Northwest Atlantic Fisheries Organization

Serial No. N4869 **NAFO SCR Doc. 03/51**

SCIENTIFIC COUNCIL MEETING – JUNE 2003

Greenland Halibut *(Reinhardtius hippoglossoides)* in NAFO Subarea 2 and Divisions 3KLMNO: Stock Trends Based on Annual Canadian Research Vessel Survey Results during 1978-2002

by

K. S. Dwyer and W.R. Bowering

Department of Fisheries and Oceans, Science, Oceans and Environment Branch
NW Atlantic Fisheries Centre, P.O. Box 5667, St. John's, NF, Canada, A1C 5X1

Abstract

Greenland halibut are widely distributed throughout the Labrador-eastern Newfoundland area. During the late-1970s and most of the 1980s they were found in relatively high abundance along the deep slopes of the continental shelf particularly in Division 2G. They were similarly plentiful in the deep channels running between the fishing banks especially in Div. 2H, 2J and 3K. By 1991 distribution in the northern areas was greatly reduced and most of the resource was located in Div. 3K and along the north slope of Div. 3L and to some degree Div. 3N. By 1996-2001 distribution to some areas of historically high abundance off southern and central Labrador as well as northeast Newfoundland again began to occur. In Div. 2J and 3K where most of the Greenland halibut resource resides the stock biomass was relatively stable until the mid-1980s after which it declined substantially to reach an all time low in the early-1990s 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 good successive year-classes particularly those of 1993-95. However, since 1999, in the stock declined again and by 2002, it reached its lowest point since the early-1990s. There has been no observed improvement in the spawning stock biomass estimates (> 70 cm) for more than a decade. This paper updates the Canadian research vessel survey results for 2002 and introduces figures and tables of stratified mean numbers (000s) and weights (kg) per tow with associated confidence intervals, as recommended in NAFO Sci. Coun. Rep., 2002. These showed similar trends as the swept area estimates, but because they are standardised, are more comparable since they remove much of the bias due to varying survey coverage.

Introduction

Abundance and biomass estimates for Greenland halibut (NAFO Subarea 2 and Div. 3KLMNO) from Canadian annual research vessel (RV) surveys are updated for 2002, and as well, stratified mean numbers and weights per tow with associated confidence intervals are introduced by division and age. As recommended in NAFO Sci. Coun. Rep. 2002, p. 218, mean number or weight per tow is preferred over swept area estimates.

Materials and Methods

Canadian Research Vessel Surveys

Divisions 2GH

Research vessel surveys have been conducted occasionally in NAFO Div. 2G and 2H since 1978 usually during late summer or early fall. During 1978, 1979 and 1981 surveys were conducted according to fixed station design, which were later post stratified in order to provide estimates of biomass and abundance. Surveys in these divisions were again conducted in both 1987 and 1988 using true stratified random (SR) design. All surveys were carried out by

the research vessel *Gadus Atlantica* using an *Engel 145'* High Rise otter trawl. In 1991, a survey (SR) covering mainly Div. 2H was conducted with the research vessel *Alfred Needler* also using an *Engel 145'* High Rise otter trawl but with some variation from the one used above. Depths fished generally ranged from <200-1 000 meters although it varied from survey to survey depending on fishing days available, weather conditions and bottom topography.

Surveys also were carried out annually from 1996-99 in Div. 2GH. By this time the *Gadus Atlantica* had been replaced by the research vessel *Teleost* and a new standard survey trawl was introduced i.e. a *Campelen 1800* Shrimp trawl which was much more effective in capturing very small fish. With the introduction of the *Teleost* the depth range of the surveys also were extended where possible to 1 500 meters. No survey was conducted in Div. 2GH during 2000 and only Div. 2H was surveyed in 2001. Neither Division was surveyed in 2002; however, stratified mean number and weight/tow is presented in this paper for all years surveyed.

Divisions 2J and 3K

Stratified random fall surveys generally within a depth range of 100-1 000 meters have been conducted annually in Div. 2J and 3K from 1977-94 and 1978-94, respectively using the research vessel *Gadus Atlantica* with its *Engel 145'* High Rise otter trawl. From 1995-2002 the surveys were conducted primarily using the research vessel *Teleost* that was sometimes supported by the research vessels *Wilfred Templeman* (sister ship of the *Alfred* ***Needler***) and the *Alfred Needler* usually covering a depth range of 100-1 500 meters. All vessels used the *Campelen 1800* Shrimp trawl with identical construction. Because the operation of the gear was monitored by electronic sensors during these surveys in order to maintain consistency from set to set, catchability was assumed to be the same for all vessels.

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

Surveys have been conducted by Canada in Div. 3LNO and occasionally Div. 3M for many years, however, prior to 1996 the maximum depth usually did not exceed 400 meters. Therefore, the data collected on Greenland halibut were considered too minimal to adequately describe its distribution and abundance and were not used in the assessments of the resource. From 1996-2002, attempts were made to extend the surveys to depths of at least 730 meters and where possible to 1 500 meters. Surveys were carried out in both spring and fall by a combination of the research vessels *Teleost*, *Wilfred Templeman* and *Alfred Needler* using the *Campelen 1800* Shrimp trawl. Plots of the spring survey biomass indices and age compositions for Div. 3LNO from 1996-2002 are shown for comparison with the fall surveys.

Comparative Fishing Exercises

In order to maintain consistency in the data time series with the introduction of the new research vessel *Teleost* (which replaced the *Gadus Atlantica*) and replacement of the standard *Engel 145'* High Rise survey trawls by the *Campelen 1800* Shrimp trawl, comparative-fishing trials were conducted.

In 1995, comparative-fishing trials were carried out between the *Gadus Atlantica* using the *Engel 145'* High Rise trawl and the *Teleost* using the *Campelen 1800* shrimp trawl. Data analysis and results of these exercises are presented in Warren (1996) including the associated length frequency conversion factors for the major species including Greenland halibut.

In 1996, comparative-fishing trials were carried out between the *Alfred Needler* using the *Engel 145'* High Rise trawl and the *Wilfred Templeman* using the *Campelen 1800* shrimp trawl. Data analysis and results of these exercises are presented in Warren *et. al.* (1997) including the associated length frequency conversion factors for the major species including Greenland halibut.

As a result of these analyses all length frequency data on Greenland halibut collected during the above surveys carried out in NAFO Subarea 2 and Div. 3K from 1977-94 were converted to *Campelen 1800* trawl catch equivalents to allow for direct comparison of the old data series with the results of surveys from 1995 onwards (Bowering *et al*., 1996). Data conversions for the *Engel 145'* trawl used in surveys in Div. 3LMNO have not yet been conducted due to poor coverage of the depth zones where most Greenland halibut are encountered.

To allow for comparison of the biomass estimates between the converted data series and the true *Campelen 1800* estimates, the converted abundance at length was transformed to biomass at length using length-weight relationships applied annually to the entire converted data set (from Gundersen and Brodie, 1999).

As a result of the above data analyses, all data presented in this paper are therefore in *Campelen 1800* trawl catch equivalents.

Fall survey coverage by NAFO Division and depth zone for the true *Campelen 1800* surveys from 1996-2002 is presented in Table A and spring survey coverage in Table B.

Geographic Distribution

To demonstrate the changing distribution patterns throughout the period 1978-2001 data from the years 1978, 1988, 1991, 2000 and 2001 were presented for illustration purposes in the previous review (Bowering 2002). As an update on distribution patterns only 2001 and 2002 data are presented here (Fig. 1 and 2).

Trends in Stock Size

Biomass and abundance indices by stratum are updated in Tables 1 and 2, respectively, for Div. 2G; Tables 3 and 4 for Div. 2H; Tables 5 and 6 for Div. 2J; Tables 7 and 8 for Div. 3K; Tables 9 and 10 for Div. 3L fall; Tables 11 and 12 for Div. 3M; Tables 13 and 14 for Div. 3N fall; Tables 15 and 16 for Div. 3O fall; Table17 for Div. 3L spring; Table 18 for Div. 3N spring; and Table 19 for Div. 3O spring.

For purposes of consistency, otolith numbers for age-length keys for Div. 2GH combined, Div. 2J+3KL combined, Div. 3MNO combined were applied to the respective individual Divisions (Table C), in order to obtain estimates at age. This was done except in cases where more than one division was used (i.e. Div. 2J+3K combined – otoliths were only used from Div. 2J and 3K) or when spring samples were used (i.e. Table D).

Stratified Number and Weight (kg) Per Tow

Confidence intervals (95%) were used as the measure of variation in estimates of stratified mean number and weight per tow.

Figure 5 was updated with estimates of mean biomass/tow, by converting mean numbers at length per tow and transforming to biomass at length per tow using annual length-weight (L/W) equations (sexes combined) available for 1990-2002. These annual equations were calculated using linear regression of length against weight and fitting a power model to the data. These equations are in Table E. For 1978-89, the 1990 L/W equation was used. The R^2 value was high for each relationship (Table E), but the equation in most years tended to underestimate weight for the longer fish in the population indicating that the biomass is underestimated slightly in the very longest fish in the population.

Results and Discussion

Geographic Distribution

The 2001 survey (Fig. 1) did not cover Div. 2G, however, results indicated relatively high concentrations in Hopedale Channel (Div. 2H) and widespread distribution of good catches along the slope from central Labrador to the northeast Grand Bank. Highest abundance was observed in traditional areas of the the deep channels running between the fishing banks particularly in Div. 2J and 3K. The 2002 survey (Fig. 2) did not cover Div. 2G or 2H. Although catch per set was clearly much lower than in 2001, the areas of highest density were similar.

Trends in Stock Size

The biomass index for Div. 2G declined by nearly half from an average of about 50 000 tons during 1978, 1979 and 1981 to 23 000 tons during 1987-88 (Table 1). It further declined by another 50% to an average of 13 000 tons during 1996-99. The 1999 value of 10 000 tons is among the lowest observed despite one of the more complete years of survey

coverage (Table 1). A similar but less severe trend was experienced in Div. 2H (Table 3).The biomass index declined from an average of about 52 000 tons (excluding 1979 which was considered to be anomously high) during 1978-81 to around 40 000 tons in 1987-88 and 34 000 tons during 1996-99 with an estimated 38 000 tons for 2001 (Table 3). Unfortunately, there are so many years throughout the series that have no surveys it is difficult to determine when the various declining trends actually began. No survey was conducted in Div. 2GH during 2000 and only Div. 2H was surveyed in 2001. In 2002, neither Div. 2G or 2H was surveyed.

Unlike Div. 2G and 2H, the annual survey series is unbroken from 1978-2002 for both Div. 2J and 3K. In Div. 2J the biomass index was relatively stable from 1978-84 at an average level of about 115 000 tons (Table 5a and b). It then began to decline to reach an all time low in 1992 at about 18 000 tons and only increased marginally until 1995 after which it began to increase more rapidly. By 1999 it had reached a level of around 87 000 tons, the highest since 1986 but declined again in 2000 to 55 000 tons, the lowest since 1995 (Table 5a and b). Although the estimate rose slightly in 2001, it returned to a low level of 54 000 tons in 2002.

In Div. 3K there was a rather long period of apparent stability from 1978-89 at an average annual biomass estimate of 130 000 tons (Table 7a and b). It then declined to a low of 44 000 tons in 1992 with an average of 63 000 tons between 1991-94. After 1994 the biomass index increased rather rapidly and steadily until by 1999 it reached an estimate of 176 000 tons, the highest in the time series (Table 7a and b). Since 2000, the biomass index has been declining, the 2002 value being the lowest since 1994. It is worth noting that the estimates from 1995-2002 represent actual *Campelen 1800* Shrimp trawl surveys and therefore any trends are not potential artifacts of data conversions.

The fall survey biomass indices for Div. 3L, 3M, 3N and 3O are shown in Tables 9, 11, 13 and 15, respectively. Survey coverage in Div. 3L has been rather comprehensive for the period examined. The biomass index has declined over the past 3 years with the 2002 value the lowest in 7 years. Survey coverage has varied from year to year in Div. 3MNO (Tables 11, 13 and 15, respectively). Nevertheless, stock estimates for these divisions have also declined over the past 3 years. It appears that the overall combined biomass estimates in these divisions are rather low in proportion to Subarea 2 + Div. 3K ranging from about 13-33% (Table 20).

Stock size estimates for the Div. 3L, 3N and 3O spring survey series are shown in Tables 17, 18 and 19, respectively. The biomass index for Div. 3L has been declining since 1998 with the 2002 value the lowest since 1995 and representing a 50% reduction between 2001 and 2002. The biomass indices for Div. 3N and 3O have been declining since 1999 and 1996, respectively, with the values for 2002 being the lowest in the series.

Stratified Mean Number and Weight (kg) Per Tow by Division

Mean weights and numbers per tow by Division are presented in Tables 21a-g and 22a-g, respectively. The respective trends in mean weight per tow by Division are presented for ease of illustration in Fig. 3, along with the corresponding values and confidence limits shown in Table 21. The mean weights/tow show similar trends to the annual swept area biomass series for all Divisions. Estimates were highest in the late-1970s for Div. 2G and 2H (Table 21a and 22a; Fig. 3a) then declined to the lowest value in the time series in 1991. Some improvement was observed in more recent surveys but still well below values of the early period.

Mean weight per tow are shown in Table 21 and 22b, as well as Fig. 3a for Div. 2J and 3K. The mean weight per tow index (Table 21b; Fig. 3b) declined from relatively high estimates of the early-1980's to reach an all time low in 1992. Over the next several years it increased to peak in 1999 approaching the levels of the early-1980s. Since then, however, it has declined again with a substantial drop between 2001 and 2002. The 2002 value is again among the lowest observed. This decline in recent years is more pronounced in Div. 3K.

A comparison of mean weight per tow estimates between spring and fall surveys in Div. 3LNO during 1996-2002 is presented in Table 21c-e and Fig. 3b (mean number per tow found in Table 22 c-e). With the exception of Div. 3O fall, all series indicate a declining trend since the late-1990s.

Mean weight per tow estimates for the fall survey from 1996-2002 in Div. 3M also indicate a declining trend since the late-1990s (Table 21 f; Fig. 3c). this is especially clear when only strata 526-536 are plotted from each year (strata in which there was survey coverage across all years). Mean number per tow is found in Table 22 f.

Table 21 g and Figure 3d shows a comparison of mean weight per tow in Div. 2J+3K and Divi. 2J+3KL from 1995-2002. Each shows a decline in recent years to the lower levels of 1995. Mean number per tow is found in Table 22g.

Similarly, Table 21 and 22g and Fig. 4 shows the mean weight and number per tow for Div. 2J and 3K combined for the entire time series. Mean weight per tow trends (Table 21g and Fig. 4) are similar to Div. 2J and 3K separately, as expected;but because the bulk of the stock is in Div. 3K, trends resemble trends from that Division more closely. For mean number per tow (Table 22h and Fig. 4), there was little trend in mean number per set up until the early-1990s, after which, there was an increase in the index peaking at the highest level observed by 1996. However, the index has been declining since then and in 2002 reached its lowest point since 1996.

Trends in Mean Biomass Per Tow by Size Category

Most of the stock biomass resides in Div. 2J and 3K combined (Table 23) and these divisions comprise the longest time series of annual survey data throughout the stock area. In order to illustrate the mean biomass per tow trends for important size categories from 1978-2002 the data were combined for Div. 2J and 3K (Fig. 5). Panel 5a shows the trends in mean biomass per tow for Greenland halibut <30 cm compared to those >=30 cm. The value of 30 cm was chosen because it represents the minimum allowable size of Greenland halibut that can be retained in the commercial fishery. Panel 5b shows the trends in mean biomass per tow for Greenland halibut <=70 cm compared to those >70 cm. The value of 70 cm was chosen because it is considered to be an approximate knife-edge median size of Greenland halibut at maturity (M_{50}).

The results presented in Fig. 5 indicate that the total stock began to rebuild after 1995 and by 1999 approached near historic highsof the early-1980s. It declined again since then and by 2002 is near the low level that it was in 1992. At that time, the stock was largely comprised of Greenland halibut >= 30 cm in length with the >=30 cm and <30 cm lines intersecting for the first time in 1992 (Fig. 5). The lines intersected in reverse again in 1997 and grew apart since then. Since then it is clear that the improvement in the stock has come from above average recruitment. It was anticipated that as these recruits add growth the contributions to the stock biomass should shift back to the more usual size compositions assuming normal recruitment patterns. However, this is clearly not the case in 2002 suggesting that either the strong recruitment was overestimated or overexploited before contributing growth to the stock as older, larger fish.

During the late-1970s and early-1980s Greenland halibut greater than 70 cm contributed about 20% to the estimated trawlable stock biomass (Fig. 5). However, after 1984 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. This value continues to be at or near zero.

Age Composition

Annual stratified mean number per tow at age compositions from the Div. 2J and 3K combined time series from 1978-2002 are presented in Table 23 and Fig. 6. Although Greenland halibut were caught as old as 20 years few were ever caught older than 17 years with the age structure fairly consistent from about 1978-88 (Table 23). Since then the older ages began to disappear from the survey catches and by 1995 none were caught older than 11 years. After 1995 some older fish again began to appear in the surveys at least up to 13 years old which continued into 2002 (Table 23). The population abundance has increased considerably during the mid-1990s but is almost entirely driven by recruitment to the surveys of the 1993-95 year-classes (Table 23; Fig. 6). The mean number of fish per tow peaked in 1996 then declined to 1993-95 levels by 1998-99. The 2001 value is similar to the previous two years' estimates with a slight decrease in 2002 (Fig. 6). Although the abundance of ages 6-9 (upon which most commercial fishing takes place) improved it still remains below historic levels when stock abundance of these age groups were highest (Table 23). In 2002, this value is the second lowest in the time series.

The mean number per tow estimate from the fall surveys of Div. 2J+3KL is shown in Table 24, and again, the 2002 mean number per tow is the lowest in the time series of 1996-2002.

Age compositions (mean numbers per tow) of Greenland halibut by division from actual Campelen 1800 Shrimp trawl surveys during 1996-2002 are shown in Table 25. For ease of comparison the data are combined for Div. 2GH, Div. 2J+3K, Div. 3LM, and Div. 3NO as abundance at age (Fig. 7) to illustrate the dominance of Divisions 2J3K with respect to the overall stock size and percent at age (Fig. 8) to highlight the importance of the various year-classes to stock

abundance. The 1993-95 year-classes are clearly dominant throughout the area over several years. Early indications suggest that the 2000 and 2001 year-classes may also be better than average.

A comparison of age distributions of the spring and fall surveys in Div. 3LNO during 1996-2002 is shown in Fig. 9. Few fish older than age 8 are caught. The distributions are largely similar for surveys with similar coverage (1997 and 1999). However, in 1998, and 2000 to 2002 when fall survey coverage included depths to 1 500 m, the fall surveys are dominated proportionately by older fish than the shallower spring surveys (Fig. 9).

Conclusions

Survey indices are presented by division and age in terms of swept area biomass and abundance, but results are also presented as stratified mean number per tow and mean weight per tow as recommended by the NAFO Sci. Counc. Rep., 2002. p. 218.

The results from most Canadian surveys indicate that stock size has been declining since 1999, with a significant drop from 2001 to 2002. The strong year-classes of 1993-95 appear to be depleted and are not expected to contribute to the spawning stock size in the future. Results do indicate that the 2000 and 2001 year-classes are above average, although not as large as the 1993-95 year-classes.

References

NAFO Sci. Counc. Rep. 2002. p. 218

Bowering, W.R., W.B.Brodie, M.J.Morgan, D.Power, and D.Orr. 1996. The status of the Greenland halibut resource in the management area of NAFO Subarea 2 and Divisions 3KLMNO. NAFO SCR Doc. 96/73, Ser. No. N2748.

Bowering, W.R. 2000. Trends in Distribution, Biomass and Abundance of Greenland halibut *(Reinhardtius hippoglossoides)* in NAFO Subarea 2 and Divisions 3KLMNO from Canadian Research Vessel Surveys during 1978-99. NAFO SCR Doc. 00/12, Ser. No. N4234, 42p.

Bowering. W.R. 2001. Population Trends in the Greenland halibut *(Reinhardtius hippoglossoides)* Resource in NAFO Subarea 2 and Divisions 3KLMNO from Canadian Research Vessel Surveys during 1978-2000. NAFO SCR Doc. 01/39, Ser. No. N4417, 43p.

Bowering. W.R. 2002. Greenland halibut *(Reinhardtius hippoglossoides)* in NAFO Subarea 2 and Divisions 3KLMNO: Stock Trends based on Canadian Research Vessel Survey Results during 1978-2002. NAFO SCR Doc. 02/24, Ser. No. N4630, 40p.

Gundersen, A.C., and W.B. Brodie. 1999. Length-Weight Relationships for Greenland halibut *(Reinhardtius hippoglossoides)* in NAFO Divisions 2GHJ and 3KLMNO, 1990-1997. NAFO SCR Doc. 99/31, Ser. No. N4087.

Warren, W.G. 1996. Report on the Comparative Fishing Trial between the *Gadus Atlantica* and *Teleost*. NAFO SCR Doc. 96/28, Ser. No. N2701.

Warren, W., W. Brodie, D. Stansbury, S. Walsh, J. Morgan and D. Orr. 1997. Analysis of the 1996 Comparative Fishing Trial between the *Alfred Needler* with the *Engel 145'* Trawl and the *Wilfred Templeman* with the *Campelen 1800* Trawl. NAFO SCR Doc. 97/68, Ser. No. N2902.

Table A. Summary of successful sets in fall surveys in SA 2+3 in 1996 - 2002. Depth range is given in meters, numbers of sets appear in parentheses.

