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Age, length, and growth of Gag (*Mycteroperca microlepis*) from the northeastern Gulf of Mexico: 1979-2005

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Abstract

Gag were sampled for age structure from both the commercial and recreational harvests of the Gulf of Mexico primarily from the west coast of Florida (n = 16,147; 1991-2005). This dataset builds on previously reported age information and reader comparisons revealed consistent age interpretation occurred between earlier and more recent time periods. Gag fully recruited into the fishery by ages 3-6 yrs old (range: 0 – 31 yrs, 6 ± 3 yrs) and became rare at age 13 yrs old (<1% of samples). Annual age frequencies displayed five dominant age classes (1985, 1989, 1993, 1996, and 1999). Recreationally caught gag were significantly smaller at size-at-age at ages 2 – 6 yrs compared to commercially caught gag. Comparisons of size-at-age data between the commercial gears also resulted in significant differences in mean size-at-age for ages 3 – 8 yrs, with long-line caught gag maintaining a faster growth rate than hand-line caught fish at these ages. Commercial gears also differed in the primary grid fished (HL: grid 8; LL: grid 6) and it was evident that older gag were caught more readily with long-line gear in deeper waters. A modified von Bertalanffy model that takes into account non-random sampling due to minimum size restrictions predicted the following growth parameters: L_∞ = 1310 mm, k = 0.14, t_o = -0.37. Pre-regulatory, recreational gag samples (1979-1989, before size limits) were compared to a post-regulatory dataset (1991-2005), and reflected a greater percentage of larger and older gag collected in the earlier time period with smaller size-at-age (faster growth) in gag collected post-regulatory.

Introduction

Gag (*Mycteroperca microlepis*) is a member of the Family Serranidae, and is widely distributed throughout the Gulf of Mexico, Caribbean, and U.S. South Atlantic (Hoese and Moore 1977) and are classified as an important component (~ 31%) of the shallow-water grouper landings (Schirripa and Legault 1997, Turner et al. 2001). Gag are a highly sought target species and during the last stock assessment were classified as overfished and undergoing overfishing (Turner et al. 2001).

Because age and growth information is critical to stock assessment, the goal of this report is to characterize age-length structure temporally and spatially using 15 years of data collected from the northeastern Gulf of Mexico: 1991-2005. Gag otoliths have been sampled and aged at the National Marine Fisheries Service- Southeastern Fisheries Science Center in Panama City, Florida, since 1979 (Johnson et al. 1993). Although there have been periods of low sampling effort, there is a continuous 15 year dataset: 1991 – 2005. This report includes newly recovered un-analyzed data and re-aged otoliths from earlier collections archived at this laboratory (Johnson et al. 1993, Fitzhugh et al. 2001). The following are discussed: age-length frequencies, age-length keys, meristic conversion equations, size-at-age comparisons between sectors and gears, patterns of samples collected by depth, age, and length including NMFS statistical sub-areas (grids) classification of commercial data, modified growth curve, comparison of old and updated age estimates, and comparison of results with previous studies.

Methods

Data Collection

Otoliths were collected by numerous federal and state sources representing both the commercial and recreational fisheries (Trip Interview Program – TIP, Beaufort Head Boat Survey – HB, Marine Fisheries Recreational Statistical Survey – MRFSS, Florida Fish and Wildlife Research Institute – FWRI, and Recreational Fisheries Information Network – RECFIN). Gag otoliths were also collected from federally funded fishery independent surveys (NMFS Panama City, FL – PCLAB, and NMFS Pascagoula, MS – MSLAB). Measurements of fish lengths (total and/or fork), weights (whole or gutted), and removal of otoliths were completed in the field.

Information describing catch location (latitude, longitude, depth, or NMFS statistical sub-areas, grids; Patella 1975) was often reported with the commercial samples. The west Florida shelf, where most gag were caught, encompasses the area from Cape Sable to Cape San Blas within the northeastern Gulf of Mexico (Smith 1976) and was divided into two regions: north and south of 28°N latitude (just north of Tampa Bay). If detailed information on capture location was not available from port collections, fish could clearly be identified as being harvested north or south of 28°N latitude based on port agent interviews of fishers. Depth data were either reported as a mean depth or a range of depths for the entire interview. If the range of depth was ≤ 5-fathoms (ftm), than an average depth was calculated, otherwise both a start and an end depth were recorded.

Data Quality Control

Each of the data collection sources has separate but similar sampling procedures, data protocols, and reporting methodologies. Our facility uses data quality control guidelines in the interpretation of source-specific datasheets as described by the Procedure Manual for Age, Growth, and Reproduction (AGR) Lab (NMFS 2004). First, each species-specific collection is assigned an annual collection (or tracking) number and all collection-specific data (i.e. source, source number, state, sector, and gear) are proofed and entered in our Annual AGR Access Databases from the original datasheets. If such data are not provided, then the collector (port agent and/or survey leader) is contacted to track down the missing data. Our Annual AGR Access Databases were constructed with field-specific lists of suitable values (e.g. source, state, sector, and gear), validation rules, and user-specific security for data accessibility to enhance our data quality control procedures. Additionally, the source number (or interview number) is a source-specific number (or combination of intercept specific numbers) that permits the cross-referencing of data between databases (original source and Annual AGR Database). Next, after all the individual fish data are entered, proofing sheets are reviewed against the original datasheets and any corrections are made to the Annual AGR Database. Finally, all proofing sheets are initialed, dated and filed for further reference. Prior to 1998, no manual existed to implement these procedures. Therefore, to insure these standards of quality control, all 1991-1997 data were proofed using the TIP original datasheets (archived in Panama City, FL) and any missing data were resolved by accessing the TIP database (DELPHI, SEFHOST).

Otolith Interpretation

Gag otoliths were interpreted by using either the left or right sagittal otolith (Johnson et al. 1993). All gag otoliths were read whole and only those otoliths that were difficult to interpret were sectioned using a Hillquist high-speed saw (Fitzhugh et al. 2001, Cowan et al. 1995). The number of opaque bands and the description of the marginal edge type (opaque zone complete, translucent zone forming, translucent zone complete) were recorded by the otolith readers. Final annual age assignment was based on the date of capture and edge type. Band deposition is complete by July (Johnson and Koenig 2005). For those fish caught prior to July 1 that also had a fully translucent marginal edge type, final age was the number of opaque bands plus one; otherwise the final age was equal to the number of opaque bands.

In addition to annual or cohort age, fractional age was determined for use in growth curves. A fractional period of a year was determined as the difference from peak spawning and capture date (gag peak spawning = March 1; Collins et al. 1997). If capture date was later in the year than the peak spawning date, the fractional period was added to annual age. If capture date was before the peak spawning date, the fractional period was subtracted from annual age to yield an estimate of biological age.

Reader Agreement

Two methods of calculating indices of precision or reader agreement were implemented for this long time series dataset. Otoliths collected prior to 1997 were aged by A. Johnson and such results were recently published (Johnson et al. 1993, Johnson and Koenig 2005). In order to validate the combination of otolith interpretation across the entire time series, otoliths were chosen from one year (1996) and read by G. Fitzhugh. Reader bias plots and indices of reader precision (percent agreement – PA, average percent agreement – APE; Campana 2001) for A. Johnson and G. Fitzhugh were used to interpret any differences in otolith readings for previously aged and published samples. Since A. Johnson did not report ages for those samples in which whole and sectioned otolith band counts did not agree (Johnson et al. 1993, Johnson and Koenig 2005), all sectioned otoliths (1991-1995) were re-read by G. Fitzhugh. If indices of reader agreement (A. Johnson and G. Fitzhugh) resulted in high levels of precision, then those ages previously assigned by A. Johnson (1991-1995) were used for further analysis.

Two readers (G. Fitzhugh and B. Fable) completed otolith interpretation for recent samples collected more recently (1996-2005). A reference collection (n = 200) was created by selecting otoliths collected throughout the year (2000) that represented all sectors of collection (commercial, recreational, fishery independent) and a wide range of sizes and ages. The reference collection was read by each reader and indices of reader precision were calculated.

Age-Length Structure

Meristic relationships were calculated for lengths, body weights, and otolith weights for all gag caught from 1991 to 2005. Conversions from fork length (mm) to total length (mm) were calculated through a linear regression (Microsoft Excel). Conversions from total length (mm) to whole weight (kg) and gutted weight (kg) and from fork length (mm) to whole weight (kg) and gutted weight (kg) were calculated by a non-linear regression (Microsoft Excel).

Age-length frequencies were produced for each year with all sectors and gears combined. This was performed in order to detect any apparent annual trends in age structure during the 15-year period, 1991 – 2005. Age-length frequencies were compared to those previously published (Fitzhugh et al. 2001) to reveal any variation within the datasets. Finally, age-length frequencies were compared annually by sectors (commercial, recreation) and by commercial gears (hand-line, long-line).

Size and age data were compared temporally. Annual patterns of size and age data were compared by year using a one-factor analysis of variance (ANOVA) to test for the changes within the time series by sector (Zar 1999). Separate analyses were conducted for recreational and commercial samples, and by commercial gears. In addition, commercial data were analyzed by depth to detect any differences between gear types and/or years. Commercial age data were grouped into 10-fathom depth bins by gear. Finally, commercial data were compared by NMFS Statistical Shrimp Grid and region (North and South) to identify any patterns between the capture location and gear.

Description of Growth

Observed mean size-at-age data were compared by sectors: recreational and commercial. Commercial data were further analyzed by gear (hand-line and long-line) and region (north and south). Observed mean size-at-age data were compared within the above groups for selected age classes by an unpaired Student's t-test with unequal variances (Zar 1999). The comparisons of size-at-age data were restricted to age classes within groups with sample sizes ≥ 10.

Annual age and observed length at capture were used to construct age-length keys. The age-at-length data were aggregated into 5 cm (~2 inch) intervals for all years combined, for each year, and semi-annually for each year (Cummings et al. 2001).

A growth curve, based on fractional ages and observed total lengths at capture, was modeled using the von Bertalanffy growth function and was fit by non-linear regression (Solver, Microsoft Excel). Since the majority of the data derives from commercial and recreational samples, a modified von Bertalanffy model was used to model growth parameters that takes into account the non-random sampling due to minimum size restrictions (Diaz et al. 2004). This model assumes a constant standard deviation of size-at-age and uses a restrictive maximum likelihood estimation procedure with minimum size (CM and REC 1990-1999: 20 in, 508 mm; 2000-2005 CM: 24 in, 609 mm; 2000-2005 REC: 22 in, 590 mm) as the left truncation limit for fisheries dependent observations. Juvenile gag size and age (0-3 yrs old, Fitzhugh et al. 2005) data were used to aid the model to predict growth at smaller sizes not collected in fishery dependent sampling.

Pre-Regulatory Dataset

Gag otoliths and length data collected in 1977-1989 (prior to gag size limits) were recovered from our otolith archive (NMFS Panama City). All otoliths recovered were re-aged according to the methods described above. Indices of reader precision were estimated for those otoliths read by A. Johnson and the secondary reader, C. Gardner. As processing techniques have improved over time, sectioned otoliths were cut thinner and polished to aid interpretation. Not all the otoliths aged by A. Johnson were available for re-ageing. Therefore, some of A. Johnson's original ages were used contingent upon the results of the reader comparisons for the 1977-1989 dataset. The von Bertalanffy growth curve was fit to the observed size-at-fractional age data. Temporal changes in size-at-age were investigated between the 1979-1989 and the 1991-2005 datasets.

Results and Discussion

Data Collection

State and federal waters of Florida were the primary source of samples for gag (97%), followed by Louisiana (< 2%), and Alabama, Mississippi, and Texas waters combined (1%; Table 1). This corresponds well to the US gulf fishery as the primary area of gag harvest is the west Florida shelf (Turner et al. 2001). A total of 18,055 gag otoliths were collected from three main sectors: commercial, recreational, and fishery independent. TIP port agents collected a majority of the gag otoliths (86%; 1991-2005), followed by HB (5%; 1991-2005), and MRFSS/RECFIN port agents/contractors (5%:1998-2005; Table 2). Seventy-six percent of the samples were selected from commercial landings, 21% of the samples were selected from recreational landings, 2% were collected by scientific survey with the use of hand-line, long-line or trap gear types, and 1% were collected from fishing tournaments (Table 3). Commercial samples comprised 46% from hand-line, 53% from long-line, and < 1% by spears and traps. A majority of the samples (70%) were collected in the last 5 years of sampling (2001-2005; Tables 1-3).

Of the entire otolith collection (1991-2005; n = 18,055), only 16,305 (89%) samples were used in this analysis. Otoliths collected in 2005 were sub-sampled based on the sector of collection: commercial samples collected in the first quarter only (Jan-Apr, 47%) were aged, as were all recreational and scientific survey samples collected throughout the year (Table 4). Only 1% of the otoliths were interpreted as unreadable, mostly due to problems associated with processing (off-angle sections and over polishing), yielding 16,147 otoliths for further analysis.

Reader Agreement

Indices of reader agreement resulted in high levels of precision for otoliths collected in 1996 (n = 787). These otoliths were previously aged by A. Johnson and were re-interpreted by our current primary gag otolith reader (G. Fitzhugh). An overall APE of 1.09% was calculated between G. Fitzhugh and A. Johnson with a coefficient of variation of 1.5%. The overall percent of readings in exact agreement was 90%, agreement ±1 year was 98%, and percent agreement increased to 99% ±2 years. Both readers aged fish 2 -15 year-old fish, and no age bias was detected for fish younger than age 12 (Figure 1a). Due to the high level of precision between readers, ages previously determined by A. Johnson (1991-1995) were used for further analysis. The only exception were for those ages determined from otolith sections, and these were re-read by G. Fitzhugh for the time period 1991-1996.

The reference collection was interpreted by G. Fitzhugh and B. Fable to calculate indices of reader precision for samples collected more recently (1997-2005). The levels of reader precision were slightly lower than the previous comparison, nevertheless values were well within the acceptable range (n = 195, APE = 2.6%, CV = 3.7%, exact agreement = 78%, agreement ±1 yr = 95%, agreement ±2 yrs = 97%; Campana 2001). No age bias was associated for fish aged 8 years or younger; however, after age 9 there was a slight difference between readers, most likely magnified by the low sample sizes at the older ages (Figure 1b). Additionally, an ageing workshop was held in September 2005 to compare the Panama City primary reader to other readers ageing gag from the South Atlantic (Reichert et al. 2005).

Age-Length Structure

Meristic relationships were calculated for lengths and body weights for all gag combined 1991- 2005 (Table 5). The linear regression for converting length types (total and fork) was based on 4,999 individual length measurements ($r^2 = 0.99$). All non-linear regressions (length to weight) had high correlations with r^2 values greater than 0.96.

Length frequencies throughout the 15-year period were skewed due to on size limit regulations. In 1990, a 20 inch (508 mm) size limit was established for both commercial and recreational fisheries (Turner et al 2001). Beginning in 2000, length frequencies appear more normally distributed in part due to the increase in size limit in June 2000 to 24 inches (610mm) for commercial and 22 inches (560 mm) for recreational sectors (NMFS 2000; Figure 2).

Lengths were significantly different (ANOVA, $F = 122$, $df = 14$, $p < 0.0001$) among years, yet similarities were evident and most likely were due to the effect of the size limits (Figure 3). Although differences in median length are apparent, it is important to remember otoliths samples were not consistently collected by the same fishing sector, sector, or gear each year. Throughout the time series, there is a presence of undersized gag that were collected by numerous scientific surveys (1995, 1996, 1999 – 2000, 2004 – 2005; Figure 2).

Gag fully recruited to the fishery by age 3 to 6 and became rare by age 13 (< 1% of the total annual age structure; Figure 3 and 4). The oldest gag was 31 year-old fish. There is a low proportion of 1 and 2 year-old fish, in part due to the minimum size regulations. Dominant age classes were apparent exceeding 30% of the total age structure during at least one year and dominated the age structure for two or more years within the 15-year period. Five dominant year classes (1985, 1989, 1993, 1996, and 1999) were present during this time series (Figure 4). The presence of these strong year classes (1985, 1989, and 1993) is also evident in juvenile gag abundance indices (Johnson and Koenig 2005), thus allowing the detection of potential strong year classes in the population prior to gag recruitment to the fishery. The 1989 and 1993 cohorts were non-overlapping strong year classes and dominated the respective annual age structures as 3-6 year-old fish. The 1996 and 1999 cohorts were overlapping strong year classes, appearing in 2002-2004 age structure simultaneously (Figure 4). Mean ages were significantly different (single-factor ANOVA, $F = 70$, $df = 14$, $p < 0.0001$) by year overall, yet similarities were evident among some years (1999, 2001-2005; Figure 3).

The age-length dataset used for the 2001 stock assessment was visually compared to the revised 1992-2000 dataset (Fitzhugh et al. 2001). There are minor variations in the annual length and age frequencies. For example, in 1992 200 more records were recovered which were unavailable to the previous 2001 assessment (Figure 2). In excess of 1500 ages and lengths were recovered (1991-2000) since the 2001 assessment was constructed and the revised annual age structure only enhanced the presence of the strong year classes previously reported by Fitzhugh et al. 2001 (1985, 1989, 1993, 1996; Figure 4).

Fishery independent data collected throughout the time series included samples from NMFS Panama City and Pascagoula scientific surveys ($n = 423$; 1991-2005). These samples were collected under special scientific collection permits allowing the take of undersize shallow-water grouper. A variety of gears were used to sample gag with hand-line being the most prevalent gear throughout the time series ($n = 272$; 1991-2005). More recently gag have been caught with long-lines ($n = 40$) and spears ($n = 14$; 2001-2004). In 2003, NMFS Panama City began a pilot study using traps and targeting shallow-water grouper. Gag collected from the traps were smaller and younger than gag collected by other gears (Figure 5).

The dataset for entire time series (1991-2005) was sub-divided into two major sectors: recreational (REC) and commercial (CM). Annual trends in median lengths and ages for both recreational (REC) and commercial (CM) data were similar (Figures 6 and 7). Mean lengths and mean ages were significantly different among years within sectors (REC length: $F = 15$, $df = 14$, $p < 0.001$; REC age: $F = 7$, $df = 14$, $p < 0.001$; CM length: $F = 33$, $df = 14$, $p < 0.001$; CM age: $F = 22$, $df = 14$, $p < 0.001$) however, the statistical test resulted in low resolution in the explanatory factor, year (REC length: $r^2 = 0.05$, REC age: $r^2 = 0.02$; CM length: $r^2 = 0.04$, CM length: $r^2 = 0.03$; Figures 6 and 7). Recreationally caught gag were substantially younger and smaller than commercially caught gag (REC: age 4.2 ± 2 std dev. yrs, TL 656 ±128 mm; CM: 6.7 ± 3 yrs, 824 ± 157 mm). The recreational size structure was composed primarily of fish less than 700 mm TL (70%) and fish less than 7 year-old fish (97%; Figures 8 and 9). In contrast, the commercial size structure was characterized by fish greater than 700 mm TL (80%) and fish older than 7 year-old fish (36%; Figures 8 and 9). Strong year classes were first noted in the recreational age structure and subsequently in the commercial age structure through the time series (Figure 9). The recreational age structure during the years 2003-2005 suggests there is a possible strong 2000 cohort (age 3-5 yrs old; Figure 9).

