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Greenland halibut (*Reinhardtius hippoglossoides*) in NAFO Subarea 2 and Divisions 3KLMNO: Stock Trends based on annual Canadian Research Vessel survey results during 1978-2012.

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Abstract

Greenland halibut are a deep-water species with wide distribution throughout NAFO Subarea 2 and Divisions 3KLMNO. A detailed overview of survey results for Greenland Halibut from Canadian spring and fall surveys through 2012 is provided. In the spring 2012 survey of Divisions 3LNO, estimates of biomass and abundance are near the time-series average. Results from the fall 2012 survey in Divisions 2HJ3KLNO are spatially variable, with the majority of indices in several Divisions either below average or near the time-series average values. Of particular note, the age 1 and 2 values for Divisions 2J3K are both more than 65% below average.

Introduction

Greenland halibut are widely distributed throughout the waters adjacent to Labrador and eastern Newfoundland. During the late 1970's and most of the 1980's they were found in relatively high abundance along the deep slopes of the continental shelf, particularly in Division 2G. They were likewise plentiful in the deep channels running between the fishing banks especially in Divisions 2H, 2J and 3K. By 1991 distribution in the northern areas was greatly reduced and most of the resource was located in Division 3K. In Divisions 2HJ and 3K where most of the Greenland halibut resource presently resides, the stock biomass was relatively stable until the mid 1980's after which it declined substantially to reach an all time low in the early 1990's largely precipitated by the disappearance of older fish from the population. From about 1995 the stock began to increase and continued to improve to 1999 based upon several strong, successive year-classes particularly those of 1993-95. Recruitment following the strong 1993-95 year-classes appeared weaker at younger ages. In contrast to these results, many of the cohorts of the late 1990s and early 2000s have been measured as being average or even above average at older (commercially selected) ages in Divisions 2J and 3K, leading to increases in survey estimates of stock biomass until 2007. Subsequent trends have been variable, and the 2012 survey biomass index in Divs 2J3K are near the time-series.

Abundance and biomass estimates for Greenland halibut in NAFO Subarea 2 and Divisions 3KLMNO from random-stratified spring and autumn multi-species trawl surveys conducted by Canada are updated with results from spring and fall surveys conducted during 2012. Stratified mean number and weight per tow are updated for each division, as are age-disaggregated survey indices. Distribution maps of spring and fall survey catches are also provided. The history and recent performance of these Canadian research vessel (RV) surveys are reviewed in Healey et al. (2012), Healey and Brodie (2009) and Brodie and Stansbury (2007). These authors provide an overview of the Canadian spring and autumn RV multi-species surveys, with details on coverage and timing of each survey conducted over 1995-2012. Healey et al. (2012) also provide illustrations of the current survey stratification scheme used in Canadian surveys.

Methods

Canadian Research Vessel Surveys

The current survey design is random-stratified, with the survey area divided into strata of similar depth in each NAFO division. The number of survey sets allocated to each stratum is proportional to the surface area of that stratum, with at least two sets in each survey stratum. A Campelen 1800 shrimp-trawl with a 44 mm codend mesh size and 12.7mm liner is deployed, towed for 15 minutes at a speed of 3.0 knots after bottom-contact is established. The gear geometry is monitored constantly throughout each tow using net-mounted sensors. McCallum and Walsh (1996) provide further technical specifications of the Campelen 1800 survey trawl (as well as previous trawls employed in Canadian surveys).

The survey stratification has been refined several times over the history of the survey, most recently in 1996, when in addition to slight refinements of existing strata, several strata landward of the previous design were added to the survey in Divisions 3K and 3L. These new strata are hereafter referred to as the “inshore strata”. (Note that within the stratum areas v1 and v4 in the tables of survey biomass and abundance refer to the stratum areas used at the beginning of the survey (v1) compared with those currently in use (v4)).

Subarea 2 (Divisions 2G, 2H, & 2J) and Division 3K

Dwyer and Healey (2005) document the sampling design and sampling frequency in Subarea 2 and Division 3K over 1978-2004. Division 2G is no longer covered by Canadian surveys. The surveyed area in Div. 2H was amended slightly prior to the beginning of the fall 2012 survey: three strata (numbers 935, 949 and 950) were dropped from the planned survey area, as these a large portion of these strata have bottom topography unsuitable to trawling. In previous surveys, much time was expended searching for ground to deploy the survey trawl in these areas and often planned stations would be abandoned after extensive search. Division 2H area is currently surveyed in October at the start of the survey, but was completed at other times of year in 2001 (December), and in all years prior to 1997.

Divisions 3L, 3M, 3N and 3O

Surveys have been conducted by Canada in Divisions 3LMNO since the 1970s, and are presently surveyed in both spring and in autumn. However, prior to 1996 the maximum depth usually did not exceed 400 meters. Therefore, data collected on Greenland halibut were considered inadequate to describe distribution and abundance for this stock and were not used for assessment purposes. In 1996, the survey design was extended to depths of at least 730 meters, and where possible, to 1500 meters during fall surveys. Additionally, beginning in 1996, the inshore strata (strata 784-800, inclusive) have been included in the survey design. Full coverage of Division 3M was achieved in 1996; but over 1997-2007 only the deep-water strata in the western and northern areas of were included in the survey design. As of 2010, Division 3M was excluded from the survey design, in an attempt to increase the probability of successfully completing surveys elsewhere. Persistent coverage deficiencies in the deep-water (>732 m) strata of Divisions 3NO since 1995 render this time-series largely uninformative for assessing stock status. Healey *et al.* (2012) detail revisions to allocation of survey effort in recent years.

Comparative Fishing Exercises

The Canadian autumn survey series has employed various survey vessels and gear types over time (Dwyer and Healey, 2005; McCallum and Walsh, 1996). Using length-based conversion factors determined from comparative fishing experiments (Warren, 1996 and Warren *et al.*, 1997), all data presented in this paper are expressed in *Campelen 1800* trawl units. Data conversions for the *Engel 145'* trawl used in surveys in Divisions 3LMNO prior to 1995 have not been conducted due to poor coverage of depths where most Greenland halibut are encountered.

Survey Coverage and Timing

Survey coverage details by NAFO division and depth zone for the *Campelen 1800* surveys (spring and fall) over 1996-2011 are detailed elsewhere (Healey *et al.*, 2012; Healey and Brodie, 2009). Some of the coverage deficiencies of the Canadian surveys in recent years are of particular significance in assessing the status of this stock: sporadic coverage of Division 2H during fall surveys, irregular coverage of both Div. 3M and the deep-water strata of Divisions 3NO. Further, various additional strata have been missed in some surveys. The impact of these deficiencies on the assessment, has been considered elsewhere (Healey and Mahé, 2009; Healey and Dwyer, 2004).

During the fall of 2012, gaps in survey coverage of relevance to Greenland Halibut include no coverage in the deep-water strata of Divs. 3LNO, and a portion of Div. 2H was not completed (strata 937, 949, 950). The remainder of the survey area was completed. The inshore strata were also not surveyed. The fall survey of 2012 began on September 30th (Div. 3O) and finished on December 20th (Div. 3K). The spring survey of Divs. 3LNO, was conducted from April 27 through to June 19, and all but two strata were completed (Div 3L – 366 and Div 3N – 724). A summary of the 2012 spring and fall surveys by division, depth class and vessel deployed, with comparisons to recent years is available in Table 1 and Table 2.

Trends in Stock Size

Survey estimates of abundance and biomass and mean numbers and weights per tow are computed using standard stratified estimators. Approximate confidence intervals (95%) are provided for the stratified mean number and weight per tow; computational details can be found in Smith and Somerton (1981). Note that there are several instances when the lower confidence bound of these indices is negative. This is incorrect (obviously, the lower bound should always be greater than or equal to zero) and is a consequence of violating the distributional assumptions used to produce these confidence intervals. This result commonly arises when a limited number of large catches are taken by the survey.

To obtain survey estimates at age for fall surveys, combined age-length keys for Divisions 2GH, 2J3KL, and 3MNO combined were applied to individual divisions within each grouping (sample sizes presented in Table 3). For the age-disaggregated results in Divisions 2J3K combined, otoliths from Divisions 2J and 3K only were applied. To produce divisional survey results at-age from spring surveys, an age-length key from all samples in Divisions 3LNO were used (refer to Table 4 for sample sizes).

Estimates of mean biomass at length per tow are computed by converting mean numbers at length per tow and transforming to biomass using annual length-weight equations (sexes combined) from 1990-2012. These relationships were calculated using the model $W=aL^b$; annual parameter estimates are shown in Table 5. For the years 1978-89, the 1990 estimates were applied. The r^2 value was high for each relationship (Table 5), but in most years tends to underestimate weight for the longer fish in the population, indicating that the biomass is underestimated slightly for longest fish sampled from the population. It is emphasized that this underestimation is problematic only for the biomass-at-length results.

Results and Discussion

Geographic Distribution

Figure 1 shows the area covered by Canadian surveys and includes place names referred to in the text. Figure 2 contains distribution plots for the most recent two fall surveys. Stock distribution in 2012 was similar to that observed in 2011, with the largest catches in the deepwater channels in the northern half of the stock area. In each year, large catches were obtained within the Hopedale Channel in Division 2H. The Cartwright and Hawke Channels in Division 2J are also areas with relatively large catches in both years. Catches in the Funk Island Deep in Div. 3K were also similar in both years, but were slightly more compact in 2012. Survey biomass within both the Flemish Pass and Divisions 3LNO in general remains relatively low, though again we note that deep water strata in Divs. 3LNO were not completed in either 2011 or 2012.

Distribution maps for the 2011 and 2012 spring surveys of Divisions 3LNO (Figure 3) indicate that most catches are along the slope edge of the Grand Bank in depths exceeding 200m. Survey observations remain relatively low – with the largest catches along the continental slope edge in Div. 3L.

Trends in Stock Size

Biomass and abundance indices by stratum for each NAFO division in Canadian fall surveys are presented in Tables 6-17, and results for spring surveys are in Tables 18-23. The tables are organized by depth, with sub-totals provided for each depth class. Survey coverage may also be inferred from these tables by examining the number of strata which do not contain any estimates. Table entries with “.” indicate that the stratum was not completed, that is, was not covered by at least two successful fishing sets. However, values of 0 in the tables indicate the stratum was surveyed, with no Greenland Halibut captured.

Mean weights and numbers per tow (MWPT and MNPT, respectively) by division are presented in Tables 25-29 and Tables 31-35, respectively, and the mean weights per tow by Division with approximate 95% confidence intervals are illustrated in Figures 4 and 5. The mean weights per tow show similar trends to the annual swept area biomass series for all Divisions, differing only when survey coverage is incomplete.

Within Divisions 2GH, the temporal coverage of the survey has been irregular. Division 2G has not been surveyed since 1999; the historical biomass and abundance results can be found in Healey (2009). Division 2H has been surveyed infrequently since 1978, though it is included in current survey plans and has been the covered in the past three years. In Division 2H, the biomass index (Table 6; Figure 4) declined from 1978 through the late-1980's (excluding 1979 which was considered to be an anomaly). As a result, and also due to relatively large variability, trends are difficult to interpret. Many of the biomass and abundance estimates for Division 2H reported herein are underestimates, as survey coverage is often incomplete due to areas with untrawlable bottom. The time-series of abundance estimates for Division 2H (Table 7) are not consistent with the trends in biomass, particularly for the earliest data. Estimates of both abundance and biomass have been stable at levels below the time-series average over 2008 – 2012.

The annual survey series is continuous over 1978-2012 for both Divisions 2J and 3K. In Division 2J the biomass index was generally stable from 1978-84 (Table 8; Figure 4). It then declined to reach a minimum in 1992, increased marginally until 1995 after which time it began to increase more rapidly due to improved recruitment. Over 1998-2012, the biomass index has generally been stable and is currently near the time-series average. In recent surveys, a greater percentage of the Division 2J biomass index was measured in shallower waters. On average (1995-2012), 50% of the annual biomass index is sampled in depths less than 400m. Over 2010 - 2012, these values have been 59%, 79%, respectively, and these are partly related to increased catches of smaller fish but also a reduction in the survey catches in deeper waters along the continental slope. Since the introduction of the Campelen survey trawl, the average abundance index for Division 2J (Table 9) has been double that of the Campelen-converted period (1978-1994). Though recent abundance index values have been quite variable, the index has declined by over 50% since 2010.

In Division 3K, the biomass index was variable over 1978-89 at a relatively high level (Table 10; Figure 4). By 1992, it had declined by over 50%, and remained low until 1995. After this time, the biomass index increased until 1999, to the second highest value in the time series. The index decreased rapidly over 1999 to 2002, but has subsequently increased and was generally constant over 2005-2010, with the exception of the 2007 survey, which appears to have been anomalously high. The 2011 and 2012 values are slightly improved, and are near the time-series average. The Division 3K abundance index (Table 11) indicated an increasing trend over most of the 1980's through to the mid-1990's. After 1996, the abundance index decreased, and the 2005 and 2006 values are approximately half of the survey estimated abundance over 1998-2001. Over 2007- 2011, the index showed some increase to above average levels, and much of this increase was due to increased abundance at shallower depths (<300m). The 2012 abundance index is half of the 2011 value, with decreased abundance across 0-750m.

The MWPT index in Divisions 2J3K combined in 2012 slightly lower than the 2011 value (Table 30; Figure 6). The MNPT results from Divisions 2J and 3K (Table 36; Figure 7) have generally been fairly consistent with regards to trend over time. Over the mid-1990s to the mid-2000s, however, the Division 2J MNPT index remained relatively constant while the Division 3K index declined steadily. Following a period of increase in the combined abundance index over 2009-2011, the 2012 value is 50% lower than the 2011 index, as decreases were observed in each Division.

The fall survey biomass indices for each of Divisions 3L, 3N and 3O are given in Table 12, Table 14, and Table 16, respectively; see also Figure 5. The biomass index in Division 3L has declined from the relatively large values from the late 1990's and recent values indicate a slow decline. Recent estimates of abundance in Division 3L (Table 13) have in general been stable, although the 2012 abundance index is much lower, and is the lowest in the time-series. Recent survey estimates of both biomass (Tables 14 & 16, respectively; Figure 5) and abundance (Tables 15 & 17, respectively) from Divisions 3N and 3O are relatively low. These observations must be qualified by noting that survey coverage has varied from year to year in the deep-water strata (>732m) in Divisions 3NO, where higher concentrations of Greenland Halibut are typically found (Healey et al., 2012). The overall combined biomass estimate for Divisions 3LNO is low in proportion to the Subarea 2 + Divisions 3KLMNO total (refer to Table 24a). As Division 3M is no longer covered by the survey; results are not included herein. Historical biomass and abundance results are available elsewhere (e.g. Healey, 2012).

Stock size estimates for the Divisions 3L, 3N and 3O spring survey series are shown in Tables 18-21 and also Figure 5, respectively. Almost all of the estimated biomass values remain low relative to late-1990 levels. After some indications of modest improvement from the mid-2000s up to 2007, the index values have generally declined. One exception is a slight increase in the biomass index in Division 3L, which has shown some increase and in 2012 is near the time-series average. Recent trends in the abundance index in Division 3L shows a similar increase from relatively low levels. Abundance estimates from Divisions 3N and 3O spring surveys have been generally declining since the late-1990's, and remain relatively low.

Estimates of MWPT from Divisions 3LNO combined over 1996-2012 (Figure 6) has been variable, but since 2009 the index has declined from a time-series low to the time-series average. The MNPT index for Divisions 3LNO exhibits a similar pattern.

Trends in Mean Biomass and Abundance Per Tow by Size Category

Most of the stock biomass resides in Divisions 2J and 3K combined (Table 24a) and these divisions comprise the longest time series of annual survey data throughout the stock area. Figure 10 shows trends in mean biomass per tow and also mean numbers per tow for Greenland halibut <30 cm, between 31-69 cm and >=70 cm over 1978-2012. The value of 30 cm was chosen as it is approximately equal to the mean length at age 4 for Greenland halibut surveyed in Divisions 2J and 3K; it represents the pre-recruitment trend. The value of 70 cm was chosen because it is considered to be an approximation of the length at 50% maturity in female Greenland halibut.

The recruitment signal (< 30cm class) from Divs 2J3K combined was pessimistic over 2004-2009 with MWPT and MNPT indices both relatively low. MNPT and MWPT had improved in both 2010 and 2011, approaching the high levels of the late 1990s. Note that the 1978-1994 values for the <30cm series are likely ‘under-converted’ during the multiplicative length based conversions of the Engels survey data to Campelen trawl equivalents, most particularly at the smallest size classes. The value for 2012 declined considerably, to less than one-third of the 2011 value and is amongst the lowest in the time-series. There are two components to this decline. During the 2011 survey, two modes were observed in the length distribution for the <30cm – one at 20cm and a second, larger mode at 28cm. The grouping of fish in the 20cm mode in 2011 did not appear in any significant abundance (at, for example 24-26cm) do not appear. The second mode, at 28cm in 2011, would now be included in the 30-70cm grouping in Figure 10. The MWPT and MNPT values for the 30-70cm group were much higher in the earlier part of the time series compared to more recent values. Since 2010, this MWPT for this size grouping has nearly doubled, and in 2012 is above average. Both MWPT and MNPT for >70cm remain quite low. During the late 1970s and early 1980s Greenland halibut greater than 70 cm contributed about 20% to the estimated trawlable stock biomass. However, after 1982 this size category declined to the point that by 1991 virtually no Greenland halibut in this size range contributed to the estimates of stock biomass. Since 1991, this value continues to be at or near zero. It is noteworthy that although the magnitude of both indices for the greater than 70 cm class remain quite low, the abundance and biomass indices have increased over the past five years with current MWPT at the highest it has been since 1990.

Age Composition

It should be noted that ageing of this species is problematic and has been considered in several workshops (e.g. Treble and Dwyer, 2006). Recent work (Treble et al, 2008; Dwyer et al., 2013) suggest that current aging techniques – reading of whole otoliths - may underestimate ages for individuals of length greater than 60cm. This corresponds to a whole otolith age of about 10 years old. Therefore the age-disaggregated results for fish older than 9 years old are likely to be biased, and multiple cohorts may be within the assigned ages. Considerable efforts continue to be directed towards

improving methodologies and results; and to incorporate these methods into current aging protocols (see ICES, 2011; Dwyer et al., 2013; Albert et al., 2009).

Annual stratified mean number per tow at age compositions from the Divisions 2J and 3K combined time series from 1978-2012 are presented in Table 37 and Figure 11. Survey catches are typically dominated by fish aged 1 to 6 years old. In 2012, the age 1 and age 2 index values are the lowest in the Campelen time-series, and index values for ages 1 through 4 are all below than the Campelen time-series average. Data for age 5 are about average, and for ages 6-11, results are well above average. The mean number per tow estimate from the fall surveys of Divisions 2J3KL (Table 38) are generally consistent with the Division 2J3K index. Although Greenland halibut were caught as old as 19 years, very few were ever caught older than 12 years with the age structure fairly consistent from about 1978-88 (Table 37). Since then the older ages began to disappear from the survey catches entirely and by 1995 none were caught older than 11 years. After 1995 some older (11+) fish again began to appear, though infrequently. Although catches remain low and below the long term average, values over 2009-2011 have increased considerably. Standardized proportions at age (Figure 11) for the age dis-aggregated abundance index can be used to aid in interpreting whether an index can consistently “track” year-classes, independent of the year-class strength. Annual proportions at age were computed and then standardized within each age to have a mean of 0 and unit variance. In the Div 2J3K index, there are examples with good apparent consistency (e.g. year-classes of 1992, 2000) and other which are less consistent (1994 and 1998 year-classes). Annual proportions for 2012 appear anomalous due to the relatively low numbers of fish ages 1 and 2 observed in the survey.

Age compositions (mean numbers per tow) of Greenland halibut by division from Campelen surveys during 2012 are shown in Table 39. In most years, the mean numbers from Divisions 2J and 3K (and Division 2H when surveyed) tend to be much greater than that from other Divisions.

Age compositions for the Div 3LNO combined spring series (Table 42; Figure 12) demonstrate that in most years, younger age groups (ages 1-6) are typically most abundant in this survey. Larger, older fish are generally found in depths greater than those covered by the spring survey (732m). Survey estimates in 2012 remain relatively low, though the age 3 index is an exception and is 50% higher than average. Healey (2012) noted that survey results for several cohorts *increased* from 2010 to 2011, indicating a possible year-effect. Standardized proportions at age (Figure 12) indicate consistency for many cohorts, particularly those of 2002 and earlier. Subsequent patterns are less clear.

Mean Length and Weight at Age

Survey estimates of mean length and weight at age within Divisions 2J3K over time are given in Table 43 and 44 and Figure 13. Weight at age was calculated by applying the length/weight relationship for each year to the average length. Length at age seems stable over time; however, weight at age in recent years is lower than observations from the late-1970s and early-1980s to be gradually declining at the oldest ages.

Conclusions

Survey estimates of stock biomass in Divisions 2J and 3K, the area which provides the largest contribution to Canadian surveys, has generally increased in recent years, and is presently near the 1978-2012 average. The numbers of fish ages 1 and 2 measured in this survey in 2012 are very low, approximately 65% below average. In Divisions 3LNO, estimates of biomass and abundance from the 2012 spring survey remain low and slightly below average. Stock size estimates from 2012 among Divisions and surveys are somewhat variable, but they generally remained relatively low. Data on year-classes about to enter the exploitable biomass have been somewhat inconsistent but indicate recruitment may be near average levels.

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Table 1. Summary of successful sets in fall surveys in Sub-Areas 2+3 in 2012. Depth range is given in meters, number of sets appear in parentheses.

Division	Ship		Total
	<i>Teleost</i>	<i>A.Needler</i>	
2G		Not surveyed	
2H	99-1435 (84)		84
2J	114-1425 (115)		115
3K	133 - 1435 (133)	141 - 353 (8)	141
3L		65 - 725 (142)	142
3N		39 - 641 (70)	70
3O		62 - 631 (75)	75
			627

Table 2. Summary of successful sets in spring surveys in Divs. 3LNO in 2012. Depth range is given in meters, number of sets appear in parentheses.

Division	Ship	Total	
	<i>A.Needler</i>		
3L	60 - 723 (132)	132	
3N	38 - 666 (78)	78	
3O	63 - 656 (79)	79	
			289

Table 3. Number of age samples available per division, used to develop fall age-length keys. Age-length keys for Div. 2GH combined, Div 2J3KL combined and Div 3MNO combined were applied to the respective individual divisions.

Year	Div. 2GH			Div. 2J3KL			Div. 3MNO			Total	
	2G	2H	Total	2J	3K	3L	Total	3M	3N	3O	
1978	1220	1134	2354	766	1616	*	2382	*	*	*	-
1979	756	841	1597	1192	1367	*	2559	*	*	*	-
1980	*	*	-	1561	1065	*	2626	*	*	*	-
1981	756	758	1514	1619	1356	*	2975	*	*	*	-
1982	*	*	-	1699	1349	*	3048	*	*	*	-
1983	*	*	-	1325	1240	*	2565	*	*	*	-
1984	*	*	-	1159	1341	*	2500	*	*	*	-
1985	*	*	-	1298	1457	*	2755	*	*	*	-
1986	*	*	-	1218	1114	*	2332	*	*	*	-
1987	783	1227	2010	1211	1192	*	2403	*	*	*	-
1988	680	1268	1948	1058	1053	*	2111	*	*	*	-
1989	*	*	-	667	533	*	1200	*	*	*	-
1990	*	*	-	575	513	*	1088	*	*	*	-
1991	65	377	442	514	564	*	1078	*	*	*	-
1992	*	*	-	505	498	*	1003	*	*	*	-
1993	*	*	-	476	505	*	981	*	*	*	-
1994	*	*	-	643	449	*	1092	*	*	*	-
1995	*	*	-	562	578	*	1140	*	*	*	-
1996	370	628	998	737	813	661	2211	354	315	134	803
1997	664	721	1385	850	950	897	2697	211	233	160	604
1998	311	635	946	970	870	743	2583	229	465	411	1105
1999	488	671	1159	797	802	516	2115	99	153	91	343
2000	*	*	-	608	716	673	1997	204	413	210	827
2001	*	579	579	759	991	797	2547	292	395	287	974
2002	*	*	-	1101	972	693	2766	107	339	268	714
2003	*	*	-	757	622	538	1917	154	150	223	527
2004	*	848	848	777	614	311	1702	*	168	73	241
2005	*	*	-	785	846	477	2108	*	260	226	486
2006	*	794	794	828	947	487	2262	136	126	50	312
2007	*	*	-	825	785	517	2127	106	322	217	645
2008	*	777	777	541	555	352	1448	*	118	86	204
2009	*	*	-	701	819	475	1995	*	260	269	529
2010	*	765	765	811	903	722	2436	*	144	73	217
2011	*	792	792	959	700	313	1972	*	95	33	128
2012	*	706	706	768	729	315	1812	*	109	27	136

Table 4. Number of age samples available per division, used to develop spring age-length keys. Age-length keys for Div. 3LNO combined were applied to the respective individual divisions.

Year	Div. 3LNO			Total
	3L	3N	3O	
1996	724	377	475	1576
1997	637	369	375	1381
1998	668	306	334	1308
1999	413	334	172	919
2000	358	230	75	663
2001	730	328	126	1184
2002	320	140	49	509
2003	321	180	65	566
2004	322	141	70	533
2005	316	83	118	517
2006	269	*	*	269
2007	375	170	61	606
2008	303	138	86	527
2009	219	110	40	369
2010	315	138	65	518
2011	222	135	77	434
2012	224	120	25	369

Table 5. Length-weight relationships for Greenland Halibut, for Div. 2J3K, 1990-2012. Model fitted is $W=a*L^b$, where W=round weight in kgs and L=total length in cm. From 1978-1989, the annual 1990 length-weight relationships were applied.

