Weighted Length Compositions for U.S. Mutton Snapper (*Lutjanus analis*)

Shanae D. Allen

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Weighted Length Compositions for U.S. Mutton Snapper (*Lutjanus analis*)

Shanae D. Allen

Florida Fish and Wildlife Research Institute
100 8th Ave SE
St. Petersburg FL 33701

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Introduction

Weighted length compositions for SEDAR 79 were compiled for catch (landings and releases) of Mutton Snapper (*Lutjanus analis*) in the South Atlantic and Gulf of Mexico by fishery and primary gear type. Raw length composition data from fishery dependent sources may be a biased reflection of the length composition of the catch due to uneven sampling in space and time. Therefore, when calculating landings- and releases-at-length (LAL/RAL, fish landed or released per length bin in numbers), it is recommended to weight the sampled lengths of landed or released fish at the finest possible scale by the inverse of sampling proportion (SEDAR 2016; Maunder et al. 2020). Weighting the sampled lengths at the finest possible strata ensures the LAL/RAL are as representative of the catch as possible; however, if the number of fish sampled is very low, the weighted lengths may be extremely imprecise at the chosen scale or could result in the loss of data (e.g., landings with no associated length samples). One way to resolve this is to aggregate across strata.

This document describes methods to determine the scale of aggregation after the consideration of several factors; one of which is to compare the number sampled to an acceptable minimum sample size for each stratum akin to a power analysis. If the number of fish sampled for length is less than this number, strata may need to be aggregated to be informative. The assumptions for determining the minimum sample size are described in detail by Allen et al. (2013).

This document presents weighted length composition data for Mutton Snapper from the following fishery-dependent sampling programs:

1. Trip Interview Program (TIP)/Creel Survey and Biological Sampling Plan (CSBSP)
2. Commercial Reef Fish Observer Program (RFOP)/ Shark Observer Program (SOP)/Galveston Observer Program (GOP)
3. North Carolina Department of Environmental Quality (NC DEQ).
4. Southeast Region Headboat Survey (SRHS)
5. Marine Recreational Information Program (MRIP)
6. FWC Headboat and Charter Florida At-Sea Observer Program

For fishery-independent data sources, length compositions are weighted by the estimated relative abundance (CPUE), to be representative of the size of fish in the population (Maunder et al. 2020). Length compositions are presented for the following fishery independent data sources:

1. Reef Fish Visual Census (RVC) – Dry Tortugas, Florida Keys, Southeast FL
2. Gulf of Mexico Combined Video Survey

Methods

Cumulative Distribution Functions (CDFs) of maximum total length (Max TL) measurements are first inspected to identify differences among regions, seasons, gear, sectors, etc. The magnitude of strata-specific landings and releases (in numbers) is also considered when determining the appropriate scale to weight the sampled lengths. Additionally, sample sizes are compared to an ideal minimum sample size determined by setting a maximum coefficient of variation of the estimated proportion at length, $\hat{p}$. While this ideal minimum sample size may not be met, it is used as a guide when aggregating strata.

To calculate the sample size *n* that results in a specified maximum coefficient of variation, it is necessary to identify the sampling distribution of the number of Mutton Snapper of a given length in the sample, *Y*, that the estimated proportion is based on. The sampling distribution of *Y* in turn depends on whether sampling is with or without replacement, and secondly the type of selection scheme. This analysis assumes sampling is done without replacement and the selection scheme is "simple random" (i.e., all individuals have an equal probability of being included in the sample). Hence the sampling distribution of *Y* is hypergeometric (*N*, *n*, *p*), such that *N* denotes the total number of Mutton Snapper of a given length landed (or discarded), and $\hat{p}$ is an unbiased estimator of the proportion of Mutton Snapper of a given length in the landings (i.e., the population proportion), *p*. Note that at sampling fractions less than approximately 5%, the statistical properties of without replacement sampling are very closely approximated by those of with replacement sampling (i.e. a binomial sampling distribution).

The stated objective is that *n* be sufficient to ensure the coefficient of variation of $\hat{p}$, defined as $CV_{\hat{p}} = \sigma_{\hat{p}}/p$, which is a measure of relative precision, does not exceed a specified level. That is, the standard error of $\hat{p}$ does not exceed $(100 \cdot CV_{\hat{p}})\%$ of *p*. For hypergeometric sampling this implies

$$n = \frac{N}{1+CV_{\hat{p}}{}^2\left(\frac{(N-1)p}{1-p}\right)}.$$

Minimum sample sizes are calculated such that the coefficient of variation $CV_{\hat{p}}$ is at most 0.25 for all $p \geq 0.10$. A reasonable lower limit for the population proportion *p* may be 10%, meaning that by sampling at least *n* Mutton Snapper out of *N* available, this method may precisely capture the central 80% of lengths in the landings or discards (*N*). As *N* exceeds approximately 2,000, minimum sample sizes quickly approach that when assuming a binomial distribution (*n*=144).

An important caveat to this method is that the assumption of random selection is unrealistic. Presumably, fish sizes are correlated within trips due to fishing practices and schooling behavior. The minimum recommended sample sizes presented herein should therefore be considered lower bounds and sample sizes should be increased to account for some non-randomness, the degree of which is unknown.

In addition to providing minimum sample sizes, methods such as this can also provide guidance on appropriate configurations of a stock assessment model by elucidating the level at which data are informative, as well as recommendations for changes to sampling intensity.

Results

Commercial Fishery

Lengths of commercially landed Mutton Snapper were obtained from dockside sampling under the Trip Interview Program (TIP), Creel Survey and Biological Sampling Plan (CSBSP; 1985-1992), and North Carolina Department of Environmental Quality (NC DEQ). There were only 458 CSBSP samples that were not included in TIP.

Gears

Commercial gear types were initially grouped into four categories - longline, hook and line, unknown, and other (primarily pots and traps and by hand/spear). Limited length and age data are available from commercial grouped gear types "Other" and "Unknown" (Table 1). Likewise, there are relatively few Mutton Snapper caught by 'Other' gears (Figure 1). Landings by unknown gears were assigned to regular gear categories by proportioning identified gears by year and using those proportions to assign unknown gears (SEDAR79-DW-19).

The finest considered spatial scale for the commercial sector is based on fishing area (hereafter referred to as "Region caught") and consists of eight regions: West of FL, NW FL, SW FL, Dry Tortugas, FL Keys, SE FL, NE FL, and North of FL (Figure 2). There were 486 length and/or age samples with an unknown region caught. Since there were so few, region landed was used to infer region caught for these samples.

Inspection of annual landings by region caught (Figure 3), as well as the number of length and age samples by region (Table 2), show relatively few Mutton Snapper are caught and/or sampled West of FL, in NW FL, and North of FL. Therefore, the eight regions were aggregated to five: West of Dry Tortugas (West of FL, NW FL, SW FL), Dry Tortugas, FL Keys, SE FL, and North (NE FL and North of FL).

Distributions of retained lengths (maximum TL) by gear and region indicate that larger fish are retained by longline gear. "Unknown" and "Other" gears typically retain lengths similar to hook and line gear (Figure 4). Exceptions to this are in the North and Dry Tortugas regions where unknown gears encounter a higher or lower proportion of smaller fish, respectively; however, sample sizes are limited. Therefore, to increase sample sizes of measured fish by gear type, 'Other' now includes hook and line, unknown, and other gears.

Data from electronic monitoring on longline vessels suggest that Mutton Snapper are encountered in depths from approximately 40 to over 100 meters in depth, with an average capture depth of 70 meters (SEDAR79-DW-05). These vessels fish deeper depths compared to other gear types which may support the differences in average length and age.

Commercial Longline Fleet

An overall distribution of sampled Mutton Snapper maximum TL (in 2 cm bins) from commercial longline landings from 1984-2022 is shown in Figure 5. The central 80% of sampled maximum TL lengths in the commercial longline fleet corresponds to 55 – 85 cm. This range may not align with the central 80% of maximum TL lengths in the landings, especially at finer scales, however it is a global

approximation. The defined criteria for a minimum sample size aims to limit the coefficient of variation of the sampling proportion in this length range to at most 0.25.

The commercial longline landings and lengths do not differ substantially by wave (Figures 6 and 7). The number of Mutton Snapper sampled by region and year in the commercial longline fleet is presented in Table 3. Figures 8 and 9 illustrate landings and the distributions of sampled maximum total lengths among grouped regions. Landings have declined in the South Atlantic (FL Keys, SE FL, and North regions) since the mid-1990s which may reflect the prohibition of longline gears inside of 50 fathoms in the South Atlantic starting in January 1992.

Length distributions are very similar between "West of the Dry Tortugas" and the "Dry Tortugas", but differ somewhat in the FL Keys, and generally much larger fish are caught in the 'North' region. Sample sizes are limited however in the FL Keys and North regions, particularly after 1993 (Table 3). Mutton Snapper were not sampled from the longline fleet in SE FL.

Due to the similarities between "West of Dry Tortugas" and the "Dry Tortugas", combined with the low sample sizes in the "FL Keys and North" region, all regions are combined for the commercial longline fleet prior to weighting by the annual landings. Therefore, the estimated (i.e., weighted) length distribution of landings and the sampled length distribution are equivalent (Table 4, Figures 10 and 11). There are assumed to be no releases in the longline fleet because of the depths fished and sizes of Mutton Snapper encountered (SEDAR79-DW-05), eliminating the need to calculate releases-at-length.

Years prior to 1991 generally have lower sample sizes and greater average lengths (Figure 10). This may reflect a mismatch between where most of the fish were landed versus sampled as the proportion of fish sampled north of SE FL is much greater than the proportion of fish landed (Figure 12). For this reason, weighted length compositions from the longline fleet start in 1991. Additionally, the removal of 2020 is necessary as very few fish (27) were sampled due to the pandemic.

Commercial 'Other' Fleet

All commercial gears except for longline are combined in a single 'Other' commercial fleet, but Mutton Snapper landed by hook and line gears (i.e., vertical line) constitute the majority of sampled lengths, ages, and landings.

A distribution of sampled Mutton Snapper maximum TL (in 2 cm bins) from commercial landings from other gears (1983-2022) is shown in Figure 13. This shows a bimodal distribution that may reflect different selectivities among strata (i.e., regions, months, years). The central 80% of sampled maximum TL lengths by other commercial gears corresponds to 42 – 77 cm.

The length distributions of landed Mutton Snapper from "Other" gears differ by both month and region (Figure 14). Across regions, the largest fish are generally caught year-round in the 'North' region while Mutton Snapper caught in SE FL are generally smaller than fish caught in other regions. A closer look at the FL Keys which contributes the majority of the landings in most years (Figure 15) suggests the smallest fish are encountered in October, November, and January, slightly larger fish are caught in August, September, and December, and the largest fish are caught during the remaining months (Feb – July; Figure 16).

Since sample sizes are lacking by year, month, and region, months are grouped into two seasons: season 1 – January through August and season 2 – September through December. Also, the region 'West of Dry Tortugas' is combined with the Dry Tortugas ('Dry Tortugas and West'). Seasons 1 includes the core spawning months (April through July; SEDAR79-DW-12).

Comparisons of length distributions within seasons and within regions (Figure 17) indicate that during season 1 in the FL Keys lengths are similar to both smaller fish in SE FL and larger fish in the Dry Tortugas and West. During season 2 the distribution in the FL Keys is most similar to SE FL, and in both seasons, the Dry Tortugas and West region is most similar to larger lengths encountered in the North region. Across seasons, lengths in the SE FL and North regions do not vary as much as the other two regions. Mutton Snapper caught in the Dry Tortugas and FL Keys at the end of the year (season 2) are generally smaller than in season 1 (Figure 17, right).

Histograms of length distributions by region and season (Figure 18) also illustrate that the frequency of Mutton Snapper greater than ~56 cm maximum TL varies markedly between regions and seasons. These large individuals are regularly sampled in the "North" region throughout the year, while in the FL Keys and 'Dry Tortugas and West' they are sampled less frequently later in the year. This may reflect new recruits entering the fishery and/or the loss of access to large fish (either from fishing mortality or movement out of the fishable area, say, to protected areas or deeper/shallower depths). Mutton Snapper greater than ~56 cm maximum TL are rarely sampled in SE FL, particularly later in the year, however sample sizes are limited in season 2 in all regions.

The number of Mutton Snapper sampled by region, season, and year by 'Other' commercial gears is presented in Table 5. In the 'Dry Tortugas and West' region, there are very few length measurements per year after 2004. Sample sizes in the FL Keys region are lacking in most years, particularly from 1999 through 2007, and in SE FL, there are relatively few length measurements prior to 1992 and after 2011. Sample sizes have increased since 2015 in regions north of SE FL.

In most years, the highest proportion of landings occur in the FL Keys (Figure 15), and yet sample sizes are generally insufficient. This suggests that a region-season specific model may be too fine scale for the data to be representative. The concurrent years with insufficient sample sizes in the FL Keys (1999 – 2007) also correspond to years in which the distributions of sampled lengths differ the most between the Dry Tortugas and West and SE FL regions (Figure S1).

This requires either grouping sampled lengths in the FL Keys with another, preferably neighboring, region (i.e., Dry Tortugas and West and/or SE FL) or dropping insufficient years. A comparison of sampled lengths in the Dry Tortugas and West, FL Keys, and SE FL regions by season and time period (corresponding to minimum size limit changes in South Atlantic) illustrates that distributions also vary by time period, in addition to region and season (Figure 19). The length distribution in the SE FL and the Dry Tortugas and West regions appear to be less sensitive to changes in minimum size limits compared to the FL Keys region. The bimodal distribution in the FL Keys is an amalgam of generally smaller fish caught in SE FL and larger fish caught in the Dry Tortugas and West, particularly in season 1 from 1995-2017. However, during this time in season 2, the distribution in the FL Keys closely resembles that of SE FL.

Grouping the FL Keys with either Dry Tortugas and West or SE FL would result in misrepresentation of the FL Keys (i.e., the region with the highest landings) because this region shares similarities with both the SE FL and the Dry Tortugas and West regions, particularly in season 1. Therefore, lengths are aggregated across these three southern regions within each season to create two grouped regions (North and South), but unfortunately this precludes accounting for regional differences in a stock assessment model and weighting the length frequencies at an appropriate scale.

Sample sizes for North and South regions by season and year are very low sample sizes prior to 1989 (Table 6), necessitating the removal of early years. Landings-at-length for each grouped region (North and South), season (season 1 [Jan-Aug] and season 2 [Sept-Dec]), and year (1989 – 2022) strata are

estimated by multiplying the sampling proportion (number sampled within a length bin/total number sampled) by the number landed. Landings at length per season and time period show that while the distributions differ among regions, the landings in the North region are very minimal and that combining them with the South region will not skew the overall distribution (Figure 20). Landings at length are therefore combined among North and South regions.

Histograms of landings at length for the commercial 'Other' fleet by season and year show that landings are also relatively low in most years in season 2 (Figure 21). If a seasonal stock assessment model is too complex, landings at length can be aggregated across seasons. Figures 22 - 24 show distributions of landings at length aggregated across seasons by time period and year, respectively. The overall distributions are bimodal in some time periods and therefore may require modeling length-based selectivity by using time varying selectivity or a flexible selectivity function (e.g., cubic spline) however caution is warranted (Privitera-Johnson et al. 2022).

Commercial 'Other' Fleet Releases

Releases from non-longline vessels are sampled from several at-sea observer programs (Commercial Reef Fish Observer Program [RFOP], Shark Observer Program [SOP], Galveston Observer Program [GOP]). Since there were only a total of 113 released Mutton Snapper measured from 14 trips from 2009 to 2021, lengths are combined across years and were not weighted by the releases (Figure 25, Table 8).

Recreational Fishery

There are four recreational fishing modes: shore (SH), private (PR), charter (CH), and headboat (HB) and all modes use primarily hook and line gear to catch Mutton Snapper. For the headboat fishery, landings and live releases since 2004, as well as sampled length and age data are collected by the SRHS and are available by both region caught and region landed. Estimates of live releases in the headboat fishery are available from 1992 through 2003 but only at a grouped region level (West: FL Keys and West, East: SE FL and North).

Data for all other modes are collected by MRIP and are only available by region landed. Landings and live releases by region are presented in Figure 25, and as shown, releases far outnumber landings in most years. From 1981 – 2022, releases are, on average, about twice as high as the number of landings, however since 2014, releases have increased and are nearly 4.5 times the number of landings.

The FL Keys accounts for the majority of landings and releases prior to 2000 but since then most landings and releases have occurred in SE FL. Regions beyond SE FL and the FL Keys contribute very few landings but NE FL accounts for on average 6% of Mutton Snapper releases and can reach 20% or higher in some years.

Landings and releases by mode (Figure 26) indicate that the private and shore modes account for the vast majority of landings and releases. Landings from shore mode are less than or equal to 25% in most years (with an average of 17%) but releases from shore mode make up at most 50% in most years and average nearly 30% across all years. The headboat fishery contributes the least amount of landings and releases and together, headboat and charter modes make up on average 12% of the landings and 6% of the releases. A release mortality rate of 30% would put dead discards between 300 and 600 thousand since 2014, which is generally more than the landings during this time.

Landings at Length

Prior to considering sampled length and age data, tournament samples were removed and only samples considered random and non-biased were retained (resulting in the removal of 58 samples). There were only 371 Mutton Snapper measured and 85 aged from regions west of the Dry Tortugas across all years, therefore these regions are combined with the Dry Tortugas to create a 'Dry Tortugas and West' region. Likewise, there were only 1,486 Mutton Snapper measured and 538 aged from regions north of SE FL, and these were combined with SE FL to create a "SE_FL_and_North" Region.