Commercial data was further analyzed by hand-line (HL) and long-line (LL). Substantial sampling of both gear types began in 1998 (Table 3), thus analysis concentrated on these years: 1998-2005. Mean lengths and mean ages were significantly different by gear type (length: $F = 1878$, $df = 11775$, $p < 0.0001$; age: $F = 928$, $df = 11775$, $p < 0.0001$); however, the statistical tests resulted in low resolution in the explanatory factor, gear (length: $r^2 = 0.14$, age: $r^2 = 0.07$). The commercial hand-line size structure contained a lower proportion of fish greater than 800 mm TL (33%), than in the long-line fishery (65%; Figure 10a). A smaller percentage of hand-line fish were older than age 8 compared to long-line fish (13% versus 32%, respectively; Figure 10b). Commercial hand-line gear caught younger and smaller gag compared to the long-line gear (HL: age 5.8 ± 2 yrs, TL 763 ±132 mm; LL: 7.5 ± 3 yrs, 881 ± 157 mm; Figure 10c).

Data collected from these two commercial gear types also differed in depth and location fished. The commercial hand-line sector fished in shallower depths than the long-line sector: 60% of hand-line caught fish were from waters less than 30 fathoms (ftm) compared to 43% of the long-line sector (Figure 11a). The difference in depth fished by gear type can be explained by fishing regulations, which restrict the use of long-line gear in waters shallower than 20 fathoms (ftm) east of Cape San Blas, FL (encompassing the entire west Florida shelf). There were minor fluctuations in the depths fished by both gear types within the 15 year dataset (mean ± std dev; HL: 30 ± 11 ftm; LL: 34 ± 10 ftm; Figure 11b-c). A larger proportion of young gag

(≤ 5 yrs old) were caught by the hand-line sector in shallow depths (≤ 30 ftm; 12a-b). As depth increased, long-line gear became the dominant gear and larger proportions of older fish were caught (Figure 12c-d). The pattern of larger and older gag in deeper waters is well documented from both the Gulf of Mexico and US Southeastern Atlantic (Moe 1972, Manooch and Haimovici 1978, Hood and Schlieder 1992, Fitzhugh et al. 2001).

Commercial data analyzed by NMFS statistical shrimp grids and by gear. Since there was minor reporting of gag in grids 11 – 21 (< 3%), these grids were grouped into one category (11+). Gag sampled from hand-line gear primarily came from grid 6 (21%) and grid 8 (50%), whereas samples taken by long-line gear primarily came from grids 4-6 (88%; Figure 13). Overall (years and gears combined) gag otolith numbers were greatest from grid 6 (31%), followed by grid 8 (23%) and grid 5 (20%). Schirripa and Legault (1997) also reported that grid 6 was the primary grid for the harvesting of gag (gears combined). There were minor annual changes in sample locations by gear, but for the most part hand-line gear was the main gear in northern grids (6-11) and long-line gear was the primary gear in the southern grids (1-5; Figure 13). These results seem to correspond to the long-line fishing fleet's primary area of harvest between the 20- and 40-fathom depth contours west of Tampa Bay south to the Dry Tortugas (Fitzhugh et al. 2001).

Description of Growth

Specific size-at-age differences between the sectors (recreational and commercial) and between commercial gears (hand-line and long-line) were analyzed. Commercially caught gag displayed a significantly faster growth at ages 2-6 compared to recreational samples (see Table 6 for t-statistic, df, and significant values; Figure 14a). Fitzhugh et al. (2001) also reported this pattern of older and larger fish caught in the commercial sector. Significant differences in mean size-at-age for ages 3-8 yrs occurred between the commercial gears, with long-line caught gag maintaining a faster growth rate than hand-line caught fish (see Table 7 for t-statistic, df, and significant values; Figure 14b). Cass-Calay et al. (2001) also reported significantly larger size-at-age in gag caught by the long-line gear for ages 3-9. Gag caught below 28^{o} N latitude (Grid 1-5) by both commercial gears showed significantly faster growth at ages 3-8 year-old fish for hand-line and at ages 4-10 for long-line (see Table 8 and 9 for t-statistic, df, and significant values; Figure 15a-b). Thus, regardless of the gear used to collect gag, those gag caught in waters south of the 28^{o} N latitude displayed significantly faster growth within the respective age classes.

Gag data from the entire time series (1991-2005) were fit to a modified von Bertalanffy growth model (TL mm) to obtain population growth parameters (Diaz et al. 2004; Figure 16). In general, the model fit the data well and the assumption of constant deviances in size-at-age in 2 year-old fish and older was satisfied (Figure 17a). The model predicted the following growth parameters: L_{∞} = 1310 mm, k = 0.14, t_o = -0.37 (Figure 17b). The modified von Bertalanffy predictions are below the observed mean size-at-age because of the truncation of sampling (due to the minimum size restrictions; Figure 17c). The model showed large positive and negative residuals, but the residual distribution was normally distributed and center on zero (Figure 18a-18b). Plots of residuals in categories of age, sector (commercial, recreational, scientific), gear and year did not show any particular bias (Figure 18c).

During the last assessment (Turner et al. 2001) separate growth curves were fit to commercial gears separately due to the significantly different sizes-at-age between gears (Cass-Calay et al. 2001). The previous gear specific growth fits were: asymptotic length (HL: 1483 mm; LL: 1293), growth coefficients (HL: k = 0.09; LL: k = 0.13), and t_o (HL: 2.97; LL: 2.42). The modified von Bertalanffy growth model, described earlier uses maximum likelihood methods incorporating minimum size limits and in general, the modified model resulted in an asymptotic length within the range of observed lengths (L_∞ = 1310; TL range 245-1384 mm), similar growth coefficients compared to the gear specific fits and predicted t_o close to zero.

Pre-Regulatory Dataset

A total of 3,002 records were recovered for the years (1979-1990). This dataset was primarily recreational (91%, Beaufort Head boat Survey; 9 % commercial). A majority of the samples were collected from the west coast of Florida (98.4%), and all other locations were discarded from further analysis (n = 63). No original datasheets were recovered for the otolith and length data collected in 1979 – 1981 (n = 2,905); nevertheless, enough data (date, sector, gear, area fished, meristic, annulus count and edge type) could be determined from a computerized spreadsheet. Samples with incomplete records were discarded (n = 52). Data collected in 1983 – 1989 (n = 34) were directly entered either from an original datasheet or from data written on the otolith storage envelopes. These two datasets were combined (n = 2,890) since both of them heavily favored the recreational sector and all samples were collected before imposition of gag management in the Gulf of Mexico (Turner et al. 2001).

Only 382 otoliths were located. Johnson aged 663 otoliths (480 whole, 183 sections) and the secondary reader, C. Gardner, aged 369 otoliths (172 whole, 197 sections), an overlap by both readers of 196 fish. Reader agreement was high (APE = 3.3 %, overall agreement = 63%, agreement ±1 yr = 92%, agreement ±2 yrs = 99%), therefore, a total of 743 otoliths interpreted by either reader was used for further analysis. The data were primarily from the recreational sector as well (92%) and were collected in 1979-1989.

Gag caught prior to 1990 had a mean length of 761 ± 183 mm and a mean age of 7 ± 3 yrs. The length frequency data appeared normally distributed with 50% of the samples larger than 700 mm, to the current (1991-2005) recreational size structure with only 30% larger than 700 mm (Figure 19a). Pre-regulatory age frequency also appeared normally distributed with 50% of the age structure ≥ 7 yrs, whereas only 7% of the 1991-2005 age structure ≥ 7 yrs (Figure 19b). Size-at-age data showed significantly faster growth rates in 1991-2005 compared to the earlier time period (see Table 10 for t-statistic, df, and significant values); however these results are skewed by the effect of size limits on the current dataset (Figure 19c). Johnson et al. (1993) also reported significantly larger and older fish sampled after regulations were implemented.

The von Bertalanffy growth model was fitted to observed lengths and fractional ages for the early dataset (1979-1989). The growth model predicted the following parameters: $L_\infty = 1280$ mm, $k = 0.11$, $t_0 = -1.43$. These predicted values differed somewhat from those reported by Johnson et al. 1993 ($L_\infty = 1199$ mm, $k = 0.14$, $t_0 = -0.91$); however, the earlier study only included samples collected in 1979-1980 (n = 332) whereas the recovered dataset includes data collected 1979-1989 (n = 743).

Conclusions and Future Recommendations

This report summarizes over 25 years of fishery dependent sampling from both the commercial and recreational fisheries. Through the efforts of port agents providing us with data and biological samples we were able to characterize a sub-set of the gag population landed, primarily, at ports throughout the west coast of Florida. It is especially important to note the remarkable progression of strong year classes (1985, 1989, 1993, 1996, and 1999) through the respective fisheries and gear types. Furthermore, the recovery of the pre-regulatory dataset allows the glimpse of the gag fishery prior to the management regulation.

Since the analysis of the gag population is primarily relying on the efforts fishery dependent port agent sampling, it is important that sampling regiments and protocols are maintained and reviewed. Gag are specifically vulnerable to overfishing due to their habitat preferences of structure and forming spawning aggregations during reproductive seasons, therefore continued spatial (site-specific) and gear-specific research is recommended.

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Table 1. Summary of the number of gag otoliths collected by state landed (FL – west coast Florida, AL – Alabama, MS – Mississippi, LA – Louisiana, TX- Texas).

Year	FL	AL	MS	LA	TX	Total
1991	320		2	26	15	363
1992	460		3	36	7	506
1993	672			149	15	836
1994	726			13	18	757
1995	647			6	6	659
1996	948				5	953
1997	278				2	280
1998	332	7	3	10		352
1999	514	13	4			531
2000	631		7	13	1	652
2001	1,808	2	12	16		1,838
2002	2,315	1	5	18	9	2,348
2003	2,050	2	3	7	4	2,066
2004	2,572	15	1	8	8	2,604
2005	3,278	1		27	4	3,310
Total	17,551	41	40	329	94	18,055
Percent	97.2	0.2	0.2	1.8	0.6	

Table 2. Summary of the number of gag otoliths collected by source (TIP - Trip Interview Program, FWRI - Florida Fish and Wildlife Research Institute, HB - Beaufort Head Boat Survey, MRFSS - Marine Recreational Fisheries Statistical Survey, RECFIN - Recreational Fisheries Information Network (GULFIN), CO-OP - Cooperative Research Proposals, MSLAB -NMFS Pascagoula, MS, PCLAB - NMFS Panama City, FL, Other - US Geological Survey, Alabama Department of Marine Resources).

Year	TIP	HB	FWRI	MRFSS	RECFIN	CO-OP	MSLAB	PCLAB	Other	Total
1991	324	39								363
1992	394	112								506
1993	759	77								836
1994	669	84					1	3		757
1995	574	84					1			659
1996	824	129								953
1997	206	61	13							280
1998	272	40	25	2					13	352
1999	443	11	10	44			7	14	2	531
2000	595	23						34		652
2001	1,591	33	2	124		2	14	72		1,838
2002	1,921	12	1	263	49	51	2	36	13	2,348
2003	1,686	74	2	231		2	6	65		2,066
2004	2,268	38	4	18	61	142	9	63	1	2,604
2005	2,963	62		19	93	104	1	68		3,310
Total	15,489	879	57	701	203	301	41	355	29	18,055
Percent	85.8	4.9	0.3	3.9	1.1	1.7	0.2	2.0	0.2	

Table 3. Summary of the number of gag otoliths collected by sector (CM - Commercial, CP - Charter Party, HB – Headboat, PR - Private, SS - Scientific Survey, TRN - Tournament) and gear (GN - Gillnet, HL - Hand-Line, LL - Long-Line, SP - Spear, TR - Trap, Unk – unknown, Other – includes spear and trap for CM).

Year	CM HL	CM LL	CM Other	CP HL	HB HL	PR HL	PR SP	SS HL	SS LL	SS SP	SS TR	TRN	Unk	Total
1991	211	7		79	42	1	4					14	5	363
1992	69	22		233	136	6	9	3				28		506
1993	420	12	1	284	92		11					16		836
1994	443	3	3	181	104	4	4	2			2	11		757
1995	285	31		199	102	2		27				13		659
1996	198	57	3	449	141	1		104						953
1997	36	6	2	163	71	2								280
1998	107	103	3	51	66	2					7	3	10	352
1999	146	247	2	84	12	15		19	2		2	2		531
2000	390	180	6	37	23			12			1	3		652
2001	754	869		134	31	5		24	12		1	8		1,838
2002	813	1,087	16	314	17	31		14	2	3	11	38	2	2,348
2003	526	1,123	3	182	74	78	4	38	5	2	16	15		2,066
2004	908	1,491		75	39	25		24	9	9	24			2,604
2005	1,005	2,051	9	73	91	2		17	1		50	11		3,310
Total	6,311	7,289	48	2,538	1,041	174	32	284	31	14	114	162	17	18,055
Percent	35.0	40.4	0.3	14.1	5.8	1.0	0.2	1.6	0.2	0.1	0.6	0.9	0.1	

Table 4. Summary of gag otoliths collected, read, and determined unreadable (1991-2004) or not selected to be read (2005).
* 2005 was the only year samples were sub-sampled for ageing: only commercial otoliths from (Jan-Apr) were read, as were all recreational and fishery independent collected throughout the year.

Year	# otoliths	# otoliths read	# otoliths not read	% otoliths not read
1991	363	356	7	2
1992	506	493	13	3
1993	836	827	9	1
1994	757	746	11	1
1995	659	657	2	0
1996	953	941	12	1
1997	280	277	3	1
1998	352	345	7	2
1999	531	519	12	2
2000	652	645	7	1
2001	1,838	1,821	17	1
2002	2,348	2,326	22	1
2003	2,066	2,051	15	1
2004	2,604	2,583	21	1
2005*	3,310	1,560	1,750	
Total	18,055	16,147		

Table 5. Meristic regressions for gag from the eastern Gulf of Mexico: 1991-2005.

Conversion and units	Equation	Sample Size	r^2 values	Data Ranges
FL (mm) to TL (mm)	TL = 1.03 * FL – 0.68	4999	0.99	TL (mm): 245 – 1360 FL (mm): 238 – 1321
TL (mm) to W. Wt (kg)	$W. Wt = 1 \times 10^{-08} * (TL^{\wedge 3.03})$	4922	0.97	TL (mm): 245 – 1360 W. Wt (kg): 0.23 – 32.74
FL (mm) to W. Wt (kg)	$W. Wt = 1 \times 10^{-08} * (FL^{\wedge 3.02})$	3809	0.97	FL (mm): 217 – 1321 W. Wt (kg): 0.13 – 32.74
TL (mm) to G. Wt (kg)	$G. Wt = 1 \times 10^{-08} * (TL^{\wedge 2.99})$	527	0.96	TL (mm): 446 – 1295 G. Wt (kg): 0.99 – 27.02
FL (mm) to G. Wt (kg)	$G. Wt = 9 \times 10^{-9} * (FL^{\wedge 3.05})$	2407	0.98	FL (mm): 432 – 1335 G. Wt (kg): 0.99 – 32.21
SL (cm) to TL (cm) *for age-0 gag only*	TL = 1.85 * SL – 0.23	165	0.99	SL (cm): 2.5-10.0 TL (cm): 3.1-12.1

Table 6. Sector specific comparisons of gag mean ± std dev size-at-age data and results of unpaired Student's t-test. Significant levels for pair-wise comparisons as determined by t-test, ^{NS} – not significant; *, $P < 0.05$; ** $P < 0.01$, ***, $P < 0.001$.

Age class	Sector	TL (mm)	*t*	d.f.
2	REC	545 ± 60	2.09^{*}	51.45
	CM	568 ± 67		
3	REC	577 ± 60	7.61^{***}	539.08
	CM	611 ± 85		
4	REC	641 ± 72	14.78^{***}	2157.01
	CM	684 ± 71		
5	REC	708 ± 80	8.67^{***}	802.35
	CM	739 ± 73		
6	REC	785 ± 81	3.20^{***}	386.67
	CM	801 ± 75		
7	REC	866 ± 77	0.15^{NS}	180.86
	CM	867 ± 74		
8	REC	928 ± 92	-0.52^{NS}	44.67
	CM	921 ± 79		
9	REC	958 ± 113	0.62^{NS}	16.70
	CM	976 ± 86		
10	REC	1065 ± 47	-1.93^{NS}	10.54
	CM	1034 ± 75		

Table 7. Commercial gear specific comparisons of gag mean ± std dev size-at-age data and results of unpaired Student's t-test. Significant levels for pair-wise comparisons as determined by t-test, ^{NS} -not significant; *, $P < 0.05$; ** $P < 0.01$, ***, $P < 0.001$.

Age class	Gear	TL (mm)	*t*	d.f.
3	HL	594 ± 84	-8.67^{***}	201.04
	LL	665 ± 63		
4	HL	669 ± 65	-11.92^{***}	887.32
	LL	714 ± 70		
5	HL	720 ± 70	-12.89^{***}	2433.97
	LL	767 ± 69		
6	HL	781 ± 74	-17.43^{***}	2693.84
	LL	817 ± 72		
7	HL	847 ± 73	-8.34^{***}	1239.76
	LL	880 ± 72		
8	HL	901 ± 78	-6.01^{***}	735.96
	LL	932 ± 78		
9	HL	969 ± 91	-1.24^{NS}	230.99
	LL	980 ± 84		
10	HL	1023 ± 73	-1.48^{NS}	166.74
	LL	1038 ± 75		
11	HL	1064 ± 98	-0.53^{NS}	43.26
	LL	1074 ± 72		
12	HL	1124 ± 73	0.58^{NS}	31.36
	LL	1114 ± 78		
13	HL	1158 ± 57	1.27^{NS}	56.78
	LL	1140 ± 81		
14	HL	1166 ± 71	-0.065^{NS}	17.38
	LL	1167 ± 63		
15	HL	1203 ± 56	0.91^{NS}	22.19
	LL	1188 ± 69		

Table 8. Regional commercial hand-line comparisons of gag mean ± std dev size-at-age data and results of unpaired Student's t-test. Significant levels for pair-wise comparisons as determined by t-test, ^{NS} -not significant; *, $P < 0.05$; ** $P < 0.01$, ***, $P < 0.001$.