Year	Sex	Length-Weight Equations	N	r^2
1990	All	$W = 5.765 * 10^{-6} L^{3.118}$	1067	0.978
1991	All	$W = 1.088 * 10^{-5} L^{2.934}$	1073	0.985
1992	All	$W = 9.204 * 10^{-6} L^{2.975}$	933	0.979
1993	All	$W = 6.359 * 10^{-6} L^{3.077}$	975	0.987
1994	All	$W = 1.238 * 10^{-5} L^{2.894}$	1088	0.981
1995	All	$W = 8.677 * 10^{-6} L^{2.979}$	1068	0.983
1996	All	$W = 3.968 * 10^{-6} L^{3.193}$	1421	0.989
1997	All	$W = 5.390 * 10^{-6} L^{3.111}$	1755	0.989
1998	All	$W = 5.518 * 10^{-6} L^{3.105}$	1796	0.988
1999	All	$W = 5.004 * 10^{-6} L^{3.130}$	1535	0.990
2000	All	$W = 4.260 * 10^{-6} L^{3.178}$	1283	0.988
2001	All	$W = 5.062 * 10^{-6} L^{3.127}$	1714	0.983
2002	All	$W = 5.545 * 10^{-6} L^{3.104}$	1916	0.990
2003	All	$W = 5.485 * 10^{-6} L^{3.105}$	1351	0.989
2004	All	$W = 5.526 * 10^{-6} L^{3.111}$	1374	0.991
2005	All	$W = 4.609 * 10^{-6} L^{3.163}$	1601	0.989
2006	All	$W = 4.788 * 10^{-6} L^{3.157}$	1744	0.990
2007	All	$W = 4.465 * 10^{-6} L^{3.173}$	1574	0.990
2008 *	All	$W = 4.897 * 10^{-6} L^{3.145}$	1084	0.991
2009	All	$W = 5.157 * 10^{-6} L^{3.127}$	1486	0.992
2010	All	$W = 4.730 * 10^{-6} L^{3.155}$	1695	0.991
2011	All	$W = 5.049 * 10^{-6} L^{3.136}$	1634	0.990
2012	All	$W = 4.309 * 10^{-6} L^{3.183}$	1476	0.991

* Survey Incomplete.

Table 6. Biomass estimates (tons) of Greenland Halibut by depth stratum from various Canadian surveys in Division 2H during the period 1978-2012 (No surveys of Div. 2H during years that are excluded from table). Estimates are expressed in Campelen units or Campelen equivalents.

Depth Range (m)	V1 Area	V4 Area	Stratum	1978	1979	1981	1987	1988	1991	1996	1997	1998	1999	2001	2004	2006	2008	2010	2011	2012	
<=200	1028	1028	930	315	263	707	50	96	343	152	.	97	168	1	798	24	257	488	637	136	
	971	971	954	583	804	265	103	348	6	91	.	34	127	42	361	92	6	140	274	161	
	1051	1051	956	1020	332	562	135	457	57	12	.	102	48	17	600	20	51	53	697	401	
	1371	1371	957	3183	693	1274	374	578	86	15	.	29	43	22	151	158	89	366	680	134	
	Sub-Total				5100	2092	2808	662	1480	492	270	0	261	387	83	1910	294	403	1047	2289	832
	201 - 300	276	276	931	560	68	1113	94	107	200	180	71	171	150	.	211	207	162	80	212	580
		354	354	943	822	18	1371	242	626	19	338	212	442	234	.	452	504	1161	352	1173	186
		261	261	950	283	1402	.	211	465	4065	.	781
		291	291	953	11257	940	2984	1115	530	1347	179	659	594	258	224	473	1021	3637	619	1587	280
		389	389	955	630	1062	311	243	387	47	1475	363	363	271	127	462	768	.	140	1096	885
		294	294	958	.	487	158	63	253	103	178	391	270	277	202	612	289	178	261	342	552
	Sub-Total				13268	2575	5938	1757	1903	1716	2633	3098	1840	1401	1019	6274	3569	5138	1451	4410	2483
301 - 400	55	55	932	.	.	28	39	35	131	166	97	105	.	100	251	130	53	122	874		
	860	860	944	4747	5420	8446	761	995	242	500	5918	2276	3205	.	1825	1368	974	1116	1268	834	
	206	206	949	.	.	.	.	.	3985	839	.	783	2653	.	.	.	.	.	.	.
	177	177	952	.	4345	1697	875	3187	171	337	1227	2596	3017	2045	1568	1655	.	832	1329	2818	
	178	178	959	.	1817	948	298	747	84	151	684	664	175	543	345	323	571	347	373	1038	
	Sub-Total				4747	11583	11091	1962	4967	532	5104	8834	5633	6501	3371	6491	3597	1676	2348	3092	5563
401 - 500	50	50	933	.	.	25	17	105	310	104	84	.	55	129	229	166	86	197	.		
	55	55	942	.	1562	1002	61	47	36	61	135	104	85	187	120	196	87	123	120	158	
	461	461	945	.	14164	6684	2583	5095	1265	1302	2019	1310	2892	7920	4498	2281	2646	3001	2211	1142	
	246	246	948	.	.	.	.	3234	3605	10034	.	4112	.	10078	6229	.	.	.	8256	
	234	234	951	2027	8478	2253	1999	1692	865	1629	2571	1396	2449	1462	1951	4874	1280	1003	941	1099	
	107	107	960	.	4767	569	506	119	23	97	332	375	184	232	221	185	334	415	150	488	
	Sub-Total				2027	28972	10508	5150	6978	2207	6427	8970	13323	5695	13913	6846	17743	10805	4707	3506	11339
501 - 750	78	78	934	.	5019	.	504	102	.	303	191	166	272	.	149	309	213	437	177	229	
	89	89	941	.	.	379	713	.	81	507	178	356	666	443	314	.	176	253	.	682	
	721	721	946	31158	57014	13063	18281	11105	.	4680	7045	7813	6231	9549	16806	24496	.	11109	7453	6014	
	227	227	947	.	16477	2539	6266	6206	.	2002	2770	3999	2255	4532	3372	8619	4537	3166	2525	4286	
	211	211	961	.	6300	1888	666	880	.	285	223	270	275	1321	474	872	625	293	1070	262	
	Sub-Total				31158	84809	17490	26095	19005	0	7350	10736	12426	9388	16066	21246	34610	5375	15181	11478	11474
751 - 1000	96	96	935	.	.	457	481	.	478	519	713	.	597	193	365	1382	809	574	.		
	97	97	940	.	.	400	360	.	268	658	492	644	.	586	925	509	1347	420	448		
	242	242	962	.	1243	1812	.	884	922	1119	1852	.	993	1392	2092	1386	785	902	.		
	Sub-Total				0	0	0	2100	2652	0	1151	2057	2131	3209	0	2175	2511	2966	4115	2014	1924
1001 - 1250	78	78	936	.	.	85	1810	.	486	883	.	1383	320	390	542	1174	.	93	.		
	130	130	939	.	.	284	651	.	832	603	.	692	.	497	.	407	693	1294	243		
	265	265	963	.	.	1443	2248	.	1023	1909	541	1258	.	1122	739	3560	566	515	346		
	Sub-Total				0	0	0	1812	4709	0	1855	2998	1424	1950	1383	1939	1130	4509	2434	1810	681
1251 - 1500	94	94	937	.	.	.	.	.	.	389	195	.	677	292	270	409	.	.	.	
	191	191	938	.	.	.	.	.	447	731	624	837	1170	582	658	407	184	336	244	
	342	342	964	.	.	.	.	.	826	815	1131	1362	.	466	1467	623	601	1208	249	
	Sub-Total				0	0	0	0	0	0	1273	1936	1950	2199	1847	1340	2394	1439	795	1544	492
Total Biomass (t)				56300	130030	47835	39539	41694	4946	26062	38628	38988	30730	37682	48222	65849	32311	32068	30143	34789	

Table 7. Abundance estimates (000s) of Greenland Halibut by depth stratum from various Canadian surveys in Division 2H during the period 1978-2012 (No surveys of Div. 2H during years that are excluded from table). Estimates are expressed in Campelen units or Campelen equivalents.

Depth Range (m)	V1 Area	V4 Area	Stratum	1978	1979	1981	1987	1988	1991	1996	1997	1998	1999	2001	2004	2006	2008	2010	2011	2012	
<=200	1028	1028	930	7813	4949	2811	3708	1966	3300	5374	.	368	672	47	13683	519	5468	14773	4914	2517	
	971	971	954	11300	19528	846	12361	39684	2137	1985	.	267	4308	445	4702	1403	267	3339	6078	6950	
	1051	1051	956	18988	16795	4735	10771	18014	1157	723	.	1475	1121	713	9030	2566	1398	4626	19489	13349	
	1371	1371	957	35154	17225	9304	6361	25231	3018	566	.	219	1590	571	2402	1468	722	4419	10131	3691	
	Sub-Total			73255	58497	17696	33201	84895	9611	8647	0	2329	7690	1776	29816	5956	7855	27157	40612	26507	
	201 - 300	276	276	931	3113	456	937	3389	2493	1822	6341	683	1029	1177	.	2525	1652	1215	787	1538	3151
		354	354	943	2654	1339	3725	8534	9959	536	5235	2237	1777	2292	.	12724	5332	14341	6460	6647	950
		261	261	950	2082	9856	.	1167	2844	36645	6791
		291	291	953	100676	4310	13410	74723	17613	6345	1301	12727	2962	1521	3009	4824	11789	21096	9087	16132	4552
		389	389	955	1231	25043	178	7478	7759	1391	49950	5048	1357	1686	1403	7950	9124	.	1124	7304	2687
		294	294	958	.	8999	61	5514	7806	5986	2002	8345	3155	4894	6006	8811	1840	942	3802	3768	5500
	Sub-Total			107674	40146	18311	99638	45629	16080	66911	38896	10280	12737	13262	73479	36528	37594	21259	35389	16840	
301 - 400	55	55	932	.	.	.	49	102	238	2474	1313	804	688	.	348	2171	375	170	182	1158	
	860	860	944	13151	25369	5744	13628	9050	2514	6656	53118	10151	24991	.	16372	6332	6507	2800	2465	2153	
	206	206	949	.	.	.	.	.	29457	7391	.	.	4846	23175	.	.	.	.	.	.
	177	177	952	.	17519	3555	8352	46002	2642	6014	6708	14938	17708	14098	12515	11164	.	5198	12905	19211	
	178	178	959	.	1730	392	547	1739	502	1146	3783	2204	673	5539	1301	1383	1576	1151	710	2057	
	Sub-Total			13151	44618	9691	22576	56893	5896	45747	72313	28097	44061	24483	53712	21050	8457	9319	16261	24578	
	401 - 500	50	50	933	.	.	.	45	65	898	2253	474	259	.	138	451	614	296	147	230	
		55	55	942	.	810	367	103	64	95	250	885	431	269	602	356	661	197	200	159	196
		461	461	945	.	36739	19617	22348	55983	6817	10051	19595	5454	17312	56925	21434	9449	17408	7768	6648	3055
		246	246	948	.	.	.	.	25826	23100	56810	.	27958	.	57122	39233	.	.	.	30881
		234	234	951	6712	27506	3702	5569	11991	3718	11105	20202	7033	12008	6364	7806	38627	6180	3171	3451	4346
		107	107	960	.	2569	199	594	152	110	206	1253	1188	515	1348	597	692	729	734	287	736
	Sub-Total			6712	67623	23884	28614	68235	10805	48335	67288	71391	30363	93196	30331	107001	64360	12168	10693	39444	
501 - 750	78	78	934	.	1540	.	628	111	.	783	789	569	714	.	274	724	290	767	271	333	
	89	89	941	.	.	441	643	.	269	1181	465	1096	2007	1075	924	.	244	283	594	.	
	721	721	946	32110	117728	17768	118795	83445	.	30614	35062	32182	26459	39331	64865	79907	.	34097	28687	19340	
	227	227	947	.	33053	5574	14957	27870	.	10492	13622	15379	8447	19229	20313	24560	18954	8728	7541	12569	
	211	211	961	.	3261	677	697	1180	.	653	839	755	726	6815	1095	2162	958	508	964	348	
	Sub-Total			32110	155581	24019	135517	113249	0	42812	51493	49350	37441	67382	87621	108278	20202	44344	37745	33184	
	751 - 1000	96	96	935	.	.	.	390	178	.	767	1281	1181	.	983	264	489	1023	799	537	
		97	97	940	.	.	.	434	314	.	427	1334	1061	941	.	827	2015	677	1472	338	387
		242	242	962	.	.	.	877	1565	.	1548	2367	1598	2264	.	1282	1981	2780	1187	759	466
	Sub-Total			0	0	0	1700	2056	0	1975	4468	3940	4386	0	3092	4260	3945	3682	1895	1390	
1001 - 1250	78	78	936	.	.	.	97	724	.	542	939	.	1813	256	324	435	1126	.	55		
	130	130	939	.	.	.	215	206	.	742	519	.	787	514	.	352	551	903	224		
	265	265	963	.	.	.	638	1276	.	1167	2098	635	1258	.	1042	703	3755	571	510	128	
1251 - 1500	Sub-Total			0	0	0	949	2206	0	1909	3159	1573	2045	1813	1812	1027	4541	2248	1413	406	
	94	94	937	.	.	.	.	.	.	401	149	.	606	267	190	372	.	.	.	
	191	191	938	.	.	.	.	.	263	488	355	749	1337	452	598	388	123	182	154	
	342	342	964	.	.	.	.	.	428	565	1186	941	.	343	1223	428	470	706	61	
Sub-Total			0	0	0	0	0	0	691	1453	1689	1690	1943	1062	2011	1188	593	888	215		
Abundance (000s)			232902	366466	93601	322194	373163	42392	217026	239069	168649	140410	203855	280924	286110	148141	120771	144897	142564		

Table 8. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 2J over 1993-2012. Estimates are expressed in Campelen units or Campelen equivalents. Refer to Healey (2009) for 1978-1992 estimates.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
101 - 200	1427	633	201	6	27	.	82	26	91	0	65	27	133	11	135	50	27	491	33	79	87	507	154	
	1823	1594	205	6	14	.	514	35	502	532	281	863	754	706	1055	990	245	1769	530	469	630	1051	343	
	2582	1870	206	28	132	399	1120	404	349	403	357	1367	1586	890	813	1079	404	617	835	384	2870	2184	587	
	2246	2264	207	0	33	1	56	51	74	192	16	208	35	192	118	30	15	160	51	5	717	754	3570	
	.	733	237	0	0	0	1	4	19	320	0	5	42	3	0	37	0	280	17	0	111	.	5	
	.	778	238	.	7	.	15	0	79	0	53	27	6	54	81	18	8	696	43	8	62	713	1	
	Sub-Total				40	213	400	1789	519	1115	1447	771	2498	2556	1856	2202	2205	697	4012	1508	946	4478	5210	4659
201 - 300	440	621	202	8	307	95	89	157	593	1685	574	2215	491	871	2260	898	797	901	876	164	947	2996	2909	
	1608	680	209	384	123	360	1059	424	282	2204	694	291	1061	1475	811	379	2560	1775	250	1204	790	1153	1115	
	774	1035	210	589	121	2708	3904	893	1047	613	661	1140	3314	1861	626	285	828	981	443	1397	1281	3088	2746	
	1725	1583	213	302	422	236	1338	1146	1962	1426	893	2332	1336	1950	1163	1325	3620	2343	2776	952	1911	2730	2031	
	1171	1341	214	1064	507	327	4057	1258	1883	1204	1930	485	1337	2500	2520	3241	2087	1904	1631	1690	2633	2154		
	1270	1302	215	1349	855	1370	1247	1448	1889	1986	1139	1967	3499	1360	1592	3091	1633	1920	909	2691	4767	1983	7065	
	1428	2196	228	967	2749	2219	5478	3666	4356	2566	2870	2803	1850	1175	2858	3626	3389	891	2473	1452	1735	1478		
	508	530	234	895	129	.	163	753	352	311	122	349	75	1237	54	1367	327	671	337	304	363	16749	1449	
	Sub-Total				5557	5214	7315	17335	9744	11982	12675	8157	13026	12111	11267	11864	13491	16394	14017	8387	10816	13200	33066	20945
301 - 400	480	487	203	1856	1404	387	946	2233	3303	2553	2200	4090	1134	2846	6523	1792	2581	2064	1548	4950	6055	13207	3089	
	448	588	208	1025	4820	4799	3707	12593	6479	11101	9423	5230	7812	2894	8453	5500	20207	3983	2086	4542	10744	11136	8229	
	330	251	211	1628	871	1400	1343	1875	870	3541	640	2964	2336	2016	2414	5397	3626	1353	615	1388	1752	3960	4575	
	384	360	216	331	392	64	506	1090	1631	881	1103	1076	397	957	697	641	1457	348	1274	1192	1376	890	2534	
	441	450	222	170	535	122	1672	930	382	751	995	1151	1086	322	371	164	593	289	637	404	86	155	1252	
	567	536	229	246	1202	1799	3900	1940	2514	1206	1639	1591	1123	2336	439	728	3408	625	1607	1041	1552	360	188	
	Sub-Total				5255	9223	8571	12074	20660	15179	20032	16001	16101	13888	11371	18897	14222	31873	8662	7766	13516	21566	29708	19866
401 - 500	354	288	204	2512	3442	1437	3823	7941	6171	3707	4652	5240	1762	7283	8250	8979	5950	2949	4064	4711	5412	3633	8443	
	268	241	217	270	226	131	932	676	621	704	628	1983	458	395	433	1027	444	190	234	716	210	307	676	
	180	158	223	130	168	162	438	425	598	505	.	346	419	179	699	424	475	224	161	116	135	91	367	
	686	598	227	1648	2009	909	5850	9244	1793	13071	3628	4226	1316	6852	1325	6381	31416	4173	1936	1043	4561	915	2293	
	420	414	235	810	1042	3895	4373	8365	3256	4183	3929	4170	4733	5739	1990	2852	3286	3384	477	1387	2354	1218	3053	
	.	133	240	85	118	632	537	501	251	643	204	413	552	178	194	186	629	190	136	334	325	283	132	
	Sub-Total				5455	7004	7167	15953	27152	12692	22813	13041	16379	9240	20626	12891	19849	42200	11110	7008	8305	12997	6447	14964
501 - 750	664	557	212	5048	1485	5499	4940	10735	4375	14447	4366	3802	7126	4898	3595	4086	4733	6766	6429	12166	7310	3818	4583	
	420	362	218	248	136	693	1783	1207	1319	1019	690	1413	732	456	844	661	731	237	100	1489	407	455	491	
	270	228	224	85	309	214	702	625	401	293	701	360	130	205	356	538	372	190	248	764	612	206	193	
	237	185	230	135	379	652	1350	1589	547	2230	786	569	560	383	356	242	629	502	442	1405	458	552	348	
	.	120	239	1917	1411	1676	2586	2725	4867	4064	1959	1945	867	3470	3389	1776	3456	2219	2746	2165	2337	1460	4572	
	Sub-Total				7434	3720	8734	11360	16880	11508	22052	8501	8088	9415	9413	8540	7302	9922	9914	9965	17989	11124	6491	10188
751 - 1000	213	283	219	639	1579	2021	405	1727	2249	1402	1731	1297	621	1248	1156	374	761	1083	.	1703	687	1081	132	
	182	186	231	613	604	376	1013	651	1635	1744	2828	2820	1603	432	720	612	1561	1865	1384	1284	433	924	468	
	122	193	236	886	230	1007	698	381	725	1107	592	937	881	533	344	468	642	925	.	749	221	697	230	
	Sub-Total				2138	2413	3405	2116	2758	4609	4252	5151	5054	3105	2213	2220	1454	2963	3873	1384	3737	1341	2702	830
1001 - 1250	324	303	220	.	.	.	1296	503	1196	568	786	749	1480	1116	871	472	3420	.	353	374	480	306		
	177	195	225	.	.	.	835	693	655	478	175	1219	65	171	112	481	186	408	319	563	111	446	51	
	236	228	232	.	.	.	717	935	627	1787	1063	1146	626	56	714	502	300	1001	666	1276	440	374	32	
	Sub-Total				0	0	0	2848	2132	2478	2265	1805	3151	1440	1706	1942	1854	958	4829	984	2192	925	1300	389
1251 - 1500	286	330	221	.	.	.	131	1246	692	567	401	268	654	124	166	249	17	469	.	488	725	237	192	
	180	201	226	.	.	.	277	407	1313	626	400	368	243	756	217	334	185	.	326	96	138	54		
	180	237	233	.	.	.	889	596	542	418	628	844	938	438	195	233	566	662	442	273	289	237	78	
	Sub-Total				0	0	0	1298	2249	2548	1611	1430	1480	1835	1317	578	699	916	1316	442	1087	1109	612	324
Total Biomass (t)				25880	27786	35591	64772	82095	62111	87147	54858	65777	53590	59769	59135	61078	105925	57733	37444	58589	66740	85535	72165	

Table 9. Abundance estimates (t) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 2J over 1993-2012. Estimates are expressed in Campelen units or Campelen equivalents. Refer to Healey (2009) for 1978-1992 estimates.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
101 - 200	1427	633	201	87	131	.	2235	218	740	0	958	305	392	218	1350	522	1219	6418	653	2581	2961	8751	4354		
	1823	1594	205	157	146	.	16190	767	4105	4276	1759	10624	16205	9622	7528	13595	3712	20319	7236	5876	11950	24010	4276		
	2582	1870	206	161	2315	22586	42257	5071	4336	5549	15413	29015	37704	16515	9801	22306	3197	7187	11557	9475	104649	16985	9224		
	2246	2264	207	0	208	78	1142	519	727	857	381	1077	379	1458	1285	346	173	1048	583	584	9864	5250	8305		
	.	733	237	0	0	0	101	34	202	2790	0	50	192	38	0	336	0	1770	451	0	1087	.	336		
	.	778	238	2569	.	321	0	603	0	759	71	245	107	617	212	71	4120	238	321	2162	14519	71			
Sub-Total				404	5368	22664	62246	6609	10713	13472	19270	41142	55117	27958	20581	37318	8372	40862	20718	18838	132673	69516	26566		
201 - 300	440	621	202	214	4328	732	1068	2772	4046	22296	3930	22424	5894	14711	28105	10977	10550	12216	8483	1751	17617	28731	22510		
	1608	680	209	2557	6501	3555	17149	4116	1666	41034	8419	1608	13277	17060	5238	2650	28339	10704	1471	9588	9011	5354	3523		
	774	1035	210	5944	641	17946	49120	5232	9966	9682	3915	8839	55598	21550	9824	1886	8614	8934	3755	27146	19683	16959	14771		
	1725	1583	213	8347	10090	4609	33785	17703	16223	18872	15316	31344	19448	25177	11469	11982	57851	21957	24979	8493	38672	13675	16477		
	1171	1341	214	21657	17678	17525	102676	13946	9703	22210	18927	18652	3616	12913	23465	25088	22837	15726	31757	31618	24645	13479	6604		
	1270	1302	215	13146	7988	18080	14129	22364	13051	13433	10961	33998	40295	15536	13110	35248	16836	25110	11975	32776	60962	17463	21134		
	1428	2196	228	10909	51858	42618	112816	40114	34324	20882	33305	35242	21339	12472	21977	17181	20013	18842	4765	25979	15748	11494	6910		
	508	530	234	8640	802	.	1265	5209	1786	1005	620	1094	401	8603	365	9806	1750	3572	2041	2082	3755	120771	8457		
Sub-Total				71413	99886	105065	333368	111456	90766	149413	95392	153200	159868	128022	113552	114819	166790	117063	89226	139433	190094	227926	100387		
301 - 400	480	487	203	13633	11690	3153	5862	19093	27969	19320	13164	37956	8953	37650	82434	10216	24548	17887	13726	49787	88363	79285	15772		
	448	588	208	10111	40470	43881	75750	122273	32031	67095	50294	45512	43569	25277	50149	39917	95445	22378	11643	18321	80711	40928	22486		
	330	251	211	17540	8908	12534	16642	16470	3930	22424	4713	18264	22157	17592	11688	18611	17437	6014	4926	8563	12309	16677	15259		
	384	360	216	1510	1808	300	2284	4209	5401	3032	6983	4581	1560	4266	2625	1808	3169	1089	3720	2399	2978	1164	4482		
	441	450	222	867	18777	1238	11620	5076	1802	2259	5571	4640	9237	3064	3621	1238	1764	1021	1843	663	186	268	1950		
	567	536	229	1180	14157	24774	14857	6890	13972	3281	7189	5510	12498	17843	1512	2359	12682	922	7078	2028	2728	1217	295		
Sub-Total				44841	95810	85880	127014	174011	85105	117411	87914	116463	97974	105692	152028	74149	155046	49311	42936	81761	187275	139539	60244		
401 - 500	354	288	204	24682	28327	21397	26841	62076	51107	20444	50711	43690	11073	95691	67614	68221	51206	25335	27042	65230	44451	20086	67786		
	268	241	217	1061	751	583	3599	2254	1936	2105	2188	8789	1828	1250	928	2967	1127	309	580	1641	167	282	464		
	180	158	223	283	942	1695	1883	1043	1720	1272	.	815	1363	685	1511	716	989	348	263	163	163	76	380		
	686	598	227	6773	11039	3743	34184	35002	7486	46025	16946	16740	6299	36401	4748	18056	96369	14437	5228	1933	12792	1892	3784		
	420	414	235	5999	6378	19335	25337	41431	13753	17414	14260	19161	24375	36961	7774	11378	10479	7802	1493	6293	7233	3075	4262		
	133	240	240	320	427	3061	1601	1336	672	1491	448	1088	1976	924	357	311	1162	249	277	434	517	409	189		
Sub-Total				39117	47865	49815	93444	143142	76673	88751	84553	90283	46914	171912	82931	101649	161332	48481	34885	75694	65323	25820	76865		
501 - 750	664	557	212	22412	5670	20151	25042	44440	11915	49344	13485	13366	30998	20228	12681	9118	10932	14186	11136	23868	20837	8390	5785		
	420	362	218	573	373	3818	5951	3205	3231	2238	1369	2589	1942	1455	1818	1195	1145	398	203	2685	531	515	498		
	270	228	224	188	1077	889	2023	1286	934	608	1506	800	641	502	627	690	706	125	372	1100	779	235	152		
	237	185	230	305	1120	2799	3084	3932	1400	4428	1552	1377	2065	865	611	356	865	585	560	1896	676	827	331		
	120	239	239	22953	10367	11193	18970	21936	36305	34310	8955	15341	4284	30415	33980	5175	23440	12752	7597	5750	14229	7808	16637		
Sub-Total				46431	18607	38850	55069	74799	53785	90928	26868	33473	39930	53465	49717	16534	37088	28047	19867	35299	37052	17775	23402		
751 - 1000	213	283	219	915	2063	5586	547	2180	3523	2219	2745	1995	1505	1875	1732	553	940	1129	.	1830	493	979	97		
	182	186	231	832	1254	760	1663	1151	3425	2815	4618	3915	2738	572	996	806	1804	1950	1343	1399	409	921	205		
	122	193	236	1208	195	3270	850	504	1043	1513	982	1412	1128	916	491	531	717	996	.	889	206	785	133		
Sub-Total				2954	3512	9616	3060	3836	7991	6547	8345	7322	5371	3363	3220	1890	3461	4074	1343	4118	1109	2685	435		
1001 - 1250	324	303	220	177	195	225	.	.	1751	646	1005	.	688	634	1227	1646	1096	959	333	3485	.	389	400	125	
	236	228	232	643	643	737	748	2371	1349	1354	688	128	725	643	282	952	439	1391	374	220	36				
Sub-Total				0	0	0	3239	1946	2343	3015	2264	3407	2019	1925	1981	2040	777	4759	774	2262	868	902	174		
1251 - 1500	286	330	221	180	201	226	.	.	78	931	402	318	363	141	636	136	182	129	26	268	.	431	545	204	78
	180	237	233	359	342	560	538	717	880	994	391	261	228	505	592	326	201	154	168	40					
Sub-Total				0	0	0	576	1494	2040	1367	1495	1423	1898	1537	733	597	863	1040	326	950	769	483	173		
Total No. (000s)				205162	271047	311890	678016	517293	329415	470904	326102	446712	409091	493875	424743	348995	533728	293637	210076	358356	615163	484645	288246		