Table 9 presents the number of Mutton Snapper measured and aged per region and year. Most lengths and ages were sampled in the SE FL and North region, followed by the FL Keys, and then the Dry Tortugas and West region. There were very few Mutton Snapper aged in the Dry Tortugas and West and FL Keys regions prior to 2008, and relatively few fish aged in most years prior to 2002 in the SE FL and North region. The decline in the number of lengths and ages in 2020 and 2021 was presumably due to the COVID-19 pandemic.

Nearly all age samples and over half of the length measurements were taken from headboat fishery (Table 10). There are very few age samples from private mode and none from shore mode. Since there are also very few shore mode length measurements, the shore mode is combined with the private mode prior to analyzing length distributions.

A distribution of sampled Mutton Snapper maximum TL (in 2 cm bins) from recreational landings (1981-2022) is shown in Figure 27. This shows a unimodal distribution with a long right tail. The central 80% of sampled maximum TL lengths corresponds to 41 – 69 cm.

The highest priority is to accurately characterize length distributions of annual landings from the private/shore mode in SE FL and FL Keys since these strata account for most of the landings. The number landed is well over 2,000 per stratum, therefore minimum sample sizes are very similar or the same as when assuming a binomial distribution (n=144). However, sample sizes from the private/shore mode are limited (Table 11) and length distributions are highly variable in most years (Figure S2) making it necessary to borrow from other modes.

Relative frequencies of length distributions by region and mode suggest that for charter and headboat (i.e., the modes with the highest sample sizes), length distributions differ more among regions than among modes (Figure 28). Most Mutton Snapper greater than 50 cm were sampled in either the FL Keys or the Dry Tortugas and West region. However, length distributions for the private/shore mode in SE FL and FL Keys include a higher proportion of smaller fish (< 40 cm) compared to headboat and charter modes. This could reflect different retention between the private and for-hire modes (e.g., due to noncompliance or misidentification with Lane Snapper) or could be an artifact of low sample sizes per year for the private/shore mode, especially in the FL Keys.

Taking a closer look at sampled length distributions by mode and period suggests that modes generally align in the SE FL and North region, except from 1981-1994 when there are smaller sampled lengths from the private/shore mode (Figure 29). A similar plot for the FL Keys suggests smaller retained Mutton Snapper for the private/shore than the for-hire modes for all time periods (Figure 30). However, the private/shore mode in the FL Keys is considerably undersampled in all years, preventing any strong conclusions. Cumulative distribution functions (CDFs) by region and season show little, if any,

differences in length distributions among seasons (Figure 31). CDFs by month were also inspected to rule out any differences.

Prior to weighting sampled lengths by the landings, sampled lengths were combined across modes within these three regions. Figure 32 illustrates that this results in minimal landings-at-length in the Dry Tortugas and West region, due to the low landings in that region. Therefore, landings-at-length in that region are combined with the FL Keys to create two grouped regions (East and West). Final landings-at-length by grouped region and year are presented in Figures 33 - 37 and Table 12.

Releases at Length

Releases from charter boats and headboats are sampled by the FWC at-sea observer program. A histogram of release lengths shows a unimodal distribution with a median of approximately 35 cm (Figure 38). Since there are relatively few lengths, they are first grouped into two regions: East (SE FL and north) and West (FL Keys and west). CDFs of Maximum TL measurements of released Mutton Snapper per region suggest similar release lengths between charter and headboats (Figure 39). Density plots of release lengths by region and year show differences in some years, with generally larger fish released in the East region compared to the West, but sample sizes are insufficient, especially in the West region (Figure 40). Additionally, release lengths of Mutton Snapper suggest that relatively few legal sized Mutton are released. Due to the low sample sizes by mode and region, sampled release lengths are combined among headboat and charter modes and regions and then weighted by the annual releases (Figure 41, Table 13).

Fishery Independent Data Sources

Lengths from two fishery independent data sources are used as inputs to the SEDAR 79 stock assessment model: a diver survey in south Florida (The Reef Visual Census [RVC]) and two stationary video surveys in the GOM (see SEDAR79-DW-16 and SEDAR79-DW-21).

The RVC divers estimate fork lengths to the nearest cm in situ, however there is variability in the observed fork lengths, necessitating binning the fork lengths in 5 cm bins ([0,5], [5,10], [10,15], etc.). To make length types consistent with management regulations, binned fork lengths are converted to binned maximum total lengths (max TL) by first converting the midpoint of each 5 cm fork length bin to maximum total length in cm using the equation max TL = 1.071*FL + 1.552 (df = 2886, MSE = 35.41, R2 = 0.998, SEDAR 79). These maximum total lengths are then put into 5 cm max TL bins ([0,5], [5,10], [10,15], etc.). Converting fork lengths to maximum total lengths in this fashion preserves the shape of the distribution of binned fork lengths. Length compositions weighted by CPUE values for each of the RVC regions (Dry Tortugas, FL Keys, and SE FL) are presented in Tables 14-16 and Figures 42-44.

For the Gulf Combined Video survey, only 295 Mutton Snapper were measured for length. Therefore only a single length distribution of the number sampled by length are used as model inputs (Table 17, Figure 45).

Research Recommendations

The length and age distributions of landed Mutton Snapper in the FL Keys appear to be intermediary between generally smaller/younger fish caught in SE FL and larger/older fish caught in the Dry Tortugas, however the FL Keys are considerably undersampled in most years.

For commercial vertical line and other gears, increase the number of measured Mutton Snapper to at least 320 per year. An average of approximately 20 per month from January through August and 40 per month from September through December, especially from vessels fishing in the FL Keys and Dry Tortugas.

Additional age and length samples from private and shore recreational modes are needed. Increase length sampling in all regions for the shore mode and begin aging Mutton Snapper landed by the shore mode. For both the private and shore recreational modes, increase length sampling substantially in regions west of the FL Keys and the FL Keys to at least 150 per year and continue sampling the SE FL with the goal of reaching at least 150 per year. Also, the private and shore modes account for nearly all releases but do not contribute release lengths, undoubtedly due to the logistical challenges of sampling releases from these fishing modes.

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Table 1. Number of commercial ages and length measurements (in parentheses) by region caught.

Year	West of FL		NW FL		SW FL		Dry Tortugas		FL Keys		SE FL		NE FL		North of FL		Total	
1983	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(2)	0	(2)
1984	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(25)	0	(25)
1985	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(37)	0	(37)
1986	0	(0)	0	(0)	0	(4)	0	(5)	0	(12)	0	(0)	0	(1)	0	(23)	0	(45)
1987	0	(0)	0	(0)	0	(0)	0	(17)	0	(0)	0	(0)	0	(0)	0	(85)	0	(102)
1988	0	(0)	0	(0)	0	(0)	0	(15)	0	(37)	0	(9)	0	(0)	0	(106)	0	(167)
1989	0	(1)	0	(0)	0	(0)	0	(23)	0	(211)	0	(0)	0	(0)	0	(53)	0	(288)
1990	0	(0)	0	(0)	0	(15)	0	(469)	0	(415)	0	(17)	0	(6)	0	(98)	0	(1020)
1991	0	(1)	0	(0)	0	(30)	0	(315)	0	(373)	0	(9)	0	(3)	0	(75)	0	(806)
1992	0	(0)	0	(0)	1	(24)	0	(537)	6	(189)	46	(317)	0	(15)	0	(19)	53	(1101)
1993	0	(17)	0	(0)	2	(57)	9	(314)	0	(127)	36	(137)	0	(25)	0	(75)	47	(752)
1994	0	(0)	0	(0)	1	(65)	3	(423)	1	(96)	58	(196)	0	(25)	0	(7)	63	(812)
1995	0	(1)	0	(0)	1	(84)	0	(280)	0	(134)	32	(96)	3	(66)	0	(29)	36	(690)
1996	0	(0)	0	(0)	0	(117)	0	(227)	0	(60)	146	(178)	0	(24)	4	(23)	150	(629)
1997	0	(0)	0	(1)	1	(180)	23	(510)	0	(95)	198	(291)	0	(36)	7	(21)	229	(1134)
1998	0	(0)	0	(0)	0	(285)	3	(1037)	8	(63)	186	(365)	3	(30)	2	(30)	202	(1810)
1999	0	(0)	0	(0)	2	(212)	3	(1513)	0	(12)	218	(291)	1	(164)	0	(77)	224	(2269)
2000	0	(0)	0	(0)	1	(155)	9	(1128)	0	(29)	199	(441)	2	(138)	0	(35)	211	(1926)
2001	0	(0)	1	(14)	17	(190)	38	(676)	2	(45)	248	(523)	4	(22)	0	(38)	310	(1508)
2002	0	(0)	0	(0)	23	(147)	79	(619)	0	(18)	306	(484)	2	(8)	0	(21)	410	(1297)
2003	0	(0)	0	(0)	34	(99)	107	(785)	7	(32)	240	(282)	0	(15)	16	(86)	404	(1299)
2004	0	(0)	0	(1)	76	(220)	72	(582)	8	(13)	135	(195)	1	(37)	9	(108)	301	(1156)
2005	1	(1)	0	(0)	112	(308)	61	(221)	10	(61)	125	(181)	9	(23)	26	(96)	344	(891)
2006	0	(0)	0	(11)	214	(227)	212	(388)	22	(33)	49	(97)	0	(11)	39	(63)	536	(830)
2007	0	(0)	1	(1)	108	(111)	128	(284)	7	(17)	9	(93)	9	(61)	31	(46)	293	(613)
2008	0	(0)	0	(0)	122	(125)	143	(199)	76	(111)	204	(270)	1	(8)	27	(40)	573	(753)
2009	0	(0)	0	(0)	96	(103)	97	(98)	60	(151)	136	(197)	9	(11)	19	(27)	417	(587)
2010	1	(1)	0	(0)	141	(143)	237	(242)	101	(117)	384	(394)	0	(7)	17	(24)	881	(928)
2011	2	(2)	0	(0)	96	(97)	156	(156)	82	(104)	371	(443)	27	(29)	37	(51)	771	(882)
2012	0	(0)	0	(0)	186	(203)	221	(222)	56	(66)	81	(103)	0	(58)	42	(91)	586	(743)
2013	0	(0)	0	(0)	126	(129)	219	(240)	98	(110)	47	(49)	18	(36)	7	(30)	515	(594)

Table 1 (cont). Number of commercial ages and length measurements (in parentheses) by region caught.

Year	West of FL		NW FL		SW FL		Dry Tortugas		FL Keys		SE FL		NE FL		North of FL		Total	
2014	0	(0)	0	(0)	136	(140)	160	(163)	162	(194)	71	(73)	4	(122)	6	(18)	539	(710)
2015	0	(0)	0	(0)	117	(120)	83	(87)	97	(132)	29	(32)	3	(256)	6	(20)	335	(647)
2016	0	(0)	1	(2)	121	(127)	19	(20)	70	(109)	50	(68)	13	(246)	12	(15)	286	(587)
2017	0	(1)	4	(11)	144	(150)	111	(117)	58	(105)	29	(34)	3	(159)	17	(38)	366	(615)
2018	7	(7)	18	(18)	179	(182)	208	(209)	54	(119)	46	(48)	15	(15)	23	(44)	550	(642)
2019	0	(4)	5	(5)	108	(122)	43	(49)	59	(117)	89	(94)	95	(100)	35	(87)	434	(578)
2020	0	(2)	0	(0)	51	(59)	14	(15)	85	(109)	1	(3)	237	(246)	149	(262)	537	(696)
2021	1	(6)	21	(22)	42	(58)	14	(15)	94	(119)	14	(16)	177	(182)	142	(162)	505	(580)
2022	0	(1)	5	(5)	250	(289)	7	(14)	21	(128)	15	(33)	236	(264)	172	(179)	706	(913)
Total	12	(45)	56	(91)	2508	(4577)	2479	(12214)	1244	(3863)	3798	(6059)	872	(2449)	845	(2366)	11814	(31664)

Table 2. Number of commercial ages and length measurements (in parentheses) by gear type.

Year	H&L		Longline		Other		Unknown		Total	
1983	0	(1)	0	(0)	0	(0)	0	(1)	0	(2)
1984	0	(7)	0	(14)	0	(0)	0	(4)	0	(25)
1985	0	(20)	0	(17)	0	(0)	0	(0)	0	(37)
1986	0	(25)	0	(10)	0	(10)	0	(0)	0	(45)
1987	0	(39)	0	(63)	0	(0)	0	(0)	0	(102)
1988	0	(78)	0	(87)	0	(2)	0	(0)	0	(167)
1989	0	(132)	0	(14)	0	(142)	0	(0)	0	(288)
1990	0	(198)	0	(158)	0	(627)	0	(37)	0	(1020)
1991	0	(427)	0	(180)	0	(119)	0	(80)	0	(806)
1992	43	(552)	1	(346)	0	(188)	9	(15)	53	(1101)
1993	2	(398)	11	(204)	0	(110)	34	(40)	47	(752)
1994	21	(313)	5	(306)	0	(149)	37	(44)	63	(812)
1995	1	(357)	3	(178)	0	(123)	32	(32)	36	(690)
1996	106	(289)	0	(105)	0	(187)	44	(48)	150	(629)
1997	202	(562)	24	(333)	3	(235)	0	(4)	229	(1134)
1998	198	(546)	3	(1021)	1	(218)	0	(25)	202	(1810)
1999	219	(507)	5	(1514)	0	(227)	0	(21)	224	(2269)
2000	175	(693)	9	(1070)	27	(140)	0	(23)	211	(1926)
2001	258	(692)	52	(670)	0	(116)	0	(30)	310	(1508)
2002	314	(602)	93	(502)	3	(155)	0	(38)	410	(1297)
2003	260	(411)	144	(718)	0	(166)	0	(4)	404	(1299)
2004	34	(245)	135	(652)	0	(70)	132	(189)	301	(1156)
2005	55	(217)	166	(514)	0	(21)	123	(139)	344	(891)
2006	79	(154)	401	(600)	13	(20)	43	(56)	536	(830)
2007	61	(229)	230	(357)	0	(9)	2	(18)	293	(613)
2008	360	(455)	208	(259)	3	(10)	2	(29)	573	(753)
2009	251	(362)	136	(141)	25	(32)	5	(52)	417	(587)
2010	482	(503)	365	(372)	33	(39)	1	(14)	881	(928)
2011	530	(593)	227	(228)	14	(22)	0	(39)	771	(882)
2012	301	(359)	260	(276)	21	(28)	4	(80)	586	(743)
2013	162	(204)	255	(263)	41	(50)	57	(77)	515	(594)
2014	180	(196)	287	(291)	61	(77)	11	(146)	539	(710)
2015	108	(133)	162	(167)	47	(61)	18	(286)	335	(647)
2016	128	(156)	121	(128)	31	(45)	6	(258)	286	(587)
2017	85	(179)	236	(255)	45	(74)	0	(107)	366	(615)
2018	168	(200)	337	(340)	43	(87)	2	(15)	550	(642)
2019	259	(336)	89	(100)	81	(134)	5	(8)	434	(578)
2020	479	(604)	17	(27)	41	(62)	0	(3)	537	(696)
2021	366	(396)	49	(68)	69	(90)	21	(26)	505	(580)
2022	437	(508)	250	(288)	19	(70)	0	(47)	706	(913)
Total	6324	(12878)	4281	(12836)	621	(3915)	588	(2035)	11814	(31664)

Table 3. Number of commercial longline ages and length measurements (in parentheses) by region.

Year	West of Dry Tortugas		Dry Tortugas		FL Keys and North		Total	
1984	0	(0)	0	(0)	0	(14)	0	(14)
1985	0	(0)	0	(0)	0	(17)	0	(17)
1986	0	(4)	0	(0)	0	(6)	0	(10)
1987	0	(0)	0	(17)	0	(46)	0	(63)
1988	0	(0)	0	(10)	0	(77)	0	(87)
1989	0	(0)	0	(0)	0	(14)	0	(14)
1990	0	(15)	0	(63)	0	(80)	0	(158)
1991	0	(7)	0	(147)	0	(26)	0	(180)
1992	1	(18)	0	(316)	0	(12)	1	(346)
1993	2	(51)	9	(109)	0	(44)	11	(204)
1994	1	(54)	3	(231)	1	(21)	5	(306)
1995	1	(62)	0	(106)	2	(10)	3	(178)
1996	0	(51)	0	(53)	0	(1)	0	(105)
1997	1	(125)	23	(205)	0	(3)	24	(333)
1998	0	(248)	3	(773)	0	(0)	3	(1021)
1999	2	(189)	3	(1325)	0	(0)	5	(1514)
2000	0	(128)	9	(936)	0	(6)	9	(1070)
2001	17	(134)	35	(536)	0	(0)	52	(670)
2002	22	(85)	71	(417)	0	(0)	93	(502)
2003	34	(85)	107	(630)	3	(3)	144	(718)
2004	65	(198)	70	(454)	0	(0)	135	(652)
2005	105	(297)	61	(217)	0	(0)	166	(514)
2006	190	(213)	211	(387)	0	(0)	401	(600)
2007	105	(108)	125	(249)	0	(0)	230	(357)
2008	121	(124)	87	(135)	0	(0)	208	(259)
2009	85	(90)	51	(51)	0	(0)	136	(141)
2010	137	(139)	228	(233)	0	(0)	365	(372)
2011	92	(93)	135	(135)	0	(0)	227	(228)
2012	179	(195)	81	(81)	0	(0)	260	(276)
2013	107	(110)	148	(153)	0	(0)	255	(263)
2014	127	(128)	124	(127)	36	(36)	287	(291)
2015	100	(103)	54	(56)	8	(8)	162	(167)
2016	116	(122)	2	(3)	3	(3)	121	(128)
2017	136	(150)	100	(105)	0	(0)	236	(255)
2018	188	(190)	149	(150)	0	(0)	337	(340)
2019	66	(77)	23	(23)	0	(0)	89	(100)
2020	17	(27)	0	(0)	0	(0)	17	(27)
2021	26	(45)	0	(0)	23	(23)	49	(68)
2022	234	(268)	7	(10)	9	(10)	250	(288)
Total	2277	(3933)	1919	(8443)	85	(460)	4281	(12836)

Table 4. Estimated (i.e., weighted) length distribution of Commercial longline landings in numbers. According to Stock Synthesis input format, Month indicates mid-year (i.e., July 1), Sex = 0 indicates combined male and female length compositions, Part=2 indicates the length compositions apply to retained fish.