Year	Division	Ship				Year	Division	Ship			
		Teleost	*W.Templeman*	*A.Needler*	***Total***			*Teleost*	*W.Templeman*	*A.Needler*	***Total***
1996	2G	127 - 1436 (47)			47	1999	2G	142-1415(69)			69
	2H	122 - 1415 (77)			77		2H	104-1454(81)			81
	2J	126 - 1410 (117)			117		2J	109-1375(115)			115
	3K	111 - 1368 (115)	126 - 472 (60)		175		3K	146-1477(154)			154
	3L	805 - 1433 (31)	51 - 671 (180)		211		3L	1366(1)	63-1407 (169)		170
	3M	784 - 1400 (18)	127 - 707 (68)		86		3M	853-1403(12)			12
	3N	390 - 1147 (13)		37 - 309 (54)	67		3N		39-664(68)		68
	3O	68 - 690 (24)	65 - 139 (19)	63 - 304 (15)	58		3O		58-692(75)		75
					838						**744**
1997	2G	201-1209 (69)			69	2000	2G	**Not surveyed in 2000**			0
	2H	220-1382 (71)			71		2H	**Not surveyed in 2000**			0
	2J	123-1488 (117)			117		2J	127-1400 (117)			117
	3K	143-1431 (155)	117-421 (20)		175		3K	113-1379 (159)			159
	3L	161-1436 (71)	35-714 (134)		205		3L	152-1430 (74)	42-447 (102)		176
	3M	799-1379 (26)			26		3M	764-1401 (26)			26
	3N		41-769 (74)		74		3N	747-1419 (24)	46-642 (70)		94
	3O		62-611 (73)		73		3O	752-1424 (24)	62-654 (76)		100
					810						**672**
1998	2G	143-1488 (34)			34	2001	2G	**Not surveyed in 2001**			
	2H	98-1473 (83)			83		2H	999-1466(8)		117-655(49)	57
	2J	126-1398 (118)			118		2J	120-1389(49)		105-574(71)	120
	3K	122-1415 (154)	121-346 (17)		171		3K	146-1479(106)	128-439(55)	170-252(4)	165
	3L	691-1437 (32)	34-675 (172)		204		3L	146-1457(34)	38-702(169)	187-203(2)	205
	3M	768-1436 (26)			26		3M	763-1407(26)			26
	3N	834-1447 (12)	37-1079 (78)		90		3N	739-1410(24)	45-660(70)		94
	3O		82-1076 (87)		87		3O	803-1391(22)	67-703(75)		97
					813						**764**
2002	2G	**Not surveyed in 2002**									
	2H	**Not surveyed in 2002**									
	2J	102-1372 (98)	136-572 (19)		117						
	3K	156-1395 (64)	121-481 (111)		175						
	3L	763-1431 (30)	35-670 (176)		206						
	3M	818-1403 (26)			26						
	3N	811-1429 (24)	44-675 (70)		94						
	3O	775-1504 (24)	65-696 (75)		99						
					717						

NOTE: Type1 sets only (no type 0 juvenile sets in 3NO included)
1996 survey of Div 3M covered all strata
2002 fall survey extended into January 2003 (128 sets - included above)

Table B. Summary of successful sets in spring surveys in SA 2+3 in 1996 - 2002. Depth range is given in metres, numbers of sets appear in parentheses.

Year	Division	Ship		Year	Division	Ship	
		W.Templeman	***Total***			*W.Templeman*	***Total***
1996	3L	91-731(188)	188	2000	3L	91-731(134)	134
	3N	55-731(82)	82		3N	55-731(81)	81
	3O	91-731(86)	86		3O	91-731(83)	83
			356				**298**
1997	3L	91-731(158)	158	2001	3L	55-731(154)	154
	3N	55-731(71)	71		3N	55-731(79)	79
	3O	91-731(81)	81		3O	55-731(79)	79
			310				**312**
1998	3L	55-731(163)	163	2002	3L	55-731(146)	146
	3N	55-731(88)	88		3N	55-731(79)	79
	3O	91-731(93)	93		3O	91-731(79)	79
			344				**304**
1999	3L	55-731(177)	177				
	3N	55-731(82)	82				
	3O	91-731(86)	86				
			345				

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

	Div. 2GH			Div. 2J3KL				Div. 3MNO			
Year	2G	2H	**Total**	2J	3K	3L	**Total**	3M	3N	3O	**Total**
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	**NO SURVEY**		-	608	716	673	**1997**	204	413	210	**827**
2001	**NO SURVEY**	579	**579**	759	991	797	**2547**	292	395	287	**974**
2002	**NO SURVEY**		-	1101	972	693	**2766**	107	339	268	**714**

Table D. Number of age samples available per division combinations 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**

Table E. Length-weight relationships for Greenland halibut, for Division 2J3K, 1990-2002. W = round weight (kg) and L = total length (cm). From 1978-1989, the 1990 annual L/W equations 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

Table 1 Biomass estimates (tons) by depth stratum of Greenland halibut from various Canadian surveys in Division 2G during the period 1978-99 (No survey in 2000-2001). 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
<=200	2773	2773	909	7475	1547	2139	.	.	47	142	.	271	117
	2339	2339	910	11062	1788	1890	.	.	45	23	.	11	128
	1804	1804	925	10644	3064	2508	.	.	.	15	.	.	92
201 - 300	1213	1213	901	7714	7673	7143	2228	2823	623	517	853	.	1526
	585	585	908	607	1960	393	396	139	86	606	587	451	300
	692	692	911	599	879	585	456	29	110	241	975	525	209
	756	756	924	765	1197	1596	556	198	.	225	815	.	384
	433	433	926	.	.	.	.	592	.	426	443	.	301
301 - 400	120	120	902	.	.	.	287	41	.	312	253	67	106
	73	73	912	.	.	.	112	2	.	.	227	87	64
	186	186	923	5650	.	1357	97	317	.	200	195	.	77
	832	832	927	.	.	.	2694	864	.	6729	1623	.	3342
401 - 500	80	80	903	.	832	526	120	123	30	.	112	123	95
	62	62	913	.	.	.	181	170	.	.	34	37	19
	186	186	922	5085	.	1591	.	.	.	.	273	.	195
	783	783	928	.	.	.	4257	1061	.	6949	2957	.	1134
501 - 750	153	153	904	.	4025	1816	770	410	.	.	233	249	198
	113	113	914	.	.	.	377	891	.	.	88	211	63
	142	142	921	.	9314	.	209	260	.	.	470	.	127
	1261	1261	929	.	18966	26440	6809	5045	.	5891	2706	.	.
751 -1000	164	164	905	.	.	.	.	3038	.	.	.	688	481
	96	96	915	.	.	.	.	1835	.	.	.	.	.
	172	172	920	.	.	.	4428	3283	.	.	.	.	.
1001 -1250	229	229	906	.	.	.	40	538	.	.	776	699	795
	146	146	916	.	.	.	.	181	.	.	.	1092	.
	316	316	919	.	.	.	.	579	.	.	1883	.	.
1251 -1500	360	360	907	.	.	.	.	.	.	.	.	.	773
	165	165	917	.	.	.	.	.	.	.	.	.	.
	515	515	918	.	.	.	.	.	.	.	.	.	.
Total Biomass (t)				49600	51244	47985	24016	22419	941	22275	15503	4511	10525

Table 2 Abundance estimates (000s) by depth stratum of Greenland halibut from various Canadian surveys in Division 2G during the period 1978-99 (No survey in 2000-2001). 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
<=200	2773	2773	909	60505	13478	5054	.	.	496	6379	.	8774	1730
	2339	2339	910	34669	9371	4223	.	.	2413	804	.	572	2181
	1804	1804	925	17917	6080	4632	.	.	.	358	.	.	1551
201 - 300	1213	1213	901	56325	25196	50893	42883	15018	5435	14165	6213	.	13349
	585	585	908	724	30794	241	20376	1288	1100	9013	5195	3380	3139
	692	692	911	1690	2546	3395	20593	190	238	4760	12202	6886	2031
	756	756	924	624	1040	2444	9308	3682	.	4312	6397	.	6898
	433	433	926	.	.	.	.	1866	.	1387	1430	.	1162
301 - 400	120	120	902	.	.	.	435	66	.	2330	998	206	388
	73	73	912	.	.	.	110	10	.	.	899	241	176
	186	186	923	2699	.	793	90	563	.	870	915	.	409
	832	832	927	.	.	.	3411	7554	.	15176	5778	.	9557
401 - 500	80	80	903	.	820	259	138	171	99	.	619	314	286
	62	62	913	.	.	.	230	158	.	.	171	132	47
	186	186	922	2162	.	806	.	.	.	.	819	.	422
	783	783	928	.	.	.	2693	969	.	14756	7827	.	2908
501 - 750	153	153	904	.	2498	663	659	442	.	.	968	579	582
	113	113	914	.	.	.	326	847	.	.	315	567	241
	142	142	921	.	5792	.	166	244	.	.	1391	.	498
	1261	1261	929	.	7849	11391	4718	3556	.	23379	7056	.	.
751 -1000	164	164	905	.	.	.	.	2267	.	.	.	1027	699
	96	96	915	.	.	.	.	1373	.	.	.	.	.
	172	172	920	.	.	.	2904	3005	.	.	.	.	.
1001 -1250	229	229	906	.	.	.	63	252	.	.	973	630	740
	146	146	916	.	.	.	.	40	.	.	.	1306	.
	316	316	919	.	.	.	.	283	.	.	2360	.	.
1251 -1500	360	360	907	.	.	.	.	.	.	.	.	.	371
	165	165	917	.	.	.	.	.	.	.	.	.	.
	515	515	918	.	.	.	.	.	.	.	.	.	.
Abundance (000s)				177315	105464	84795	109103	43844	9781	97689	62525	24612	49365

Table 3 Biomass estimates (tons) by depth stratum of Greenland halibut from various Canadian surveys in Division 2H during the period 1978-2001 (No survey in 2000). 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	2000	2001
<=200	1028	1028	930	315	263	707	50	96	343	152	.	97	168		1
	971	971	954	583	804	265	103	348	6	91	.	34	127		42
	1051	1051	956	1020	332	562	135	457	57	12	.	102	48		17
	1371	1371	957	3183	693	1274	374	578	86	15	.	29	43		22
201 - 300	276	276	931	560	68	1113	94	107	200	180	71	171	150		.
	354	354	943	822	18	1371	242	626	19	338	212	442	234		.
	261	261	950	.	.	.	.	.	.	283	1402	.	211		465
	291	291	953	11257	940	2984	1115	530	1347	179	659	594	258		224
	389	389	955	630	1062	311	243	387	47	1475	363	363	271		127
	294	294	958	.	487	158	63	253	103	178	391	270	277		202
301 - 400	55	55	932	.	.	.	28	39	35	131	166	97	105	**No Survey**	.
	860	860	944	4747	5420	8446	761	995	242	500	5918	2276	3205		.
	206	206	949	.	.	.	.	.	.	3985	839	.	.		783
	177	177	952	.	4345	1697	875	3187	171	337	1227	2596	3017		2045
	178	178	959	.	1817	948	298	747	84	151	684	664	175		543
401 - 500	50	50	933	.	.	.	.	25	17	105	310	104	84		.
	55	55	942	.	1562	1002	61	47	36	61	135	104	85		187
	461	461	945	.	14164	6684	2583	5095	1265	1302	2019	1310	2892		7920
	246	246	948	.	.	.	.	.	.	3234	3605	10034	.		4112
	234	234	951	2027	8478	2253	1999	1692	865	1629	2571	1396	2449		1462
	107	107	960	.	4767	569	506	119	23	97	332	375	184		232
501 - 750	78	78	934	.	5019	.	504	102	.	303	191	166	272		.
	89	89	941	.	.	.	379	713	.	81	507	178	356		666
	721	721	946	31158	57014	13063	18281	11105	.	4680	7045	7813	6231		9549
	227	227	947	.	16477	2539	6266	6206	.	2002	2770	3999	2255		4532
	211	211	961	.	6300	1888	666	880	.	285	223	270	275		1321
751 -1000	96	96	935	.	.	.	457	481	.	.	478	519	713		.
	97	97	940	.	.	.	400	360	.	268	658	492	644		.
	242	242	962	.	.	.	1243	1812	.	884	922	1119	1852		.
1001 -1250	78	78	936	.	.	.	85	1810	.	.	486	883	.		1383
	130	130	939	.	.	.	284	651	.	832	603	.	692		.
	265	265	963	.	.	.	1443	2248	.	1023	1909	541	1258		.
1251 -1500	94	94	937	.	.	.	.	.	.	.	389	195	.		677
	191	191	938	.	.	.	.	.	.	447	731	624	837		1170
	342	342	964	.	.	.	.	.	.	826	815	1131	1362		.
Total Biomass (t)				56300	130030	47835	39539	41694	4946	26062	38628	38988	30730		37682

Table 4 Abundance estimates (000s) by depth stratum of Greenland halibut from various Canadian surveys in Division 2H during the period 1978-2001 (No survey in 2000). 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	2000	2001
<=200	1028	1028	930	7813	4949	2811	3708	1966	3300	5374	.	368	672		47
	971	971	954	11300	19528	846	12361	39684	2137	1985	.	267	4308		445
	1051	1051	956	18988	16795	4735	10771	18014	1157	723	.	1475	1121		713
	1371	1371	957	35154	17225	9304	6361	25231	3018	566	.	219	1590		571
201 - 300	276	276	931	3113	456	937	3389	2493	1822	6341	683	1029	1177		.
	354	354	943	2654	1339	3725	8534	9959	536	5235	2237	1777	2292		.
	261	261	950	.	.	.	.	.	.	2082	9856	.	1167		2844
	291	291	953	100676	4310	13410	74723	17613	6345	1301	12727	2962	1521		3009
	389	389	955	1231	25043	178	7478	7759	1391	49950	5048	1357	1686		1403
	294	294	958	.	8999	61	5514	7806	5986	2002	8345	3155	4894		6006
301 - 400	55	55	932	.	.	.	49	102	238	2474	1313	804	688	**No Survey**	.
	860	860	944	13151	25369	5744	13628	9050	2514	6656	53118	10151	24991		.
	206	206	949	.	.	.	.	.	.	29457	7391	.	.		4846
	177	177	952	.	17519	3555	8352	46002	2642	6014	6708	14938	17708		14098
	178	178	959	.	1730	392	547	1739	502	1146	3783	2204	673		5539
401 - 500	50	50	933	.	.	.	.	45	65	898	2253	474	259		.
	55	55	942	.	810	367	103	64	95	250	885	431	269		602
	461	461	945	.	36739	19617	22348	55983	6817	10051	19595	5454	17312		56925
	246	246	948	.	.	.	.	.	.	25826	23100	56810	.		27958
	234	234	951	6712	27506	3702	5569	11991	3718	11105	20202	7033	12008		6364
	107	107	960	.	2569	199	594	152	110	206	1253	1188	515		1348
501 - 750	78	78	934	.	1540	.	628	111	.	783	789	569	714		.
	89	89	941	.	.	.	441	643	.	269	1181	465	1096		2007
	721	721	946	32110	117728	17768	118795	83445	.	30614	35062	32182	26459		39331
	227	227	947	.	33053	5574	14957	27870	.	10492	13622	15379	8447		19229
	211	211	961	.	3261	677	697	1180	.	653	839	755	726		6815
751 -1000	96	96	935	.	.	.	390	178	.	.	767	1281	1181		.
	97	97	940	.	.	.	434	314	.	427	1334	1061	941		.
	242	242	962	.	.	.	877	1565	.	1548	2367	1598	2264		.
1001 -1250	78	78	936	.	.	.	97	724	.	.	542	939	.		1813
	130	130	939	.	.	.	215	206	.	742	519	.	787		.
	265	265	963	.	.	.	638	1276	.	1167	2098	635	1258		.
1251 -1500	94	94	937	.	.	.	.	.	.	.	401	149	.		606
	191	191	938	.	.	.	.	.	.	263	488	355	749		1337
	342	342	964	.	.	.	.	.	.	428	565	1186	941		.
Abundance (000s)				232902	366466	93601	322194	373163	42392	217026	239069	168649	140410		203855

Table 5a Biomass (tons) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 2J from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	
101 - 200	1427	633	201	257	91	486	439	1620	524	913	91	206	42	21	171	
	1823	1594	205	1753	2385	1007	2591	4878	2748	1521	502	283	113	168	126	
	2582	1870	206	3384	2279	3315	9691	5703	2647	3370	1545	1399	250	590	217	
	2246	2264	207	6538	2707	2153	4177	2601	1921	1526	627	352	93	58	14	
	.	733	237	.	.	.	.	.	.	.	.	.	.	.	.	
	.	778	238	.	.	.	.	.	.	.	.	.	.	.	.	
201 - 300	440	621	202	1007	1437	1673	1778	1915	1307	4167	563	448	867	.	32	
	1608	680	209	4481	15830	15100	8547	19662	8897	5183	6062	2398	1491	1997	2003	
	774	1035	210	956	782	960	549	1845	3694	2268	566	374	281	786	654	
	1725	1583	213	2686	1921	4701	5070	6550	4853	3547	6427	3754	1918	1146	494	
	1171	1341	214	5954	2893	1904	6928	9277	5862	7527	7489	1398	1923	2598	862	
	1270	1302	215	3247	1181	2407	1842	5350	1967	5528	2829	2056	1920	1265	896	
	1428	2196	228	528	1406	3057	1289	1643	1817	2615	1119	1392	889	330	1034	
	508	530	234	7009	4357	3916	3492	5306	2665	4868	1143	922	454	1426	853	
301 - 400	480	487	203	2311	4188	1296	2925	3502	11077	12390	1400	6043	1586	2104	4732	
	448	588	208	7045	4799	6542	10304	15563	5125	19043	17885	8229	4397	3640	9245	
	330	251	211	3152	1736	2734	1256	1821	4216	1912	5424	3300	1992	3049	1016	
	384	360	216	2832	6574	6969	2551	7456	4258	6788	3213	1460	2197	170	487	
	441	450	222	3064	3243	3729	2527	7887	5835	2964	1850	128	1506	1847	407	
	567	536	229	1024	1412	1464	2017	1261	2235	681	1021	985	371	208	233	
401 - 500	354	288	204	21544	12476	.	9195	11739	9016	8750	728	8930	6466	6227	20968	
	268	241	217	4717	1845	3767	1192	1694	1595	.	3480	2589	1325	1349	181	
	180	158	223	1711	1208	2623	1635	1622	1106	1893	1358	2065	462	1134	306	
	686	598	227	6618	2186	5935	3056	3822	2768	2565	2912	1652	3068	2352	4044	
	420	414	235	5146	4006	5923	2000	4265	10840	3224	3269	7547	4825	2789	6721	
	.	133	240	.	.	.	.	.	.	.	.	.	.	.	.	
501 - 750	664	557	212	11338	15580	7520	9579	9423	3113	4609	7201	23242	21891	4953	2937	
	420	362	218	11403	.	5223	6388	1767	1695	.	1461	3151	2308	2513	859	
	270	228	224	2250	3012	1067	2825	1182	1438	1167	847	5782	1554	1661	89	
	237	185	230	2124	.	4016	1823	769	2452	629	766	2386	1369	1273	1063	
	.	120	239	.	.	.	.	.	.	.	.	.	.	.	.	
751 -1000	213	283	219	.	.	.	1005	.	2120	.	1664	6187	1872	1104	791	
	182	186	231	2634	.	3261	.	1805	1117	1842	2372	580	791	2975	.	
	122	193	236	.	.	.	640	946	1287	718	1113	2478	1199	182	.	
1001 -1250	324	303	220	1571	.	.	.	.	.	.	.	.	.	.	.	
	177	195	225	.	.	.	.	.	.	.	.	.	.	.	.	
	236	228	232	870	.	.	.	.	.	.	.	.	.	.	.	
1251 -1500	286	330	221	.	.	.	.	.	.	.	.	.	.	.	.	
	180	201	226	99	.	.	.	.	.	.	.	.	.	.	.	
	180	237	233	.	.	.	.	.	.	.	.	.	.	.	.	
Total Biomass (t)				129254	99533	102747	107311	142873	110193	112208	86927	101716	69422	49917	61433	6

Table 5b Biomass (tons) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 2J from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
101 - 200	1427	633	201	6	27	.	82	26	91	0	65	27	133
	1823	1594	205	6	14	.	514	35	502	532	281	863	754
	2582	1870	206	28	132	399	1120	404	349	403	357	1367	1586
	2246	2264	207	0	33	1	56	51	74	192	16	208	35
	.	733	237	0	0	0	1	4	19	320	0	5	42
	.	778	238	.	7	.	15	0	79	0	53	27	6
201 - 300	440	621	202	8	307	95	89	157	593	1685	574	2215	491
	1608	680	209	384	123	360	1059	424	282	2204	694	291	1061
	774	1035	210	589	121	2708	3904	893	1047	613	661	1140	3314
	1725	1583	213	302	422	236	1338	1146	1962	1426	893	2332	1336
	1171	1341	214	1064	507	327	4057	1258	1502	1883	1204	1930	485
	1270	1302	215	1349	855	1370	1247	1448	1889	1986	1139	1967	3499
	1428	2196	228	967	2749	2219	5478	3666	4356	2566	2870	2803	1850
	508	530	234	895	129	.	163	753	352	311	122	349	75
301 - 400	480	487	203	1856	1404	387	946	2233	3303	2553	2200	4090	1134
	448	588	208	1025	4820	4799	3707	12593	6479	11101	9423	5230	7812
	330	251	211	1628	871	1400	1343	1875	870	3541	640	2964	2336
	384	360	216	331	392	64	506	1090	1631	881	1103	1076	397
	441	450	222	170	535	122	1672	930	382	751	995	1151	1086
	567	536	229	246	1202	1799	3900	1940	2514	1206	1639	1591	1123
401 - 500	354	288	204	2512	3442	1437	3823	7941	6171	3707	4652	5240	1762
	268	241	217	270	226	131	932	676	621	704	628	1983	458
	180	158	223	130	168	162	438	425	598	505	.	346	419
	686	598	227	1648	2009	909	5850	9244	1793	13071	3628	4226	1316
	420	414	235	810	1042	3895	4373	8365	3256	4183	3929	4170	4733
	.	133	240	85	118	632	537	501	251	643	204	413	552
501 - 750	664	557	212	5048	1485	5499	4940	10735	4375	14447	4366	3802	7126
	420	362	218	248	136	693	1783	1207	1319	1019	690	1413	732
	270	228	224	85	309	214	702	625	401	293	701	360	130
	237	185	230	135	379	652	1350	1589	547	2230	786	569	560
	.	120	239	1917	1411	1676	2586	2725	4867	4064	1959	1945	867
751 -1000	213	283	219	639	1579	2021	405	1727	2249	1402	1731	1297	621
	182	186	231	613	604	376	1013	651	1635	1744	2828	2820	1603
	122	193	236	886	230	1007	698	381	725	1107	592	937	881
1001 -1250	324	303	220	.	.	.	1296	503	1196	.	568	786	749
	177	195	225	.	.	.	835	693	655	478	175	1219	65
	236	228	232	.	.	.	717	935	627	1787	1063	1146	626
1251 -1500	286	330	221	.	.	.	131	1246	692	567	401	268	654
	180	201	226	.	.	.	277	407	1313	626	400	368	243
	180	237	233	.	.	.	889	596	542	418	628	844	938
Total Biomass (t)				25880	27786	35591	64772	82095	62111	87147	54858	65777	53591

