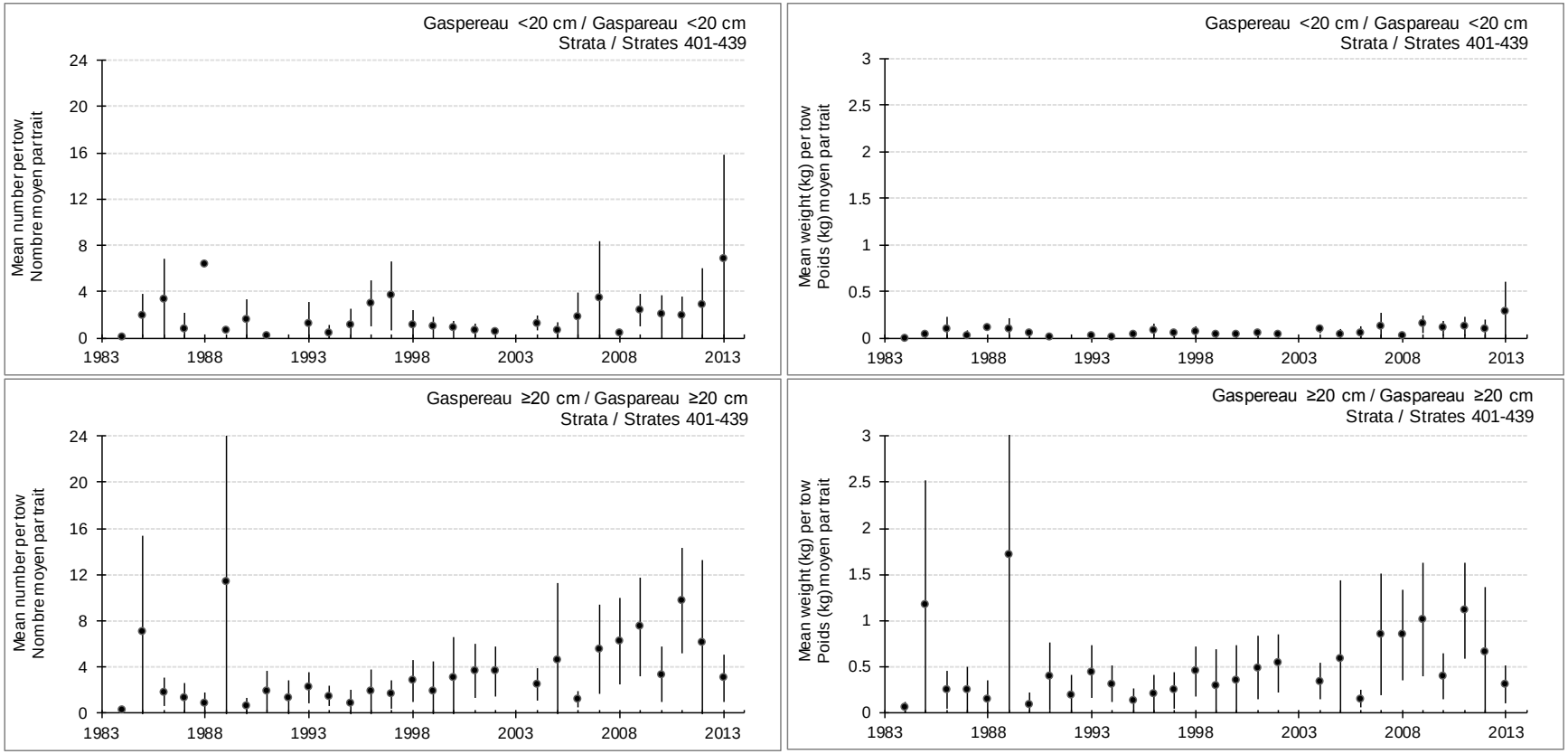


Figure 52. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of gaspereau for two size groups (< 20 cm length in top row; ≥ 20 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

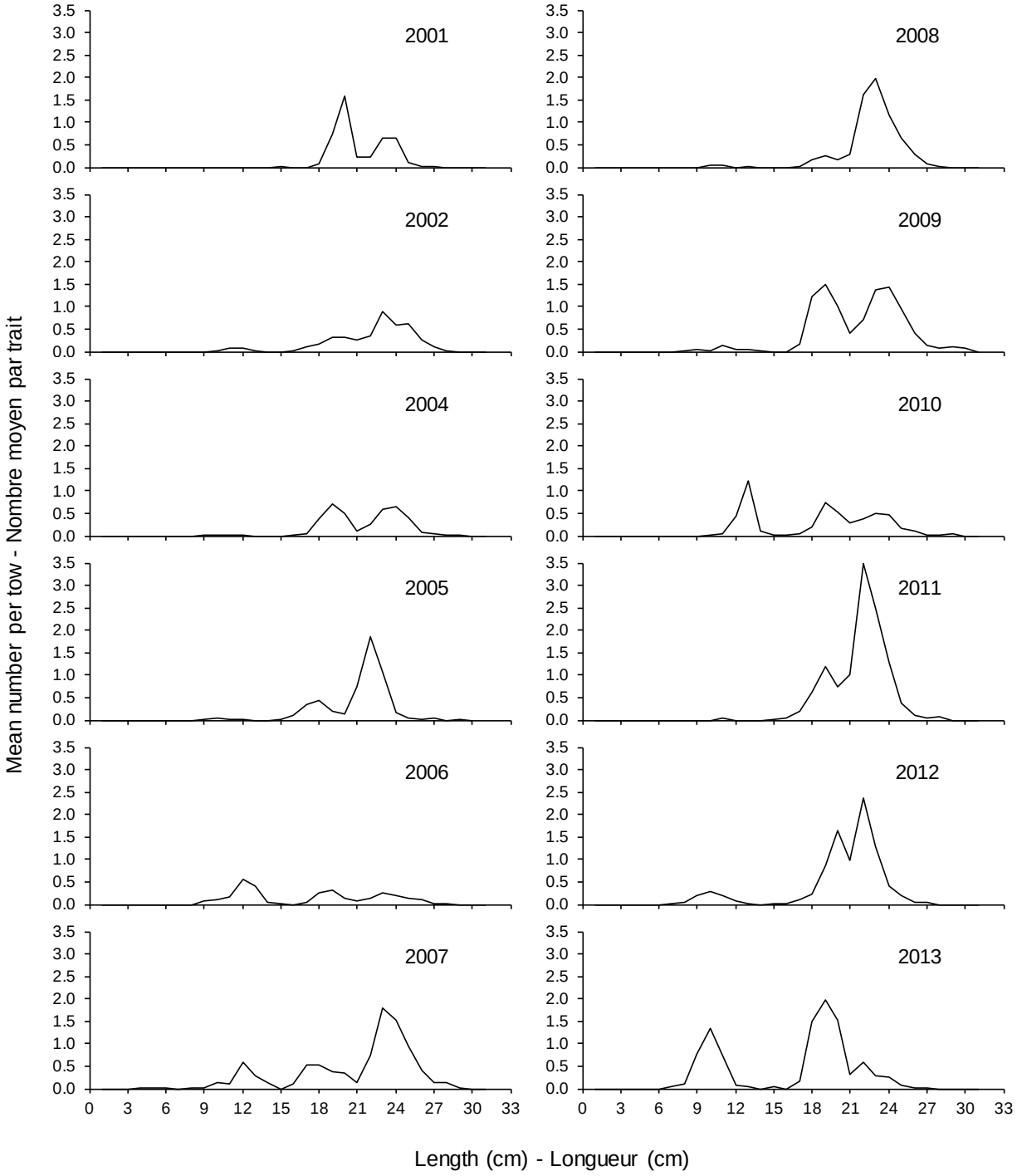


Figure 53. Length frequency distributions expressed in mean number per tow of gaspereau in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 401 to 439 are those used for the gaspereau abundance index.

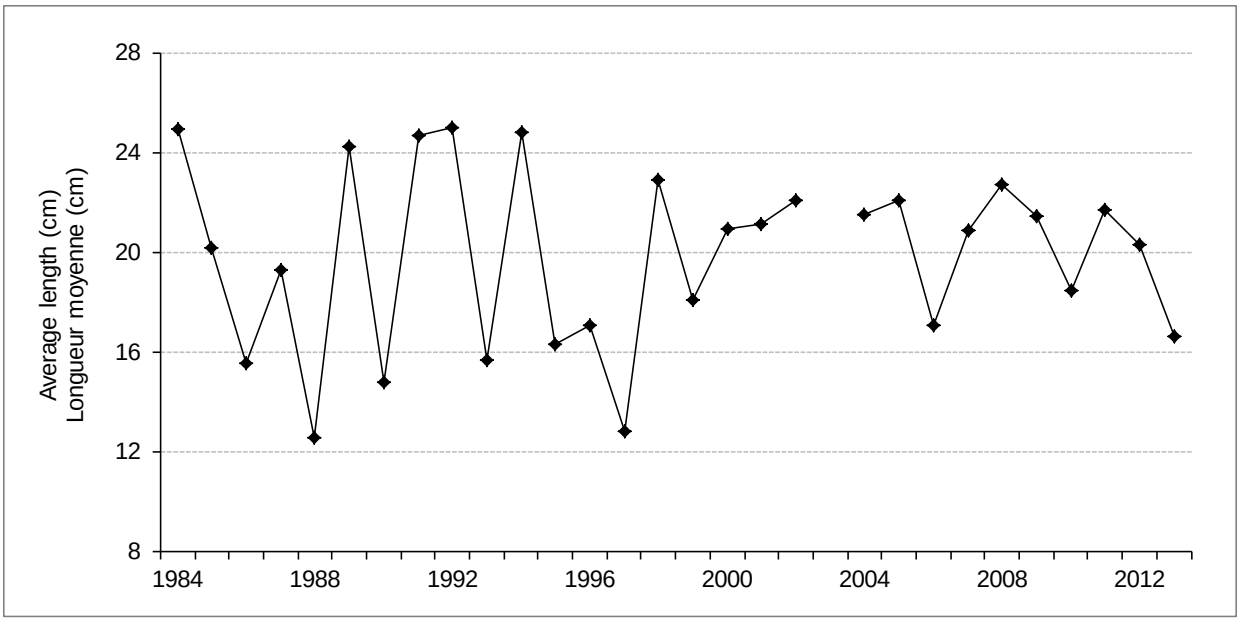


Figure 54. Annual mean length (cm) per tow of gaspereau in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013 (except 2003).

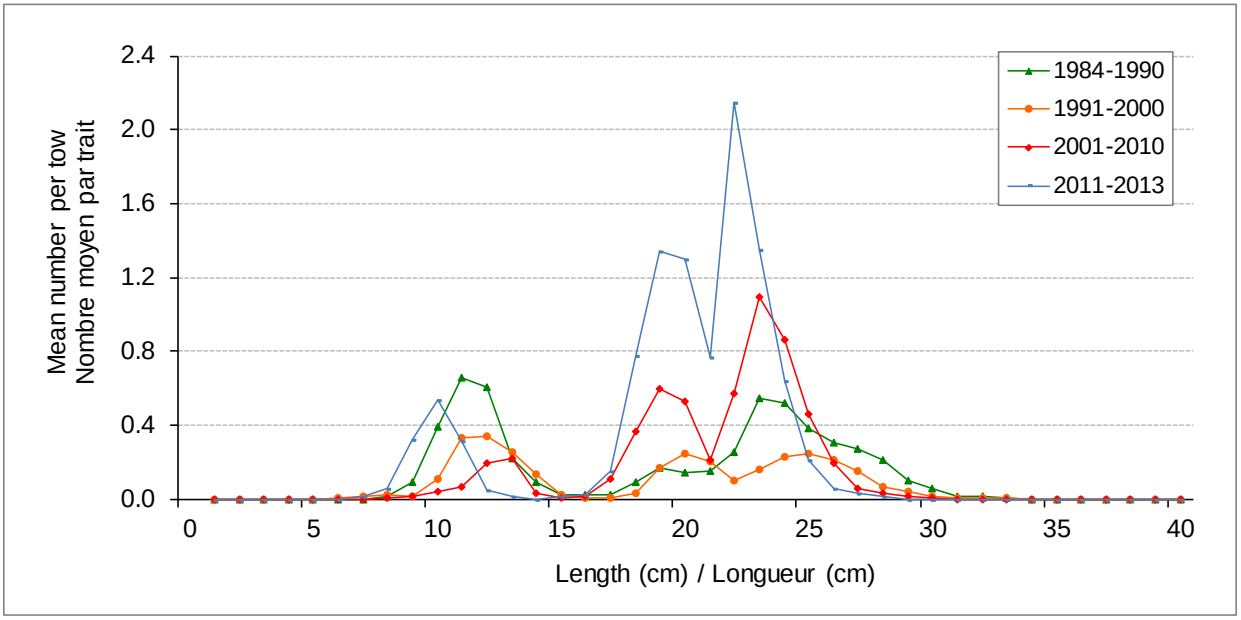


Figure 55. Length frequency distributions expressed as mean number per tow of gaspereau from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439) from four time periods (1984-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

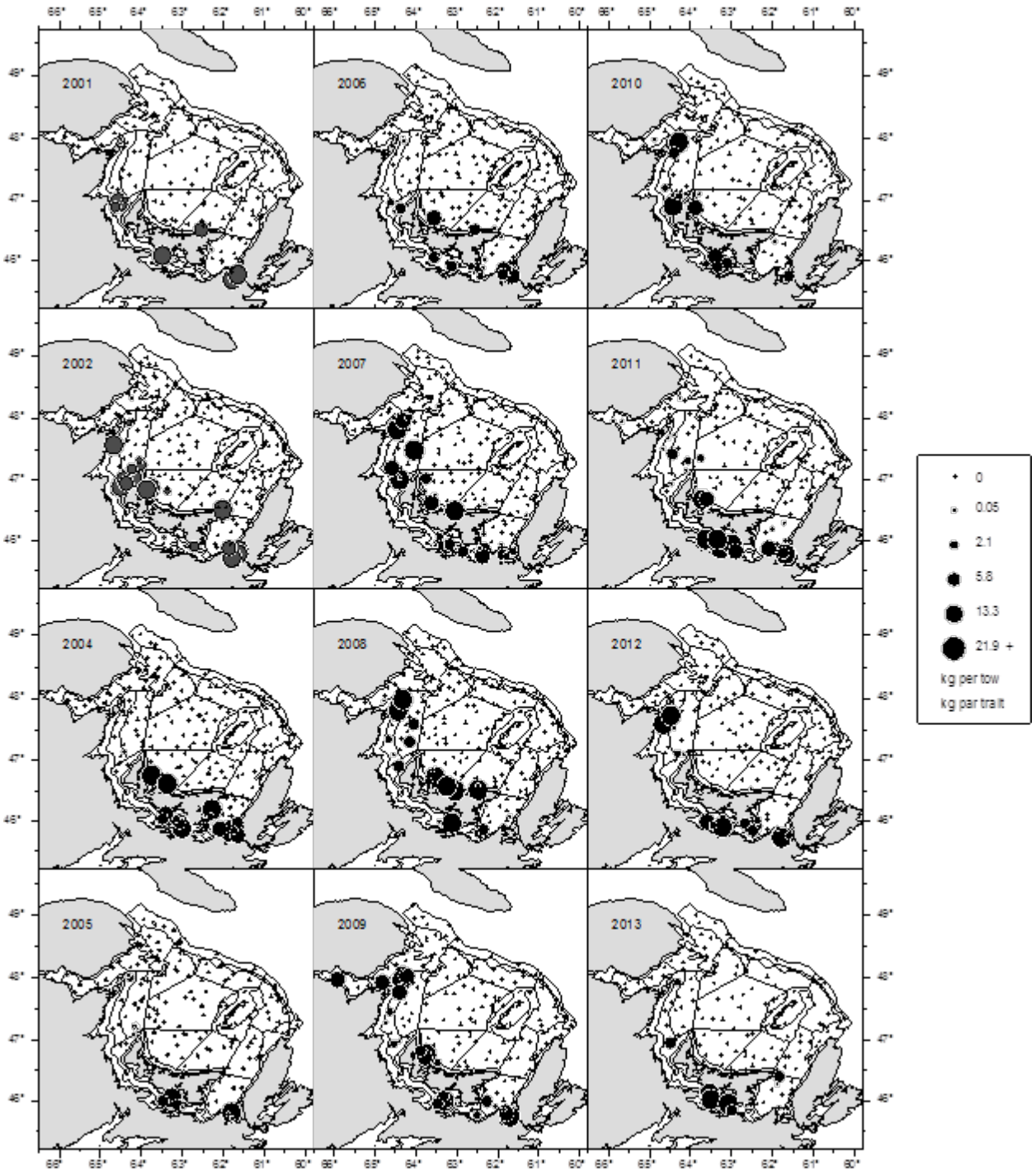


Figure 56. Gaspereau abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

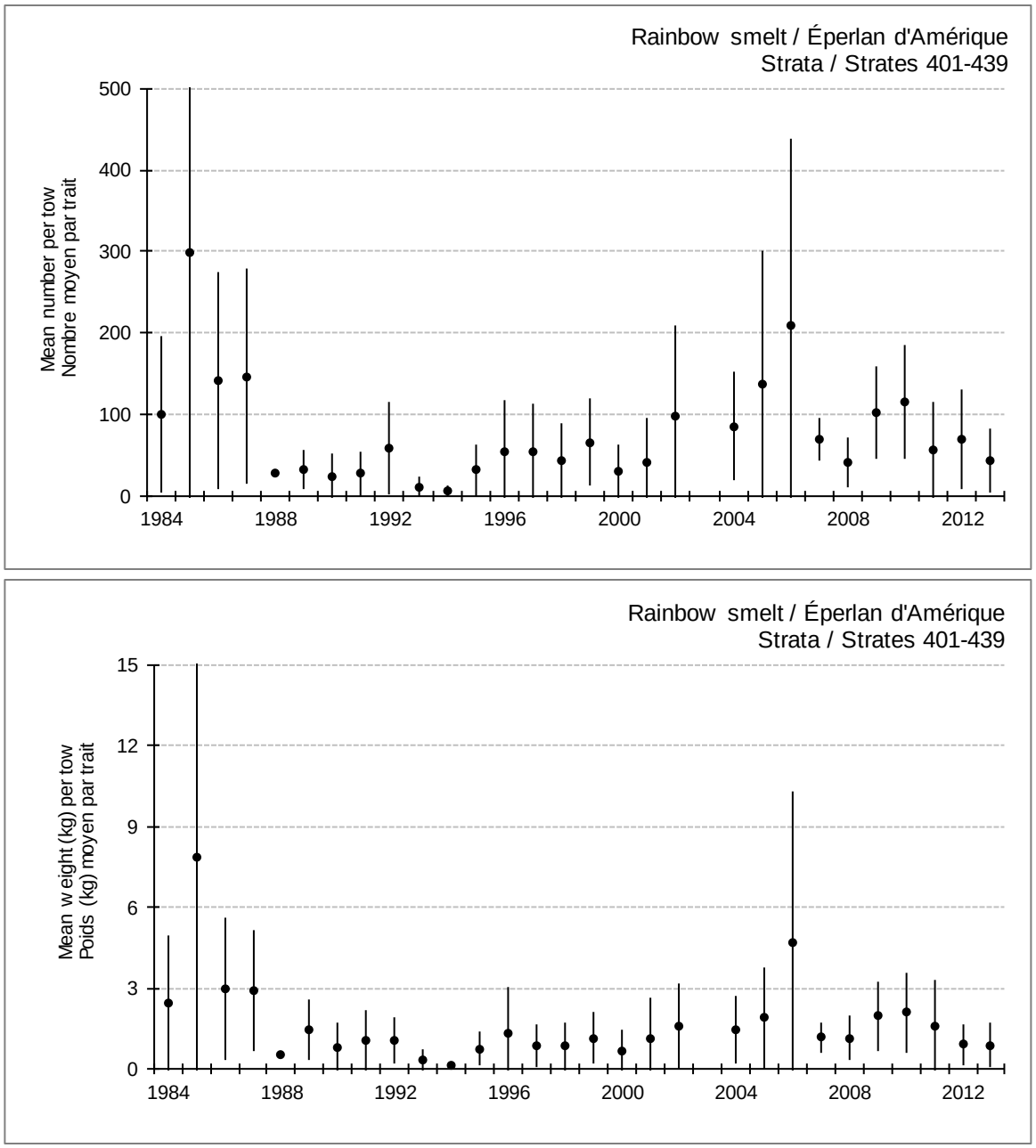


Figure 57. Annual catch abundance (mean and standard error bars) in number per tow (top panel) and weight per tow (bottom panel) of rainbow smelt in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