Fleet	Sex	Part	Year	Month	Max TL (2 cm bins)																															N trips	N
					38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94		
COM_LL	0	2	1984	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	470	0	0	941	470	0	470	1411	941	0	941	470	470	0	0	2	14
COM_LL	0	2	1985	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1633	817	408	1225	1225	0	0	1225	0	408	2	17
COM_LL	0	2	1986	7	0	0	0	0	0	0	0	1658	0	0	0	0	0	0	0	0	0	1658	0	1658	0	0	1658	3316	3316	0	0	1658	1658	3	10
COM_LL	0	2	1987	7	0	0	0	0	0	0	393	0	0	0	0	0	787	393	393	787	1180	2361	3148	3935	2361	2361	3148	1574	787	787	0	393	0	13	63
COM_LL	0	2	1988	7	0	0	0	0	0	0	0	0	0	0	163	163	0	0	0	163	325	488	813	2763	1625	1625	1625	2113	813	650	325	325	163	12	87
COM_LL	0	2	1989	7	0	0	0	0	0	0	0	0	0	0	0	1665	0	1665	1665	1665	1665	0	3329	3329	0	0	1665	4994	0	0	1665	0	0	4	14
COM_LL	0	2	1990	7	0	0	109	219	219	109	219	219	328	985	656	1313	1094	1094	1532	1422	1532	766	1203	547	547	766	547	547	547	219	219	328	0	17	158
COM_LL	0	2	1991	7	0	109	0	109	219	219	328	109	437	765	1203	1093	1531	2296	1421	1312	1312	1093	1312	1421	984	656	547	765	219	109	109	0	0	21	180
COM_LL	0	2	1992	7	0	0	0	27	0	27	109	137	246	246	519	546	902	1475	1011	1147	1366	683	301	191	137	82	27	109	82	55	0	0	27	19	346
COM_LL	0	2	1993	7	0	0	0	0	170	128	213	85	213	170	341	469	170	511	682	810	895	980	767	767	341	298	213	128	0	170	85	43	0	25	203
COM_LL	0	2	1994	7	0	0	0	20	59	59	78	59	117	196	196	391	293	470	411	548	293	372	313	411	293	391	274	411	117	157	20	39	0	38	306
COM_LL	0	2	1995	7	0	0	0	83	138	83	55	193	193	166	138	248	331	387	304	276	276	304	166	331	304	221	248	138	166	138	28	0	0	33	178
COM_LL	0	2	1996	7	0	0	0	0	0	48	0	97	145	145	241	145	241	48	290	386	290	145	193	386	435	435	724	290	241	48	48	48	0	24	105
COM_LL	0	2	1997	7	0	17	17	0	17	52	52	192	105	139	209	122	279	227	314	331	401	401	261	366	401	349	505	261	453	209	70	35	17	29	333
COM_LL	0	2	1998	7	8	8	24	24	47	102	150	181	236	236	402	260	323	315	354	441	457	496	425	457	449	575	614	646	465	228	87	24	8	73	1021
COM_LL	0	2	1999	7	0	0	0	55	95	115	150	280	275	355	335	330	364	419	335	449	379	489	345	409	414	444	429	544	290	155	70	25	10	91	1514
COM_LL	0	2	2000	7	0	7	7	13	47	106	113	146	239	266	272	312	339	425	425	425	359	438	472	412	465	551	365	512	213	120	33	27	0	69	1070
COM_LL	0	2	2001	7	0	0	0	0	67	81	162	189	202	202	310	189	513	513	540	567	580	580	594	729	418	702	526	621	297	270	135	40	13	64	670
COM_LL	0	2	2002	7	0	0	31	46	92	92	153	214	183	260	367	382	443	443	397	596	382	413	367	428	290	397	535	428	351	260	76	31	15	55	502
COM_LL	0	2	2003	7	0	0	0	78	125	156	187	203	312	218	468	375	328	359	484	562	468	780	671	702	749	702	827	749	671	515	312	172	31	70	718
COM_LL	0	2	2004	7	0	0	35	70	176	316	527	457	773	843	808	879	738	1371	843	1090	1160	1371	562	914	1230	1546	1195	914	1230	633	176	246	35	62	573
COM_LL	0	2	2005	7	0	0	0	25	126	227	404	455	733	809	783	682	1036	809	657	834	733	834	581	556	430	354	455	379	253	328	152	76	51	73	505
COM_LL	0	2	2006	7	0	0	0	127	159	286	286	413	604	922	954	986	1367	1017	1081	1113	1049	1176	1272	954	1081	1017	699	986	636	509	191	191	0	78	600
COM_LL	0	2	2007	7	0	0	0	0	0	36	179	179	215	502	645	323	1075	789	932	1291	753	932	896	645	574	789	681	323	466	179	72	36	0	54	349
COM_LL	0	2	2008	7	0	29	172	143	86	229	287	172	201	229	229	287	229	315	315	630	344	688	659	373	516	373	315	258	172	115	29	0	29	47	259

COM_LL	0	2	2009	7	0	53	106	186	186	80	106	133	106	106	186	266	266	133	159	319	159	159	213	266	186	53	106	53	27	80	53	0	0	27	141
COM_LL	0	2	2010	7	0	0	45	27	127	127	91	118	136	208	190	145	163	145	118	163	199	181	262	208	172	91	100	109	100	100	36	9	0	52	372
COM_LL	0	2	2011	7	0	0	45	45	157	22	313	313	313	425	201	313	335	291	313	291	313	201	179	179	112	268	89	224	45	89	22	0	0	33	228
COM_LL	0	2	2012	7	0	18	0	35	53	159	71	194	230	230	318	265	230	283	177	300	230	512	389	283	141	159	177	300	106	18	0	0	0	45	276
COM_LL	0	2	2013	7	0	62	31	0	62	156	125	62	187	468	468	749	561	717	437	624	530	530	468	405	312	437	156	405	94	94	31	31	0	36	263
COM_LL	0	2	2014	7	45	0	0	0	45	45	90	136	181	271	678	633	588	1085	904	859	1039	1039	949	904	1085	678	723	768	316	90	0	0	0	40	291
COM_LL	0	2	2015	7	0	131	65	65	327	65	65	131	131	327	393	917	524	393	524	524	524	982	393	917	851	786	720	589	327	131	0	65	65	39	167
COM_LL	0	2	2016	7	0	0	0	0	354	88	221	309	309	133	221	309	530	486	398	398	221	221	177	309	221	133	265	133	133	0	44	44	0	32	128
COM_LL	0	2	2017	7	0	35	0	35	139	208	173	416	243	208	590	590	347	451	971	416	486	555	243	590	382	277	763	312	243	173	0	0	0	50	255
COM_LL	0	2	2018	7	0	62	217	279	433	124	557	433	495	557	681	619	650	495	433	650	619	588	464	464	433	403	310	217	186	124	0	31	0	64	340
COM_LL	0	2	2019	7	0	0	0	48	145	242	436	97	97	145	194	48	194	145	387	436	290	194	339	290	145	436	97	242	145	48	0	0	0	34	100
COM_LL	0	2	2020	7	0	174	0	174	0	0	349	349	0	174	174	698	174	349	349	0	0	349	174	174	174	523	349	0	0	0	0	0	0	11	27
COM_LL	0	2	2021	7	0	0	0	67	67	134	67	67	134	134	403	403	202	336	403	134	269	269	269	67	202	269	202	403	67	0	0	0	0	26	68
COM_LL	0	2	2022	7	0	0	55	74	351	92	148	185	240	277	369	185	424	295	517	387	387	369	258	203	203	92	148	37	0	18	0	0	0	79	288

Table 5. The number of Mutton Snapper sampled by region, season, and year by 'Other' commercial gears.

Year	Dry_Tortugas_and_West			FL_Keys			SE_FL			North		
	Jan - Aug	Sep - Dec	Total	Jan - Aug	Sep - Dec	Total	Jan - Aug	Sep - Dec	Total	Jan - Aug	Sep - Dec	Total
1986	0	5	5	2	10	12	0	0	0	7	11	18
1987	0	0	0	0	0	0	0	0	0	30	9	39
1988	2	3	5	19	18	37	9	0	9	24	5	29
1989	1	23	24	142	69	211	0	0	0	26	13	39
1990	368	38	406	248	162	410	17	0	17	14	15	29
1991	171	20	191	213	142	355	6	3	9	23	47	70
1992	156	71	227	152	25	177	225	90	315	28	6	34
1993	196	32	228	68	16	84	116	21	137	80	19	99
1994	126	77	203	51	26	77	189	7	196	11	19	30
1995	128	69	197	5	127	132	85	11	96	45	42	87
1996	147	93	240	23	37	60	68	110	178	24	21	45
1997	307	54	361	85	8	93	216	57	273	36	20	56
1998	196	105	301	57	6	63	218	147	365	27	33	60
1999	172	39	211	12	0	12	244	46	290	117	124	241
2000	173	46	219	17	6	23	221	206	427	117	56	173
2001	101	109	210	44	1	45	276	247	523	46	14	60
2002	214	50	264	15	3	18	369	105	474	20	9	29
2003	139	30	169	14	15	29	212	66	278	83	18	101
2004	146	3	149	9	2	11	147	18	165	85	24	109
2005	13	3	16	58	0	58	145	17	162	85	23	108
2006	13	13	26	12	21	33	54	43	97	49	25	74
2007	33	6	39	17	0	17	57	36	93	91	16	107
2008	58	7	65	108	3	111	194	76	270	32	16	48
2009	53	4	57	135	15	150	181	16	197	26	11	37
2010	13	1	14	100	17	117	374	20	394	10	21	31
2011	22	5	27	91	13	104	428	15	443	38	42	80
2012	132	17	149	52	12	64	83	20	103	108	41	149
2013	57	49	106	79	15	94	27	22	49	50	16	66
2014	42	2	44	78	27	105	53	16	69	53	87	140
2015	38	9	47	55	46	101	20	7	27	198	78	276
2016	17	7	24	54	29	83	32	7	39	218	43	261
2017	17	7	24	61	30	91	22	9	31	146	51	197
2018	49	10	59	99	12	111	37	7	44	39	20	59
2019	64	14	78	66	39	105	59	35	94	87	100	187
2020	43	6	49	70	32	102	2	1	3	407	101	508
2021	25	31	56	72	36	108	13	3	16	228	101	329
2022	8	23	31	66	17	83	14	19	33	256	177	433
Total	3440	1081	4521	2449	1037	3486	4413	1503	5916	2964	1474	4438

Table 6. The number of Mutton Snapper sampled by 'Other' commercial gears in North and South regions by season and year.

Year	South		North	
	Season 1	Season 2	Season 1	Season 2
1986	2	15	7	11
1987	0	0	30	9
1988	30	21	24	5
1989	143	92	26	13
1990	633	200	14	15
1991	390	165	23	47
1992	533	186	28	6
1993	380	69	80	19
1994	366	110	11	19
1995	218	207	45	42
1996	238	240	24	21
1997	608	119	36	20
1998	471	258	27	33
1999	428	85	117	124
2000	411	258	117	56
2001	421	357	46	14
2002	598	158	20	9
2003	365	111	83	18
2004	302	23	85	24
2005	216	20	85	23
2006	79	77	49	25
2007	107	42	91	16
2008	360	86	32	16
2009	369	35	26	11
2010	487	38	10	21
2011	541	33	38	42
2012	267	49	108	41
2013	163	86	50	16
2014	173	45	53	87
2015	113	62	198	78
2016	103	43	218	43
2017	100	46	146	51
2018	185	29	39	20
2019	189	88	87	100
2020	115	39	407	101
2021	110	70	228	101
2022	88	59	256	177

Table 7. Estimated (i.e., weighted) length compositions of Mutton Snapper landings in numbers for 'Other' commercial gears by season and year in Stock Synthesis input format. Month indicates mid-season (i.e., April for season 1 and November for season 2), Sex = 0 indicates combined male and female length compositions, Part=2 indicates the length compositions apply to retained fish.

Fleet	Sex	Part	Year	Month	Max TL (2 cm bins)																																					N trips	N
					22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94		
COM_OTH	0	2	1989	4	0	0	0	249	747	1743	2988	3486	3237	2988	2241	1245	498	996	1245	606	747	747	1743	1245	2490	249	1743	1494	2241	249	357	108	790	433	433	216	216	541	108	0	0	33	169
COM_OTH	0	2	1989	11	0	0	0	259	1034	1810	2586	3103	2344	2068	1551	1551	259	517	776	517	259	259	1034	517	1293	259	776	259	259	259	17	276	52	17	34	17	34	17	0	0	0	18	105
COM_OTH	0	2	1990	4	0	0	0	0	0	1027	1313	2283	2112	2911	2340	2397	1827	1027	1427	742	1027	913	1359	913	2101	1747	1256	1861	902	1256	1199	1176	628	388	274	103	103	103	0	0	57	60	647
COM_OTH	0	2	1990	11	0	0	0	0	0	573	1290	1648	1792	1290	932	788	719	146	358	289	576	361	578	430	430	502	573	430	287	143	432	289	72	146	0	74	148	0	0	74	74	41	215
COM_OTH	0	2	1991	4	0	0	0	177	355	976	1065	1509	1775	710	710	887	1686	1420	1816	1905	1905	1946	1638	2526	1638	3058	1727	1372	929	1106	840	171	0	615	355	608	89	0	0	41	0	74	413
COM_OTH	0	2	1991	11	0	0	0	551	1321	1762	1982	3303	2642	2092	1431	1101	451	462	561	21	42	152	32	53	21	462	32	11	21	21	32	0	21	32	11	11	0	11	0	11	11	46	212
COM_OTH	0	2	1992	4	0	0	194	259	906	1100	1165	647	1035	1294	1812	2071	1941	1682	1682	712	1376	1611	1529	1011	1628	1287	1076	1505	1441	1529	1182	1294	923	858	259	259	300	65	0	0	0	120	561
COM_OTH	0	2	1992	11	0	0	67	133	266	508	665	931	1197	931	865	1197	998	798	998	1173	441	133	133	333	67	266	308	266	375	175	67	67	0	67	0	0	0	0	0	0	0	36	192
COM_OTH	0	2	1993	4	0	0	0	0	220	659	1208	988	1537	1647	1427	1647	1318	1547	1318	1986	1656	2415	1227	1474	1255	1465	2224	3121	3837	2171	2271	1703	577	853	238	348	19	119	0	0	0	88	460
COM_OTH	0	2	1993	11	0	0	0	0	0	223	668	1558	2003	245	890	468	223	668	668	1335	890	445	468	668	0	1558	468	223	245	468	445	69	46	23	268	291	245	0	0	23	0	26	88
COM_OTH	0	2	1994	4	0	92	184	184	551	643	459	1102	1286	1194	1286	1194	1385	2112	1469	1194	1102	459	1286	1102	2119	2027	2027	2762	2318	1392	1476	826	551	551	92	0	184	92	0	0	0	66	377
COM_OTH	0	2	1994	11	103	103	0	103	0	0	0	0	0	127	1932	1264	620	1081	620	310	103	413	517	517	413	644	541	517	254	437	644	437	48	48	0	24	0	0	0	0	0	21	129
COM_OTH	0	2	1995	4	0	0	0	0	0	0	0	0	209	627	941	523	1632	922	1109	691	1068	1005	754	1109	900	586	732	2031	3914	1591	900	1362	1131	672	482	526	105	63	0	63	0	49	263
COM_OTH	0	2	1995	11	0	0	0	0	0	0	37	147	809	993	736	405	442	736	331	526	171	426	281	268	244	134	168	205	194	315	289	252	97	194	97	110	0	0	0	0	0	41	249
COM_OTH	0	2	1996	4	0	0	0	0	0	0	109	0	219	353	900	766	1313	1531	656	1203	1203	1313	1010	1094	1363	1641	1666	2457	1801	2676	513	463	597	564	438	328	219	109	0	0	135	52	262
COM_OTH	0	2	1996	11	74	148	111	37	0	0	0	37	148	444	777	925	1036	740	629	518	481	518	296	222	185	481	369	185	74	111	74	258	184	0	73	221	111	74	73	37	0	47	261
COM_OTH	0	2	1997	4	0	0	0	0	47	47	47	140	140	466	745	699	1164	1863	1444	1025	1071	1444	1335	1615	2422	1724	2391	1894	1739	1693	1382	745	823	482	342	264	78	124	47	0	0	104	644
COM_OTH	0	2	1997	11	0	0	0	0	0	0	0	158	317	762	686	686	264	369	317	211	317	106	468	181	392	211	257	181	211	46	204	69	204	23	76	23	0	0	0	0	0	28	139
COM_OTH	0	2	1998	4	0	0	67	0	67	67	0	0	201	1410	1545	1276	1612	1098	598	739	1441	1843	1038	1142	2045	1880	2502	2985	2216	2015	1605	1269	769	195	195	195	30	201	134	0	67	81	498
COM_OTH	0	2	1998	11	0	0	31	94	94	126	126	220	377	660	660	848	838	691	403	314	503	283	157	283	335	278	262	325	288	110	115	120	84	136	89	63	26	31	0	0	0	47	291
COM_OTH	0	2	1999	4	0	0	0	0	0	0	46	276	689	735	919	827	965	689	1194	799	450	643	762	928	790	1231	1607	1800	1415	1534	781	441	395	266	367	46	73	9	55	0	0	115	545
COM_OTH	0	2	1999	11	0	0	48	48	96	0	0	144	192	260	394	432	586	298	202	174	164	106	318	318	212	40	184	98	50	70	178	131	131	171	110	78	50	10	10	20	0	50	209
COM_OTH	0	2	2000	4	0	0	0	130	0	65	65	324	598	1117	961	604	1013	785	695	429	461	442	430	495	840	553	502	826	502	676	411	372	300	204	85	138	105	0	0	0	0	117	528
COM_OTH	0	2	2000	11	0	0	0	45	15	15	0	165	571	646	415	389	223	150	208	165	163	207	86	90	113	103	70	164	85	111	98	53	81	68	28	15	13	28	15	0	15	67	314
COM_OTH	0	2	2001	4	0	0	34	34	34	69	138	138	482	1137	1688	1240	1447	772	669	841	484	600	359	482	496	835	373	511	559	387	519	318	180	105	97	111	14	0	0	0	0	124	467
COM_OTH	0	2	2001	11	0	0	0	16	16	0	0	0	147	606	573	605	572	426	409	359	261	277	262	97	180	164	82	114	196	178	64	65	49	95	82	82	49	32	0	0	0	63	371
COM_OTH	0	2	2002	4	0	0	0	26	0	0	0	79	473	1106	1237	998	1287	1103	974	920	843	790	946	578	793	604	845	924	346	501	346	342	184	105	186	136	53	0	0	81	0	126	618
COM_OTH	0	2	2002	11	0	0	0	0	0	39	0	39	467	311	350	467	583	156	270	387	350	192	389	465	311	268	156	233	156	233	156	0	117	0	76	229	39	39	0	0	0	48	167
COM_OTH	0	2	2003	4	11	0	0	0	0	0	43	0	214	470	1153	1206	1516	1292	1078	929	534	534	982	811	801	833	875	705	822	523	278	235	192	86	75	96	21	139	11	11	0	75	448
COM_OTH	0	2	2003	11	0	0	0	0	0	0	0	0	114	342	627	856	513	627	856	342	285	73	114	130	259	57	114	114	130	171	114	130	202	145	130	47	73	16	16	16	0	33	129
COM_OTH	0	2	2004	4	0	0	0	0	0	0	0	0	102	778	666	973	1085	768	778	573	768	461	592	388	673	573	870	1031	931	1063	787	909	373	212	324	302	110	100	71	19	10	84	387
COM_OTH	0	2	2004	11	0	170	170	0	0	0	170	170	340	340	680	510	340	170	510	0	170	16	33	16	16	0	0	203	33	16	16	16	33	65	16	33	33	16	0	0	0	23	47
COM_OTH	0	2	2005	4	0	0	0	0	0	0	0	0	58	931	757	1877	1442	1078	918	524	830	832	511	396	468	541	496	364	425	265	336	250	45	121	179	134	15	15	0	15	30	98	301
COM_OTH	0	2	2005	11	0	0	0	0	0	0	0	0	268	268	134	268	268	268	402	268	154	268	41	0	20	0	61	0	154	61	61	20	61	41	20	0	20	20	0	0	0	18	43
COM_OTH	0	2	2006	4	0	0	0	0	0	0	0	0	0	535	428	749	428	443	321	428	214	229	443	474	657	443	336	779	672	183	30	427	183	61	290	382	46	0	0	15	0	54	128
COM_OTH	0	2	2006	11	0	0	0	0	39	0	0	39	39	671	513	395	237	118	158	118	39	79	55	55	55	115	39	0	70	79	61	100	15	39	125	70	55	0	0	39	0	31	102