Table 6a Abundance (000s) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 2J from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
101 - 200	1427	633	201	654	1669	1570	4515	1865	523	2487	1832	118	196	1080	2895	393	916	0
	1823	1594	205	8777	7147	6457	11159	23615	2981	2382	18275	1505	1304	418	2784	658	752	63
	2582	1870	206	21666	20201	9184	71327	9314	4186	4133	23036	4295	4262	4212	1694	1808	6097	3694
	2246	2264	207	16838	6921	4202	5287	4820	4109	1324	7011	1545	225	2692	649	0	0	0
	.	733	237	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	778	238	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
201 - 300	440	621	202	3768	8353	5947	6446	10774	1604	6567	6234	817	3934	.	182	2088	3813	444
	1608	680	209	13530	45061	22673	10396	19405	11660	5246	12166	6383	1797	5397	10175	4830	2654	2654
	774	1035	210	5491	1012	1022	3230	2200	3780	2502	2209	1171	772	1952	1544	1562	852	5704
	1725	1583	213	5254	1017	2877	4944	9658	3109	3607	26577	5352	1977	4271	1345	3352	712	8792
	1171	1341	214	9274	1101	3286	14755	5739	3947	5638	20807	2524	4618	2175	1638	4382	3383	12323
	1270	1302	215	17317	4542	15592	8491	6639	2621	10366	32058	16422	2920	5341	9288	9725	6383	16212
	1428	2196	228	917	1604	1807	1637	864	1244	2301	1740	1801	2133	1061	4395	4715	2619	4440
	508	530	234	28190	22799	14518	28267	12695	4589	7687	4449	3075	6662	6918	5556	2341	1468	4216
301 - 400	480	487	203	8716	20491	4226	19710	11313	22142	70783	4380	21856	5547	12810	16683	14725	16463	6119
	448	588	208	10637	12926	8119	14791	31163	6933	16455	32827	15314	15746	6255	22525	22925	14072	24610
	330	251	211	4903	3632	4058	2542	3110	5311	2678	6144	6106	12824	10214	3881	16388	4984	3125
	384	360	216	1726	3024	3249	2932	2747	1074	3486	1770	1796	2404	792	1400	1875	370	599
	441	450	222	1626	1031	1320	971	3074	1557	1193	1062	243	1486	910	607	3337	324	586
	567	536	229	507	1190	799	585	585	1034	286	858	2002	286	78	520	273	1430	3900
401 - 500	354	288	204	133064	82687	.	80982	35662	22254	17093	3068	15169	30825	14658	52836	20867	24933	19284
	268	241	217	1696	645	866	387	553	369	.	1843	1677	774	774	258	1807	406	221
	180	158	223	570	322	582	458	483	310	669	631	1350	248	681	483	1770	190	239
	686	598	227	5143	944	5426	3067	2397	1203	1416	2548	1887	7903	3271	12386	6323	3130	7455
	420	414	235	7511	6355	7453	8291	9841	20106	3486	3149	12740	10313	5287	15599	24439	1521	4410
	.	133	240	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
501 - 750	664	557	212	17446	21648	8632	4978	6376	1736	4110	7627	25088	20894	7307	3928	8586	3014	6303
	420	362	218	3958	.	1156	1271	404	433	.	664	1156	1531	1184	867	3987	1473	404
	270	228	224	650	817	279	799	371	576	371	390	1857	761	854	149	594	557	316
	237	185	230	636	.	1369	489	261	1157	196	424	913	864	864	815	1206	1744	3912
	.	120	239	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
751 -1000	213	283	219	.	.	.	234	.	659	.	440	5538	967	557	674	1494	542	1392
	182	186	231	964	.	1527	.	789	325	1239	1452	351	588	2153	.	1377	951	1252
	122	193	236	.	.	.	227	344	646	260	638	1418	613	76	.	1393	1636	1133
1001 -1250	324	303	220	513	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	177	195	225	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	236	228	232	325	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1251 -1500	286	330	221	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	180	201	226	50	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	180	237	233	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total No. (000s)				332313	277137	138197	313166	217059	132178	177961	226308	161466	145374	104242	175753	169218	107390	143801

Table 6b. Abundance (000s) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 2J from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
101 - 200	1427	633	201	87	131	.	2235	218	740	0	958	305	392
	1823	1594	205	157	146	.	16190	767	4105	4276	1759	10624	16205
	2582	1870	206	161	2315	22586	42257	5071	4336	5549	15413	29015	37704
	2246	2264	207	0	208	78	1142	519	727	857	381	1077	379
	.	733	237	0	0	0	101	34	202	2790	0	50	192
	.	778	238	.	2569	.	321	0	603	0	759	71	245
201 - 300	440	621	202	214	4328	732	1068	2772	4046	22296	3930	22424	5894
	1608	680	209	2557	6501	3555	17149	4116	1666	41034	8419	1608	13277
	774	1035	210	5944	641	17946	49120	5232	9966	9682	3915	8839	55598
	1725	1583	213	8347	10090	4609	33785	17703	16223	18872	15316	31344	19448
	1171	1341	214	21657	17678	17525	102676	13946	9703	22210	18927	18652	3616
	1270	1302	215	13146	7988	18080	14129	22364	13051	13433	10961	33998	40295
	1428	2196	228	10909	51858	42618	112816	40114	34324	20882	33305	35242	21339
	508	530	234	8640	802	.	2625	5209	1786	1005	620	1094	401
301 - 400	480	487	203	13633	11690	3153	5862	19093	27969	19320	13164	37956	8953
	448	588	208	10111	40470	43881	75750	122273	32031	67095	50294	45512	43569
	330	251	211	17540	8908	12534	16642	16470	3930	22424	4713	18264	22157
	384	360	216	1510	1808	300	2284	4209	5401	3032	6983	4581	1560
	441	450	222	867	18777	1238	11620	5076	1802	2259	5571	4640	9237
	567	536	229	1180	14157	24774	14857	6890	13972	3281	7189	5510	12498
401 - 500	354	288	204	24682	28327	21397	26841	62076	51107	20444	50711	43690	11073
	268	241	217	1061	751	583	3599	2254	1936	2105	2188	8789	1828
	180	158	223	283	942	1695	1883	1043	1720	1272	.	815	1363
	686	598	227	6773	11039	3743	34184	35002	7486	46025	16946	16740	6299
	420	414	235	5999	6378	19335	25337	41431	13753	17414	14260	19161	24375
	.	133	240	320	427	3061	1601	1336	672	1491	448	1088	1976
501 - 750	664	557	212	22412	5670	20151	25042	44440	11915	49344	13485	13366	30998
	420	362	218	573	373	3818	5951	3205	3231	2238	1369	2589	1942
	270	228	224	188	1077	889	2023	1286	934	608	1506	800	641
	237	185	230	305	1120	2799	3084	3932	1400	4428	1552	1377	2065
	.	120	239	22953	10367	11193	18970	21936	36305	34310	8955	15341	4284
751 -1000	213	283	219	915	2063	5586	547	2180	3523	2219	2745	1995	1505
	182	186	231	832	1254	760	1663	1151	3425	2815	4618	3915	2738
	122	193	236	1208	195	3270	850	504	1043	1513	982	1412	1128
1001 -1250	324	303	220	.	.	.	1751	646	1005	.	688	634	1227
	177	195	225	.	.	.	845	563	590	644	228	1419	104
	236	228	232	.	.	.	643	737	748	2371	1349	1354	688
1251 -1500	286	330	221	.	.	.	78	931	402	318	363	141	636
	180	201	226	.	.	.	140	221	1078	512	415	401	269
	180	237	233	.	.	.	359	342	560	538	717	880	994
Total No. (000s)				205162	271047	311890	678016	517293	329415	470904	326101	446712	409089

Table 7a Biomass (tons) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 3K from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
101 - 200	.	798	608	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	445	612	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	250	616	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	1455	1347	618	.	.	.	.	.	.	263	874	49	17	31	70	0	0	0
	1588	1753	619	.	.	.	.	.	.	685	401	108	41	26	78	0	0	0
201 - 300	.	342	609	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	573	611	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	251	615	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2709	2545	620	18712	9129	9090	9404	7175	6302	4074	5095	4164	2108	3737	583	451	899	152
	2859	2537	621	41597	36475	15203	11844	6287	12035	6600	12389	2323	4458	3166	4278	485	1151	2264
	668	1105	624	837	878	491	305	467	232	527	434	298	445	196	310	288	335	413
	447	.	632	204	147	620	344	426	187	.	394	133	86	49	81	384	111	267
	1618	1555	634	1482	1819	1196	1233	3348	1410	1293	1157	877	1919	776	587	707	526	296
	1274	1274	635	1548	960	3092	2074	3013	1388	1668	773	1924	1932	910	1335	307	46	88
	1455	1455	636	1650	872	2155	2163	3642	792	1299	861	806	353	852	701	401	240	282
	1132	1132	637	723	575	907	1180	1366	2275	662	1780	1441	1349	700	466	818	293	144
301 - 400	.	256	610	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	263	614	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	593	617	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	1027	494	623	16992	3898	9646	10319	16038	24364	29298	8090	18912	14251	17661	11384	4603	5417	2598
	850	888	625	1915	1387	1530	3242	822	5794	3856	4936	3449	5773	3204	847	3881	2176	484
	919	1113	626	7394	4470	14225	6023	11576	11302	20810	13944	16278	8319	12970	11682	3365	3698	5003
	1085	1085	628	4700	4183	8400	2305	1867	5126	4652	9824	9477	5858	6368	4150	2513	902	590
	499	495	629	532	834	1790	2004	4063	3706	1779	1335	2978	5191	7176	4634	1053	385	1058
	544	332	630	2056	800	1368	7048	.	4258	485	2244	1861	4436	4313	3075	2065	2188	917
	2179	2067	633	2393	2472	4271	2834	2296	3115	3219	3432	4445	5532	3380	5842	5285	3440	2813
	2059	2059	638	4198	3427	2615	4854	4801	4371	2922	7321	5983	4382	3057	2972	6809	1993	2625
	1463	1463	639	1031	1254	1385	1266	3321	2174	436	872	1288	703	653	511	854	766	1175
401 - 500	.	30	613	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	632	691	622	16724	8517	3448	10766	7914	14953	8922	4742	36448	12755	17950	13695	30531	6256	4326
	1184	1255	627	11452	5878	9820	24040	16903	27637	38222	18219	33516	21372	21502	37862	18637	10870	4355
	1202	1321	631	8523	3909	4910	8787	5115	8693	12698	9456	8334	15010	11317	17190	4993	16791	3570
	198	69	640	835	.	1177	756	531	.	344	398	204	417	163	225	367	310	130
	204	216	645	462	.	336	534	434	97	1157	1055	.	613	351	81	460	103	213
	.	134	650	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
501 - 750	584	230	641	776	1647	2245	1521	1622	3609	3924	1384	.	1367	.	.	2661	651	440
	333	325	646	2231	3156	1852	2656	590	2959	3167	2337	.	1143	.	.	449	1083	375
	.	359	651	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
751 -1000	931	418	642	2417	.	3824	1134	3305	.	8496	3279	.	2722	.	.	4475	4484	9225
	409	360	647	7096	2019	3855	3634	1817	.	.	4473	.	.	.	.	3857	1197	655
	.	516	652	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1001 -1250	1266	733	643	1254	1364	.	.	.	.	.	.	.	.	.	.	.	.	.
	232	228	648	406	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	531	653	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1251 -1500	954	474	644	1890	783	.	.	.	.	.	.	.	.	.	.	.	.	.
	263	212	649	366	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	479	654	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total biomass (t)				162396	100851	109450	122269	108737	146777	160510	120223	155137	122493	120451	122490	100699	66310	44458

Table 7b Biomass (tons) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 3K from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
101 - 200	.	798	608	.	.	.	0	44	37	.	0	8	4
	.	445	612	.	.	.	0	135	0	.	1	0	38
	.	250	616	.	.	.	0	4	23	.	0	0	0
	1455	1347	618	0	8	286	19	11	15	1	59	0	49
	1588	1753	619	0	0	18	29	57	0	0	13	0	30
201 - 300	.	342	609	.	.	.	117	386	202	.	177	8	8
	.	573	611	.	.	.	113	265	162	.	41	43	164
	.	251	615	.	.	.	39	67	176	.	23	20	0
	2709	2545	620	53	1113	790	4213	1275	1171	1367	3389	992	1280
	2859	2537	621	972	1021	1068	3967	1320	2524	858	1495	113	1149
	668	1105	624	1017	754	508	2516	1610	1752	1805	1186	2358	1027
	447	.	632	.	.	.	.	.	.	.	.	.	.
	1618	1555	634	990	962	727	2370	2144	1321	1933	1197	2195	1493
	1274	1274	635	99	41	128	1344	1545	1266	971	491	215	125
	1455	1455	636	829	398	1393	2336	1171	1054	1002	1015	641	699
	1132	1132	637	435	119	179	1722	869	2008	1145	.	526	393
301 - 400	.	256	610	.	.	.	344	630	1638	.	1000	1924	183
	.	263	614	.	.	.	154	399	184	.	164	16	12
	.	593	617	5604	2993	3844	2464	4941	3865	2919	2227	7873	1476
	1027	494	623	1672	1931	308	3588	1938	6167	3346	4322	5040	3698
	850	888	625	3229	2385	1437	4381	3075	3944	6783	3649	6294	917
	919	1113	626	3469	4263	1962	5453	10283	9604	18305	3890	2111	3683
	1085	1085	628	1438	1372	529	1799	2685	3116	10764	5142	2763	719
	499	495	629	1324	1337	2682	6569	2179	6214	5900	4291	1429	622
	544	332	630	1274	1331	858	4800	3261	1561	5114	3821	4474	1429
	2179	2067	633	4511	2868	4649	3487	6739	4178	7634	3474	6544	3178
	2059	2059	638	2804	1908	1750	3952	7031	8115	2400	4792	2535	1686
	1463	1463	639	1718	872	1520	1381	1556	1266	1183	2362	2114	1330
401 - 500	.	30	613	.	.	.	51	192	92	.	64	6	6
	632	691	622	6993	3921	2638	6896	11901	10364	13165	10064	11830	4285
	1184	1255	627	31882	7308	18946	15576	22176	25568	45497	42775	11732	11721
	1202	1321	631	9779	9453	10094	25499	14500	13683	18514	23958	20494	15856
	198	69	640	77	111	179	105	59	37	39	144	103	44
	204	216	645	110	108	357	192	162	75	114	446	253	242
	.	134	650	193	338	252	147	242	224	39	.	18	109
501 - 750	584	230	641	411	109	227	394	197	369	1020	.	558	62
	333	325	646	105	463	327	564	1180	158	84	436	811	205
	.	359	651	704	894	1222	321	1361	1016	734	.	2603	899
751 -1000	931	418	642	1541	2336	1741	760	2036	2513	3081	2134	2677	892
	409	360	647	2413	1829	1087	749	2025	2961	2191	2465	3228	1301
	.	516	652	2242	1445	2366	3585	2575	4843	3246	2591	6162	1366
1001 -1250	1266	733	643	.	.	1487	2121	6830	5453	3480	1537	4660	2815
	232	228	648	.	.	.	1641	1118	1687	1552	624	2891	763
	.	531	653	1718	.	1583	2306	1643	3660	3927	3045	2514	477
1251 -1500	954	474	644	.	.	688	870	2036	2845	1480	1917	2084	137
	263	212	649	.	.	.	387	1083	282	681	622	908	174
	.	479	654	.	.	1376	1016	3612	4808	3358	2287	4953	252
Total biomass (t)				89603	53988	69206	120336	130547	142196	175632	143329	128721	67000

Table 8a Abundance (000s) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 3K from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
101 - 200	.	798	608	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	445	612	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	250	616	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	1455	1347	618	.	.	.	.	.	.	1451	5437	560	114	1134	1426	0	0	0
	1588	1753	619	.	.	.	.	.	.	18849	28835	7471	1311	1623	3195	0	0	0
201 - 300	.	342	609	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	573	611	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	251	615	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2709	2545	620	79313	26011	22483	45352	21324	19900	10750	22838	22690	14773	32669	5143	2691	6734	870
	2859	2537	621	163739	93030	31584	74868	31379	45130	23738	93419	30733	41918	22142	41850	5435	8102	39198
	668	1105	624	2704	1424	1999	781	391	758	1080	1723	459	1378	1409	1562	735	1470	6065
	447	.	632	228	261	307	154	307	512	.	389	154	307	31	123	2552	498	3008
	1618	1555	634	5911	2281	2798	3180	13334	2048	1812	3809	5564	8964	3079	3466	3021	2822	5475
	1274	1274	635	9561	2256	6630	6239	9674	4352	4009	2479	10077	12852	7150	7035	1227	307	818
	1455	1455	636	11409	1544	3374	5071	9267	2102	1651	1451	6355	2488	3603	2522	1658	1401	7939
	1132	1132	637	3841	3070	2492	3140	3404	5357	1220	2558	8409	3659	6443	1308	2336	2388	1038
301 - 400	.	256	610	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	263	614	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	593	617	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	1027	494	623	62444	10278	18366	40758	31561	51095	62359	26654	56934	33624	79255	55309	18620	33247	34895
	850	888	625	3079	6595	3410	7308	877	8692	4888	11482	10835	27390	14996	4151	16077	16643	7912
	919	1113	626	37167	10366	35220	15903	19924	35302	45005	47205	67065	46497	58431	48166	20891	21491	58068
	1085	1085	628	13497	7582	15672	5572	4702	14851	10426	30622	30448	19493	30328	12649	7731	4826	7562
	499	495	629	2826	2025	3062	5858	9644	8763	3569	4256	9930	19586	42181	27663	3398	1853	6384
	544	332	630	10514	2114	3405	12684	.	9429	798	6511	6960	21053	17311	14143	8905	11000	6486
	2179	2067	633	2864	4167	4286	4871	5824	3122	3717	3322	14238	25233	5733	18794	19347	13644	18848
	2059	2059	638	9099	5161	4123	9772	9800	11124	4504	16531	12958	9234	5877	6669	16365	4724	22625
	1463	1463	639	1096	956	1174	1409	6118	1294	453	1258	6876	1093	973	1509	2300	2147	10739
401 - 500	.	30	613	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	632	691	622	146318	18866	6781	41426	10201	19822	17431	22691	126974	33182	74999	78998	126018	44426	65813
	1184	1255	627	64905	20088	26874	44410	46628	47016	75267	48629	106258	115015	63455	166401	77527	55702	68189
	1202	1321	631	60931	15102	11574	15311	6945	14881	13459	32503	21537	62006	34558	74737	17747	65120	23920
	198	69	640	912	.	586	272	300	.	150	254	123	381	95	259	558	763	436
	204	216	645	225	.	112	196	131	182	449	318	.	463	225	126	814	206	767
	.	134	650	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
501 - 750	584	230	641	362	1125	1366	803	964	2116	2330	864	.	1044	.	.	3615	924	924
	333	325	646	527	1031	618	962	137	802	1145	1619	.	321	.	.	321	2046	687
	.	359	651	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
751 -1000	931	418	642	1217	.	1921	768	2412	.	4120	2433	.	1614	.	.	4184	5635	16265
	409	360	647	3516	703	1688	1210	816	.	.	2082	.	.	.	.	3207	1500	1107
	.	516	652	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1001 -1250	1266	733	643	522	348	.	.	.	.	.	.	.	.	.	.	.	.	.
	232	228	648	96	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	531	653	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1251 -1500	954	474	644	394	328	.	.	.	.	.	.	.	.	.	.	.	.	.
	263	212	649	145	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	.	479	654	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total No. (000s)				699361	236713	211905	348277	246062	308649	314629	422171	563608	504993	507699	577204	367279	309619	416037

Table 8b Abundance (000s) by stratum (converted to Campelen units from 1978-94) from Canadian fall surveys in Division 3K from 1978-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
101 - 200	.	798	608	.	.	.	0	293	110	.	0	63	37
	.	445	612	.	.	.	0	857	0	.	31	0	92
	.	250	616	.	.	.	0	34	120	.	17	0	0
	1455	1347	618	0	53	3330	226	93	139	124	62	0	803
	1588	1753	619	0	0	841	425	448	0	121	95	34	208
201 - 300	.	342	609	.	.	.	839	1506	602	.	349	47	47
	.	573	611	.	.	.	465	1340	586	.	90	109	709
	.	251	615	.	.	.	236	432	784	.	138	200	0
	2709	2545	620	233	7702	8286	50340	10662	8370	8816	36955	7433	15989
	2859	2537	621	8531	12044	17351	40571	14182	14778	3966	10239	2169	9935
	668	1105	624	14571	20622	9987	41839	15930	17967	14677	10519	34688	14508
	447	.	632	.	.	.	.	.	.	.	.	.	
	1618	1555	634	10642	10321	12468	28382	18641	11979	10390	6369	26367	12868
	1274	1274	635	643	131	1057	11407	17490	11602	6975	4431	846	779
	1455	1455	636	13810	8406	19987	26446	9607	5504	5504	6829	5296	6635
	1132	1132	637	3737	8743	3512	11087	6167	10713	5025	.	5853	2685
301 - 400	.	256	610	.	.	.	2195	4560	7343	.	9191	11171	1461
	.	263	614	.	.	.	1369	3021	923	.	1318	326	247
	.	593	617	60446	45722	64933	45872	39808	22113	17998	14955	52343	15541
	1027	494	623	21321	19594	3228	51938	23445	32102	22561	28065	38176	67140
	850	888	625	41573	41980	18861	69363	28279	37542	28615	22904	43640	9725
	919	1113	626	36745	39756	15421	61923	132559	64794	84650	35409	34372	41059
	1085	1085	628	13980	8557	3974	11330	26358	12955	30657	32507	15530	5048
	499	495	629	9964	9976	23208	55189	18794	37008	35306	25834	8677	3329
	544	332	630	14310	9286	9215	31901	32380	12240	25141	29679	27676	12240
	2179	2067	633	53772	35827	54535	31687	47011	16523	37329	13147	39049	22404
	2059	2059	638	24967	33314	26066	44481	46671	38835	9072	14615	16777	12103
	1463	1463	639	17173	16628	22428	9276	9224	4595	3815	11347	10546	11770
401 - 500	.	30	613	.	.	.	448	1577	549	.	586	66	49
	632	691	622	56296	72546	39289	132742	104560	64289	73410	52914	69929	41540
	1184	1255	627	358859	96592	225916	116359	206365	158172	160052	151814	69006	78084
	1202	1321	631	103337	111802	128176	162295	96509	65419	78684	100559	84520	82638
	198	69	640	326	494	1429	377	142	104	66	242	218	152
	204	216	645	436	396	1590	624	393	211	178	1040	465	475
	.	134	650	1057	2258	2120	654	691	479	100	.	28	344
501 - 750	584	230	641	1371	475	886	1076	348	902	1951	.	1076	199
	333	325	646	343	1371	1185	1321	2347	335	201	700	1140	492
	.	359	651	2799	4309	5778	840	2609	2692	1449	.	4628	1834
751 -1000	931	418	642	3872	6383	3364	1179	3179	4284	4773	3092	3524	1294
	409	360	647	2806	3797	2649	1411	3417	5497	3615	2894	4383	1931
	.	516	652	6246	4277	4969	6637	4969	10470	4933	3336	8239	1810
1001 -1250	1266	733	643	.	.	2252	2252	9109	8470	4403	1888	5411	4045
	232	228	648	.	.	.	1786	1555	2368	2478	737	3595	958
	.	531	653	1437	.	2264	2849	2131	6063	5750	4325	2854	621
1251 -1500	954	474	644	.	.	565	587	1891	2706	1695	2013	2237	163
	263	212	649	.	.	.	160	1094	204	619	617	802	167
	.	479	654	.	.	1120	988	4159	6109	3594	2519	5727	297
Total No. (000s)				885602	633361	742239	1063373	956834	709549	698691	644371	649233	484453