Age class	Region	TL (mm)	*t*	d.f.
2	N	566 ± 71	0.36^{NS}	28.27
	S	560 ± 31		
3	N	579 ± 85	-6.68^{***}	153.63
	S	642 ± 62		
4	N	665 ± 62	-4.92^{***}	146.10
	S	700 ± 76		
5	N	714 ± 67	-9.86^{***}	191.11
	S	774 ± 73		
6	N	776 ± 72	-7.86^{***}	126.34
	S	834 ± 73		
7	N	841 ± 70	-5.37^{***}	84.96
	S	894 ± 78		
8	N	892 ± 73	-5.11^{***}	48.67
	S	963 ± 83		
9	N	959 ± 86	-1.89^{NS}	50.74
	S	996 ± 98		
10	N	1022 ± 68	-0.99^{NS}	28.70
	S	1043 ± 82		
11	N	1038 ± 88	-1.29^{NS}	20.55
	S	1087 ± 105		
12	N	1144 ± 47	0.82^{NS}	11.16
	S	1115 ± 94		
13	N	1162 ± 42	-0.06^{NS}	15.61
	S	1164 ± 71		

Table 9. Regional commercial long-line comparisons of gag mean ± std dev size-at-age data and results of unpaired Student's t-test. Significant levels for pair-wise comparisons as determined by t-test, ^{NS} -not significant; *, P < 0.05; ** P <0.01, ***, P < 0.001.

Age class	Region	TL (mm)	*t*	d.f.
3	N	663 ± 68	-0.03^{NS}	22.37
	S	664 ± 62		
4	N	694 ± 66	-4.07^{***}	249.11
	S	722 ± 69		
5	N	744 ± 67	-10.87^{***}	1055.71
	S	787 ± 65		
6	N	796 ± 70	-12.39^{***}	1444.36
	S	840 ± 66		
7	N	859 ± 65	-9.60^{***}	871.01
	S	903 ± 72		
8	N	903 ± 73	-8.17^{***}	568.30
	S	953 ± 74		
9	N	943 ± 80	-5.96^{***}	220.43
	S	1000 ± 79		
10	N	1005 ± 77	-2.97^{**}	61.16
	S	1046 ± 72		
11	N	1064 ± 68	-0.77^{NS}	34.15
	S	1077 ± 72		
12	N	1071 ± 101	-1.87^{NS}	19.03
	S	1121 ± 69		
13	N	1149 ± 65	0.46^{NS}	20.19
	S	1140 ± 83		
14	N	1195 ± 51	2.05^{NS}	18.29
	S	1161 ± 63		
15	N	1226 ± 22	4.02^{***}	63.15
	S	1181 ± 73		

Table 10. Pre- and post- regulation comparisons of gag mean ± std dev size-at-age data and results of unpaired Student's t-test. Significant levels for pair-wise comparisons as determined by t-test, ^{NS} -not significant; *, $P < 0.05$; **, $P < 0.01$, ***, $P < 0.001$.

Age class	Period	TL (mm)	*t*	d.f.
1	Pre	383 ± 54	1.79^{NS}	20.02
	Post	438 ± 86		
2	Pre	438 ± 62	8.74^{***}	33.65
	Post	545 ± 60		
3	Pre	547 ± 83	2.71^{***}	61.97
	Post	578 ± 60		
4	Pre	583 ± 77	6.59^{***}	93.90
	Post	641 ± 72		
5	Pre	683 ± 82	2.51^{**}	100.06
	Post	708 ± 80		
6	Pre	726 ± 93	6.05^{***}	174.41
	Post	785 ± 81		
7	Pre	815 ± 80	5.34^{***}	255.28
	Post	866 ± 77		
8	Pre	870 ± 67	3.68^{***}	64.55
	Post	928 ± 92		
9	Pre	905 ± 81	1.68^{NS}	24.63
	Post	958 ± 113		
10	Pre	942 ± 72	6.34^{***}	19.22
	Post	1065 ± 47		

Table 11. Summary of life history statistics for gag from the Gulf of Mexico (GOM: 1979-1989, n = 743; 1991-2005, n = 16,543). Reporting the range (minimum, maximum), mean ± std dev., and sample sizes for each parameter: total length (mm), whole weight (kg), gutted weight (kg), and age (yr).

Time Period	Sector & Gear	Parameter	Range (min-max)	Mean ± std dev.	n
1979-1989	Recreational	Total length (mm)	268 – 1283	762 ± 172	2,568
		Whole weight (kg)	0.2 – 25.0	6.0 ± 3.9	2,316
		Age (yr)	1 – 23	7.1 ± 3.0	686
1979-1989	Commercial	Total length (mm)	324 – 1238	759 ± 253	313
		Whole weight (kg)	0.5 – 20.3	3.3 ± 3.6	156
		Age (yr)	1 – 14	3.1 ± 1.8	54
1991-2005	Recreational	Total length (mm)	282 – 1360	656 ± 128	3,720
		Whole weight (kg)	0.3 – 32.7	4.0 ± 3.0	3,223
		Age (yr)	1 – 28	4.2 ± 1.9	3,720
1991-2005	Commercial	Total length (mm)	384 – 1384	824 ± 157	11,823
		Whole weight (kg)	0.8 – 30.6	6.3 ± 4.2	1,100
		Gutted weight (kg)	1.3 – 32.2	9.3 ± 6.3	2,739
		Age (yr)	2 – 31	6.7 ± 3.2	11,823
1991-2005	Commercial hand-line	Total length (mm)	384 – 1342	763 ± 132	5,709
		Whole weight (kg)	0.8 – 30.6	6.2 ± 4.2	1,012
		Gutted weight (kg)	1.4 – 32.2	7.0 ± 5.2	808
		Age (yr)	2 – 29	5.8 ± 2.2	5,709
1991-2005	Commercial long-line	Total length (mm)	462- 1384	881 ± 157	6,068
		Whole weight (kg)	2.7 – 14.6	7.2 ± 2.7	74
		Gutted weight (kg)	1.6 – 32.2	10.4 ± 6.5	1,893
		Age (yr)	2 – 31	7.5 ± 3.8	6,068

Table 12. Annual age-length keys for gag from the northeastern Gulf of Mexico for each year: 1991-2005. Data was combined from all sources, modes, and gears for each year. Size bins are 5 cm increments,

1991

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	1	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
35	2	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
40	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45	5	0.006	0.006	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
50	14	0.003	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039
55	24	0.000	0.048	0.006	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067
60	12	0.000	0.020	0.000	0.011	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034
65	28	0.000	0.011	0.003	0.034	0.008	0.020	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079
70	45	0.000	0.000	0.003	0.034	0.042	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.126
75	66	0.000	0.003	0.000	0.006	0.048	0.124	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.185
80	63	0.000	0.000	0.000	0.011	0.014	0.140	0.003	0.006	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.177
85	36	0.000	0.000	0.000	0.003	0.011	0.067	0.011	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.101
90	15	0.000	0.000	0.000	0.000	0.003	0.014	0.000	0.017	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.042
95	16	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.017	0.006	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045
100	14	0.000	0.000	0.000	0.000	0.003	0.000	0.008	0.000	0.014	0.011	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039
105	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.003	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008
110	4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
115	5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.003	0.003	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
120	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008
125	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	356	0.014	0.126	0.014	0.112	0.129	0.413	0.045	0.051	0.025	0.028	0.006	0.008	0.003	0.000	0.000	0.006	0.008	0.006	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

1992

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	3	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
40	2	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
45	4	0.000	0.006	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008
50	51	0.002	0.037	0.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.103
55	52	0.000	0.012	0.085	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.105
60	51	0.000	0.016	0.079	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.103
65	64	0.000	0.002	0.087	0.026	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.130
70	53	0.000	0.000	0.018	0.018	0.063	0.006	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108
75	64	0.000	0.000	0.000	0.012	0.085	0.020	0.010	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.130
80	57	0.000	0.000	0.000	0.002	0.043	0.028	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116
85	32	0.000	0.000	0.000	0.002	0.016	0.020	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.065
90	26	0.000	0.000	0.000	0.002	0.000	0.018	0.026	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053
95	13	0.000	0.000	0.000	0.000	0.002	0.006	0.010	0.002	0.002	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026
100	7	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.004	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
105	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
110	5	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.002	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
115	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.004
120	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
125	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
130	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	493	0.006	0.079	0.337	0.075	0.229	0.099	0.124	0.012	0.004	0.006	0.002	0.004	0.002	0.008	0.000	0.002	0.004	0.000	0.000	0.004	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	1.000

1993

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	1	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
35	1	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
40	4	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
45	6	0.000	0.004	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
50	50	0.000	0.018	0.021	0.021	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
55	96	0.000	0.006	0.029	0.074	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.116
60	113	0.000	0.000	0.015	0.112	0.008	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.137
65	178	0.000	0.004	0.018	0.179	0.010	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.215
70	119	0.000	0.000	0.006	0.112	0.012	0.012	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.144
75	76	0.000	0.000	0.006	0.042	0.016	0.022	0.001	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
80	62	0.000	0.000	0.001	0.012	0.012	0.030	0.011	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075
85	44	0.000	0.000	0.000	0.005	0.007	0.019	0.008	0.011	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053
90	30	0.000	0.000	0.000	0.001	0.002	0.006	0.015	0.011	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036
95	23	0.000	0.000	0.000	0.001	0.000	0.002	0.004	0.018	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028
100	12	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.006	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
105	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
110	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
115	5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
120	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
125	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
130	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	827	0.001	0.037	0.097	0.562	0.076	0.096	0.041	0.063	0.011	0.004	0.001	0.000	0.002	0.000	0.002	0.000	0.001	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

1994

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	2	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
35	1	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
40	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45	11	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
50	54	0.000	0.007	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015

Table 12 continued

55	69	0.000	0.009	0.035	0.019	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
60	91	0.000	0.003	0.042	0.028	0.017	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
65	148	0.000	0.000	0.020	0.043	0.051	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.122
70	136	0.000	0.001	0.016	0.034	0.125	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.198
75	95	0.000	0.000	0.003	0.019	0.141	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.182
80	46	0.000	0.000	0.000	0.005	0.106	0.015	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.127
85	18	0.000	0.000	0.000	0.003	0.032	0.013	0.012	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.062
90	20	0.000	0.000	0.000	0.000	0.007	0.004	0.009	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024
95	19	0.000	0.000	0.000	0.000	0.001	0.004	0.013	0.003	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027
100	5	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.011	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
105	8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
110	8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
115	11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.004	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
120	4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.005	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
125	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
130	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	746	0.003	0.020	0.122	0.151	0.489	0.092	0.040	0.017	0.025	0.009	0.012	0.000	0.009	0.001	0.000	0.003	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

1995

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	8	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012
40	14	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
45	23	0.000	0.014	0.017	0.003	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
50	74	0.000	0.037	0.053	0.020	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113
55	47	0.000	0.011	0.033	0.018	0.008	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
60	51	0.000	0.005	0.023	0.026	0.014	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.078
65	41	0.000	0.002	0.005	0.015	0.017	0.021	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.062
70	98	0.000	0.000	0.003	0.021	0.029	0.088	0.006	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.149
75	94	0.000	0.000	0.002	0.008	0.027	0.085	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.143
80	72	0.000	0.000	0.000	0.000	0.012	0.085	0.009	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110
85	47	0.000	0.000	0.000	0.000	0.009	0.043	0.017	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
90	21	0.000	0.000	0.000	0.000	0.000	0.012	0.003	0.014	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
95	14	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.006	0.000	0.008	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021
100	17	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.008	0.011	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026
105	12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.012	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
110	12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.002	0.002	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.018
115	8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.003	0.002	0.000	0.000	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.012
120	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
125	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
130	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Total	657	0.000	0.100	0.135	0.111	0.117	0.352	0.064	0.033	0.011	0.040	0.005	0.008	0.006	0.006	0.003	0.002	0.003	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	1.000

1996

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	6	0.000	0.001	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
40	56	0.000	0.001	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
45	148	0.000	0.005	0.149	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.157
50	211	0.000	0.004	0.201	0.016	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224
55	116	0.000	0.001	0.085	0.036	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.123
60	87	0.000	0.000	0.033	0.050	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
65	67	0.000	0.000	0.017	0.039	0.014	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.071
70	35	0.000	0.000	0.001	0.014	0.019	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.037
75	43	0.000	0.000	0.000	0.002	0.019	0.014	0.010	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
80	38	0.000	0.000	0.000	0.001	0.007	0.013	0.016	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
85	45	0.000	0.000	0.000	0.000	0.007	0.011	0.029	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048
90	28	0.000	0.000	0.000	0.000	0.003	0.005	0.020	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
95	23	0.000	0.000	0.000	0.000	0.001	0.003	0.018	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024
100	12	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.002	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013
105	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
110	9	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
115	7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
120	7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
125	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	941	0.000	0.013	0.549	0.162	0.083	0.050	0.101	0.009	0.010	0.003	0.003	0.004	0.003	0.004	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

1997

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	2	0.000	0.000	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
45	3	0.000	0.004	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
50	43	0.000	0.014	0.036	0.101	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.155
55	54	0.000	0.007	0.025	0.159	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.195
60	60	0.000	0.004	0.007	0.202	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.217
65	31	0.000	0.000	0.011	0.101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.112
70	24	0.000	0.000	0.004	0.069	0.011	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.087
75	11	0.000	0.000	0.000	0.022	0.011	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
80	5	0.000	0.000	0.000	0.004	0.004	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018
85	11	0.000	0.000	0.000	0.000	0.007	0.007	0.018	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
90	9	0.000	0.000	0.000	0.000	0.000	0.004	0.018	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
95	5	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018

Table 12 continued

100	7	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
105	4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.004	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
110	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
115	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
120	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
125	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	277	0.000	0.029	0.087	0.668	0.043	0.025	0.069	0.040	0.000	0.004	0.004	0.018	0.000	0.007	0.000	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

1998

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	2	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
35	1	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
40	1	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
45	1	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
50	37	0.006	0.023	0.043	0.032	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.107
55	38	0.000	0.009	0.023	0.046	0.029	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110
60	56	0.000	0.000	0.026	0.049	0.084	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.162
65	44	0.000	0.000	0.009	0.038	0.078	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128
70	39	0.000	0.000	0.009	0.023	0.075	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.113
75	26	0.000	0.000	0.000	0.014	0.052	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075
80	21	0.000	0.000	0.003	0.012	0.020	0.017	0.006	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061
85	19	0.000	0.000	0.000	0.009	0.020	0.012	0.009	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.055
90	20	0.000	0.000	0.000	0.003	0.003	0.009	0.017	0.023	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058
95	7	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
100	7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.003	0.000	0.000	0.003	0.000	0.003	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
105	11	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.006	0.006	0.003	0.000	0.003	0.003	0.003	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.032
110	5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.009	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
115	3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009
120	5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.003	0.003	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014
125	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
130	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
Total	345	0.014	0.038	0.113	0.226	0.365	0.061	0.049	0.043	0.014	0.020	0.003	0.003	0.012	0.009	0.009	0.006	0.009	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

1999

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	2	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
45	10	0.000	0.002	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
50	47	0.000	0.010	0.073	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091
55	20	0.000	0.006	0.027	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.039
60	30	0.000	0.000	0.013	0.025	0.017	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.058
65	39	0.000	0.000	0.004	0.019	0.031	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075
70	61	0.000	0.000	0.008	0.012	0.050	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.118
75	63	0.000	0.000	0.000	0.012	0.033	0.069	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.121
80	49	0.000	0.000	0.002	0.010	0.013	0.056	0.010	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094
85	54	0.000	0.000	0.000	0.002	0.010	0.064	0.010	0.010	0.006	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.104
90	34	0.000	0.000	0.000	0.000	0.010	0.031	0.019	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.066
95	34	0.000	0.000	0.000	0.000	0.002	0.013	0.017	0.017	0.012	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.066
100	24	0.000	0.000	0.000	0.000	0.000	0.006	0.004	0.010	0.010	0.008	0.004	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
105	18	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.010	0.006	0.010	0.002	0.000	0.002	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035
110	10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.008	0.000	0.002	0.004	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019
115	12	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.000	0.002	0.004	0.002	0.002	0.002	0.004	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023
120	8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.015
125	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.004
130	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.004
Total	519	0.000	0.019	0.146	0.089	0.171	0.310	0.069	0.056	0.044	0.023	0.013	0.010	0.012	0.004	0.004	0.004	0.008	0.004	0.000	0.002	0.000	0.004	0.002	0.000	0.000	0.002	0.000	0.004	0.000	1.000

2000

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45	6	0.002	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009
50	13	0.000	0.012	0.002	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
55	32	0.000	0.011	0.022	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050
60	63	0.000	0.006	0.017	0.073	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.098
65	100	0.000	0.000	0.012	0.138	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.155
70	114	0.000	0.000	0.008	0.109	0.033	0.025	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.177
75	112	0.000	0.002	0.002	0.056	0.037	0.051	0.019	0.005	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.174
80	58	0.000	0.000	0.000	0.012	0.025	0.028	0.023	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090
85	42	0.000	0.000	0.000	0.005	0.009	0.014	0.034	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.065
90	29	0.000	0.000	0.000	0.002	0.003	0.009	0.019	0.011	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045
95	15	0.000	0.000	0.000	0.000	0.003	0.002	0.005	0.008	0.002	0.000	0.002	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023
100	7	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.002	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
105	7	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.002	0.003	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011
110	10	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.003	0.005	0.002	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
115	14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.003	0.000	0.000	0.003	0.002	0.003	0.003	0.000	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.022
120	10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.002	0.002	0.000	0.002	0.000	0.002	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.002	0.002	0.000	0.016
125	11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.002	0.000	0.000	0.002	0.000	0.000	0.005	0.002	0.002	0.000	0.000	0.000	0.000	0.017
130	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.003
Total	645	0.002	0.039	0.062	0.417	0.115	0.130	0.109	0.036	0.011	0.014	0.009	0.006	0.003	0.005	0.008	0.009	0.003	0.002	0.002	0.002	0.002	0.002	0.005	0.003	0.002	0.002	0.002	0.003	0.000	1.000