COM_OTH	0	2	2007	4	0	0	0	0	0	0	0	0	82	491	737	491	748	983	573	246	573	432	268	547	803	383	383	799	230	55	334	263	110	77	22	126	0	0	0	11	0	71	198
COM_OTH	0	2	2007	11	0	0	0	0	0	0	0	0	0	227	455	303	379	455	303	379	91	152	91	76	167	182	0	46	0	0	0	46	15	15	15	31	0	0	0	0	0	25	58
COM_OTH	0	2	2008	4	0	0	0	0	0	0	0	27	268	1204	1311	1204	773	681	482	375	455	321	161	199	280	187	440	253	211	250	66	379	155	194	51	39	0	27	27	0	0	67	392
COM_OTH	0	2	2008	11	0	0	0	0	0	0	0	0	29	607	665	386	202	116	58	29	58	58	58	97	29	29	29	58	0	42	10	52	21	0	10	10	0	0	0	0	0	22	102
COM_OTH	0	2	2009	4	0	0	0	0	0	0	0	27	371	1010	1114	1247	1008	743	718	265	292	373	133	265	318	345	295	451	216	240	302	161	187	166	81	111	55	28	0	0	0	75	395
COM_OTH	0	2	2009	11	0	0	0	0	0	0	70	0	0	210	210	154	140	280	349	70	169	280	140	154	0	70	70	0	0	15	70	70	29	0	59	0	0	0	0	0	0	25	46
COM_OTH	0	2	2010	4	0	0	0	0	0	0	0	22	90	337	651	1032	1077	1170	1055	718	811	721	494	696	404	404	224	407	228	112	179	112	282	45	93	45	0	0	0	0	0	49	497
COM_OTH	0	2	2010	11	0	0	0	0	0	0	0	0	0	178	312	237	356	178	59	178	134	59	134	15	149	119	30	0	59	0	59	45	60	74	0	30	59	15	0	30	0	27	59
COM_OTH	0	2	2011	4	0	0	0	0	0	0	0	0	0	47	359	546	842	735	764	842	659	719	581	428	693	452	252	207	256	129	101	214	105	96	54	34	0	0	0	0	0	71	579
COM_OTH	0	2	2011	11	0	0	0	0	0	0	113	0	113	678	678	339	339	0	12	464	339	113	12	12	125	150	0	25	150	62	238	12	149	50	12	50	12	0	0	0	0	34	75
COM_OTH	0	2	2012	4	0	0	0	0	0	0	0	0	0	81	122	460	203	501	419	486	582	676	743	673	483	987	860	1338	796	974	931	268	237	200	26	169	26	13	0	0	0	103	375
COM_OTH	0	2	2012	11	0	0	0	0	0	0	0	13	13	0	201	251	63	251	389	264	578	89	201	63	340	165	165	26	76	26	151	52	102	39	39	26	0	26	0	0	0	27	90
COM_OTH	0	2	2013	4	0	0	0	0	50	50	50	0	50	99	199	348	298	248	397	536	536	695	734	436	315	840	425	624	542	652	542	719	255	128	156	117	0	0	0	0	0	91	213
COM_OTH	0	2	2013	11	0	0	0	0	0	0	0	0	83	56	56	195	28	56	209	250	306	83	167	167	196	209	181	70	140	154	168	70	28	112	42	42	0	0	0	0	0	32	102
COM_OTH	0	2	2014	4	0	0	26	0	0	0	0	0	0	370	541	417	211	284	674	232	211	165	449	330	680	747	785	706	892	495	356	310	98	171	0	171	72	0	0	0	0	94	226
COM_OTH	0	2	2014	11	0	0	0	13	63	0	27	0	103	522	446	216	346	234	243	270	324	108	270	90	103	103	167	90	140	77	13	0	13	0	13	13	0	0	0	0	0	27	132
COM_OTH	0	2	2015	4	0	0	0	0	0	0	0	28	248	440	426	810	917	291	426	440	753	255	241	411	525	353	517	873	347	517	262	291	275	85	163	99	14	14	0	0	0	88	311
COM_OTH	0	2	2015	11	0	0	0	45	0	90	0	12	186	231	296	527	206	218	243	128	301	218	108	276	120	125	148	70	12	95	0	0	58	12	25	12	12	0	0	0	0	38	140
COM_OTH	0	2	2016	4	0	0	0	0	0	0	7	35	193	380	573	601	638	925	780	573	349	473	721	149	307	635	594	442	314	487	293	393	149	135	100	55	7	86	0	0	0	76	321
COM_OTH	0	2	2016	11	0	0	0	0	0	0	0	0	0	11	282	91	136	122	293	272	122	226	178	122	101	122	56	53	21	53	77	21	11	21	11	0	0	0	0	0	0	22	86
COM_OTH	0	2	2017	4	0	0	0	0	0	0	0	0	84	84	312	262	649	389	296	556	649	145	489	584	751	433	355	760	262	221	582	448	262	35	102	128	0	0	0	0	0	70	246
COM_OTH	0	2	2017	11	0	0	0	0	0	0	0	8	83	0	248	256	248	99	173	346	264	107	189	197	272	288	445	48	91	165	338	91	40	99	24	0	8	83	0	0	0	39	97
COM_OTH	0	2	2018	4	0	0	0	0	0	0	0	0	0	55	166	276	773	276	884	773	834	663	315	502	596	646	784	839	856	409	574	409	353	409	110	55	0	55	0	110	0	81	224
COM_OTH	0	2	2018	11	0	0	0	0	0	0	0	0	0	0	198	139	132	264	132	66	139	198	198	469	169	37	37	103	73	73	0	37	37	73	37	37	0	0	0	0	0	22	49
COM_OTH	0	2	2019	4	0	0	0	0	0	0	0	0	0	0	69	207	456	352	544	437	506	138	541	462	532	661	563	651	831	516	239	283	292	120	25	138	94	69	0	0	0	106	276
COM_OTH	0	2	2019	11	0	0	0	0	0	0	0	0	0	9	0	73	256	247	174	164	183	238	119	137	92	155	37	92	165	92	18	92	83	46	27	28	0	0	0	0	0	51	188
COM_OTH	0	2	2020	4	0	0	6	0	0	0	0	0	0	0	0	257	426	320	402	697	415	922	503	621	434	396	566	322	528	559	459	428	296	271	158	13	6	56	0	0	0	140	522
COM_OTH	0	2	2020	11	0	0	0	0	0	0	0	0	0	64	6	6	102	51	230	255	159	82	178	178	63	166	198	108	76	141	95	32	64	89	25	0	13	0	0	0	0	60	140
COM_OTH	0	2	2021	4	0	0	0	0	0	0	0	0	0	0	0	115	299	115	356	508	344	261	510	684	784	619	353	604	468	253	403	316	52	94	15	7	0	7	7	0	0	101	338
COM_OTH	0	2	2021	11	0	0	0	0	0	11	0	0	0	22	0	66	132	143	220	121	77	32	96	84	259	138	290	150	141	119	96	186	76	85	21	21	11	11	0	0	0	55	171
COM_OTH	0	2	2022	4	0	0	0	0	0	0	0	0	0	0	7	35	232	549	183	211	211	620	430	353	409	367	564	649	536	571	176	261	205	141	50	0	7	0	0	0	0	92	344
COM_OTH	0	2	2022	11	0	0	0	0	0	0	0	0	0	0	9	121	107	194	132	219	71	87	167	45	134	192	234	134	121	82	92	31	27	18	18	4	0	0	0	0	0	73	236

Table 8. Length compositions of Mutton Snapper releases for ‘Other’ commercial gears by season and year. Sex = 0 indicates combined male and female length compositions, Part=1 indicates the length compositions apply to released fish.

Fleet	Sex	Part	Month	Max TL (2 cm bins)									
				26	28	30	32	34	36	38	40	N trips	N
COM_OTH	0	1	7	1	7	31	24	26	18	5	1	14	113

Table 9. Number of recreational ages and length measurements (in parentheses) by region for all fishing modes.

Year	Dry Tortugas and West		FL_Keys		SE_FL and North		Total	
1981	7	(101)	56	(291)	86	(672)	149	(1064)
1982	20	(131)	84	(387)	65	(394)	169	(912)
1983	0	(108)	0	(369)	4	(502)	4	(979)
1984	0	(147)	0	(490)	32	(384)	32	(1021)
1985	0	(161)	1	(369)	87	(539)	88	(1069)
1986	0	(285)	0	(398)	33	(429)	33	(1112)
1987	0	(171)	0	(402)	14	(341)	14	(914)
1988	0	(208)	0	(265)	33	(285)	33	(758)
1989	0	(305)	0	(323)	0	(490)	0	(1118)
1990	0	(57)	0	(232)	6	(182)	6	(471)
1991	3	(76)	1	(115)	7	(166)	11	(357)
1992	0	(111)	0	(170)	5	(198)	5	(479)
1993	25	(57)	6	(159)	21	(320)	52	(536)
1994	7	(21)	12	(118)	10	(175)	29	(314)
1995	2	(26)	20	(108)	103	(185)	125	(319)
1996	0	(22)	14	(109)	10	(69)	24	(200)
1997	0	(48)	12	(152)	8	(372)	20	(572)
1998	0	(39)	0	(163)	0	(514)	0	(716)
1999	0	(36)	0	(213)	0	(336)	0	(585)
2000	0	(31)	1	(181)	3	(407)	4	(619)
2001	0	(32)	1	(202)	38	(691)	39	(925)
2002	0	(16)	34	(287)	84	(944)	118	(1247)
2003	2	(27)	7	(277)	324	(966)	333	(1270)
2004	8	(23)	7	(183)	244	(777)	259	(983)
2005	13	(27)	37	(124)	451	(1094)	501	(1245)
2006	32	(61)	45	(178)	234	(776)	311	(1015)
2007	24	(66)	53	(220)	599	(1062)	676	(1348)
2008	220	(263)	97	(351)	487	(923)	804	(1537)
2009	367	(547)	114	(259)	613	(1255)	1094	(2061)
2010	251	(327)	121	(322)	667	(2097)	1039	(2746)
2011	243	(295)	136	(314)	356	(789)	735	(1398)
2012	304	(386)	200	(373)	129	(357)	633	(1116)
2013	233	(269)	129	(279)	111	(316)	473	(864)
2014	74	(107)	240	(373)	306	(805)	620	(1285)
2015	151	(179)	231	(383)	288	(725)	670	(1287)
2016	340	(373)	328	(460)	331	(659)	999	(1492)
2017	175	(227)	324	(415)	204	(363)	703	(1005)
2018	142	(202)	417	(586)	161	(273)	720	(1061)
2019	72	(121)	200	(316)	129	(273)	401	(710)
2020	2	(10)	29	(178)	19	(112)	50	(300)
2021	1	(6)	76	(219)	103	(246)	180	(471)
2022	53	(135)	102	(197)	188	(428)	343	(760)
Total	2771	(5840)	3135	(11510)	6593	(22891)	12499	(40241)

Table 10. Number of recreational ages and length measurements (in parentheses) by fishing mode.

Year	Private		Shore		Charter		Headboat		Total	
1981	0	(34)	0	(11)	0	(1)	149	(1018)	149	(1064)
1982	0	(80)	0	(24)	0	(15)	169	(793)	169	(912)
1983	0	(25)	0	(12)	0	(10)	4	(932)	4	(979)
1984	0	(45)	0	(3)	0	(26)	32	(947)	32	(1021)
1985	0	(6)	0	(6)	0	(21)	88	(1036)	88	(1069)
1986	0	(58)	0	(1)	0	(40)	33	(1013)	33	(1112)
1987	0	(93)	0	(3)	0	(29)	14	(789)	14	(914)
1988	0	(78)	0	(2)	0	(15)	33	(663)	33	(758)
1989	0	(62)	0	(4)	0	(8)	0	(1044)	0	(1118)
1990	0	(61)	0	(0)	0	(16)	6	(394)	6	(471)
1991	0	(74)	0	(5)	0	(55)	11	(223)	11	(357)
1992	0	(130)	0	(15)	0	(61)	5	(273)	5	(479)
1993	0	(177)	0	(45)	0	(22)	52	(292)	52	(536)
1994	0	(89)	0	(21)	0	(21)	29	(183)	29	(314)
1995	0	(80)	0	(8)	0	(27)	125	(204)	125	(319)
1996	0	(68)	0	(3)	0	(25)	24	(104)	24	(200)
1997	0	(49)	0	(3)	0	(100)	20	(420)	20	(572)
1998	0	(93)	0	(5)	0	(88)	0	(530)	0	(716)
1999	0	(119)	0	(15)	0	(116)	0	(335)	0	(585)
2000	0	(100)	0	(2)	1	(200)	3	(317)	4	(619)
2001	7	(105)	0	(4)	20	(336)	12	(480)	39	(925)
2002	4	(194)	0	(8)	112	(571)	2	(474)	118	(1247)
2003	7	(134)	0	(15)	208	(633)	118	(488)	333	(1270)
2004	4	(110)	0	(5)	121	(417)	134	(451)	259	(983)
2005	3	(154)	0	(7)	257	(593)	241	(491)	501	(1245)
2006	3	(201)	0	(7)	74	(273)	234	(534)	311	(1015)
2007	15	(196)	0	(15)	81	(386)	580	(751)	676	(1348)
2008	8	(261)	0	(71)	54	(348)	742	(857)	804	(1537)
2009	18	(281)	0	(6)	83	(649)	993	(1125)	1094	(2061)
2010	19	(308)	0	(12)	75	(1392)	945	(1034)	1039	(2746)
2011	10	(82)	0	(4)	192	(577)	533	(735)	735	(1398)
2012	0	(78)	0	(1)	46	(272)	587	(765)	633	(1116)
2013	0	(102)	0	(6)	43	(220)	430	(536)	473	(864)
2014	4	(186)	0	(13)	77	(311)	539	(775)	620	(1285)
2015	0	(137)	0	(15)	83	(363)	587	(772)	670	(1287)
2016	0	(120)	0	(9)	45	(252)	954	(1111)	999	(1492)
2017	17	(90)	0	(2)	137	(227)	549	(686)	703	(1005)
2018	20	(100)	0	(2)	215	(335)	485	(624)	720	(1061)
2019	19	(92)	0	(5)	89	(201)	293	(412)	401	(710)
2020	5	(79)	0	(2)	30	(165)	15	(54)	50	(300)
2021	60	(197)	0	(6)	50	(178)	70	(90)	180	(471)
2022	76	(236)	0	(8)	27	(157)	240	(359)	343	(760)
Total	299	(4964)	0	(411)	2120	(9752)	10080	(25114)	12499	(40241)

Table 11. Number of length measurements by region for the private and shore modes.