Table 10. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3K over 1993-2012. Estimates are expressed in Campelen units or Campelen equivalents. Refer to Healey (2009) for 1978-1992 estimates.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012				
101 - 200	.	798	608	.	.	.	0	44	37	.	0	8	4	0	5	14	0	.	.	79	.	.					
	.	445	612	.	.	.	0	135	0	.	1	0	38	0	0	2	0	.	.	65	.	.					
	.	250	616	.	.	.	0	4	23	.	0	0	0	0	0	0	0					
	1455	1347	618	0	8	286	19	11	15	1	59	0	49	109	55	2	3	39	0	6	113	481	35				
	1588	1753	619	0	0	18	29	57	0	0	13	0	30	109	62	1	2	1	0	1	149	1855	98				
	Sub-Total				0	8	304	48	250	74	2	72	8	122	218	122	19	4	39	0	7	406	2337	134			
	201 - 300				342	609	.	.	117	386	202	.	177	8	8	86	96	43	68	.	.	42	135	.	.		
	.	573	611	.	.	.	113	265	162	.	41	43	164	465	144	34	372	.	.	.	469	.	.	.			
	.	251	615	.	.	.	39	67	176	.	23	20	0	37	1	34	22	.	.	.	222	.	.	.			
	2709	2545	620	53	1113	790	4213	1275	1171	1367	3389	992	1280	594	1012	794	905	673	61	2247	3829	13352	1187				
	2859	2537	621	972	1021	1068	3967	1320	2524	858	1495	113	1149	1870	1856	185	639	1221	565	1361	4305	14581	5218				
	668	1105	624	1017	754	508	2516	1610	1752	1805	1186	2358	1027	258	1950	2825	723	1112	420	451	852	2185	375				
	447	.	632			
	1618	1555	634	990	962	727	2370	2144	1321	1933	1197	2195	1493	455	497	1930	3313	2820	1813	1808	770	912	1117				
	1274	1274	635	99	41	128	1344	1545	1266	971	491	215	125	167	0	1052	1008	334	431	428	658	962	.	.			
	1455	1455	636	829	398	1393	2336	1171	1054	1002	1015	641	699	303	747	1138	1948	2052	5157	487	360	429	299				
	1132	1132	637	435	119	179	1722	869	2008	1145	526	393	403	1095	983	1138	734	472	1442	323	1879	1186	.	.			
	Sub-Total				4395	4407	4794	18736	10651	11636	9082	9013	7111	6339	4637	7398	9017	9127	9620	8822	8268	11691	33996	10344			
	301 - 400				256	610	.	.	344	630	1638	1000	1924	183	796	483	521	241	.	.	.	2925	.	.	.		
	.	263	614	.	.	.	154	399	184	.	164	16	12	120	683	274	303	.	.	.	256	.	.	.			
	.	593	617	5604	2993	3844	2464	4941	3865	2919	2227	7873	1476	3044	3603	2680	6949	12226	3141	1199	1811	8302	6474				
	1027	494	623	1672	1931	308	3588	1938	6167	3346	4322	5040	3698	1732	4159	1152	591	2533	2215	2496	3906	4008	8985				
	850	888	625	3229	2385	1437	4381	3075	3944	6783	3649	6294	917	649	6723	3701	1394	3747	1935	2479	2689	4128	3821				
	919	1113	626	3469	4263	1962	5453	10283	9604	18305	3890	2111	3683	4768	6046	2328	5332	28371	15373	6645	6899	5429	6165				
	1085	1085	628	1438	1372	529	1799	2685	3116	10764	5142	2763	719	1366	2837	4019	4444	5761	7311	891	8831	2593	922				
	499	495	629	1324	1337	2682	6569	2179	6214	5900	4291	1429	622	354	518	3839	7928	5502	4226	1846	537	1628	4396				
	544	332	630	1274	1331	858	4800	3261	1561	5114	3821	4474	1429	1226	1100	3012	2633	2286	2900	3146	1228	2660	4137				
	2179	2067	633	4511	2868	4649	3487	6739	4178	7634	3474	6544	3178	3528	2288	6802	7941	8104	3911	2343	3587	2335	3688				
	2059	2059	638	2804	1908	1750	3952	7031	8115	2400	4792	2535	1686	2512	3399	5441	2775	9432	3905	4335	1272	3479	1513				
	1463	1463	639	1718	872	1520	1381	1556	1266	1183	2362	2114	1330	1120	1667	937	862	1830	5228	1179	404	405	111				
	Sub-Total				27042	21258	19538	38372	44717	49851	64348	39135	43117	18932	21215	33506	34705	41393	79791	50144	26559	34344	34967	40213			
	401 - 500				30	613	.	51	192	92	64	6	6	47	511	43	72	.	.	59			
	.	632	691	6993	3921	2638	6896	11901	10364	13165	10064	11830	4285	5965	12425	7972	5578	12750	21597	6792	5107	5238	23531				
	1184	1255	627	31882	7308	18946	15576	22176	25568	45497	42775	11732	11721	12754	18257	22914	21080	36798	22020	23204	23619	28132	16741				
	1202	1321	631	9779	9453	10094	25499	14500	13683	18514	23958	20949	15856	13580	8550	17899	15925	20469	14880	17306	11464	15341	20091				
	198	69	640	77	111	179	105	59	37	39	144	103	44	96	39	25	165	56	54	39	11	38	45				
	204	216	645	110	108	357	192	162	75	114	446	253	242	140	180	186	387	123	80	151	107	372	137				
	.	134	650	193	338	252	147	242	224	39	18	109	162	20	193	188	64	167	40	28	132	36					
	Sub-Total				49034	21238	32466	48465	49232	50042	77367	77451	44436	32263	32743	39982	49232	43395	70261	58798	47532	40396	49252	60580			
	501 - 750				584	230	641	411	109	227	394	197	369	1020	558	62	602	192	151	1382	329	280	993	1030	112	37	
	.	333	325	105	463	327	564	1180	158	84	436	811	205	323	239	122	291	717	130	134	514	251	129				
	.	359	651	704	894	1222	321	1361	1016	734	2603	899	754	199	508	1104	1595	407	788	493	1118	474					
	Sub-Total				1219	1467	1777	1278	2739	1543	1838	436	3973	1166	1679	630	781	2777	2641	817	1916	2037	1481	639			
	751 - 1000				931	418	642	1541	2336	1741	760	2036	2513	3081	2134	2677	892	1074	942	4877	1962	1991	1268	3535	1336	448	585
	.	409	360	647	2413	1829	1087	749	2025	2961	2191	2465	3228	1301	1503	819	4436	1835	1434	2029	1135	1360	1312				
	.	516	652	2242	1445	2366	3585	2575	4843	3246	2591	6162	1366	2990	2034	3554	1247	2807	1169	2343	2480	1049	1293				
	Sub-Total				6196	5610	5193	5094	6636	10317	8518	7190	12067	3560	5567	3794	12868	5044	6232	2438	7907	4951	2856	3190			
	1001 - 1250				1266	733	643	.	1487	2121	6830	5453	3480	1537	4660	2815	890	1865	2469	5074	3120	.	1935	2059	288	1096	
	.	232	228	648	.	1641	1118	1687	1552	624	2891	763	475	376	186	422	1274	.	1628	868	601	761					
	.	531	653	1718	.	1583	2306	1643	3660	3927	3045	2514	477	933	668	542	1344	1787	937	3309	654	703	84				
	Sub-Total				1718	0	3071	6068	9590	10800	8959	5207	10064	4055	2298	2910	3197	6839	6181	937	6872	3581	1592	1941			
	1251 - 1500				954	474	644	.	688	870	2036	2845	1480	1917	2084	137	998	760	1082	735	2436	.	2507	1158	1021	646	

Table 11. Abundance estimates (000s) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3K over 1993-2012. Estimates are expressed in Campelen units or Campelen equivalents. Refer to Healey (2009) for 1978-1992 estimates.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
101 - 200	798	608		.	.	.	0	293	110	.	0	63	37	0	37	63	0	.	.	362	.	.	
	445	612		.	.	0	857	0	.	31	0	92	0	0	35	0	.	.	369	.	.		
	250	616		.	.	0	34	120	.	17	0	0	0	0	0	0	.	.	.	.	.	.
	1455	1347	618	0	53	3330	226	93	139	124	62	0	803	1805	834	226	112	762	0	334	969	1914	1853
	1588	1753	619	0	0	841	425	448	0	121	95	34	208	1160	543	90	60	69	34	116	1598	10450	402
	Sub-Total			0	53	4171	651	1725	369	244	204	97	1139	2965	1413	414	173	831	34	450	3298	12363	2255
	201 - 300			342	609	.	839	1506	602	.	349	47	47	528	753	107	256	.	165	730	.	.	.
	573	611	.	.	.	465	1340	586	.	90	109	709	2102	828	158	744	.	.	3547	.	.	.	
	251	615	.	.	.	236	432	784	.	138	200	0	104	17	104	259	.	.	1315	.	.	.	
	2709	2545	620	233	7702	8286	50340	10662	8370	8816	36955	7433	15989	9484	10722	4119	6754	7416	908	23348	79694	106837	10068
2859	2537	621	8531	12044	17351	40571	14182	14778	3966	10239	2169	9935	16293	19500	2334	6539	15250	2844	16697	57426	168912	43761	
	668	1105	624	14571	20622	9987	41839	15930	17967	14677	10519	34688	14508	3557	13984	14927	5047	5545	6120	5065	5928	11970	3375
	447	632	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	1618	1555	634	10642	10321	12468	28382	18641	11979	10390	6369	26367	12868	3893	3102	9334	31373	19713	44552	20393	9422	5256	5164
	1274	1274	635	643	131	1057	11407	17490	11602	6975	4431	846	779	1297	0	4881	.	8850	1428	2344	4611	2529	4997
	1455	1455	636	13810	8406	19987	26446	9607	5504	5504	6829	5296	6635	2273	5204	4248	4337	5738	11737	4226	3069	1568	2233
	1132	1132	637	3737	8743	3512	11087	6167	10713	5025	.	5853	2685	2647	7762	5083	4018	2918	2120	9508	2334	7968	4080
	Sub-Total			52167	67969	72648	211612	95956	82884	55353	75920	83008	64155	42178	61871	45293	59328	65431	69707	81746	168075	305040	73678
	301 - 400			256	610	.	2195	4560	7343	.	9191	11171	1461	6061	4349	3504	1080	.	.	31821	.	.	.
	263	614	.	.	.	1369	3021	923	.	1318	326	247	724	2098	1194	2476	.	.	1936	.	.	.	
593	617	60446	45722	64933	45872	39808	22113	17998	14955	52343	15541	23140	28823	12236	24508	46334	9666	7546	17589	37897	17158		
	1027	494	21321	19594	3228	51938	23445	32102	22561	28065	38176	67140	49177	37036	8087	5946	18246	16185	20787	38836	32966	26503	
	850	888	41573	41980	18861	69363	28279	37542	28615	22904	43640	9725	4611	50484	21499	10994	14811	7546	25679	19270	18423	8027	
	919	1113	626	36745	39756	15421	61923	132559	64794	84650	35409	34372	41059	71470	32497	9282	30216	113817	54720	50558	77454	34640	21986
	1085	1085	628	13980	8557	3974	11330	26358	12955	30657	32507	15530	5048	8969	20482	14746	13963	15075	20597	4699	45057	16423	2308
	499	495	629	9964	9976	23208	55189	18794	37008	35306	25834	8677	3329	2928	3419	11474	17500	20186	13505	11269	3735	7082	12223
	544	332	630	14310	9286	9215	31901	32380	12240	25141	29679	27676	12240	8837	4362	11354	11192	14226	11806	15071	8201	20620	11897
	2179	2067	633	53772	35827	54535	31687	47011	16523	37329	13147	39049	22404	27928	16270	17349	28067	22807	13813	15579	13535	9965	8281
	2059	2059	638	24967	33314	26066	44481	46671	38835	9072	14615	16777	12103	20505	16218	16840	6093	20823	6702	9647	2707	17095	3092
	1463	1463	639	17173	16628	22428	9276	9224	4595	3815	11347	10546	11770	6105	9258	3211	2348	3019	8952	6097	1375	947	123
Sub-Total			294251	260640	241869	416524	412110	286972	295143	238971	298283	202068	230454	225291	130776	154383	289344	163492	166932	261518	196057	111597	
401 - 500	30	613	.	.	448	1577	549	.	586	66	49	279	2795	273	686	.	.	493	.	.	.	.
	632	691	622	56296	72546	39289	132742	104560	64289	73410	52914	69929	41540	44447	66633	32181	26172	53072	56298	44526	26027	23288	54150
	1184	1255	627	358859	96592	225916	116359	206365	158172	160052	151814	69006	78084	70512	98534	68017	68643	110834	66370	142457	141203	135090	45162
	1202	1321	631	103337	111802	128176	162295	96509	65419	78684	100559	84520	82638	65215	43794	48446	44232	58634	34463	127675	35677	52484	42237
	198	69	640	326	494	1429	377	142	104	66	242	218	152	380	89	57	195	62	55	52	20	56	47
	204	216	645	436	396	1590	624	393	211	178	1040	465	475	461	267	330	490	178	158	228	147	238	136
	134	650	650	1057	2258	2120	654	691	479	100	.	28	344	544	37	328	240	90	161	54	28	49	49
	Sub-Total			520310	284088	398519	413500	410237	289224	312491	307155	224231	203282	181837	212150	149632	140657	222871	157505	314993	203595	211205	141781
	584	230	641	1371	475	886	1076	348	902	1951	.	1076	199	1535	316	323	1962	413	337	1614	1589	221	34
501 - 750	333	325	646	343	1371	1185	1321	2347	335	201	700	1140	492	827	536	103	425	792	143	89	671	264	22
	359	651	651	2799	4309	5778	840	2609	2692	1449	4628	1834	2321	321	771	1728	2234	370	1292	519	1358	677	
	Sub-Total			4512	6154	7849	3236	5304	3929	3601	700	6844	2525	4683	1174	1197	4115	3440	851	2995	2778	1843	734
	931	418	642	3872	6383	3364	1179	3179	4284	4773	3092	3524	1294	1827	1179	7073	2358	2243	1150	5060	1495	518	600
	409	360	647	2806	3797	2649	1411	3417	5497	3615	2894	4383	1931	2674	1358	5769	2030	1560	2427	1079	994	1072	
	516	652	652	6246	4277	4969	6637	4969	10470	4933	3336	8239	1810	5324	2910	4401	1333	2910	1100	2839	2875	1242	1257
	Sub-Total			12924	14456	10982	9227	11565	20251	13321	9322	16746	5035	9825	5447	17243	5721	6713	2250	10326	5449	2754	2929
	1001 - 1250	1266	733	643	.	2252	2252	9109	8470	4403	1888	5411	4045	1255	1837	3798	5042	3197	.	1576	1205	302	735
	232	228	648	.	.	1786	1555	2368	2478	737	3595	958	596	470	157	282	1291	.	1438	784	502	500	
	531	653	653	1437	.	2264	2849	2131	6063	5750	4325	2854	621	986	840	657	1278	1483	730	3981	496	475	73
	Sub-Total			1437	0	4516	6887	12794	16901	12631	6950	11860	5624	2837	3148	4612	6602	5971					

Table 12. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3L over 1999-2012. Refer to Healey (2009) for 1995-1998 estimates.

Depth Range (m)	V1 Area	V4 Area	Stratum	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
30 - 56	.	268	784	.	0	0	0	0	0	0	.	.	.	.	.	.	.
57 - 92	2071	2071	350	0	0	0	0	1	0	0	2	0	0	0	0	0	0
	1780	1780	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1121	1121	371	24	0	0	0	0	0	0	0	0	0	0	0	20	0
	2460	2460	372	0	0	0	0	0	0	0	1	0	3	0	0	1	0
	1120	1120	384	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	465	785	.	0	0	0	0	0	0	0	1	.	.	.	.	.	.
93 - 183	1519	1519	328	11	18	0	1	0	0	2	0	0	2	0	3	4	36
	1574	1574	341	0	6	0	13	0	22	0	20	0	0	2	4	0	154
	585	585	342	0	6	0	0	0	4	28	0	0	0	0	0	0	0
	525	525	343	0	1	0	0	0	43	0	17	0	0	0	0	0	0
	2120	2120	348	216	22	2	23	0	162	427	336	3	77	0	2	374	87
	2114	2114	349	416	0	0	0	2	47	182	21	0	0	4	31	195	17
	2817	2817	364	30	0	1	6	0	56	64	0	2	82	6	14	90	68
	1041	1041	365	55	.	0	0	0	.	444	258	2	41	0	15	574	427
	1320	1320	370	555	19	1	55	23	.	0	277	0	141	0	39	168	192
	2356	2356	385	253	29	47	190	69	348	273	233	554	565	17	107	833	871
	1481	1481	390	310	69	497	222	13	193	332	119	350	127	64	264	311	12
	84	786	.	0	0	0	0	0	0	1	.	.	.	.	.	.	.
	613	787	.	0	0	0	0	0	59	0	1	.	.	.	.	.	.
	261	788	.	0	0	0	0	0	0	4	10	.	.	.	4	.	.
	89	790	.	25	0	0	0	0	29	14	.	.	.	.	25	.	.
	72	793	.	0	0	5	0	0	0	53	.	.	.	.	0	.	.
	216	794	.	0	0	0	0	0	0	32	0	.	.	.	0	.	.
	98	797	.	0	0	0	0	0	23	0	0	.	.	0	.	.	.
	72	799	.	0	0	0	0	0	0	6	0	.	0	.	.	.	.
Sub-Total (30 - 183 m)				1870	193	549	516	109	986	1863	1296	911	1037	92	510	2569	1862
184 - 274	1494	1582	344	181	42	0	7	17	918	761	797	661	1783	65	14	678	1270
	983	983	347	297	160	88	28	0	476	338	1123	281	1903	23	206	1444	1358
	1394	1394	366	2108	62	265	689	119	.	2545	2185	2261	2365	496	277	1843	659
	961	961	369	719	85	296	55	278	.	3319	1720	829	2690	195	384	2567	1932
	983	983	386	1129	473	337	998	453	.	3491	1741	652	758	1076	835	2223	1704
	821	821	389	673	727	1143	531	563	706	244	644	416	601	662	681	211	979
	282	282	391	379	89	135	448	144	192	262	68	170	137	77	36	126	
	164	795	.	11	8	0	0	664	58	65	.	.	.	0	.	.	.
	72	789	.	12	1	0	1	67	18	2	.	.	.	.	130	.	.
	227	791	.	201	2	10	12	81	182	.	.	.	.	.	32	.	.
	100	798	.	226	19	50	38	806	1096	.	.	.	.	125	286	.	.
Sub-Total				5242	2378	2247	2504	1930	3862	12243	8540	5168	10269	2653	2636	9002	8028
275 - 366	1432	1432	345	1665	2659	1249	2344	2052	3998	2282	2488	2996	5552	2203	5051	5975	1638
	865	865	346	1312	1021	1224	1045	4602	3555	3908	2960	2027	3288	1998	1350	1341	1567
	334	334	368	860	857	871	1829	1059	.	1106	581	968	2950	982	493	423	435
	718	718	387	5284	4897	4503	661	1147	.	586	2336	3862	1246	613	1462	435	607
	361	361	388	270	704	993	309	554	431	317	582	1047	388	542	29	97	186
	145	145	392	170	234	116	53	266	165	137	77	93	61	107	59	57	25
	175	796	.	154	96	41	2	318	385	380	.	.	.	383	.	.	.
	81	800	.	233	191	215	52	636	725	.	.	.	125	286	.	.	.
Sub-Total				9560	10756	9243	6496	9734	9103	9447	9404	10994	13486	6570	9115	8328	4458
367 - 549	186	186	729	239	1002	438	100	218	139	13	103	149	81	52	85	38	38
	216	216	731	1795	891	407	318	306	262	151	227	145	55	170	52	.	14
	468	468	733	1511	1321	906	312	949	364	1215	2248	488	172	317	115	76	335
	272	272	735	2465	728	1504	1177	412	.	808	1457	1368	1125	1615	1578	198	346
	50	792	.	316	69	31	200	1021	602	.	.	.	.	254	.	.	.
Sub-Total				6011	4258	3324	1938	2085	1785	2789	4035	2149	1433	2153	2085	312	734
550 - 731	170	170	730	224	125	627	200	183	74	32	196	294	30	151	40	0	125
	231	231	732	519	858	319	152	430	130	226	123	377	152	244	437	86	60
	228	228	734	184	554	671	214	124	.	34	136	131	205	928	126	407	126
	175	175	736	498	4028	1038	910	214	.	195	445	1862	864	721	593	186	851
Sub-Total				1425	5566	2655	1476	951	204	486	900	2664	1251	2044	1196	679	1162
732 - 914	227	737	1472	1522	1689	1433	1041	.	2097	1463	542	.	1125	1115	.	.	.
	223	741	961	444	1653	1337	661	.	.	2061	478	.	825	358	.	.	.
	348	745	358	364	680	267	971	.	.	282	440	.	432	607	.	.	.
	159	748	255	390	458	26	74	.	26	140	.	341	104	.	.	.	.
Sub-Total				3047	2720	4481	3063	2746	0	2097	3833	1600	0	2722	2184	0	0
915 - 1097	221	738	548	903	857	571	750	.	.	527	156	.	1252	1035	.	.	.
	206	742	628	451	579	982	2183	.	.	639	886	.	382	763	.	.	.
	392	746	1231	363	1126	132	39	.	.	601	142	.	648	1523	.	.	.
	126	749	185	17	50	6	119	.	.	129	.	94	31	.	.	.	.
Sub-Total				2408	1902	2579	1735	2979	0	0	1767	1313	0	2375	3352	0	0
1098 - 1280	254	739	245	515	329	227	918	.	459	569	168	.	541	570	.	.	.
	211	743	2427	861	671	1527	358	.	.	336	505	.	882	1469	.	.	.
	724	747	284	622	37	204	110	.	.	288	311	.	1229	901	.	.	.
	556	750	1100	1872	348	581	119	.	.	462	.	362	2997	.	.	.	.
Sub-Total				4055	3870	1385	2539	1505	0	459	1192	1447	0	3013	5937	0	0
1281 - 1463	264	740	337	1109	1068	946	456	.	738	332	343	.	1014	439	.	.	.
	280	744	698	1295	957	3571	.	.	1153	547	.	1586	585	.	.	.	.
	229	751	711	1061	206	59	.	.	480	.	1186	1086	.	.	.	.	.
Sub-Total				337	2517	3424	2110	4085	0	738	1485	1371	0	3787	2111		

Table 13. Abundance estimates (000s) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3L over 1999-2012. Refer to Healey (2009) for 1995-1998 estimates.