Table 12 continued

2001

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
45	2	0.0000	0.0000	0.0000	0.0005	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011
50	10	0.0000	0.0011	0.0005	0.0016	0.0011	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055
55	65	0.0000	0.0033	0.0060	0.0110	0.0148	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0357
60	151	0.0000	0.0005	0.0115	0.0159	0.0538	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0829
65	239	0.0005	0.0005	0.0066	0.0291	0.0928	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1312
70	274	0.0000	0.0005	0.0027	0.0214	0.1093	0.0104	0.0038	0.0016	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1505
75	280	0.0000	0.0000	0.0022	0.0088	0.1010	0.0231	0.0126	0.0049	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1538
80	220	0.0000	0.0000	0.0005	0.0033	0.0461	0.0236	0.0351	0.0099	0.0016	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1208
85	153	0.0000	0.0000	0.0000	0.0044	0.0159	0.0192	0.0280	0.0148	0.0011	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0840
90	95	0.0000	0.0000	0.0005	0.0000	0.0038	0.0038	0.0126	0.0225	0.0038	0.0044	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0522
95	86	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055	0.0093	0.0176	0.0071	0.0038	0.0022	0.0005	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0472
100	49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0027	0.0121	0.0016	0.0071	0.0011	0.0005	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0269
105	38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027	0.0038	0.0044	0.0044	0.0033	0.0000	0.0011	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0209
110	41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0022	0.0038	0.0027	0.0016	0.0038	0.0027	0.0022	0.0000	0.0011	0.0005	0.0005	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0225
115	38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0011	0.0033	0.0033	0.0016	0.0049	0.0016	0.0011	0.0000	0.0011	0.0000	0.0005	0.0005	0.0005	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0209
120	46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0005	0.0027	0.0027	0.0044	0.0011	0.0011	0.0027	0.0027	0.0011	0.0016	0.0011	0.0000	0.0005	0.0000	0.0016	0.0005	0.0000	0.0000	0.0000	0.0253
125	26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0016	0.0011	0.0005	0.0005	0.0005	0.0011	0.0011	0.0016	0.0027	0.0011	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000	0.0143
130	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0016	0.0011	0.0000	0.0000	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0044
Total	1821	0.0005	0.0060	0.0308	0.0961	0.4388	0.0912	0.1049	0.0868	0.0231	0.0253	0.0126	0.0121	0.0121	0.0126	0.0104	0.0038	0.0055	0.0038	0.0055	0.0038	0.0038	0.0033	0.0027	0.0005	0.0022	0.0005	0.0011	0.0000	0.0000	1.0000

2002

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	4	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0017
35	1	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004
40	2	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009
45	1	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004
50	37	0.0000	0.0060	0.0099	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0159
55	145	0.0000	0.0099	0.0439	0.0052	0.0021	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0623
60	202	0.0000	0.0026	0.0391	0.0206	0.0150	0.0095	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0868
65	185	0.0000	0.0004	0.0155	0.0129	0.0284	0.0224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0795
70	320	0.0000	0.0009	0.0082	0.0150	0.0503	0.0606	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1376
75	407	0.0000	0.0000	0.0034	0.0116	0.0542	0.1002	0.0034	0.0009	0.0009	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1750
80	324	0.0000	0.0000	0.0004	0.0034	0.0314	0.0911	0.0077	0.0047	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1393
85	218	0.0000	0.0000	0.0000	0.0009	0.0125	0.0439	0.0202	0.0120	0.0039	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0937
90	147	0.0000	0.0000	0.0000	0.0000	0.0021	0.0163	0.0181	0.0159	0.0107	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0632
95	97	0.0000	0.0000	0.0000	0.0000	0.0009	0.0073	0.0077	0.0129	0.0107	0.0004	0.0009	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0417
100	48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0017	0.0034	0.0073	0.0034	0.0021	0.0004	0.0004	0.0000	0.0000	0.0009	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0206
105	47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0026	0.0030	0.0047	0.0021	0.0026	0.0034	0.0000	0.0000	0.0000	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0202
110	34	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0004	0.0009	0.0021	0.0013	0.0013	0.0026	0.0013	0.0017	0.0017	0.0004	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0146
115	34	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0009	0.0021	0.0017	0.0004	0.0021	0.0009	0.0017	0.0004	0.0009	0.0009	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0146
120	45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0021	0.0017	0.0021	0.0021	0.0017	0.0017	0.0013	0.0013	0.0004	0.0004	0.0021	0.0000	0.0000	0.0000	0.0000	0.0013	0.0004	0.0000	0.0193
125	26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0017	0.0004	0.0013	0.0013	0.0013	0.0021	0.0000	0.0004	0.0009	0.0000	0.0009	0.0000	0.0000	0.0000	0.0000	0.0112
130	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0009
Total	2326	0.0026	0.0202	0.1204	0.0705	0.1969	0.3538	0.0619	0.0529	0.0378	0.0116	0.0073	0.0077	0.0112	0.0060	0.0060	0.0069	0.0056	0.0043	0.0039	0.0034	0.0013	0.0030	0.0013	0.0000	0.0009	0.0000	0.0013	0.0009	0.0004	1.0000

2003

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	2	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010
35	6	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0029
40	11	0.0020	0.0024	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0054
45	8	0.0000	0.0024	0.0010	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0039
50	32	0.0000	0.0015	0.0117	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0156
55	146	0.0000	0.0068	0.0375	0.0254	0.0010	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0712
60	168	0.0000	0.0015	0.0244	0.0473	0.0073	0.0005	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0819
65	150	0.0000	0.0005	0.0078	0.0449	0.0098	0.0063	0.0034	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0731
70	203	0.0000	0.0000	0.0024	0.0273	0.0171	0.0371	0.0141	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0990
75	269	0.0000	0.0000	0.0020	0.0102	0.0234	0.0561	0.0380	0.0005	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1312
80	313	0.0000	0.0000	0.0000	0.0063	0.0200	0.0678	0.0531	0.0044	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1526
85	249	0.0000	0.0000	0.0000	0.0029	0.0127	0.0478	0.0463	0.0088	0.0020	0.0005	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1214
90	135	0.0000	0.0000	0.0000	0.0005	0.0020	0.0180	0.0302	0.0078	0.0039	0.0024	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0658
95	98	0.0000	0.0000	0.0000	0.0000	0.0000	0.0063	0.0166	0.0127	0.0054	0.0049	0.0010	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0478
100	54	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0059	0.0044	0.0039	0.0063	0.0024	0.0010	0.0010	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0263
105	33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0034	0.0034	0.0029	0.0024	0.0024	0.0000	0.0005	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0161
110	37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0020	0.0024	0.0029	0.0034	0.0020	0.0020	0.0010	0.0005	0.0005	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0180
115	43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0015	0.0034	0.0039	0.0024	0.0024	0.0005	0.0005	0.0015	0.0010	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0210
120	45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0010	0.0029	0.0020	0.0005	0.0015	0.0034	0.0034	0.0010	0.0015	0.0005	0.0015	0.0005	0.0000	0.0000	0.0005	0.0000	0.0000	0.0010	0.0219
125	35	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0005	0.0005	0.0010	0.0015	0.0015	0.0005	0.0015	0.0005	0.0015	0.0020	0.0010	0.0020	0.0015	0.0000	0.0005	0.0010	0.0000	0.0000	0.0171
130	14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0010	0.0005	0.0005	0.0005	0.0005	0.0005	0.0015	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0068
Total	2051	0.0059	0.0151	0.0878	0.1677	0.0931	0.2413	0.2101	0.0424	0.0234	0.0205	0.0122	0.0112	0.0102	0.0102	0.0068	0.0063	0.0054	0.0059	0.0044	0.0044	0.0039	0.0034	0.0034	0.0015	0.0000	0.0010	0.0010	0.0005	0.0010	1.0000

2004

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	7	0.0019	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027
35	6	0.0015	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023
40	6	0.0000	0.0019	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0023
45	15	0.0000	0.0027	0.0008	0.0019	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0058
50	23	0.0000	0.0015	0.0019	0.0031	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0089
55	67	0.0000	0.0019	0.0101	0.0085	0.0046	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0259
60	196	0.0000	0.0015	0.0139	0.0325	0.0267	0.0008	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0759

Table 12 continued

65	252	0.0000	0.0000	0.0112	0.0314	0.0527	0.0019	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0976
70	310	0.0000	0.0000	0.0031	0.0244	0.0770	0.0105	0.0035	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1200
75	343	0.0000	0.0000	0.0004	0.0116	0.0732	0.0197	0.0178	0.0089	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1328
80	358	0.0000	0.0000	0.0000	0.0031	0.0399	0.0314	0.0407	0.0197	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1386
85	322	0.0000	0.0000	0.0000	0.0019	0.0085	0.0302	0.0449	0.0333	0.0039	0.0012	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1247
90	208	0.0000	0.0000	0.0000	0.0000	0.0023	0.0124	0.0286	0.0306	0.0046	0.0015	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0805
95	145	0.0000	0.0000	0.0000	0.0000	0.0004	0.0050	0.0136	0.0225	0.0081	0.0031	0.0019	0.0012	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0561
100	86	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0062	0.0101	0.0070	0.0039	0.0031	0.0012	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0333
105	69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0043	0.0039	0.0054	0.0066	0.0023	0.0008	0.0027	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0267
110	49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0004	0.0027	0.0046	0.0019	0.0031	0.0019	0.0012	0.0008	0.0008	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0190
115	44	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	0.0015	0.0015	0.0015	0.0043	0.0027	0.0012	0.0012	0.0000	0.0004	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0170
120	49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0000	0.0000	0.0015	0.0023	0.0023	0.0039	0.0004	0.0015	0.0023	0.0012	0.0000	0.0012	0.0008	0.0000	0.0000	0.0004	0.0000	0.0004	0.0000	0.0000	0.0190
125	21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0015	0.0015	0.0000	0.0012	0.0004	0.0000	0.0015	0.0008	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0081
130	7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0012	0.0008	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0027
Total	2583	0.0034	0.0112	0.0418	0.1185	0.2880	0.1134	0.1560	0.1328	0.0345	0.0190	0.0186	0.0097	0.0093	0.0112	0.0097	0.0046	0.0035	0.0043	0.0019	0.0012	0.0039	0.0023	0.0004	0.0000	0.0004	0.0000	0.0004	0.0000	0.0000	1.0000

2005

Length (cm)	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	0-29
30	6	0.0032	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0038
35	9	0.0006	0.0045	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0058
40	18	0.0000	0.0038	0.0077	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0115
45	17	0.0000	0.0006	0.0096	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0109
50	17	0.0000	0.0019	0.0077	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0109
55	66	0.0000	0.0019	0.0141	0.0141	0.0103	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0423
60	148	0.0000	0.0013	0.0103	0.0282	0.0378	0.0173	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0949
65	176	0.0000	0.0000	0.0038	0.0282	0.0481	0.0327	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1128
70	219	0.0000	0.0000	0.0013	0.0224	0.0468	0.0654	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1404
75	215	0.0000	0.0000	0.0000	0.0090	0.0321	0.0821	0.0122	0.0019	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1378
80	180	0.0000	0.0000	0.0000	0.0026	0.0218	0.0660	0.0109	0.0109	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1154
85	159	0.0000	0.0000	0.0000	0.0019	0.0038	0.0385	0.0231	0.0218	0.0115	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1019
90	91	0.0000	0.0000	0.0000	0.0000	0.0006	0.0064	0.0141	0.0244	0.0109	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0583
95	78	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0045	0.0199	0.0154	0.0051	0.0032	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500
100	54	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0071	0.0103	0.0115	0.0038	0.0006	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0346
105	28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0064	0.0051	0.0032	0.0013	0.0006	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0179
110	22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0019	0.0045	0.0019	0.0026	0.0006	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0141
115	14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0026	0.0000	0.0013	0.0013	0.0000	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0090
120	29	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0006	0.0006	0.0019	0.0000	0.0013	0.0026	0.0019	0.0038	0.0000	0.0006	0.0006	0.0000	0.0006	0.0006	0.0006	0.0006	0.0000	0.0006	0.0006	0.0186
125	11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0006	0.0000	0.0006	0.0013	0.0006	0.0000	0.0000	0.0013	0.0013	0.0000	0.0006	0.0000	0.0000	0.0000	0.0071
130	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000	0.0019
Total	1559	0.0038	0.0147	0.0551	0.1077	0.2019	0.3115	0.0692	0.0865	0.0596	0.0276	0.0167	0.0077	0.0071	0.0019	0.0045	0.0032	0.0038	0.0045	0.0019	0.0013	0.0006	0.0000	0.0025	0.0026	0.0006	0.0019	0.0000	0.0006	0.0006	1.0000

Figure 1. Age bias plot between (a) G. Fitzhugh and A. Johnson for gag: 1996, n=787 and (b) G. Fitzhugh and B. Fable: 2000, n=200. Mean age of secondary reader given the age assigned by primary reader, error bars ± 95% confidence intervals, sample sizes per age indicated.

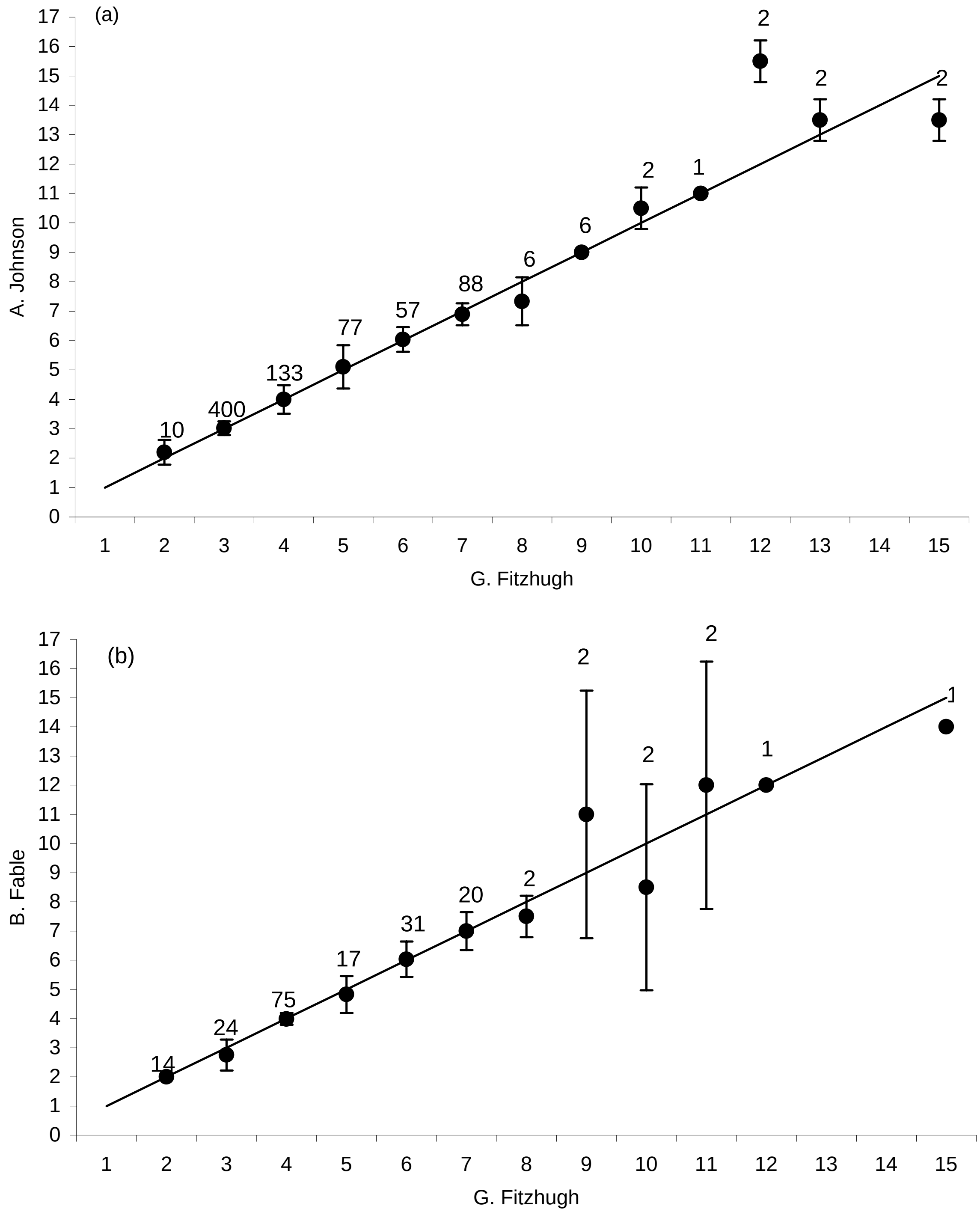


Figure 2. Length frequency for gag sampled for otoliths from the northeastern Gulf of Mexico: 1991-2005. 1991-2000 include comparison of length frequencies previously reported (Fitzhugh et al. 2001). Dashed lines indicate approximate respective year size limits.

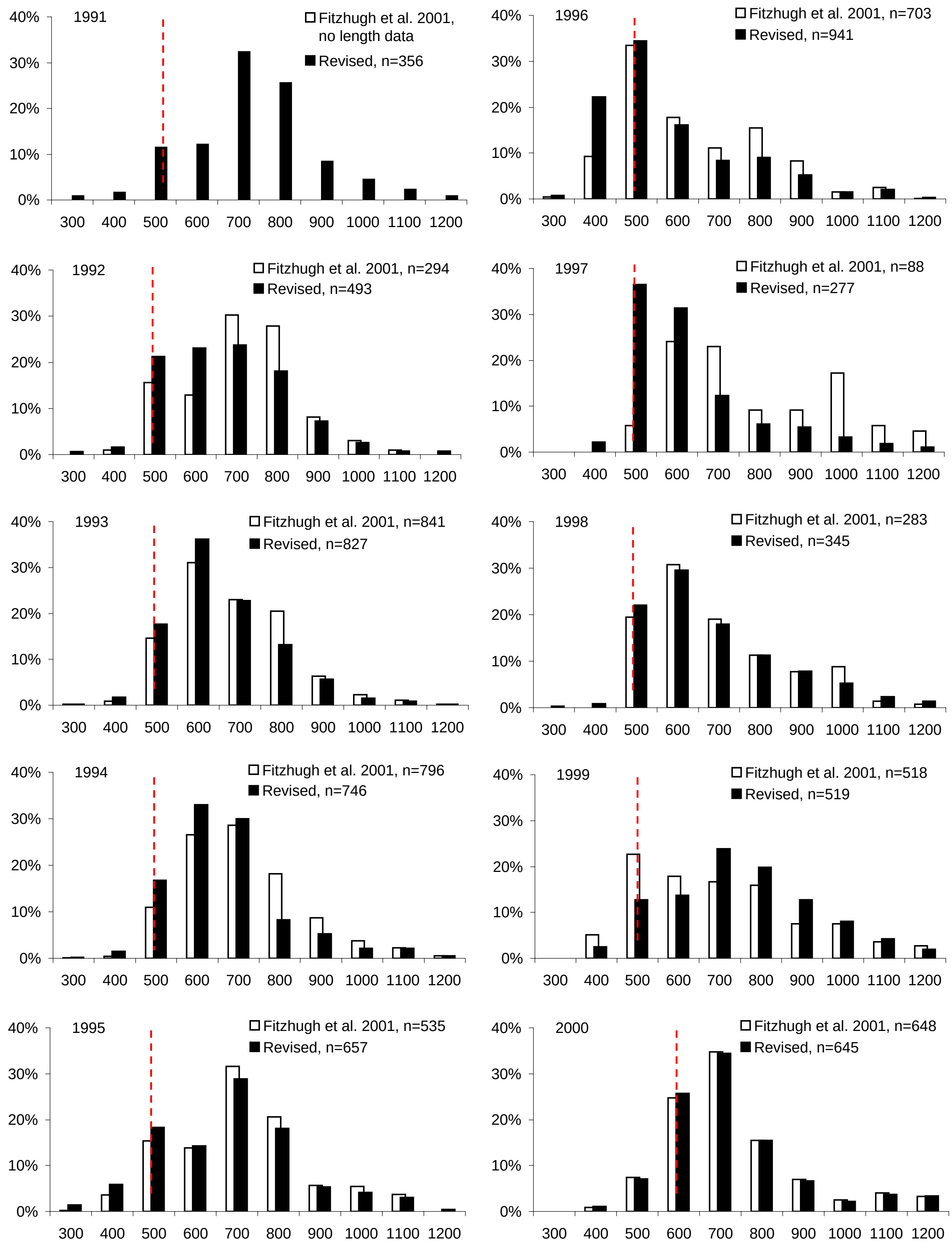


Figure 2 continue.