Year	Dry Tortugas and West	FL_Keys	SE_FL and North	Total
1981	0	30	15	45
1982	5	29	70	104
1983	0	5	32	37
1984	0	19	29	48
1985	0	6	6	12
1986	0	25	34	59
1987	0	50	46	96
1988	3	30	47	80
1989	0	20	46	66
1990	6	16	39	61
1991	0	29	50	79
1992	7	43	95	145
1993	0	63	159	222
1994	0	31	79	110
1995	0	35	53	88
1996	9	24	38	71
1997	3	7	42	52
1998	2	15	81	98
1999	1	46	87	134
2000	0	4	98	102
2001	0	3	106	109
2002	1	18	183	202
2003	1	31	117	149
2004	2	2	111	115
2005	0	2	159	161
2006	0	33	175	208
2007	2	29	180	211
2008	8	31	293	332
2009	2	18	267	287
2010	0	28	292	320
2011	0	12	74	86
2012	0	11	68	79
2013	2	32	74	108
2014	5	63	131	199
2015	1	43	108	152
2016	1	38	90	129
2017	0	32	60	92
2018	10	36	56	102
2019	0	34	63	97
2020	4	38	39	81
2021	4	80	119	203
2022	1	54	189	244
Total	80	1195	4100	5375

Table 12. Estimated (i.e., weighted) length distribution of REC EAST landings in numbers (1000s). According to Stock Synthesis input format - Month indicates mid-year (i.e., July 1), columns not shown are Sex = 0 (combined male and female length compositions) and Part=2 (length compositions apply to retained fish).

Fleet	Year	Month	Max TL (2 cm bins)																																								N trips	N
			14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94		
REC_E	1981	7	0.00	0.00	0.00	0.00	0.00	0.60	0.00	2.41	0.60	1.21	3.62	13.27	47.05	53.09	62.74	59.72	39.82	37.40	19.91	13.27	9.05	8.45	6.03	6.64	7.24	2.41	2.41	3.02	2.41	1.81	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	228	672
REC_E	1982	7	1.16	5.81	9.30	6.97	2.32	2.32	3.49	9.30	11.62	4.65	4.65	6.97	22.08	39.51	53.45	82.51	47.64	48.81	33.70	18.59	11.62	3.49	5.81	3.49	4.65	5.81	4.65	0.00	2.32	0.00	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141	394
REC_E	1983	7	0.00	0.00	0.00	2.79	0.00	3.72	4.65	4.65	4.65	2.79	0.93	3.72	13.03	13.96	40.95	46.54	50.26	62.36	57.71	53.99	28.85	20.48	13.03	12.10	7.45	3.72	4.65	3.72	4.65	0.93	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	214	502
REC_E	1984	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.23	1.21	5.44	4.84	6.05	17.53	14.51	23.58	21.16	19.95	21.16	22.97	19.35	7.86	13.30	8.46	9.07	0.60	6.05	2.42	0.00	0.60	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	197	384
REC_E	1985	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	1.82	4.90	8.81	9.65	9.09	10.49	7.69	4.48	2.94	3.22	2.38	1.82	1.54	2.38	0.70	0.14	0.70	0.42	0.42	0.14	0.28	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	240	539
REC_E	1986	7	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.19	0.39	1.74	1.16	2.71	4.65	6.39	7.55	7.36	11.43	7.94	7.94	4.84	3.10	2.90	2.90	0.58	1.16	1.55	1.16	0.77	0.58	0.77	0.39	0.39	0.19	0.39	0.00	0.00	0.19	0.19	0.00	0.00	0.19	223	429
REC_E	1987	7	0.00	0.00	0.00	1.19	0.00	0.00	1.19	4.17	0.60	7.74	15.49	20.85	25.61	23.23	16.08	8.34	10.13	12.51	8.34	7.15	7.74	4.17	5.96	3.57	3.57	1.79	1.79	0.60	1.19	2.98	2.38	1.19	1.19	0.60	0.60	0.60	0.60	0.00	0.00	0.00	0.00	153	341
REC_E	1988	7	0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.00	0.68	0.68	4.10	4.79	14.37	8.55	12.31	9.24	7.87	5.81	5.81	3.08	5.81	2.74	0.68	2.05	0.68	1.03	1.71	2.05	2.39	0.00	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	150	285
REC_E	1989	7	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.88	1.17	3.22	10.85	20.52	20.52	14.95	21.69	14.95	8.21	8.21	3.22	5.28	1.76	0.59	2.05	1.17	0.29	0.29	0.88	1.17	0.00	0.29	0.29	0.29	0.29	0.00	0.29	0.00	0.00	0.00	0.00	0.00	214	490
REC_E	1990	7	0.00	0.00	0.00	0.00	1.13	0.00	0.57	1.70	0.57	2.27	2.27	7.94	13.61	12.48	7.94	10.21	10.78	4.54	7.37	0.57	4.54	3.97	2.84	3.97	0.57	0.00	1.70	0.00	1.13	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99	182
REC_E	1991	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.71	5.20	2.97	1.49	3.71	6.68	11.14	15.60	14.85	20.05	6.68	7.43	2.23	0.00	4.46	3.71	0.74	2.23	3.71	2.23	0.74	0.00	0.74	2.23	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	89	166
REC_E	1992	7	0.00	0.00	1.09	0.00	0.00	0.00	2.18	0.00	14.16	4.36	20.70	34.86	37.04	20.70	7.62	6.54	13.07	6.54	6.54	1.09	8.71	8.71	4.36	1.09	0.00	1.09	2.18	6.54	0.00	3.27	3.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125	198
REC_E	1993	7	0.00	3.82	1.91	0.00	2.86	4.77	2.86	0.00	17.17	18.12	15.26	17.17	28.61	27.66	25.75	29.57	18.12	14.31	17.17	6.68	10.49	8.58	2.86	5.72	9.54	1.91	1.91	2.86	3.82	0.95	0.95	0.00	1.91	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	145	320
REC_E	1994	7	0.00	0.00	0.82	0.00	0.00	0.00	0.00	4.10	3.28	4.91	11.47	9.01	3.28	13.11	10.65	17.20	16.38	9.01	7.37	4.10	4.10	3.28	4.91	0.82	2.46	0.00	4.10	3.28	1.64	1.64	0.00	0.82	0.00	0.00	0.82	0.82	0.00	0.00	0.00	0.00	0.00	105	175
REC_E	1995	7	0.00	0.00	0.00	0.00	0.00	1.24	0.00	0.00	1.24	0.00	0.41	1.24	0.41	8.24	12.36	8.24	12.36	8.24	4.12	3.30	2.06	0.41	1.24	0.41	2.06	0.82	1.24	0.41	1.24	2.06	0.41	2.06	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	107	185
REC_E	1996	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.00	3.71	1.85	5.56	2.78	1.85	4.64	3.71	2.78	0.93	7.42	1.85	0.00	2.78	5.56	2.78	0.00	0.00	3.71	0.00	0.93	0.00	1.85	6.49	0.93	0.00	0.93	0.00	0.00	0.00	0.00	0.00	34	69
REC_E	1997	7	0.00	0.00	0.00	0.00	0.00	0.48	0.48	0.00	0.64	0.48	0.80	0.48	2.41	7.55	8.35	9.47	4.34	5.14	2.57	3.37	2.25	1.28	1.28	1.93	2.41	0.80	0.32	0.48	0.16	0.16	0.16	0.00	0.48	0.16	0.32	0.00	0.48	0.16	0.00	0.00	0.32	166	372
REC_E	1998	7	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.40	1.59	1.00	0.40	2.79	3.59	10.76	12.55	14.34	10.56	9.76	4.98	5.38	2.79	2.99	1.59	2.19	2.99	1.79	1.20	1.39	1.20	1.20	1.39	0.60	0.40	0.00	0.20	0.40	0.00	0.00	0.00	0.00	0.00	239	514
REC_E	1999	7	0.00	0.00	0.00	0.00	0.00	0.62	2.18	1.25	0.31	1.25	0.93	4.98	4.67	9.03	16.20	10.59	12.46	5.61	6.23	7.48	3.43	2.49	3.43	3.11	1.56	0.93	0.93	2.49	0.93	0.62	0.62	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	161	336
REC_E	2000	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.67	1.00	1.67	1.00	4.69	26.46	24.45	16.08	12.39	13.06	9.38	3.01	3.35	3.35	4.02	4.02	1.67	0.33	1.67	0.67	0.33	0.33	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	181	407
REC_E	2001	7	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.17	0.50	1.32	14.07	19.87	17.38	19.70	10.27	7.12	4.97	3.64	3.15	2.98	3.48	1.49	0.50	0.33	0.50	0.66	0.00	0.33	0.00	0.50	0.33	0.00	0.00	0.17	0.00	0.00	0.00	0.00	274	691
REC_E	2002	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.41	0.81	1.01	3.45	25.76	33.67	29.00	20.48	15.21	13.18	10.75	6.29	8.92	6.49	3.45	4.06	0.61	1.22	1.22	1.01	1.22	1.22	0.00	0.00	0.20	0.20	0.41	0.00	0.00	0.00	0.00	0.00	412	944
REC_E	2003	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.56	0.42	1.97	11.56	23.26	20.44	22.13	12.55	10.57	7.75	6.20	3.81	3.24	2.26	1.55	1.97	0.56	1.27	1.27	0.28	0.42	0.56	0.14	0.42	0.00	0.14	0.00	0.28	0.00	0.28	0.00	528	966
REC_E	2004	7	0.00	0.00	0.00	0.00	0.00	0.39	0.59	0.00	0.20	1.18	0.00	0.39	4.72	21.04	19.47	17.50	20.25	16.52	14.16	11.01	4.92	4.52	3.15	1.77	2.95	1.38	0.98	3.15	0.79	0.39	0.39	0.20	0.00	0.20	0.20	0.00	0.39	0.00	0.00	0.00	0.00	410	777
REC_E	2005	7	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.50	0.50	1.68	0.00	9.25	35.16	35.66	33.98	17.16	14.80	11.10	5.55	4.37	3.70	2.35	1.68	1.51	0.67	0.67	0.67	0.50	0.67	0.17	0.50	0.17	0.17	0.34	0.17	0.00	0.00	0.00	0.00	0.00	573	1094
REC_E	2006	7	0.00	0.00	0.00	0.00	0.53	0.53	0.00	0.53	0.53	0.80	0.27	1.60	6.92	35.13	38.85	42.84	19.96	13.30	18.36	7.45	4.52	4.52	0.53	2.13	1.60	2.13	0.80	0.53	0.80	0.27	0.53	0.00	0.27	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	342	776
REC_E	2007	7	0.00	0.00	0.00	0.00	0.00	0.00	1.13	1.13	0.45	0.68	0.23	0.23	5.90	29.73	41.53	37.67	34.72	22.01	24.51	10.44	7.03	5.45	3.86	2.50	2.95	2.04	1.36	0.68	0.45	2.27	0.68	0.68	0.00	0.23	0.00	0.45	0.00	0.00	0.00	0.00	0.00	341	1062
REC_E	2008	7	0.00	0.00	2.34	0.00	0.00	0.78	1.56	3.12	7.02	8.58	6.24	11.70	38.99	136.47	166.11	98.26	66.29	42.11	28.85	17.16	14.82	15.60	6.24	10.14	9.36	4.68	5.46	6.24	4.68	1.56	1.56	0.78	2.34	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	292	923
REC_E	2009	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.17	0.00	0.66	1.16	8.25	34.82	44.88	31.68	25.74	17.16	9.57	6.93	6.11	3.80	2.97	2.97	2.31	1.98	0.83	1.49	1.16	0.99	0.50	0.00	0.33	0.00	0.17	0.17	0.00	0.00	0.00	0.00	0.00	266	1255
REC_E	2010	7	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.27	0.00	0.54	0.81	4.22	26.60	36.12	34.68	24.71	17.43	13.48	6.83	5.75	3.41	3.86	2.52	2.16	1.80	1.26	0.72	0.27	0.36	0.18	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	303	2097
REC_E	2011	7	0.00	0.00	0.00	0.00	0.00	0.16	0.24	0.00	0.00	0.00	0.00	0.08	0.81	4.04	8.64	11.14	10.25	6.94	5.65	4.04	3.47	1.78	1.45	1.53	0.97	0.73	0.57	0.24	0.65	0.16	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	243	789
REC_E	2012	7	0.00	0.00	0.00	0.00	0.00	0.25	0.49	0.49	0.74	0.00	0.00	0.25	0.25	2.97	3.96	9.15	12.61	10.88	12.37	5.94	7.42	4.95	5.19	4.20	0.49	1.48	1.73	1.24	0.49	0.25	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	220	357
REC_E	2013	7	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	2.63	2.11	1.58	2.11	7.38	25.29	25.29	28.97	16.33	12.12	5.27	7.38	5.27	2.11	2.63	6.32	3.69	2.11	1.05	0.53	1.05	1.58	2.11	0.53	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	246	316
REC_E	2014	7	0.00	0.00	0.00	0.00	0.00	0.00	1.08	2.16	0.72	2.16	0.36	2.16	13.32	76.69	62.29	37.81	29.88	22.32	11.52	8.64	5.04	3.60	2.52	1.08	2.16	1.08	0.72	0.36	0.00	0.36	0.36	0.00	0.36	0.36	0.36	0.00	0.00	0.00	0.00	0.00	0.00	394	805
REC_E	2015	7	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.35	1.41	2.83	0.71	1.41	10.25	54.08	48.07	46.65	29.34	13.43	16.26	10.25	5.30	2.12	2.83	4.24	0.35	0.71	0.71	1.41	0.71	0.71	0.00	0.35	0.71	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	380	725
REC_E	2016	7	0.00	0.00	0.00	0.00	0.00	0.00	0.87	1.75	0.00	0.87	1.31	1.75	9.60	55.41	50.18	35.78	30.98	24.43	11.78	11.78	9.16	6.11	8.73	6.98	6.11	3.49	3.05	2.18	1.31	2.18	0.44	0.00	0.44	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	336	659
REC_E	2017	7	0.00	0.00	0.00	0.00	0.00	0.00	1.39	2.31	0.46	0.93	0.46	1.39	7.41	19.44	16.67	17.13	23.61	18.52	9.26	7.87	7.87	6.94	5.09	4.17	5.56	2.31	3.24	0.93	0.93	0.93	0.46	0.00	0.00	2.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	208	363
REC_E	2018	7	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.54	0.00	1.09	1.09	0.54	1.09	2.72	8.70	14.14	34.81	19.04	16.32	13.60	4.90	5.98	4.35	5.98	4.90	1.63	1.09	2.18	0.54	0.54	0.54	0.54	0.54	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	166	273
REC_E	2019	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	2.46	3.07	0.61	0.00	0.61	3.69	15.37	27.05	26.43	19.67	14.14	12.29	6.76	4.30	6.15	1.84	3.69	5.53	3.07	1.84	1.84	0.61	1.23	1.23	2.46	0.00	1.23	0.00	0.00	0.00	0.00	0.00	179	273
REC_E	2020	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.68	0.68	2.72	0.00	2.04	0.68	7.47	8.15	12.91	7.47	3.40	5.44	4.08	1.36	3.40	4.76	3.40	0.68	1.36	2.04	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67	112
REC_E	2021	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.00	1.09	1.09	1.09	3.28	13.12	25.69	18.58	14.76	8.75	6.56	4.92	7.65	2.73	4.37	9.29	2.73	2.19	2.19	1.64	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182	246
REC_E	2022	7	0.00	0.00	0.00	0.57	0.00	0.00	1.72	2.29	1.72	3.43	0.00	2.86	0.00	2.29	1.72	20.60	47.49	40.05	21.74	13.73	14.88	14.88	11.44	5.72	9.15	4.58	4.58	6.87	4.58	3.43	2.29	1.72	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	270	428

Table 12 (cont.). Estimated (i.e., weighted) length distribution of REC WEST landings in numbers (1000s). According to Stock Synthesis input format - Month indicates mid-year (i.e., July 1), columns not shown are Sex = 0 (combined male and female length compositions) and Part=2 (length compositions apply to retained fish).