Depth Range (m)	V1 Area	V4 Area	Stratum	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
30 - 56	.	268	784	.	0	0	0	0	0	0	0	0	0	0	0	0	0
57 - 92	2071	2071	350	0	0	0	0	41	0	0	41	0	0	0	0	0	0
	1780	1780	363	0	0	0	0	0	41	0	0	0	0	0	0	0	0
	1121	1121	371	39	0	0	0	0	0	0	0	0	0	0	0	103	77
	2460	2460	372	0	0	0	0	0	0	0	97	0	42	0	0	56	0
	1120	1120	384	0	0	0	0	0	0	39	116	0	0	0	0	0	0
	465	785	.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93 - 183	1519	1519	328	125	84	0	42	0	48	48	0	0	70	0	42	74	125
	1574	1574	341	43	173	0	38	0	62	0	87	0	0	77	43	0	953
	585	585	342	0	201	0	0	0	40	64	0	0	0	0	0	0	0
	525	525	343	0	36	0	0	0	72	0	36	0	0	0	0	0	0
	2120	2120	348	311	73	83	79	0	357	708	595	83	194	0	111	1458	450
	2114	2114	349	914	0	0	0	42	184	337	125	0	0	92	240	392	125
	2817	2817	364	43	0	172	43	0	129	178	0	86	201	97	215	277	960
	1041	1041	365	143	.	95	0	48	.	716	1193	90	525	0	483	4368	1872
	1320	1320	370	986	171	227	136	52	.	0	499	0	272	0	1089	2542	726
	2356	2356	385	770	36	203	648	243	1273	486	1094	1575	4248	340	329	8048	3797
	1481	1481	390	693	149	1580	1100	81	477	774	303	761	306	192	733	1505	140
	.	84	786	.	0	0	0	6	0	6	.	.	.	.	.	.	.
	.	613	787	.	0	0	0	0	126	0	42	.	.	.	.	.	.
	.	261	788	.	0	0	0	0	0	24	36	.	.	.	62	.	.
	.	89	790	.	37	0	0	0	41	12	.	.	.	49	.	.	.
	.	72	793	.	0	5	10	0	0	74	.	.	.	0	.	.	.
	.	216	794	.	0	0	0	0	49	0	.	.	.	0	.	.	.
	.	98	797	.	0	0	0	0	31	0	0	.	.	0	.	.	.
	.	72	799	.	0	0	0	0	0	10	0	.	0	.	.	.	.
Sub-Total (30 - 183 m)				4066	961	2366	2096	512	2882	3524	4263	2596	5859	797	3396	18824	9224
184 - 274	1494	1582	344	392	64	0	44	87	2497	1312	1237	979	4328	435	217	4425	2699
	983	983	347	541	456	45	90	45	1871	631	1923	676	4823	437	1176	5679	3516
	1394	1394	366	4913	192	2923	6286	682	.	5787	5331	5830	6999	1425	1643	3835	1915
	961	961	369	1880	595	2071	813	1807	.	13969	4465	3241	6572	3604	4318	13220	6272
	983	983	386	4958	1037	1017	6641	3316	.	12613	4297	2144	2529	8294	6021	9533	5351
	821	821	389	3338	2485	7943	3179	3802	4480	652	1778	941	2654	2560	3304	684	2560
	282	282	391	601	3491	369	1410	2289	834	1060	1254	655	1293	927	1101	213	504
	.	164	795	.	20	34	0	15	1523	103	105	.	.	.	0	.	.
	.	72	789	.	35	15	5	15	144	38	5	.	.	.	.	.	.
	.	227	791	.	283	28	21	16	250	331	.	.	.	172	.	.	
	.	100	798	.	309	55	78	99	1842	1731	.	.	.	101	.	.	.
Sub-Total				16623	8967	14500	18565	12172	13440	38228	20396	14466	29199	17680	18053	37590	22816
275 - 366	1432	1432	345	6457	24864	7192	10703	10046	20558	6624	7582	9718	12301	8490	17223	41878	4671
	865	865	346	3490	5421	9162	7972	25821	16698	9963	7175	4270	5826	7333	7321	5109	4061
	334	334	368	1940	1447	3045	4411	4847	.	2924	1358	1580	3763	2450	974	814	1208
	718	718	387	10310	11803	12922	1778	8758	.	1462	3731	6859	2030	2634	2914	1630	1499
	361	361	388	472	1788	4569	1018	2226	1539	670	957	2913	574	4657	44	160	273
	145	145	392	459	559	436	239	1116	973	559	168	233	115	211	130	108	44
	.	175	796	.	1061	542	235	36	746	903	867	.	.	722	.	.	.
	.	81	800	.	936	584	145	1788	1677	.	.	.	846	3028	.	.	.
Sub-Total				23128	46943	38804	26941	52995	42303	24782	21838	25574	24609	26621	32356	49698	11756
367 - 549	186	186	729	486	1689	819	273	537	316	32	193	225	114	112	102	51	64
	216	216	731	2791	1501	728	700	782	458	198	272	145	66	226	90	.	30
	468	468	733	2414	2437	2015	601	2439	554	2110	3358	876	172	422	168	64	382
	272	272	735	4457	1154	3031	2611	1310	.	1219	2927	1530	1250	2395	2475	281	518
	50	50	792	517	277	137	957	2486	1247	.	.	.	.	1649	.	.	.
Sub-Total				10148	7297	6869	4321	6025	3815	4806	6751	2777	1601	3155	4483	396	994
550 - 731	170	170	730	366	164	1050	412	322	104	43	266	401	52	147	57	0	118
	231	231	732	763	1128	632	234	1198	226	254	170	524	238	225	715	102	91
	228	228	734	298	795	1129	394	248	.	48	181	232	339	1416	152	614	184
	175	175	736	867	6644	2195	1626	535	277	722	2070	781	1018	810	340	1095	.
Sub-Total				2294	8731	5006	2666	2303	330	622	1339	3227	1410	2806	1735	1056	1488
732 - 914	.	227	737	2014	1936	2264	2123	2077	.	3138	1733	741	.	1671	1343	.	.
	.	223	741	1363	506	1810	2163	1210	.	2976	521	.	936	414	.	.	.
	.	348	745	404	438	814	407	1963	.	335	533	.	622	910	.	.	.
	.	159	748	400	427	667	25	55	.	33	175	.	372	98	.	.	.
Sub-Total				4182	3306	5555	4718	5303	0	3138	5077	1970	0	3600	2765	0	0
915 - 1097	.	221	738	725	1094	1125	775	1094	.	623	195	.	1318	1227	.	.	.
	.	206	742	867	468	652	1474	3245	.	609	1053	.	387	822	.	.	.
	.	392	746	770	351	1159	129	67	.	620	162	.	551	1167	.	.	.
	.	126	749	.	121	19	61	9	.	.	147	.	61	17	.	.	.
Sub-Total				2363	2034	2954	2438	4415	0	0	1853	1556	0	2317	3233	0	0
1098 - 1280	.	254	739	349	472	360	332	1136	472	507	175	.	507	402	.	.	.
	.	211	743	3316	1055	697	1901	566	.	305	377	.	856	1524	.	.	.
	.	724	747	299	697	50	199	199	.	238	360	.	1138	498	.	.	.
	.	556	750	814	2027	153	497	191	.	578	.	382	3059	.	.	.	.
Sub-Total				4778	4251	1259	2929	2092	0	472	1049	1490	0	2884	5483	0	0
1281 - 1463	.	264	740	436	1180	908	946	617	.	817	345	233	.	744	363	.	.
	.	280	744	757	1266	770	4452	.	.	790	494	.	1299	481	.	.	.
	.	229	751	929	971	2											

Table 14. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3N over 1996-2012.

Depth Range (m)	V1	Area V4	Area Stratum	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<=56	1593	1593	375	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	
	1499	1499	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
57 - 92	2992	2992	360	447	880	974	144	165	0	0	32	0	260	0	0	12	91	0	290	35
	1853	1853	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2520	2520	362	0	0	0	0	0	0	2	0	12	0	0	0	0	0	0	0	
	2520	2520	373	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	
	931	931	374	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	674	674	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sub-Total (to 92 m)				447	894	974	144	165	0	2	32	12	260	0	2	12	105	0	290	35
93 - 183	421	421	359	0	160	724	67	28	81	0	0	2	1	22	57	29	60	118	5	0
	100	100	377	4	166	30	21	30	1	0	10	7	58	0	11	0	43	52	26	9
	647	647	382	0	24	111	0	0	0	96	0	1	42	0	297	5	105	39	73	52
Sub-Total				4	350	865	88	57	83	96	10	10	102	22	366	34	208	209	104	61
184 - 274	225	225	358	140	94	42	13	5	488	1	8	4	4	12	0	6	7	7	2	0
	139	139	378	112	262	2198	257	5	237	206	20	135	1	274	36	0	20	.	1	1
	182	182	381	802	615	1622	590	253	138	73	67	114	146	170	109	47	94	195	246	357
Sub-Total				1053	971	3862	860	263	864	280	95	253	151	456	145	53	121	202	249	358
275 - 366	164	164	357	40	58	7	6	8	20	21	8	228	0	29	27	29	9	1	4	
	106	106	379	581	41	31	22	36	404	98	59	629	26	15	21	172	12	51	242	14
	116	116	380	178	516	794	330	151	141	95	130	362	138	201	56	19	119	74	26	55
Sub-Total				800	614	832	352	193	553	214	210	998	391	217	106	218	159	134	270	73
367 - 549	155	155	723	115	109	336	14	48	70	8	31	11	64	0	53	37	29	189	42	0
	105	105	725	165	1646	65	95	171	59	54	42	.	52	16	104	30	251	.	59	42
	160	160	727	1006	371	509	494	391	570	211	209	342	225	19	167	183	174	200	66	259
Sub-Total				1285	2127	910	602	610	699	273	282	354	341	35	324	250	455	389	167	302
550 - 731	124	124	724	160	589	374	126	67	62	154	.	122	99	193	250	156	194	89	46	12
	72	72	726	296	448	765	55	30	517	214	136	52	74	104	80	72	510	63	146	58
	156	156	728	1035	455	675	511	201	299	510	291	1084	38	54	451	359	353	126	55	103
Sub-Total				1490	1491	1814	692	299	878	878	428	1257	211	352	781	586	1057	278	247	172
732 - 914	.	134	752	.	.	563	.	664	68	97	.	.	.	.	241	.	.	.	.	.
	.	106	756	.	.	242	.	243	230	211	.	.	250	.	240	.	.	.	.	.
	.	154	760	.	.	352	.	183	283	786	.	167	.	289	.	437	.	.	.	.
Sub-Total				0	0	1156	0	1090	581	1094	0	0	418	0	770	0	437	0	0	0
915 - 1097	.	138	753	.	.	224	.	109	55	75	.	.	.	118	.	.	.	.	.	.
	.	102	757	.	.	643	.	455	454	175	.	.	260	.	145	.	.	.	.	.
	.	171	761	.	.	687	.	778	402	315	.	390	.	380	.	477	.	.	.	.
Sub-Total				0	0	1554	0	1342	911	565	0	0	650	0	643	0	477	0	0	0
1098 - 1280	.	180	754	.	.	1554	.	179	83	103	.	.	.	142	.	.	129	.	.	.
	.	99	758	.	.	443	.	427	274	78	.	.	126	.	421	.	.	.	.	.
	.	212	762	.	.	1096	772	339	.	.	233	.	307	.	469	.	.	.	.	.
Sub-Total				0	0	1997	0	1702	1129	520	0	0	359	0	870	0	469	129	0	0
1281 - 1463	.	385	755	.	.	658	.	965	571	454	.	.	.	555	.	.	.	.	.	.
	.	127	759	.	.	165	.	509	378	217	.	.	85	.	534	.	.	.	.	.
	.	261	763	.	.	2135	509	1111	.	.	286	.	197	.	105	.	.	.	.	.
Sub-Total				0	0	823	0	3609	1457	1783	0	0	371	0	1285	0	105	0	0	0
Total Biomass (t)				5079	6448	14788	2738	9330	7155	5705	1057	2885	3253	1081	5292	1153	3593	1341	1325	1003

Table 15. Abundance estimates (000s) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3N over 1996-2012.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<=56	1593	1593	375	0	31	0	0	0	0	55	0	0	0	55	0	0	0	0	0	0	
	1499	1499	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2992	2992	360	3293	4961	3293	257	257	0	0	463	0	823	0	0	59	105	0	1389	103	
	1853	1853	361	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2520	2520	362	0	0	0	0	0	0	50	0	50	0	0	0	0	0	0	0	50	
	2520	2520	373	0	99	0	0	0	0	0	0	0	0	0	51	0	0	0	0	0	
	931	931	374	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	674	674	383	0	0	0	0	0	0	0	0	0	0	0	0	0	46	0	0	0	
	Sub-Total (to 92 m)				3293	5140	3293	257	257	0	50	518	50	823	0	106	59	151	0	1389	152
	93 - 183	421	421	359	0	1419	1853	87	29	290	0	0	29	29	29	109	29	232	869	145	0
93 - 183	100	100	377	31	571	76	55	69	16	10	110	28	206	0	14	0	89	79	76	28	
	647	647	382	0	45	223	0	0	0	401	0	51	89	0	1187	134	119	89	223	178	
	Sub-Total				31	2034	2151	142	98	305	411	110	107	324	29	1310	162	440	1037	443	206
	184 - 274	225	225	358	959	696	232	77	14	2132	15	90	46	45	31	0	14	18	14	46	0
	139	139	378	1027	1589	7276	1013	34	417	676	76	1080	19	1270	85	19	41	10	11	10	11
	182	182	381	19548	3693	6534	2353	739	663	613	310	688	313	513	386	114	634	2353	1669	688	
	Sub-Total				21534	5979	14042	3444	786	3213	1304	477	1815	377	1815	471	147	693	2366	1725	699
	275 - 366	164	164	357	370	481	45	.	21	66	60	113	23	959	0	59	79	10	11	34	26
	106	106	379	4511	132	169	69	80	710	416	305	1999	162	26	80	262	69	215	717	29	
	116	116	380	2525	1779	2278	846	339	412	465	606	2066	303	766	113	57	338	255	64	155	
367 - 549	Sub-Total				7406	2393	2492	915	440	1188	941	1024	4088	1424	792	252	398	416	481	814	211
	155	155	723	320	591	1002	53	95	113	38	84	64	107	0	63	57	60	222	32	0	
	105	105	725	701	12676	231	217	372	318	213	193	.	182	64	141	140	268	43	137	.	
	160	160	727	10334	1123	1868	1079	658	884	649	698	757	430	31	313	271	246	572	193	627	
	Sub-Total				11354	14390	3102	1348	1125	1314	901	976	821	719	95	517	468	573	794	268	764
550 - 731	124	124	724	644	2789	1421	213	159	94	468	.	415	105	409	436	245	280	126	94	33	
	72	72	726	1124	1406	2665	122	53	1033	1074	584	168	199	185	212	119	1017	130	492	123	
	156	156	728	3573	1356	2060	1094	377	807	2361	975	2997	46	97	944	644	481	253	172	233	
	Sub-Total				5342	5552	6146	1429	589	1934	3902	1559	3580	349	691	1593	1008	1778	508	757	389
	732 - 914	.	134	752	.	995	.	959	74	184	.	.	.	350	.	.	.	.	.	.
915 - 1097	.	106	756	.	525	.	396	314	343	.	459	.	355	.	.	.	.	.	.	.
	.	154	760	.	821	.	354	478	1727	.	191	.	360	.	413	.	.	.	.	.
	Sub-Total				0	0	2342	0	1708	865	2253	0	0	650	0	1065	0	413	0	0	0
	.	138	753	.	351	.	142	66	129	.	.	.	123	.	.	.	.	.	.	.
	.	102	757	.	1143	.	687	645	247	.	365	.	157	.	.	.	.	.	.	.
1098 - 1280	.	171	761	.	958	.	1264	524	470	.	588	.	188	.	397	.	.	.	.	.
	.	180	754	.	2452	0	2092	1236	846	0	0	953	0	469	0	397	0	0	0	0	
	.	99	758	.	2392	.	173	66	99	.	.	.	144	.	.	.	154	.	.	.	
	.	212	762	.	536	.	586	302	86	.	109	.	449	.	.	.	.	.	.	.
	Sub-Total				.	.	1448	864	525	.	335	.	258	.	467	.	.	.	.	.
1281 - 1463	.	385	755	.	0	2928	0	2207	1232	710	0	0	444	0	851	0	467	154	0	0	
	.	127	759	.	871	.	1074	556	424	.	.	.	477	.	.	.	.	.	.	.
	.	261	763	.	183	.	580	376	132	.	96	.	489	.	.	.	.	.	.	.
	Sub-Total				.	.	2805	521	1364	.	421	.	215	.	108	.	.	.	.	.
	Abundance (000s)				0	0	1054	0	4460	1452	1920	0	0	517	0	1181	0	108	0	0	0
				48959	35487	40002	7536	13763	12740	13237	4663	10461	6581	3421	7815	2242	5435	5341	5397	2421	

Table 16. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3O over 1996-2012.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
57 - 92	2089	2089	330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	456	456	331	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1898	1898	338	39	195	38	39	0	0	0	26	16	0	0	2	5	2	0	4	
	1716	1716	340	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	
	2520	2520	351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2580	2580	352	56	9	28	0	0	4	0	0	0	0	0	0	9	0	0	0	
	1282	1282	353	472	769	544	108	0	0	3	0	180	40	0	88	96	0	102	4	
	Sub-Total				567	974	621	164	0	4	3	26	196	40	0	90	110	2	102	8
					3	3	3	3	3	3	3	3	3							
					28	57	11	50	46	3	0	0	0	0	0	0	0	0	0	66
93 - 183	1721	1721	329	25	81	74	0	0	0	0	16	26	0	0	7	0	0	0	0	
	1047	1047	332	48	30	21	67	0	0	0	7	0	17	0	6	22	0	2	3	
	948	948	337	585	585	339	0	103	8	46	16	0	1	0	0	181	60	0	4	
	474	474	354	5	59	15	1094	95	71	24	84	39	6	77	5	0	6	0	0	
	Sub-Total				106	329	130	1210	187	90	24	109	66	22	77	198	82	6	7	3
					84	84	84	84	84	84	84	84	84							
184 - 274	151	147	333	.	10	0	0	3	0	0	0	5	0	0	0	5	0	0	0	
	121	121	336	3	7	5	0	0	0	0	12	5	0	1	0	33	.	1	0	
	103	103	355	39	22	3	1	0	1	5	3	25	2	9	2	29	0	0	0	
	Sub-Total				42	39	7	1	3	1	5	14	35	3	9	2	66	0	1	0
					0	0	0	0	0	0	0	0	2							
275 - 366	92	96	334	.	6	6	0	0	0	0	0	0	0	1	0	0	0	0	0	
	58	58	335	7	2	0	3	3	0	0	5	0	0	1	1	3	0	0	0	
	61	61	356	8	6	8	9	6	7	0	2	1	0	3	1	0	0	2	0	
	Sub-Total				16	14	14	12	12	6	7	5	2	1	2	4	4	0	0	3
					2	2	2	2	2	2	2	2	2							
367 - 549	93	166	717	.	42	27	6	0	72	0	27	1	3	0	51	25	0	6	0	
	76	76	719	11	4	14	36	18	10	1	0	31	0	0	0	46	8	0	17	
	76	76	721	50	35	47	26	23	42	5	25	0	6	1	34	15	0	72	22	
	Sub-Total				61	82	89	67	41	124	5	52	33	9	1	85	40	46	86	82
					82	82	82	82	82	82	82	82	82							
550 - 731	111	134	718	.	131	158	186	20	26	107	355	35	82	34	265	432	77	76	193	
	105	105	720	82	.	92	105	181	141	152	131	17	79	84	101	60	35	108	145	
	93	93	722	153	490	124	160	73	106	40	437	23	109	.	100	93	494	291	51	
	Sub-Total				235	621	374	451	274	273	299	923	76	271	119	466	585	606	476	390
					204	204	204	204	204	204	204	204	204							
732 - 914	.	105	764	.	.	620	.	437	239	324	.	240	.	242	.	610	.	.	.	
	.	99	768	.	.	1070	.	403	274	460	.	101	.	156	.	298	.	.	.	
	.	135	772	.	.	1334	.	360	.	194	164	.	358	.	559	.	202	.	.	
	Sub-Total				0	0	3023	0	1199	513	978	164	0	700	0	957	0	1110	0	0
					0	0	0	0	0	0	0	0	0							
915 - 1097	.	124	765	.	.	175	.	665	155	127	.	162	.	65	.	217	.	.	.	
	.	138	769	.	.	409	.	405	438	374	.	306	.	408	.	478	.	.	.	
	.	128	773	.	.	560	.	386	340	632	526	.	159	.	564	.	752	.	.	
	Sub-Total				0	0	1144	0	1456	932	1133	526	0	627	0	1036	0	1447	0	0
					0	0	0	0	0	0	0	0	0							
1098 - 1280	.	144	766	.	.	322	238	267	.	.	94	.	82	.	693	.	.	.	.
	.	128	770	.	.	172	1116	379	.	.	129	.	80	.	153	.	.	.	.
	.	135	774	.	.	186	259	174	480	.	113	.	397	.	264	.	.	.	.
	Sub-Total				0	0	0	0	681	1612	821	480	0	336	0	559	0	1110	0	0
					0	0	0	0	0	0	0	0	0							
1281 - 1463	.	158	767	.	.	101	257	60	.	.	34	.	111	.	329	.	.	.	.
	.	175	771	.	.	171	604	254	.	.	123	.	68	.	107	.	.	.	.
	.	155	775	.	.	96	130	488	290	.	174	.	43	.	469	.	.	.	.
	Sub-Total				0	0	0	0	368	991	802	290	0	331	0	222	0	905	0	0
					0	0	0	0	0	0	0	0	0							
Total Biomass (t)				1026	2058	5402	1905	4222	4546	4077	2589	407	2339	208	3619	886	5231	671	426	375

Table 17. Abundance estimates (000s) of Greenland Halibut by depth stratum from Canadian fall surveys in Division 3O over 1996-2012.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
57 - 92	2089	2089	330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	456	456	331	0	0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1898	1898	338	131	940	261	104	0	0	0	209	209	0	0	52	104	44	0	52	0
	1716	1716	340	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	
	2520	2520	351	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2580	2580	352	659	25	111	0	0	101	0	0	0	0	0	0	118	0	0	0	
	1282	1282	353	4321	4453	2293	397	0	0	88	0	750	353	0	304	411	0	397	44	44
	Sub-Total			5110	5418	2727	535	0	101	88	209	958	353	0	356	634	44	397	96	44
	93 - 183	1721	1721	329	47	1657	47	95	84	47	0	0	47	0	0	0	0	0	0	284
	1047	1047	332	1224	864	624	0	0	0	0	384	192	0	0	176	0	0	0	0	0
184 - 274	948	948	337	717	522	169	261	0	0	0	174	0	149	0	87	246	0	77	43	43
	585	585	339	0	1086	138	.	201	80	0	40	0	0	0	443	241	0	80	0	0
	474	474	354	87	619	65	3097	130	174	333	652	531	65	1565	116	0	203	29	0	0
	Sub-Total			2076	4749	1044	3453	416	302	333	1250	770	214	1565	821	488	203	187	43	328
	151	147	333	.	121	0	0	20	0	9	0	71	10	0	0	54	0	0	0	0
275 - 366	121	121	336	25	75	31	0	8	0	0	50	42	0	8	0	340	.	15	0	0
	103	103	355	418	241	21	7	0	13	92	14	305	20	50	25	169	0	0	0	6
	Sub-Total			443	437	52	7	29	13	101	64	417	30	59	25	563	0	15	0	6
367 - 549	92	96	334	.	53	33	0	0	0	0	0	6	0	6	0	0	6	0	0	6
	58	58	335	12	28	0	8	8	0	0	16	4	0	4	27	32	0	5	4	0
	61	61	356	57	55	8	22	17	4	29	0	17	12	0	11	4	0	0	74	0
	Sub-Total			69	135	41	30	24	4	29	16	27	12	10	38	36	6	5	77	6
550 - 731	93	166	717	.	34	57	11	0	57	0	46	13	20	0	81	46	0	11	0	15
	76	76	719	52	37	31	42	12	16	5	0	18	0	0	0	30	9	0	0	10
	76	76	721	329	182	125	88	37	31	16	105	0	9	5	41	10	0	56	26	6
	Sub-Total			382	253	214	141	50	104	20	150	31	30	5	122	56	30	76	26	32
732 - 914	111	134	718	.	590	553	120	28	46	116	524	53	199	41	221	678	41	82	135	118
	105	105	720	461	.	274	173	276	207	255	231	25	122	186	77	58	29	107	102	58
	93	93	722	768	2900	385	294	180	203	108	1478	80	182	.	167	118	814	349	70	32
	Sub-Total			1229	3490	1213	587	484	456	479	2234	159	503	226	465	854	883	538	307	207
915 - 1097	.	105	764	.	.	1760	.	758	383	708	.	419	.	373	.	710	.	.	.	.
	.	99	768	.	.	2997	.	763	429	624	.	143	.	206	.	313	.	.	.	.
	.	135	772	.	.	3714	.	592	.	259	248	.	520	.	720	.	194	.	.	.
	Sub-Total			0	0	8471	0	2113	812	1591	248	0	1082	0	1299	0	1217	0	0	0
1098 - 1280	.	124	765	.	.	210	.	1032	273	184	.	188	.	53	.	248	.	.	.	.
	.	138	769	.	.	854	.	494	484	427	.	275	.	361	.	548	.	.	.	.
	.	128	773	.	.	778	.	518	376	634	537	.	132	.	540	.	586	.	.	.
	Sub-Total			0	0	1842	0	2044	1133	1245	537	0	595	0	953	0	1383	0	0	0
1281 - 1463	.	144	766	.	.	.	205	283	271	.	89	.	89	.	683	.	.	.	.
	.	128	770	.	.	.	170	1039	324	.	88	.	88	.	106	.	.	.	.
	.	135	774	.	.	.	186	195	72	244	.	93	.	274	.	143	.	.	.	
	Sub-Total			0	0	0	0	561	1517	667	244	0	270	0	452	0	932	0	0	0
Abundance (000s)	.	158	767	.	.	.	116	261	76	.	54	.	62	.	234	.	.	.	.
	.	175	771	.	.	.	179	481	193	.	108	.	60	.	82	.	.	.	.
	.	155	775	.	.	.	77	107	146	192	.	160	.	38	.	277	.	.	.	
Sub-Total				0	0	0	0	372	849	414	192	0	323	0	160	0	593	0	0	0
Abundance (000s)				9309	14482	15604	4754	6092	5291	4967	5144	2362	3411	1865	4692	2632	5291	1217	550	623

Table 18. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian spring surveys in Division 3L over 1996-2012.

Table 19. Abundance estimates (000s) of Greenland Halibut by depth stratum from Canadian spring surveys in Division 3L over 1996-2012.