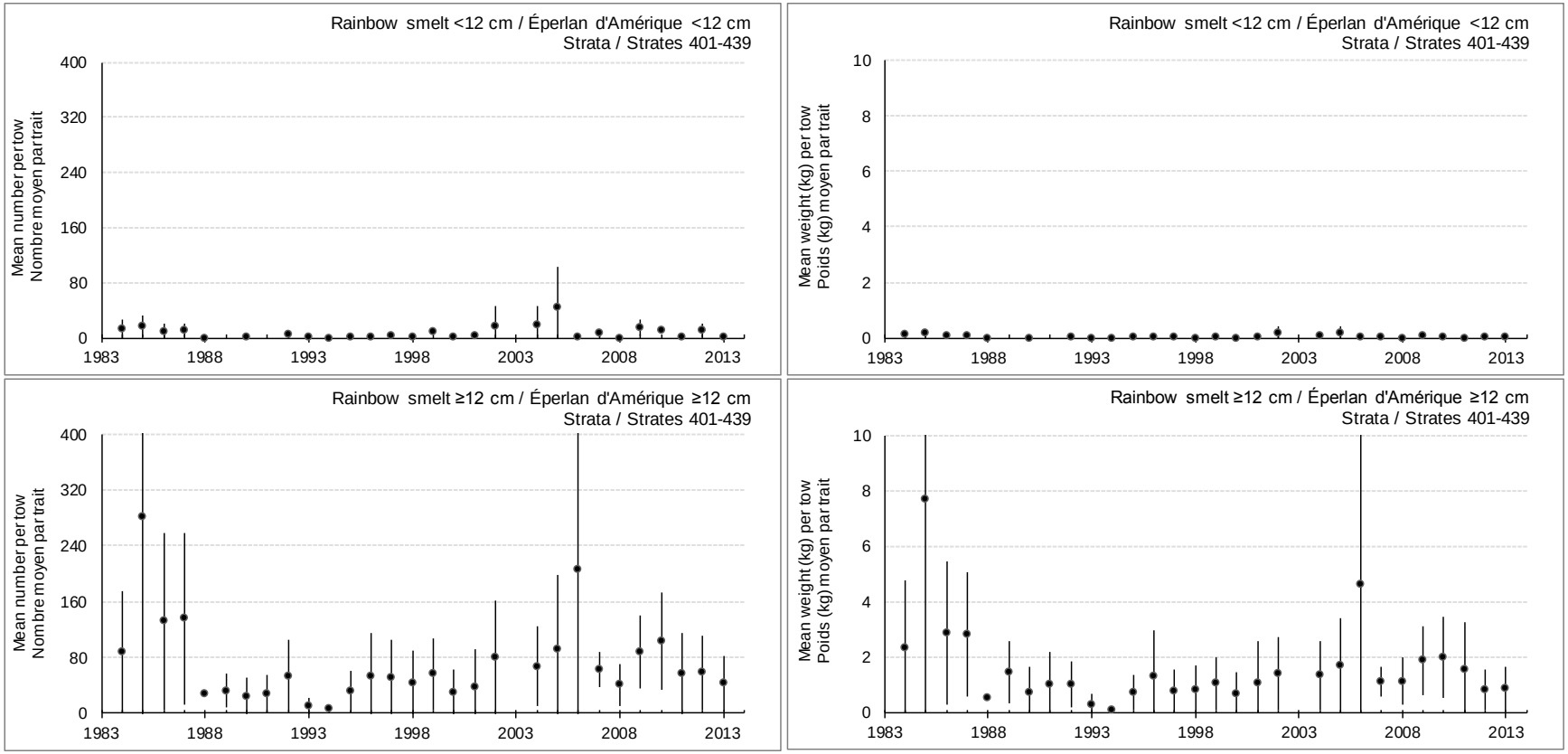


Figure 58. Annual catch abundance (mean and standard error bars) in number per tow (left panels) and weight per tow (right panels) of rainbow smelt for two size groups (< 12 cm length in top row; ≥ 12 cm length in bottom row) in the southern Gulf of St. Lawrence September bottom-trawl surveys, 1984 to 2013 (except 2003). Vertical lines denote approximate 95% confidence limits (± 2 standard errors).

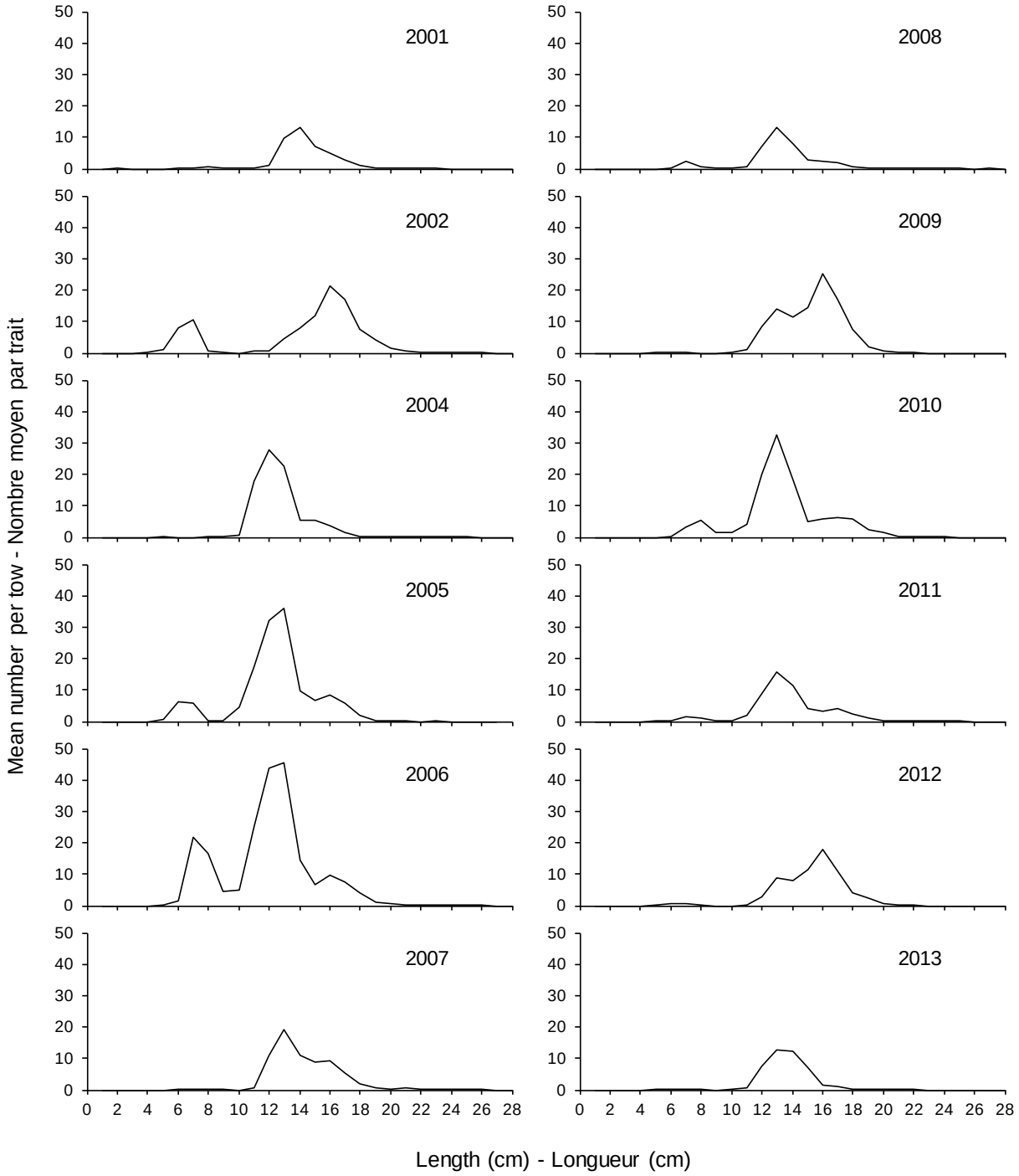


Figure 59. Length frequency distributions expressed in mean number per tow of rainbow smelt in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Strata 401 to 439 are those used for the rainbow smelt abundance index.

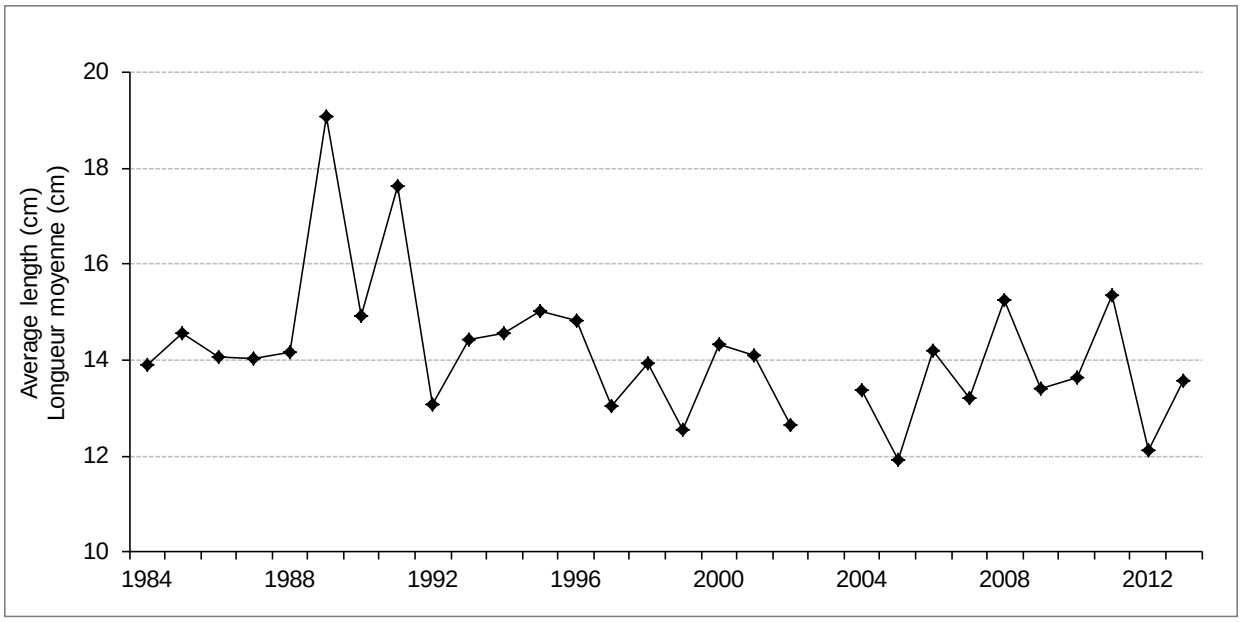


Figure 60. Annual mean length (cm) per tow of rainbow smelt in the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439), 1984 to 2013 (except 2003).

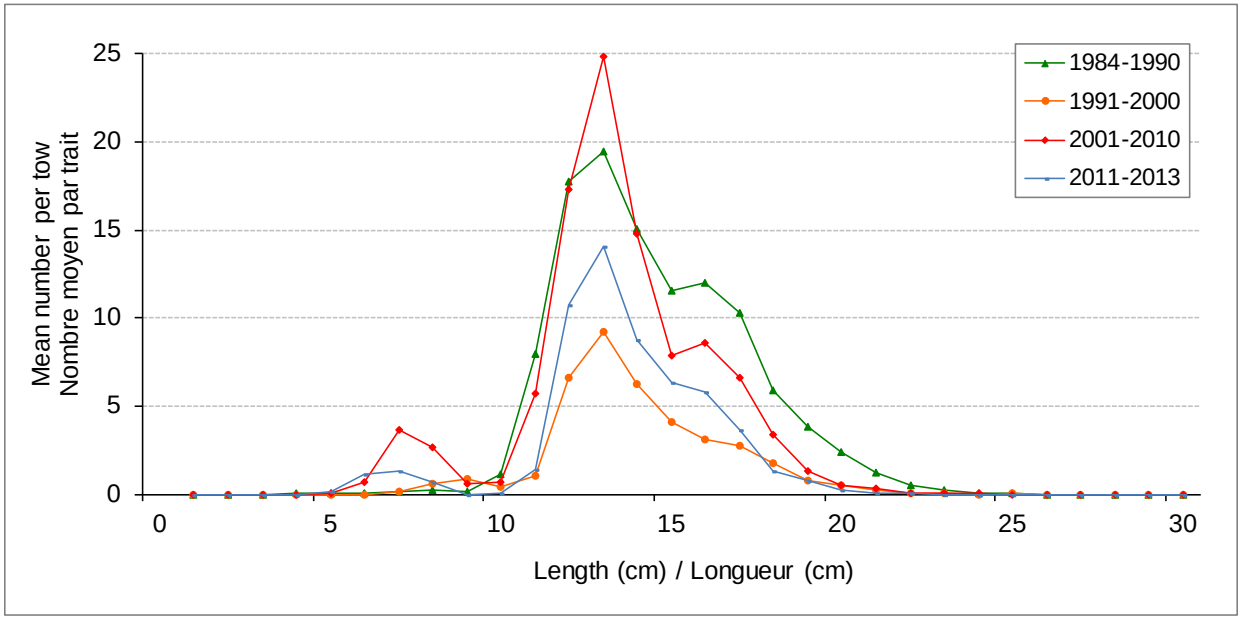


Figure 61. Length frequency distributions expressed as mean number per tow of rainbow smelt from the southern Gulf of St. Lawrence September bottom-trawl surveys (Strata 401 to 439) from four time periods (1984-1990; 1991-2000; 2001-2010; 2011-2013) (except 2003).

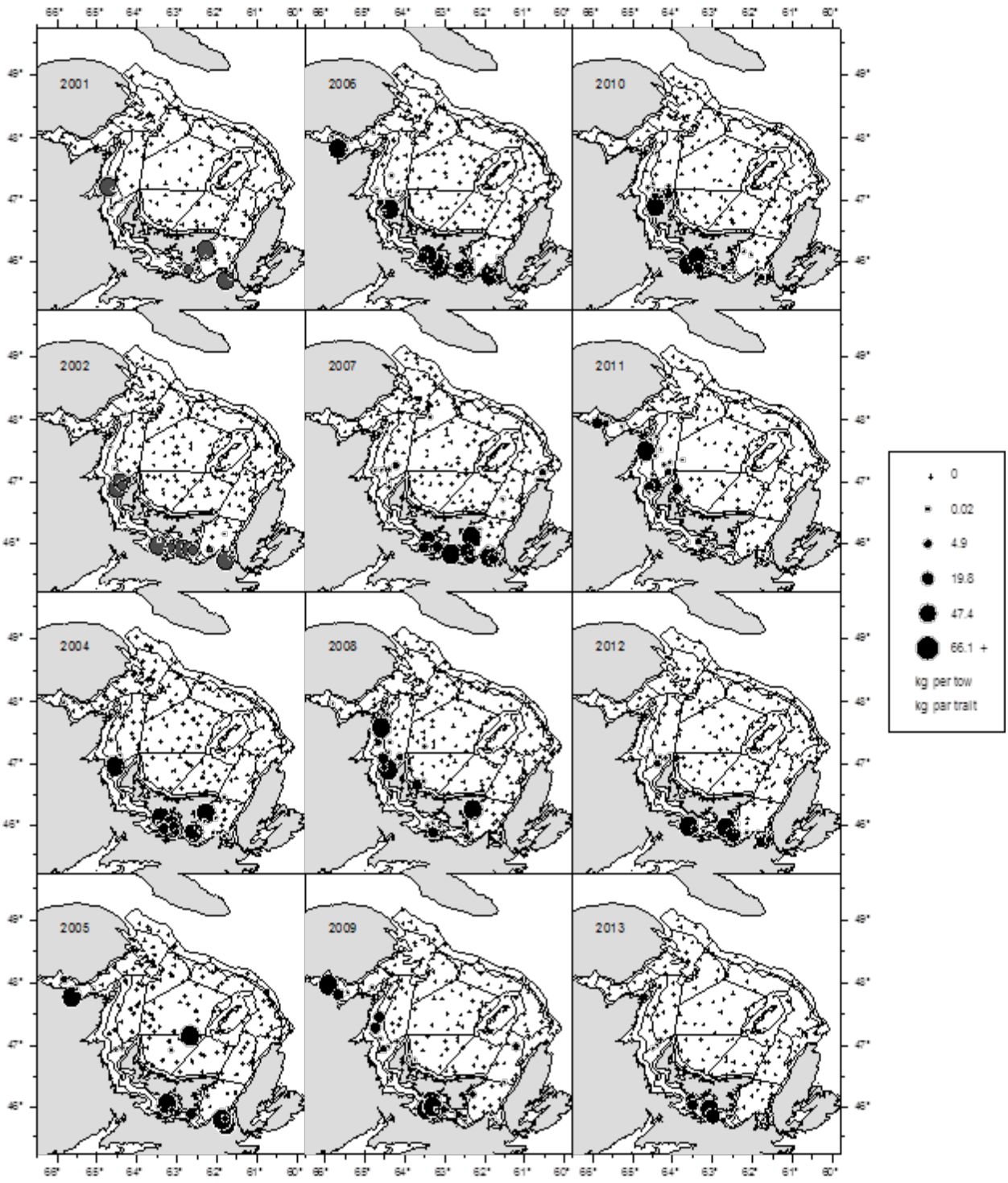


Figure 62. Rainbow smelt abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 2001 to 2013 (except 2003). Grey circles show catches for the CCGS Alfred Needler and the black circles show catches for the CCGS Teleost.