Table 9 Biomass estimates (t) of Greenland halibut from Canadian fall surveys in Div. 3L using a Campelen trawl during 1995-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1995	1996	1997	1998	1999	2000	2001	2002
30 - 56	.	268	784	.	0	0	0	.	0	0	0
57 - 92	2071	2071	350	1	0	0	0	0	0	0	0
	1780	1780	363	0	0	0	0	0	0	0	0
	1121	1121	371	0	3	0	0	24	0	0	0
	2460	2460	372	0	0	0	0	0	0	0	0
	1120	1120	384	0	0	0	0	0	0	0	0
	.	465	785	.	0	0	0	.	0	0	0
93 - 183	1519	1519	328	0	1	6	1	11	18	0	1
	1574	1574	341	0	2	249	184	0	6	0	13
	585	585	342	0	1	85	16	0	6	0	0
	525	525	343	0	0	34	45	0	1	0	0
	2120	2120	348	0	2	129	177	216	22	2	23
	2114	2114	349	4	2	60	252	416	0	0	0
	2817	2817	364	1	0	103	414	30	0	1	6
	1041	1041	365	17	0	169	140	55	.	0	0
	1320	1320	370	0	14	48	871	555	19	1	55
	2356	2356	385	73	64	502	334	253	29	47	190
	1481	1481	390	43	67	200	625	310	69	497	222
	.	84	786	.	67	2	4	.	0	0	0
	.	613	787	.	1	86	0	.	0	0	0
	.	261	788	.	0	45	31	.	0	0	0
	.	89	790	.	0	6	6	.	25	0	0
	.	72	793	.	0	4	4	.	0	0	5
	.	216	794	.	0	15	4	.	.	0	0
	.	98	797	.	0	3	14	.	0	0	0
	.	72	799	.	0	0	4	.	0	0	0
184 - 274	1494	1582	344	16	11	96	885	181	42	0	7
	983	983	347	2	0	37	1021	297	160	88	28
	1394	1394	366	204	338	878	2172	2108	62	265	689
	961	961	369	72	108	888	2347	719	85	296	55
	983	983	386	126	447	1010	1683	1129	473	337	998
	821	821	389	71	900	875	474	673	727	1143	531
	282	282	391	177	344	892	257	135	379	89	135
	.	164	795	.	5	35	6	.	11	8	0
	.	72	789	.	0	14	10	.	12	1	0
	.	227	791	.	66	193	151	.	201	2	10
	.	100	798	.	76	108	152	.	226	19	50
275 - 366	1432	1432	345	937	3747	1775	4359	1665	2659	1249	2344
	865	865	346	2237	5483	2378	2062	1312	1021	1224	1045
	334	334	368	385	690	338	2272	860	857	871	1829
	718	718	387	1546	1765	1614	1609	5284	4897	4503	661
	361	361	388	310	711	814	380	270	704	993	309
	145	145	392	69	500	618	215	170	234	116	53
	.	175	796	.	37	355	289	.	154	96	41
	.	81	800	.	.	313	517	.	233	191	215
367 - 549	186	186	729	215	648	496	242	239	1002	438	100
	216	216	731	242	.	713	305	1795	891	407	318
	468	468	733	501	706	752	2535	1511	1321	906	312
	272	272	735	526	1111	938	2093	2465	728	1504	1177
	.	50	792	.	186	349	608	.	316	69	31
550 - 731	170	170	730	140	37	330	44	224	125	627	200
	231	231	732	83	463	590	705	519	858	319	152
	228	228	734	280	642	604	515	184	554	671	214
	175	175	736	271	1117	951	1285	498	4028	1038	910
732 - 914	.	227	737	1244	2198	1981	4765	1472	1522	1689	1433
	.	223	741	.	867	3224	5059	961	444	1653	1337
	.	348	745	.	1075	1722	1299	358	364	680	267
	.	159	748	.	429	287	166	255	390	458	26
915 -1097	.	221	738	1490	1906	1439	769	548	903	857	571
	.	206	742	.	567	901	918	628	451	579	982
	.	392	746	.	783	992	531	1231	363	1126	132
	.	126	749	.	125	377	135	.	185	17	50
1098 -1280	.	254	739	.	1227	2248	1784	245	515	329	227
	.	211	743	.	931	2820	472	2427	861	671	1527
	.	724	747	.	438	1446	570	284	622	37	204
	.	556	750	.	586	3947	1750	1100	1872	348	581
1281 -1463	.	264	740	.	981	2604	1013	337	1109	1068	946
	.	280	744	.	2961	1101	1746	.	698	1295	957
	.	229	751	.	1207	2810	2633	.	711	1061	206
Total Biomass (t)				11282	36642	48596	55927	33955	34161	29886	22377

Table 10 Abundance estimates (000s) of Greenland halibut from Canadian fall surveys in Div. 3L using a Campelen trawl during 1995-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1995	1996	1997	1998	1999	2000	2001	2002
30 - 56	.	268	784	.	0	0	0	.	0	0	0
57 - 92	2071	2071	350	71	0	0	0	0	0	0	0
	1780	1780	363	0	0	0	0	0	0	0	0
	1121	1121	371	0	39	0	0	39	0	0	0
	2460	2460	372	0	0	42	0	0	0	0	0
	1120	1120	384	31	0	0	0	0	0	0	0
	.	465	785	.	0	0	0	.	0	0	0
93 - 183	1519	1519	328	0	42	42	42	125	84	0	42
	1574	1574	341	0	72	595	650	43	173	0	38
	585	585	342	0	40	201	80	0	201	0	0
	525	525	343	0	0	96	132	0	36	0	0
	2120	2120	348	0	83	458	622	311	73	83	79
	2114	2114	349	144	125	208	686	914	0	0	0
	2817	2817	364	86	0	517	1287	43	0	172	43
	1041	1041	365	179	0	668	382	143	.	95	0
	1320	1320	370	73	227	227	2623	986	171	227	136
	2356	2356	385	1577	540	3110	1058	770	36	203	648
	1481	1481	390	272	204	815	1892	693	149	1580	1100
	.	84	786	.	331	12	12	.	0	0	0
	.	613	787	.	42	295	0	.	0	0	0
	.	261	788	.	0	180	90	.	0	0	0
	.	89	790	.	0	6	18	.	37	0	0
	.	72	793	.	0	5	10	.	0	5	10
	.	216	794	.	0	40	15	.	.	0	0
	.	98	797	.	0	13	34	.	0	0	0
	.	72	799	.	0	0	9	.	0	0	0
184 - 274	1494	1582	344	73	69	696	3096	392	64	0	44
	983	983	347	120	0	180	3200	541	456	45	90
	1394	1394	366	2246	2732	6673	7278	4913	192	2923	6286
	961	961	369	338	1124	4451	7193	1880	595	2071	813
	983	983	386	1758	2524	7437	5980	4958	1037	1017	6641
	821	821	389	753	8019	7680	2146	3338	2485	7943	3179
	282	282	391	886	3369	6459	969	601	3491	369	1410
	.	164	795	.	21	104	23	.	20	34	0
	.	72	789	.	0	50	25	.	35	15	5
	.	227	791	.	127	487	375	.	283	28	21
	.	100	798	.	261	281	468	.	309	55	78
275 - 366	1432	1432	345	4671	18723	12712	22231	6457	24864	7192	10703
	865	865	346	23203	40360	16064	7913	3490	5421	9162	7972
	334	334	368	3630	8664	1815	7305	1940	1447	3045	4411
	718	718	387	16297	13169	8214	5004	10310	11803	12922	1778
	361	361	388	1639	2657	6605	894	472	1788	4569	1018
	145	145	392	537	4317	4149	568	459	559	436	239
	.	175	796	.	72	1071	975	.	1061	542	235
	.	81	800	.	.	1839	1821	.	.	936	584
367 - 549	186	186	729	587	1797	1241	461	486	1689	819	273
	216	216	731	604	.	2333	517	2791	1501	728	700
	468	468	733	1610	2694	3058	5991	2414	2437	2015	601
	272	272	735	2301	3511	3592	4808	4457	1154	3031	2611
	.	50	792	.	1494	1510	1861	.	517	277	137
550 - 731	170	170	730	342	84	503	52	366	164	1050	412
	231	231	732	374	607	1414	1176	763	1128	632	234
	228	228	734	668	1854	1812	929	298	795	1129	394
	175	175	736	706	2848	2696	3045	867	6644	2195	1626
732 - 914	.	227	737	3170	4965	4216	9306	2014	1936	2264	2123
	.	223	741	.	1917	8083	10239	1363	506	1810	2163
	.	348	745	.	1891	3064	1987	404	438	814	407
	.	159	748	.	853	711	264	400	427	667	25
915 -1097	.	221	738	2919	3283	2003	1176	725	1094	1125	775
	.	206	742	.	808	2706	1204	867	468	652	1474
	.	392	746	.	1267	1845	674	770	351	1159	129
	.	126	749	.	121	841	186	.	121	19	61
1098 -1280	.	254	739	.	1655	3127	2568	349	472	360	332
	.	211	743	.	1205	2245	493	3316	1055	697	1901
	.	724	747	.	498	1029	498	299	697	50	199
	.	556	750	.	841	4245	1874	814	2027	153	497
1281 -1463	.	264	740	.	1543	2978	1217	436	1180	908	946
	.	280	744	.	2773	1213	2140	.	757	1266	770
	.	229	751	.	1040	2991	3103	.	929	971	221
Abundance (000s)				71863	147500	153954	142871	68018	85354	80458	66613

Table 11 Biomass estimates (t) of Greenland halibut from Canadian fall surveys in Div. 3M using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
128 - 146	342	342	501	0	.	.	.	.	.	.
147 - 184	838	838	502	0	.	.	.	.	.	.
185 - 256	628	628	503	91	.	.	.	.	.	.
	348	348	504	0	.	.	.	.	.	.
	703	703	505	12	.	.	.	.	.	.
	496	496	506	33	.	.	.	.	.	.
257 - 366	822	822	507	380	.	.	.	.	.	.
	646	646	508	230	.	.	.	.	.	.
	314	314	509	56	.	.	.	.	.	.
	951	951	510	271	.	.	.	.	.	.
	806	806	511	316	.	.	.	.	.	.
367 - 549	670	670	512	261	.	.	.	.	.	.
	249	249	513	64	.	.	.	.	.	.
	602	602	514	171	.	.	.	.	.	.
	666	666	515	434	.	.	.	.	.	.
	.	102	537	.	.	.	.	.	.	.
550 - 731	634	634	516	342	.	.	.	.	.	.
	216	216	517	77	.	.	.	.	.	.
	210	210	518	143	.	.	.	.	.	.
	414	414	519	581	.	.	.	.	.	.
	.	194	538	.	.	.	.	.	.	.
732 - 914	.	525	520	.	.	.	.	.	.	.
	.	253	524	.	.	.	.	.	.	.
	.	530	528	279	1580	2297	.	950	1142	922
	.	98	533	59	270	77	.	119	78	56
	.	133	539	.	.	.	.	.	.	.
915 -1097	.	517	521	.	.	.	.	.	.	.
	.	226	525	.	.	.	.	.	.	.
	.	488	529	72	218	667	562	508	1233	602
	.	238	532	938	466	524	398	124	278	114
	.	486	534	814	2026	1466	.	1437	1020	471
1098 -1280	.	533	522	.	.	.	.	.	.	.
	.	177	526	.	.	.	.	.	.	.
	.	1134	530	3769	1587	1506	1111	1285	958	162
	.	92	535	235	218	434	.	720	30	165
1281 -1463	.	284	523	.	.	.	.	.	.	.
	.	171	527	.	.	.	.	.	.	.
	.	203	531	346	216	508	337	149	302	0
	.	112	536	202	385	296	.	219	218	34
Total Biomass (t)				10175	6966	7776	2408	5511	5260	2525

Table 12 Abundance estimates (000s) of Greenland halibut from Canadian fall surveys in Div. 3M using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
128 - 146	342	342	501	0	.	.	.	.	.	.
147 - 184	838	838	502	0	.	.	.	.	.	.
185 - 256	628	628	503	199	.	.	.	.	.	.
	348	348	504	0	.	.	.	.	.	.
	703	703	505	58	.	.	.	.	.	.
	496	496	506	184	.	.	.	.	.	.
257 - 366	822	822	507	1427	.	.	.	.	.	.
	646	646	508	1595	.	.	.	.	.	.
	314	314	509	65	.	.	.	.	.	.
	951	951	510	884	.	.	.	.	.	.
	806	806	511	1360	.	.	.	.	.	.
367 - 549	670	670	512	315	.	.	.	.	.	.
	249	249	513	84	.	.	.	.	.	.
	602	602	514	180	.	.	.	.	.	.
	666	666	515	489	.	.	.	.	.	.
	.	102	537	.	.	.	.	.	.	.
550 - 731	634	634	516	358	.	.	.	.	.	.
	216	216	517	131	.	.	.	.	.	.
	210	210	518	176	.	.	.	.	.	.
	414	414	519	658	.	.	.	.	.	.
	.	194	538	.	.	.	.	.	.	.
732 - 914	.	525	520	.	.	.	.	.	.	.
	.	253	524	.	.	.	.	.	.	.
	.	530	528	292	1977	3297	.	1094	1361	923
	.	98	533	94	351	120	.	173	74	61
	.	133	539	.	.	.	.	.	.	.
915 -1097	.	517	521	.	.	.	.	.	.	.
	.	226	525	.	.	.	.	.	.	.
	.	488	529	110	224	614	537	470	1188	470
	.	238	532	1408	557	688	557	141	327	126
	.	486	534	735	2674	1790	.	1872	938	532
1098 -1280	.	533	522	.	.	.	.	.	.	.
	.	177	526	.	.	.	.	.	.	.
	.	1134	530	4619	1524	1595	1248	1181	884	201
	.	92	535	165	247	373	.	386	34	104
1281 -1463	.	284	523	.	.	.	.	.	.	.
	.	171	527	.	.	.	.	.	.	.
	.	203	531	182	73	517	293	140	115	0
	.	112	536	74	216	265	.	216	123	35
Abundance (000s)				15841	7841	9258	2635	5672	5045	2452

Table 13 Biomass estimates (t) of Greenland halibut from Canadian fall surveys in Div. 3N using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
<=56	1593	1593	375	0	0	0	0	0	0	0
	1499	1499	376	0	0	0	0	0	0	0
57 - 92	2992	2992	360	447	880	974	144	165	0	0
	1853	1853	361	0	0	0	0	0	0	0
	2520	2520	362	0	0	0	0	0	0	2
	2520	2520	373	0	2	0	0	0	0	0
	931	931	374	0	12	0	0	0	0	0
	674	674	383	0	0	0	0	0	0	0
93 - 183	421	421	359	0	160	724	67	28	81	0
	100	100	377	4	166	30	21	30	1	0
	647	647	382	0	24	111	0	0	0	96
184 - 274	225	225	358	140	94	42	13	5	488	1
	139	139	378	112	262	2198	257	5	237	206
	182	182	381	802	615	1622	590	253	138	73
275 - 366	164	164	357	40	58	7	.	6	8	20
	106	106	379	581	41	31	22	36	404	98
	116	116	380	178	516	794	330	151	141	95
367 - 549	155	155	723	115	109	336	14	48	70	8
	105	105	725	165	1646	65	95	171	59	54
	160	160	727	1006	371	509	494	391	570	211
550 - 731	124	124	724	160	589	374	126	67	62	154
	72	72	726	296	448	765	55	30	517	214
	156	156	728	1035	455	675	511	201	299	510
732 - 914	.	134	752	.	.	563	.	664	68	97
	.	106	756	.	.	242	.	243	230	211
	.	154	760	.	.	352	.	183	283	786
915 -1097	.	138	753	.	.	224	.	109	55	75
	.	102	757	.	.	643	.	455	454	175
	.	171	761	.	.	687	.	778	402	315
1098 -1280	.	180	754	.	.	1554	.	179	83	103
	.	99	758	.	.	443	.	427	274	78
	.	212	762	.	.	.	.	1096	772	339
1281 -1463	.	385	755	.	.	658	.	965	571	454
	.	127	759	.	.	165	.	509	378	217
	.	261	763	.	.	.	.	2135	509	1111
Total Biomass (t)				5079	6448	14788	2738	9330	7155	5705

Table 14 Abundance estimates (000s) of Greenland halibut from Canadian fall surveys in Div. 3N using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
<=56	1593	1593	375	0	31	0	0	0	0	0
	1499	1499	376	0	0	0	0	0	0	0
57 - 92	2992	2992	360	3293	4961	3293	257	257	0	0
	1853	1853	361	0	0	0	0	0	0	0
	2520	2520	362	0	0	0	0	0	0	50
	2520	2520	373	0	99	0	0	0	0	0
	931	931	374	0	49	0	0	0	0	0
	674	674	383	0	0	0	0	0	0	0
93 - 183	421	421	359	0	1419	1853	87	29	290	0
	100	100	377	31	571	76	55	69	16	10
	647	647	382	0	45	223	0	0	0	401
184 - 274	225	225	358	959	696	232	77	14	2132	15
	139	139	378	1027	1589	7276	1013	34	417	676
	182	182	381	19548	3693	6534	2353	739	663	613
275 - 366	164	164	357	370	481	45	.	21	66	60
	106	106	379	4511	132	169	69	80	710	416
	116	116	380	2525	1779	2278	846	339	412	465
367 - 549	155	155	723	320	591	1002	53	95	113	38
	105	105	725	701	12676	231	217	372	318	213
	160	160	727	10334	1123	1868	1079	658	884	649
550 - 731	124	124	724	644	2789	1421	213	159	94	468
	72	72	726	1124	1406	2665	122	53	1033	1074
	156	156	728	3573	1356	2060	1094	377	807	2361
732 - 914	.	134	752	.	.	995	.	959	74	184
	.	106	756	.	.	525	.	396	314	343
	.	154	760	.	.	821	.	354	478	1727
915 -1097	.	138	753	.	.	351	.	142	66	129
	.	102	757	.	.	1143	.	687	645	247
	.	171	761	.	.	958	.	1264	524	470
1098 -1280	.	180	754	.	.	2392	.	173	66	99
	.	99	758	.	.	536	.	586	302	86
	.	212	762	.	.	.	.	1448	864	525
1281 -1463	.	385	755	.	.	871	.	1074	556	424
	.	127	759	.	.	183	.	580	376	132
	.	261	763	.	.	.	.	2805	521	1364
Abundance (000s)				48959	35487	40002	7536	13763	12740	13237

Table 15 Biomass estimates (t) of Greenland halibut from Canadian fall surveys in Div. 3O using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
57 - 92	2089	2089	330	0	0	0	0	0	0	0
	456	456	331	0	0	11	0	0	0	0
	1898	1898	338	39	195	38	39	0	0	0
	1716	1716	340	0	0	0	17	0	0	0
	2520	2520	351	0	0	0	0	0	0	0
	2580	2580	352	56	9	28	0	0	4	0
	1282	1282	353	472	769	544	108	0	0	3
93 - 183	1721	1721	329	28	57	11	50	46	3	0
	1047	1047	332	25	81	74	0	0	0	0
	948	948	337	48	30	21	67	0	0	0
	585	585	339	0	103	8	.	46	16	0
	474	474	354	5	59	15	1094	95	71	24
184 - 274	151	147	333	.	10	0	0	3	0	0
	121	121	336	3	7	5	0	0	0	0
	103	103	355	39	22	3	1	0	1	5
275 - 366	92	96	334	.	6	6	0	0	0	0
	58	58	335	7	2	0	3	3	0	0
	61	61	356	8	6	8	8	9	6	7
367 - 549	93	166	717	.	42	27	6	0	72	0
	76	76	719	11	4	14	36	18	10	1
	76	76	721	50	35	47	26	23	42	5
550 - 731	111	134	718	.	131	158	186	20	26	107
	105	105	720	82	.	92	105	181	141	152
	93	93	722	153	490	124	160	73	106	40
732 - 914	.	105	764	.	.	620	.	437	239	324
	.	99	768	.	.	1070	.	403	274	460
	.	135	772	.	.	1334	.	360	.	194
915 -1097	.	124	765	.	.	175	.	665	155	127
	.	138	769	.	.	409	.	405	438	374
	.	128	773	.	.	560	.	386	340	632
1098 -1280	.	144	766	.	.	.	.	322	238	267
	.	128	770	.	.	.	.	172	1116	379
	.	135	774	.	.	.	.	186	259	174
1281 -1463	.	158	767	.	.	.	.	101	257	60
	.	175	771	.	.	.	.	171	604	254
	.	155	775	.	.	.	.	96	130	488
Total Biomass (t)				1026	2058	5402	1905	4222	4546	4077