Table 20. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian spring surveys in Division 3N over 1996-2012.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<=56	1593	1593	375	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
	1499	1499	376	12	0	0	0	0	1	0	0	0	70	0	1	0	0	0	0	
	2992	2992	360	19	349	130	471	183	23	0	0	71	62	0	0	0	0	0	5	
	1853	1853	361	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0	
	2520	2520	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2520	2520	373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
93 - 183	931	931	374	9	0	0	0	0	0	73	0	0	0	0	0	0	0	0	0	
	674	674	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sub-Total			41	349	131	471	183	28	73	2	71	132	0	1	0	0	0	5	0
	421	421	359	145	133	31	165	96	19	0	2	4	133	.	0	30	0	58	17	17
	100	100	377	6	4	0	321	0	0	0	0	0	25	.	51	12	1	0	4	3
	647	647	382	0	0	76	0	20	0	0	0	1	356	.	0	49	0	0	1	0
184 - 274	Sub-Total			151	136	107	466	116	19	0	2	6	514	0	51	97	1	58	22	20
	225	225	358	259	677	413	458	46	17	29	118	51	27	.	5	0	0	31	80	5
	139	139	378	48	37	49	719	4	14	6	82	7	15	.	120	21	8	12	31	6
	182	182	381	178	90	10	217	33	7	0	41	0	92	.	610	285	35	71	0	5
	Sub-Total			485	805	471	1394	82	38	35	240	58	133	0	734	306	43	113	111	12
	164	164	357	57	82	375	17	4	43	0	13	134	26	.	12	2	17	179	325	113
275 - 366	106	106	379	85	183	170	1047	312	28	88	736	16	29	.	297	6	1	10	2	80
	116	116	380	117	162	58	43	53	28	19	287	72	220	.	176	135	21	4	9	37
	Sub-Total			260	427	603	1107	368	98	107	1036	221	275	0	484	144	39	193	337	230
	155	155	723	333	134	300	68	173	71	24	60	27	25	.	35	15	0	61	12	19
	105	105	725	242	952	130	37	289	150	68	153	15	201	.	148	14	53	37	439	97
	160	160	727	389	1482	1499	328	843	358	22	315	219	174	.	348	431	0	45	34	106
367 - 549	Sub-Total			964	2568	1928	433	1305	578	114	527	261	400	0	531	467	53	143	484	221
	124	124	724	196	142	368	575	114	95	201	142	72	24	.	92	.	308	107	210	.
	72	72	726	93	254	1463	63	257	139	52	125	91	45	.	36	61	90	553	176	203
	156	156	728	1226	.	576	1475	1804	1088	222	686	642	79	.	428	1082	543	587	193	363
	Sub-Total			1514	396	2407	2113	2175	1323	475	954	805	149	0	556	1143	941	1447	579	566
	Deepwater Strata not sampled during spring surveys.																			
Total Biomass (t)	3415	4681	5647	6003	4228	2084	805	2761	1422	1603	0	2357	2144	1078	1955	1538	1050			

Table 21. Abundance estimates (000s) of Greenland Halibut by depth stratum from Canadian spring surveys in Division 3N over 1996-2012.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		
<=56	1593	1593	375	0	0	0	0	0	0	88	0	0	0	0	0	0	0	0	0			
	1499	1499	376	41	0	0	0	0	41	0	0	0	247	0	41	0	0	0	0			
	2992	2992	360	225	2190	1098	2507	453	41	0	0	329	320	0	0	0	0	0	41			
	1853	1853	361	0	0	32	0	0	85	0	0	0	0	0	0	0	0	0	0			
	2520	2520	362	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2520	2520	373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	931	931	374	85	0	0	0	0	0	299	43	0	0	0	0	0	0	0	0			
	674	674	383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	Sub-Total			351	2190	1130	2507	453	167	299	130	329	569	0	41	0	0	0	41			
	93 - 183	421	421	359	852	1390	129	550	347	203	0	91	29	898	.	29	58	0	306	232	58	
93 - 183	100	100	377	14	21	0	935	0	7	7	14	7	83	.	156	28	106	0	526	7	40	
	647	647	382	0	0	178	0	89	0	0	51	801	.	0	267	0	0	40	0	0	0	
	Sub-Total			866	1411	307	1466	436	210	7	105	87	17871	0	185	352	106	306	797	65		
184 - 274	225	225	358	3853	6782	1871	1594	138	232	74	327	495	220	.	93	0	0	55	456	158		
	139	139	378	660	229	220	1673	223	102	31	429	60	63	.	277	48	110	10	181	10		
	182	182	381	2189	490	200	613	2754	206	11	601	0	318	.	1070	626	412	174	33	40		
	Sub-Total			6702	7501	2291	3880	3115	540	116	1357	555	601	0	1440	674	522	238	671	65		
	164	164	357	471	180	1636	66	20	144	11	80	514	271	.	23	11	23	456	812	179		
	106	106	379	853	938	890	5009	7945	97	2318	6517	109	94	.	690	39	7	19	40	179		
	116	116	380	1763	1548	559	247	756	121	291	1125	431	810	.	1355	306	207	28	207	98		
	Sub-Total			3088	2666	3084	5322	8720	362	2620	7722	1054	1176	0	2067	356	237	504	1059	435		
367 - 549	155	155	723	1773	853	1386	192	341	126	47	152	64	85	.	71	77	0	156	21	32		
	105	105	725	2035	5545	712	100	650	571	356	718	70	884	.	355	67	92	78	1751	325		
	160	160	727	3363	7545	7538	1101	2348	1487	204	1436	942	556	.	1096	1615	15	131	214	384		
	Sub-Total			7171	13942	9636	1392	3339	2184	607	2305	1076	1527	0	1521	1760	107	365	1986	741		
	124	124	724	1002	687	1008	2167	212	159	350	337	179	34	.	128	0	335	123	384	1		
550 - 731	72	72	726	293	763	5477	178	525	228	105	393	256	114	.	58	92	135	743	427	551		
	156	156	728	6532	2154	4496	4286	2457	707	2384	2382	225	.	669	1962	1036	1363	429	1270	1		
	Sub-Total			7826	1450	8640	6842	5023	2845	1162	3115	2817	374	0	855	2054	1505	2229	1240	1		
732 - 914				Sub-Total <i>Deepwater Strata not sampled during spring surveys.</i>																		
Abundance (000s)				26004	29159	25088	21429	21086	6307	4811	14735	5918	6026	0	6109	5197	2478	3642	5794	3126		

Table 22. Biomass estimates (t) of Greenland Halibut by depth stratum from Canadian spring surveys in Division 3O over 1996-2012.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
57 - 92	2089	2089	330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	456	456	331	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1898	1898	338	478	40	62	0	0	0	2	0	13	0	9	0	0	0	0	9	
	1716	1716	340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2520	2520	351	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
	2580	2580	352	114	48	0	0	0	0	3	0	0	0	0	0	0	0	0	75	
	1282	1282	353	119	146	331	2	25	0	3	0	1	84	57	0	0	1	0	16	
	Sub-Total				710	234	409	2	25	0	8	0	14	84	66	1	0	1	0	26
	93 - 183	1721	1721	329	1	13	0	0	1	1	0	0	0	14	-	0	0	28	0	0
	1047	1047	332	148	376	475	0	4	0	1	6	24	62	-	0	0	0	2	47	0
184 - 274	948	948	337	179	139	4	0	3	31	1	91	17	37	-	13	1	0	0	0	15
	585	585	339	0	2	8	0	0	33	0	0	0	0	21	26	17	4	0	4	0
	474	474	354	807	122	330	3	0	11	22	8	25	43	-	1	6	5	2	29	0
	Sub-Total				1135	651	817	3	8	76	24	106	67	157	21	39	24	37	4	80
	151	147	333	5	62	23	0	9	0	8	0	2	12	-	0	10	1	5	0	0
275 - 366	121	121	336	100	168	11	0	7	3	8	11	6	15	-	0	16	0	7	2	0
	103	103	355	249	168	20	0	3	84	5	46	42	13	-	26	12	11	12	12	0
	Sub-Total				355	398	54	0	18	87	21	57	50	40	0	26	38	12	24	14
367 - 549	92	96	334	20	39	6	2	1	0	1	0	0	3	-	0	1	2	1	1	0
	58	58	335	9	92	15	0	2	0	0	0	1	1	-	1	0	0	4	0	0
	61	61	356	161	68	47	1	0	3	1	7	1	3	-	34	17	6	1	1	2
	Sub-Total				190	199	68	3	3	3	7	2	7	0	34	17	8	5	1	2
	93	166	717	42	165	55	0	0	1	0	0	6	0	-	0	0	18	1	19	25
550 - 731	76	76	719	9	24	29	1	8	0	21	0	23	18	-	0	14	5	1	45	0
	76	76	721	161	59	112	5	30	1	8	2	7	3	-	0	0	28	2	67	20
	Sub-Total				212	248	196	7	39	3	30	2	36	20	0	0	14	51	4	131
	111	134	718	70	116	154	11	26	8	41	60	73	56	-	35	338	45	27	136	35
	105	105	720	29	61	111	4	45	23	3	12	63	122	-	36	148	117	27	.	45
732 - 1463	93	93	722	57	176	203	23	120	23	43	3	86	51	-	240	187	42	160	368	116
	Sub-Total				156	353	467	37	191	55	87	74	222	230	0	310	673	204	213	504
	Deepwater Strata not sampled during spring surveys.																			
Total Biomass (t)				2757	2084	2010	53	284	224	173	245	391	538	88	412	766	313	250	755	333

Table 23. Abundance estimates (000s) of Greenland Halibut by depth stratum from Canadian spring surveys in Division 3O over 1996-2012.

Table 24a. Greenland Halibut biomass estimates (000 t), by division, from Canadian fall surveys during 1995-2012.

Year	DIVISION											TOTAL
	2G	2H	2J	3K	SA2+3K	3L	2J3KL	3M	3N	3O	3LMNO	
1995	*	*	35.6	69.2	-	11.3	116.1	*	*	*	*	-
1996	22.3	26.1	64.8	120.3	233.5	36.6	221.7	10.2	5.1	1.0	52.9	286.4
1997	15.5	38.6	82.1	130.5	266.7	48.6	261.2	7.0	6.4	2.1	64.1	330.8
1998	4.5	39.0	62.1	142.2	247.8	55.9	260.2	7.8	14.8	5.4	83.9	331.7
1999	10.5	30.7	87.1	175.6	303.9	34.0	296.7	2.4	2.7	1.9	41.0	344.9
2000	*	*	54.9	143.3	198.2	34.1	232.3	5.5	9.3	4.2	53.1	251.3
2001	*	37.7	65.8	128.7	232.2	29.9	224.4	5.3	7.2	4.5	46.9	279.1
2002	*	*	53.6	67.0	120.6	22.4	143.0	2.5	5.7	4.1	34.7	155.3
2003	*	*	59.8	71.5	131.3	26.1	157.4	4.3	1.1	2.6	34.1	165.4
2004	*	48.2	59.1	90.5	197.8	15.9	165.5	*	2.9	0.4	19.2	217.0
2005	*	*	61.1	112.6	173.7	30.1	203.8	*	3.3	2.3	35.7	209.4
2006	*	65.8	105.9	110.2	281.9	32.5	248.6	3.2	1.1	0.2	37.0	318.9
2007	*	*	57.7	179.1	236.8	27.6	264.5	3.4	5.3	3.6	39.9	276.7
2008	*	32.3	37.4	122.0	191.7	27.5	186.9	*	1.2	0.9	29.6	221.3
2009	*	*	58.6	104.0	162.6	25.4	188.0	*	3.6	5.2	34.2	196.8
2010	*	32.1	66.7	99.5	198.3	29.1	195.3	*	1.3	0.7	31.1	229.4
2011	*	30.1	85.5	129.2	244.9	20.9	235.6	*	1.3	0.4	22.6	267.5
2012	*	34.8	72.2	119.0	226.0	16.2	207.4	*	1.0	0.4	17.6	243.6

*Not surveyed.

Table 24b. Greenland Halibut biomass estimates (000 t), by division, from Canadian spring surveys during 1995-2012.

Year	DIVISION			
	3L	3N	3O	3LNO
1996	9.5	3.4	2.8	15.7
1997	18.5	4.7	2.1	25.2
1998	40.2	5.6	2.0	47.8
1999	22.7	6.0	0.1	28.8
2000	26.8	4.2	0.3	31.3
2001	13.0	2.1	0.2	15.3
2002	6.5	0.8	0.2	34.7
2003	12.1	2.8	0.2	15.1
2004	10.0	1.4	0.4	11.8
2005	15.0	1.6	0.5	35.7
2006	14.3	0.0	0.1	37.0
2007	28.4	2.4	0.4	31.2
2008	18.2	2.1	0.8	21.1
2009	5.6	1.1	0.3	7.0
2010	14.9	2.0	0.3	17.2
2011	8.5	1.5	0.8	10.8
2012	18.2	1.1	0.3	19.6

Table 25. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 2G and 2H for 1978 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage. In several years, Divs. 2GH have not been surveyed.

Year	Division					
	2G			2H		
	Mean wt/tow	Upper Limit	Lower Limit	Mean wt/tow	Upper Limit	Lower Limit
1978	34.2	45.9	22.6	54.2	77.1	31.4
1979	31.6	42.2	21.0	101.3	132.6	70.0
1981	29.0	63.2	-5.2	37.6	47.7	27.4
1987	23.4	31.3	15.5	27.7	35.5	19.8
1988	18.9	33.0	4.8	29.0	36.4	21.6
1991	0.9	1.6	0.2	4.4	8.0	0.8
1996	11.8	23.4	0.1	16.5	19.6	13.3
1997	13.7	17.2	10.3	38.2	49.0	27.4
1998	4.4	8.1	0.6	25.4	43.0	7.7
1999	5.4	7.6	3.2	20.0	24.8	15.2
2001	NO SURVEY			30.7	44.0	17.3
2004	NO SURVEY			30.4	37.6	23.2
2006	NO SURVEY			41.8	63.5	20.2
2008	NO SURVEY			23.6	36.7	10.6
2010	NO SURVEY			21.3	24.4	18.1
2011	NO SURVEY			20.1	24.0	16.2
2012				22.5	30.1	15.0

Table 26. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 2J and 3K for 1978 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	2J		3K			
Mean wt/tow	Upper Limit	Lower Limit	Mean wt/tow	Upper Limit	Lower Limit	
1978	39.0	50.2	27.8	37.9	49.1	26.6
1979	32.2	38.1	26.2	25.0	30.9	19.1
1980	32.5	40.0	25.0	28.0	33.3	22.6
1981	33.2	43.6	22.8	31.2	36.3	26.2
1982	44.3	52.3	36.2	28.3	33.7	22.9
1983	33.8	40.1	27.6	39.6	47.5	31.8
1984	35.8	45.2	26.5	38.3	46.7	29.9
1985	26.7	33.2	20.2	28.0	33.1	23.0
1986	31.2	42.6	19.8	38.9	48.0	29.7
1987	21.3	29.8	12.8	28.6	34.5	22.8
1988	15.6	19.1	12.2	29.9	37.1	22.8
1989	19.1	34.5	3.7	30.5	36.8	24.2
1990	18.5	23.2	13.8	23.2	31.0	15.4
1991	6.4	7.7	5.2	15.3	18.5	12.1
1992	5.6	7.4	3.8	10.3	13.1	7.5
1993	8.2	10.0	6.4	20.4	24.1	16.7
1994	8.5	11.1	5.8	12.5	14.3	10.7
1995	12.8	15.4	10.1	15.0	17.9	12.1
1996	18.6	23.6	13.7	23.6	27.7	19.5
1997	23.6	54.2	-7.0	25.6	29.2	22.0
1998	17.9	20.5	15.2	27.9	32.1	23.7
1999	25.4	29.1	21.6	37.7	46.7	28.7
2000	15.9	19.8	11.9	29.6	41.0	18.2
2001	18.9	24.9	12.9	25.3	28.8	21.7
2002	15.4	19.2	11.7	13.1	16.6	9.7
2003	17.2	21.4	13.0	14.0	16.0	12.0
2004	17.0	28.8	5.3	17.8	21.0	14.5
2005	17.6	21.5	13.7	22.2	26.1	18.4
2006	30.5	91.8	-30.9	22.4	27.1	17.7
2007	16.6	20.9	12.3	38.5	47.9	29.0
2008 *						
2009	16.9	21.6	12.1	22.1	25.5	18.7
2010	19.2	32.3	6.1	19.7	23.9	15.5
2011	25.3	98.1	-47.4	27.7	33.0	22.5
2012	20.8	26.2	15.3	25.6	29.7	21.4

*Substantially reduced coverage (Fall survey).

Table 27. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 3L for 1995 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	3L - Fall		3L - Spring			
Mean wt/tow	Upper Limit	Lower Limit	Mean wt/tow	Upper Limit	Lower Limit	
1995	2.1	2.7	1.5	0.9	1.8	0.0
1996	5.8	7.0	4.6	1.8	3.0	0.6
1997	7.6	16.9	-1.7	3.5	4.7	2.2
1998	8.8	11.3	6.2	7.3	11.4	3.1
1999	5.8	7.4	4.1	4.0	9.4	-1.5
2000	5.5	7.8	3.2	5.0	6.1	3.9
2001	4.7	5.7	3.7	2.4	2.4	2.3
2002	3.5	4.4	2.6	1.2	1.7	0.7
2003	4.1	6.9	1.3	2.2	3.3	1.2
2004 *				1.8	2.3	1.3
2005	5.1	6.7	3.6	2.8	4.5	1.1
2006	5.4	6.8	3.9	2.7	4.5	0.9
2007	4.6	5.7	3.6	5.3	9.3	1.3
2008	5.1	7.1	3.2	3.6	6.1	1.0
2009	4.3	5.5	3.1	1.0	1.6	0.5
2010	4.7	5.7	3.8	2.9	6.3	-0.6
2011	3.9	5.5	2.3	1.6	2.2	1.0
2012	3.0	3.7	2.3	3.5	4.4	2.6

*Substantially reduced coverage (Fall survey).

Table 28. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 3N for 1996 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	3N - Fall		3N - Spring			
Mean wt/tow	Upper Limit	Lower Limit	Mean wt/tow	Upper Limit	Lower Limit	
1996	2.1	3.8	0.4	1.4	4.0	-1.2
1997	2.7	11.8	-6.4	2.0	3.8	0.1
1998	5.6	9.4	1.9	2.4	10.0	-5.3
1999	1.2	2.1	0.2	2.5	4.5	0.5
2000	3.5	13.7	-6.7	1.8	2.9	0.6
2001	2.7	3.7	1.6	0.9	3.6	-1.9
2002	2.1	2.8	1.4	0.3	0.6	0.1
2003	0.4	0.7	0.2	1.1	2.7	-0.4
2004	1.2	6.3	-3.9	0.6	1.0	0.2
2005	1.3	1.7	0.8	0.7	1.4	0.0
2006	0.5	2.1	-1.2	*	*	*
2007	2.0	2.4	1.5	1.0	1.7	0.3
2008	0.5	0.8	0.2	0.9	1.1	0.7
2009	1.4	2.3	0.6	0.4	1.4	-0.5
2010	0.6	0.9	0.2	0.8	3.5	-1.9
2011	0.6	1.0	0.1	0.6	1.6	-0.3
2012	0.4	2.1	-1.3	0.4	2.0	-1.1

*No Greenland Halibut captured (survey incomplete).

Table 29. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 3O for 1996 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	3O - Fall		3O - Spring			
	Mean wt/tow	Upper Limit	Lower Limit	Mean wt/tow	Upper Limit	Lower Limit
1996	0.4	0.6	0.2	1.1	2.0	0.2
1997	0.8	1.3	0.3	0.8	1.0	0.6
1998	2.0	4.4	-0.4	0.8	1.3	0.3
1999	0.8	6.3	-4.8	0.5	0.9	0.2
2000	1.5	2.3	0.7	0.1	0.2	0.0
2001	1.6	7.4	-4.1	0.1	0.6	-0.4
2002	1.5	2.1	0.8	0.1	0.1	0.0
2003	1.0	1.8	0.2	0.1	0.2	0.0
2004	0.2	0.3	0.0	0.2	0.3	0.0
2005	0.8	1.1	0.5	0.2	0.4	0.1
2006 *	0.1	0.5	-0.3			
2007	1.3	1.7	0.9	0.2	0.9	-0.5
2008	0.3	0.5	0.2	0.3	0.9	-0.3
2009	1.9	2.4	1.4	0.1	0.3	0.0
2010	0.3	1.2	-0.7	0.1	0.4	-0.2
2011	0.2	0.9	-0.6	0.3	0.5	0.1
2012	0.1	0.3	0.0	0.1	0.2	0.0

*Substantially reduced coverage in spring survey.

Table 30. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 2J3K and 2J3KL for 1978 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	2J3K	2J3KL				
Mean wt/tow	Upper Limit	Lower Limit	Mean wt/tow	Upper Limit	Lower Limit	
1978	38.4	45.7	31.1	-	-	-
1979	28.1	32.2	24.0	-	-	-
1980	30.0	34.2	25.7	-	-	-
1981	32.1	37.2	27.1	-	-	-
1982	35.6	40.1	31.1	-	-	-
1983	36.9	41.8	32.1	-	-	-
1984	37.2	43.0	31.5	-	-	-
1985	27.5	31.1	23.8	-	-	-
1986	35.4	41.8	29.1	-	-	-
1987	25.5	30.0	20.9	-	-	-
1988	23.6	27.8	19.5	-	-	-
1989	25.4	30.7	20.2	-	-	-
1990	21.2	25.8	16.6	-	-	-
1991	11.5	13.4	9.6	-	-	-
1992	8.2	9.9	6.6	-	-	-
1993	15.3	17.5	13.1	-	-	-
1994	10.8	12.1	9.4	-	-	-
1995	14.1	16.1	12.2	9.1	10.2	8.0
1996	21.6	24.5	18.7	14.9	16.6	13.2
1997	24.8	28.3	21.3	17.5	19.5	15.5
1998	23.8	26.4	21.2	17.4	19.0	15.8
1999	32.5	37.8	27.2	21.3	24.4	18.2
2000	23.9	30.2	17.5	16.0	19.7	12.3
2001	22.7	25.5	19.9	15.0	16.7	13.4
2002	14.1	16.3	11.8	9.6	10.9	8.2
2003	15.3	17.2	13.4	10.5	11.7	9.3
2004 *	17.5	21.1	13.8			
2005	20.3	22.9	17.8	14.1	15.7	12.5
2006	25.7	35.7	15.8	17.2	23.1	11.3
2007	29.1	34.6	23.6	18.8	21.9	15.7
2008 *						
2009	19.9	22.4	17.3	13.3	14.8	11.8
2010	19.5	23.6	15.4	13.3	15.7	10.9
2011	26.7	35.6	17.9	17.7	23.1	12.3
2012	23.5	26.5	20.5	15.4	17.2	13.5

*Substantially reduced coverage.

Table 31. Mean numbers per tow and associated CI for Greenland halibut in Div. 2G and 2H for 1978 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	2G		2H			
	Mean no/tow	Upper Limit	Lower Limit	Mean no/tow	Upper Limit	Lower Limit
1978	122.4	171.0	73.7	224.4	670.5	-221.7
1979	65.0	95.0	35.0	285.4	381.5	189.3
1981	51.2	68.3	34.2	73.5	97.8	49.2
1987	106.4	159.4	53.4	225.5	393.5	57.6
1988	37.0	53.6	20.5	259.9	361.1	158.8
1991	9.3	19.3	-0.8	37.6	49.1	26.0
1996	51.5	72.7	30.4	137.1	166.9	107.3
1997	55.3	66.0	44.6	236.3	323.2	149.3
1998	23.8	134.2	-86.6	109.7	186.9	32.4
1999	25.5	34.3	16.7	91.5	116.6	66.5
2001	NO SURVEY			165.9	226.6	105.2
2004	NO SURVEY			177.1	250.6	103.7
2006	NO SURVEY			181.8	246.2	117.4
2008	NO SURVEY			108.4	282.3	-65.4
2010	NO SURVEY			80.0	98.3	61.8
2011	NO SURVEY			96.7	120.3	73.2
2012				92.4	263.7	-78.8

Table 32. Mean numbers per tow and associated CI for Greenland halibut in Div. 2J and 3K for 1978 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	2J		3K			
	Mean no/tow	Upper Limit	Lower Limit	Mean no/tow	Upper Limit	Lower Limit
1978	100.4	419.4	-218.7	163.1	230.8	95.3
1979	89.6	109.0	70.2	58.6	73.4	43.8
1980	43.7	57.8	29.6	54.1	67.9	40.3
1981	96.9	140.3	53.6	88.9	105.6	72.3
1982	67.3	79.8	54.8	64.1	74.7	53.4
1983	40.6	51.8	29.4	83.3	100.6	66.1
1984	56.8	83.3	30.4	74.6	92.0	57.3
1985	69.5	90.7	48.3	97.4	115.9	78.9
1986	49.6	72.4	26.8	141.1	168.3	113.8
1987	44.7	67.0	22.3	118.0	141.4	94.7
1988	32.6	48.2	17.1	126.2	153.2	99.2
1989	54.7	84.9	24.4	143.5	172.2	114.7
1990	52.0	66.3	37.6	84.7	133.3	36.2
1991	33.0	43.4	22.5	71.4	89.2	53.7
1992	44.2	62.1	26.2	96.0	145.4	46.6
1993	64.8	86.1	43.6	201.7	254.3	149.1
1994	82.9	109.5	56.2	146.7	164.0	129.4
1995	112.0	140.4	83.6	160.6	201.2	120.0
1996	195.0	255.8	134.3	208.5	244.8	172.2
1997	148.8	450.9	-153.3	187.7	225.8	149.7
1998	94.8	127.7	61.8	139.2	164.5	113.9
1999	137.1	164.2	110.0	150.1	181.9	118.2
2000	94.4	110.9	77.9	133.1	162.1	104.1
2001	128.5	184.9	72.1	127.4	146.3	108.5
2002	117.7	139.8	95.6	95.1	116.3	73.8
2003	142.1	188.8	95.3	93.8	121.9	65.8
2004	122.2	186.0	58.4	100.6	118.1	83.1
2005	100.4	122.6	78.2	69.5	79.9	59.1
2006	153.5	233.4	73.6	75.7	87.5	63.8
2007	84.5	110.4	58.5	128.6	153.5	103.7
2008 *	63.7	80.0	47.4	91.5	133.4	49.6
2009	103.1	149.1	57.1	125.3	151.0	99.6
2010	177.0	319.8	34.1	128.2	159.2	97.1
2011	143.6	621.0	-333.9	157.4	193.5	121.2
2012	82.9	134.9	30.9	72.0	83.3	60.8

*Substantially reduced coverage (Fall survey).