Fleet	Year	Month	Max TL (2 cm bins)																																								N trips	N
			14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94		
REC_W	1981	7	0.00	0.00	0.00	0.00	0.00	14.25	8.14	2.04	2.04	16.29	6.11	16.29	69.34	52.93	46.94	30.54	22.39	18.55	41.41	34.96	25.13	19.13	23.20	15.76	15.18	16.87	29.43	15.06	15.18	8.26	16.75	6.80	8.61	4.42	2.04	0.00	0.12	0.00	0.00	0.00	0.00	150	392
REC_W	1982	7	0.00	0.00	0.00	0.00	0.00	0.27	0.13	0.92	1.70	5.49	3.92	6.28	10.33	18.96	21.97	26.81	22.64	18.31	17.55	14.93	13.36	8.13	12.71	12.07	7.10	14.93	15.73	14.93	14.54	11.02	10.22	4.98	6.41	2.49	0.00	0.78	1.57	0.00	0.00	0.00	0.00	193	518
REC_W	1983	7	0.00	0.35	0.00	0.00	0.00	0.00	0.43	0.00	1.04	2.77	2.77	1.38	6.30	3.27	8.64	7.26	9.58	13.64	10.08	11.71	9.18	6.38	8.73	4.61	1.89	3.70	5.14	4.02	4.63	1.28	4.47	1.44	0.32	0.77	0.08	0.08	0.08	0.08	0.00	0.16	0.00	190	477
REC_W	1984	7	0.00	0.00	0.00	0.00	0.99	0.00	1.98	0.99	1.02	2.97	9.94	8.92	34.83	13.01	22.98	13.93	29.78	40.94	38.93	60.66	47.84	33.88	24.03	19.11	10.20	14.09	12.21	8.12	10.13	13.23	5.24	1.09	3.10	2.97	0.03	2.97	0.03	0.00	0.00	0.00	0.00	212	637
REC_W	1985	7	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.31	0.46	0.61	1.99	2.51	3.06	2.29	3.67	3.43	4.84	5.13	6.49	4.69	2.34	3.23	3.40	1.68	2.31	1.93	1.22	1.15	1.90	1.34	1.02	0.22	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	190	530
REC_W	1986	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36	3.43	2.53	5.82	11.68	15.07	22.63	15.90	21.00	16.95	32.06	28.08	28.23	23.67	19.91	21.32	15.61	6.25	14.78	6.57	7.23	1.33	6.36	3.90	4.66	2.67	0.04	0.00	0.04	0.00	0.04	0.00	0.00	207	683
REC_W	1987	7	0.00	0.00	0.00	0.00	0.00	0.00	5.01	7.01	3.01	11.02	13.03	6.01	12.06	10.09	20.18	22.12	31.21	30.20	47.28	38.36	31.38	14.35	15.66	12.55	5.57	13.31	20.29	9.33	5.33	7.44	6.15	3.25	2.25	4.36	0.04	1.00	0.00	0.00	0.00	0.00	0.00	183	573
REC_W	1988	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	2.53	6.26	7.47	6.30	22.60	15.05	26.29	12.72	19.15	16.58	34.36	21.68	19.19	10.36	15.33	7.87	8.99	10.32	15.25	8.03	12.64	9.03	11.72	7.67	4.14	3.89	1.41	0.00	0.04	0.00	0.00	0.00	0.00	115	473
REC_W	1989	7	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.79	0.00	3.94	6.31	11.05	15.01	11.08	23.76	7.30	8.10	25.51	24.69	36.51	19.99	8.89	13.57	4.89	2.48	3.38	8.10	2.63	4.03	5.66	3.27	1.72	1.69	1.70	0.08	0.04	0.79	0.01	0.01	0.00	0.79	173	628
REC_W	1990	7	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.48	1.45	2.42	8.25	2.90	8.25	5.83	11.67	13.23	17.06	14.05	13.64	15.57	9.77	5.39	11.33	9.84	0.48	1.93	6.84	4.94	4.42	6.35	10.40	4.90	1.97	0.00	1.97	0.48	0.00	0.00	0.00	0.00	0.00	132	289
REC_W	1991	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.59	11.51	11.47	9.25	13.80	16.09	9.21	9.25	6.95	11.61	11.51	20.79	32.22	16.20	6.99	0.10	11.54	4.62	7.06	6.95	2.43	2.43	4.73	11.54	4.76	16.34	2.47	0.00	0.07	0.00	0.00	0.00	0.00	0.00	64	191
REC_W	1992	7	0.00	0.00	0.00	0.00	0.00	0.00	1.25	1.25	0.14	9.96	6.23	3.87	7.47	12.59	16.60	17.15	9.68	7.47	12.17	13.14	12.17	6.08	5.81	1.52	1.80	12.03	12.31	3.18	6.64	9.40	15.63	7.75	3.87	5.53	1.66	2.49	0.14	0.00	0.00	0.00	0.00	105	281
REC_W	1993	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.52	5.52	9.19	18.38	16.55	16.61	34.93	23.97	11.10	12.94	11.29	7.55	20.55	11.43	11.49	2.17	0.20	5.65	22.06	14.91	2.04	3.94	9.32	7.49	3.74	0.07	1.90	0.07	1.84	3.68	0.00	0.00	0.00	0.00	102	216
REC_W	1994	7	0.00	0.00	0.00	0.00	0.00	0.00	0.76	1.53	0.00	3.05	1.53	4.58	3.81	8.39	9.92	8.39	6.87	3.81	5.34	7.63	0.76	0.99	0.23	3.05	2.52	4.27	1.53	1.22	3.43	2.13	2.29	4.27	0.99	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92	139
REC_W	1995	7	0.00	0.00	0.00	0.00	0.00	0.00	1.43	1.43	1.43	1.43	1.43	1.52	5.70	5.80	9.98	12.93	15.68	17.10	7.13	7.32	12.83	8.55	4.57	3.05	6.09	5.80	3.05	2.95	3.14	0.20	1.52	8.65	0.10	2.85	2.85	0.00	0.00	0.00	0.00	0.00	0.00	78	134
REC_W	1996	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	0.67	0.00	0.00	1.34	3.99	6.04	4.70	7.30	6.67	9.98	2.01	4.70	5.24	4.57	1.34	5.33	1.97	2.69	5.37	3.31	1.26	1.34	1.26	1.97	0.00	0.63	0.67	0.00	0.00	0.00	0.00	0.00	70	131
REC_W	1997	7	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.27	0.27	0.45	0.00	0.59	0.63	4.52	6.78	4.25	2.85	3.43	1.72	2.35	1.26	0.59	2.66	2.80	1.72	3.70	2.48	3.39	1.40	1.22	1.22	1.53	0.27	1.04	0.32	0.13	0.00	0.00	0.45	0.00	0.00	112	200
REC_W	1998	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.90	0.61	0.00	1.35	4.81	5.83	6.73	5.99	3.59	3.59	3.59	1.83	2.41	2.24	1.39	3.02	7.99	3.91	3.79	3.30	1.67	3.79	2.28	2.28	0.61	1.06	0.45	0.00	0.00	0.00	0.00	0.00	115	202
REC_W	1999	7	0.00	0.00	0.00	0.00	0.00	0.00	0.56	1.12	0.00	3.36	0.00	0.00	0.04	1.68	2.84	2.80	2.84	8.97	3.45	7.41	5.61	14.70	4.53	9.05	6.21	9.70	2.24	6.38	4.01	3.49	3.41	2.37	6.73	4.01	2.80	0.00	0.04	0.56	0.00	0.00	0.00	131	249
REC_W	2000	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.20	0.79	1.79	0.30	0.79	1.59	1.19	1.19	0.80	1.59	0.70	0.90	1.19	1.99	1.30	0.90	1.30	0.80	0.60	0.10	0.30	0.30	0.00	0.20	0.20	0.00	0.00	0.00	117	212
REC_W	2001	7	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.23	0.00	0.38	0.42	0.87	1.20	0.83	1.22	0.83	0.15	0.72	0.08	0.64	1.09	1.36	1.93	0.31	0.87	0.68	1.07	0.15	0.57	0.27	0.27	0.30	0.00	0.00	0.00	0.00	0.00	150	234
REC_W	2002	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	1.09	0.82	2.18	4.63	9.80	7.35	5.55	6.91	2.64	4.55	5.36	0.54	4.82	3.27	0.82	6.83	2.83	2.64	2.45	0.82	2.64	0.27	1.09	0.54	0.27	0.00	0.00	0.00	0.00	0.00	204	303
REC_W	2003	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	1.76	0.00	0.50	0.70	2.11	4.93	4.22	5.28	5.78	5.87	5.43	5.28	4.82	3.87	6.33	4.57	3.32	7.28	4.72	2.61	5.78	4.17	2.61	1.35	1.20	3.87	0.50	1.06	0.00	0.00	0.70	0.00	0.00	164	304
REC_W	2004	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.20	0.00	0.20	2.25	1.24	2.68	1.13	1.35	1.44	0.51	0.65	2.14	1.21	1.21	1.01	1.07	1.18	1.21	0.76	0.34	0.90	0.42	1.30	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	123	206
REC_W	2005	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	1.35	0.83	1.08	1.72	0.82	0.83	0.39	0.72	1.24	0.90	0.17	0.83	0.08	0.32	0.66	0.39	0.39	0.17	0.00	0.24	0.24	0.00	0.00	0.00	0.00	0.00	101	151
REC_W	2006	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	0.00	0.00	0.00	16.77	33.31	26.60	10.40	9.83	4.39	19.66	41.75	10.06	15.27	1.62	17.23	1.62	9.02	3.12	7.28	9.94	4.62	1.73	3.35	0.12	0.35	0.46	0.00	0.00	0.00	0.00	0.00	0.00	125	239
REC_W	2007	7	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.79	0.00	0.00	1.69	3.15	12.84	27.69	20.60	21.97	17.45	5.20	9.25	5.75	7.01	5.31	3.18	0.35	8.11	5.08	4.96	3.39	2.71	1.93	2.60	4.06	2.48	2.48	0.00	0.90	0.00	0.00	0.00	134	286
REC_W	2008	7	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.48	0.48	0.48	3.91	12.22	15.65	15.74	7.53	15.49	15.44	9.22	10.18	7.86	5.60	6.27	2.99	7.72	6.65	9.02	5.20	6.32	3.42	4.05	4.92	3.18	1.54	0.19	0.24	0.00	0.00	0.00	0.00	215	614
REC_W	2009	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.17	0.52	1.90	5.41	3.96	3.18	3.23	6.84	2.24	2.52	3.24	2.55	1.87	2.39	1.49	1.68	3.24	2.38	1.18	2.80	0.73	0.76	0.54	0.33	0.16	0.04	0.00	0.00	0.00	0.00	174	806
REC_W	2010	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.18	0.16	0.35	3.05	2.35	2.54	5.85	2.94	5.27	1.48	1.68	2.91	2.35	3.79	1.98	2.42	5.24	3.36	2.53	1.52	2.41	1.46	0.63	0.21	0.21	0.00	0.01	0.16	0.00	0.00	0.00	165	649
REC_W	2011	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	1.29	1.37	2.08	2.28	2.62	1.79	1.92	1.20	1.00	1.67	1.73	1.29	0.90	0.96	1.65	0.86	0.92	1.23	0.85	0.90	0.85	0.07	0.03	0.02	0.00	0.00	0.00	0.08	139	609
REC_W	2012	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.63	0.32	0.00	0.32	0.32	1.26	3.82	6.59	5.49	9.67	5.59	6.95	8.23	7.97	9.41	5.76	7.27	8.76	8.03	4.53	4.96	3.07	4.70	3.65	1.54	3.45	0.47	0.18	0.71	0.05	0.00	0.00	0.00	205	759
REC_W	2013	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.00	1.33	1.77	2.68	4.45	8.05	5.39	7.78	6.90	10.04	9.45	7.76	4.82	5.69	3.51	5.61	5.55	5.09	6.45	5.61	4.62	2.47	5.63	3.80	1.95	0.10	0.52	0.92	0.00	0.00	0.00	0.00	189	548
REC_W	2014	7	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.31	1.23	1.04	2.15	0.31	3.75	14.21	14.39	12.74	11.26	5.29	4.18	3.25	4.98	3.81	5.78	3.50	3.87	5.34	2.51	4.85	5.83	2.76	0.54	1.34	0.37	0.55	0.62	0.12	0.00	0.00	0.00	0.00	0.00	228	480
REC_W	2015	7	0.00	0.00	0.00	0.00	0.32	0.00	0.65	0.00	1.65	0.00	0.65	0.97	3.55	13.87	10.45	19.76	12.50	8.59	3.91	6.34	5.77	6.05	3.31	2.30	0.89	3.47	6.18	3.15	3.71	4.76	2.54	1.58	1.45	1.01	0.20	0.12	1.09	0.04	0.00	0.00	0.00	238	562
REC_W	2016	7	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.27	0.82	1.34	2.69	9.06	13.37	10.82	12.71	12.50	6.05	6.08	5.50	4.87	6.23	4.65	3.62	3.60	5.69	3.80	3.74	1.50	1.43	3.09	2.81	1.69	0.87	0.05	0.03	0.00	0.00	0.00	0.00	277	833
REC_W	2017	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.24	0.24	0.71	2.59	3.67	3.70	4.38	4.26	4.52	5.29	4.03	3.38	2.64	2.17	2.00	2.08	1.79	1.44	1.55	0.53	1.35	1.41	0.32	0.68	0.24	0.00	0.00	0.00	0.00	0.00	0.00	210	642
REC_W	2018	7	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.27	0.00	0.00	0.36	0.27	0.36	0.37	1.17	3.86	6.59	7.29	5.15	5.16	5.25	3.61	4.66	3.35	2.74	3.36	4.01	3.55	3.16	2.46	1.45	1.01	1.00	0.55	0.00	0.19	0.00	0.00	0.00	0.00	0.00	246	788
REC_W	2019	7	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.61	0.00	0.66	0.00	0.91	0.30	0.61	6.87	19.77	9.53	11.49	6.01	5.66	3.65	6.54	3.96	2.39	2.39	4.92	5.41	1.43	2.33	1.37	1.92	1.26	0.66	0.91	0.00	0.00	0.00	0.00	0.00	0.00	210	437
REC_W	2020	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	1.33	0.00	5.31	12.57	24.46	21.86	18.57	18.52	11.94	14.59	12.57	19.90	8.60	11.25	6.63	13.26	9.28	11.94	5.31	1.33	9.28	0.00	2.65	0.00	0.00	0.00	0.00	0.00	0.00	89	188
REC_W	2021	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	2.57	1.29	5.79	1.29	0.00	0.00	3.32	4.50	7.07	14.89	11.57	11.57	9.85	2.57	12.32	7.72	12.22	9.00	5.25	3.86	5.14	1.93	0.64	5.79	5.79	1.29	0.00	1.29	0.00	0.00	0.00	0.00	0.00	126	225
REC_W	2022	7	0.00	0.00	0.00	0.00	0.00	0.00	0.94	1.26	0.05	0.31	0.63	0.63	0.00	0.31	0.00	7.34	4.88	6.45	7.28	2.89	5.26	3.17	3.54	3.43	3.37	2.01	4.15	3.17	1.60	2.73	0.68	1.79	0.22	0.42	0.22	0.37	0.16	0.00	0.00	0.00	0.00	160	332

Table 13. Estimated (i.e., weighted) length composition of REC releases in numbers (1000s). According to Stock Synthesis input format - Month indicates mid-year (i.e., July 1), columns not shown are Sex = 0 (combined male and female length compositions) and Part=1 (length compositions apply to released fish).

Fleet	Year	Month	Max TL (2 cm)																		N trips	N
			18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54		
REC	2005	7	0.00	0.00	0.00	0.00	9.77	47.28	99.96	69.53	69.60	175.21	171.36	109.39	0.00	0.00	0.00	0.00	0.00	4.89	0.00	45	72
REC	2006	7	0.00	0.00	0.00	0.00	14.59	29.18	140.76	81.64	57.68	166.77	68.28	3.42	0.57	14.59	0.00	0.00	0.00	0.00	0.00	36	62
REC	2007	7	0.00	0.00	0.00	5.18	21.94	28.84	33.18	96.03	179.04	242.10	127.81	11.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52	154
REC	2008	7	0.00	0.00	0.00	0.00	0.00	75.13	35.87	279.39	272.50	545.56	638.63	78.64	17.94	0.00	17.94	0.00	0.00	0.00	0.00	43	115
REC	2009	7	0.00	0.00	4.09	4.09	8.18	8.18	4.09	36.80	89.96	151.29	163.94	61.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39	127
REC	2010	7	0.00	0.00	0.00	0.00	0.00	3.38	3.27	9.93	29.91	31.35	40.85	16.04	6.22	0.00	0.00	0.00	0.00	0.00	0.00	26	45
REC	2011	7	0.00	0.00	0.00	6.98	2.13	16.08	2.13	0.00	7.43	7.43	16.78	6.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9	12
REC	2012	7	0.00	0.00	10.75	10.75	67.81	19.85	74.13	34.16	56.80	57.56	59.07	46.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12	45
REC	2013	7	0.00	0.00	0.00	0.00	13.20	6.73	30.93	52.84	123.71	217.17	183.57	32.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52	101
REC	2014	7	0.00	0.00	0.00	8.46	0.00	8.65	47.45	60.52	188.87	364.24	312.17	101.62	0.00	4.23	0.00	0.00	0.00	0.00	0.00	84	251
REC	2015	7	4.73	18.92	4.73	4.55	9.09	9.09	65.37	46.20	146.23	272.75	260.77	93.06	4.00	0.00	0.00	0.00	0.00	0.00	0.00	83	195
REC	2016	7	0.00	9.96	9.96	0.00	27.23	62.83	172.25	269.37	379.80	349.32	294.04	153.47	23.13	0.00	0.00	0.00	0.00	0.00	7.32	84	209
REC	2017	7	0.00	0.00	0.00	24.99	18.76	99.32	216.07	352.27	371.53	337.09	323.35	132.84	135.83	85.00	0.00	0.00	0.00	0.00	0.00	95	374
REC	2018	7	0.00	0.00	5.24	8.17	9.12	34.15	92.59	138.49	179.25	175.76	142.79	98.57	89.49	33.48	6.25	5.24	0.00	0.00	0.00	133	403
REC	2019	7	0.00	0.00	0.00	6.11	33.65	31.29	74.22	119.95	107.53	136.76	120.51	104.27	86.69	43.91	1.06	4.69	0.00	0.00	0.00	129	413
REC	2020	7	0.00	0.00	0.00	0.00	33.37	110.09	139.20	189.33	231.21	168.30	71.58	121.71	55.86	15.73	0.00	0.00	0.00	0.00	0.00	20	70
REC	2021	7	0.00	0.00	0.00	15.62	9.96	30.53	21.22	60.02	141.49	185.64	298.11	211.64	152.51	73.94	11.26	10.61	0.00	0.00	0.00	83	224
REC	2022	7	0.00	5.03	10.56	9.83	25.60	91.87	146.35	91.75	211.07	208.46	340.00	297.67	204.99	101.36	4.47	0.00	0.00	0.00	0.00	134	356

Table 14. Estimated (i.e., weighted) length composition of RVC Dry Tortugas in proportions. According to Stock Synthesis input format - Month indicates mid-year (i.e., July 1), columns not shown are Sex = 0 (combined male and female length compositions) and Part=0 (length compositions apply to released and retained fish).