Table 16 Abundance estimates (000s) of Greenland halibut from Canadian fall surveys in Div. 3O using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
57 - 92	2089	2089	330	0	0	0	0	0	0	0
	456	456	331	0	0	63	0	0	0	0
	1898	1898	338	131	940	261	104	0	0	0
	1716	1716	340	0	0	0	34	0	0	0
	2520	2520	351	0	0	0	0	0	0	0
	2580	2580	352	659	25	111	0	0	101	0
	1282	1282	353	4321	4453	2293	397	0	0	88
93 - 183	1721	1721	329	47	1657	47	95	84	47	0
	1047	1047	332	1224	864	624	0	0	0	0
	948	948	337	717	522	169	261	0	0	0
	585	585	339	0	1086	138	.	201	80	0
	474	474	354	87	619	65	3097	130	174	333
184 - 274	151	147	333	.	121	0	0	20	0	9
	121	121	336	25	75	31	0	8	0	0
	103	103	355	418	241	21	7	0	13	92
275 - 366	92	96	334	.	53	33	0	0	0	0
	58	58	335	12	28	0	8	8	0	0
	61	61	356	57	55	8	22	17	4	29
367 - 549	93	166	717	.	34	57	11	0	57	0
	76	76	719	52	37	31	42	12	16	5
	76	76	721	329	182	125	88	37	31	16
550 - 731	111	134	718	.	590	553	120	28	46	116
	105	105	720	461	.	274	173	276	207	255
	93	93	722	768	2900	385	294	180	203	108
732 - 914	.	105	764	.	.	1760	.	758	383	708
	.	99	768	.	.	2997	.	763	429	624
	.	135	772	.	.	3714	.	592	.	259
915 -1097	.	124	765	.	.	210	.	1032	273	184
	.	138	769	.	.	854	.	494	484	427
	.	128	773	.	.	778	.	518	376	634
1098 -1280	.	144	766	.	.	.	.	205	283	271
	.	128	770	.	.	.	.	170	1039	324
	.	135	774	.	.	.	.	186	195	72
1281 -1463	.	158	767	.	.	.	.	116	261	76
	.	175	771	.	.	.	.	179	481	193
	.	155	775	.	.	.	.	77	107	146
Abundance (000s)				9309	14482	15604	4754	6092	5291	4967

Table 17a Biomass estimates (t) of Greenland halibut from Canadian spring surveys in Div. 3L using a Campelen trawl during 1995-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1995	1996	1997	1998	1999	2000	2001	2002
30 - 56	.	268	784	.	.	.	0	0	.	0	0
57 - 92	2071	2071	350	0	0	0	0	0	0	0	0
	1780	1780	363	0	0	0	0	0	0	0	0
	1121	1121	371	0	0	0	0	0	0	0	0
	2460	2460	372	0	0	0	0	0	0	0	0
	1120	1120	384	0	0	0	0	0	0	0	0
	.	465	785	.	.	.	0	0	.	0	0
93 - 183	1519	1519	328	2	0	0	0	0	18	0	0
	1574	1574	341	0	2	0	14	0	26	0	0
	585	585	342	0	0	0	5	0	0	0	0
	525	525	343	0	0	0	2	0	0	0	0
	2120	2120	348	0	1	9	0	0	0	0	0
	2114	2114	349	0	1	0	11	0	14	2	0
	2817	2817	364	0	0	6	0	0	0	1	0
	1041	1041	365	0	1	0	0	14	0	0	0
	1320	1320	370	0	0	0	0	0	0	0	0
	2356	2356	385	0	0	0	0	0	0	0	0
	1481	1481	390	0	0	24	0	0	6	0	0
	.	84	786	.	.	.	0	0	.	0	.
	.	613	787	.	.	.	0	0	.	0	.
	.	261	788	.	.	.	.	0	.	.	.
	.	89	790	.	.	.	.	10	.	.	.
	.	72	793	.	.	.	.	3	.	.	.
	.	216	794	.	.	.	.	0	.	.	.
	.	98	797	.	.	.	.	0	.	.	.
	.	72	799	.	.	.	.	.	.	.	.
184 - 274	1494	1582	344	0	3	59	0	21	24	3	0
	983	983	347	0	1	5	0	0	1	0	0
	1394	1394	366	90	6	169	10	30	0	1	48
	961	961	369	0	1	2	79	17	0	1	0
	983	983	386	10	1	84	11	633	0	0	0
	821	821	389	142	38	435	122	435	1070	143	3
	282	282	391	54	9	3	43	0	4	3	16
	.	164	795	.	.	.	.	0	.	.	.
	.	72	789	.	.	.	.	18	.	.	.
	.	227	791	.	.	.	.	113	.	.	.
	.	100	798	.	.	.	.	23	.	.	.
275 - 366	1432	1432	345	122	335	892	302	926	891	495	566
	865	865	346	123	354	1372	639	338	366	513	245
	334	334	368	30	137	216	263	228	456	311	327
	718	718	387	391	208	2514	2585	2026	4356	439	97
	361	361	388	163	304	382	1404	464	482	220	223
	145	145	392	51	288	117	464	100	143	85	74
	.	175	796	.	.	.	.	7	.	.	.
	.	81	800	.	.	.	.	210	.	.	.
367 - 549	186	186	729	136	803	236	3921	1351	1286	555	407
	216	216	731	456	897	299	3531	1284	1725	664	217
	468	468	733	582	3016	3003	7556	3311	2290	1139	847
	272	272	735	1063	302	4063	5100	4332	4656	2186	939
	.	50	792	.	.	.	.	533	.	903	.
550 - 731	170	170	730	86	245	0	1693	292	745	772	177
	231	231	732	291	462	1420	3220	1219	996	1173	533
	228	228	734	583	1327	1361	4169	1324	2887	621	362
	175	175	736	449	791	1793	5037	3463	4372	2804	1378
732 - 914	.	227	737	.	.	.	.	.	.	.	.
	.	223	741	.	.	.	.	.	.	.	.
	.	348	745	.	.	.	.	.	.	.	.
	.	159	748	.	.	.	.	.	.	.	.
915 -1097	.	221	738	.	.	.	.	.	.	.	.
	.	206	742	.	.	.	.	.	.	.	.
	.	392	746	.	.	.	.	.	.	.	.
	.	126	749	.	.	.	.	.	.	.	.
1098 -1280	.	254	739	.	.	.	.	.	.	.	.
	.	211	743	.	.	.	.	.	.	.	.
	.	724	747	.	.	.	.	.	.	.	.
	.	556	750	.	.	.	.	.	.	.	.
1281 -1463	.	264	740	.	.	.	.	.	.	.	.
	.	280	744	.	.	.	.	.	.	.	.
	.	229	751	.	.	.	.	.	.	.	.
Total Biomass (t)				4826	9533	18467	40182	22724	26815	13035	6459

Table 17b Abundance estimates (000s) of Greenland halibut from Canadian spring surveys in Div. 3L using a Campelen trawl during 1995-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1995	1996	1997	1998	1999	2000	2001	2002
30 - 56	.	268	784	.	.	.	0	0	.	0	0
57 - 92	2071	2071	350	0	0	0	0	0	0	0	0
	1780	1780	363	0	0	0	0	0	0	0	0
	1121	1121	371	0	0	0	0	0	0	0	0
	2460	2460	372	0	0	0	0	0	0	0	0
	1120	1120	384	0	0	0	0	0	0	0	0
	.	465	785	.	.	.	0	0	.	0	0
93 - 183	1519	1519	328	15	30	0	0	0	84	42	0
	1574	1574	341	0	31	0	87	0	130	0	0
	585	585	342	0	0	0	40	0	0	0	0
	525	525	343	0	0	0	36	0	0	0	0
	2120	2120	348	0	29	32	0	0	0	0	0
	2114	2114	349	0	65	0	73	0	36	42	0
	2817	2817	364	0	30	43	0	0	39	86	0
	1041	1041	365	0	29	0	0	32	0	0	0
	1320	1320	370	0	30	0	0	0	0	0	0
	2356	2356	385	0	0	0	0	0	0	0	0
	1481	1481	390	0	0	102	0	0	407	0	0
	.	84	786	.	.	.	0	7	.	6	.
	.	613	787	.	.	.	0	0	.	0	.
	.	261	788	.	.	.	.	0	.	.	.
	.	89	790	.	.	.	.	24	.	.	.
	.	72	793	.	.	.	.	5	.	.	.
	.	216	794	.	.	.	.	0	.	.	.
	.	98	797	.	.	.	.	0	.	.	.
	.	72	799	.	.	.	.	.	.	.	.
184 - 274	1494	1582	344	0	62	261	36	39	163	87	0
	983	983	347	0	34	68	0	0	85	0	0
	1394	1394	366	341	38	1406	146	170	0	38	1364
	961	961	369	0	33	59	397	78	0	44	0
	983	983	386	30	68	781	68	2710	0	0	0
	821	821	389	715	791	5141	979	1694	4574	866	142
	282	282	391	414	388	52	282	0	188	155	116
	.	164	795	.	.	.	.	0	.	.	.
	.	72	789	.	.	.	.	65	.	.	.
	.	227	791	.	.	.	.	208	.	.	.
	.	100	798	.	.	.	.	61	.	.	.
275 - 366	1432	1432	345	834	4268	7958	3400	4062	3758	4478	2872
	865	865	346	582	8673	16262	3094	1728	1988	4447	3587
	334	334	368	204	1501	2413	1718	1066	1437	791	1362
	718	718	387	1844	5461	24347	13689	8520	17334	1800	658
	361	361	388	607	4247	1962	7824	1837	2008	1192	1363
	145	145	392	253	3551	1127	2753	509	355	509	329
	.	175	796	.	.	.	.	43	.	.	.
	.	81	800	.	.	.	.	456	.	.	.
367 - 549	186	186	729	637	3774	1076	20763	3416	2890	1621	1720
	216	216	731	1301	4958	1530	13617	4115	4558	1598	1000
	468	468	733	2361	18551	13680	23219	10880	6152	4178	3122
	272	272	735	3210	1949	18286	17174	11726	10063	5355	3645
	.	50	792	.	.	.	.	1220	.	1401	.
550 - 731	170	170	730	208	531	0	4022	608	1668	1287	608
	231	231	732	713	1657	4435	9612	2955	1729	2599	1624
	228	228	734	1763	5504	3980	11277	3288	4767	1469	1267
	175	175	736	1134	2846	5862	13325	6795	6668	4696	2749
732 - 914	.	227	737	.	.	.	.	.	.	.	.
	.	223	741	.	.	.	.	.	.	.	.
	.	348	745	.	.	.	.	.	.	.	.
	.	159	748	.	.	.	.	.	.	.	.
915 -1097	.	221	738	.	.	.	.	.	.	.	.
	.	206	742	.	.	.	.	.	.	.	.
	.	392	746	.	.	.	.	.	.	.	.
	.	126	749	.	.	.	.	.	.	.	.
1098 -1280	.	254	739	.	.	.	.	.	.	.	.
	.	211	743	.	.	.	.	.	.	.	.
	.	724	747	.	.	.	.	.	.	.	.
	.	556	750	.	.	.	.	.	.	.	.
1281 -1463	.	264	740	.	.	.	.	.	.	.	.
	.	280	744	.	.	.	.	.	.	.	.
	.	229	751	.	.	.	.	.	.	.	.
Total Biomass (t)				17165	69126	110862	147631	68316	71080	38783	27530

Table 18a Biomass estimates (t) of Greenland halibut from Canadian spring surveys in Div. 3N using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
<=56	1593	1593	375	0	0	0	0	0	0	0
	1499	1499	376	12	0	0	0	0	1	0
57 - 92	2992	2992	360	19	349	130	471	183	23	0
	1853	1853	361	0	0	1	0	0	4	0
	2520	2520	362	0	0	0	0	0	0	0
	2520	2520	373	0	0	0	0	0	0	0
	931	931	374	9	0	0	0	0	0	73
	674	674	383	0	0	0	0	0	0	0
93 - 183	421	421	359	145	133	31	165	96	19	0
	100	100	377	6	4	0	321	0	0	0
	647	647	382	0	0	76	0	20	0	0
184 - 274	225	225	358	259	677	413	458	46	17	29
	139	139	378	48	37	49	719	4	14	6
	182	182	381	178	90	10	217	33	7	0
275 - 366	164	164	357	57	82	375	17	4	43	0
	106	106	379	85	183	170	1047	312	28	88
	116	116	380	117	162	58	43	53	28	19
367 - 549	155	155	723	333	134	300	68	173	71	24
	105	105	725	242	952	130	37	289	150	68
	160	160	727	389	1482	1499	328	843	358	22
550 - 731	124	124	724	196	142	368	575	114	95	201
	72	72	726	93	254	1463	63	257	139	52
	156	156	728	1226	.	576	1475	1804	1088	222
732 - 914	.	134	752	.	.	.	.	.	.	.
	.	106	756	.	.	.	.	.	.	.
	.	154	760	.	.	.	.	.	.	.
915 -1097	.	138	753	.	.	.	.	.	.	.
	.	102	757	.	.	.	.	.	.	.
	.	171	761	.	.	.	.	.	.	.
1098 -1280	.	180	754	.	.	.	.	.	.	.
	.	99	758	.	.	.	.	.	.	.
	.	212	762	.	.	.	.	.	.	.
1281 -1463	.	385	755	.	.	.	.	.	.	.
	.	127	759	.	.	.	.	.	.	.
	.	261	763	.	.	.	.	.	.	.
Total Biomass (t)				3415	4681	5647	6003	4228	2084	805

Table 18b Abundance estimates (000s) of Greenland halibut from Canadian spring surveys in Div. 3N using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
<=56	1593	1593	375	0	0	0	0	0	0	0
	1499	1499	376	41	0	0	0	0	41	0
57 - 92	2992	2992	360	225	2190	1098	2507	453	41	0
	1853	1853	361	0	0	32	0	0	85	0
	2520	2520	362	0	0	0	0	0	0	0
	2520	2520	373	0	0	0	0	0	0	0
	931	931	374	85	0	0	0	0	0	299
	674	674	383	0	0	0	0	0	0	0
93 - 183	421	421	359	852	1390	129	550	347	203	0
	100	100	377	14	21	0	935	0	7	7
	647	647	382	0	0	178	0	89	0	0
184 - 274	225	225	358	3853	6782	1871	1594	138	232	74
	139	139	378	660	229	220	1673	223	102	31
	182	182	381	2189	490	200	613	2754	206	11
275 - 366	164	164	357	471	180	1636	66	20	144	11
	106	106	379	853	938	890	5009	7945	97	2318
	116	116	380	1763	1548	559	247	756	121	291
367 - 549	155	155	723	1773	853	1386	192	341	126	47
	105	105	725	2035	5545	712	100	650	571	356
	160	160	727	3363	7545	7538	1101	2348	1487	204
550 - 731	124	124	724	1002	687	1008	2167	212	159	350
	72	72	726	293	763	5477	178	525	228	105
	156	156	728	6532	.	2154	4496	4286	2457	707
732 - 914	.	134	752	.	.	.	.	.	.	.
	.	106	756	.	.	.	.	.	.	.
	.	154	760	.	.	.	.	.	.	.
915 -1097	.	138	753	.	.	.	.	.	.	.
	.	102	757	.	.	.	.	.	.	.
	.	171	761	.	.	.	.	.	.	.
1098 -1280	.	180	754	.	.	.	.	.	.	.
	.	99	758	.	.	.	.	.	.	.
	.	212	762	.	.	.	.	.	.	.
1281 -1463	.	385	755	.	.	.	.	.	.	.
	.	127	759	.	.	.	.	.	.	.
	.	261	763	.	.	.	.	.	.	.
Abundance (000s)				26004	29159	25088	21429	21086	6307	4811

Table 19a Biomass estimates (t) of Greenland halibut from Canadian spring surveys in Div. 3O using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
57 - 92	2089	2089	330	0	0	0	0	0	0	0
	456	456	331	0	0	16	0	0	0	0
	1898	1898	338	478	40	62	0	0	0	2
	1716	1716	340	0	0	0	0	0	0	0
	2520	2520	351	0	0	0	0	0	0	0
	2580	2580	352	114	48	0	0	0	0	3
	1282	1282	353	119	146	331	2	25	0	3
93 - 183	1721	1721	329	1	13	0	0	1	1	0
	1047	1047	332	148	376	475	0	4	0	1
	948	948	337	179	139	4	0	3	31	1
	585	585	339	0	2	8	0	0	33	0
	474	474	354	807	122	330	3	0	11	22
184 - 274	151	147	333	5	62	23	0	9	0	8
	121	121	336	100	168	11	0	7	3	8
	103	103	355	249	168	20	0	3	84	5
275 - 366	92	96	334	20	39	6	2	1	0	1
	58	58	335	9	92	15	0	2	0	0
	61	61	356	161	68	47	1	0	3	1
367 - 549	93	166	717	42	165	55	0	0	1	0
	76	76	719	9	24	29	1	8	0	21
	76	76	721	161	59	112	5	30	1	8
550 - 731	111	134	718	70	116	154	11	26	8	41
	105	105	720	29	61	111	4	45	23	3
	93	93	722	57	176	203	23	120	23	43
732 - 914	.	105	764	.	.	.	.	.	.	.
	.	99	768	.	.	.	.	.	.	.
	.	135	772	.	.	.	.	.	.	.
915 -1097	.	124	765	.	.	.	.	.	.	.
	.	138	769	.	.	.	.	.	.	.
	.	128	773	.	.	.	.	.	.	.
1098 -1280	.	144	766	.	.	.	.	.	.	.
	.	128	770	.	.	.	.	.	.	.
	.	135	774	.	.	.	.	.	.	.
1281 -1463	.	158	767	.	.	.	.	.	.	.
	.	175	771	.	.	.	.	.	.	.
	.	155	775	.	.	.	.	.	.	.
Total Biomass (t)				2757	2084	2010	1328	284	224	173

Table 19b Abundance estimates (000s) of Greenland halibut from Canadian spring surveys in Div. 3O using a Campelen trawl during 1996-2002.

Depth Range (m)	V1 Area	V4 Area	Stratum	1996	1997	1998	1999	2000	2001	2002
57 - 92	2089	2089	330	0	0	0	0	0	0	0
	456	456	331	0	0	63	0	0	0	0
	1898	1898	338	5035	459	298	0	0	0	87
	1716	1716	340	0	0	0	0	0	0	0
	2520	2520	351	0	0	0	0	0	0	0
	2580	2580	352	907	592	0	0	0	0	89
	1282	1282	353	1340	1195	1905	8	141	44	176
93 - 183	1721	1721	329	79	250	0	0	47	47	0
	1047	1047	332	1914	5425	3909	1	144	0	48
	948	948	337	1739	1415	98	0	33	391	43
	585	585	339	0	72	40	0	0	161	0
	474	474	354	20278	1467	2289	8	0	186	685
184 - 274	151	147	333	111	600	233	1	131	0	131
	121	121	336	1987	1680	141	0	105	92	75
	103	103	355	8005	1467	88	0	6	1155	54
275 - 366	92	96	334	343	252	125	6	26	0	33
	58	58	335	126	794	156	2	36	8	4
	61	61	356	2031	369	183	3	0	30	26
367 - 549	93	166	717	544	1060	396	1	0	10	34
	76	76	719	97	177	90	1	5	5	54
	76	76	721	1673	391	350	12	37	5	28
550 - 731	111	134	718	325	664	828	30	28	18	37
	105	105	720	182	331	575	7	77	54	17
	93	93	722	381	1086	886	70	199	56	30
732 - 914	.	105	764	.	.	.	.	.	.	.
	.	99	768	.	.	.	.	.	.	.
	.	135	772	.	.	.	.	.	.	.
915 -1097	.	124	765	.	.	.	.	.	.	.
	.	138	769	.	.	.	.	.	.	.
	.	128	773	.	.	.	.	.	.	.
1098 -1280	.	144	766	.	.	.	.	.	.	.
	.	128	770	.	.	.	.	.	.	.
	.	135	774	.	.	.	.	.	.	.
1281 -1463	.	158	767	.	.	.	.	.	.	.
	.	175	771	.	.	.	.	.	.	.
	.	155	775	.	.	.	.	.	.	.
Abundance (000s)				47095	19746	12652	4013	1017	2262	1651

Table 20a. Greenland halibut biomass estimates (000 t), by division, from Canadian fall surveys during 1995-2002.

	DIVISION											
Year	2G	2H	2J	3K	**SA2+3K**	3L	**2J3KL**	3M	3N	3O	**3LMNO**	**TOTAL**
1995	**NO SURVEY**		35.6	69.2	-	11.3	**116.1**	**NO SURVEY**			-	
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	**NO SURVEY**		54.9	143.3	**198.2**	34.1	**232.3**	5.5	9.3	4.2	**53.1**	**251.3**
2001	**NO SURVEY**	37.7	65.8	128.7	**232.2**	29.9	**224.4**	5.3	7.2	4.5	**46.9**	**279.1**
2002	**NO SURVEY**		53.6	67.0	**120.6**	22.4	**143.0**	2.5	5.7	4.1	**34.7**	**155.3**

Table 20b. Abundance and biomass estimates of Greenland halibut, by Division, from Canadian fall 2002 survey.
Upper and lower indicate approximate 95% confidence limits.

Area	Total	Upper	Lower		Mean	Upper	Lower
Division 2G							
Abundance			**NO SURVEY**				
Biomass (kg)							
Division 2H							
Abundance			**NO SURVEY**				
Biomass (kg)							
Division 2J							
Abundance	409,088,650	485,902,307	323,274,993	No/Tow	117.67	139.77	95.58
Biomass (kg)	53,591,267	66,647,278	40,535,257	Kg/Tow	15.42	19.17	11.66
Division 3K							
Abundance	484,453,011	592,687,347	376,218,676	No/Tow	95.05	116.29	73.82
Biomass (kg)	66,999,295	84,684,227	49,314,303	Kg/Tow	13.15	16.62	9.68
Division 3L							
Abundance	66,612,899	84,079,336	49,146,462	No/Tow	10.45	13.19	7.71
Biomass (kg)	22,377,410	28,053,533	16,701,287	Kg/Tow	3.51	4.40	2.62
Division 3M							
Abundance	2,451,738	3,079,900	1,823,577	No/Tow	5.27	6.62	3.92
Biomass (kg)	2,525,414	3,418,062	1,632,766	Kg/Tow	5.43	7.35	3.51
Division 3N							
Abundance	13,237,519	24,323,192	2,151,866	No/Tow	4.93	9.06	0.80
Biomass (kg)	5,705,039	7,539,250	3,870,828	Kg/Tow	2.12	2.81	1.44
Division 3O							
Abundance	4,967,234	6,704,158	3,230,311	No/Tow	1.79	2.42	1.16
Biomass (kg)	4,076,662	5,913,625	2,239,700	Kg/Tow	1.47	2.13	0.81
Combined SA2+Div. 3KLMNO							
Abundance	980,811,052	1,108,988,452	852,633,651	No/Tow	46.99	53.15	40.85
Biomass (kg)	155,275,058	174,921,327	135,628,789	Kg/Tow	7.44	8.38	6.50

Table 21a. Mean weight (kg) per tow and associated CI for Greenland halibut in Div. 2G and 2H for 1978 - 2001 in years when surveys were done.