Table 33. Mean numbers per tow and associated CI for Greenland halibut in Div. 3L for 1995 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	3L - Fall		3L - Spring			
Mean no/tow	Upper Limit	Lower Limit	Mean no/tow	Upper Limit	Lower Limit	
1995	13.3	20.1	6.6	3.2	5.8	0.6
1996	23.3	28.1	18.4	13.0	18.0	8.0
1997	24.2	28.6	19.8	20.8	35.4	6.2
1998	22.4	27.5	17.4	26.7	40.0	13.4
1999	11.6	14.7	8.5	11.9	13.7	10.1
2000	13.9	17.1	10.6	13.3	16.1	10.5
2001	12.6	16.1	9.2	7.0	9.3	4.7
2002	10.5	13.2	7.7	5.1	6.6	3.6
2003	14.3	19.2	9.4	11.2	38.7	-16.3
2004 *	13.2	16.5	10.0	8.1	10.1	6.1
2005	13.0	19.8	6.3	8.3	22.8	-6.2
2006	10.5	12.9	8.2	7.5	10.5	4.4
2007	9.2	11.8	6.7	13.2	19.0	7.4
2008 *	11.7	14.6	8.9	10.2	37.0	-16.6
2009	10.6	14.2	6.9	3.3	4.4	2.1
2010	11.9	14.6	9.1	8.4	13.3	3.6
2011	20.3	36.9	3.6	10.3	13.2	7.3
2012	8.7	10.5	6.8	12.9	16.4	9.5

*Substantially reduced coverage (Fall survey).

Table 34. Mean numbers per tow and associated CI for Greenland halibut in Div. 3N for 1996 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	3N - Fall		3N - Spring			
Mean no/tow	Upper Limit	Lower Limit	Mean no/tow	Upper Limit	Lower Limit	
1996	20.4	136.4	-95.7	10.8	14.8	6.8
1997	14.8	83.4	-53.8	12.3	25.7	-1.2
1998	15.3	30.9	-0.3	10.4	46.2	-25.3
1999	3.2	13.8	-7.5	8.9	19.8	-1.9
2000	5.1	18.9	-8.7	8.8	55.4	-37.8
2001	4.7	8.9	0.6	2.6	4.9	0.4
2002	4.9	9.1	0.8	2.0	13.8	-9.8
2003	2.0	3.0	0.9	6.1	41.1	-28.9
2004	4.4	21.0	-12.3	2.5	3.6	1.3
2005	2.6	4.6	0.5	2.5	3.8	1.2
2006	1.4	8.3	-5.4	*	*	*
2007	2.9	3.9	1.9	2.5	4.2	0.9
2008	0.9	1.5	0.4	2.2	3.4	0.9
2009	2.2	3.6	0.8	1.0	1.7	0.4
2010	2.2	11.8	-7.3	1.5	3.0	0.1
2011	2.2	5.3	-0.8	2.4	13.0	-8.2
2012	1.0	4.5	-2.5	1.3	6.6	-4.0

*No Greenland Halibut captured (survey incomplete).

Table 35. Mean numbers per tow and associated CI for Greenland halibut in Div. 3O for 1996 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division		
	3O - Fall		3O - Spring
	Mean no/tow	Upper Limit	Lower Limit
1996	3.8	4.8	2.7
1997	5.7	8.4	3.0
1998	5.9	6.9	4.9
1999	1.9	14.6	-10.8
2000	2.2	3.5	0.9
2001	1.9	3.7	0.1
2002	1.8	2.4	1.2
2003	2.0	2.7	1.2
2004	0.9	1.5	0.3
2005	1.2	1.6	0.8
2006 *	0.7	8.6	-7.1
2007	1.7	2.4	1.0
2008	1.0	1.6	0.4
2009	1.9	2.5	1.3
2010	0.5	0.9	0.1
2011	0.2	0.3	0.1
2012	0.2	0.4	0.0

*Substantially reduced coverage in spring survey.

Table 36. Mean numbers per tow and associated CI for Greenland halibut in Div. 2J3K and 2J3KL for 1978 - 2012. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division					
	2J3K		2J3KL			
Mean no/tow	Upper Limit	Lower Limit	Mean no/tow	Upper Limit	Lower Limit	
1978	135.7	180.9	90.6	-	-	-
1979	72.1	83.3	60.8	-	-	-
1980	49.5	58.9	40.1	-	-	-
1981	92.6	113.4	71.7	-	-	-
1982	65.5	73.4	57.7	-	-	-
1983	63.3	73.4	53.3	-	-	-
1984	67.0	79.5	54.5	-	-	-
1985	85.4	99.0	71.9	-	-	-
1986	100.0	116.2	83.8	-	-	-
1987	86.3	101.4	71.3	-	-	-
1988	84.8	100.3	69.2	-	-	-
1989	104.0	121.2	86.9	-	-	-
1990	70.7	92.5	48.8	-	-	-
1991	54.9	65.4	44.5	-	-	-
1992	73.8	99.8	47.8	-	-	-
1993	144.4	174.5	114.2	-	-	-
1994	119.2	133.4	104.9	-	-	-
1995	142.3	168.1	116.6	88.0	102.9	73.1
1996	203.0	234.0	172.1	126.6	144.5	108.7
1997	172.0	208.8	135.1	108.9	130.2	87.7
1998	121.2	138.4	104.0	79.1	89.0	69.1
1999	144.6	165.0	124.1	88.7	100.6	76.8
2000	117.0	134.7	99.3	72.9	83.1	62.7
2001	127.8	148.4	107.3	78.7	90.6	66.8
2002	104.2	119.1	89.4	64.2	72.8	55.7
2003	113.4	133.7	93.0	71.1	82.6	59.6
2004 *	109.4	133.7	85.1	75.1	90.8	59.4
2005	82.1	92.5	71.6	54.0	60.4	47.5
2006	107.9	134.6	81.3	67.1	82.7	51.6
2007	109.7	126.2	93.3	67.3	76.8	57.7
2008 *						
2009	115.9	137.7	94.0	71.5	84.2	58.8
2010	148.0	189.1	107.0	90.9	114.8	67.1
2011	151.6	210.7	92.5	99.3	135.2	63.4
2012	76.7	93.4	60.0	49.7	59.9	39.6

*Substantially reduced coverage.

Table 37. Greenland halibut stratified mean number per set at age from Canadian fall surveys conducted in Divisions 2J and 3K combined during 1978-2012. Only otoliths collected in Div. 2J or 3K are used in the analysis. Numbers expressed in Campelen 1800 units.

Age (yrs)	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
0	0.48	0.00	0.00	0.00	0.00	0.00	0.00	1.20	1.06	0.00	2.17	0.66	0.00	0.00
1	9.61	10.81	6.78	19.39	4.75	1.66	4.47	24.59	17.21	5.04	8.82	7.10	1.34	13.80
2	40.24	18.07	6.53	22.99	5.10	4.45	7.11	14.67	13.96	11.21	10.54	12.54	5.26	5.59
3	33.37	13.47	6.20	15.42	12.78	10.56	9.56	8.71	16.62	29.44	15.04	23.84	9.95	6.08
4	19.52	7.15	5.58	6.01	10.81	11.41	10.29	6.87	14.64	12.17	17.03	25.22	23.39	13.32
5	12.50	7.47	7.07	6.58	8.09	10.45	15.34	9.50	9.49	9.62	14.90	17.40	15.38	9.05
6	8.34	7.21	7.56	7.25	5.76	7.45	7.74	8.86	11.04	6.89	7.82	9.95	9.21	5.41
7	5.15	3.50	4.72	5.15	6.06	7.56	5.44	5.98	9.54	6.39	5.65	5.34	4.81	1.29
8	2.26	1.41	1.59	2.21	6.29	5.67	3.50	2.26	3.19	3.27	1.65	1.36	0.83	0.26
9	1.27	0.67	0.71	1.02	2.65	2.19	1.70	1.03	1.00	1.25	0.43	0.40	0.21	0.08
10	0.96	0.64	0.56	0.59	1.02	0.65	0.74	0.75	0.34	0.37	0.16	0.11	0.10	0.05
11	0.81	0.42	0.63	0.48	0.60	0.46	0.35	0.30	0.26	0.19	0.10	0.08	0.09	0.02
12	0.49	0.37	0.41	0.22	0.38	0.33	0.24	0.27	0.23	0.19	0.06	0.02	0.05	0.01
13	0.32	0.31	0.27	0.12	0.27	0.24	0.20	0.12	0.12	0.10	0.05	0.00	0.03	0.00
14	0.10	0.15	0.15	0.06	0.28	0.16	0.18	0.13	0.07	0.08	0.04	0.01	0.02	0.00
15	0.07	0.10	0.06	0.04	0.18	0.07	0.09	0.08	0.08	0.05	0.03	0.01	0.01	0.00
16	0.05	0.09	0.03	0.00	0.09	0.02	0.06	0.04	0.04	0.03	0.02	0.00	0.00	0.00
17	0.03	0.03	0.01	0.00	0.01	0.00	0.03	0.04	0.01	0.02	0.01	0.00	0.00	0.00
18	0.00	0.02	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ages 0-20	135.55	71.89	48.87	87.52	65.12	63.33	67.04	85.44	98.91	86.32	84.53	104.03	70.69	54.94
Ages 1-4	102.74	49.50	25.09	63.81	33.44	28.08	31.43	54.84	62.43	57.86	51.43	68.70	39.94	38.79
Ages 5+	32.33	22.39	23.78	23.71	31.68	35.25	35.61	29.40	35.42	28.46	30.93	34.68	30.74	16.16
Ages 6-9	17.01	12.78	14.58	15.62	20.76	22.86	18.38	18.14	24.77	17.81	15.55	17.04	15.06	7.02
Age (yrs)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
0	0.92	1.05	16.90	10.95	4.92	2.18	1.52	6.46	3.09	8.49	8.30	9.94	4.15	5.07
1	5.69	8.08	29.79	49.93	98.68	28.05	23.35	15.99	38.57	43.90	40.67	45.70	32.49	16.06
2	23.78	43.64	21.62	51.10	47.82	58.62	25.07	34.42	21.94	22.72	24.08	26.67	32.93	16.15
3	20.40	64.00	22.61	15.13	32.01	43.61	31.19	24.07	16.43	17.00	12.50	11.69	13.89	8.56
4	13.59	19.28	18.90	6.03	9.54	21.13	21.87	28.28	13.20	14.07	9.68	9.49	12.31	13.84
5	4.84	5.56	7.22	6.63	6.28	10.37	10.86	20.04	13.76	9.77	6.03	6.39	9.21	10.98
6	3.11	1.76	1.32	1.99	2.47	5.01	4.45	10.53	7.21	7.59	1.97	2.27	2.68	6.85
7	1.27	0.74	0.61	0.39	0.84	2.00	2.07	3.81	2.16	3.40	0.72	0.89	1.20	3.96
8	0.12	0.23	0.19	0.12	0.19	0.64	0.57	0.70	0.50	0.69	0.19	0.27	0.36	0.66
9	0.02	0.03	0.03	0.02	0.18	0.20	0.13	0.14	0.06	0.11	0.04	0.04	0.08	0.12
10	0.01	0.00	0.01	0.01	0.04	0.06	0.06	0.07	0.03	0.02	0.01	0.02	0.03	0.03
11	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.02	0.02	0.01	0.00	0.01	0.01	0.03
12	0.00	0.02	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.01
13	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.03	0.00	0.01	0.00	0.00	0.01	0.01
14	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ages 0-20	73.76	144.39	119.19	142.30	203.02	171.93	121.20	144.57	116.98	127.80	104.20	113.38	109.36	82.33
Ages 1-4	63.46	135.00	92.92	122.19	188.05	151.41	101.48	102.76	90.14	97.69	86.93	93.55	91.62	54.61
Ages 5+	9.37	8.34	9.37	9.16	10.05	18.34	18.20	35.35	23.75	21.62	8.97	9.90	13.58	22.65
Ages 6-9	4.52	2.76	2.14	2.51	3.67	7.85	7.22	15.18	9.93	11.80	2.92	3.47	4.32	11.59
Age (yrs)	2006	2007	2008	2009	2010	2011	2012							
0	3.75	2.21	9.15	5.49	19.54	4.81	5.16							
1	32.34	32.61	15.98	50.62	50.94	44.14	12.28							
2	17.98	14.51	11.71	19.15	39.25	42.06	9.61							
3	8.50	12.81	8.20	11.40	14.81	20.97	11.27							
4	17.60	18.77	9.57	8.42	9.45	18.79	11.86							
5	13.03	9.57	7.57	9.89	6.74	10.32	10.96							
6	9.11	10.35	6.25	5.40	3.77	5.50	9.03							
7	4.18	6.17	3.51	3.59	2.20	3.15	4.31							
8	1.15	2.14	1.68	1.39	1.02	1.26	1.69							
9	0.18	0.34	0.20	0.25	0.18	0.33	0.29							
10	0.03	0.08	0.03	0.08	0.07	0.13	0.11							
11	0.02	0.04	0.02	0.02	0.04	0.06	0.05							
12	0.01	0.02	0.00	0.01	0.02	0.02	0.02							
13	0.00	0.01	0.00	0.01	0.01	0.00	0.01							
14	0.00	0.01	0.00	0.00	0.00	0.01	0.02							
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
16	0.00	0.00	0.00	0.01	0.00	0.00	0.00							
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
Ages 0-20	107.89	109.64	73.87	115.73	148.03	151.55	76.67							
Ages 1-4	76.42	78.70	45.46	89.59	114.45	125.96	45.02							
Ages 5+	27.72	28.73	19.26	20.65	14.04	20.78	26.49							
Ages 6-9	14.62	19.00	11.64	10.63	7.16	10.24	15.31							

Table 38. Greenland halibut stratified mean number per set at age from Canadian fall surveys conducted in Divisions 2J3KL combined during 1995-2012. Only otoliths collected in Div. 2J3KL are used in the analysis.

Age (yrs)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
0	6.73	2.87	1.44	0.90	3.89	1.84	5.23	4.85	5.72	2.71	3.06	2.29	1.33	5.57	3.35	11.60	3.23	3.30
1	30.32	59.31	17.10	13.19	8.65	23.21	25.96	23.87	27.44	22.10	9.77	19.11	19.64	10.20	31.31	32.28	27.03	7.87
2	31.18	29.08	34.25	15.50	20.62	13.91	12.85	14.56	15.88	20.96	10.21	10.91	8.40	6.85	10.81	21.65	28.61	6.01
3	9.69	20.85	26.66	18.82	15.96	9.74	10.05	7.64	8.13	10.39	5.59	4.98	7.31	5.58	6.76	9.24	13.40	7.14
4	3.62	6.59	15.30	14.01	15.87	7.68	9.75	6.29	6.81	9.06	9.28	10.73	11.77	6.42	5.20	5.98	13.10	8.00
5	4.53	4.62	7.78	10.16	12.83	8.75	6.11	4.37	4.49	6.82	7.84	8.50	5.78	5.13	6.38	4.34	6.88	7.32
6	1.55	2.03	3.75	4.00	7.76	5.45	5.61	1.63	1.68	1.94	4.89	6.48	6.92	4.42	3.73	2.88	3.82	5.89
7	0.29	0.83	1.75	1.78	2.50	1.83	2.49	0.73	0.71	0.80	2.87	3.10	4.23	2.62	2.49	1.76	2.13	2.81
8	0.07	0.18	0.60	0.47	0.48	0.35	0.49	0.23	0.19	0.24	0.45	0.83	1.55	1.29	1.07	0.89	0.79	1.07
9	0.01	0.13	0.17	0.13	0.09	0.06	0.09	0.03	0.03	0.05	0.07	0.13	0.22	0.14	0.21	0.18	0.20	0.17
10	0.01	0.04	0.05	0.04	0.04	0.02	0.02	0.01	0.01	0.02	0.02	0.03	0.06	0.02	0.06	0.06	0.08	0.07
11	0.00	0.02	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.02	0.02	0.03	0.01	0.02	0.03	0.04	0.03
12	0.00	0.01	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.01	0.02	0.01	0.01
13	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01
14	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ages 0-20	88.00	126.58	108.91	79.07	88.72	72.86	78.68	64.22	71.10	75.10	54.09	67.12	67.26	48.26	71.41	90.92	99.31	49.72
Ages 1-4	74.82	115.83	93.31	61.52	61.10	54.54	58.61	52.36	58.25	62.51	34.85	45.73	47.12	29.05	54.07	69.15	82.14	29.01
Ages 5+	6.46	7.88	14.17	16.65	23.74	16.49	14.84	7.01	7.13	9.89	16.18	19.10	18.81	13.64	13.99	10.17	13.95	17.40
Ages 1-10	81.27	123.66	107.40	78.11	84.79	71.00	73.42	59.36	65.37	72.39	51.00	64.79	65.87	42.67	68.02	79.26	96.03	46.35

Table 39. Stratified mean number per tow at age, by division, from 2012 Canadian fall surveys. Values for “All Divs” are not a sum of divisional totals, but a stratified analysis of the entire surveyed area.

Age (yrs)	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3N	Div. 3O	All Divs
0	11.61	7.00	3.59	0.64	0.02	0.00	3.17
1	10.23	13.67	11.15	1.23	0.06	0.00	6.06
2	21.25	17.70	3.84	0.28	0.06	0.06	5.72
3	13.46	12.71	10.18	0.87	0.11	0.03	5.76
4	14.27	12.18	11.60	2.13	0.24	0.03	6.60
5	7.44	8.49	12.92	1.68	0.16	0.05	5.50
6	6.18	5.49	11.54	1.22	0.23	0.02	4.55
7	3.91	3.11	5.30	0.45	0.09	0.01	2.23
8	2.74	1.94	1.46	0.17	0.02	0.02	0.95
9	0.75	0.34	0.24	0.01	0.02	0.01	0.18
10	0.28	0.15	0.08	0.00	0.01	0.00	0.07
11	0.07	0.07	0.04	0.00	0.00	0.01	0.03
12	0.03	0.02	0.02	0.00	0.00	0.00	0.02
13	0.00	0.02	0.01	0.00	0.00	0.00	0.01
14	0.00	0.00	0.03	0.00	0.00	0.00	0.01
15	0.04	0.00	0.01	0.00	0.00	0.00	0.01
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Unk	0.14	0.02	0.02	0.00	0.00	0.02	0.01
5+	21.59	19.65	31.67	3.52	0.52	0.13	13.54
9+	1.32	0.62	0.45	0.01	0.02	0.04	0.31
Total	92.41	82.92	72.03	8.67	1.01	0.24	40.84

Table 40. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 3LNO for 1996 – 2012 spring surveys. Refer to stratum-by-stratum tables for variations in survey coverage.

3LNO (Spring)			
Year	Mean wt/tow	Upper Limit	Lower Limit
1996	1.5	2.0	1.0
1997	2.5	3.0	1.9
1998	4.6	6.8	2.3
1999	2.8	4.0	1.7
2000	3.0	3.6	2.5
2001	1.5	2.0	1.0
2002	0.7	1.0	0.5
2003	1.5	2.0	0.9
2004	1.1	1.4	0.9
2005	1.7	2.6	0.8
2006 *			
2007	3.0	5.1	0.9
2008	2.1	3.4	0.8
2009	0.7	1.0	0.4
2010	1.7	3.5	-0.1
2011	1.0	1.3	0.8
2012	1.9	2.4	1.5

*Survey Incomplete

Table 41. Mean numbers per tow and associated CI for Greenland halibut in Div. 3LNO for 1996 – 2012 spring surveys. Refer to stratum-by-stratum tables for variations in survey coverage.

Year	Division		
	3LNO (Spring)	Upper Limit	Lower Limit
1996	13.8	23.3	4.4
1997	15.6	21.7	9.4
1998	17.7	25.1	10.3
1999	8.8	10.7	6.8
2000	9.1	13.5	4.6
2001	4.5	5.7	3.3
2002	3.3	4.2	2.3
2003	7.6	13.3	2.0
2004	5.1	6.2	4.0
2005	5.1	7.7	2.5
2006 *			
2007	7.5	10.2	4.9
2008	5.9	19.5	-7.8
2009	2.0	2.6	1.4
2010	4.8	7.3	2.3
2011	6.1	7.7	4.5
2012	7.0	8.7	5.3

Table 42. Greenland halibut stratified mean number per set at age from Canadian spring surveys conducted in Div. 3LNO combined during 1996-2012. Only otoliths collected in 3L, 3N, or 3O are used in the analysis. Numbers in Campelen 1800 units.

Age (yrs)	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
0	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
1	1.62	1.16	0.22	0.29	0.79	0.57	0.64	0.93	0.66	0.35	1.60	0.44	0.27	0.77	1.96	0.32	
2	4.24	3.92	0.81	0.55	1.07	0.71	0.57	2.14	0.57	0.31	0.52	0.77	0.22	0.66	1.40	0.80	
3	4.60	5.16	3.85	1.15	1.07	0.74	0.60	1.66	1.18	1.09	0.80	0.96	0.19	0.52	0.92	2.48	
4	2.18	3.23	6.19	1.98	1.51	0.68	0.58	1.57	1.18	0.95	0.40	0.71	0.39	0.40	0.65	1.40	
5	0.83	1.46	4.96	3.39	1.95	0.80	0.61	1.06	1.16	1.37	1.41	1.25	0.45	0.84	0.62	1.16	
6	0.28	0.51	1.24	1.09	2.04	0.72	0.21	0.21	0.26	0.82	1.49	0.75	0.26	1.08	0.29	0.50	
7	0.06	0.10	0.33	0.24	0.56	0.28	0.05	0.05	0.04	0.21	1.12	0.64	0.13	0.35	0.16	0.18	
8	0.00	0.01	0.07	0.05	0.03	0.02	0.01	0.01	0.02	0.03	0.18	0.28	0.07	0.14	0.10	0.06	
9	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.02	0.01	0.02	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	
Ages 1-4	12.64	13.47	11.07	3.98	4.44	2.69	2.40	6.30	3.60	2.70	3.31	2.89	1.06	2.34	4.92	5.01	
Ages 5+	1.17	2.08	6.60	4.78	4.59	1.81	0.87	1.32	1.48	2.43	4.22	2.96	0.92	2.45	1.18	1.92	
Ages 1-10	13.81	15.56	17.67	8.75	9.03	4.51	3.27	7.62	5.08	5.13	7.54	5.85	1.99	4.79	6.10	6.94	

Table 43. Estimates of Mean Length (cm) at age, ages 0-10 from Canadian fall surveys in Div. 2J3K.

Year	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10
1978	8.1	12.7	16.5	22.9	28.4	36.1	41.9	47.2	54.2	60.9	65.2
1979		12.7	21.1	25.8	31.2	38.5	44.2	49.3	53.5	58.6	63.0
1980		13.6	20.5	26.8	33.0	38.8	44.4	49.8	56.0	61.7	65.6
1981		14.2	19.4	25.0	31.8	39.1	45.0	50.6	56.0	63.0	71.7
1982		13.8	19.4	24.3	29.3	34.3	40.7	45.5	50.5	56.2	61.3
1983		13.5	17.6	23.2	29.0	35.0	41.0	47.0	53.0	59.1	65.3
1984		13.1	20.5	25.4	31.5	38.5	44.1	49.0	54.0	59.3	64.5
1985	8.9	12.4	17.3	23.3	29.1	35.9	42.2	47.4	52.5	57.4	61.9
1986	9.3	15.0	20.4	24.2	31.3	36.9	42.3	47.6	52.2	57.0	62.4
1987		13.2	18.3	22.8	28.8	33.8	39.9	45.6	51.1	56.2	61.7
1988	9.7	15.1	21.0	24.9	30.3	34.5	40.6	45.3	51.7	57.7	63.3
1989	8.5	14.4	18.1	22.6	28.2	35.8	41.2	45.9	52.1	58.4	64.4
1990		13.1	18.8	22.5	29.0	35.1	40.6	45.6	51.6	58.3	64.2
1991		14.5	20.3	24.8	29.3	35.7	40.8	45.9	52.1	57.9	64.7
1992	7.8	13.0	16.4	21.3	26.8	35.2	40.2	45.6	51.7	57.8	65.1
1993	8.3	14.4	18.9	23.5	29.3	35.8	41.3	46.9	51.9	57.5	64.5
1994	9.5	15.6	20.5	23.8	28.5	34.3	40.1	45.5	51.5	56.8	62.2
1995	10.1	17.7	21.1	26.6	31.0	35.0	40.1	48.0	54.2	58.3	62.0
1996	9.0	16.3	23.4	27.7	32.6	36.4	41.1	46.4	51.7	57.3	63.5
1997	9.5	16.8	22.1	25.6	28.9	35.1	40.2	46.0	51.9	57.7	63.1
1998	9.4	17.4	22.0	27.4	31.9	36.0	40.8	45.7	51.6	58.9	63.2
1999	9.5	17.5	22.0	27.3	30.6	36.3	41.0	44.6	50.9	58.2	
2000	9.5	17.3	23.1	28.3	32.7	37.3	42.0	46.4	51.3	59.2	65.2
2001	10.2	18.0	24.0	27.3	31.2	36.0	41.1	46.0	51.4	55.6	61.9
2002	10.8	18.2	23.3	28.0	31.9	37.0	42.4	47.4	51.2	57.3	63.8
2003	11.7	18.7	24.1	28.6	32.1	36.7	41.9	47.0	52.3	58.5	61.7
2004	10.7	18.3	23.2	27.6	30.9	36.0	41.1	45.7	51.3	57.1	61.2
2005	13.0	19.7	24.0	28.3	31.9	36.1	41.0	45.1	50.3	56.1	60.6
2006	10.4	17.7	23.2	27.5	31.4	36.2	40.8	45.9	50.6	57.1	61.9
2007	9.6	18.1	23.2	27.5	30.8	35.8	41.1	45.8	50.8	56.7	60.4
2008	9.8	17.6	24.3	27.8	30.7	36.7	41.0	46.1	50.6	57.3	62.1
2009	9.6	16.9	22.3	26.8	30.7	35.6	40.5	45.9	51.0	57.6	63.4
2010	10.0	17.1	22.3	26.9	30.6	35.6	41.1	45.6	51.2	57.7	62.9
2011	9.8	18.7	22.3	27.2	30.6	35.8	40.4	45.6	51.0	57.8	63.3
2012	9.4	16.4	23.6	27.9	31.7	36.6	41.3	45.7	50.8	57.7	63.4

Table 44. Estimates of Mean Weight (kg) at age, ages 0-10 from Canadian fall surveys in Div. 2J3K.