		Max TL (5 cm bins)																			
Year	Month	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	N
1999	7	0.000	0.000	0.002	0.000	0.008	0.002	0.003	0.019	0.011	0.016	0.003	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	29
2000	7	0.000	0.000	0.001	0.000	0.009	0.010	0.012	0.021	0.025	0.009	0.008	0.005	0.000	0.001	0.000	0.000	0.000	0.000	0.000	44
2004	7	0.005	0.000	0.002	0.004	0.001	0.010	0.020	0.042	0.029	0.025	0.019	0.019	0.014	0.007	0.002	0.001	0.000	0.000	0.000	127
2006	7	0.001	0.000	0.000	0.001	0.003	0.011	0.014	0.019	0.024	0.020	0.014	0.015	0.007	0.005	0.003	0.001	0.000	0.000	0.000	93
2008	7	0.000	0.000	0.001	0.002	0.009	0.018	0.027	0.054	0.033	0.036	0.018	0.021	0.009	0.003	0.001	0.001	0.000	0.000	0.000	181
2010	7	0.001	0.000	0.003	0.009	0.021	0.031	0.055	0.060	0.038	0.035	0.023	0.028	0.008	0.007	0.000	0.001	0.000	0.000	0.000	229
2012	7	0.001	0.000	0.001	0.000	0.006	0.013	0.039	0.063	0.068	0.053	0.027	0.031	0.016	0.010	0.003	0.000	0.000	0.000	0.000	279
2014	7	0.000	0.000	0.000	0.001	0.001	0.015	0.014	0.021	0.030	0.041	0.031	0.035	0.019	0.010	0.004	0.002	0.000	0.000	0.000	223
2016	7	0.000	0.000	0.000	0.003	0.009	0.046	0.058	0.059	0.070	0.056	0.045	0.046	0.017	0.008	0.014	0.001	0.000	0.004	0.001	215
2018	7	0.000	0.000	0.000	0.003	0.010	0.031	0.032	0.041	0.044	0.033	0.041	0.031	0.016	0.010	0.006	0.000	0.000	0.002	0.000	232
2021	7	0.000	0.000	0.000	0.000	0.007	0.037	0.055	0.093	0.090	0.080	0.080	0.067	0.057	0.018	0.012	0.003	0.000	0.002	0.000	182
2023	7	0.000	0.000	0.000	0.000	0.008	0.033	0.082	0.103	0.139	0.112	0.093	0.093	0.033	0.025	0.003	0.000	0.000	0.000	0.000	149

Table 15. Estimated (i.e., weighted) length composition of RVC FL Keys in proportions. According to Stock Synthesis input format - Month indicates mid-year (i.e., July 1), columns not shown are Sex = 0 (combined male and female length compositions) and Part=0 (length compositions apply to released and retained fish).

Year	Month	Max TL (5 cm bins)																			N
		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
1997	7	0.000	0.000	0.000	0.013	0.004	0.031	0.029	0.033	0.004	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	24
1999	7	0.000	0.000	0.011	0.013	0.021	0.024	0.013	0.005	0.003	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29
2000	7	0.000	0.000	0.008	0.014	0.025	0.032	0.045	0.019	0.017	0.007	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61
2001	7	0.000	0.000	0.001	0.003	0.009	0.009	0.019	0.030	0.024	0.026	0.011	0.016	0.011	0.003	0.001	0.000	0.000	0.000	0.000	89
2002	7	0.000	0.000	0.005	0.009	0.011	0.010	0.014	0.032	0.013	0.015	0.017	0.010	0.009	0.003	0.001	0.002	0.000	0.000	0.000	85
2003	7	0.000	0.000	0.004	0.012	0.004	0.010	0.024	0.015	0.021	0.024	0.016	0.017	0.006	0.005	0.009	0.004	0.000	0.000	0.000	64
2004	7	0.000	0.000	0.007	0.000	0.009	0.016	0.023	0.041	0.029	0.024	0.005	0.027	0.003	0.009	0.000	0.005	0.000	0.000	0.000	42
2005	7	0.000	0.000	0.006	0.021	0.012	0.026	0.032	0.031	0.022	0.025	0.010	0.007	0.000	0.001	0.000	0.001	0.000	0.000	0.000	86
2006	7	0.000	0.000	0.001	0.006	0.007	0.020	0.029	0.030	0.025	0.026	0.008	0.008	0.002	0.005	0.000	0.000	0.000	0.000	0.000	75
2007	7	0.000	0.000	0.002	0.006	0.014	0.027	0.048	0.050	0.032	0.031	0.020	0.018	0.007	0.007	0.001	0.003	0.000	0.000	0.000	137
2008	7	0.000	0.000	0.004	0.003	0.018	0.046	0.042	0.045	0.022	0.024	0.010	0.006	0.004	0.003	0.000	0.000	0.000	0.000	0.000	152
2009	7	0.001	0.000	0.002	0.012	0.018	0.027	0.029	0.031	0.016	0.012	0.005	0.006	0.002	0.003	0.000	0.000	0.000	0.000	0.000	190
2010	7	0.000	0.000	0.000	0.001	0.006	0.015	0.023	0.034	0.022	0.013	0.004	0.004	0.002	0.003	0.000	0.000	0.000	0.000	0.000	94
2011	7	0.000	0.000	0.000	0.002	0.006	0.012	0.018	0.037	0.017	0.010	0.006	0.011	0.004	0.002	0.000	0.000	0.000	0.000	0.000	130
2012	7	0.000	0.000	0.001	0.005	0.011	0.032	0.025	0.025	0.023	0.015	0.014	0.011	0.005	0.005	0.002	0.000	0.000	0.000	0.000	168
2014	7	0.000	0.000	0.001	0.006	0.014	0.059	0.053	0.047	0.044	0.020	0.010	0.003	0.004	0.005	0.001	0.000	0.000	0.000	0.000	124
2016	7	0.001	0.000	0.004	0.025	0.076	0.124	0.069	0.029	0.013	0.009	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	121
2018	7	0.001	0.000	0.005	0.009	0.035	0.078	0.076	0.057	0.036	0.011	0.013	0.012	0.004	0.000	0.000	0.000	0.000	0.000	0.001	185
2022	7	0.005	0.000	0.032	0.019	0.051	0.114	0.070	0.038	0.035	0.024	0.003	0.003	0.011	0.005	0.000	0.000	0.000	0.000	0.000	80

Table 16. Estimated (i.e., weighted) length composition of RVC SE FL in proportions. According to Stock Synthesis input format - Month indicates mid-year (i.e., July 1), columns not shown are Sex = 0 (combined male and female length compositions) and Part=0 (length compositions apply to released and retained fish).

Year	Month	Max TL (5 cm bins)																	N
		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
2013	7	0.001	0.000	0.000	0.004	0.019	0.026	0.043	0.033	0.018	0.006	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	222
2014	7	0.000	0.000	0.000	0.006	0.014	0.031	0.048	0.063	0.036	0.017	0.010	0.002	0.001	0.000	0.000	0.000	0.000	0.000	164
2015	7	0.000	0.001	0.000	0.003	0.019	0.033	0.050	0.043	0.020	0.014	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	118
2016	7	0.000	0.001	0.000	0.014	0.041	0.069	0.095	0.092	0.048	0.035	0.014	0.003	0.003	0.000	0.002	0.003	0.001	0.000	180
2018	7	0.000	0.000	0.000	0.019	0.084	0.177	0.213	0.137	0.058	0.038	0.003	0.002	0.000	0.000	0.001	0.000	0.000	0.000	242
2021	7	0.000	0.002	0.000	0.020	0.048	0.171	0.305	0.091	0.032	0.018	0.012	0.004	0.004	0.000	0.000	0.000	0.000	0.000	148
2022	7	0.000	0.000	0.000	0.058	0.184	0.156	0.207	0.089	0.035	0.017	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	144

Table 17. Estimated (i.e., weighted) length composition of the GOM combined video survey in proportions. According to Stock Synthesis input format - Month indicates mid-year (i.e., July 1), columns not shown are Sex = 0 (combined male and female length compositions) and Part=0 (length compositions apply to released and retained fish).

Year	Month	Max TL (2 cm bins)																			N
		24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	
2004-2021	7	1	0	16	33	11	22	39	17	34	25	31	29	13	8	4	4	3	0	5	295

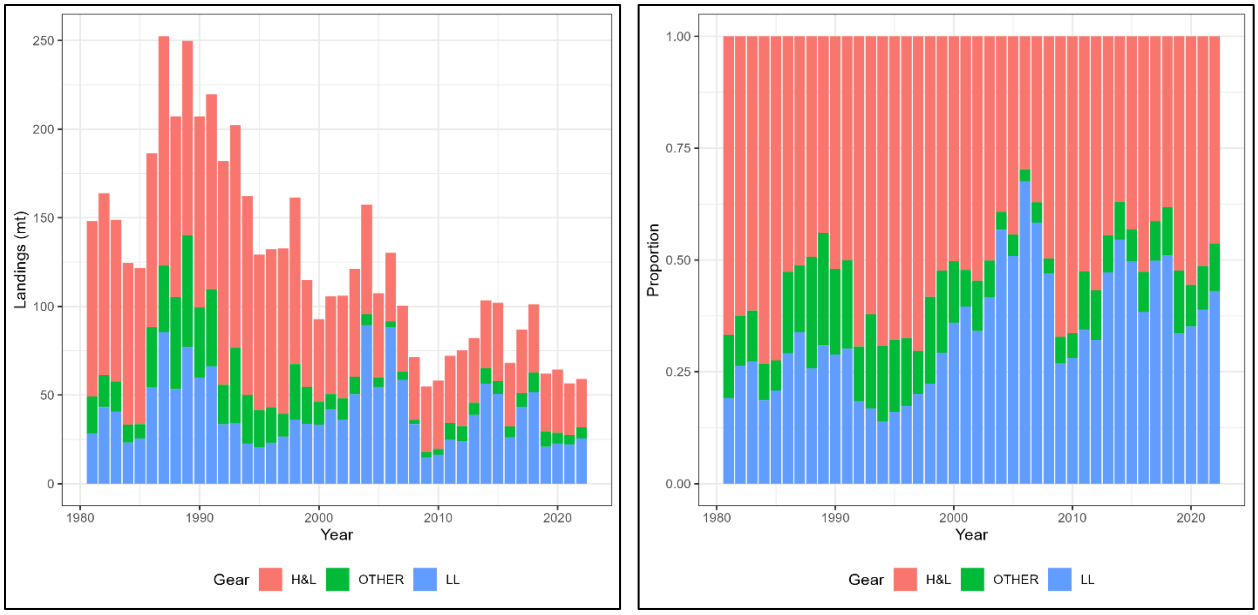


Figure 1. Annual commercial landings by gear in metric tons (mt, left figure) and proportion (right figure).

Region Caught	Statistical Grids	SRHS
West_of_FL	11 - 21	24 -29
NW_FL	7-10	~23
SW_FL	3-6	21, old 22
Dry Tortugas	2	Old 17, old 18
Keys	1, 2479-2482	12 (pre-2013 definition)
SE_FL	2580,2680,2780, 2579,2679,2779	11
NE_FL	2880,2980,3080, 2879,2979,3079	7, 8
North_of_FL	North of 31°	1 – 6, 9,10

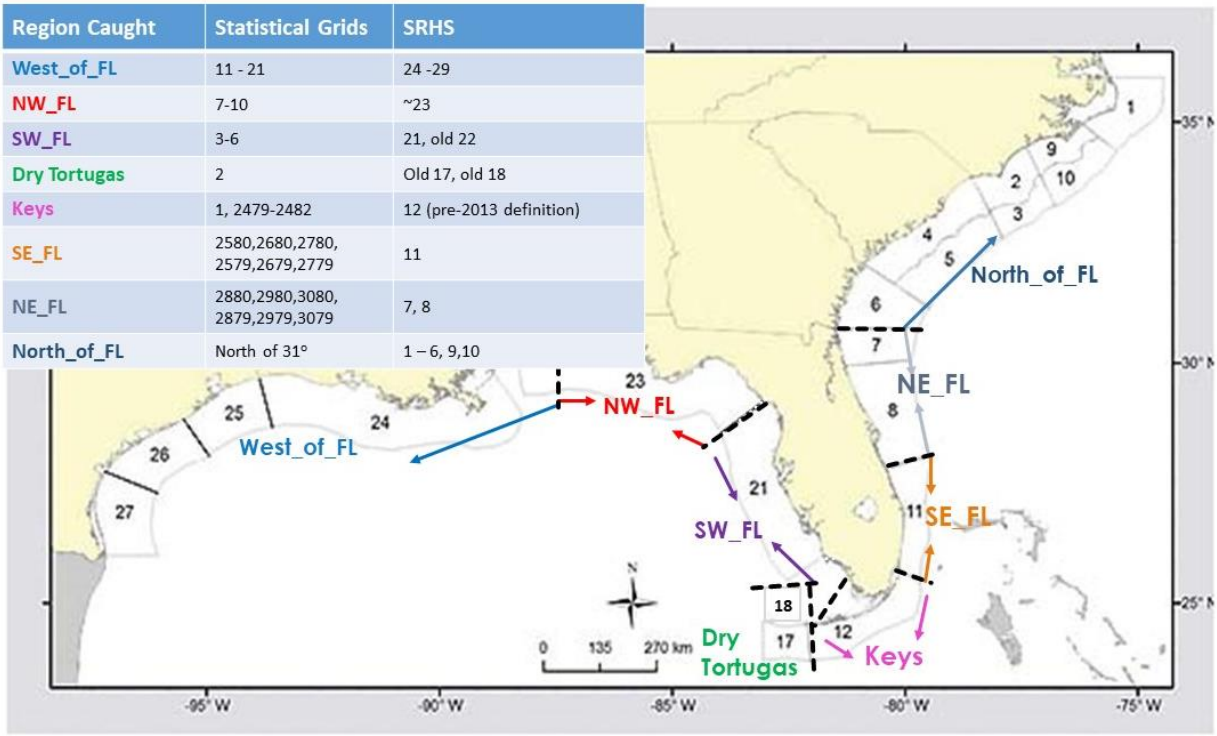


Figure 2. Map of region caught.

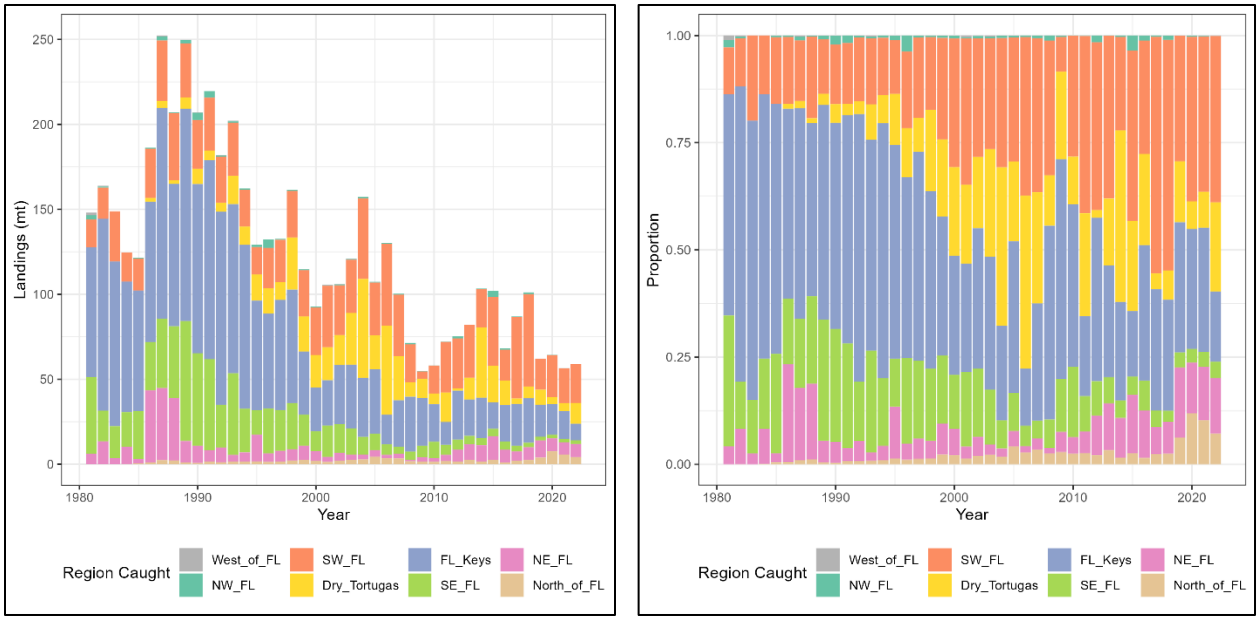


Figure 3. Annual commercial landings by region caught in metric tons (mt, left figure) and proportion (right figure).