	Division					
	2G			2H		
Year	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

Table 21b. Mean weight (kg) per tow for Greenland halibut in Division 2J and 3K for 1978-2002.

	Division					
	2J			3K		
Year	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

Table 21c. Mean weight (kg) per tow for Greenland halibut in Division 3L Fall and Spring for 1995-2002.

	Division					
	3L - Fall			3L - Spring		
Year	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

Table 21d. Mean weight (kg) per tow for Greenland halibut in Division 3N Spring and Fall for 1996-2002.

	Division					
	3N - Fall			3N - Spring		
Year	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

Table 21e. Mean weight (kg) per tow for Greenland halibut in Division 3O Spring and Fall for 1996-2002.

	Division					
	3O - Fall			3O - Spring		
Year	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

Table 21f. Mean weight (kg) per tow for Greenland halibut in Division 3M for 1996-2002.

	Division		
	3M - Fall		
Year	Mean wt/tow	Upper Limit	Lower Limit
1996	5.3	12.8	-2.2
1997	15.0	23.2	6.8
1998	16.7	24.3	9.1
1999	8.5	13.5	3.5
2000	11.8	16.9	6.8
2001	11.3	15.1	7.5
2002	5.4	7.3	3.5

Table 21g. Mean weight (kg) per tow and associated confidence intervals for Greenland halibut in Div. 2J3K for 1978-2002 and Div. 2J3KL for 1995-2002.

	Division					
	2J3K			2J3KL		
Year	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

Table 22a. Mean numbers per tow and associated CI for Greenland halibut in Div. 2G and 2H for 1978 - 2001 in years when surveys were done.

	Division					
	2G			2H		
Year	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

Table 22b. Mean numbers per tow for Greenland halibut in Division 2J and 3K for 1978-2002.

	Division					
	2J			3K		
Year	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

Table 22c. Mean numbers per tow for Greenland halibut in Division 3L Spring and Fall for 1995-2002.

	Division					
	3L - Fall			3L - Spring		
Year	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

Table 22d. Mean numbers per tow for Greenland halibut in Division 3N Spring and Fall for 1996-2002.

	Division					
	3N - Fall			3N - Spring		
Year	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

Table 22e. Mean numbers per tow for Greenland halibut in Division 3O Spring and Fall for 1996-2002.

	Division					
	3O - Fall			3O - Spring		
Year	Mean no/tow	Upper Limit	Lower Limit	Mean no/tow	Upper Limit	Lower Limit
1996	3.8	4.8	2.7	18.5	117.2	-80.3
1997	5.7	8.4	3.0	7.7	11.7	3.7
1998	5.9	6.9	4.9	5.0	8.3	1.6
1999	1.9	14.6	-10.8	1.6	2.8	0.3
2000	2.2	3.5	0.9	0.4	0.6	0.2
2001	1.9	3.7	0.1	0.9	6.6	-4.8
2002	1.8	2.4	1.2	0.6	0.8	0.5

Table 22f. Mean numbers per tow for Greenland halibut in Division 3M for 1996-2002.

	Division		
	3M - Fall		
Year	Mean no/tow	Upper Limit	Lower Limit
1996	8.3	25.7	-9.2
1997	16.9	26.4	7.3
1998	19.9	32.4	7.4
1999	9.3	15.0	3.6
2000	12.2	19.1	5.3
2001	10.8	14.3	7.4
2002	5.3	6.6	3.9

Table 22g. Mean numbers per tow and associated confidence intervals for Greenland halibut in Div. 2J3K for 1978-2002 and Div. 2J3KL for 1995-2002.

	Division					
	2J3K			2J3KL		
Year	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

Table 23a Greenland halibut stratified mean number per set at age from Canadian fall surveys conducted in Divisions 2J and 3K combined during 1978-1992. Only otoliths collected in Div. 2J or 3K are used in the analysis. Numbers expressed in Campelen 1800 catch units.

Age (yrs)	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
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	0.92
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	5.69
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	23.78
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	20.40
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	13.59
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	4.84
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	3.11
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	1.27
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	0.12
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	0.02
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	0.01
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	0.00
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	0.00
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	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	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	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	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	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	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	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
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	73.76
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	63.46
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	9.37
Ages 1-10	133.20	70.39	47.29	86.60	63.30	62.04	65.89	83.23	97.03	85.65	82.03	103.24	70.48	54.91	72.83

Table 23b Greenland halibut stratified mean number per set at age from Canadian fall surveys conducted in Divisions 2J and 3K combined during 1993-2002. Only otoliths collected in Div. 2J or 3K are used in the analysis. Numbers expressed in Campelen 1800 catch units.

Age (yrs)	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
0	1.05	16.90	10.95	4.92	2.18	1.52	6.46	3.09	8.49	8.30
1	8.08	29.79	49.93	98.68	28.05	23.35	15.99	38.57	43.90	40.67
2	43.64	21.62	51.10	47.82	58.62	25.07	34.42	21.94	22.72	24.08
3	64.00	22.61	15.13	32.01	43.61	31.19	24.07	16.43	17.00	12.50
4	19.28	18.90	6.03	9.54	21.13	21.87	28.28	13.20	14.07	9.68
5	5.56	7.22	6.63	6.28	10.37	10.86	20.04	13.76	9.77	6.03
6	1.76	1.32	1.99	2.47	5.01	4.45	10.53	7.21	7.59	1.97
7	0.74	0.61	0.39	0.84	2.00	2.07	3.81	2.16	3.40	0.72
8	0.23	0.19	0.12	0.19	0.64	0.57	0.70	0.50	0.69	0.19
9	0.03	0.03	0.02	0.18	0.20	0.13	0.14	0.06	0.11	0.04
10	0.00	0.01	0.01	0.04	0.06	0.06	0.07	0.03	0.02	0.01
11	0.00	0.00	0.00	0.02	0.03	0.03	0.02	0.02	0.01	0.00
12	0.02	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00
13	0.00	0.00	0.00	0.02	0.01	0.01	0.03	0.00	0.01	0.00
14	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	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
16	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
18	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
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ages 0-20	144.39	119.19	142.30	203.02	171.93	121.20	144.57	116.98	127.80	104.20
Ages 1-4	135.00	92.92	122.19	188.05	151.41	101.48	102.76	90.14	97.69	86.93
Ages 5+	8.34	9.37	9.16	10.05	18.34	18.20	35.35	23.75	21.62	8.97
Ages 1-10	143.32	102.29	131.34	198.04	169.68	119.61	138.06	113.86	119.28	95.89

Table 24 Greenland halibut stratified mean number per set at age from Canadian fall surveys conducted in Divisions 2J3KL combined during 1995-2002. Only otoliths collected in Div. 2J, 3K or 3L are used in the analysis. Numbers expressed in Campelen 1800 catch units.

Age (yrs)	1995	1996	1997	1998	1999	2000	2001	2002
0	6.73	2.87	1.44	0.90	3.89	1.84	5.23	4.85
1	30.32	59.31	17.10	13.19	8.65	23.21	25.96	23.87
2	31.18	29.08	34.25	15.50	20.62	13.91	12.85	14.56
3	9.69	20.85	26.66	18.82	15.96	9.74	10.05	7.64
4	3.62	6.59	15.30	14.01	15.87	7.68	9.75	6.29
5	4.53	4.62	7.78	10.16	12.83	8.75	6.11	4.37
6	1.55	2.03	3.75	4.00	7.76	5.45	5.61	1.63
7	0.29	0.83	1.75	1.78	2.50	1.83	2.49	0.73
8	0.07	0.18	0.60	0.47	0.48	0.35	0.49	0.23
9	0.01	0.13	0.17	0.13	0.09	0.06	0.09	0.03
10	0.01	0.04	0.05	0.04	0.04	0.02	0.02	0.01
11	0.00	0.02	0.03	0.03	0.02	0.02	0.01	0.01
12	0.00	0.01	0.02	0.02	0.01	0.01	0.01	0.00
13	0.00	0.01	0.01	0.01	0.02	0.01	0.01	0.01
14	0.00	0.00	0.01	0.01	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
16	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
18	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
20	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
Ages 1-4	74.82	115.83	93.31	61.52	61.10	54.54	58.61	52.36
Ages 5+	6.46	7.88	14.17	16.65	23.74	16.49	14.84	7.01
Ages 1-10	81.27	123.66	107.40	78.11	84.79	71.00	73.42	59.36

Table 25a Stratified mean number per tow, at age, by division, from 1996 -1999 Canadian fall surveys. See Table B for explanation of otoliths used.

1996

Age (yrs)	Div. 2G	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3M	Div. 3N	Div. 3O	Total
0	0.79	0.32	10.52	1.10	0.11	0.02	0.24	0.70	1.88
1	19.51	56.79	103.40	96.48	5.26	0.14	8.63	0.54	39.42
2	9.81	43.74	42.63	50.34	4.57	0.93	6.42	1.33	22.81
3	6.34	16.75	18.88	40.79	5.89	0.78	2.46	0.59	13.94
4	5.28	8.62	8.98	10.07	2.48	0.81	1.33	0.33	5.56
5	4.24	5.41	6.48	6.22	2.31	1.26	0.89	0.16	3.68
6	2.78	3.04	2.68	2.26	1.50	2.15	0.36	0.06	1.85
7	1.13	1.23	0.84	0.88	0.79	1.17	0.03	0.01	0.75
8	0.60	0.55	0.19	0.18	0.18	0.69	0.01	0.00	0.24
9	0.58	0.37	0.23	0.09	0.11	0.17	0.00	0.01	0.16
10	0.16	0.08	0.04	0.05	0.04	0.04	0.00	0.00	0.04
11	0.08	0.04	0.02	0.03	0.01	0.03	0.00	0.00	0.02
12	0.05	0.05	0.02	0.01	0.01	0.01	0.00	0.00	0.02
13	0.00	0.00	0.03	0.01	0.00	0.02	0.00	0.00	0.01
14	0.00	0.00	0.01	0.00	0.00	0.04	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
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unk	0.22	0.10	0.04	0.00	0.01	0.02	0.02	0.04	0.02
5+	**9.84**	**10.87**	**10.58**	**9.72**	**4.95**	**5.59**	**1.32**	**0.27**	**6.80**
9+	**1.08**	**0.63**	**0.38**	**0.19**	**0.18**	**0.33**	**0.03**	**0.04**	**0.28**
Total	**51.55**	**137.10**	**194.99**	**208.49**	**23.26**	**8.26**	**20.39**	**3.76**	**90.40**

1997

Age (yrs)	Div. 2G	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3M	Div. 3N	Div. 3O	Total
0	0.73	5.91	3.32	1.51	0.35	0.00	0.04	0.00	1.54
1	7.44	33.09	16.35	36.69	1.86	0.00	0.23	0.65	14.81
2	8.66	57.91	52.29	60.18	3.68	0.00	3.57	1.57	30.82
3	10.60	61.60	33.87	49.10	4.78	0.03	6.44	2.06	27.05
4	13.63	45.16	25.07	21.96	4.65	0.18	2.12	0.90	14.77
5	6.57	16.76	9.27	11.11	4.31	2.50	1.61	0.39	7.18
6	3.93	9.06	5.70	4.11	2.39	5.28	0.54	0.10	3.53
7	2.37	4.60	2.14	2.02	1.33	4.88	0.16	0.02	1.80
8	0.84	1.43	0.45	0.77	0.55	3.06	0.05	0.03	0.67
9	0.23	0.44	0.17	0.19	0.15	0.41	0.01	0.00	0.18
10	0.21	0.12	0.06	0.05	0.04	0.12	0.00	0.00	0.07
11	0.11	0.09	0.07	0.01	0.03	0.15	0.00	0.00	0.04
12	0.02	0.03	0.03	0.01	0.02	0.06	0.00	0.00	0.02
13	0.00	0.05	0.02	0.00	0.02	0.14	0.00	0.00	0.02
14	0.00	0.06	0.01	0.01	0.02	0.05	0.00	0.00	0.02
15	0.00	0.01	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
Unk	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5+	**14.28**	**32.64**	**17.92**	**18.28**	**8.84**	**16.65**	**2.37**	**0.53**	**13.53**
9+	**0.57**	**0.79**	**0.36**	**0.27**	**0.27**	**0.93**	**0.01**	**0.01**	**0.35**
Total	**55.34**	**236.31**	**148.81**	**187.72**	**24.15**	**16.86**	**14.78**	**5.71**	**102.52**

1998

Age (yrs)	Div. 2G	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3M	Div. 3N	Div. 3O	Total
0	0.08	0.61	2.76	0.67	0.07	0.05	0.02	0.03	0.64
1	13.28	8.86	15.80	26.43	1.18	0.00	0.49	0.08	8.94
2	2.82	20.01	18.22	30.35	2.14	0.00	1.32	0.37	12.16
3	1.52	37.54	27.02	33.41	2.69	0.04	2.72	0.88	14.82
4	1.67	22.64	16.18	23.61	5.15	0.67	3.50	1.64	11.46
5	1.52	10.72	9.15	15.81	6.19	3.30	3.42	1.64	8.01
6	1.18	5.26	3.31	5.62	3.07	6.54	2.25	0.79	3.56
7	0.91	2.68	1.61	2.48	1.31	5.94	1.06	0.27	1.61
8	0.55	1.05	0.45	0.58	0.40	2.12	0.30	0.12	0.50
9	0.04	0.19	0.12	0.15	0.13	0.48	0.07	0.03	0.12
10	0.04	0.04	0.04	0.06	0.03	0.29	0.04	0.01	0.05
11	0.02	0.04	0.04	0.02	0.02	0.20	0.02	0.02	0.03
12	0.00	0.02	0.03	0.02	0.01	0.18	0.01	0.00	0.02
13	0.02	0.02	0.01	0.01	0.01	0.08	0.00	0.00	0.01
14	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.01
15	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
Unk	0.12	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
5+	**4.40**	**20.01**	**14.77**	**24.75**	**11.18**	**19.14**	**7.23**	**2.88**	**1.07**
9+	**0.23**	**0.30**	**0.26**	**0.26**	**0.20**	**1.25**	**0.20**	**0.06**	**0.02**
Total	**23.76**	**109.68**	**94.75**	**139.23**	**22.41**	**19.91**	**15.27**	**5.89**	**53.86**

1999

Age (yrs)	Div. 2G	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3M	Div. 3N	Div. 3O	Total
0	1.29	3.60	11.43	2.77	0.36	0.00	0.02	0.06	2.77
1	6.56	12.09	23.79	8.23	0.11	0.00	0.02	0.02	5.94
2	5.47	26.09	31.64	37.30	0.90	0.00	0.20	0.17	15.11
3	1.74	10.55	19.49	32.61	0.66	0.00	0.49	0.32	10.82
4	4.21	16.17	21.88	29.54	1.49	0.11	0.70	0.34	11.96
5	3.42	12.89	19.19	20.23	3.23	0.82	1.02	0.46	9.35
6	1.47	5.44	6.81	14.00	3.36	2.58	0.51	0.30	5.44
7	0.74	2.88	2.16	4.37	1.21	3.48	0.17	0.13	1.95
8	0.40	1.02	0.53	0.77	0.22	1.26	0.03	0.05	0.42
9	0.09	0.51	0.11	0.14	0.04	0.51	0.02	0.01	0.11
10	0.04	0.13	0.04	0.08	0.02	0.46	0.00	0.01	0.04
11	0.03	0.07	0.02	0.02	0.01	0.07	0.00	0.00	0.02
12	0.01	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.01
13	0.01	0.05	0.03	0.02	0.02	0.00	0.00	0.00	0.02
14	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.02	0.01	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
Unk	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00
5+	**6.21**	**23.05**	**28.88**	**39.64**	**8.10**	**9.18**	**1.75**	**1.02**	**17.36**
9+	**0.19**	**0.82**	**0.20**	**0.27**	**0.10**	**1.04**	**0.02**	**0.09**	**0.20**
Total	**25.48**	**91.54**	**137.11**	**150.08**	**11.61**	**9.29**	**3.17**	**1.92**	**63.95**

Table 25b Stratified mean number per tow, at age, by division, from 2000-2002 Canadian fall surveys. See Table B for explanation of otoliths used.

2000

Age (yrs)	Div. 2G	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3M	Div. 3N	Div. 3O	Total
0			6.14	0.86	0.20	0.00	0.00	0.00	1.31
1			28.36	45.12	3.23	0.00	0.01	0.00	15.33
2			23.35	22.61	1.85	0.00	0.13	0.05	10.39
3			12.27	19.48	0.72	0.00	0.04	0.02	6.39
4			8.53	15.24	1.31	0.03	0.21	0.17	6.10
5			8.71	17.13	2.23	0.76	0.82	0.48	6.51
6			5.16	9.18	2.70	4.04	1.99	0.76	4.64
7			1.46	2.83	1.26	4.44	1.40	0.46	1.80
8			0.29	0.52	0.26	1.64	0.36	0.15	0.37
9			0.07	0.06	0.04	0.70	0.11	0.06	0.08
10			0.03	0.03	0.02	0.20	0.02	0.01	0.03
11			0.02	0.02	0.01	0.20	0.01	0.02	0.02
12			0.01	0.00	0.01	0.10	0.02	0.01	0.01
13			0.00	0.00	0.01	0.01	0.00	0.01	0.01
14			0.00	0.01	0.00	0.01	0.00	0.00	0.00
15			0.00	0.00	0.00	0.01	0.00	0.00	0.00
16			0.00	0.00	0.00	0.05	0.00	0.00	0.00
Unk			0.02	0.00	0.00	0.00	0.00	0.00	0.00
5+	**0.00**	**0.00**	**15.76**	**29.78**	**6.53**	**12.17**	**4.73**	**1.96**	**13.47**
9+	**0.00**	**0.00**	**0.15**	**0.12**	**0.09**	**1.29**	**0.17**	**0.11**	**0.15**
Total	**0.00**	**0.00**	**94.40**	**133.09**	**13.85**	**12.20**	**5.12**	**2.20**	**52.97**

No Survey

2001

Age (yrs)	Div. 2G	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3M	Div. 3N	Div. 3O	Total
0		7.84	12.11	6.03	0.83	0.00	0.00	0.00	3.98
1		43.08	43.39	43.11	2.75	0.01	0.09	0.04	19.46
2		42.01	25.43	19.33	0.80	0.00	0.22	0.05	11.03
3		24.85	15.11	17.72	1.16	0.00	0.71	0.06	8.68
4		22.33	14.41	16.46	1.85	0.01	0.32	0.03	7.89
5		11.47	8.72	10.01	1.57	0.45	0.53	0.22	5.00
6		9.37	6.37	9.55	2.05	2.97	1.35	0.63	4.66
7		4.02	2.40	4.18	1.20	4.21	0.86	0.56	2.19
8		0.49	0.33	0.83	0.32	2.09	0.26	0.20	0.48
9		0.24	0.09	0.11	0.07	0.52	0.05	0.06	0.09
10		0.13	0.03	0.01	0.02	0.16	0.02	0.03	0.03
11		0.02	0.02	0.01	0.01	0.26	0.02	0.03	0.02
12		0.02	0.01	0.00	0.01	0.08	0.02	0.02	0.01
13		0.02	0.01	0.02	0.01	0.03	0.00	0.01	0.01
14		0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00
15		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
Unk		0.03	0.07	0.01	0.00	0.00	0.28	0.00	0.01
5+	**0.00**	**25.81**	**18.05**	**24.72**	**5.24**	**10.82**	**3.40**	**1.75**	**12.51**
9+	**0.00**	**0.46**	**0.22**	**0.16**	**0.11**	**1.10**	**0.41**	**0.15**	**0.18**
Total	**0.00**	**165.92**	**128.50**	**127.37**	**12.62**	**10.85**	**4.74**	**1.92**	**63.55**

No Survey

2002

Age (yrs)	Div. 2G	Div. 2H	Div. 2J	Div. 3K	Div. 3L	Div. 3M	Div. 3N	Div. 3O	Total
0			14.85	3.80	0.23	0.00	0.00	0.00	3.47
1			44.05	36.95	2.40	0.00	0.35	0.12	16.64
2			24.64	24.35	1.24	0.00	0.27	0.04	10.66
3			12.12	12.53	1.28	0.00	1.14	0.09	5.86
4			11.25	8.84	1.55	0.01	0.83	0.09	4.62
5			6.89	5.82	1.83	0.36	0.70	0.21	3.26
6			2.45	1.87	0.98	1.41	0.69	0.41	1.41
7			1.00	0.69	0.61	1.57	0.65	0.47	0.72
8			0.31	0.18	0.24	1.18	0.21	0.23	0.25
9			0.04	0.02	0.04	0.54	0.04	0.06	0.05
10			0.02	0.01	0.01	0.15	0.02	0.02	0.02
11			0.01	0.00	0.01	0.04	0.01	0.03	0.01
12			0.00	0.00	0.01	0.00	0.00	0.01	0.00
13			0.01	0.00	0.01	0.01	0.00	0.01	0.01
14			0.00	0.00	0.00	0.01	0.00	0.00	0.00
15			0.00	0.00	0.00	0.00	0.00	0.01	0.00
16			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unk			0.05	0.00	0.01	0.00	0.01	0.00	0.01
5+	**0.00**	**0.00**	**10.77**	**8.59**	**3.73**	**5.26**	**2.34**	**1.44**	**5.74**
9+	**0.00**	**0.00**	**0.13**	**0.03**	**0.07**	**0.74**	**0.08**	**0.13**	**0.10**
Total	**0.00**	**0.00**	**117.68**	**95.06**	**10.44**	**5.27**	**4.93**	**1.79**	**46.99**

No Survey

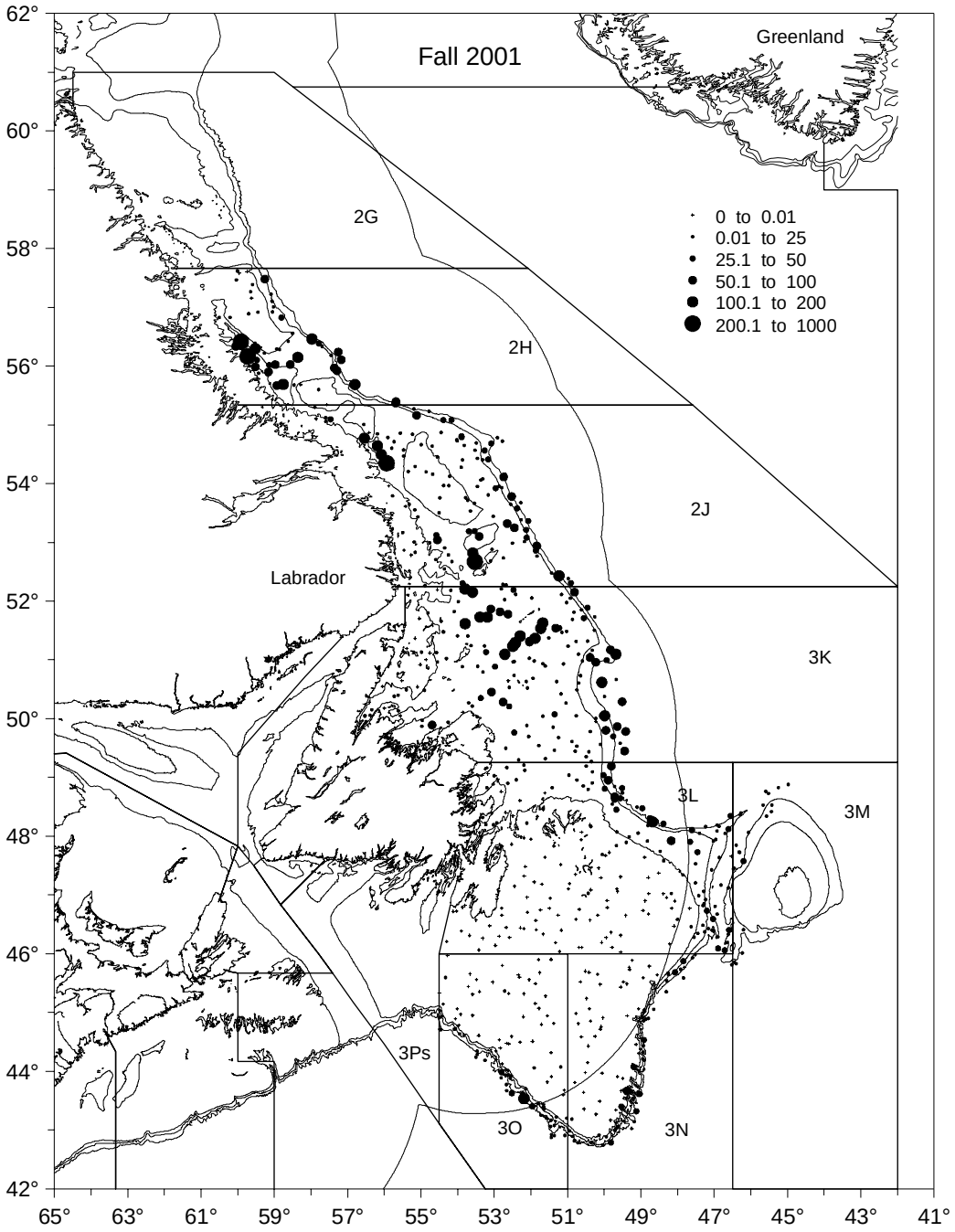


Fig. 1 Distribution (kg. per set) of Greenland halibut from Canadian fall surveys during 2001.