Year	Age 0	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8	Age 9	Age 10
1978	0.00	0.02	0.04	0.10	0.20	0.42	0.66	0.96	1.47	2.11	2.61
1979		0.02	0.08	0.15	0.26	0.51	0.78	1.09	1.41	1.88	2.35
1980		0.02	0.07	0.16	0.31	0.52	0.79	1.13	1.63	2.20	2.67
1981		0.02	0.06	0.13	0.28	0.53	0.82	1.19	1.63	2.35	3.51
1982		0.02	0.06	0.12	0.22	0.35	0.60	0.85	1.18	1.65	2.16
1983		0.02	0.04	0.11	0.21	0.38	0.62	0.95	1.38	1.93	2.63
1984		0.02	0.07	0.14	0.27	0.51	0.78	1.08	1.45	1.95	2.53
1985	0.01	0.02	0.04	0.11	0.21	0.41	0.68	0.97	1.34	1.76	2.23
1986	0.01	0.03	0.07	0.12	0.27	0.45	0.68	0.98	1.31	1.72	2.28
1987		0.02	0.05	0.10	0.21	0.34	0.57	0.86	1.22	1.65	2.20
1988	0.01	0.03	0.08	0.13	0.24	0.36	0.60	0.84	1.27	1.78	2.38
1989	0.01	0.02	0.05	0.10	0.19	0.40	0.63	0.87	1.30	1.85	2.51
1990		0.02	0.05	0.10	0.21	0.38	0.60	0.86	1.26	1.84	2.50
1991		0.03	0.08	0.13	0.22	0.39	0.58	0.82	1.19	1.62	2.24
1992	0.00	0.02	0.04	0.08	0.16	0.37	0.55	0.79	1.15	1.60	2.28
1993	0.00	0.02	0.05	0.11	0.21	0.38	0.60	0.88	1.21	1.66	2.35
1994	0.01	0.04	0.08	0.12	0.20	0.34	0.54	0.78	1.11	1.48	1.93
1995	0.01	0.05	0.08	0.15	0.24	0.35	0.52	0.88	1.27	1.58	1.90
1996	0.00	0.03	0.09	0.16	0.27	0.38	0.56	0.83	1.17	1.63	2.27
1997	0.01	0.04	0.08	0.13	0.19	0.35	0.53	0.80	1.17	1.62	2.15
1998	0.01	0.04	0.08	0.16	0.26	0.38	0.55	0.79	1.15	1.73	2.16
1999	0.01	0.04	0.08	0.16	0.22	0.38	0.56	0.73	1.10	1.67	
2000	0.01	0.04	0.09	0.17	0.28	0.42	0.61	0.84	1.16	1.83	2.48
2001	0.01	0.04	0.11	0.16	0.24	0.37	0.56	0.80	1.13	1.45	2.02
2002	0.01	0.05	0.10	0.17	0.26	0.41	0.62	0.89	1.12	1.59	2.22
2003	0.01	0.05	0.11	0.18	0.26	0.40	0.60	0.85	1.19	1.69	1.99
2004	0.01	0.05	0.10	0.17	0.24	0.39	0.58	0.81	1.15	1.61	2.00
2005	0.02	0.06	0.11	0.18	0.26	0.39	0.58	0.79	1.11	1.57	2.00
2006	0.01	0.04	0.10	0.17	0.25	0.40	0.58	0.84	1.15	1.68	2.17
2007	0.01	0.04	0.10	0.16	0.24	0.38	0.59	0.83	1.16	1.63	2.00
2008	0.01	0.04	0.11	0.17	0.23	0.41	0.58	0.83	1.12	1.65	2.13
2009	0.01	0.04	0.08	0.15	0.23	0.37	0.55	0.81	1.13	1.65	2.22
2010	0.01	0.04	0.08	0.15	0.23	0.37	0.59	0.81	1.17	1.71	2.24
2011	0.01	0.05	0.09	0.16	0.23	0.38	0.55	0.80	1.15	1.69	2.25
2012	0.01	0.03	0.10	0.17	0.26	0.41	0.60	0.83	1.16	1.74	2.35

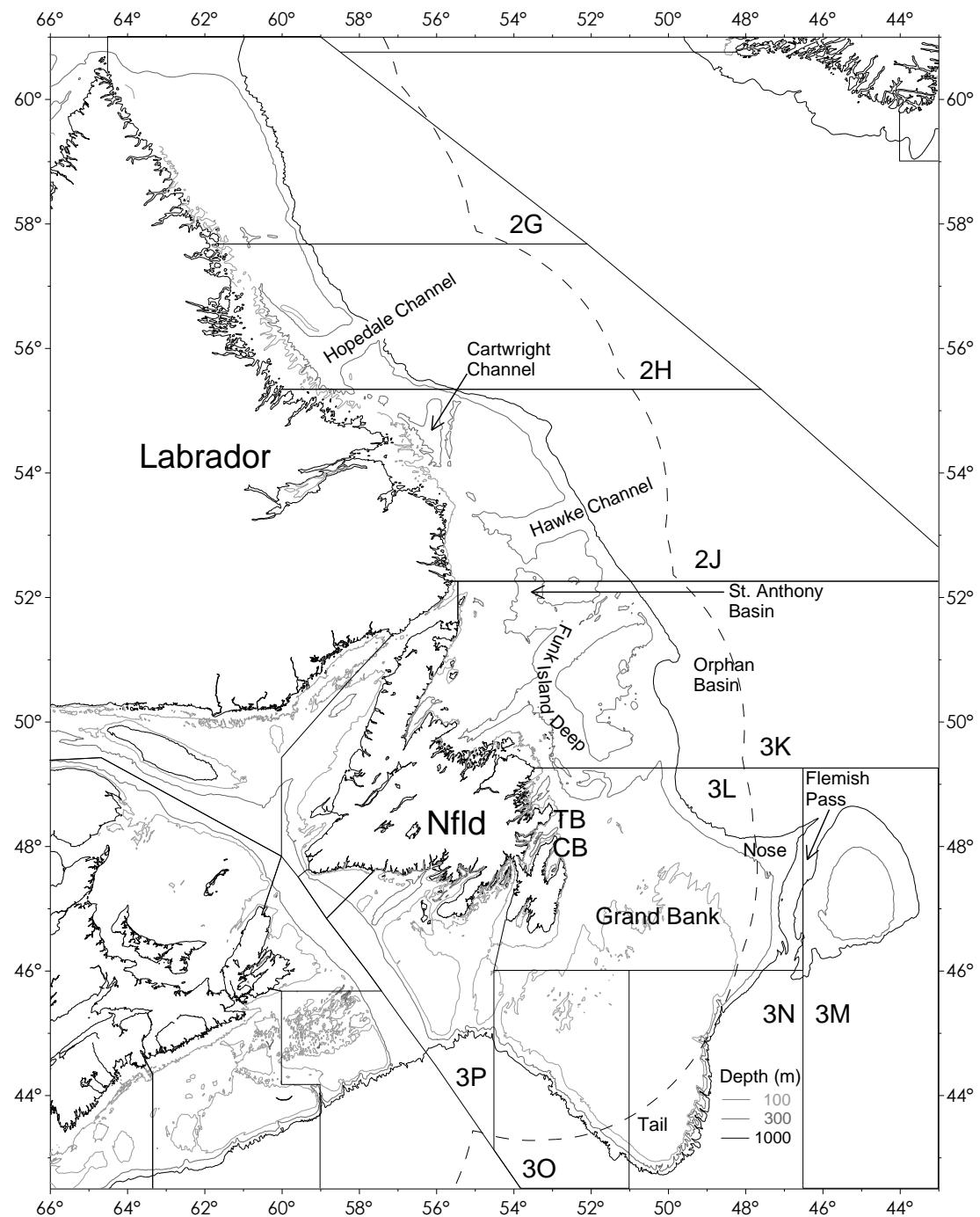


Figure 1. Map of stock area, with NAFO dividing lines, select isobaths, and names referred to in the text. TB and CB refer to Trinity and Conception Bays, respectively.

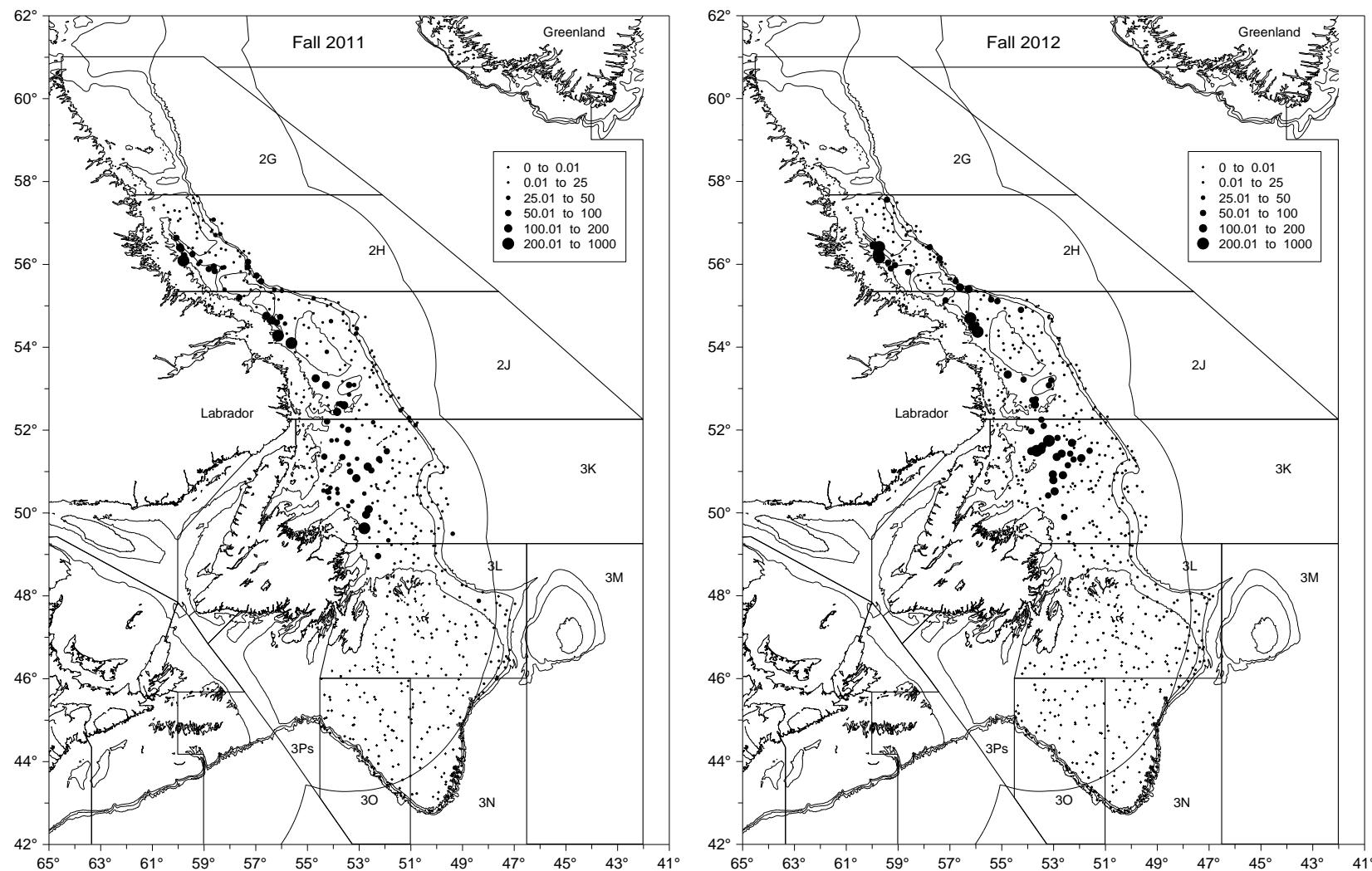


Figure 2. Distribution (kg per 15 minute tow) of Greenland halibut from Canadian fall surveys during 2011 (left) and 2012 (right). Depth contours of 200m, 500m, and 100m are shown, along with the NAFI divisional boundary lines, and the Canadian EEZ.

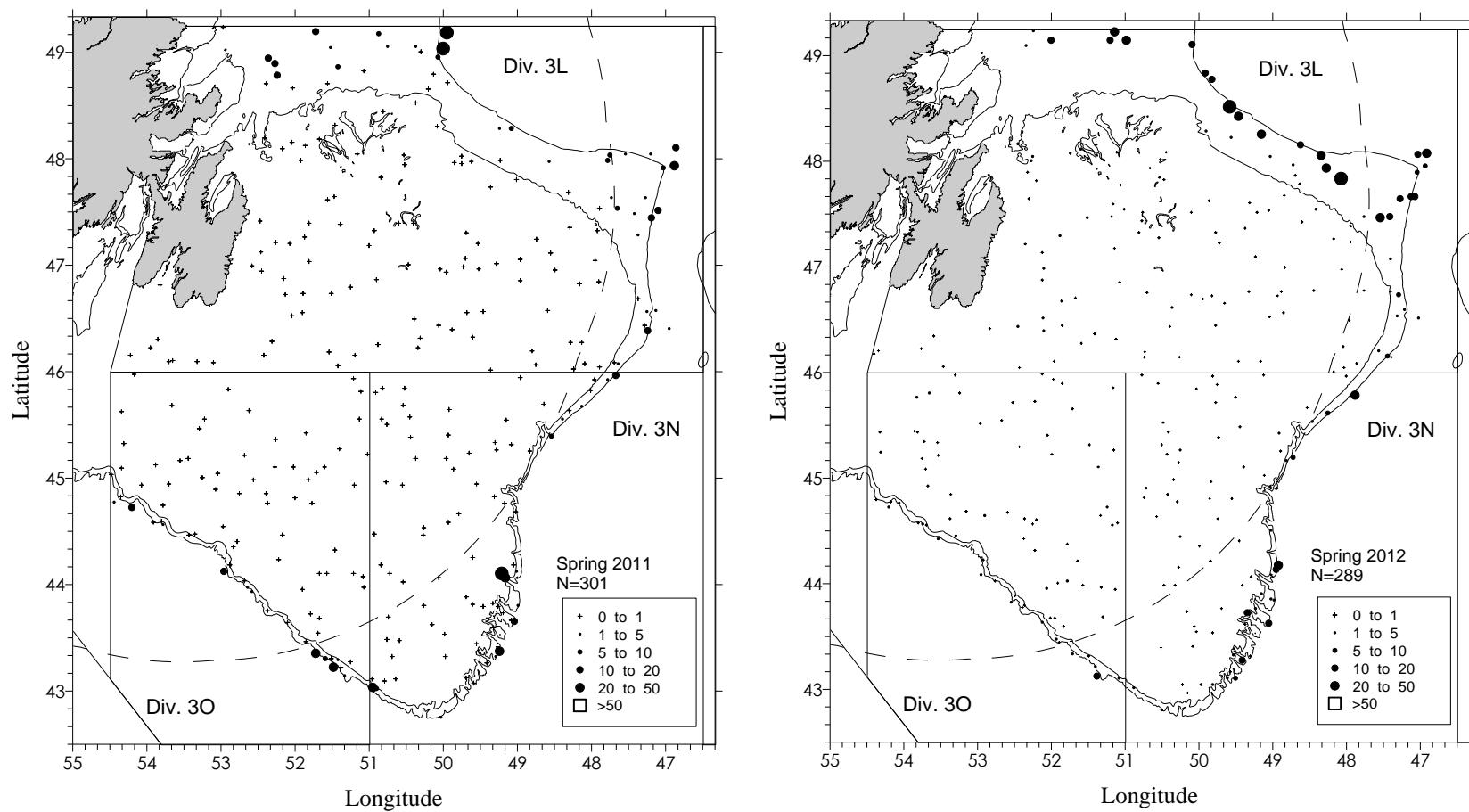


Figure 3. Distribution (kg per 15 minute tow) of Greenland halibut from Canadian spring surveys during 2011 (left) and 2012 (right). Depth contours of 200m, and 500m are shown, along with the NAFO divisional boundary lines, and the Canadian EEZ. (See also Appendix I).

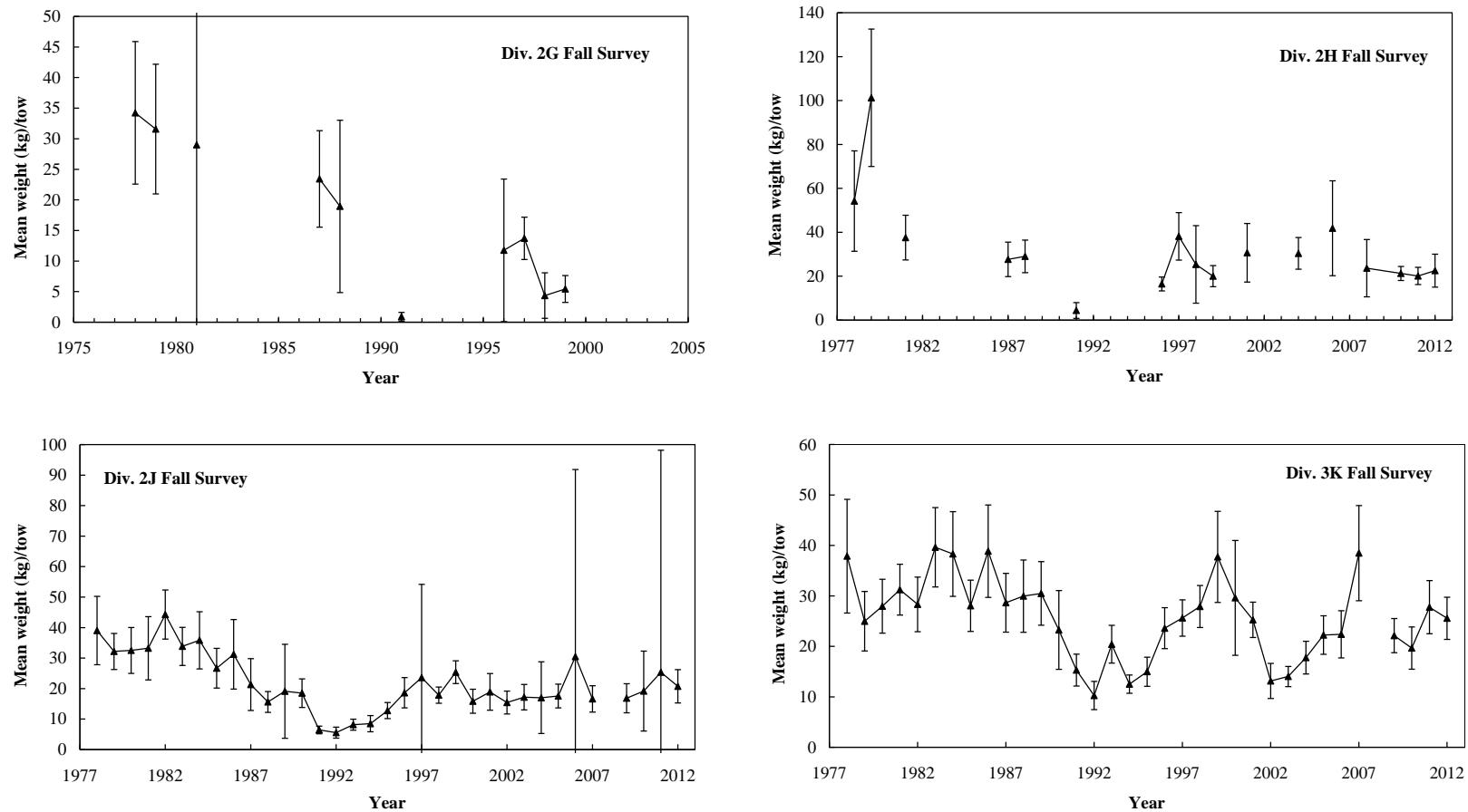


Figure 4. Stratified mean weight per tow (kg) estimates in NAFO Divisions 2G, 2H, 2J, and 3K from Canadian fall surveys during 1978-2012.

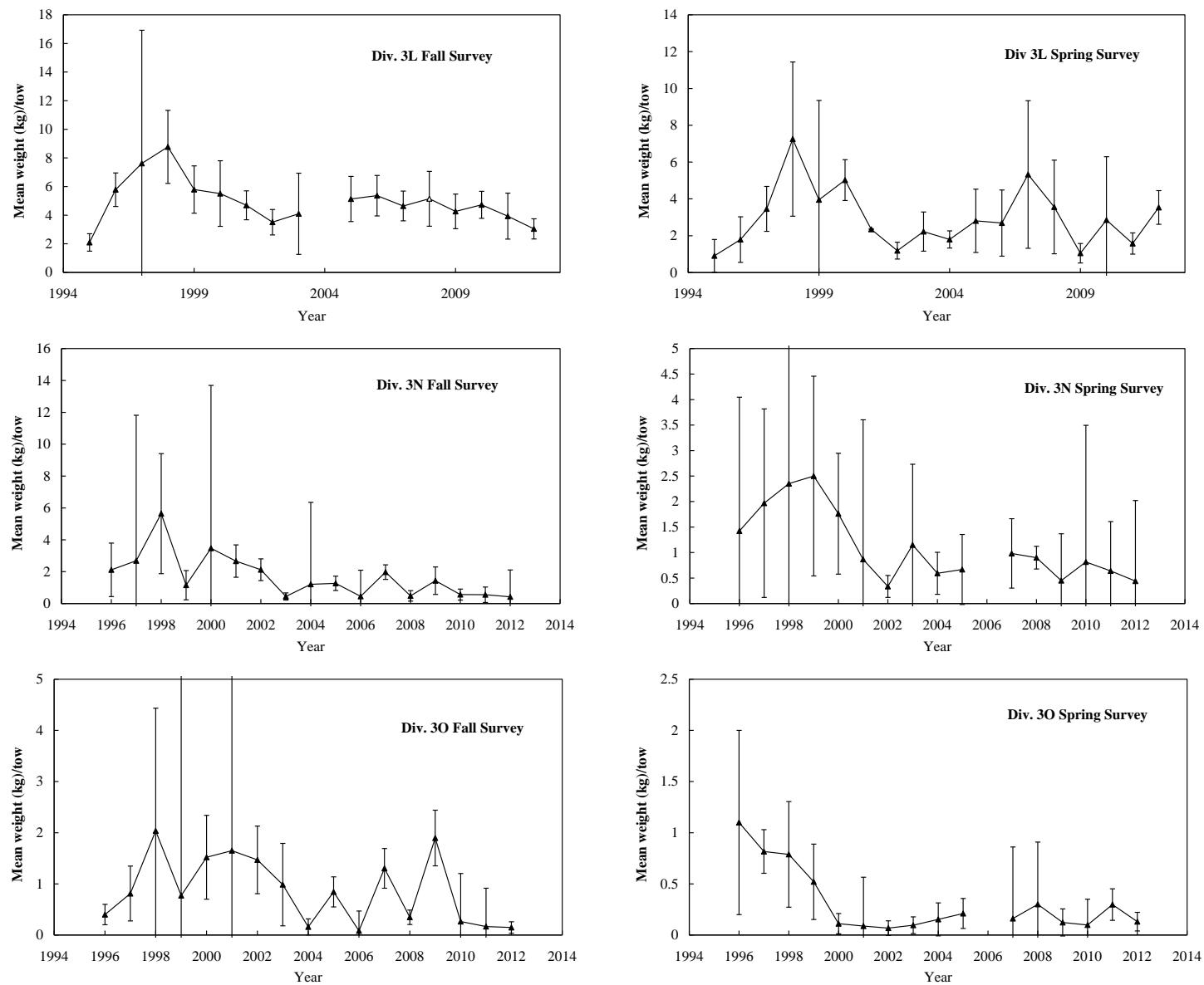


Figure 5. Stratified mean weight per tow estimates in NAFO Divisions 3L, 3N, and 3O during fall and spring surveys.

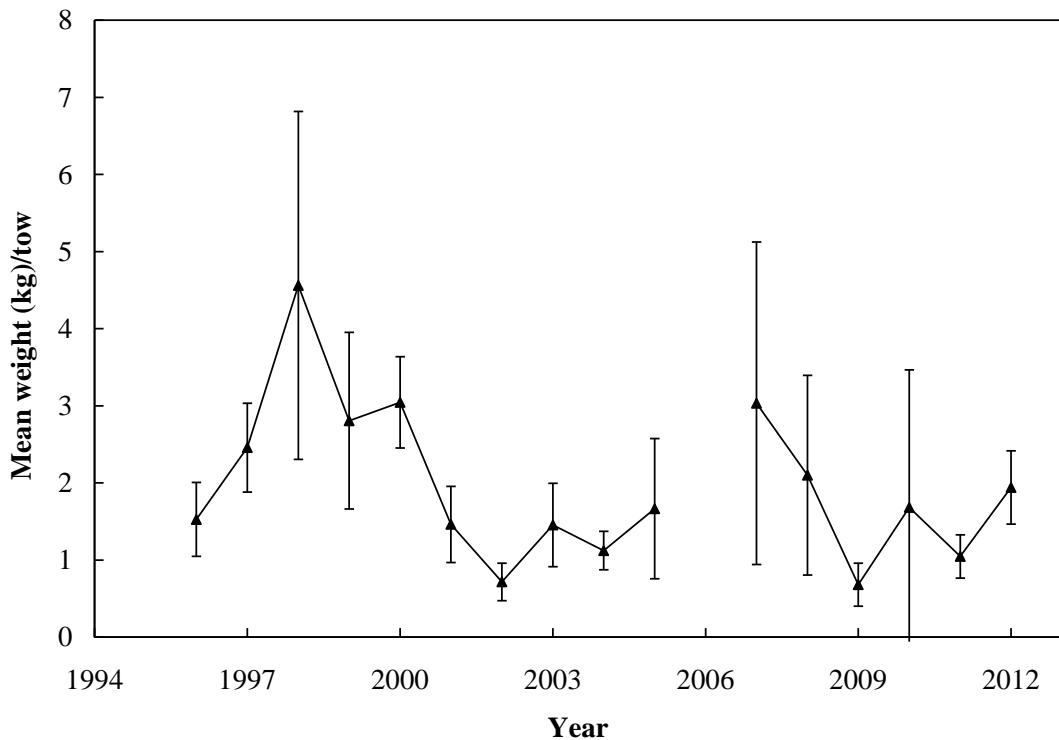


Figure 6. Stratified mean weight per tow (kg) for spring surveys in Divisions 3LNO combined.