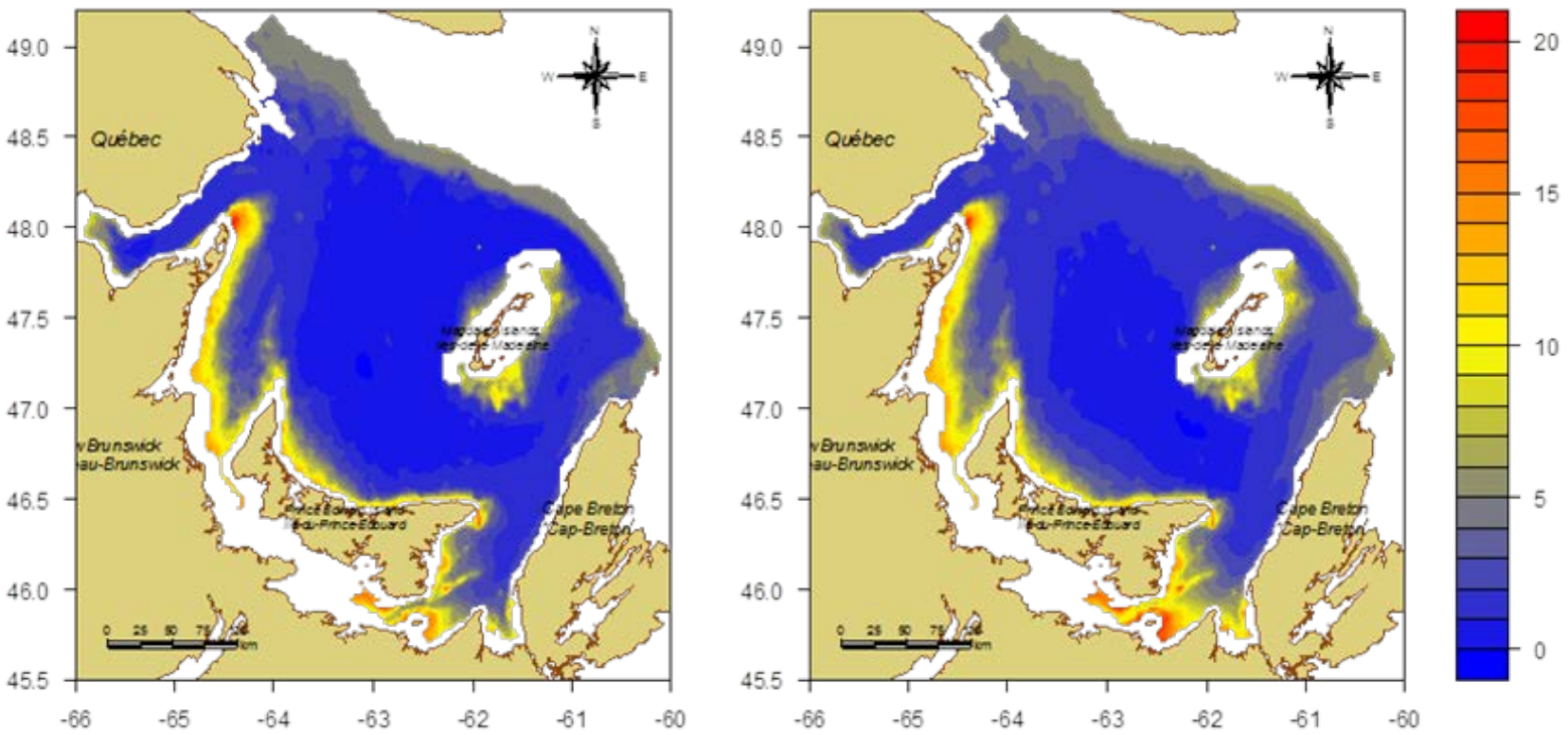


Figure 63. Interpolated bottom water temperature (^{o}C) in the southern Gulf of St. Lawrence in September 2012 (left panel) and 2013 (right panel).

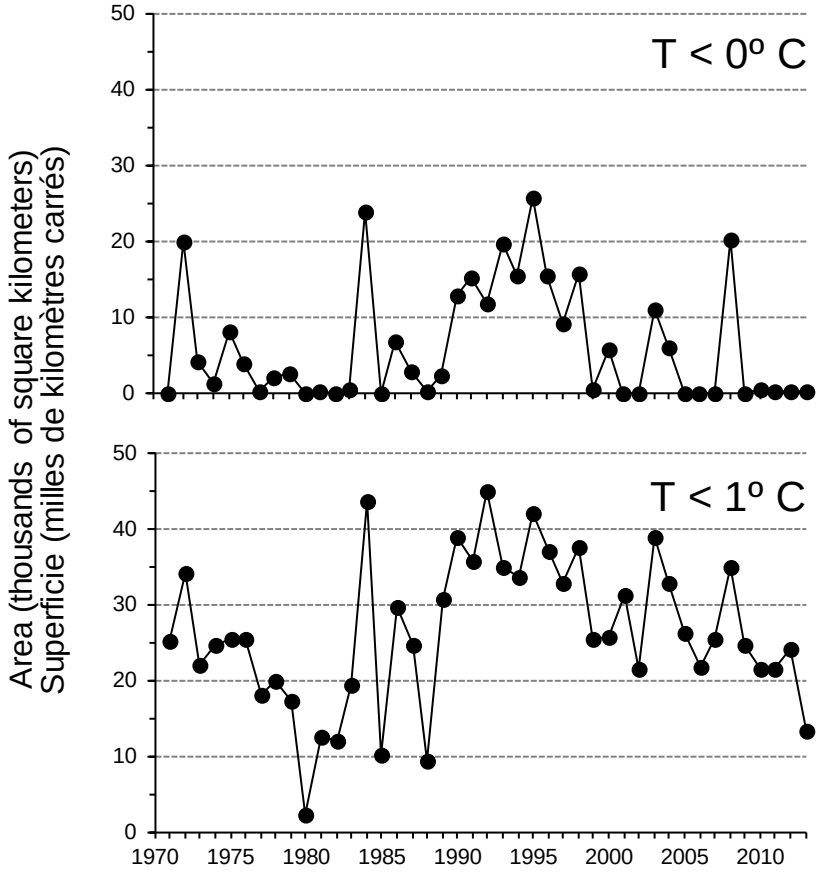


Figure 64. Area, expressed in thousands of square kilometers, within the survey region (excluding strata 415, 425, and 439) with bottom temperatures below 0°C (top panel) or below 1°C (bottom panel), for 1971 to 2013.

APPENDICES

Appendix Ia. Set numbers, geographic positions (latitude and longitude), depths and catches in numbers (No.) and weight (kg) for Atlantic cod, white hake, American plaice, winter flounder, and witch flounder in the September 2012 bottom-trawl survey of the southern Gulf of St. Lawrence. Nine incomplete sets are excluded; all numbers and weights are adjusted to a standard tow.

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
2	46-00	63-19	22	0	0	5	0.9	0	0	0	0	25	1.3
3	46-01	63-36	14	0	0	2	0	0	0	0	0	23	2.5
4	45-52	63-14	21	7	0.1	2	0.3	0	0	0	0	15	0.5
5	45-56	62-58	27	0	0	2	0.2	0	0	0	0	13	0.7
6	45-49	62-52	29	0	0	1	0.2	0	0	0	0	1	0.1
7	45-55	62-27	37	16	0.1	0	0	13	0.6	0	0	10	1
8	45-51	62-04	36	0	0	0	0	82	9.9	0	0	37	7.3
9	45-59	62-06	42	0	0	0	0	60	6.4	0	0	1	0.2
10	45-56	61-52	42	0	0	0	0	377	30.4	0	0	0	0
11	45-47	61-42	34	2	<0.1	9	2.6	87	9.9	0	0	198	37.6
12	45-46	61-39	32	0	0	21	2.8	109	11.6	0	0	334	47
13	45-43	61-36	28	0	0	12	1.6	18	1.3	0	0	561	87.7
14	45-52	61-43	39	0	0	2	0.3	140	17.8	0	0	40	9.8
15	45-59	61-39	42	2	<0.1	0	0	41	7.2	0	0	2	1.1
16	46-11	61-59	43	0	0	0	0	54	7.8	0	0	3	0.3
17	46-25	61-33	58	7	4.6	0	0	190	14.8	0	0	0	0
18	46-37	61-40	65	23	8.1	0	0	254	22.7	1	0.3	0	0
19	46-48	61-50	71	11	3.4	0	0	536	56.4	0	0	0	0
20	46-56	61-44	48	28	7.8	0	0	141	12.1	0	0	0	0
21	47-06	62-01	39	12	0.9	0	0	1	0.2	0	0	0	0
22	47-01	62-05	50	18	4.5	0	0	5	0.2	0	0	0	0
23	46-40	61-59	56	38	15.1	0	0	38	7.9	0	0	0	0
24	46-34	62-21	49	19	6.4	0	0	18	2.9	0	0	0	0
25	46-30	62-43	28	9	7.2	0	0	0	0	0	0	0	0
26	46-42	62-21	62	35	17.2	0	0	609	47.6	0	0	0	0
27	46-56	62-24	52	12	1.4	0	0	524	41.6	0	0	0	0
28	46-56	62-43	64	27	12.5	0	0	240	21.7	0	0	0	0
29	46-44	62-44	54	17	7.4	0	0	100	12.3	0	0	0	0
32	46-40	63-35	31	3	2.1	0	0	15	1.5	0	0	60	10.5
33	46-40	63-41	28	0	0	0	0	0	0	0	0	43	11.4
34	46-45	63-36	35	13	12.1	0	0	1	<0.1	0	0	7	2.2
35	46-52	63-23	46	22	18.9	0	0	7	1	0	0	0	0
36	46-57	63-15	56	6	1.9	0	0	182	17	0	0	0	0
37	47-02	63-30	54	39	39.1	0	0	25	3.2	0	0	0	0
38	46-52	63-52	28	18	5.2	4	1.3	0	0	0	0	133	17.5
39	47-12	63-55	32	39	5.8	0	0	0	0	0	0	17	5.3
40	47-09	64-05	34	37	1.9	0	0	0	0	0	0	78	18.1
41	46-49	64-33	26	20	0.1	1	0.1	0	0	0	0	29	3.2
42	46-54	64-34	28	2	<0.1	0	0	0	0	0	0	21	2.8

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
43	46-56	64-27	35	1	<0.1	0	0	0	0	0	0	46	3.9
44	47-07	64-28	34	1	<0.1	0	0	0	0	0	0	4	0.6
45	47-25	64-25	46	0	0	0	0	3	0.1	0	0	3	0.3
46	47-30	64-39	26	2	0.2	0	0	0	0	0	0	6	1.5
47	47-40	64-31	29	10	7.6	6	1	0	0	0	0	212	23.1
48	47-43	64-22	35	17	10.2	0	0	2	<0.1	0	0	520	77.7
49	47-44	64-02	80	12	17.3	0	0	642	83.5	0	0	7	0.9
50	47-51	63-55	69	14	5.4	0	0	253	28.7	0	0	0	0
51	48-01	63-45	98	32	43.8	0	0	630	92.1	0	0	0	0
52	48-03	64-01	44	27	16.2	0	0	11	1.5	0	0	0	0
53	48-10	64-29	87	4	2.4	0	0	80	6.6	0	0	0	0
54	47-56	64-55	70	5	0.5	0	0	207	16.8	0	0	0	0
55	47-53	65-15	70	14	8.3	0	0	148	25.1	0	0	0	0
56	47-56	65-52	27	29	1.7	1	0.3	16	0.3	0	0	150	7.3
57	47-56	65-39	37	63	5.9	0	0	82	8.3	0	0	38	4.3
58	48-09	64-37	86	15	8.6	0	0	123	16.7	0	0	0	0
59	48-17	64-30	104	7	3.5	0	0	86	10.6	0	0	0	0
60	48-18	64-14	112	1	1.3	0	0	233	29.5	0	0	0	0
61	48-16	64-07	105	8	7.4	0	0	335	34.6	0	0	0	0
62	48-25	63-48	119	34	9.5	0	0	224	23.1	0	0	0	0
63	48-31	64-06	102	7	0.6	0	0	153	15.2	0	0	0	0
64	48-59	63-59	284	0	0	5	3.2	0	0	42	12.9	0	0
65	48-55	63-45	298	0	0	7	7.3	2	0.8	8	1.1	0	0
66	48-49	63-36	227	0	0	1	0.2	111	34.7	128	19.3	0	0
67	48-37	63-23	148	77	53.9	0	0	200	31.4	17	4.9	0	0
68	48-43	63-16	243	7	4.8	10	8.2	30	8.4	12	2.8	0	0
69	48-36	62-59	343	0	0	1	1	10	2.3	19	5.9	0	0
71	48-24	63-23	108	39	36.7	0	0	384	44.5	2	0.6	0	0
72	48-23	63-14	74	8	6.9	0	0	101	8.9	0	0	0	0
74	48-23	63-05	53	3	1.1	0	0	52	7	0	0	0	0
75	48-09	62-53	73	2	1.2	0	0	126	13.4	0	0	0	0
76	48-10	63-05	75	4	2.4	0	0	414	24.4	0	0	0	0
77	48-00	63-10	65	4	1.6	0	0	343	26.6	0	0	0	0
78	48-00	63-22	92	2	0.5	0	0	447	52	0	0	0	0
79	48-01	63-46	98	5	5.5	0	0	531	80.1	0	0	0	0
80	47-51	63-21	78	0	0	0	0	523	50.4	0	0	0	0
81	47-37	62-56	56	1	0.6	0	0	71	5.7	0	0	0	0
82	47-36	63-11	66	0	0	0	0	185	17.1	0	0	0	0
84	47-41	63-20	74	3	0.2	0	0	298	27.4	0	0	0	0
85	47-31	64-16	57	13	0.8	0	0	242	15.7	0	0	0	0
86	47-16	64-11	46	9	0.8	0	0	80	5.2	0	0	0	0
87	47-18	64-02	36	39	6.5	0	0	13	0	0	0	2	0.5
88	47-21	63-44	67	13	5.1	0	0	160	10.4	0	0	1	0.5
89	47-14	63-10	65	6	5.4	0	0	327	26.4	0	0	0	0
90	47-02	63-20	55	9	0.8	0	0	107	6.1	0	0	0	0
91	47-01	62-54	58	10	4.8	0	0	106	11.3	0	0	0	0
92	46-59	62-46	62	1	<0.1	0	0	264	14.1	0	0	0	0

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
94	47-15	62-38	66	0	0	0	0	378	25.8	0	0	0	0
95	47-26	62-24	61	4	0.6	0	0	126	5.3	0	0	0	0
96	47-30	62-39	62	0	0	0	0	813	44.6	0	0	0	0
97	47-37	62-32	75	1	0.5	0	0	117	6.9	0	0	0	0
98	47-33	62-11	49	0	0	0	0	23	0.8	0	0	0	0
99	47-28	62-05	35	2	0.1	0	0	0	0	0	0	0	0
100	47-35	61-52	31	6	0.7	0	0	1	0.2	0	0	9	1
101	47-41	61-44	34	4	<0.1	0	0	0	0	0	0	0	0
102	47-48	62-06	54	6	0.6	0	0	22	1.7	0	0	0	0
103	47-56	62-06	57	5	<0.1	0	0	37	3.7	0	0	0	0
104	47-52	62-25	80	0	0	0	0	325	27.6	0	0	0	0
105	47-58	62-46	78	2	1.4	0	0	372	37.5	0	0	0	0
106	48-03	62-31	62	1	2.2	0	0	78	6.2	0	0	0	0
108	48-03	62-13	80	0	0	0	0	19	1.6	0	0	0	0
109	48-18	62-39	96	6	2.8	0	0	127	12.1	0	0	0	0
110	48-16	62-24	72	0	0	0	0	7	1.3	0	0	0	0
111	48-26	62-19	368	0	0	3	2.6	14	4.4	52	12.7	0	0
113	48-16	62-11	114	391	123.1	0	0	132	20.4	3	0.6	0	0
114	48-20	62-03	272	0	0	28	12.8	42	10.3	22	5.5	0	0
115	48-12	61-19	368	0	0	3	2.5	3	0.8	6	1.9	0	0
116	48-08	61-35	96	12	1.8	0	0	24	3.9	0	0	0	0
117	47-58	61-37	57	3	0.3	0	0	2	0.3	0	0	0	0
119	47-56	60-50	282	0	0	43	22.6	0	0	4	1.4	0	0
120	47-53	60-49	138	119	46.8	0	0	73	23.3	139	36.7	0	0
121	47-46	61-11	28	0	0	0	0	1	0.7	0	0	18	3.1
122	47-45	61-07	30	1	<0.1	0	0	3	0.6	0	0	5	0.6
123	47-31	60-46	52	12	1.4	0	0	41	3.1	0	0	0	0
125	47-37	60-32	115	7	2.6	0	0	14	4.8	9	3.2	0	0
126	47-23	60-20	89	3	0.6	0	0	3	1.2	0	0	0	0
127	47-19	60-11	288	1	2.4	6	3.8	0	0	44	16.3	0	0
128	47-14	60-14	205	0	0	15	10.1	1	<0.1	1	0.3	0	0
129	47-05	60-31	151	14	4.3	11	3.8	268	26	113	29.7	0	0
130	47-14	60-28	151	314	252.4	2	1.3	2	1.6	1	0.3	0	0
131	47-17	60-40	58	46	14.8	0	0	35	7.4	0	0	0	0
132	47-23	61-07	43	7	1.8	0	0	40	6.2	0	0	0	0
133	47-21	61-21	34	5	2.1	0	0	6	0.9	0	0	74	10.1
134	47-18	61-15	42	9	2.7	0	0	47	8.9	0	0	150	29.3
135	47-18	61-11	47	34	11.5	0	0	19	3.7	0	0	1	0.2
136	47-13	61-00	62	18	4.7	0	0	53	6.8	0	0	0	0
137	47-06	60-45	160	6	4.6	49	19.6	101	14.1	57	18.5	0	0
138	46-52	60-59	123	6	3.8	130	22.1	591	80.3	22	6.7	0	0
139	47-00	61-10	59	14	1.6	1	0.1	766	79.6	0	0	0	0
140	46-59	61-17	49	41	7.9	1	0.3	453	55.1	0	0	0	0
141	46-53	61-15	57	37	5.8	0	0	377	39.1	0	0	0	0
142	46-53	61-43	55	7	2.4	0	0	64	9.2	0	0	0	0
143	46-52	61-35	56	0	0	0	0	74	6.4	0	0	0	0
144	46-39	61-31	64	9	5	0	0	86	11.6	0	0	0	0

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
145	46-17	61-41	57	2	3.7	0	0	136	16.8	0	0	0	0
146	46-09	62-08	39	10	0.1	0	0	62	5	0	0	24	2.3

Appendix Ib. Set numbers, geographic positions (latitude and longitude), depths and catches in numbers (No.) and weight (kg) for yellowtail flounder, Atlantic halibut, Atlantic herring, gaspereau and rainbow smelt in the September 2012 bottom-trawl survey of the southern Gulf of St. Lawrence. Nine incomplete sets are excluded; all numbers and weights are adjusted to a standard tow. N/A means data not available to be summarized.