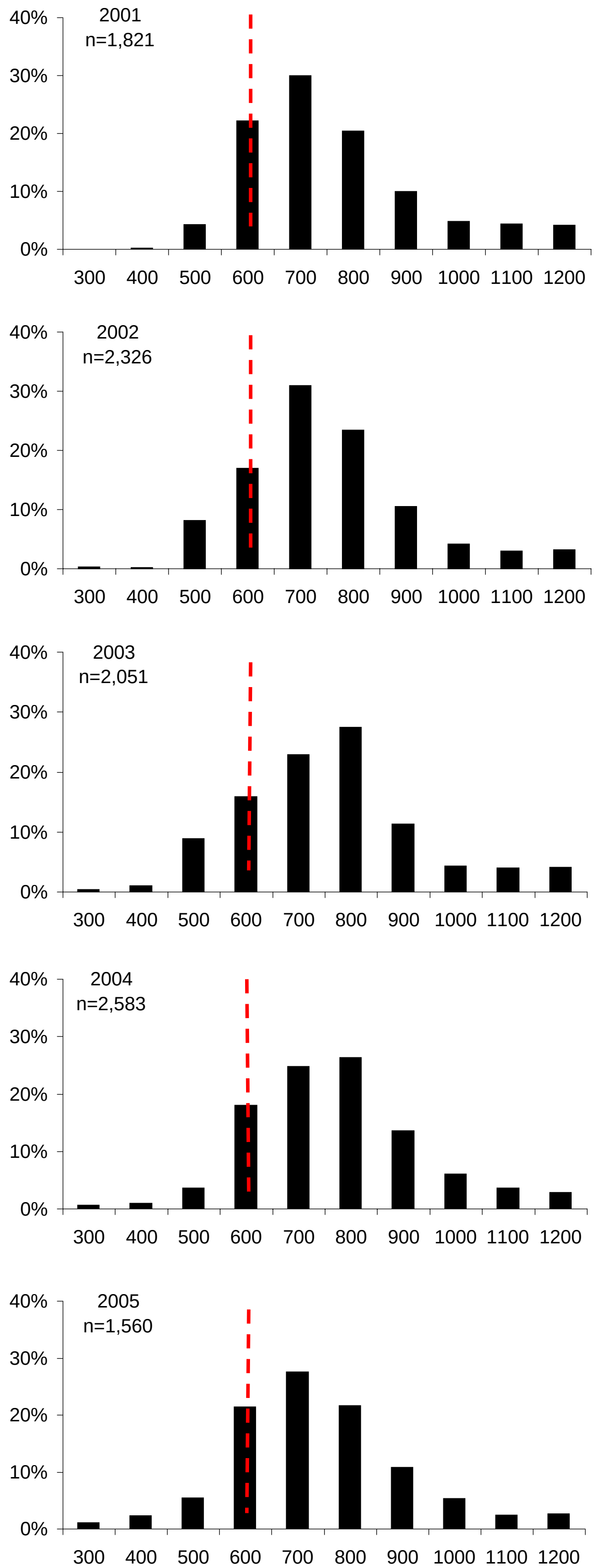


Figure 3. Results of age and length single-factor ANOVA for all gag: 1991-2005. Box plots include the median, upper and lower quartiles (gray boxes: drawn in proportion to the square root of the sample size by year), upper and lower range (dashed line), and outliers (open circles); also included are the graphical representation of post-hoc tests: Least Square Differences (LSD) and Tukey Honest Significant Difference (Tukey HSD).

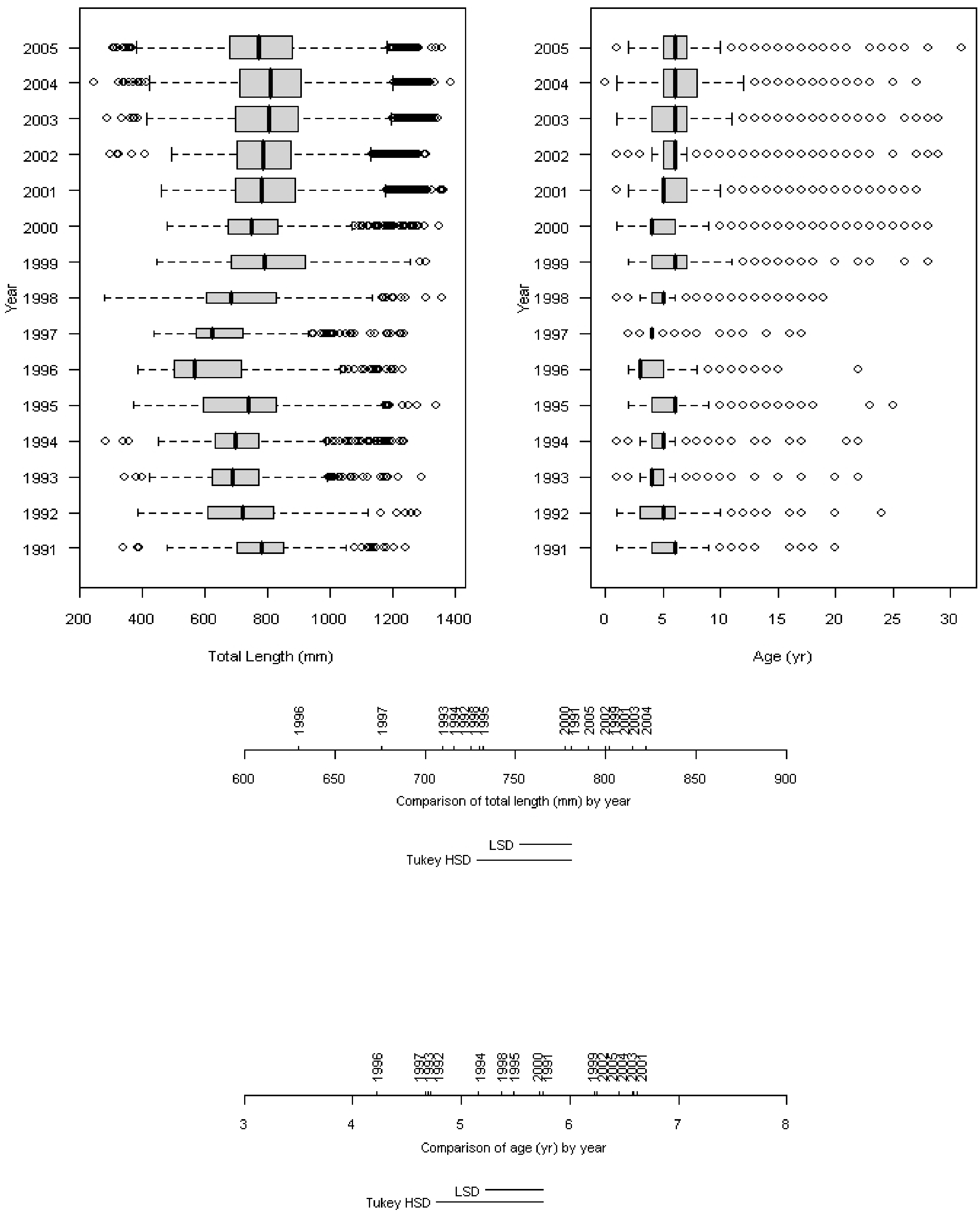


Figure 4. Age frequency for gag sampled for otoliths from the northeastern Gulf of Mexico: 1991-2005. 1991-2000 include comparison of age frequencies previously reported (Fitzhugh et al. 2001). Lines indicate strong year classes.

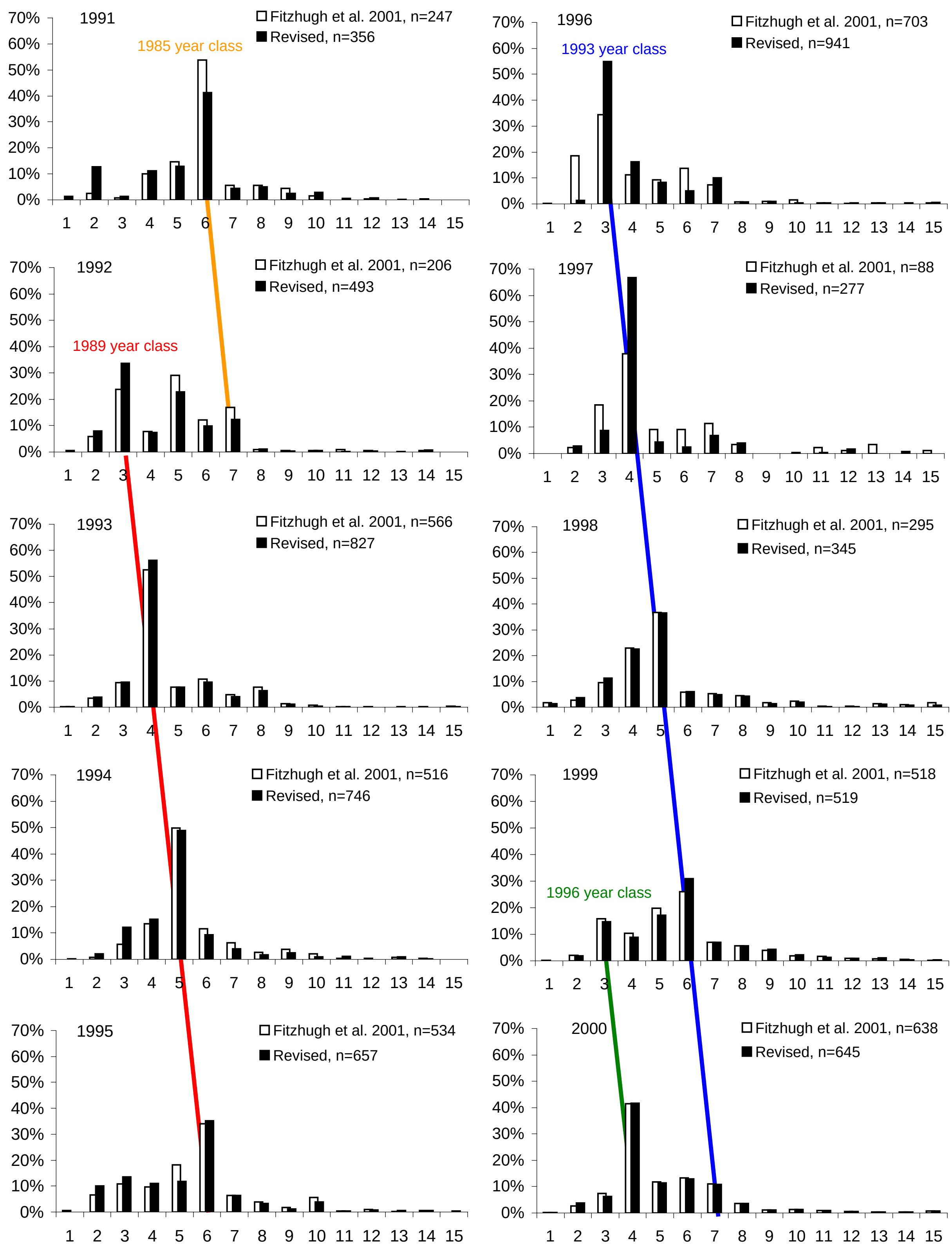


Figure 4 continue.

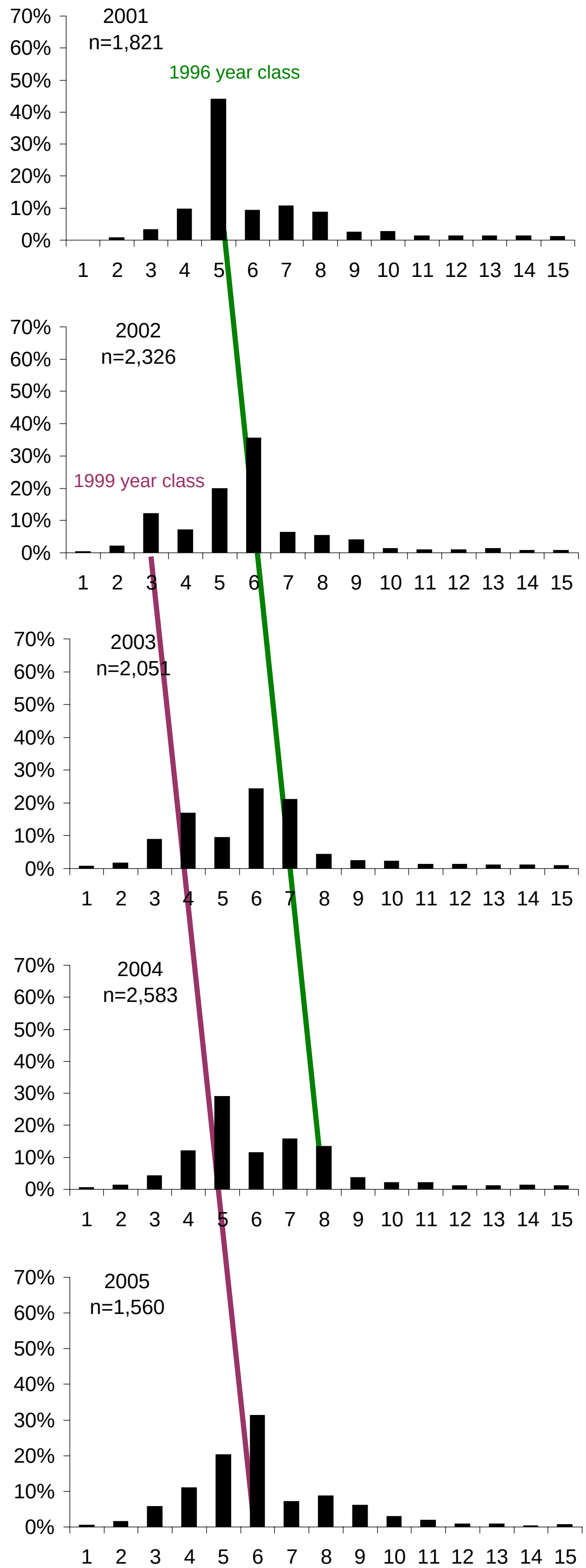


Figure 5. Length and age frequencies of gag collected by fishery independent sources (1991-2005) by (a) spear, (b) tra
(c) hand-line, and (d) long-line.

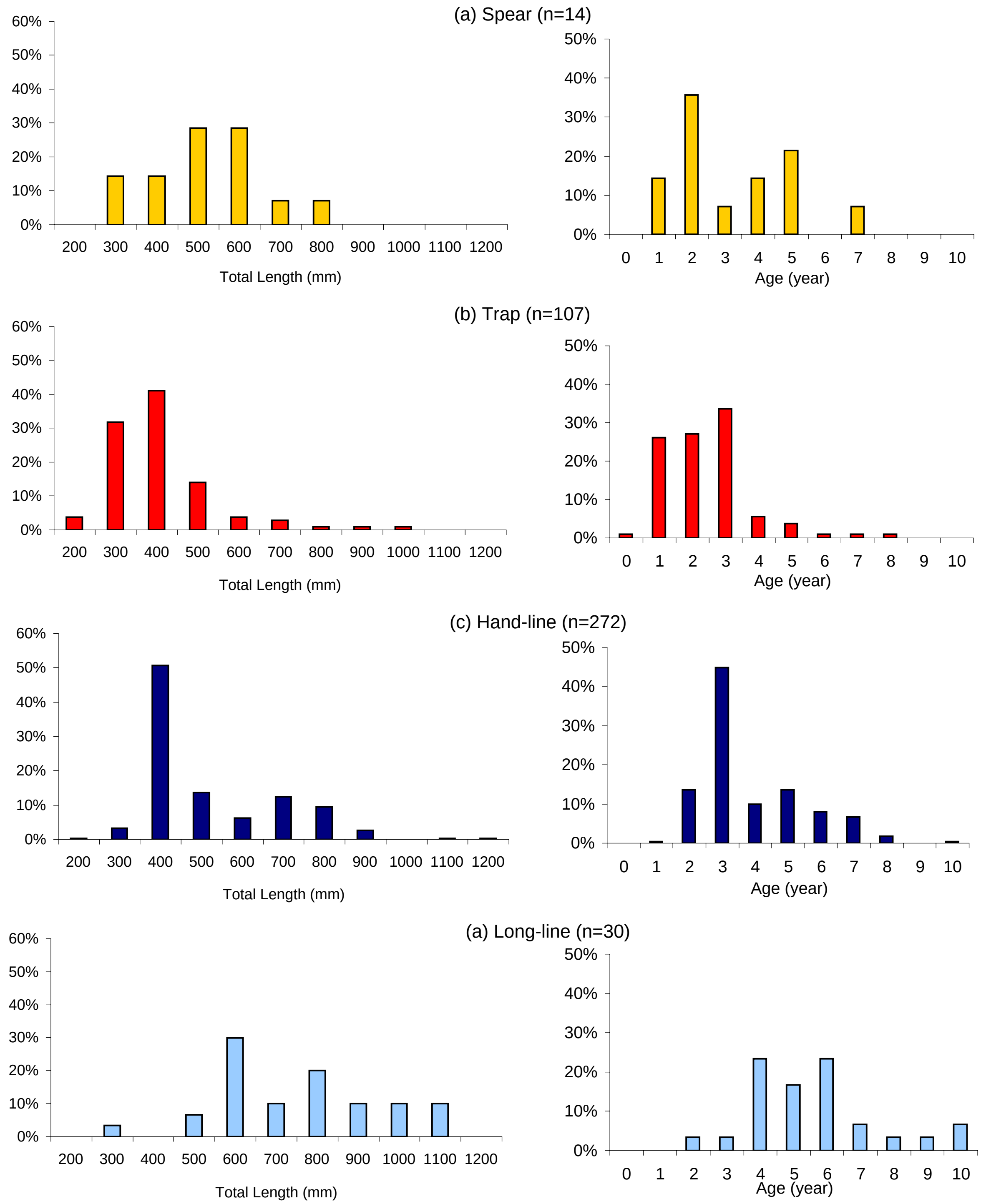
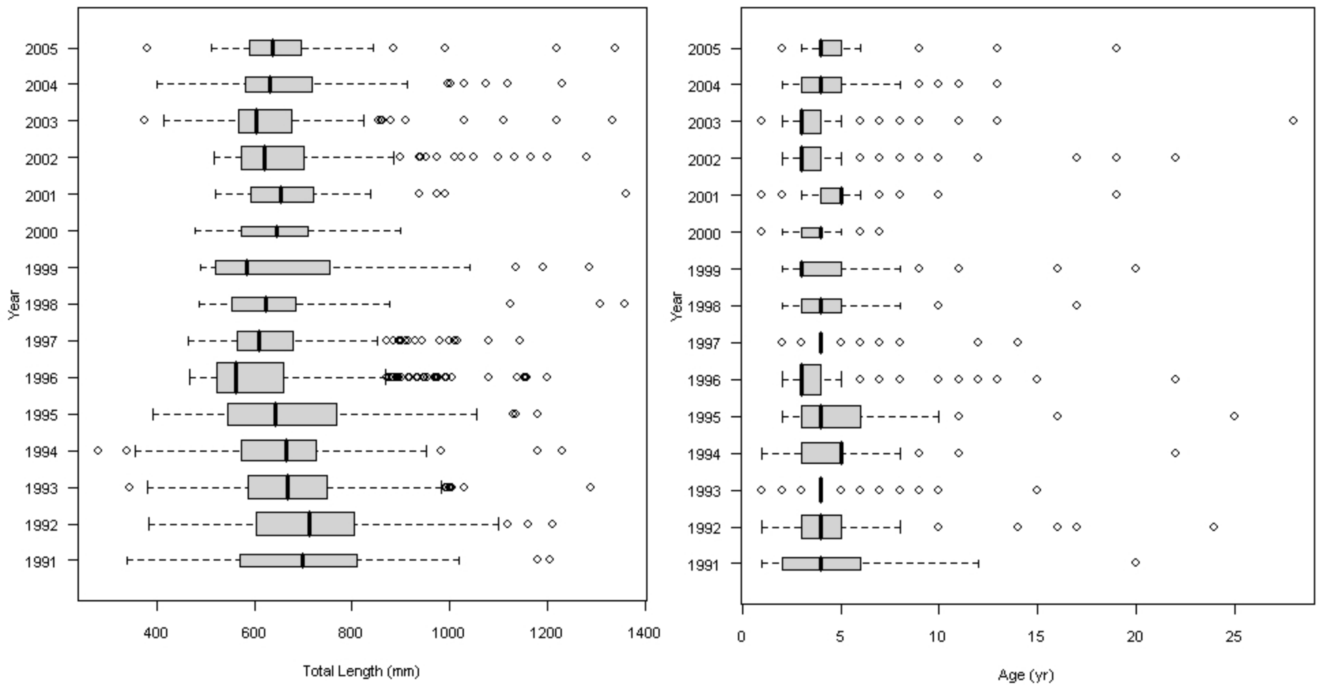
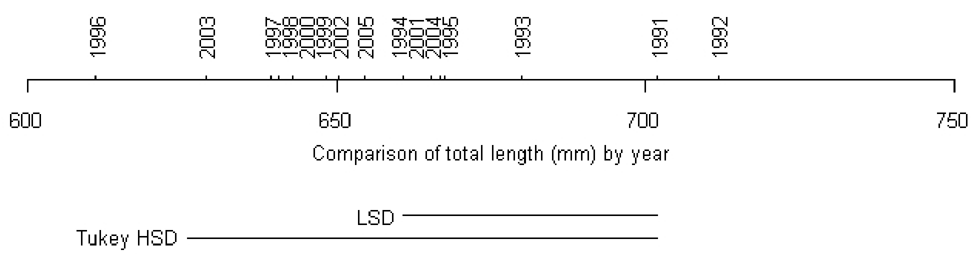