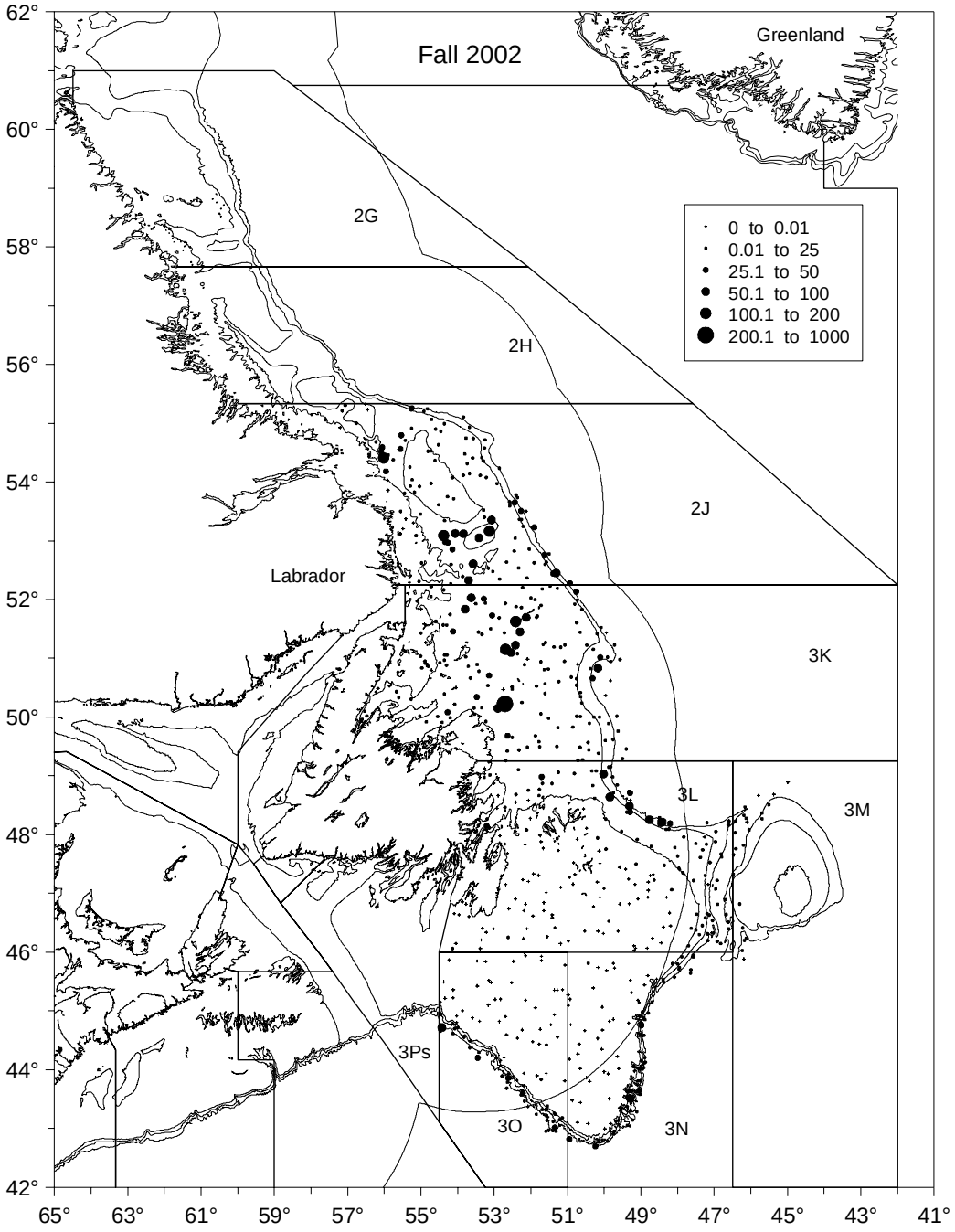


Fig. 2 Distribution (kg. per set) of Greenland halibut from Canadian fall surveys during 2002.

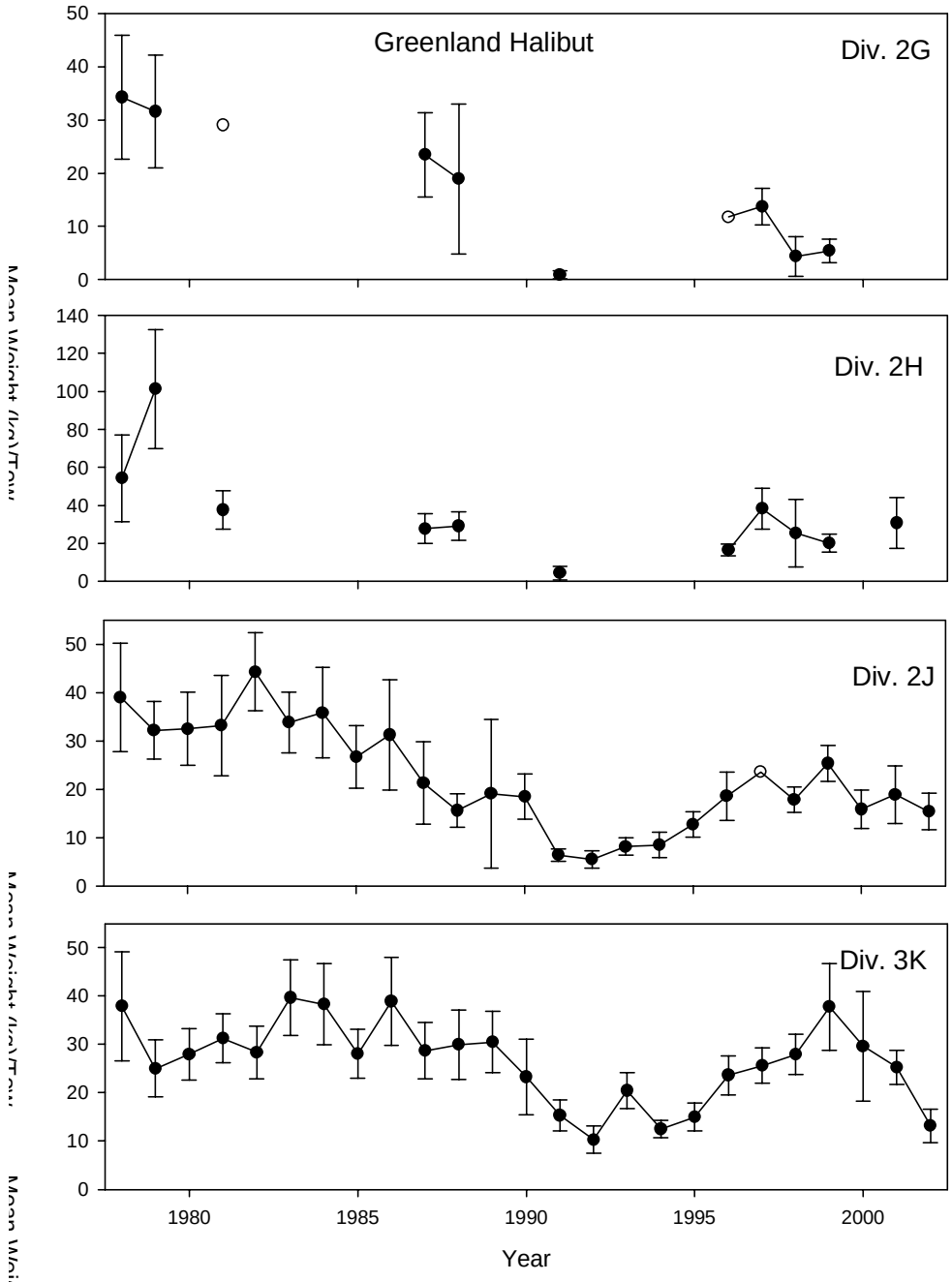


Figure 3a. Camplelen stratified mean weight per tow estimates by NAFO Division from Canadian surveys during 1978-2001. Surveys were completed in the fall, unless otherwise indicated. Open symbols indicate estimates with large negative confidence limits.

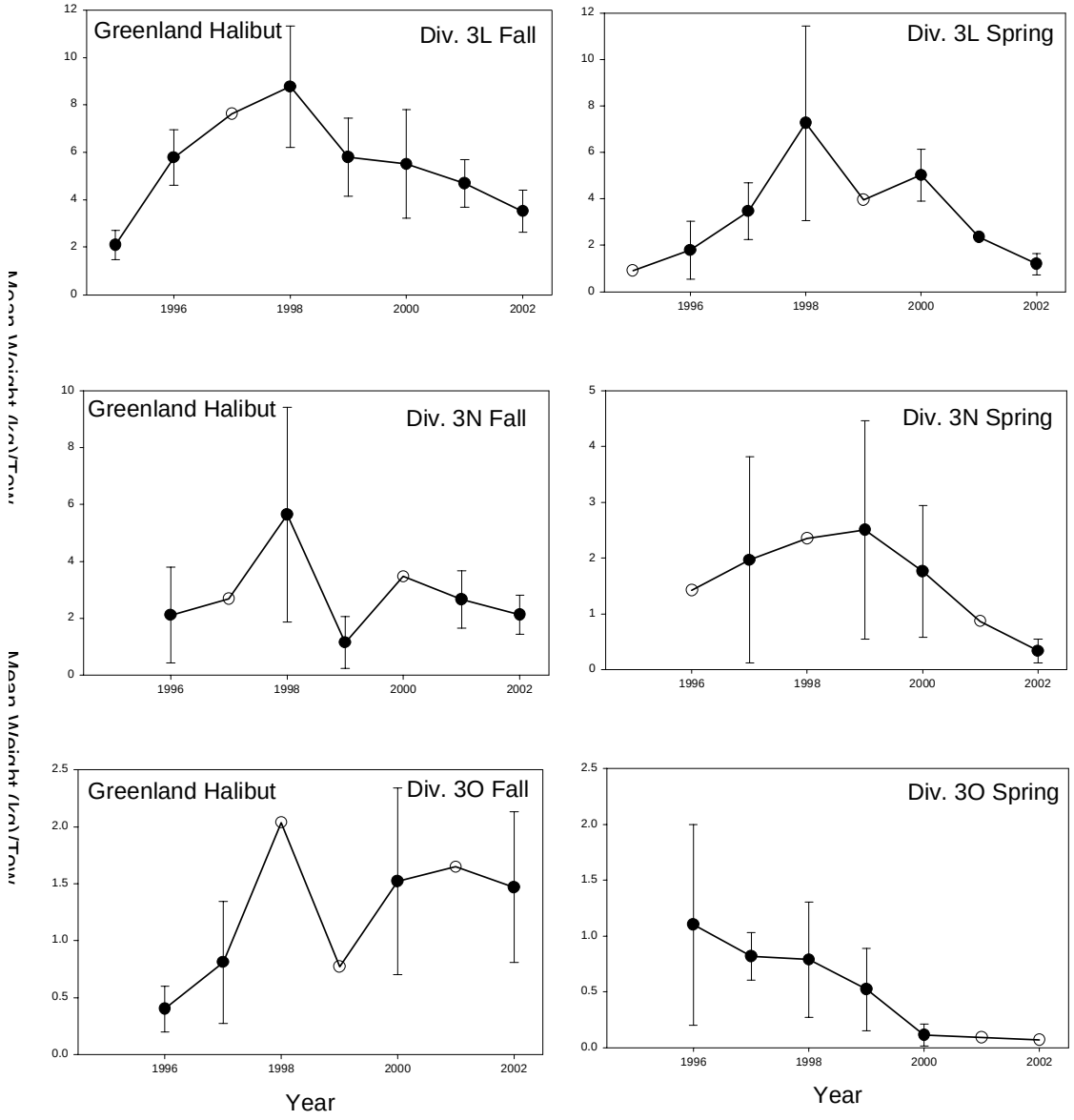
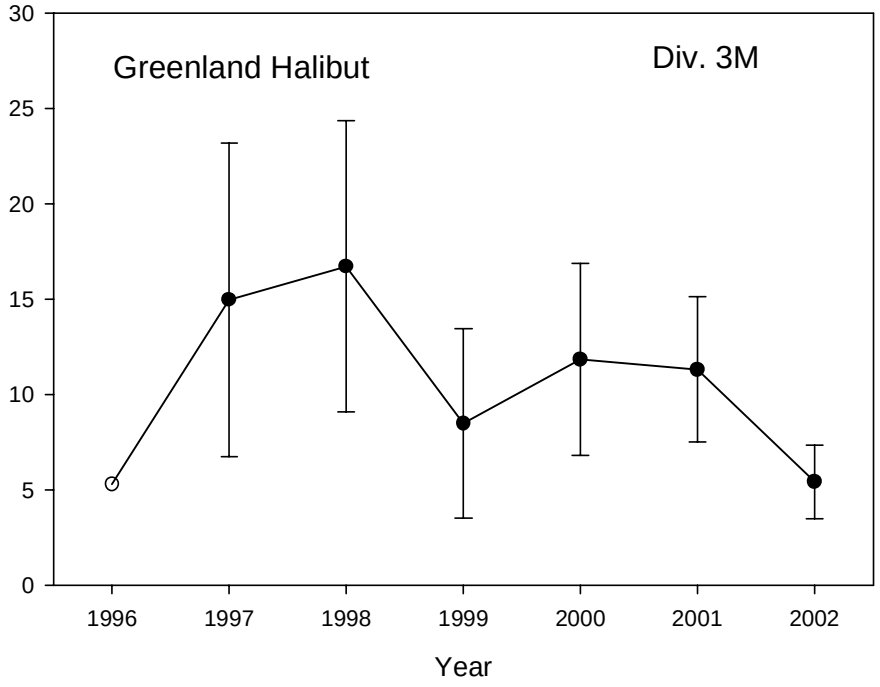


Figure 3b. Continued.



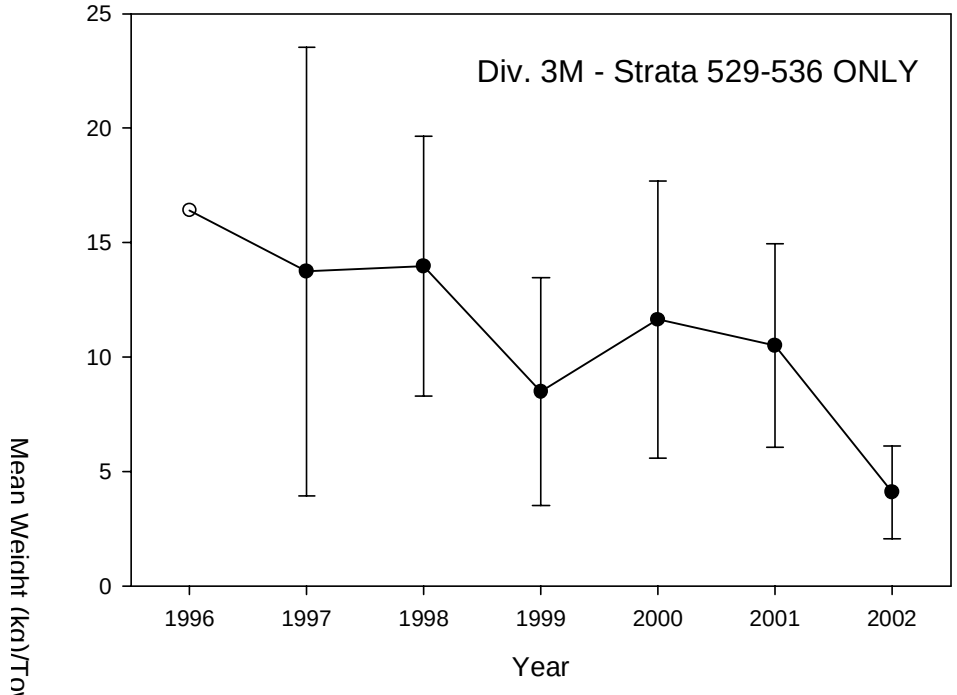
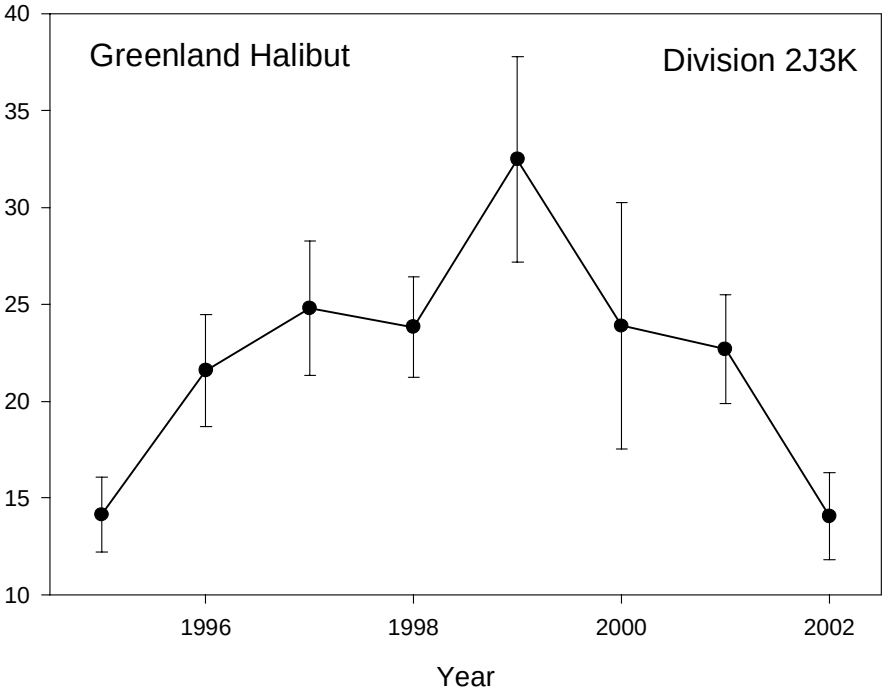


Figure 3c. Continued.



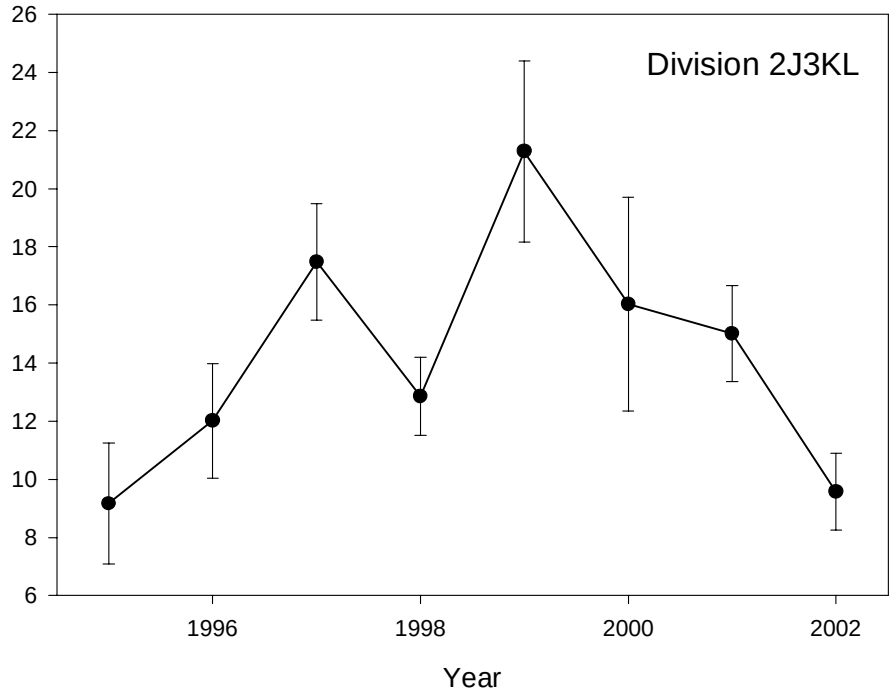


Figure 3d. Continued.