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
2	46-00	63-19	22	0	0	0	0	937	20.2	466	47.9	716	12.6
3	46-01	63-36	14	0	0	0	0	8	0.2	723	69.6	126	0.7
4	45-52	63-14	21	0	0	0	0	179	2.7	988	110.5	1051	17.3
5	45-56	62-58	27	0	0	0	0	2140	56.6	589	61.7	125	1.9
6	45-49	62-52	29	0	0	0	0	1597	51.7	124	14.6	9	0.2
7	45-55	62-27	37	0	0	0	0	7574	921.3	0	0	0	0
8	45-51	62-04	36	1	0.1	0	0	9894	1465.6	116	14.2	12	0.5
9	45-59	62-06	42	2	0.3	0	0	2741	233	0	0	0	0
10	45-56	61-52	42	0	0	0	0	189	11.3	0	0	0	0
11	45-47	61-42	34	11	1.6	0	0	2206	334.3	82	10.2	33	1.4
12	45-46	61-39	32	33	3	0	0	1756	262.5	207	26.6	72	2.9
13	45-43	61-36	28	4	0.7	0	0	2253	328.5	993	81.4	67	2.3
14	45-52	61-43	39	2	0.3	0	0	9793	1430.1	0	0	0	0
15	45-59	61-39	42	0	0	0	0	6816	688.2	5	0.7	0	0
16	46-11	61-59	43	0	0	0	0	5968	281.1	6	0.7	0	0
17	46-25	61-33	58	0	0	0	0	897	46.7	0	0	0	0
18	46-37	61-40	65	55	5.1	0	0	287	24.6	0	0	0	0
19	46-48	61-50	71	1	0.1	0	0	0	0	0	0	0	0
20	46-56	61-44	48	116	8.8	0	0	1	0.2	0	0	0	0
21	47-06	62-01	39	13	1.1	0	0	0	0	0	0	0	0
22	47-01	62-05	50	1	0.2	0	0	0	0	0	0	0	0
23	46-40	61-59	56	1	0.1	0	0	0	0	0	0	0	0
24	46-34	62-21	49	6	0.5	0	0	0	0	0	0	0	0
25	46-30	62-43	28	0	0	0	0	0	0	0	0	0	0
26	46-42	62-21	62	51	5.4	0	0	46	5.1	0	0	0	0
27	46-56	62-24	52	44	3.8	0	0	0	0	0	0	0	0
28	46-56	62-43	64	57	5.8	0	0	27	3.1	0	0	0	0
29	46-44	62-44	54	18	2.2	0	0	84	8.8	0	0	0	0
32	46-40	63-35	31	165	9.9	0	0	400	58.8	132	16.7	0	0
33	46-40	63-41	28	63	6.4	0	0	4	0.3	475	54.4	0	0
34	46-45	63-36	35	17	1.4	0	0	1278	202.3	0	0	0	0
35	46-52	63-23	46	8	0.6	0	0	427	53.4	0	0	0	0
36	46-57	63-15	56	36	2.9	0	0	3	0.4	0	0	0	0
37	47-02	63-30	54	10	1	0	0	4	0.5	0	0	0	0
38	46-52	63-52	28	223	12.3	1	4.5	0	0	11	1.2	977	33.1
39	47-12	63-55	32	1	<0.1	1	9.8	39	5.8	0	0	0	0
40	47-09	64-05	34	54	2.3	0	0	69	8.7	11	1.1	203	7.5
41	46-49	64-33	26	2	0.1	0	0	4	0.1	0	0	55	1.1
42	46-54	64-34	28	10	0.5	0	0	0	0	0	0	977	21.1
43	46-56	64-27	35	5	0.4	N/A	15.7	467	91.7	17	0.2	.	49.8
44	47-07	64-28	34	6	0.6	0	0	0	0	0	0	6	0.2

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
45	47-25	64-25	46	29	1.7	0	0	2719	367.8	110	12.4	3	0.1
46	47-30	64-39	26	8	0.9	0	0	17	1.2	8	1	3115	95.5
47	47-40	64-31	29	560	28.6	2	0.8	86	8	6	0.9	103	3.6
48	47-43	64-22	35	164	8.5	1	24	57	8.9	6	0.6	3	0.1
49	47-44	64-02	80	2	0.1	0	0	1	0.3	0	0	0	0
50	47-51	63-55	69	19	1.5	0	0	0	0	0	0	0	0
51	48-01	63-45	98	0	0	0	0	0	0	0	0	0	0
52	48-03	64-01	44	0	0	0	0	71	9.6	0	0	0	0
53	48-10	64-29	87	0	0	0	0	0	0	0	0	0	0
54	47-56	64-55	70	0	0	0	0	0	0	0	0	0	0
55	47-53	65-15	70	0	0	0	0	0	0	0	0	3	0.1
56	47-56	65-52	27	0	0	0	0	22	1.4	6	0.7	1021	27.6
57	47-56	65-39	37	0	0	0	0	62	5.2	6	0.7	331	8.1
58	48-09	64-37	86	0	0	0	0	0	0	0	0	0	0
59	48-17	64-30	104	0	0	0	0	0	0	0	0	0	0
60	48-18	64-14	112	0	0	0	0	85	11.8	5	0.8	0	0
61	48-16	64-07	105	0	0	0	0	35	4.6	0	0	0	0
62	48-25	63-48	119	0	0	0	0	0	0	0	0	0	0
63	48-31	64-06	102	0	0	0	0	0	0	0	0	0	0
64	48-59	63-59	284	0	0	2	4.4	0	0	0	0	0	0
65	48-55	63-45	298	0	0	2	10.8	1	0.2	0	0	0	0
66	48-49	63-36	227	0	0	5	17.5	0	0	0	0	0	0
67	48-37	63-23	148	0	0	3	100.3	0	0	0	0	0	0
68	48-43	63-16	243	0	0	8	29.3	0	0	0	0	0	0
69	48-36	62-59	343	0	0	0	0	0	0	0	0	0	0
71	48-24	63-23	108	0	0	0	0	0	0	0	0	0	0
72	48-23	63-14	74	0	0	0	0	0	0	0	0	0	0
74	48-23	63-05	53	3	0.3	0	0	0	0	0	0	0	0
75	48-09	62-53	73	1	0.1	0	0	1	0.3	0	0	0	0
76	48-10	63-05	75	3	0.3	0	0	0	0	0	0	0	0
77	48-00	63-10	65	0	0	0	0	0	0	0	0	0	0
78	48-00	63-22	92	0	0	0	0	1	0.2	0	0	0	0
79	48-01	63-46	98	0	0	0	0	0	0	0	0	0	0
80	47-51	63-21	78	0	0	0	0	0	0	0	0	0	0
81	47-37	62-56	56	9	0.6	0	0	0	0	0	0	0	0
82	47-36	63-11	66	0	0	0	0	0	0	0	0	0	0
84	47-41	63-20	74	0	0	0	0	0	0	0	0	0	0
85	47-31	64-16	57	0	0	0	0	1	0.2	0	0	3	0.1
86	47-16	64-11	46	5	0.3	N/A	1.3	1	0.2	0	0	58	2.1
87	47-18	64-02	36	97	4.8	0	0	5	0.6	27	3.6	91	3.4
88	47-21	63-44	67	6	0.3	0	0	0	0	15	2.4	4	0.2
89	47-14	63-10	65	0	0	0	0	0	0	0	0	0	0
90	47-02	63-20	55	58	5	0	0	0	0	0	0	0	0
91	47-01	62-54	58	36	3.2	0	0	2	0.4	0	0	0	0
92	46-59	62-46	62	64	6.4	0	0	0	0	0	0	0	0
94	47-15	62-38	66	9	0.7	0	0	0	0	0	0	0	0
95	47-26	62-24	61	2	0.2	0	0	0	0	0	0	0	0

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
96	47-30	62-39	62	43	2.9	0	0	0	0	0	0	0	0
97	47-37	62-32	75	5	0.4	0	0	0	0	0	0	0	0
98	47-33	62-11	49	22	1.5	0	0	0	0	0	0	0	0
99	47-28	62-05	35	37	2.4	0	0	0	0	0	0	0	0
100	47-35	61-52	31	158	9.7	0	0	0	0	0	0	0	0
101	47-41	61-44	34	81	4.3	0	0	0	0	0	0	0	0
102	47-48	62-06	54	0	0	0	0	0	0	0	0	0	0
103	47-56	62-06	57	1	0.1	0	0	1	0.2	0	0	0	0
104	47-52	62-25	80	0	0	0	0	1	0.1	0	0	0	0
105	47-58	62-46	78	0	0	0	0	0	0	0	0	0	0
106	48-03	62-31	62	0	0	N/A	0.3	0	0	0	0	0	0
108	48-03	62-13	80	0	0	0	0	0	0	0	0	0	0
109	48-18	62-39	96	1	0.1	0	0	2	0.1	0	0	0	0
110	48-16	62-24	72	0	0	0	0	0	0	0	0	0	0
111	48-26	62-19	368	0	0	0	0	0	0	0	0	0	0
113	48-16	62-11	114	0	0	0	0	0	0	0	0	0	0
114	48-20	62-03	272	0	0	0	0	3	0.4	0	0	0	0
115	48-12	61-19	368	0	0	0	0	0	0	0	0	0	0
116	48-08	61-35	96	0	0	0	0	0	0	0	0	0	0
117	47-58	61-37	57	0	0	0	0	0	0	0	0	0	0
119	47-56	60-50	282	0	0	1	19.3	0	0	0	0	0	0
120	47-53	60-49	138	0	0	3	10.2	0	0	0	0	0	0
121	47-46	61-11	28	706	40.7	0	0	0	0	0	0	0	0
122	47-45	61-07	30	572	34.1	0	0	0	0	0	0	0	0
123	47-31	60-46	52	224	15.7	0	0	0	0	0	0	0	0
125	47-37	60-32	115	3	0.2	0	0	0	0	0	0	0	0
126	47-23	60-20	89	0	0	0	0	0	0	0	0	0	0
127	47-19	60-11	288	0	0	0	0	9	1.5	0	0	0	0
128	47-14	60-14	205	0	0	0	0	0	0	0	0	0	0
129	47-05	60-31	151	0	0	0	0	7	1.2	0	0	0	0
130	47-14	60-28	151	0	0	1	1.7	0	0	0	0	0	0
131	47-17	60-40	58	0	0	0	0	1	0.2	0	0	0	0
132	47-23	61-07	43	77	5.7	0	0	0	0	0	0	0	0
133	47-21	61-21	34	90	6.7	0	0	0	0	0	0	0	0
134	47-18	61-15	42	95	7.8	0	0	1	0.2	0	0	0	0
135	47-18	61-11	47	69	5.4	0	0	33	4	0	0	0	0
136	47-13	61-00	62	79	6.3	0	0	52	7.2	0	0	0	0
137	47-06	60-45	160	0	0	2	1.3	15	2.9	0	0	0	0
138	46-52	60-59	123	0	0	N/A	1.1	50	7.5	0	0	0	0
139	47-00	61-10	59	155	12	0	0	231	19.3	0	0	0	0
140	46-59	61-17	49	386	27.2	0	0	43	2.3	0	0	0	0
141	46-53	61-15	57	14	1.1	0	0	92	4.3	0	0	0	0
142	46-53	61-43	55	1	0.1	0	0	126	5.8	0	0	0	0
143	46-52	61-35	56	0	0	0	0	84	4	0	0	0	0
144	46-39	61-31	64	41	3.9	0	0	29	1.4	0	0	0	0
145	46-17	61-41	57	0	0	N/A	1.4	1	0.1	5	0.6	0	0
146	46-09	62-08	39	0	0	0	0	4	0.4	0	0	0	0

Appendix IIa. Set numbers, geographic positions (latitude and longitude), depths and catches in numbers (No.) and weight (kg) for Atlantic cod, white hake, American plaice, winter flounder, and witch flounder in the September 2013 bottom-trawl survey of the southern Gulf of St. Lawrence. Thirteen incomplete sets are excluded; all numbers and weights are adjusted to a standard tow.

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
2	47-12	60-25	173	4	4.8	7	7.4	1	0.1	8	3	0	0
3	47-20	60-13	302	0	0	15	10.8	1	0.1	65	18.3	0	0
4	47-19	60-20	116	138	72.3	0	0	44	12.9	2	0.8	0	0
5	47-25	60-38	65	12	4.2	0	0	177	10.9	0	0	0	0
6	47-15	60-49	84	4	0.5	0	0	409	30.9	1	0.6	0	0
7	47-14	60-44	68	34	13.5	0	0	165	13.9	0	0	0	0
8	47-12	60-39	133	108	67.1	0	0	275	61.7	9	2.6	0	0
9	47-08	60-38	184	14	10.1	76	21.5	9	1.1	80	27.3	0	0
10	46-58	60-51	129	5	4.5	16	3.4	96	9.6	13	6.2	0	0
11	46-54	60-56	134	113	75.5	7	3	102	8.4	4	1.5	0	0
12	46-48	61-19	64	20	13.2	0	0	341	23.9	2	0.6	0	0
13	46-58	61-05	67	8	2.2	1	0.1	350	34.5	7	2.2	0	0
14	47-04	61-18	50	11	2	0	0	584	57.9	1	0.1	0	0
15	46-58	61-18	51	0	0	0	0	1023	70.5	3	0.5	0	0
16	47-04	61-37	31	10	1.9	0	0	0	0	0	0	171	20.4
17	46-50	61-46	61	2	0.7	0	0	283	21.3	0	0	0	0
18	46-43	61-41	72	3	0.8	0	0	189	13.6	0	0	0	0
19	46-43	61-35	64	21	9.6	0	0	151	7.8	0	0	0	0
20	46-33	61-41	58	23	1.1	0	0	342	25.5	0	0	0	0
21	46-31	61-25	67	5	2.4	0	0	89	2.4	0	0	0	0
22	46-19	61-31	63	3	2.8	0	0	41	3.3	0	0	0	0
23	46-11	61-30	48	8	0.6	0	0	29	1	0	0	0	0
24	46-06	61-33	47	0	0	0	0	60	3.1	0	0	1	0.3
25	46-06	61-44	54	2	0.1	0	0	314	12.6	0	0	0	0
26	46-10	62-00	45	12	1.9	0	0	133	3.1	0	0	3	0.4
27	45-52	61-39	32	74	2.9	6	1.1	27	0.4	0	0	542	65
28	45-46	61-38	31	0	0	15	2.5	196	11.1	0	0	101	22.3
29	45-46	61-42	31	1	<0.1	9	1.2	73	5.2	0	0	263	54.8
30	45-52	61-49	36	4	0.4	3	0.4	56	2.3	0	0	37	7.2
31	45-58	62-13	41	0	0	0	0	78	0.8	0	0	0	0
32	45-56	62-30	48	3	0.2	0	0	157	1	0	0	18	0.9
33	45-49	62-58	22	0	0	36	2.8	0	0	0	0	548	7.2
34	46-00	63-28	22	0	0	25	0.2	0	0	0	0	168	3.1
35	46-06	63-30	17	0	0	73	0.8	1	<0.1	0	0	782	19.7
36	45-56	63-03	27	0	0	5	0.4	0	0	0	0	112	2.6
37	45-55	62-37	53	19	1.6	9	1.8	28	0.4	0	0	74	4.8
38	45-56	62-22	38	1	0.1	0	0	48	0.3	0	0	1	0.1
39	46-16	61-51	49	1	0.2	0	0	167	12.9	0	0	0	0
40	46-23	61-49	39	1	<0.1	0	0	428	11.9	0	0	264	29.4
41	46-31	61-53	42	23	3.3	0	0	0	0	0	0	15	3.1

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
42	46-41	61-53	77	5	3.2	0	0	839	47.5	0	0	0	0
43	46-41	62-11	58	11	3.1	0	0	55	5	0	0	0	0
44	46-52	62-00	59	31	9.3	0	0	227	16.6	0	0	0	0
47	47-05	62-28	63	3	0.7	0	0	248	29	0	0	0	0
48	47-04	62-36	67	30	7.1	0	0	165	14.2	0	0	0	0
49	46-49	62-52	59	6	1.4	0	0	461	36.5	0	0	0	0
50	46-48	62-39	61	20	5.1	0	0	497	40	0	0	0	0
51	46-43	62-39	59	28	6.2	0	0	324	28	0	0	0	0
52	46-43	62-27	56	39	12	0	0	204	24.6	0	0	0	0
53	46-34	62-29	49	27	6.1	1	0.1	76	8.2	0	0	0	0
54	46-30	62-39	27	0	0	0	0	0	0	0	0	1	0.4
55	46-28	62-55	26	8	6.6	0	0	0	0	0	0	16	2.6
56	46-31	63-00	40	69	29.8	0	0	94	4.4	0	0	38	9.5
57	46-35	63-13	41	42	4.5	0	0	346	13.8	0	0	110	27.2
58	46-45	63-13	49	13	11.7	0	0	119	16.2	0	0	3	0.6
60	46-56	63-05	62	4	3.1	0	0	709	63.1	0	0	0	0
61	46-45	63-36	35	165	100.5	0	0	4	0.1	0	0	11	4.7
62	46-39	63-40	27	13	11	0	0	0	0	0	0	94	12.6
63	46-54	63-46	37	2797	613.5	0	0	6	<0.1	0	0	38	6.2
64	47-05	63-39	51	21	5.5	0	0	9	0.2	0	0	0	0
65	47-05	63-16	62	6	4.2	0	0	864	83	0	0	0	0
66	47-21	63-41	67	3	1.9	0	0	546	61.6	0	0	0	0
67	47-29	63-49	67	9	7.7	0	0	374	47.7	0	0	0	0
68	47-37	63-55	52	32	19.6	0	0	218	23.2	0	0	0	0
70	47-48	63-57	74	12	6.2	0	0	141	14.9	0	0	0	0
72	47-59	63-59	80	9	8.6	0	0	694	59.3	0	0	1	0.4
73	48-07	64-07	38	237	66.6	0	0	13	1.1	0	0	33	9.7
75	48-09	64-10	40	73	16.5	0	0	0	0	0	0	8	1.9
77	48-15	64-10	91	4	6.3	0	0	207	19.3	0	0	0	0
78	48-16	64-27	109	6	5.6	0	0	273	31	0	0	0	0
79	48-10	64-37	90	9	9.4	0	0	248	32	0	0	0	0
80	48-01	64-39	51	0	0	0	0	62	4	0	0	0	0
81	47-55	65-15	71	7	5.9	0	0	337	23.8	0	0	0	0
82	47-54	65-35	45	3	1.8	0	0	308	13	0	0	0	0
83	47-49	65-34	40	10	9.5	0	0	187	13	0	0	2	0.6
84	48-00	64-57	68	1	0.6	0	0	176	12.8	0	0	0	0
85	47-57	64-19	26	10	1.1	7	0.4	3	0.4	0	0	340	52.1
86	47-55	64-17	30	37	3.2	0	0	0	0	0	0	261	53.4
88	47-42	64-16	52	70	20.7	0	0	472	39.3	0	0	55	11.2
89	47-37	64-26	35	591	61.7	0	0	0	0	0	0	90	17
90	47-31	64-13	62	2	1	0	0	235	18.3	0	0	0	0
91	47-29	64-21	45	2	1.3	0	0	35	1	0	0	0	0
92	47-28	64-36	28	18	1.3	0	0	0	0	0	0	25	4.8
93	47-14	64-33	35	3	0.2	0	0	177	1.6	0	0	32	4.3
94	46-56	64-28	35	0	0	0	0	161	0.8	0	0	32	2.4
95	46-59	64-22	37	4	0.2	0	0	84	0.5	0	0	74	4.6
96	47-04	64-16	41	1	<0.1	0	0	104	2.4	0	0	19	2.2