Figure 6. Results of age and length single-factor ANOVA for gag caught in the recreational fishery: 1991-2005. See Figure 3 for detail explanation of box plots





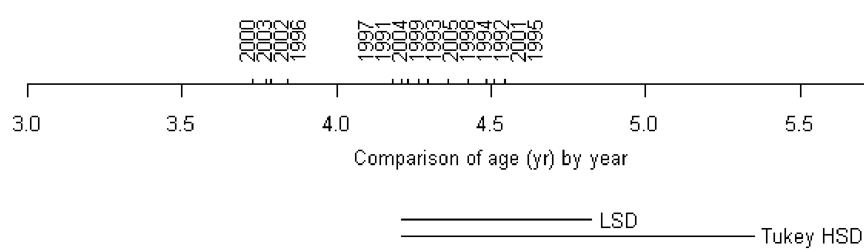


Figure 7. Results of age and length single-factor ANOVA for gag caught in the commercial fishery: 1991-2005. See Figure 3 for detail explanation of box plots.

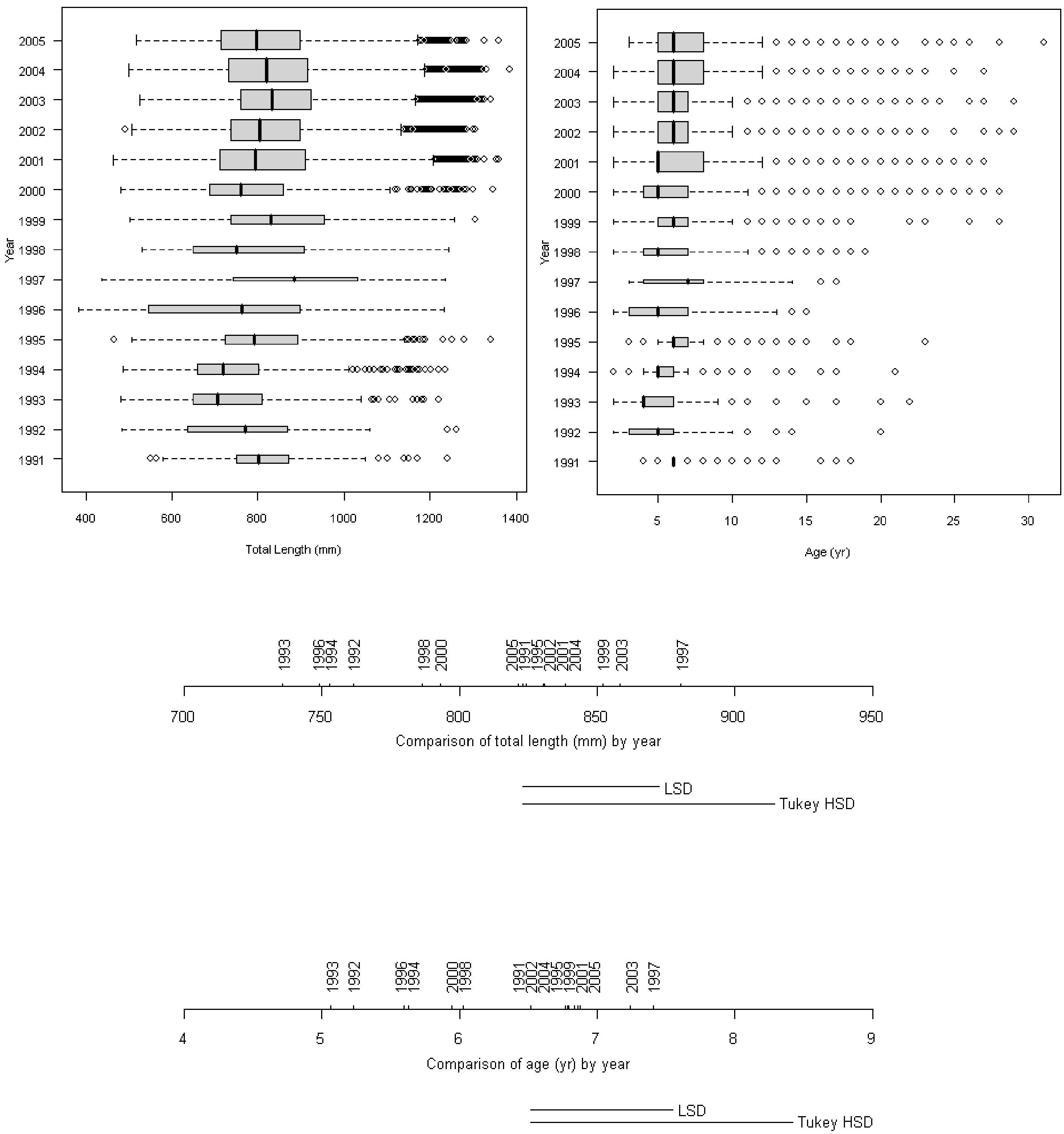
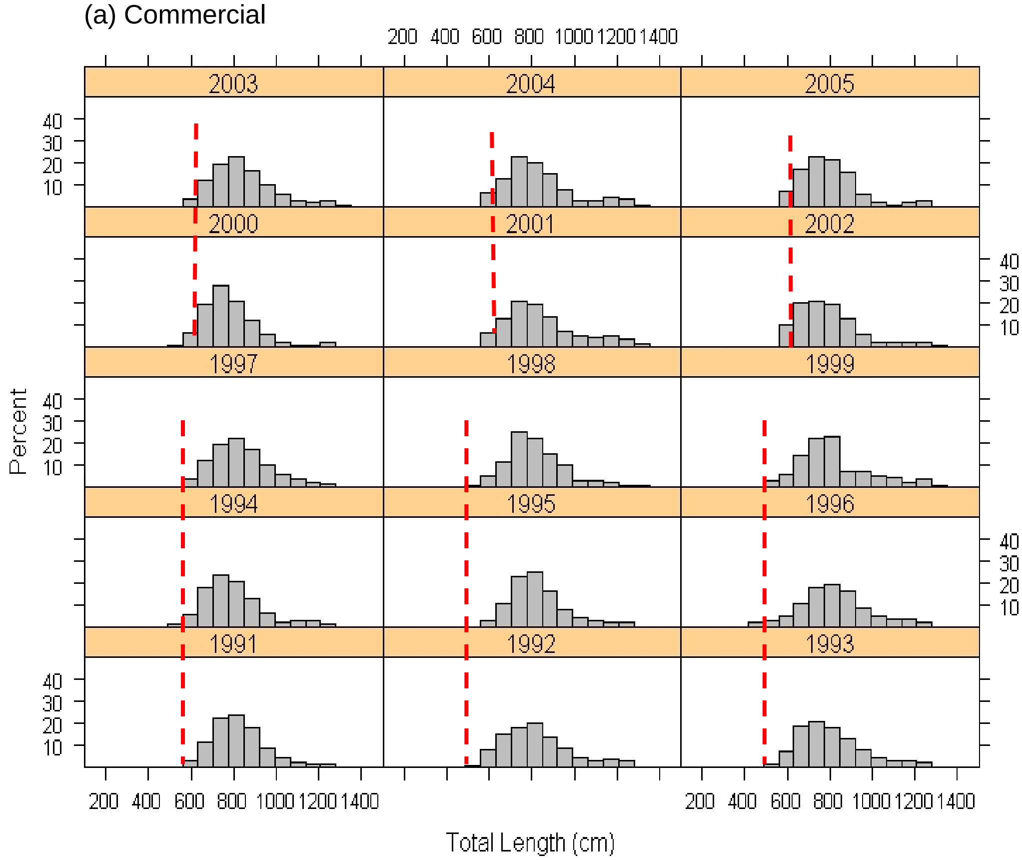


Figure 8. Length frequency by sector (a) commercial and (b) recreational by year. Vertical lines indicate the minimum size limits for each sector and year (1990-1999: 508 mm; 2000-2005: CM 610 mm, REC 559 mm).

(a) Commercial



(b) Recreational

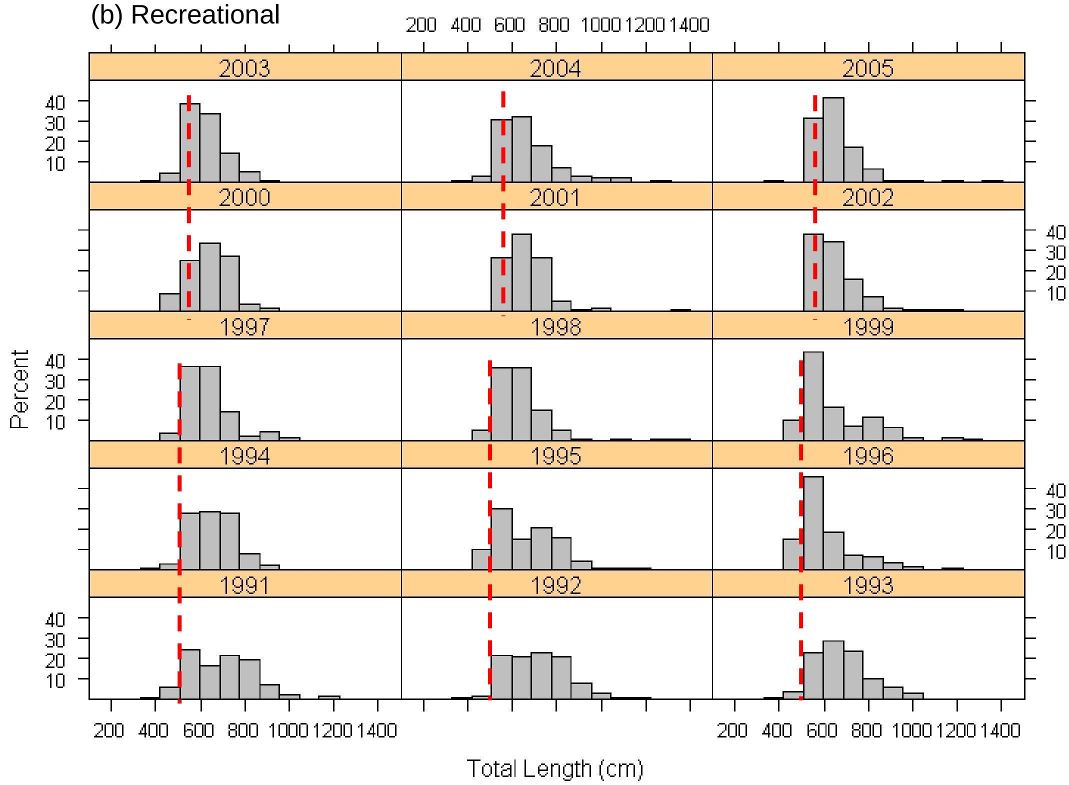


Figure 9. Age frequency for gag sampled for otoliths from the commercial and recreational sectors of the northeastern Gulf of Mexico from: 1991-2005. Lines indicate strong year classes.

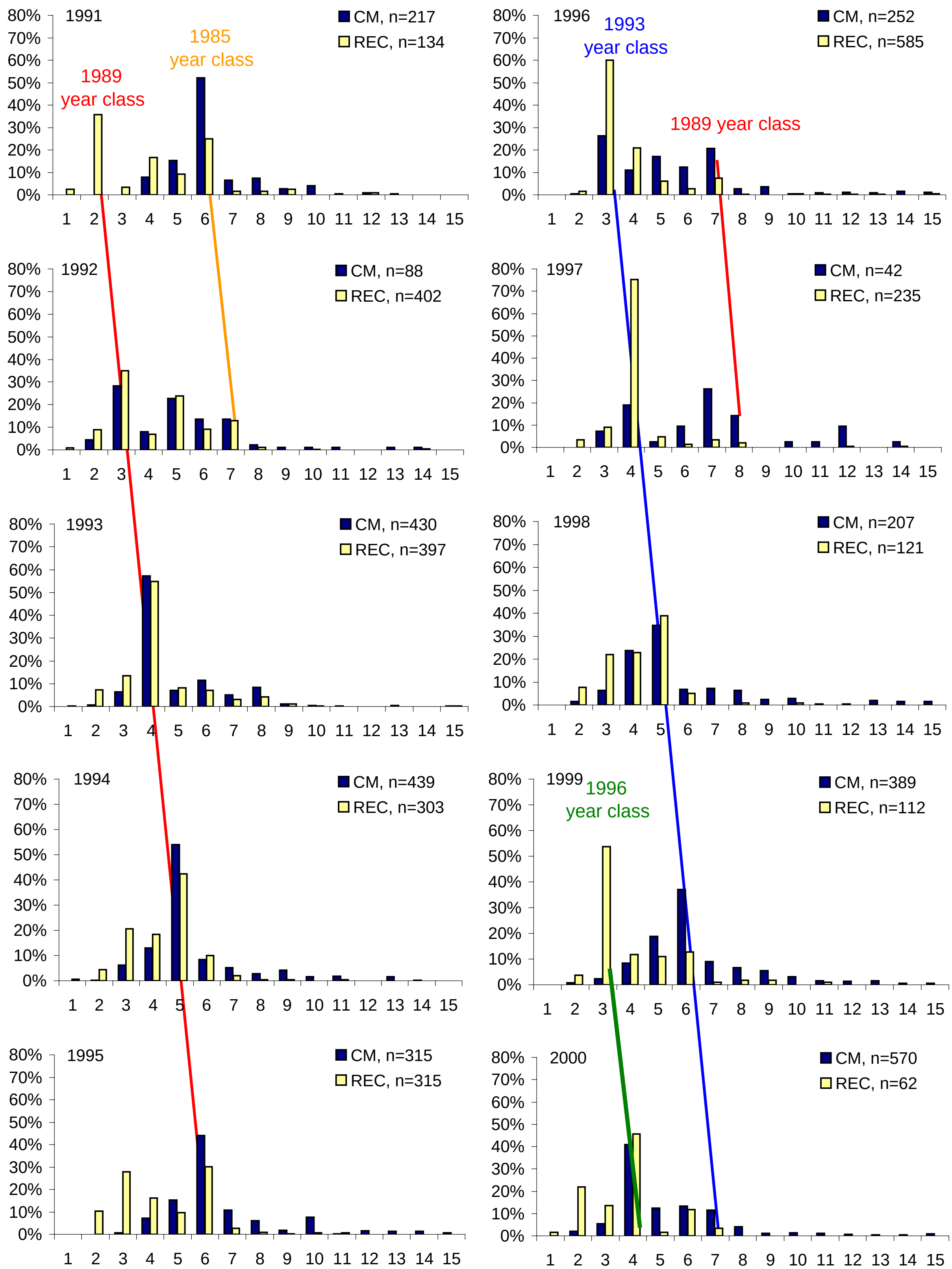


Figure 9 continue.