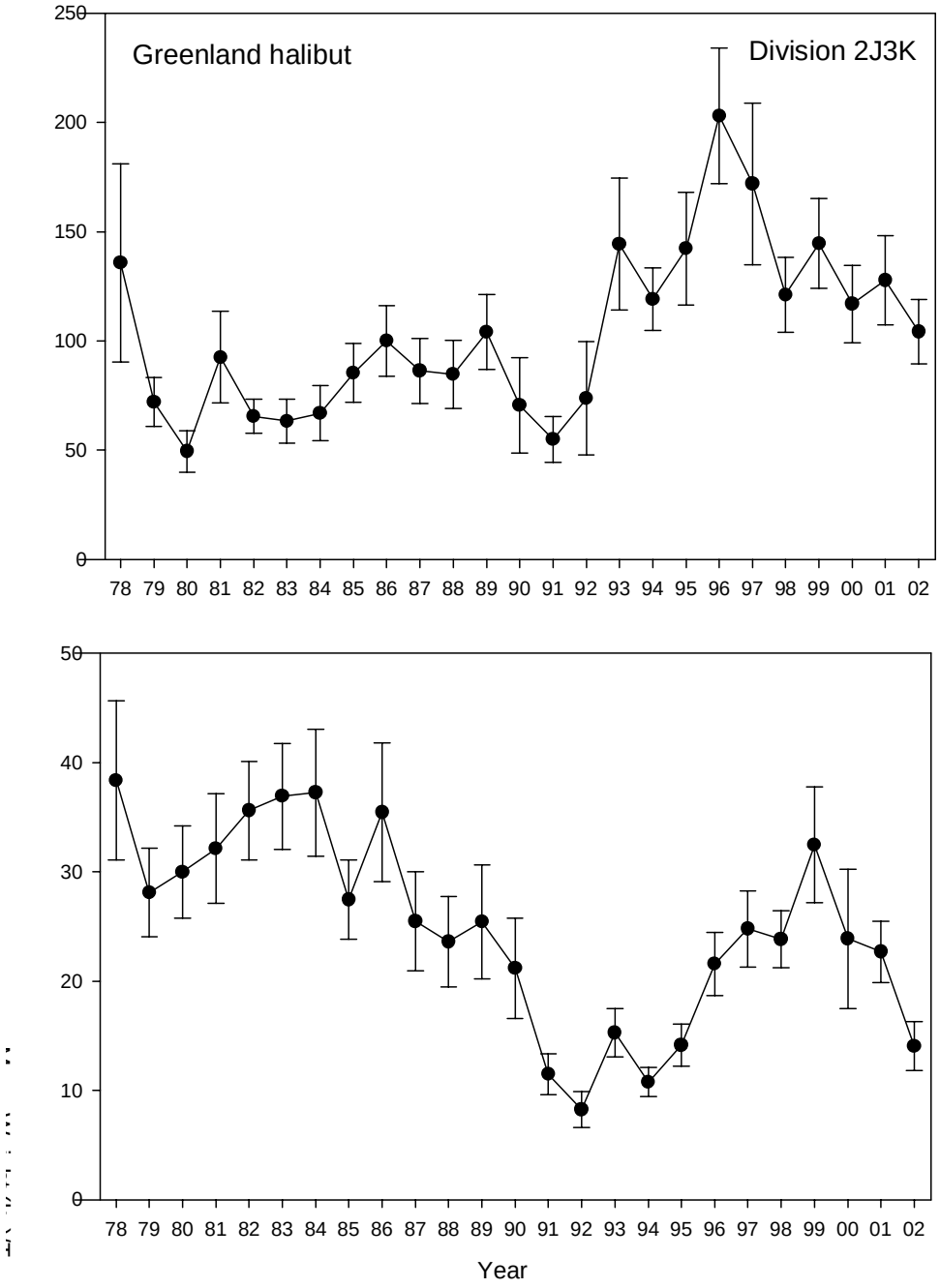


Figure 4. Campelen stratified mean number and weight (kg) per tow estimates of NAFO Divisions 2J3K combined during 1978-2002. Surveys were completed in the fall.

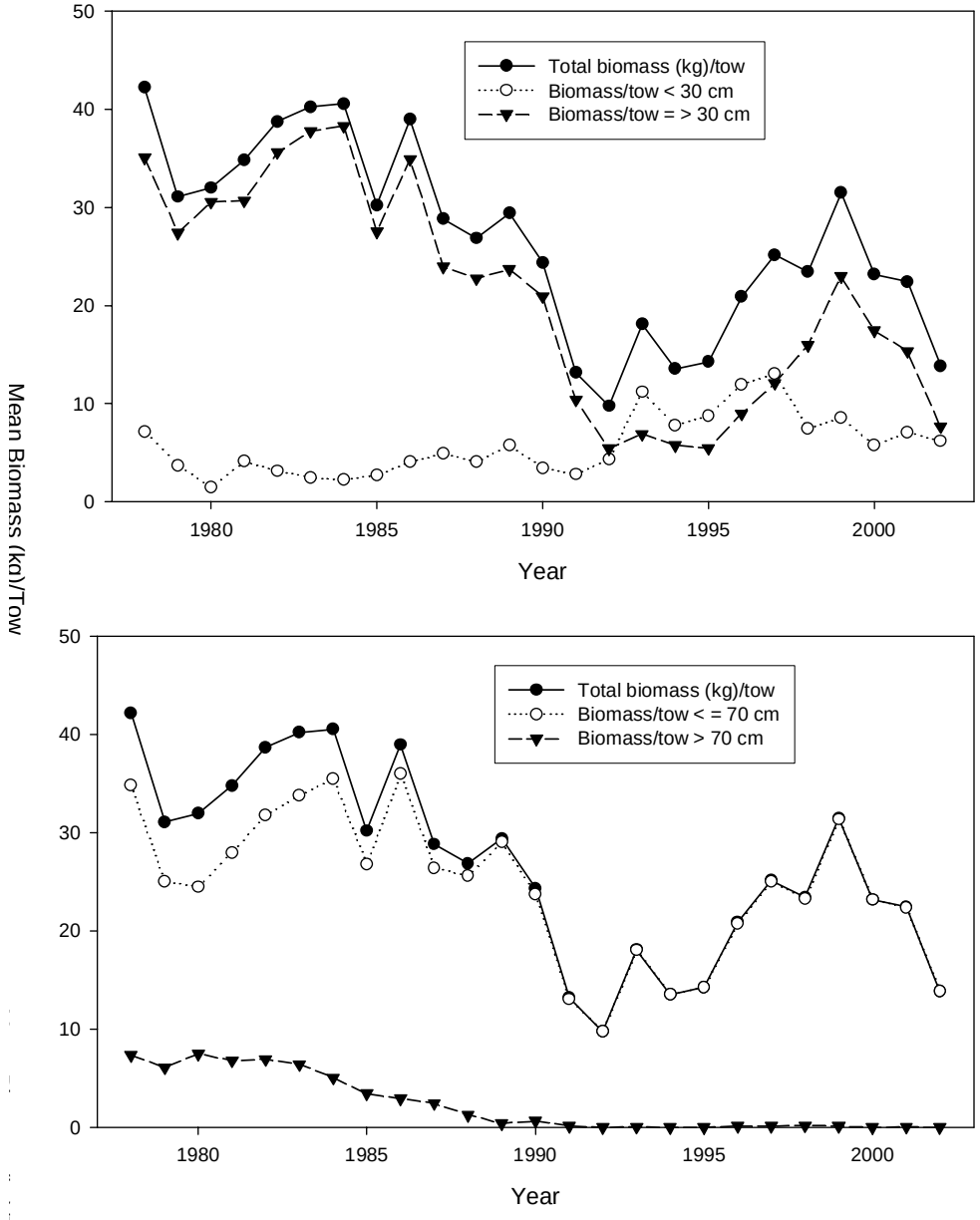


Figure 5. Mean biomass (kg) per tow of Greenland halibut by length grouping from Canadian fall surveys conducted in Div. 2J + 3K during 1978-2002. Biomass was calculated using the at-sea length-weight (L/W) equations as applied to Campelen or Campelen equivalent abundance indices. Annual length-weight equations can be found in Table C. From 1978-1989, the 1990 L/W equation was used.

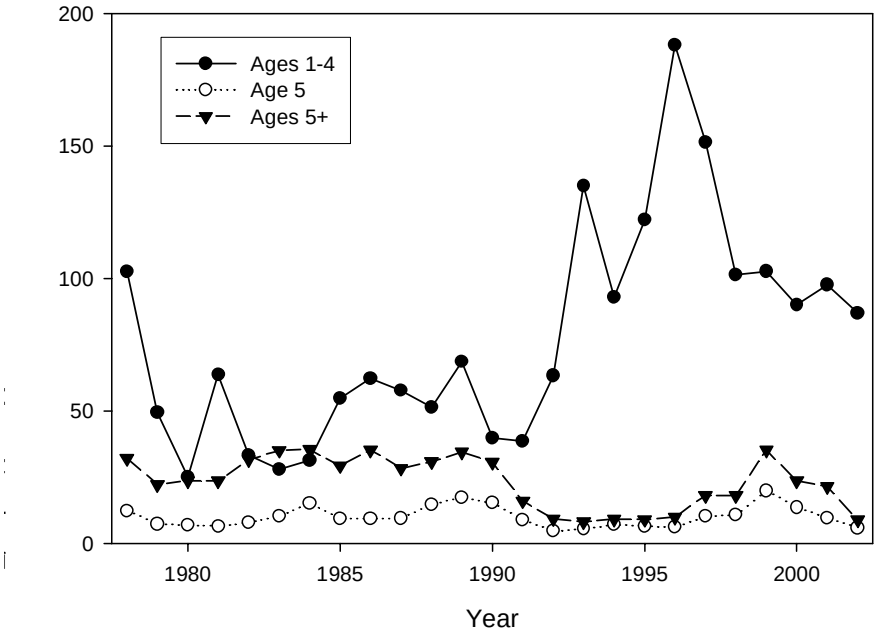


Figure 6. Trends in mean number per tow estimates by age category from Canadian fall surveys in Divisions 2J and 3K combined during 1978-2002.

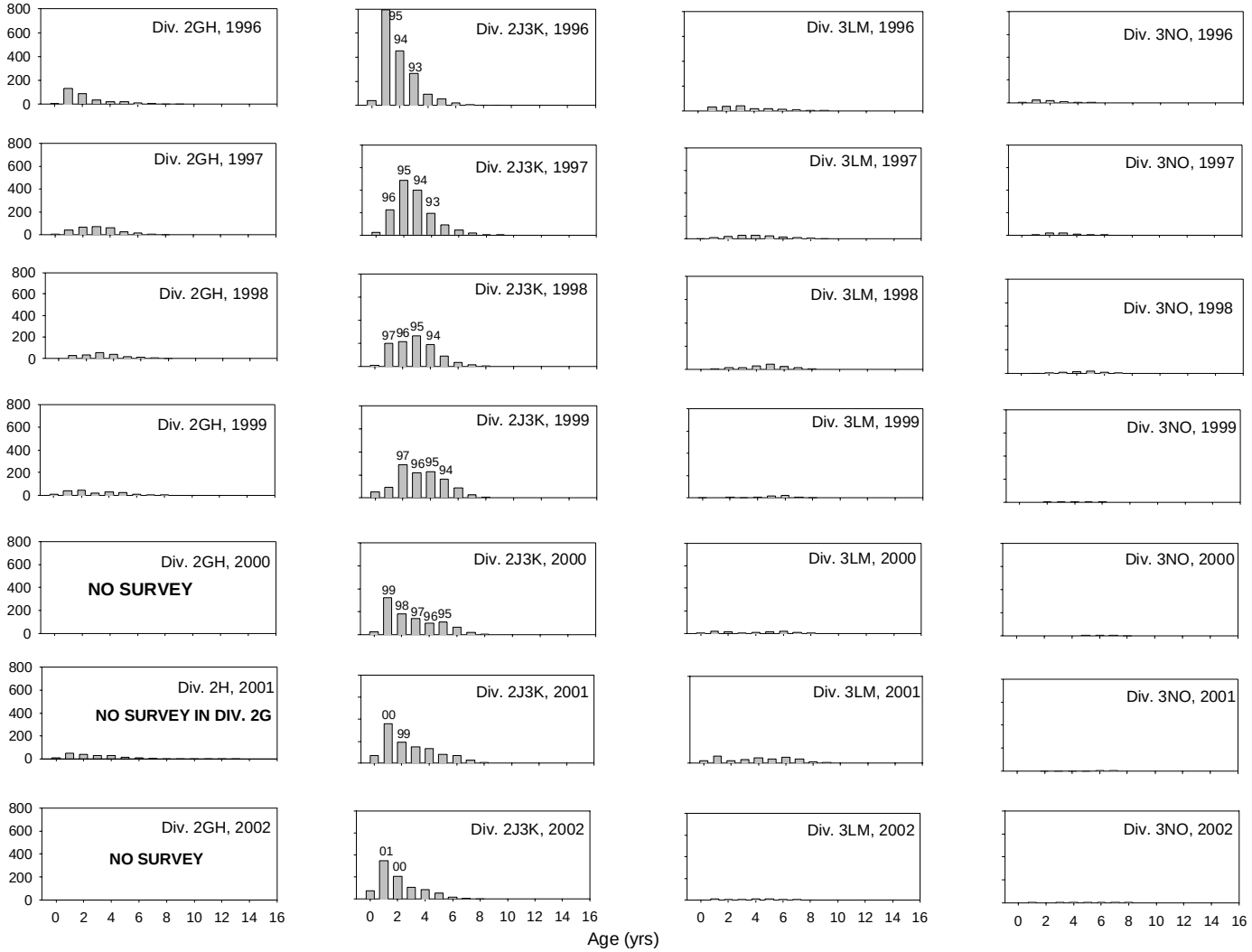


Figure 7 Greenland halibut abundance at age (millions) by year and NAFO Division groupings from Canadian fall surveys during 1996-2002. Numbers on graphs represent year-classes. Otoliths used to develop age length keys for 2002 were composed of the otoliths from each of the separate division.

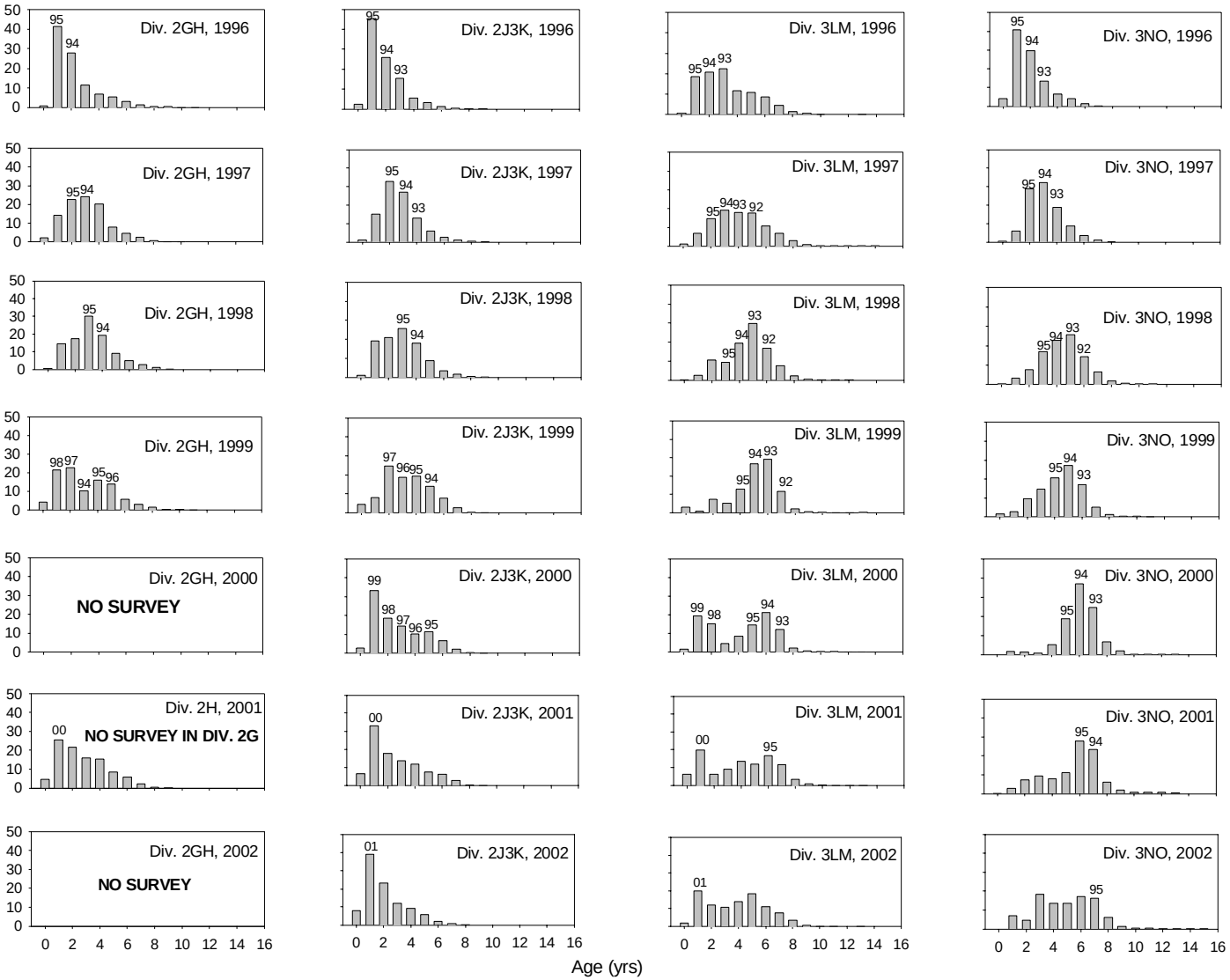


Figure 8. Greenland halibut percent at age by year and NAFO Division groupings from Canadian fall surveys during 1996-2002. Numbers on graphs represent year-classes. Otoliths used to develop age length keys for 2002 were composed of the otoliths from each separate division.

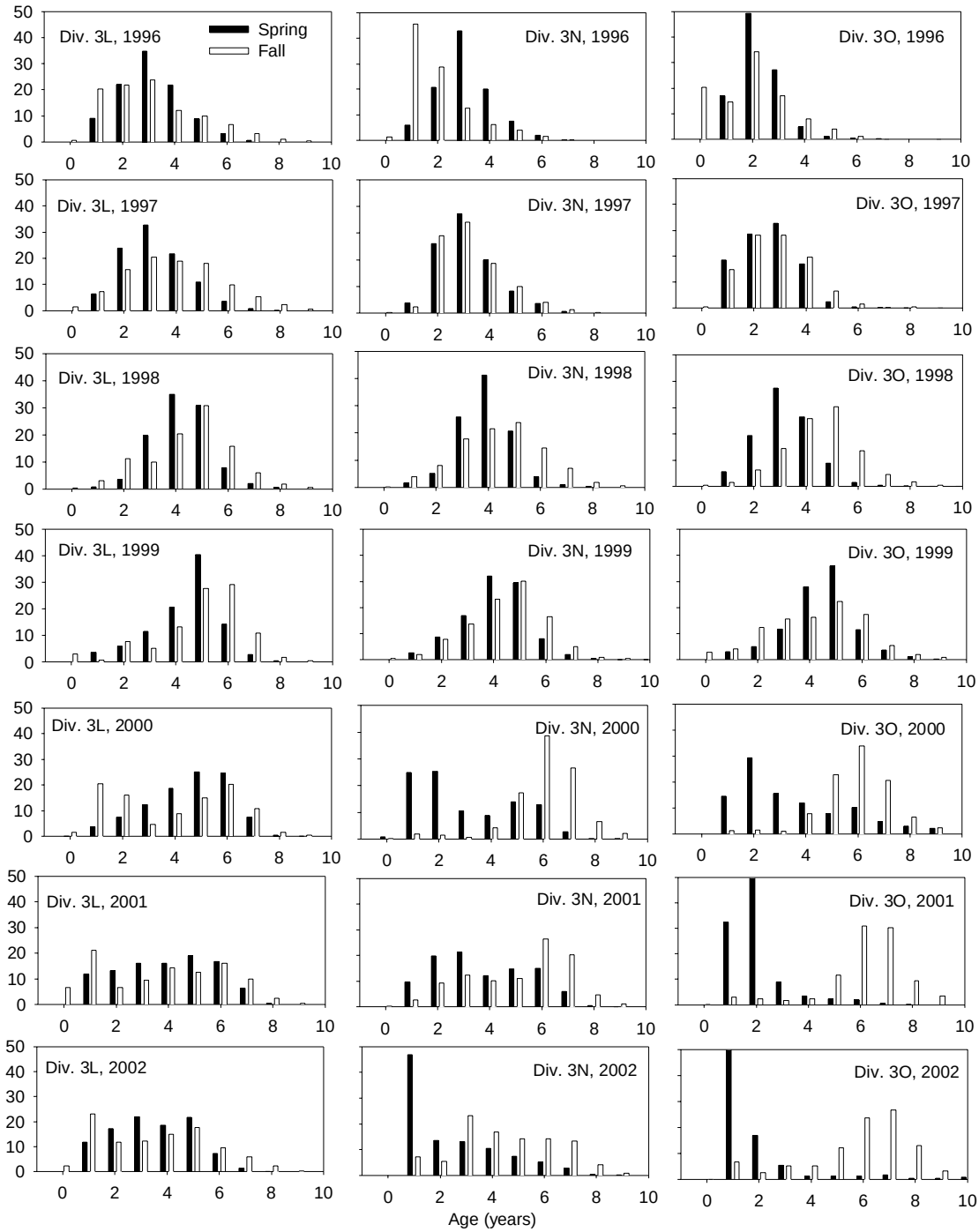


Figure 9. A comparison of percent population size at age by division for Greenland halibut from Canadian spring and fall surveys in NAFO Divisions 3L, 3N and 3O during 1996-2001using a *Campelen 1800* shrimp trawl. Otoliths used to develop age length keys for 2002 were composed of the otoliths from each separate division.