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
97	47-13	64-09	41	0	0	0	0	59	1.8	0	0	3	0.4
98	47-07	64-04	33	3	0.1	0	0	3	<0.1	0	0	11	1.5
99	47-20	63-26	71	0	0	0	0	248	24.8	0	0	0	0
100	47-20	63-13	68	0	0	0	0	525	54.2	0	0	0	0
101	47-11	62-56	61	0	0	0	0	241	25	0	0	0	0
102	47-20	62-34	69	0	0	0	0	317	27.4	0	0	0	0
103	47-13	62-14	44	6	1.3	0	0	29	0.6	0	0	0	0
104	47-26	62-03	32	399	29.4	1	0.1	15	1.9	0	0	4	0.6
105	47-39	61-41	30	2	0.1	0	0	2	<0.1	0	0	19	2.5
106	47-38	61-58	38	0	0	0	0	4	0.1	0	0	0	0
107	47-34	62-09	48	0	0	0	0	19	<0.1	0	0	0	0
109	47-49	62-29	74	0	0	0	0	281	26.5	0	0	0	0
111	47-44	62-42	64	0	0	0	0	123	11.7	0	0	0	0
112	47-32	62-46	56	0	0	0	0	145	10.6	0	0	0	0
113	47-42	62-59	62	0	0	0	0	95	7.1	0	0	0	0
114	47-39	63-19	69	11	3.9	0	0	204	29	0	0	0	0
116	47-55	63-25	77	4	1	0	0	115	11.6	0	0	0	0
117	48-02	63-40	96	3	3.5	0	0	629	86	2	1	0	0
118	48-05	63-23	64	11	4.1	0	0	172	16.1	1	0.3	0	0
119	48-23	63-47	114	182	81.1	0	0	309	37.8	4	1.4	0	0
120	48-27	63-58	105	13	1.5	0	0	67	4.3	0	0	0	0
121	48-29	63-38	140	166	119.6	0	0	267	36.3	16	5.3	0	0
122	48-42	63-43	132	188	134.2	0	0	28	5.2	0	0	0	0
123	48-53	63-47	254	3	5.9	17	10.3	6	0.8	2	0.3	0	0
124	48-59	63-51	331	0	0	0	0	2	0.2	7	1	0	0
125	48-53	63-23	327	0	0	4	1	3	0.1	21	3.8	0	0
126	48-38	63-29	159	144	179.1	2	1.1	88	12.5	19	5.4	0	0
127	48-42	63-05	340	0	0	4	2.5	3	0.1	32	6.4	0	0
128	48-31	63-05	230	14	18.6	11	3.8	20	7.6	191	56.9	0	0
129	48-22	63-18	84	270	94.2	0	0	53	4.4	0	0	0	0
131	48-27	62-59	106	1417	726.1	0	0	93	17.6	21	6.9	0	0
132	48-12	62-51	75	16	6.1	0	0	103	13.1	0	0	0	0
133	48-03	62-54	67	28	9.2	0	0	134	8.8	0	0	0	0
134	48-06	62-37	82	7	2.5	0	0	224	18.2	0	0	0	0
135	48-21	62-35	152	661	527.1	0	0	139	25	202	63.8	0	0
136	48-25	62-24	356	4	2.5	2	0.7	7	0.6	21	4.9	0	0
137	48-17	61-53	293	0	0	16	8.5	4	1	35	7.8	0	0
139	48-01	62-08	62	4	1.8	0	0	33	3	0	0	0	0
140	47-53	61-56	57	1	0.2	0	0	154	1.2	0	0	0	0
142	48-08	61-33	132	189	29	0	0	229	29.5	2	0.4	0	0
143	47-56	60-57	104	126	30.2	0	0	315	39.9	0	0	0	0
144	47-59	60-49	362	0	0	3	1.2	7	1.9	27	8.9	0	0
145	47-55	60-42	355	0	0	8	5.6	0	0	18	6	0	0
146	47-51	60-47	140	242	73.8	0	0	150	42.2	56	14.7	0	0
147	47-42	61-06	35	4	0.2	0	0	0	0	0	0	0	0

Appendix IIb. Set numbers, geographic positions (latitude and longitude), depths and catches in numbers (No.) and weight (kg) for yellowtail flounder, Atlantic halibut, Atlantic herring, gaspereau and rainbow smelt in the September 2013 bottom-trawl survey of the southern Gulf of St. Lawrence. Thirteen incomplete sets are excluded; all numbers and weights are adjusted to a standard tow. N/A means data not available to be summarized.

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
2	47-12	60-25	173	0	0	N/A	0.8	0	0	0	0	0	0
3	47-20	60-13	302	0	0	0	0	2	0.3	0	0	0	0
4	47-19	60-20	116	0	0	0	0.6	0	0	0	0	0	0
5	47-25	60-38	65	125	9.4	0	0	2	0.4	0	0	0	0
6	47-15	60-49	84	20	1.9	1	1.4	1	0.1	0	0	0	0
7	47-14	60-44	68	203	20.8	0	0	1	0.1	0	0	0	0
8	47-12	60-39	133	0	0	3	8.8	6	1.1	0	0	0	0
9	47-08	60-38	184	0	0	N/A	1.3	3	0.4	0	0	0	0
10	46-58	60-51	129	0	0	1	1	71	10.3	0	0	0	0
11	46-54	60-56	134	0	0	2	5	46	9.2	0	0	0	0
12	46-48	61-19	64	23	2.5	0	0	3	0.6	0	0	0	0
13	46-58	61-05	67	19	1.9	0	0	0	0	0	0	0	0
14	47-04	61-18	50	193	13.1	0	0	0	0	0	0	0	0
15	46-58	61-18	51	79	6.5	0	0	0	0	0	0	0	0
16	47-04	61-37	31	209	15	0	0	0	0	0	0	0	0
17	46-50	61-46	61	5	0.5	0	0	0	0	0	0	0	0
18	46-43	61-41	72	0	0	0	0	0	0	0	0	0	0
19	46-43	61-35	64	2	0.2	0	0	0	0	0	0	0	0
20	46-33	61-41	58	22	1.8	0	0	1	0.2	0	0	0	0
21	46-31	61-25	67	0	0	0	0	3	0.2	0	0	0	0
22	46-19	61-31	63	0	0	0	0	400	56.7	0	0	0	0
23	46-11	61-30	48	0	0	0	0	10415	1366.2	0	0	0	0
24	46-06	61-33	47	0	0	0	0	1608	235.9	0	0	0	0
25	46-06	61-44	54	0	0	0	0	6	0.8	0	0	0	0
26	46-10	62-00	45	1	0.1	0	0	8	0.8	0	0	0	0
27	45-52	61-39	32	383	27.4	0	0	289	38.2	0	0	0	0
28	45-46	61-38	31	33	3.9	0	0	172	11.6	0	0	579	13.6
29	45-46	61-42	31	4	0.4	0	0	11664	1853.4	0	0	74	2.1
30	45-52	61-49	36	1	0.1	0	0	24635	3537.9	6	0.6	3	0.1
31	45-58	62-13	41	0	0	0	0	11	0.5	0	0	0	0
32	45-56	62-30	48	0	0	0	0	527	47.4	0	0	0	0
33	45-49	62-58	22	0	0	0	0	265	12.2	77	5.8	2565	53.1
34	46-00	63-28	22	0	0	0	0	90	0.8	709	47.1	1964	31.1
35	46-06	63-30	17	0	0	0	0	0	0	1703	82.9	1786	37.6
36	45-56	63-03	27	0	0	0	0	1274	58	318	30.8	12713	242.7
37	45-55	62-37	53	30	2.9	N/A	14.8	3	0.3	5	0.9	27	0.4
38	45-56	62-22	38	0	0	0	0	1	<0.1	0	0	9	0.1
39	46-16	61-51	49	0	0	0	0	1	<0.1	6	0.8	0	0
40	46-23	61-49	39	155	8.8	0	0	0	276.5	75	10.3	0	0
41	46-31	61-53	42	1	0.1	0	0	4	0.4	0	0	0	0
42	46-41	61-53	77	13	1.4	0	0	8	1.2	0	0	0	0

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
43	46-41	62-11	58	1	0.1	0	0	0	0	0	0	0	0
44	46-52	62-00	59	1	0.1	0	0	1	0.2	0	0	0	0
47	47-05	62-28	63	1	0.2	0	0	1	0.2	0	0	0	0
48	47-04	62-36	67	0	0	0	0	0	0	0	0	0	0
49	46-49	62-52	59	47	5.5	0	0	0	0	0	0	0	0
50	46-48	62-39	61	12	1.1	0	0	18	2.9	0	0	0	0
51	46-43	62-39	59	16	1.6	0	0	7	1	0	0	0	0
52	46-43	62-27	56	0	0	0	0	1	0.1	0	0	0	0
53	46-34	62-29	49	43	5.3	0	0	153	18.2	0	0	0	0
54	46-30	62-39	27	0	0	0	0	1	0.3	0	0	0	0
55	46-28	62-55	26	0	0	N/A	1.5	925	113.5	0	0	0	0
56	46-31	63-00	40	283	24.5	0	0	1	0.1	0	0	0	0
57	46-35	63-13	41	803	60	0	0	19	1.9	0	0	0	0
58	46-45	63-13	49	101	10	0	0	3	0.4	0	0	0	0
60	46-56	63-05	62	8	1	0	0	4	0.8	0	0	0	0
61	46-45	63-36	35	12	0.9	0	0	769	104	0	0	0	0
62	46-39	63-40	27	97	9.7	0	0	2534	248.2	0	0	0	0
63	46-54	63-46	37	12	1	0	0	1332	196.9	0	0	0	0
64	47-05	63-39	51	3	0.2	0	0	8	1.1	0	0	0	0
65	47-05	63-16	62	8	1	0	0	0	0	0	0	0	0
66	47-21	63-41	67	0	0	0	0	0	0	0	0	0	0
67	47-29	63-49	67	0	0	0	0	0	0	0	0	0	0
68	47-37	63-55	52	4	0.6	0	0	162	22	0	0	0	0
70	47-48	63-57	74	0	0	0	0	0	0	0	0	0	0
72	47-59	63-59	80	1	0.1	0	0	0	0	0	0	0	0
73	48-07	64-07	38	0	0	N/A	14.2	25	3.7	0	0	0	0
75	48-09	64-10	40	1	0.2	0	0	4	0.5	0	0	0	0
77	48-15	64-10	91	0	0	0	0	0	0	0	0	0	0
78	48-16	64-27	109	0	0	0	0	1	<0.1	0	0	0	0
79	48-10	64-37	90	0	0	0	0	0	0	0	0	0	0
80	48-01	64-39	51	1	0.1	0	0	575	66.2	0	0	0	0
81	47-55	65-15	71	0	0	0	0	0	0	0	0	0	0
82	47-54	65-35	45	0	0	0	0	4	0.3	0	0	0	0
83	47-49	65-34	40	0	0	N/A	30.8	901	102.5	0	0	0	0
84	48-00	64-57	68	0	0	0	0	0	0	0	0	0	0
85	47-57	64-19	26	342	23.8	1	0.4	0	0	0	0	0	0
86	47-55	64-17	30	833	70.9	N/A	0.1	0	0	42	5.3	0	0
88	47-42	64-16	52	439	36.8	0	0	283	35.5	0	0	0	0
89	47-37	64-26	35	136	13.1	0	0	3	0.4	0	0	0	0
90	47-31	64-13	62	0	0	0	0	0	0	0	0	0	0
91	47-29	64-21	45	38	2.5	0	0	47	4.8	0	0	0	0
92	47-28	64-36	28	356	28.8	0	0	0	0	0	0	0	0
93	47-14	64-33	35	1866	76.1	0	0	2	0.2	0	0	0	0
94	46-56	64-28	35	48	2	0	0	5	0.9	49	7.3	9	0.2
95	46-59	64-22	37	67	3	0	0	12	1.4	0	0	92	3.6
96	47-04	64-16	41	76	4.7	N/A	13.9	7	0.6	0	0	3	0.1
97	47-13	64-09	41	36	2.2	0	0	65	6.4	0	0	0	0

Set number	Latitude (Deg-Min)	Longitude (Deg-Min)	Depth (meters)	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
98	47-07	64-04	33	23	1.1	0	0	260	33.6	0	0	0	0
99	47-20	63-26	71	0	0	0	0	0	0	0	0	0	0
100	47-20	63-13	68	1	0.1	0	0	0	0	0	0	0	0
101	47-11	62-56	61	4	0.3	0	0	0	0	0	0	0	0
102	47-20	62-34	69	0	0	0	0	0	0	0	0	0	0
103	47-13	62-14	44	9	0.5	0	0	3	0.4	0	0	0	0
104	47-26	62-03	32	544	35.9	0	0	0	0	0	0	0	0
105	47-39	61-41	30	412	18.2	0	0	0	0	0	0	0	0
106	47-38	61-58	38	20	1.3	0	0	0	0	0	0	0	0
107	47-34	62-09	48	1	0.1	0	0	0	0	0	0	0	0
109	47-49	62-29	74	0	0	0	0	0	0	0	0	0	0
111	47-44	62-42	64	0	0	0	0	0	0	0	0	0	0
112	47-32	62-46	56	2	0.2	0	0	0	0	0	0	0	0
113	47-42	62-59	62	0	0	0	0	0	0	0	0	0	0
114	47-39	63-19	69	0	0	0	0	0	0	0	0	0	0
116	47-55	63-25	77	0	0	0	0	0	0	0	0	0	0
117	48-02	63-40	96	0	0	N/A	1.2	0	0	0	0	0	0
118	48-05	63-23	64	1	0.3	0	0	0	0	0	0	0	0
119	48-23	63-47	114	0	0	0	0	0	0	0	0	0	0
120	48-27	63-58	105	0	0	0	0	0	0	0	0	0	0
121	48-29	63-38	140	0	0	1	8.2	0	0	0	0	0	0
122	48-42	63-43	132	0	0	0	0	0	0	0	0	0	0
123	48-53	63-47	254	0	0	1	4.7	0	0	0	0	0	0
124	48-59	63-51	331	0	0	0	0	0	0	0	0	0	0
125	48-53	63-23	327	0	0	0	0	0	0	0	0	0	0
126	48-38	63-29	159	0	0	2	35.2	0	0	0	0	0	0
127	48-42	63-05	340	0	0	0	0	1	0.2	0	0	0	0
128	48-31	63-05	230	0	0	4	21.1	1	0.2	0	0	0	0
129	48-22	63-18	84	0	0	0	0	0	0	0	0	0	0
131	48-27	62-59	106	0	0	1	0.9	0	0	0	0	0	0
132	48-12	62-51	75	0	0	0	0	0	0	0	0	0	0
133	48-03	62-54	67	1	0.1	0	0	0	0	0	0	0	0
134	48-06	62-37	82	0	0	0	0	0	0	0	0	0	0
135	48-21	62-35	152	0	0	3	4.5	0	0	0	0	0	0
136	48-25	62-24	356	0	0	N/A	3.9	0	0	0	0	0	0
137	48-17	61-53	293	0	0	0	0	0	0	0	0	0	0
139	48-01	62-08	62	0	0	0	0	0	0	0	0	0	0
140	47-53	61-56	57	0	0	0	0	0	0	0	0	0	0
142	48-08	61-33	132	0	0	1	0.8	0	0	0	0	0	0
143	47-56	60-57	104	1	0.1	0	0	0	0	0	0	0	0
144	47-59	60-49	362	0	0	0	0	0	0	0	0	0	0
145	47-55	60-42	355	0	0	0	0	0	0	0	0	0	0
146	47-51	60-47	140	0	0	N/A	0.8	5	0.8	0	0	0	0
147	47-42	61-06	35	13	0.6	0	0	1	<0.1	0	0	0	0

Appendix IIIa. Number of valid sets and mean catches in numbers (No.) and weight (kg) by stratum for Atlantic cod, white hake, American plaice, winter flounder, and witch flounder in the September 2012 bottom-trawl survey of the southern Gulf of St. Lawrence. Nine incomplete sets are excluded; all numbers and weights are adjusted to a standard tow. N/A means data not available to be summarized.

Stratum	Number of valid sets	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
401	4	47	25.6	3	0.6	0	0	0	0	232	37
402	3	0	0	6	0.3	0	0	0	0	4	0.2
403	4	6	<0.1	13	1.1	34	1.2	0	0	313	42.9
415	5	N/A	0.4	3	3.1	3	1	17	3.1	0	0
416	5	27	16.2	0	0	102	12.7	16	5.2	0	0
417	4	8	4.9	0	0	37	3.6	0	0	0	0
418	3	10	9.4	0	0	148	16.4	0	0	1	0.4
419	3	35	3.2	0	0	200	16.5	0	0	3	0.8
420	5	42	4.7	0	0	1	<0.1	0	0	27	4.4
421	3	19	0.1	0	0	0	0	0	0	38	2.8
422	10	19	6.4	0	0	120	12	0	0	6	1
423	16	2	1.6	0	0	255	23.8	0	0	0	0
424	8	9	3.1	0	0	221	20.5	N/A	0.1	0	0
425	5	8	10.7	18	13.8	9	2.2	10	2.4	0	0
426	3	97	41.2	0	0	207	19.7	4	1.1	0	0
427	7	54	22.3	0	0	60	5.1	0	0	0	0
428	3	28	1.4	3	0.1	32	1.3	0	0	26	3
429	12	25	9.9	0	0	188	17.5	0	0	2	0.4
431	9	9	3.8	0	0	161	14.3	0	0	0	0
432	3	1	<0.1	8	0.4	24	0.3	0	0	81	4.1
433	8	7	0.4	1	0.1	30	3	0	0	20	3.8
434	8	6	3.4	0	0	218	19.3	N/A	0.1	0	0
435	5	21	5.6	0	0	7	1.6	0	0	140	21.3
436	7	26	10.8	0	0	151	9.6	1	0.3	0	0
437	5	3	2.2	80	21.1	115	13.2	7	2.1	0	0
438	3	104	43.1	N/A	0.3	35	5	3	1.1	0	0
439	3	0	0	18	11.1	2	0.2	18	4.6	N/A	0.2

Appendix IIIb. Number of valid sets and mean catches in numbers (No.) and weight (kg) by stratum for yellowtail flounder, Atlantic halibut, Atlantic herring, gaspereau and rainbow smelt in the September 2012 bottom-trawl survey of the southern Gulf of St. Lawrence. Nine incomplete sets are excluded; all numbers and weights are adjusted to a standard tow. N/A means data not available to be summarized.