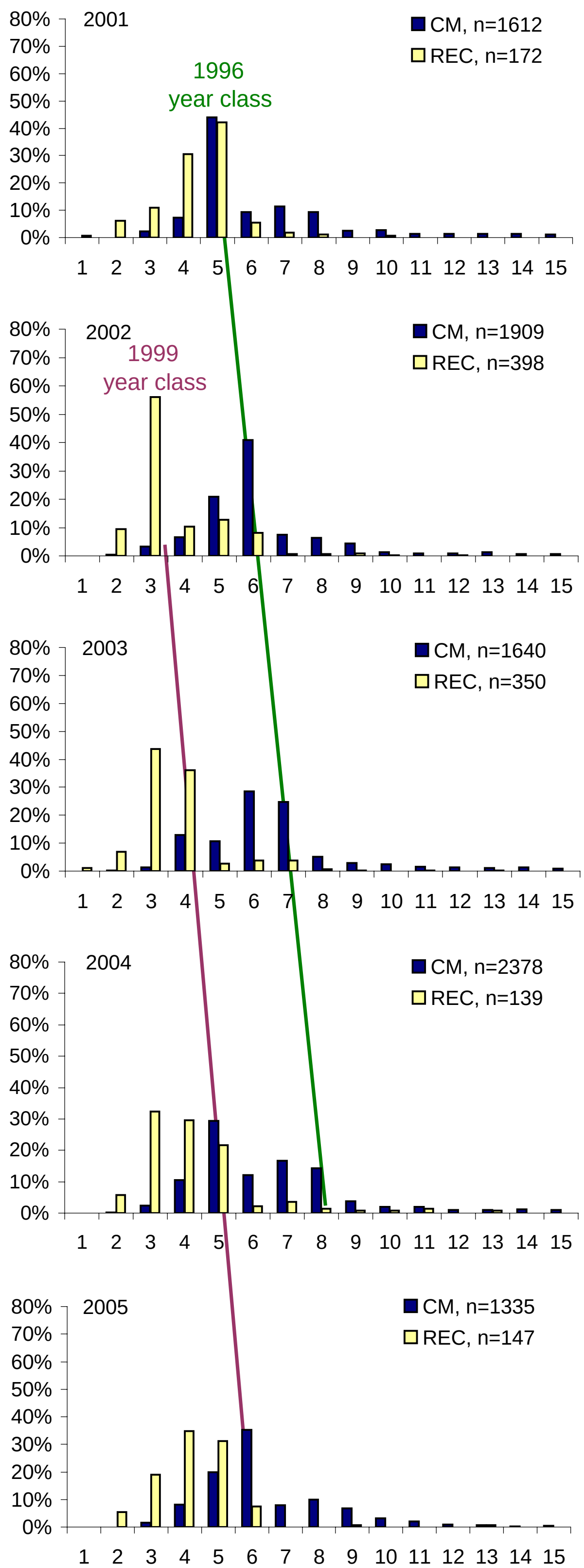


Figure 10. Commercial data (1998-2005 combined) compared between gear types (hand-line-HL, long-line-LL) by (a) total length, (b) age, and (c) box plot of data by gear.

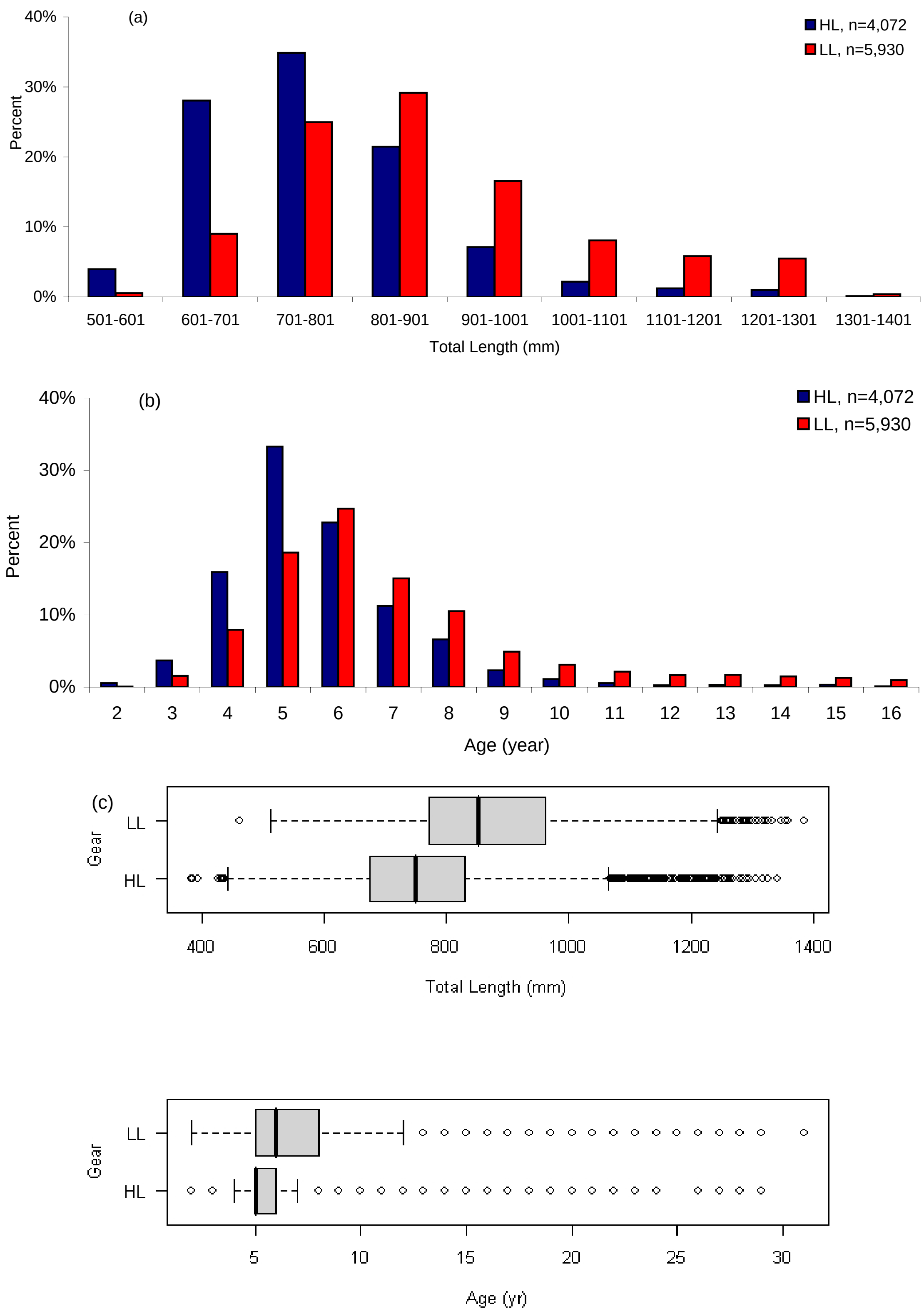


Figure 11. Depth characterization of commercial hand-line and long-line age data: (a) proportion of depth fished by gear type, and temporal trends in depth mean ± std. dev fished by (b) hand-line and (c) long-line. The horizontal lines in (b) and (c) represent the overall by gear type.

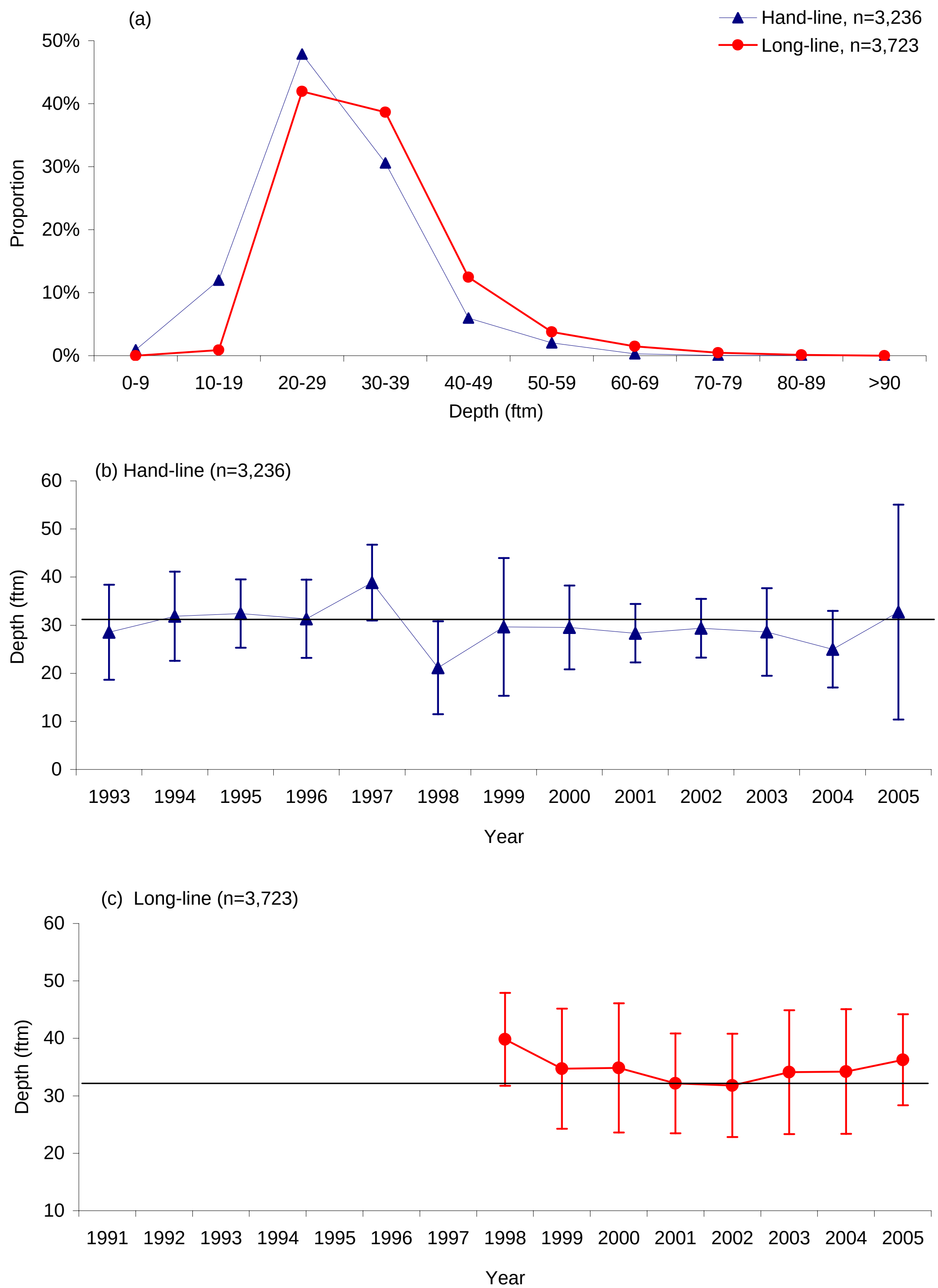


Figure 12. Age data proportioned to the depth (ftm) fished and commercial gear type. Depth categories in 10-ftm bins. Sample sizes in legends. Scales on y-axis vary.

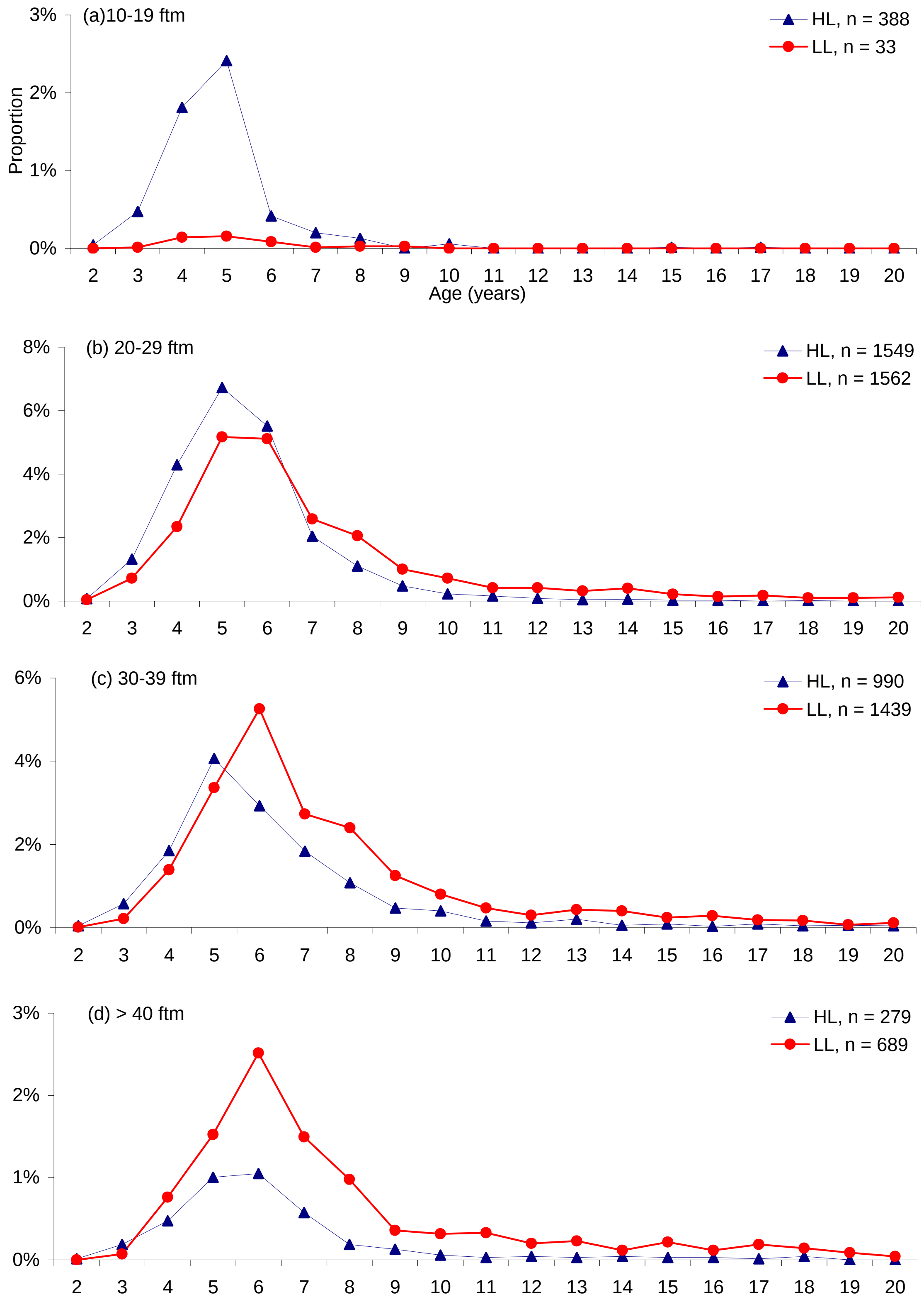


Figure 13. Proportion of otoliths from commercial samples and reported capture location (NMFS Statistical Shrimp Grids) by gear type for all years combined and by year.

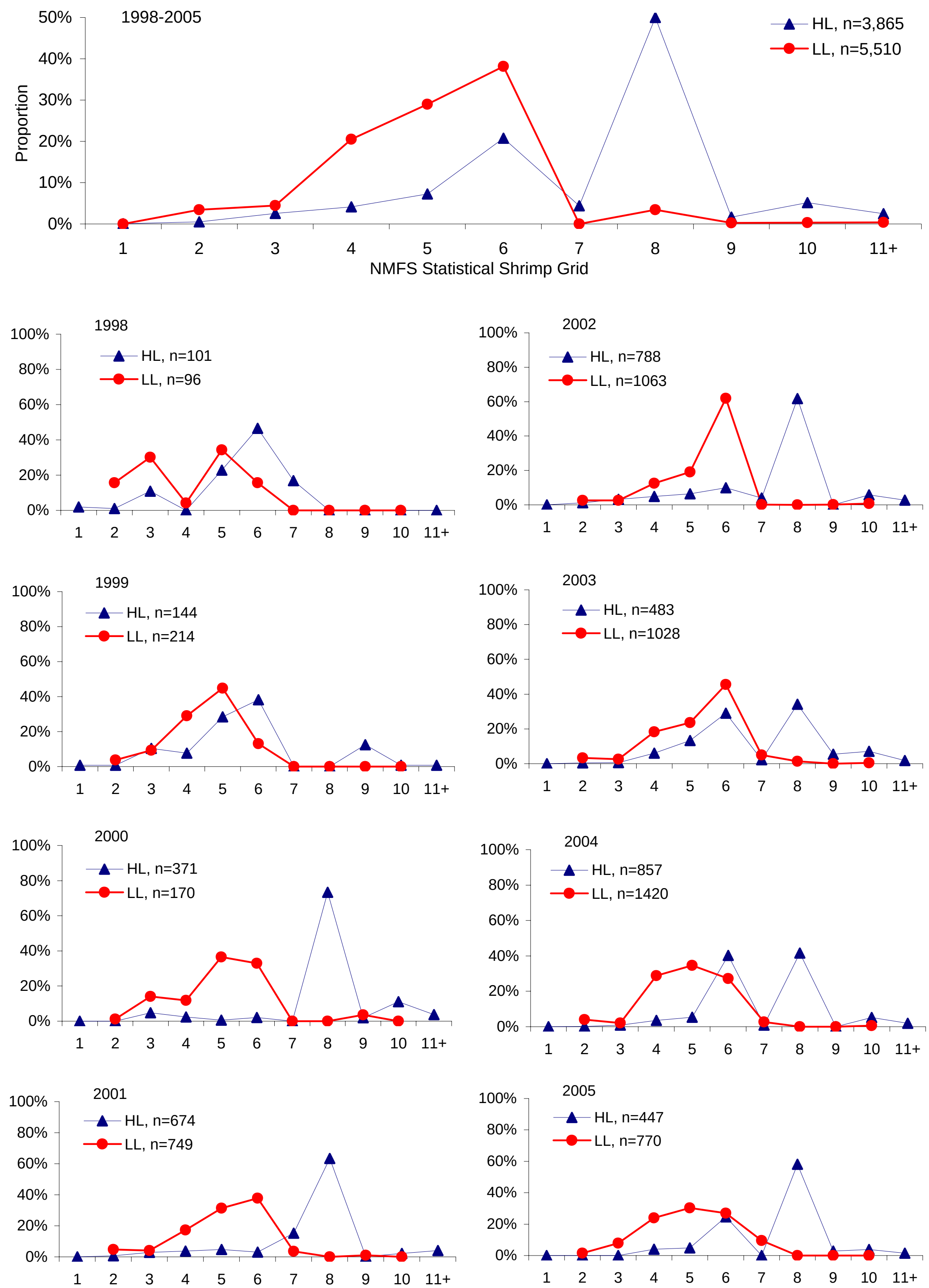
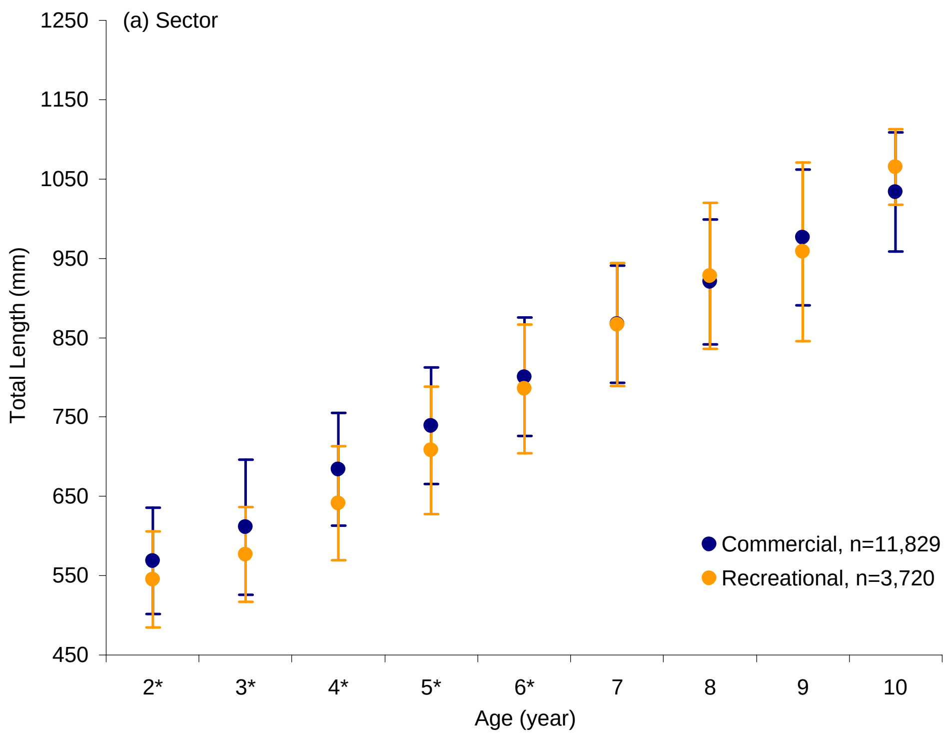


Figure 14. Size-at-age ± std dev data 1991-2005 between (a) sectors and (b) commercial gears. Asterisk indicates significant statistical differences between groups determined by Welch two sample t-test.