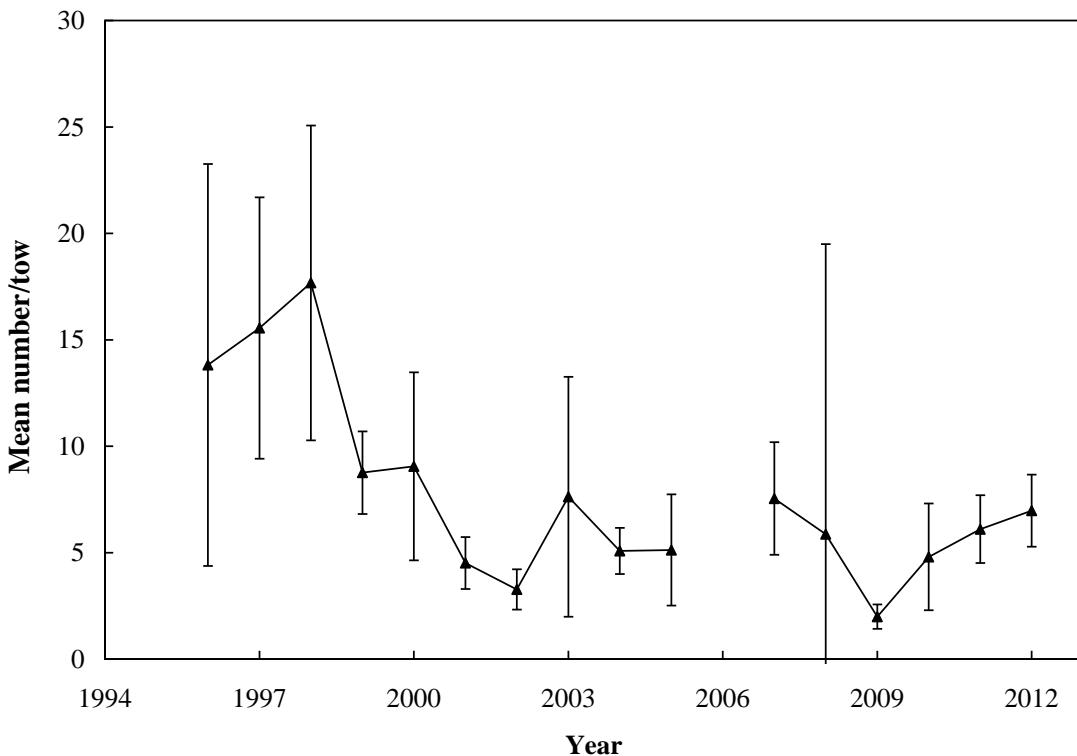


Figure 7. Stratified mean number per tow for spring surveys in Divisions 3LNO combined.

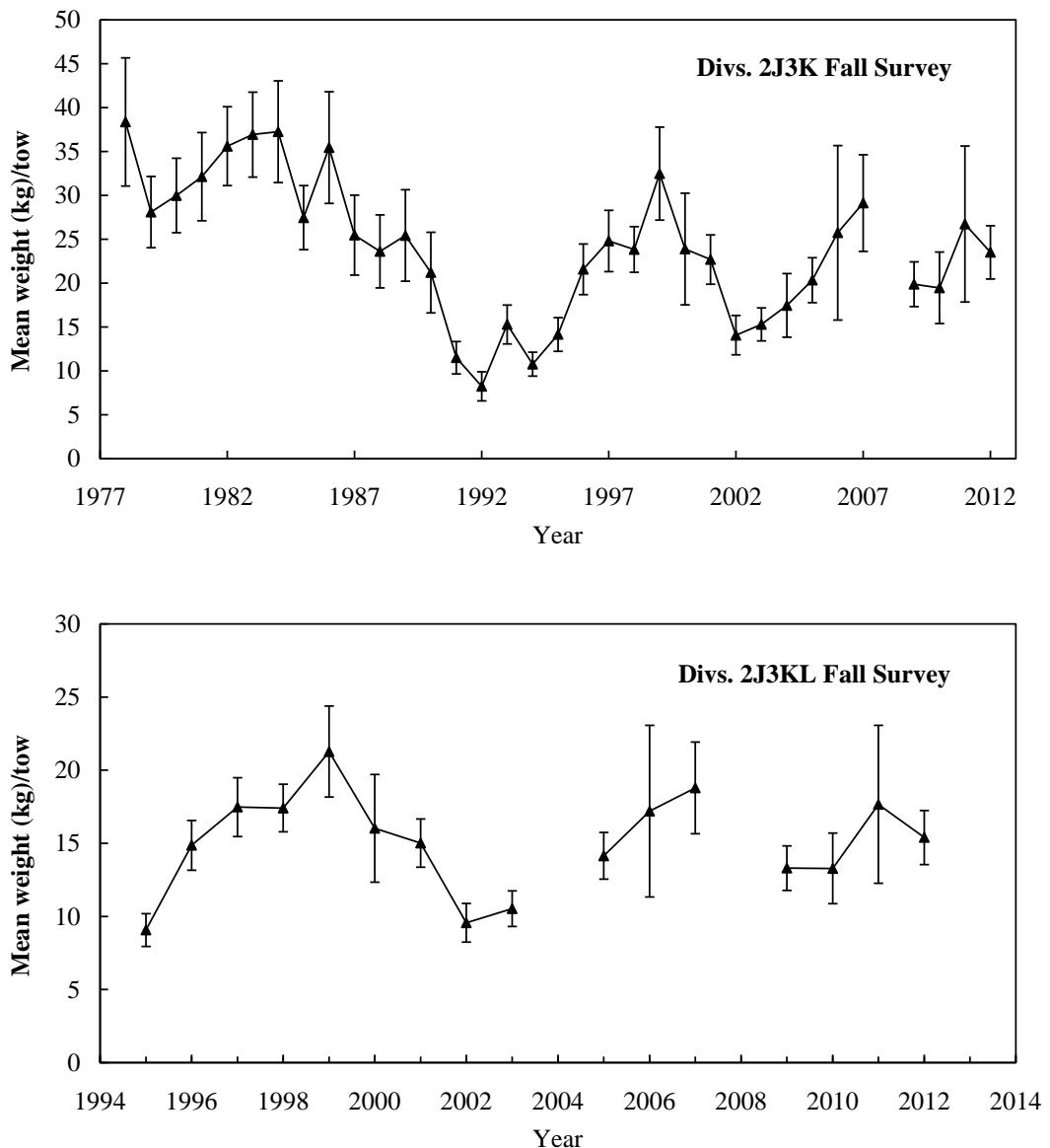


Figure 8. Stratified mean weight (kg) per tow estimates for Divisions 2J3K combined and 2J3KL combined.

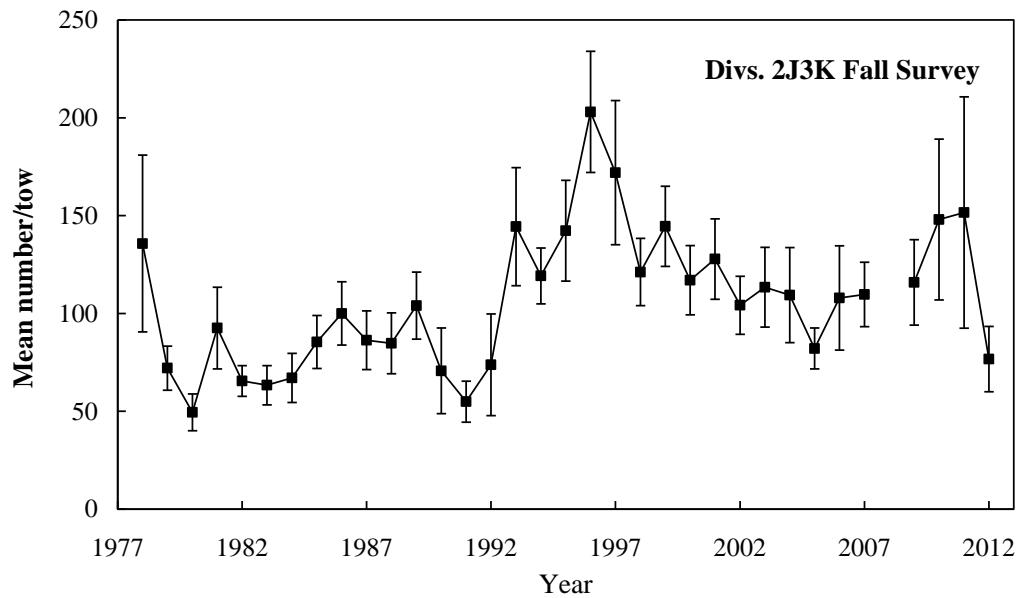


Figure 9. Campelen (or equivalent) stratified mean number per tow of Greenland Halibut from fall surveys in NAFO Divisions 2J3K combined during 1978-2012.

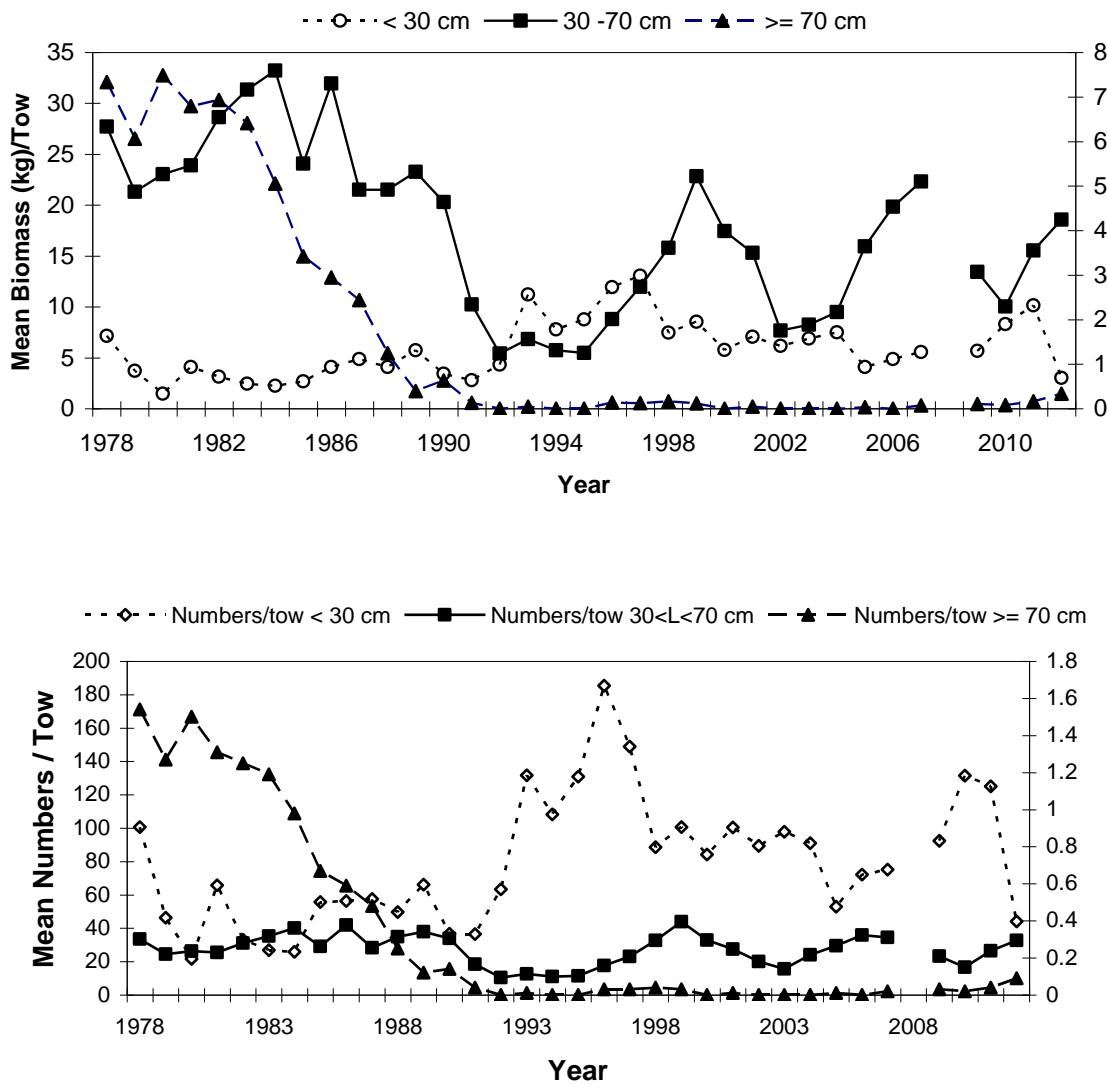


Figure 10. Mean biomass (upper panel) and mean numbers (lower panel) per tow of Greenland Halibut by selected length classes from fall surveys conducted in Divisions 2J3K during 1978-2012. The data for 70+ cm Greenland Halibut are plotted on the right-hand vertical axis in each panel. See text for computational details.

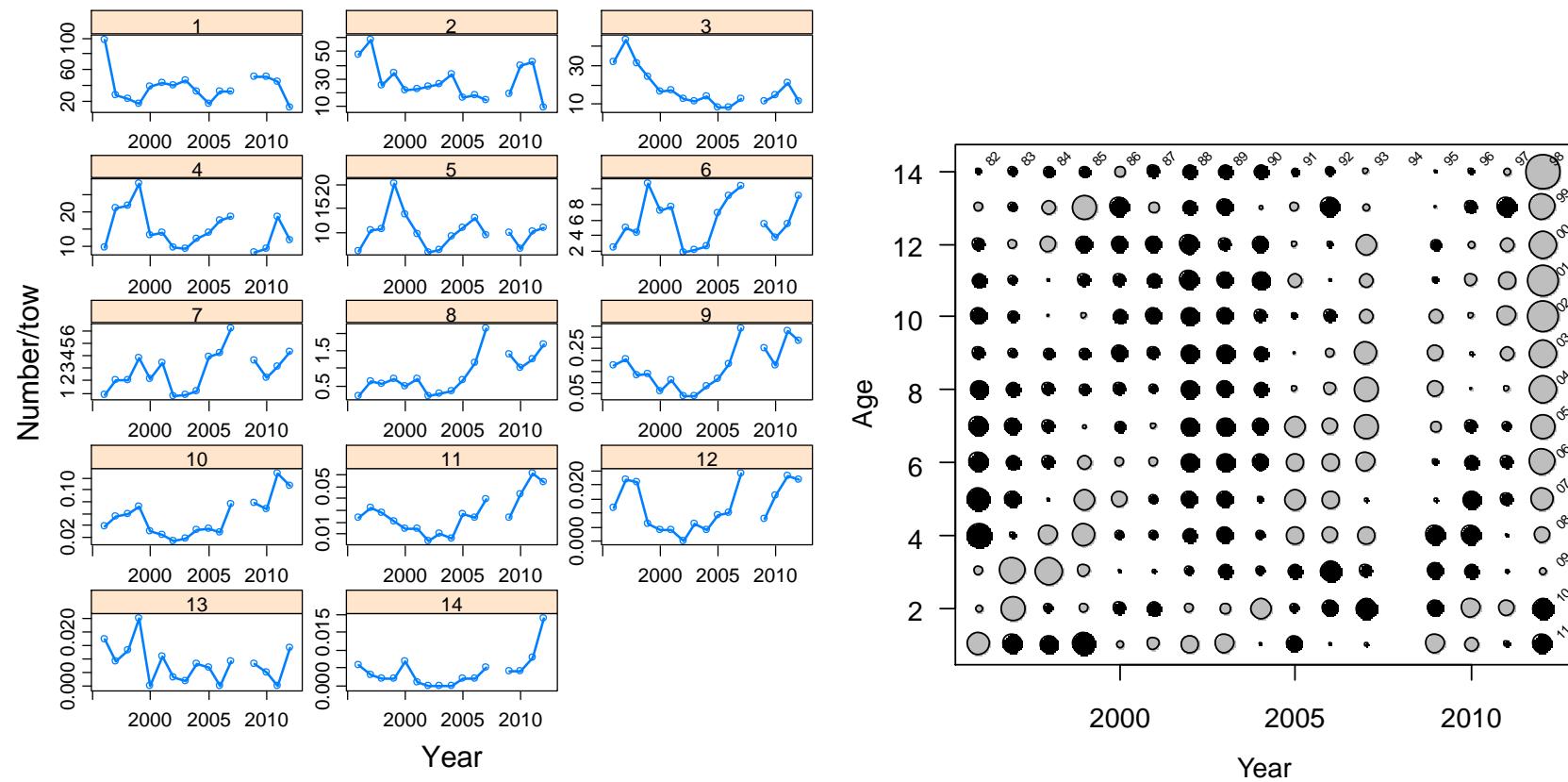


Figure 11. Abundance at age from Canadian fall surveys in Divisions 2J and 3K.

Left Panel: Mean numbers per tow at age.

Right panel: Standardized proportions at age – see text for details. Symbol sizes indicate magnitude of standardized proportion and those greater than average for that age are shown as grey circles, with less than average values as black circles. Labels in the upper and right margins identify cohorts.

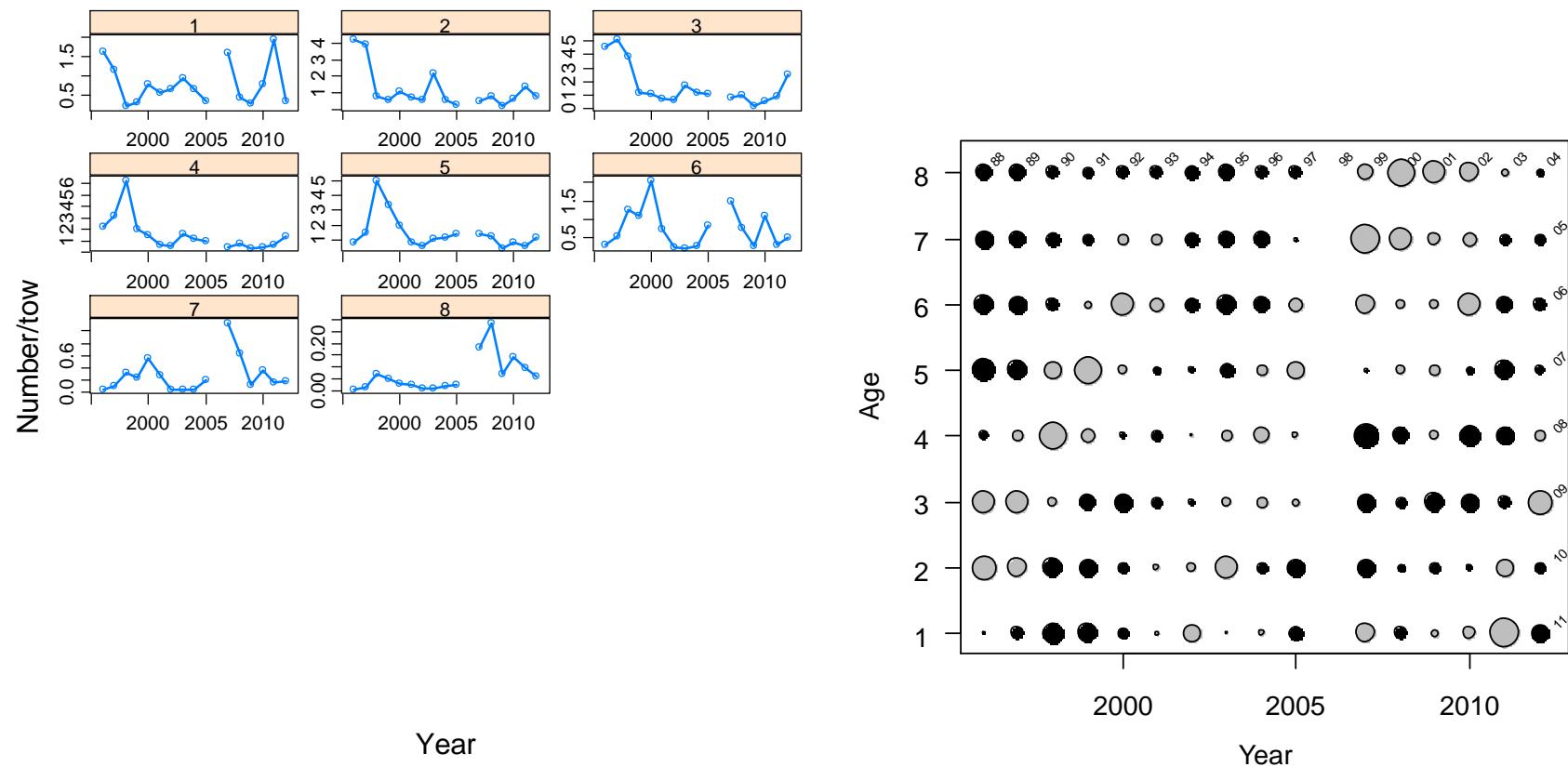


Figure 12. Abundance at age from Canadian spring surveys in Divisions 3LNO.

Left Panel: Mean numbers per tow at age.

Right panel: Standardized proportions at age – see text for details. Symbol sizes indicate magnitude of standardized proportion and those greater than average for that age are shown as grey circles, with less than average values as black circles. Labels in the upper and right margins identify cohorts.

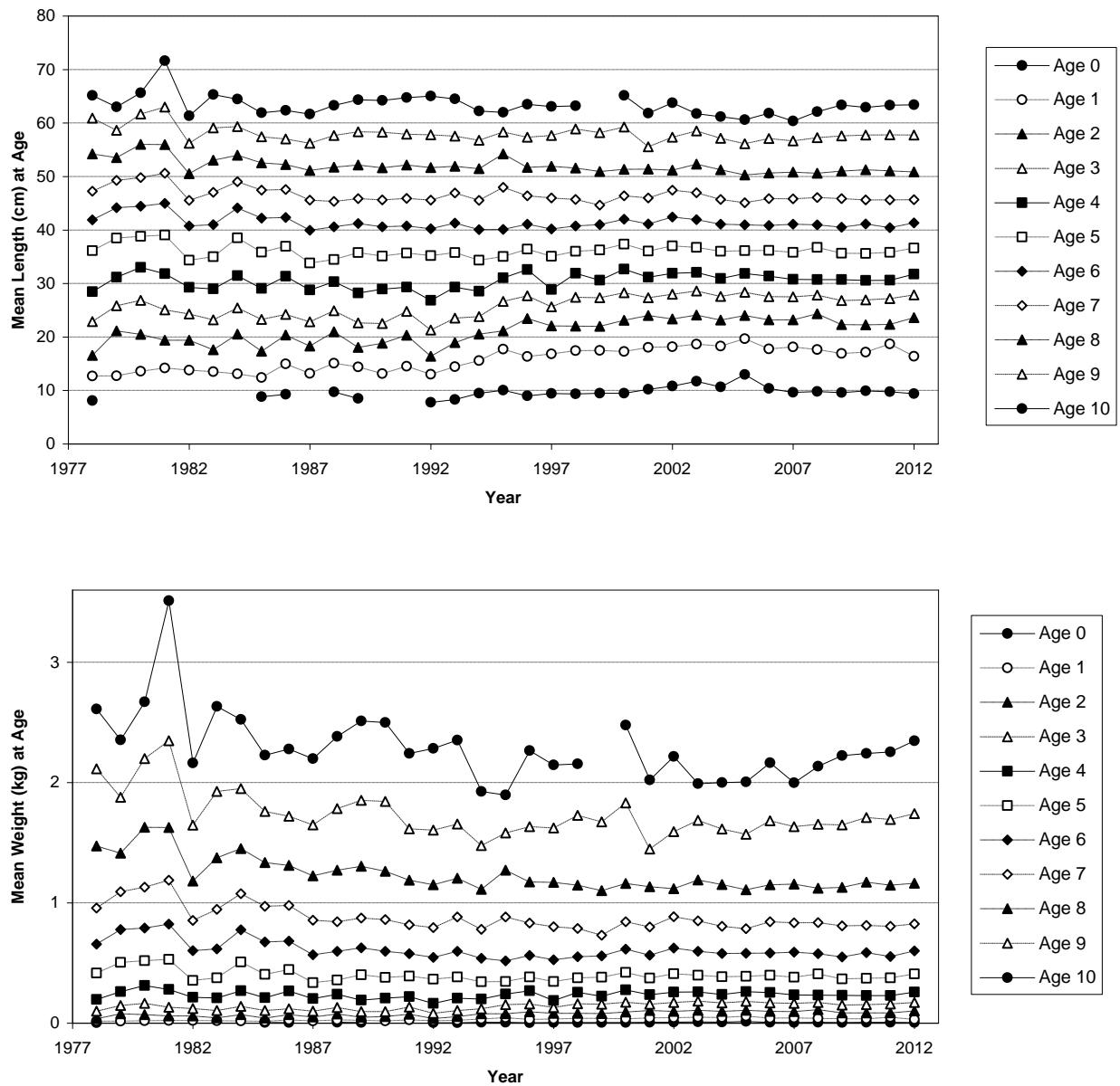


Figure 13. Length at age (cm) and weight at age (kg) for Greenland halibut from Canadian fall surveys in Div. 2J3K, ages 0-10, from 1978-2012.