Stratum	Number of valid sets	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
401	4	10	0.9	N/A	0.1	10	1.9	4	0.6	75	2.2
402	3	0	0	0	0	144	1.1	277	17.2	3773	39
403	4	6	0.6	0	0	12733	1969.7	209	21.6	344	10.4
415	5	0	0	1	12.8	N/A	0.1	0	0	0	0
416	5	0	0	1	7	0	0.1	0	0	0	0
417	4	0	0	0	0	0	0	0	0	0	0
418	3	0	0	0	0	0	0	0	0	0	0
419	3	1	0.2	0	0	2	0.2	0	0	0	0
420	5	63	4.7	0	0	1555	189.3	649	66.9	6	0.2
421	3	39	1.9	N/A	5.2	634	89.5	2	0.2	81	2.3
422	10	34	2.3	N/A	0.4	2478	317.4	5	0.6	3	0.1
423	16	8	0.7	0	0	0	0	0	0	0	0
424	8	1	0.1	0	0	0	0	0	0	0	0
425	5	0	0	1	1.5	N/A	0.1	0	0	0	0
426	3	0	0	N/A	0.1	0	0	0	0	0	0
427	7	0	0	0	0	0	0	0	0	0	0
428	3	900	31.6	0	0	0	0	0	0	0	0
429	12	67	5.4	0	0	35	3.9	0	0	0	0
431	9	54	4.5	0	0	N/A	0.1	0	0	0	0
432	3	4	0.2	0	0	94	4.4	118	10.4	2967	48.3
433	8	7	0.4	0	0	11326	1346.2	2	0.3	7	0.1
434	8	16	1.3	0	0	396	38.5	0	0	0	0
435	5	641	36	3	5.2	179	22.5	0	0	0	0
436	7	199	14	N/A	0.2	N/A	0.1	0	0	0	0
437	5	1	0.1	1	1.1	3	0.4	0	0	0	0
438	3	3	0.4	N/A	0.2	N/A	0.1	0	0	0	0
439	3	1	0.2	0	0	0	0	0	0	0	0

Appendix IVa. Number of valid sets and mean catches in numbers (No.) and weight (kg) by stratum for Atlantic cod, white hake, American plaice, winter flounder, and witch flounder in the September 2013 bottom-trawl survey of the southern Gulf of St. Lawrence. Thirteen incomplete sets are excluded; all numbers and weights are adjusted to a standard tow. N/A means data not available to be summarized.

Stratum	Number of valid sets	Atlantic cod (number)	Atlantic cod (kg)	White hake (number)	White hake (kg)	American plaice (number)	American plaice (kg)	Witch flounder (number)	Witch flounder (kg)	Winter flounder (number)	Winter flounder (kg)
401	3	7	5.9	0	0	0	0	0	0	37	5.2
402	3	0	0	45	1.3	0	0	0	0	500	10
403	4	20	0.8	8	1.3	88	4.7	0	0	236	37.3
415	4	1	1.5	6	3.5	4	0.3	10	1.8	0	0
416	6	116	86.5	N/A	0.2	231	30.4	5	1.6	0	0
417	3	28	9.5	0	0	160	16.8	0	0	3	0.6
418	3	3	3.3	0	0	162	16.3	0	0	0	0
419	3	7	5.7	0	0	277	16.6	0	0	1	0.2
420	5	132	13.5	1	0.1	36	0.4	0	0	150	26.3
421	3	2	0.1	0	0	83	0.4	0	0	39	2.9
422	9	41	13.8	0	0	219	17.9	0	0	12	2.7
423	13	2	1.1	0	0	242	25.1	0	0	0	0
424	5	66	22.9	0	0	115	10.8	N/A	0.1	0	0
425	3	6	7	9	4.3	10	3	26	7.3	0	0
426	3	756	427.4	0	0	154	24	29	9.1	0	0
427	3	4	1.5	0	0	137	7.5	0	0	0	0
428	3	134	9.8	0	0	7	0.7	0	0	8	1.1
429	10	309	75.2	0	0	293	25.6	0	0	16	3.9
431	9	26	8.4	0	0	289	21.7	0	0	4	1.1
432	3	7	0.6	5	0.7	62	0.4	0	0	68	2.8
433	9	3	0.6	0	0	144	5.4	0	0	30	3.4
434	9	13	3.8	0	0	341	26.2	1	0.4	2	0.3
435	2	7	1	0	0	0	0	0	0	85	10.2
436	3	17	6.1	0	0	250	18.6	N/A	0.2	0	0
437	5	49	32.4	21	7	97	16.2	8	2.9	0	0
438	3	169	58.8	0	0	170	31.7	6	1.6	0	0
439	3	0	0	9	5.9	3	0.7	11	3.5	0	0

Appendix IVb. Number of valid sets and mean catches in numbers (No.) and weight (kg) by stratum for yellowtail flounder, Atlantic halibut, Atlantic herring, gaspereau and rainbow smelt in the September 2013 bottom-trawl survey of the southern Gulf of St. Lawrence. Thirteen incomplete sets are excluded; all numbers and weights are adjusted to a standard tow. N/A means data not available to be summarized.

Stratum	Number of valid sets	Yellowtail flounder (number)	Yellowtail flounder (kg)	Atlantic halibut (number)	Atlantic halibut (kg)	Atlantic herring (number)	Atlantic herring (kg)	Gaspereau (number)	Gaspereau (kg)	Rainbow smelt (number)	Rainbow smelt (kg)
401	3	32	3.2	N/A	0.5	1154	120.6	0	0	0	0
402	3	0	0	0	0	118	4.3	829	45.3	2105	40.6
403	4	105	8	0	0	9190	1360.3	1	0.2	164	4
415	4	0	0	N/A	1.2	0	0	0	0	0	0
416	6	0	0	1	7.4	0	0	0	0	0	0
417	3	N/A	0.1	0	0	2	0.2	0	0	0	0
418	3	0	0	0	0	192	22.1	0	0	0	0
419	3	0	0	N/A	10.3	302	34.3	0	0	0	0
420	5	707	42.5	N/A	0.1	1	0.1	8	1.1	0	0
421	3	46-	2	0	0	92	12	16	2.4	34	1.3
422	9	66	5.2	N/A	3.1	65	8.1	0	0	0	0
423	13	1	0.1	0	0	0	0	0	0	0	0
424	5	1	0.1	0	0	0	0	0	0	0	0
425	3	0	0	1	8.3	N/A	0.1	0	0	0	0
426	3	0	0	2	2.1	0	0	0	0	0	0
427	3	0	0	0	0	0	0	0	0	0	0
428	3	325	18.5	0	0	0	0	0	0	0	0
429	10	100	8	0	0	214	30.5	0	0	0	0
431	9	42	3.8	0	0	21	2.7	0	0	0	0
432	3	10	1	N/A	4.9	601	35.2	108	10.5	4247	81
433	9	17	1	0	0	1383	215.3	9	1.2	1	0
434	9	38	2.9	0	0	1	0.2	0	0	0	0
435	2	111	7.8	0	0	1	<0.1	0	0	0	0
436	3	116	10.7	N/A	0.5	1	0.2	0	0	0	0
437	5	0	0	1	3.4	25	4.2	0	0	0	0
438	3	0	0	N/A	0.5	2	0.3	0	0	0	0
439	3	0	0	0	0	1	0.1	0	0	0	0

Appendix V. Total catches by species in numbers and weight during the CCGS Teleost September 2012 southern Gulf of St. Lawrence bottom-trawl survey.

Scientific Name	English Name	French Name	Number	Weight
Vertebrates				
Alosa pseudoharengus	Gaspereau	Gaspareau	892	85.1
Alosa sapidissima	American shad	Alose savoureuse	2	1.8
Amblyraja radiata	Thorny skate	Raie épineuse	584	92.3
Ammodytes dubius	Northern sand lance	Lançon du Nord	17786	350.6
Anarhichas lupus	Striped / Atlantic wolfish	Loup atlantique	8	2.0
Anarhichas minor	Spotted wolfish	Loup tacheté	1	1.5
Artediellus atlanticus	Atlantic hookhear sculpin	Hameçon atlantique	59	0.1
Artediellus uncinatus	Arctic hookhear sculpin	Hameçon neigeux	91	0.2
Aspidophoroides monopterygius	Alligatorfish	Poisson alligator atlantique	247	0.7
Centroscyllium fabricii	Black dogfish	Aiguillat noir	2	3.1
Clupea harengus	Atlantic herring	Hareng atlantique	142747	18399.6
Cryptacanthodes maculatus	Wrymouth	Terrassier tacheté	7	2.4
Cyclopterus lumpus	Lumpfish	Grosse poule de mer	5	3.8
Cyclthone microdon	Veiled angle mouth	Cyclothone à petites dents	17	< 0.1
Enchelyopus cimbrius	Fourbeard rockling	Motelle à quatre barbillons	36	0.8
Eumesogrammus praecisus	Fourline snake blenny	Quatre-lignes atlantique	221	6.2
Eumicrotremus spinosus	Atlantic spiny lumpsucker	Petite poule de mer atlantique	26	0.4
Gadus morhua	Atlantic cod	Morue franche	2710	1038.8
Gadus ogac	Greenland cod	Ogac	20	9.0
Gasterosteus aculeatus aculeatus	Threespine stickleback	Épinoche à trois épines	3863	2.8
Glyptocephalus cynoglossus	Witch flounder	Plie grise	46-2	119.2
Gymnelis viridis	Fish doctor	Anguille de mer	8	0.1
Gymnocanthus tricuspis	Arctic staghorn sculpin	Tricorne arctique	248	12.5
Hemitripterus americanus	Sea raven	Hémitriptère atlantique	93	38.6
Hippoglossoides platessoides	American plaice	Plie canadienne	14576	1357.6
Hippoglossus hippoglossus	Atlantic halibut	Flétan atlantique	74	330.6
Icelus spatula	Spatulate sculpin	Icèle spatulée	75	1.5
Lampadena speculigera	Mirror lanternfish	Lampe à nez denté	7	< 0.1
Leptagonus decagonus	Atlantic sea poacher	Agone atlantique	38	1.0
Leptoclinus maculatus	Daubed shanny	Lompénie tachetée	1155	3.2
Leucoraja ocellata	Winter skate	Raie tachetée	27	9.2
Limanda ferruginea	Yellowtail flounder	Limande à queue jaune	9478	544.8
Liparis gibbus	Dusky seasnail	Limace marbrée	103	3.2
Liparis sp.	Seasnail unspecified	Limace non spécifiée	1	< 0.1
Lumpenus lumpretaeformis	Snakeblenny	Lompénie serpent	105	1.2
Lumpenus medius	Stout eelblenny	Lompénie naine	442	2.1
Lycenchelys verrilli	Wolf eelpout	Lycode à tête longue	1	trace
Lycodes sp.	Eelpout unspecified	Lycode non spécifiée	185	38.0
Malacoraja senta	Smooth skate	Raie lisse	20	7.4
Mallotus villosus	Capelin	Capelan	62690	609.9
Melanostigma atlanticum	Atlantic soft pout	Molasse Atlantique	220	0.7
Merluccius bilinearis	Silver hake	Merluche argenté	12	3.1
Myctophidae (family)	Lanterfish unspecified	Myctophidés	2	< 0.1
Myoxocephalus octodecemspinosus	Longhorn sculpin	Chaboisseau à dix-huit-épines	343	51.2
Myoxocephalus scorpius	Shorthorn sculpin	Chaboisseau à épines courtes	49	23.4
Myxine glutinosa	Atlantic hagfish	Myxine du nord	31	1.9
Nezumia bairdii	Marlin-spike grenadier	Grenadier du grand banc	30	1.1
Notolepis rissoi	White barracudina	Lussion blanc	163	2.2
Osmerus mordax mordax	Rainbow smelt	Éperlan d'amérique	6323	89.5
Peprilus triacanthus	Butterfish	Stromatée à fossette	86	4.9
Phycis chesteri	Longfin hake	Merluche à longues nageoires	3	0.5

Appendix V. Continued

Scientific Name	English Name	French Name	Number	Weight
Vertebrates				
Pseudopleuronectes americanus	Winter flounder	Plie rouge	3098	445.2
Reinhardtius hippoglossoides	Turbot / Greenland halibut	Flétan du Groenland	146-4	724.3
Scomber scombrus	Atlantic mackerel	Maquereau bleu	651	120.9
Scophthalmus aquosus	Brill / windowpane	Turbot de sable	48	4.8
Sebastes sp.	Redfish unspecified	Sébaste non spécifié	1772	893.9
Squalus acanthias	Spiny dogfish	Aiguillat commun	1	2.3
Stichaeus punctatus	Arctic shanny	Stichée arctique	2	< 0.1
Tautogolabrus adspersus	Cunner	Tanche-tautogue	20	1.4
Triglops murrayi	Moustache / mailed sculpin	Faux-trigle armé	86	1.2
Uleina olrikii	Arctic alligatorfish	Poisson-alligator Arctique	105	0.2
Ulvaria subbifurcata	Radiated shanny	Ulvaire à deux lignes	2	< 0.1
Urophycis tenuis	White hake	Merluche blanche	642	226.7
Zoarces americanus	Ocean pout	Loquette d'amérique	4	3.3
Invertebrates				
Amphipoda (order)	Amphipods (order)	Amphipodes (ordre)	N/A	0.1
Annelida (phylum)	Annelids (segmented worms)	Annelides	N/A	< 0.1
Anthozoa (class)	Sea anemone unspecified	Anémone de mer non spécifiée	N/A	56.8
Aphrodita sp.	Sea mouse unspecified	Sourie de mer non spécifiée	N/A	1.2
Aporrhais sp.	Duck or pelican foot	Apporais non spécifié	N/A	0.1
Artica islandica	Ocean quahaug	Quahog nordique	N/A	0.2
Ascidia sp.	Sea squirts (tunicates)	Tuniciers	N/A	0.2
Astarte sp.	*Astarte* sp.	Astartes sp.	N/A	0.1
Asterias sp.	Starfish unspecified	Étoile de mer non spécifiée	N/A	4.6
Asterias vulgaris	Northern / Purple starfish	Étoile de mer pourpre	N/A	5.9
Asteroidea (class)	Starfish unspecified (class)	Étoile de mer non spécifiée (classe)	N/A	0.8
Bathypolypus arcticus	Deep sea octopus	Poulpe boréal	9	0.3
Biemna variantia	Sponge sp.	Éponge sp.	N/A	0.4
Bivalvia (class)	Bivalve unspecified (class)	Bivalve non spécifié (classe)	N/A	23.2
Boltenia sp.	Sea potato unspecified	Patate de mer non spécifiée	N/A	110.5
Brachiopoda (phylum)	Lampshells unspecified (phylum)	Brachiopode non spécifié (phylum)	N/A	0.1
Brisaster fragilis	Heart urchin	Spatangue	N/A	0.5
Bryozoa /Ectoprocta (phylum)	Bryozoans	Bryozoaires	N/A	< 0.1
Buccinidae (family) *Eggs*	Whelk eggs unspecified	Œufs de buccin non spécifiés	N/A	11.5
Buccinum sp,	Whelk unspecified	Buccin non spécifié	N/A	20.0
Buccinum undatum	Wave whelk / common	Buccin commun	85	5.7
Cancer irroratus	Atlantic rock crab	Crabe tourteau commun	187	18.2
Cardinae (family)	Cockle unspecified (family)	Bucarde non spécifiée (famille)	N/A	0.2
Chionoecetes opilio	Snow crab (queen)	Crabe des neiges	5727	710.7
Chlamys islandicus	Iceland scallop	Pétoncle d'Islande	27	1.3
Clinocardium ciliatum	Iceland cockle	Coque d'Islande	N/A	0.7
Clypeasteroida (order)	Sand dollar unspecified	Clypéastre non spécifié	N/A	27.0
Ctenodiscus crispatus	Mud star	Étoile de vase	N/A	2.1
Cryptodonta (super order)	Bivalve clams unspecified	Bivalves palourde non spécifié	1	0.1
Cuspidaria glacialis	Glacial dipper clam		N/A	< 0.1
Cyrtodaria siliqua	Bank clam	Mye / couteau de Banks (pitot)	2	3.0
Decapoda (order)	Decapod unspecified (order)	Décapode non spécifié (ordre)	N/A	594.2
Duva multiflora	Sea cauliflower / Soft coral	Main de mer	N/A	2.3
Gastropoda eggs	Gastropod (snail/slug) eggs unspecified	Oeufs de gastropode non spécifiés	N/A	0.3
Gastropoda (class)	Gastropod unspecified (class)	Gastropode non spécifié (classe)	N/A	< 0.1
Gorgonocephalus sp.	Basket stars sp.	Gorgonocéphales sp.	N/A	168.7
Halichondria panacea	Breadcrumb sponge	Éponge mie de pain	N/A	15.8
Halichondria sitiens	Sponge sp.	Éponge sp.	N/A	8.8
Haliclona oculata	Eyed sponge	Éponge digitée	N/A	1.0

Appendix V. Continued

Scientific Name	English Name	French Name	Number	Weight
Invertebrates				
Halocynthia pyriformis	Sea peach	Pêche de mer	N/A	0.1
Henricia sanguinolenta	Blood star	Petite étoile rouge sang	N/A	0.7
Hiatella arctica	Soft shell or long neck clam	Saxicave Arctique	N/A	< 0.1
Hippasteria phrygiana	Horse star	Étoile de mer sp.	N/A	2.9
Holothuroidea (class)	Sea cucumber unspecified	Holothurie non spécifié	N/A	236.2
Homarus americanus	American lobster	Homard américain	4881	1571.4
Hyas araneus	Toad crab	Crabe lyre (araignée)	298	19.8
Hyas coarctatus	Lesser toad crab	Crabe lyre (arctique)	1517	42.8
Hyas sp.	Toad crab unspecified	Crabe lyre non spécifié	N/A	0.4
Iophon sp.	Sponge sp.	Éponge sp.	N/A	0.3
Illex illecebrosus	Short-fin squid	Encornet rouge nordique	67	11.6
Leptasterias polaris	Polar starfish	Étoile de mer polaire	N/A	21.6
Lithodes maja	Northern stone crab	Crabe épineux du nord	31	8.6
Lunatia heros	Moonshell	Lunatie (natice de l'Atlantique)	N/A	0.3
Margarites costalis	Boreal rosy margarite	Mollusque sp.	N/A	< 0.1
Margarites groenlandicus	M. Groenlandica	Mollusque sp.	N/A	< 0.1
Mollusca (phylum)	Mollusks (phylum)	Mollusques (phylum)	N/A	21.0
Munidopsis curvirostra	Squat lobster	Galatée	N/A	< 0.1
Musculus niger	Black mussel	Moule noir	N/A	< 0.1
Mycale lingua	Mycale lingua (sponge)	Mycale lingua (Éponge)	N/A	6.2
Mytilidae (family)	Mussel unspecified (family)	Moule non spécifiée (famille)	N/A	0.2
Mytilus edulis	Common mussels	Moule bleue	N/A	< 0.1
Neptunea decemcostata	Wrinkle whelk	Neptunée à dix côtés	7	2.6
Nuculana sp.	Nut clam sp. unspecified	Nuculidae sp. non spécifié	N/A	< 0.1
Nudibranchia (order)	Seaslug unspecified (order)	Nudibranche non spécifiée (ordre)	N/A	0.1
Octopoda (Order)	Octopus (order) unspecified	Pieuvre (ordre) non spécifiée	3	0.1
Ophiuroidae (sub-class)	Brittle star unspecified	Ophiure no spécifié	N/A	25.8
Paguroidea (super family)	Paguroidea (super family)	Paguroidea (Super-famille)	188	6.4
Pennatula borealis	Sea pen	Plume de mer	N/A	117.3
Phakellia ventilabrum	Sponge sp.	Éponge sp.	N/A	0.7
Placopecten magellanicus	Giant sea scallop	Pétoncle géant	3	0.3
Polychaeta (class)	Bristle worm unspecified (class)	Polychète non spécifié (classe)	N/A	0.4
Polymastia mammilaris	Sponge sp.	Éponge sp.	N/A	0.3
Polyplacophora (class)	Chiton unspecified (class)	Chiton non spécifiée (classe)	N/A	< 0.1
Poraniomorpha hispida	Sea star sp.	Étoile de mer sp.	N/A	< 0.1
Porifera (Phylum)	Sponge unspecified	Éponge non spécifiée	N/A	3.3
Psolus fabricii	Scarlett psolus	Psolus écarlate	N/A	10.1
Psolus phantapus	Sea cucumber sp.	Concombre de mer sp.	N/A	0.2
Pteraster militaris	Sea star sp.	Étoile de mer sp.	N/A	< 0.1
Pycnogonida (class)	Sea spider unspecified	Araignée de mer non spécifiée	N/A	< 0.1
Raja eggs	Skates eggs unspecified	Œufs de raie non spécifié	N/A	1.1
Scyphozoa (class)	Jellyfish unspecified	Méduse non spécifiée	N/A	74.9
Semirossia tenera	Lesser bobtail squid	Sépiole calamarette	3	< 0.1
Solaster sp.	Sunstar unspecified	Soleil de mer non spécifiée	N/A	7.9
Solaster endeca	Smooth / purple sunstar	Soleil de mer pourpre	N/A	73.6
Solaster papposus	Spiny sun star	Soleil de mer épineux	N/A	135.0
Strongylocentrotus sp.	Sea urchin unspecified	Oursin non spécifié	N/A	689.8