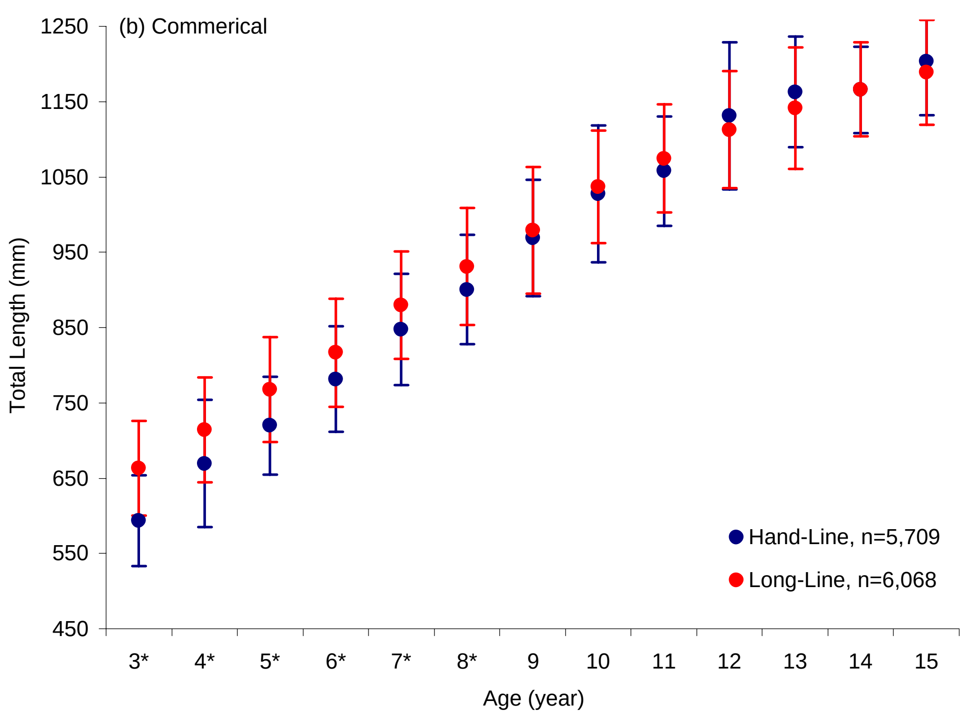


Figure 15. Size-at-age ± std dev data 1991-2005 between commercial gears by region (a) hand-line and (b) long-line. Asterisk indicates significant statistical differences between groups determined by Welch two sample t-test.

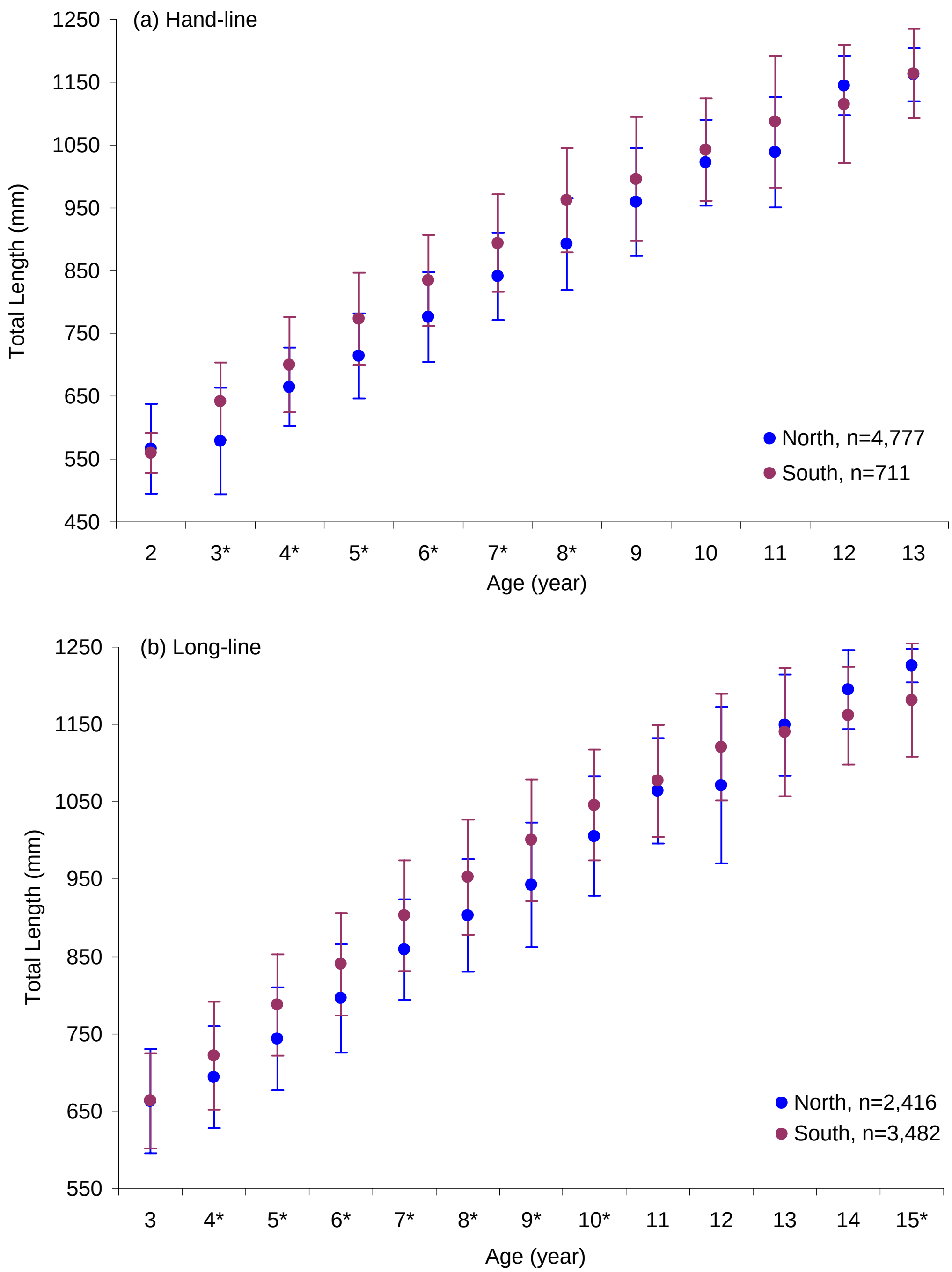


Figure 16. Scatterplot of gag data (1991-2005, n=16,147) of observed sizes (TL mm) and fractional ages at capture.

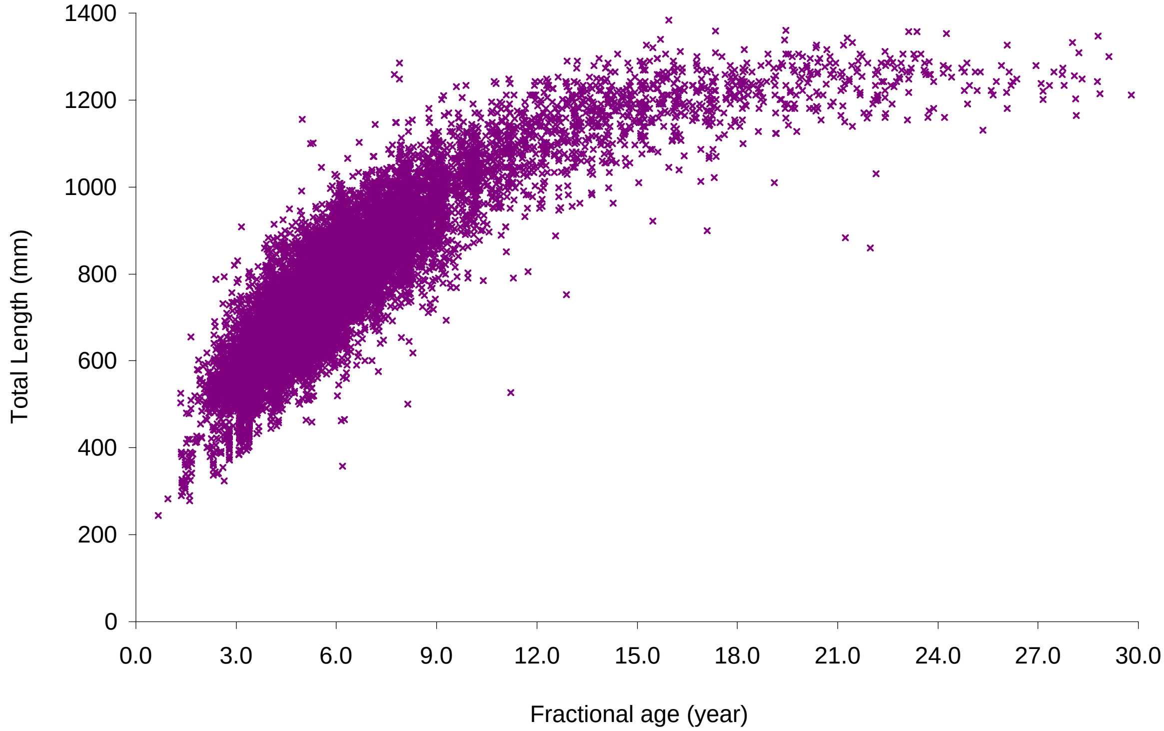


Figure 17. Assumptions of modified von Bertalanffy model met, (a) constant deviance at size. Von Bertalanffy growth curve for (b) mean fractional ages 0-30 years old and (c) mean fractional ages 0-5 years old. Observed mean size-at-age (black circle), estimated size-at-age (red line), and estimated 95% confidence intervals (red dotted line).

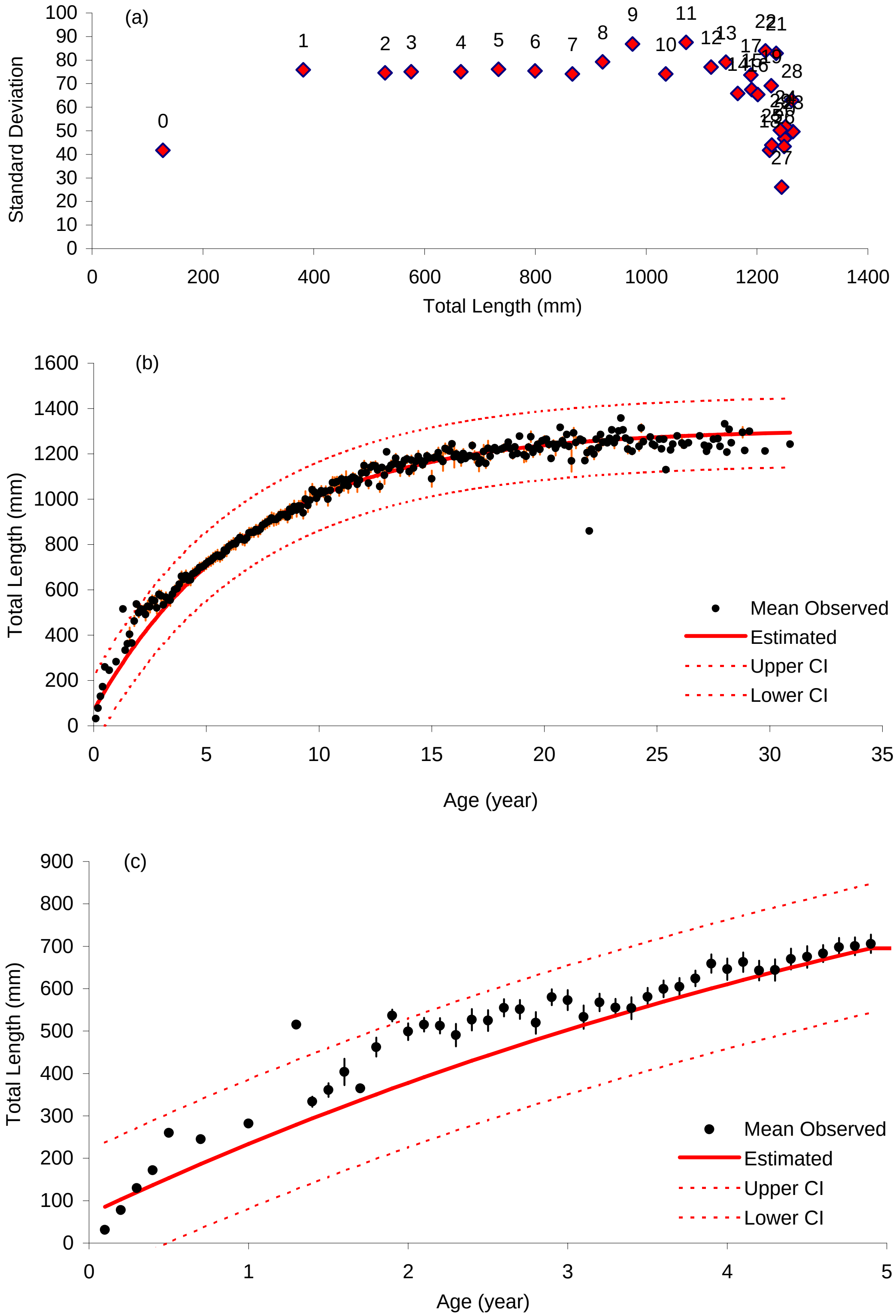


Figure 18. Residual plots for von Bertalanffy growth model (a) raw residuals, (b) cumulative normalized plot, and (c) residuals by age class, sector, gear, and year. For category sector and year the width of the box plot reflects the proportion of the observations per level.

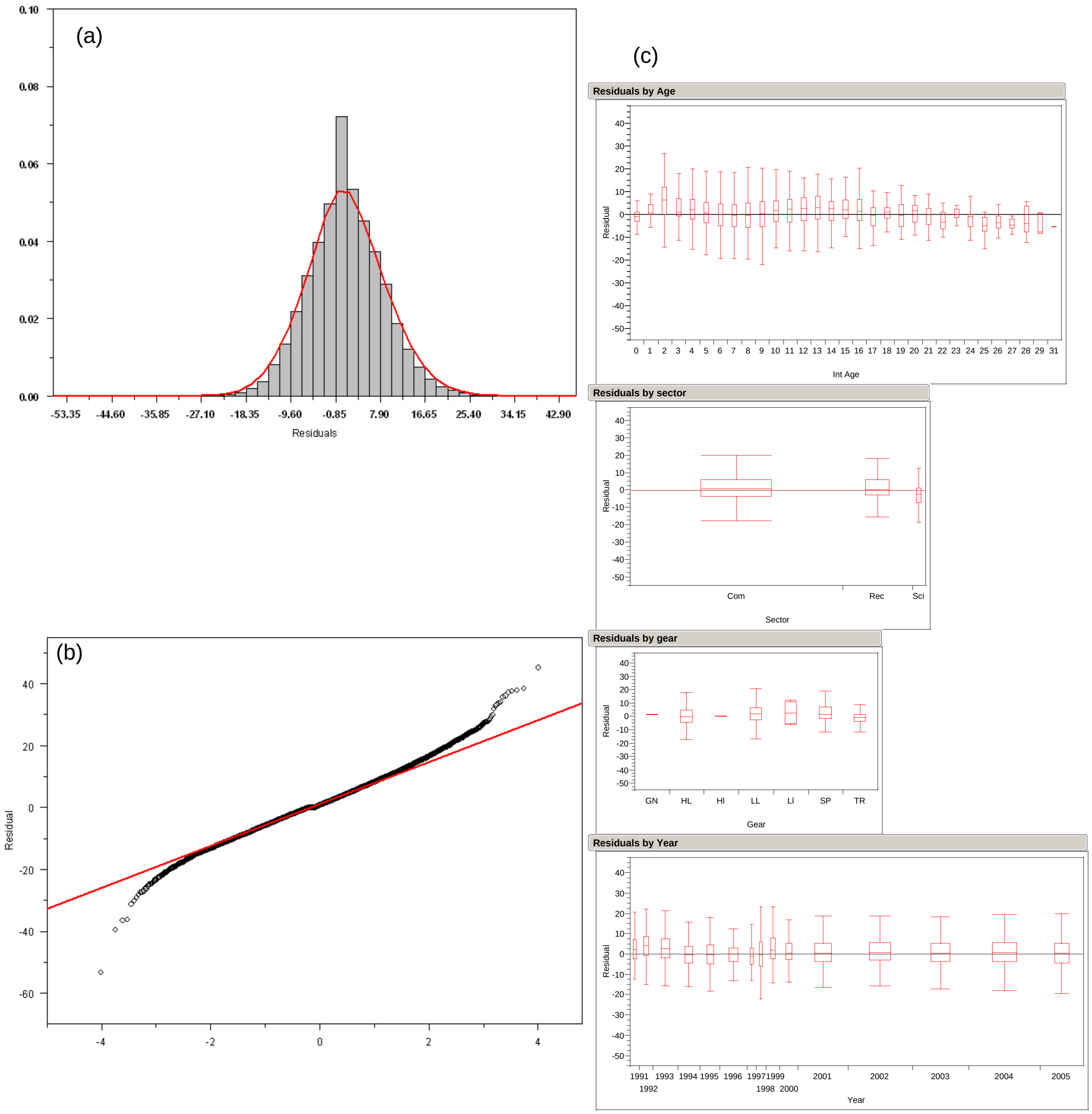


Figure 19. Pre-regulatory data (pre-regs:1979-1989, no size limit) compared to post-regulatory data (post-regs: 199 2005) (a) length frequency, (b) age frequency, and (c) size-at-age Asterisk indicates significant statistical differences between groups determined by Welch two sample t-test. Error bars are ± standard deviation.