Appendix V. Continued

Scientific Name	English Name	French Name	Number	Weight
Invertebrates				
Suberites ficus	Fig sponge	Éponge sp.	N/A	2.6
Tunicata sp.	Tunicate / Sea squirt unspecified	Tuniqués sessiles non spécifiés	N/A	21.9
Other				
Foreign articles / garbage	Foreign articles / garbage	Déchets / résidus domestiques	N/A	3.3
Phaeophuceae (class)	Brown seaweeds	Algues brunes	N/A	12.4
Rhodophyceae (family)	Red seaweeds	Algues rouges	N/A	0.3
Stones and rocks	Stones and rocks	Pierres et roches	N/A	311.4
Thallophyta (class)	Seaweed, algae, kelp	Géomon, algues, varech	N/A	33.2
Unidentified / Digested remains	Unidentified / Digested remains	Restes non identifié / pourri	N/A	1.6
Unidentified fish and/or invertebrates	Unidentified fish and/or invertebrates	Poisson ou invertébré non identifié	N/A	7.3
Wood	Wood	Bois	N/A	143.2

Appendix VI. Total catches by species in numbers and weight during the Teleost during the September 2013 southern Gulf of St. Lawrence bottom-trawl survey.

Scientific Name	English Name	French Name	Number	Weight
Vertebrates				
Alosa pseudoharengus	Gaspereau	Gaspareau	514	33.0
Alosa sapidissima	American shad	Alose savoureuse	1	1.1
Amblyraja radiata	Thorny skate	Raie épineuse	377	94.0
Ammodytes dubius	Northern sand lance	Lançon du Nord	10500	140.6
Anarhichas lupus	Striped / Atlantic wolffish	Loup atlantique	13	4.6
Artediellus atlanticus	Atlantic hookhear sculpin	Hameçon atlantique	92	0.4
Artediellus uncinatus	Arctic hookhear sculpin	Hameçon neigeux	111	0.6
Aspidophoroides monopterygius	Alligatorfish	Poisson alligator atlantique	623	1.7
Boreogauds saida	Artic cod	Morue arctique	N/A	1.2
Centroscyllium fabricii	Black dogfish	Aiguillat noir	2	2.5
Clupea harengus	Atlantic herring	Hareng atlantique	58185	8325.5
Cryptacanthodes maculatus	Wrymouth	Terrassier tacheté	4	1.7
Cyclopterus lumpus	Lumpfish	Grosse poule de mer	5	0.4
Cyclthone microdon	Veiled angle mouth	Cyclothone à petites dents	29	< 0.1
Enchelyopus cimbrius	Fourbeard rockling	Motelle à quatre barbillons	78	1.5
Eumesogrammus praecisus	Fourline snake blenny	Quatre-lignes atlantique	298	8.4
Eumicrotremus spinosus	Atlantic spiny lumpsucker	Petite poule de mer atlantique	53	0.7
Gadus morhua	Atlantic cod	Morue franche	9290	3390.8
Gadus ogac	Greenland cod	Ogac	13	5.0
Gasterosteus aculeatus aculeatus	Threespine stickleback	Épinoche à trois épines	613	1.4
Glyptocephalus cynoglossus	Witch flounder	Plie grise	517	150.3
Gymnelis viridis	Fish doctor	Anguille de mer	21	0.1
Gymnocanthus tricuspis	Arctic staghorn sculpin	Tricorne arctique	122	8.2
Hemitripterus americanus	Sea raven	Hémitriptère atlantique	76	15.6
Hippoglossoides platessoides	American plaice	Plie canadienne	18870	1663.2
Hippoglossus hippoglossus	Atlantic halibut	Flétan atlantique	60	380.9
Icellus bicormis	Twohorn sculpin	Icèle à deux cornes	30	2.2
Icelus spatula	Spatulate sculpin	Icèle spatulée	137	0.4
Leptagonus decagonus	Atlantic sea poacher	Agone atlantique	129	3.6
Leptoclinus maculatus	Daubed shanny	Lompénie tachetée	1935	4.6
Leucoraja ocellata	Winter skate	Raie tachetée	1	0.3
Limanda ferruginea	Yellowtail flounder	Limande à queue jaune	7994	546-.2
Liparis fabricii	Gelatinous seasnail	Limace gélatineuse	1	<0.1
Liparis gibbus	Dusky seasnail	Limace marbrée	153	8.1
Lophius americanus	Monkfish	Baudroie d'Amérique	2	2.4
Lumpenus lumpretaeformis	Snakeblenny	Lompénie serpent	92	1.5
Lumpenus medius	Stout eelblenny	Lompénie naine	305	2.3
Lycodes sp.	Eelpout unspecified	Lycode non spécifiée	236	56.7
Malacoraja senta	Smooth skate	Raie lisse	94	17.1
Mallotus villosus	Capelin	Capelan	108615	1199.5
Melanogrammus aeglefinus	Haddock	Aiglefin	16	7.2
Melanostigma atlanticum	Atlantic soft pout	Molasse Atlantique	159	0.4
Medinia medinia	Atlantic silverside	Capucette	5	<0.1
Merluccius bilinearis	Silver hake	Merluche argenté	26	4.6
Myoxocephalus aeneus	Grubby	Chaboisseau bronzé	5	< 0.1
Myoxocephalus octodecemspinosus	Longhorn sculpin	Chaboisseau à dix-huit-épines	326	24.2
Myoxocephalus scorpius	Shorthorn sculpin	Chaboisseau à épines courtes	63	28.9
Myxine glutinosa	Atlantic hagfish	Myxine du nord	48	2.3
Nezumia bairdii	Marlin-spike grenadier	Grenadier du grand banc	27	0.7
Notolepis rissoi	White barracudina	Lussion blanc	28	0.3
Osmerus mordax mordax	Rainbow smelt	Éperlan d'amérique	6028	117
Peprilus triacanthus	Butterfish	Stromatée à fossette	4	0.2
Pholis gunnellus	Rock gunnel	Sigouine de roche	1	<0.1

Appendix VI. Continued

Scientific Name	English Name	French Name	Number	Weight
Vertebrates				
Phycis chesteri	Longfin hake	Merluche à longues nageoires	5	0.7
Pollachuis virens	Pollock	Goberge	2	5.0
Pseudopleuronectes americanus	Winter flounder	Plie rouge	4154	444.8
Reinhardtius hippoglossoides	Turbot / Greenland halibut	Flétan du Groenland	1288	518.8
Scomber scombrus	Atlantic mackerel	Maquereau bleu	308	59.4
Scophthalmus aquosus	Brill / windowpane	Turbot de sable	419	20.6
Sebastes sp.	Redfish unspecified	Sébaste non spécifié	3809	1503.8
Stichaeus punctatus	Arctic shanny	Stichée arctique	2	< 0.1
Tautogolabrus adspersus	Cunner	Tanche-tautogue	19	0.6
Triglops murrayi	Moustache / mailed sculpin	Faux-trigle armé	63	1.2
Uleina olrikii	Arctic alligatorfish	Poisson-alligator Arctique	176	0.7
Urophycis tenuis	White hake	Merluche blanche	370	92.2
Zoarces americanus	Ocean pout	Loquette d'amérique	11	2.3
Invertebrates				
Amphipoda (order)	Amphipods (order)	Amphipodes (ordre)	N/A	0.1
Anthozoa (class)	Sea anemone unspecified	Anémone de mer non spécifiée	N/A	54.9
Aphrodita sp.	Sea mouse unspecified	Sourie de mer non spécifiée	N/A	1.5
Aporrhais sp.	Duck or pelican foot	Apporais non spécifié	N/A	0.1
Artica islandica	Ocean quahaug	Quahog nordique	6	0.9
Astarte sp.	*Astarte* sp.	Astartes sp.	N/A	0.4
Asterias sp.	Starfish unspecified	Étoile de mer non spécifiée	N/A	6.2
Asteroidea (class)	Starfish unspecified (class)	Étoile de mer non spécifiée (classe)	N/A	0.5
Bathypolypus arcticus	Deep sea octopus	Poulpe boréal	11	0.2
Astropecten duplicatus	two-spined sea star	Étoile de mer à deux-épines	N/A	0.2
Biemna variantia	Sponge sp.	Éponge sp.	N/A	2.0
Bivalvia (class)	Bivalve unspecified (class)	Bivalve non spécifié (classe)	N/A	<0.1
Boltenia sp.	Sea potato unspecified	Patate de mer non spécifiée	N/A	193.4
Bolocera sp.	Sea anemone	Anémone de mer	N/A	1.6
Brachiopoda (phylum)	Lampshells unspecified (phylum)	Brachiopode non spécifié (phylum)	N/A	<0.1
Brisaster fragilis	Heart urchin	Spatangue	N/A	0.4
Bryozoa / Ectoprocta (phylum)	Bryozoans	Bryozoaires	N/A	< 0.1
Buccinidae (family) *Eggs*	Whelk eggs unspecified	Œufs de buccin non spécifiés	N/A	12.1
Buccinum sp,	Whelk unspecified	Buccin non spécifié	106	22.0
Buccnum scalariforme	Silky buccinum	Buccin	N/A	2.5
Buccinum undatum	Wave whelk / common	Buccin commun	N/A	5.7
Cancer irroratus	Atlantic rock crab	Crabe tourteau commun	893	76.7
Cardinae (family)	Cockle unspecified (family)	Bucarde non spécifiée (famille)	N/A	0.1
Chionoecetes opilio	Snow crab (queen)	Crabe des neiges	11730	1267.6
Chlamys islandicus	Iceland scallop	Pétoncle d'Islande	67	4.7
Clinocardium ciliatum	Iceland cockle	Coque d'Islande	3	0.8
Clypeasteroida (order)	Sand dollar unspecified	Clypéastre non spécifié	N/A	56.8
Coelenterata / cnidarian (phylum)	Coelenterate / cnidarian unspecified	Cœlentéré / cnidaire non spé	N/A	0.2
Ctenodiscus crispatus	Mud star	Étoile de vase	N/A	19.9
Cryptodonta (super order)	Bivalve clams unspecified	Bivalves palourde non spécifié	N/A	<0.1
Cuspidaria glacialis	Glacial dipper clam		N/A	< 0.1
Cyrtodaria siliqua	Bank clam	Mye / couteau de Banks (pitot)	N/A	0.2
Decapoda (order)	Decapod unspecified (order)	Décapode non spécifié (ordre)	N/A	501.5
Duva multiflora	Sea cauliflower / Soft coral	Main de mer	N/A	5.9
Échinodermata (phylum)	Spny skinned animals	Échinodermes	N/A	0.2
Gastropoda eggs	Gastropod (snail/slug) eggs unspecified	Oeufs de gastropode non spécifiés	N/A	1.0
Gastropoda (class)	Gastropod unspecified (class)	Gastropode non spécifié (classe)	N/A	0.2
Gorgonocephalus sp.	Basket stars sp.	Gorgonocéphales sp.	N/A	341.4
Halichondria panacea	Breadcrumb sponge	Éponge mie de pain	N/A	8.3
Haliclona oculata	Eyed sponge	Éponge digitée	N/A	7.8

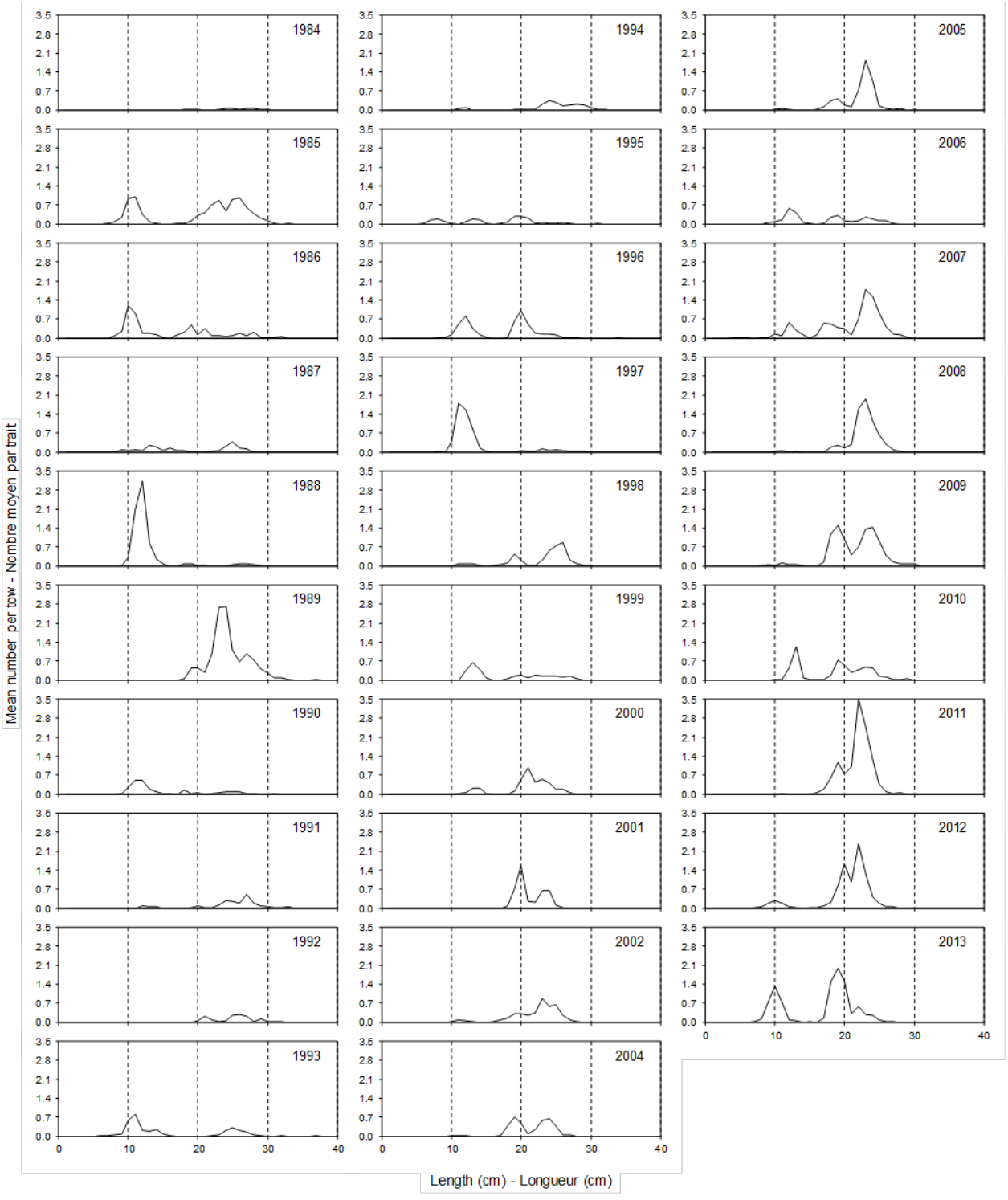
Appendix VI. Continued

Scientific Name	English Name	French Name	Number	Weight
Invertebrates				
Halocynthia pyriformis	Sea peach	Pêche de mer	N/A	0.1
Henricia sanguinolenta	Blood star	Petite étoile rouge sang	N/A	2.2
Hiatella arctica	Soft shell or long neck clam	Saxicave Arctique	N/A	< 0.1
Hippasteria phrygiana	Horse star	Étoile de mer sp.	N/A	10.0
Holothuroidea (class)	Sea cucumber unspecified	Holothurie non spécifié	N/A	291.0
Homarus americanus	American lobster	Homard américain	2537	814.3
Hyas araneus	Toad crab	Crabe lyre (araignée)	699	25.7
Hyas coarctatus	Lesser toad crab	Crabe lyre (arctique)	2482	70.6
Illex illecebrosus	Short-fin squid	Encornet rouge nordique	9	1.2
Leptasterias polaris	Polar starfish	Étoile de mer polaire	N/A	40.8
Lithodes maja	Northern stone crab	Crabe épineux du nord	43	12.7
Lunatia heros	Moonshell	Lunatie (natice de l'Atlantique)	N/A	0.4
Margarites costalis	Boreal rosy margarite	Mollusque sp.	1	< 0.1
Margarites groenlandicus	M. Groenlandica	Mollusque sp.	N/A	< 0.1
Modiolus modiolus	Horse mussels	Moule géante	N/A	8.6
Munidopsis curvirostra	Squat lobster	Galatée	N/A	< 0.1
Musculus niger	Black mussel	Moule noir	N/A	< 0.1
Mya arenaria	Soft shell clam	Mye commune	N/A	< 0.1
Mya truncata	blunt gaper	Mye tronquée	N/A	< 0.1
Mycale lingua	Mycale lingua (sponge)	Mycale lingua (Éponge)	N/A	2.8
Mytilus edulis	Common mussels	Moule bleue	N/A	0.2
Nuculana sp.	Nut clam sp. unspecified	Nuculidae sp. non spécifié	N/A	< 0.1
Nudibranchia (order)	Seaslug unspecified (order)	Nudibranche non spécifiée (ordre)	N/A	0.6
Octopoda (Order)	Octopus (order) unspecified	Pieuvre (ordre) non spécifiée	2	0.1
Ophiuroidae (sub-class)	Brittle star unspecified	Ophiure no spécifié	N/A	90.3
Paguroidea (super family)	Paguroidea (super family)	Paguroidea (Super-famille)	137	9.7
Paraliparis calidus	Seasnail	Limace ardente	1	<0.1
Pennatula borealis	Sea pen	Plume de mer	N/A	50.2
Phakellia ventilabrum	Sponge sp.	Éponge sp.	N/A	0.1
Placopecten magellanicus	Giant sea scallop	Pétoncle géant	16	3.0
Polychaeta (class)	Bristle worm unspecified (class)	Polychète non spécifié (classe)	N/A	0.5
Polymastia mammilaris	Sponge sp.	Éponge sp.	N/A	3.1
Polyplacophora (class)	Chiton unspecified (class)	Chiton non spécifiée (classe)	N/A	< 0.1
Poraniomorpha hispida	Sea star sp.	Étoile de mer sp.	N/A	< 0.1
Porifera (Phylum)	Sponge unspecified	Éponge non spécifiée	N/A	11.6
Psolus fabricii	Scarlett psolus	Psolus écarlate	N/A	7.2
Psolus phantapus	Sea cucumber sp.	Concombre de mer sp.	N/A	0.8
Pteraster militaris	Sea star sp.	Étoile de mer sp.	N/A	0.6
Pycnogonida (class)	Sea spider unspecified	Araignée de mer non spécifiée	N/A	< 0.1
Raja eggs	Skates eggs unspecified	Œufs de raie non spécifié	N/A	0.9
Scyphozoa (class)	Jellyfish unspecified	Méduse non spécifiée	N/A	110.7
Semirossia tenera	Lesser bobtail squid	Sépiole calamarette	8	0.2
Solaster sp.	Sunstar unspecified	Soleil de mer non spécifiée	N/A	50.7
Solaster endeca	Smooth / purple sunstar	Soleil de mer pourpre	N/A	110.8
Solaster papposus	Spiny sun star	Soleil de mer épineux	N/A	183.0
Strongylocentrotus sp.	Sea urchin unspecified	Oursin non spécifié	N/A	844.2
Suberites ficus	Fig sponge	Éponge sp.	N/A	4.0
Tentorium semisuberites	Sponge sp.	Éponge sp.	N/A	0.7

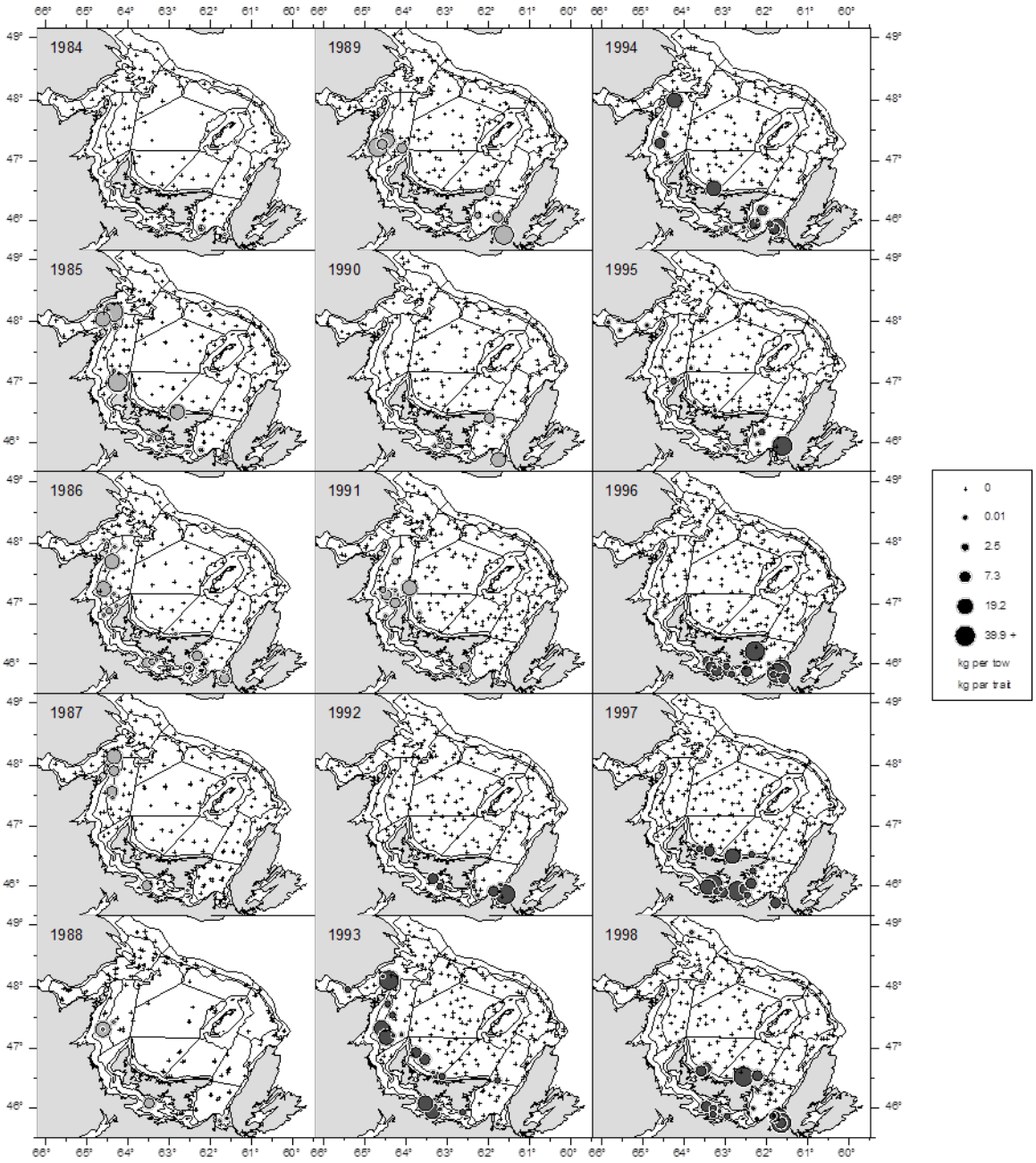
Appendix VI. Continued

Scientific Name	English Name	French Name	Number	Weight
Invertebrates				
Tunicata sp.	Tunicate / Sea squirt unspecified	Tuniqués sessiles non spécifiés	N/A	7.3
Other				
Foreign articles / garbage	Foreign articles / garbage	Déchets / résidus domestiques	N/A	2.4
Phaeophuceae (class)	Brown seaweeds	Algues brunes	N/A	13.1
Rhodophyceae (family)	Red seaweeds	Algues rouges	N/A	3.0
Stones and rocks	Stones and rocks	Pierres et roches	N/A	303.5
Thallophyta (class)	Seaweed, algae, kelp	Géomon, algues, varech	N/A	70.1
Unidentified / Digested remains	Unidentified / Digested remains	Restes non identifié / pourri	N/A	20.0
Unidentified fish and/or invertebrates	Unidentified fish and/or invertebrates	Poisson ou invertébré non identifié	N/A	15.5
Wood	Wood	Bois	N/A	107.1

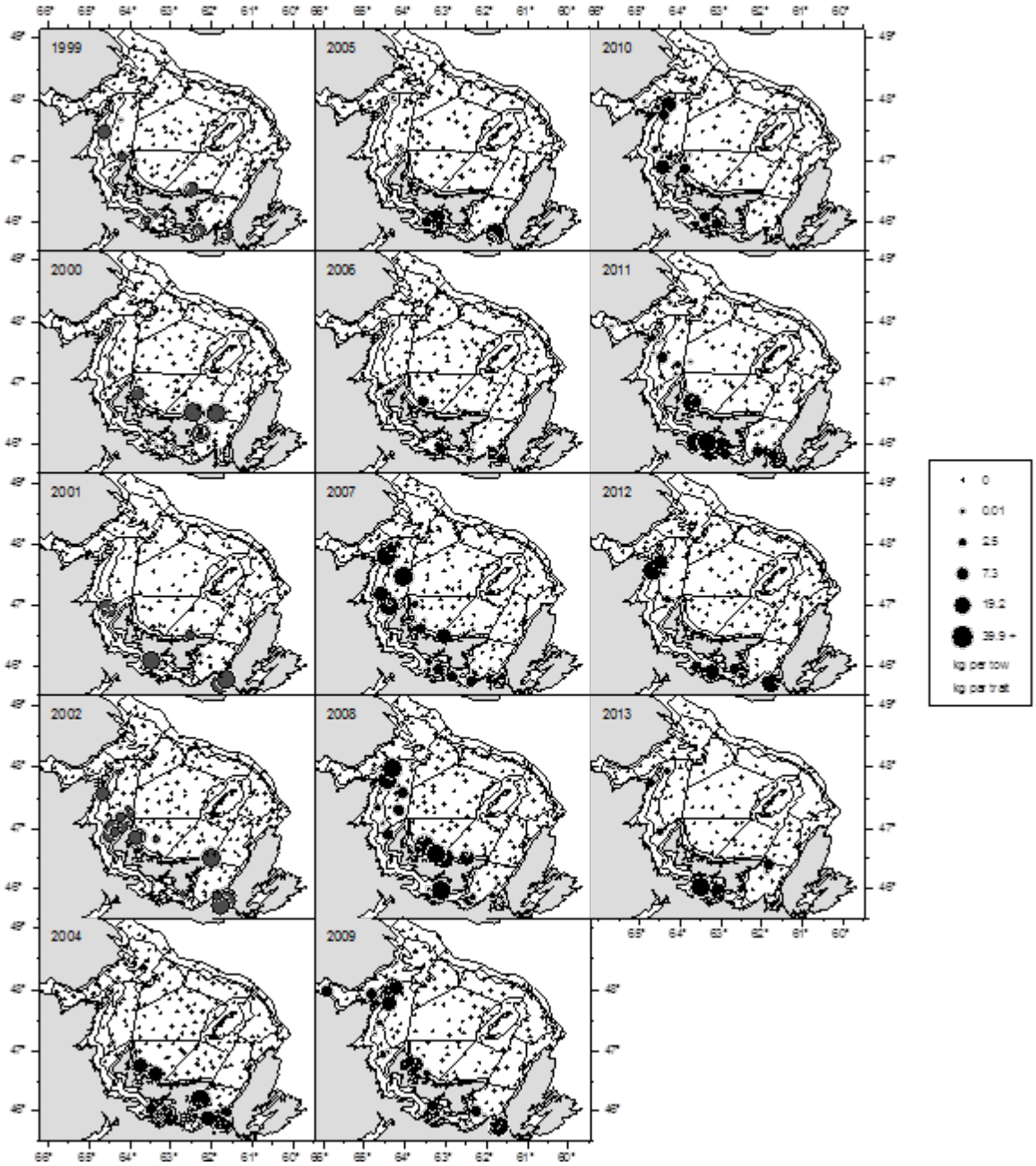
Appendix VII. Length frequency distributions expressed as mean number per tow of gaspereau in the southern Gulf of St. Lawrence September bottom-trawl surveys from 1984 to 2013 (except 2003). Strata 401 to 439 are those used for the gaspereau abundance index.



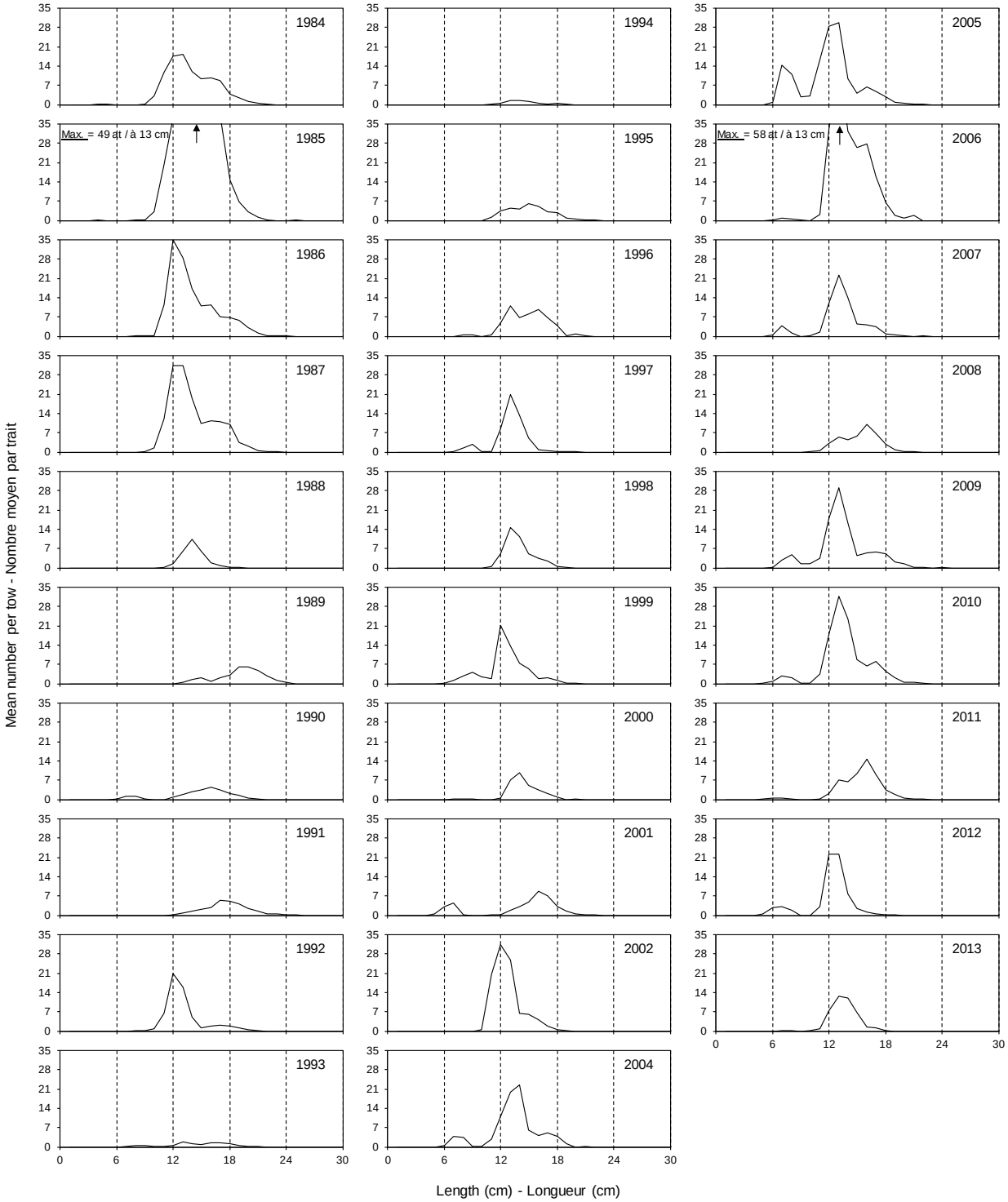
Appendix VIII. Gaspereau abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 1984 to 2013 (except 2003). Catches by research vessel are shown as follows: white circles for the E.E. Prince, light grey circles for the Lady Hammond, dark grey circles for the CCGS Alfred Needler and the black circles for the CCGS Teleost.



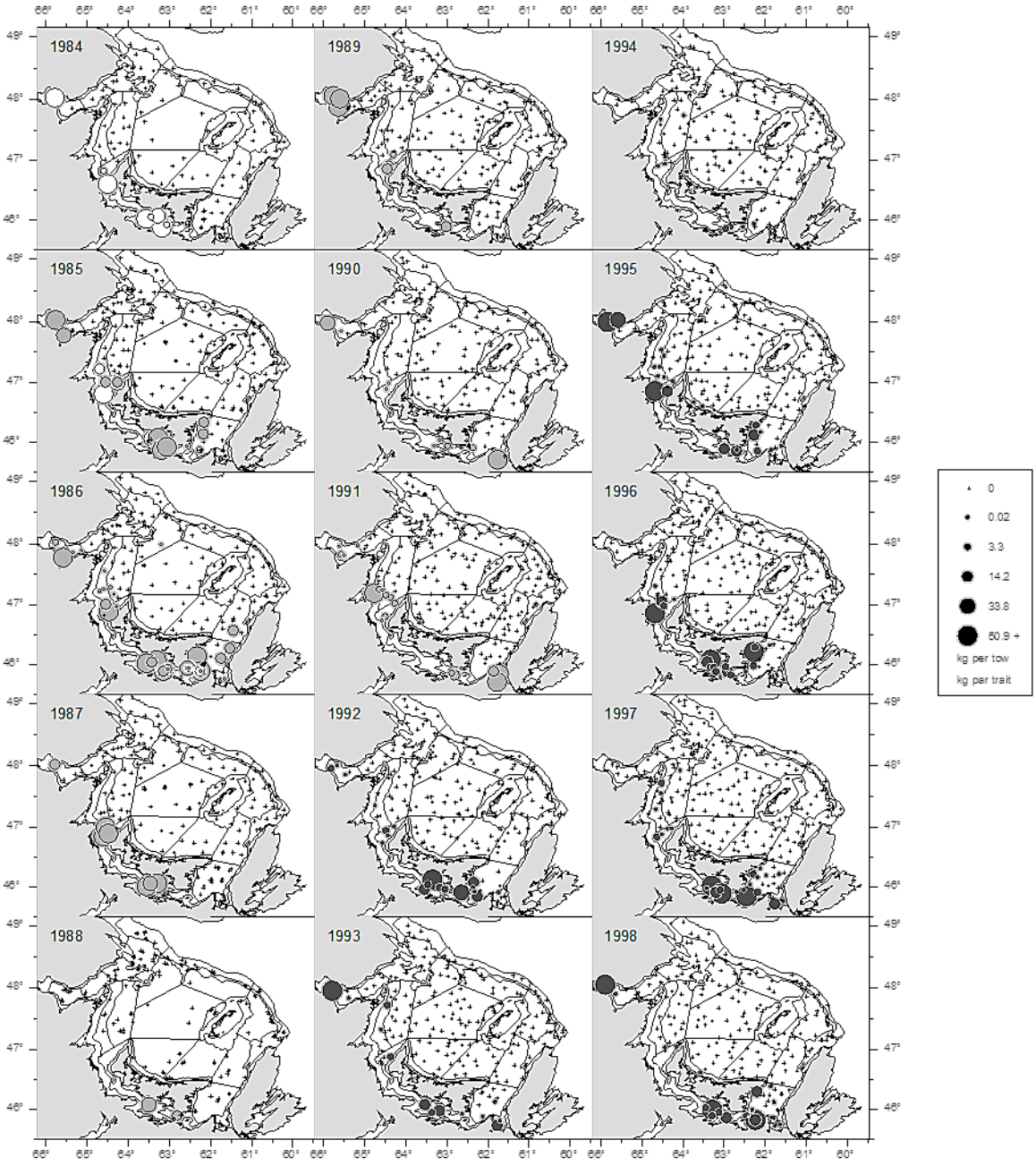
Appendix VIII. Continued



Appendix IX. Length frequency distributions expressed as mean number per tow of rainbow smelt in the southern Gulf of St. Lawrence September bottom-trawl surveys from 1984 to 2013 (except 2003). Strata 401 to 439 are those used for the smelt abundance index.



Appendix X. Rainbow smelt abundance indices (kg per tow) in the southern Gulf of St. Lawrence September bottom-trawl surveys from 1984 to 2013 (except 2003). Catches by research vessel are shown as follows: white circles for the E.E. Prince, light grey circles for the Lady Hammond, dark grey circles for the CCGS Alfred Needler and the black circles for the CCGS Teleost.



Appendix X. Continued