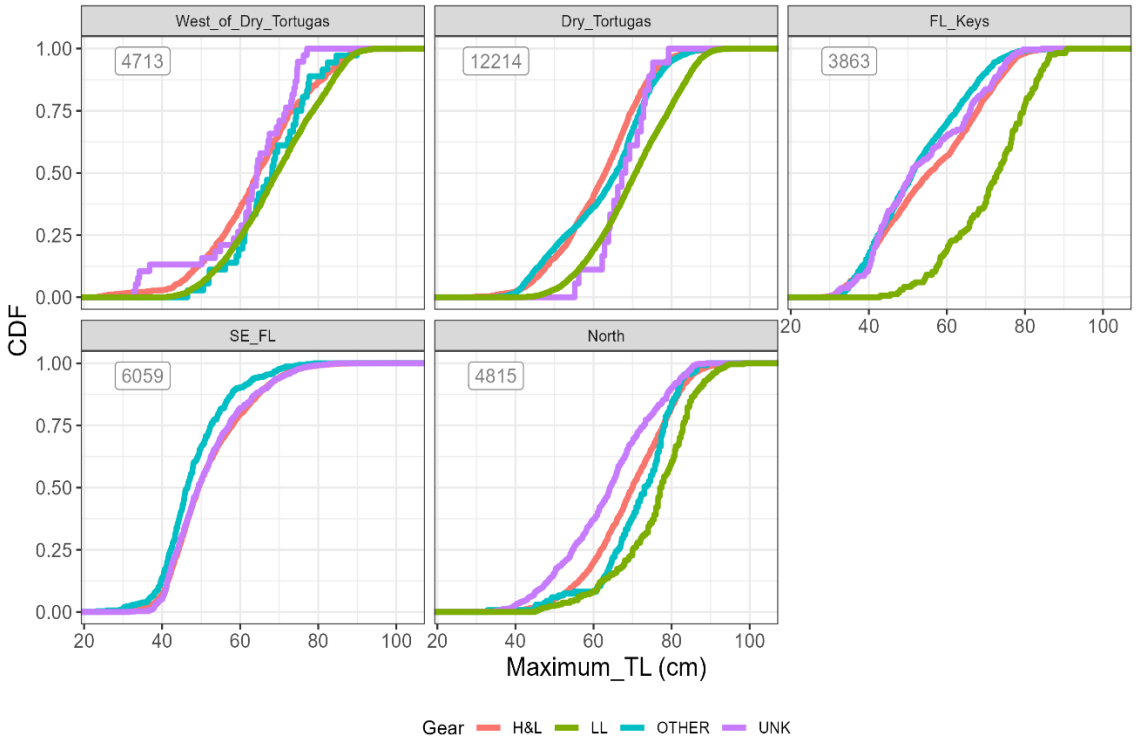


Figure 4. Cumulative Distribution Function of Maximum TL measurements by gear and grouped region caught for the commercial sector. The number of measured fish per region are shown in the upper left corner.

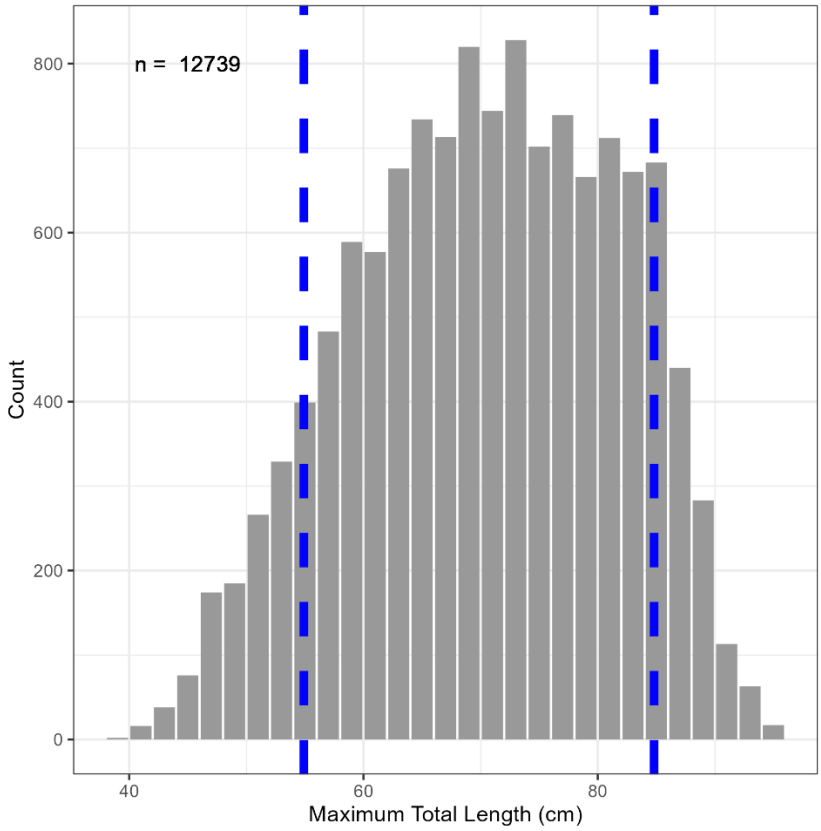


Figure 5. Mutton Snapper maximum total lengths in 2 cm bins sampled (10th and 90th percentiles shown in blue) from commercial longline landings by the Trip Interview Program (TIP) and Creel Survey and Biological Sampling Plan (CSBSP) from 1984-2022.

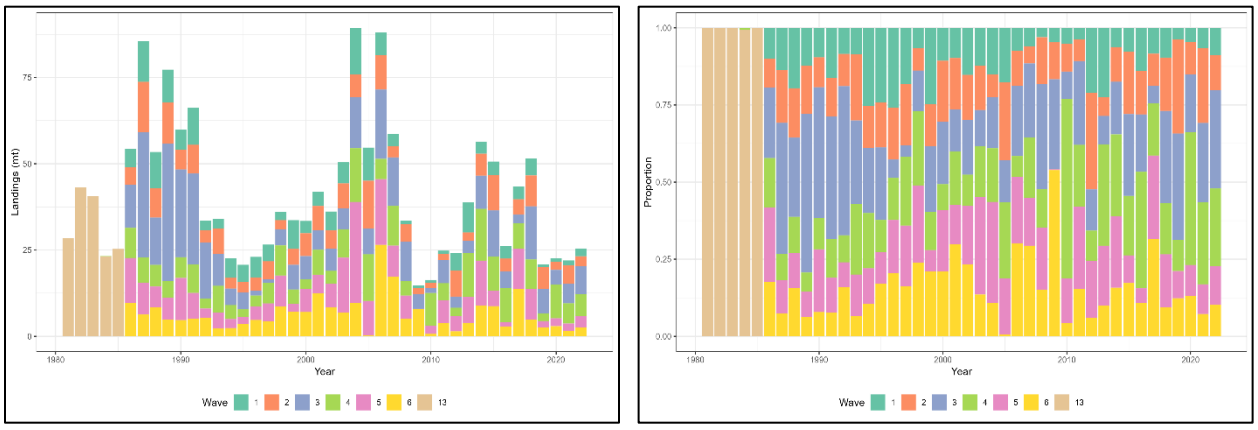


Figure 6. Annual commercial landings by wave in metric tons (mt, left figure) and proportion (right figure) in the commercial longline fleet. Waves are in two-month intervals (Wave 1 – Jan/Feb, Wave 2 – Mar/Apr, Wave 3 – May/Jun, Wave 4 – Jul/Aug, Wave 5 – Sep/Oct, Wave 6- Nov/Dec). Wave 13 indicates that landings are only available by year.

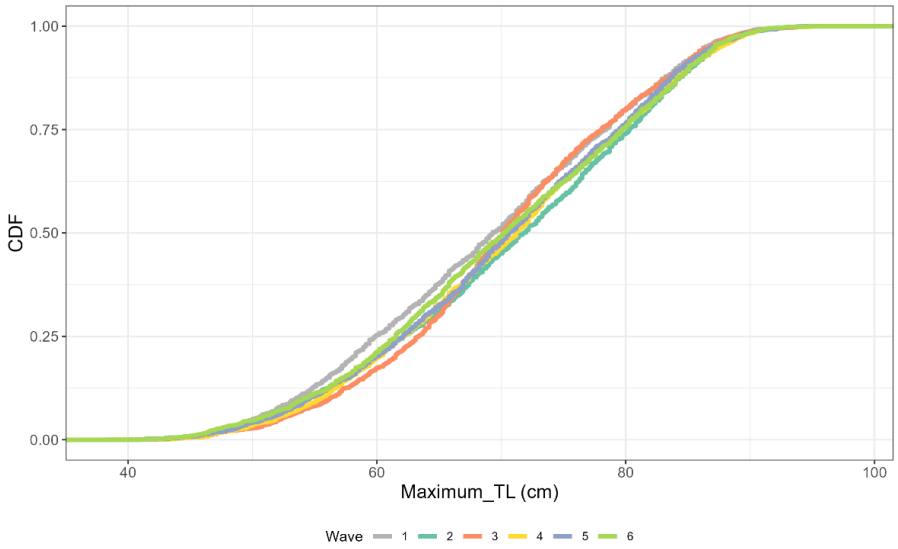


Figure 7. Cumulative Distribution Function (CDF) of Maximum TL measurements by wave for longline gear in the commercial sector.

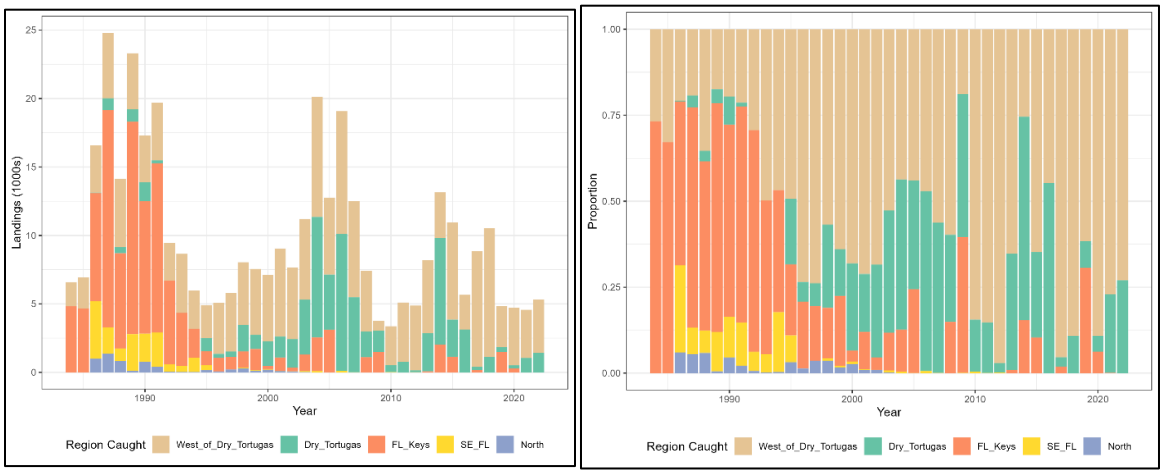


Figure 8. Annual commercial longline landings by region caught in estimated numbers (1000s, left figure) and proportion (right figure), 1984-2022.

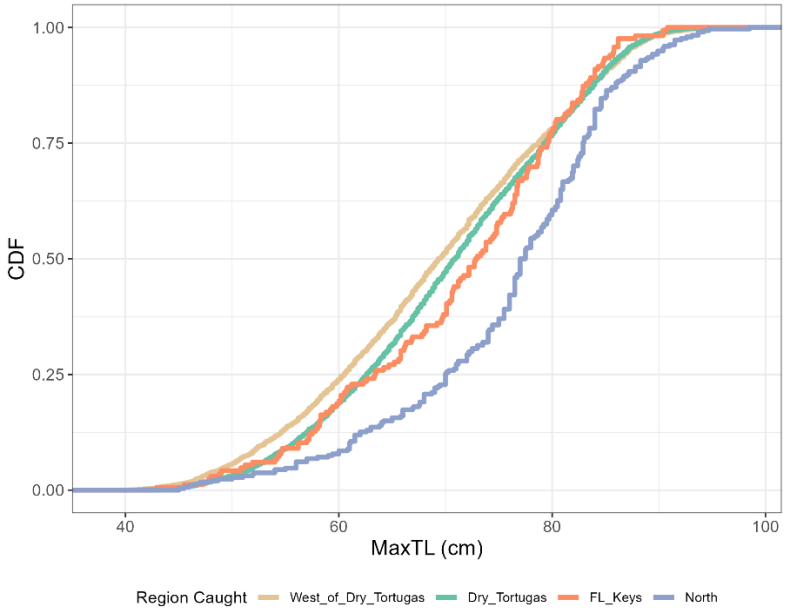


Figure 9. Cumulative Distribution Function (CDF) of Maximum TL measurements by region caught by the commercial longline fleet.

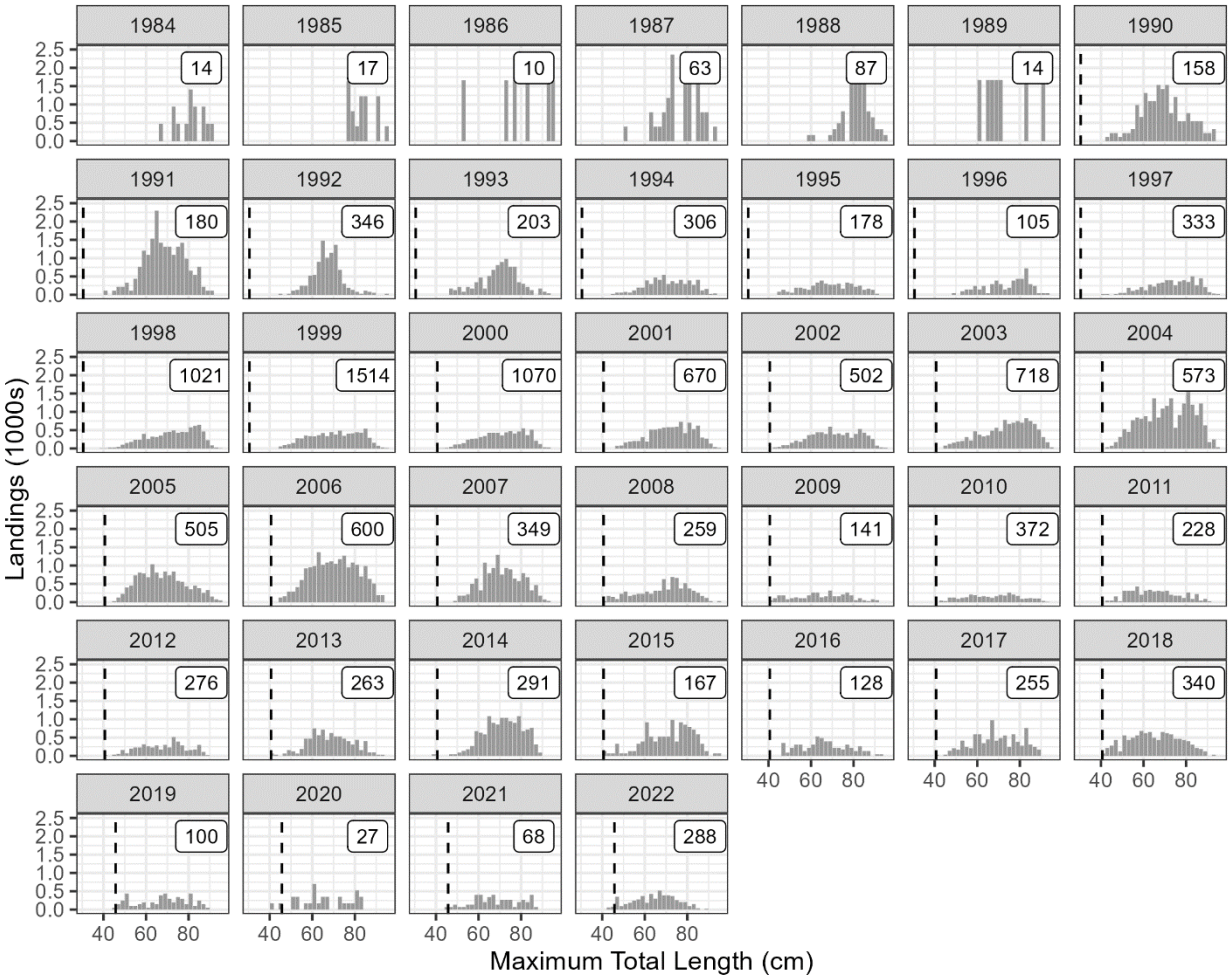


Figure 10. Weighted maximum TL distributions by year for the commercial longline fleet (only shown when landings at length are less than 2,500). The number of measured fish per year are shown in the upper left corner. Size limits in the Gulf of Mexico are shown by the dashed vertical line.

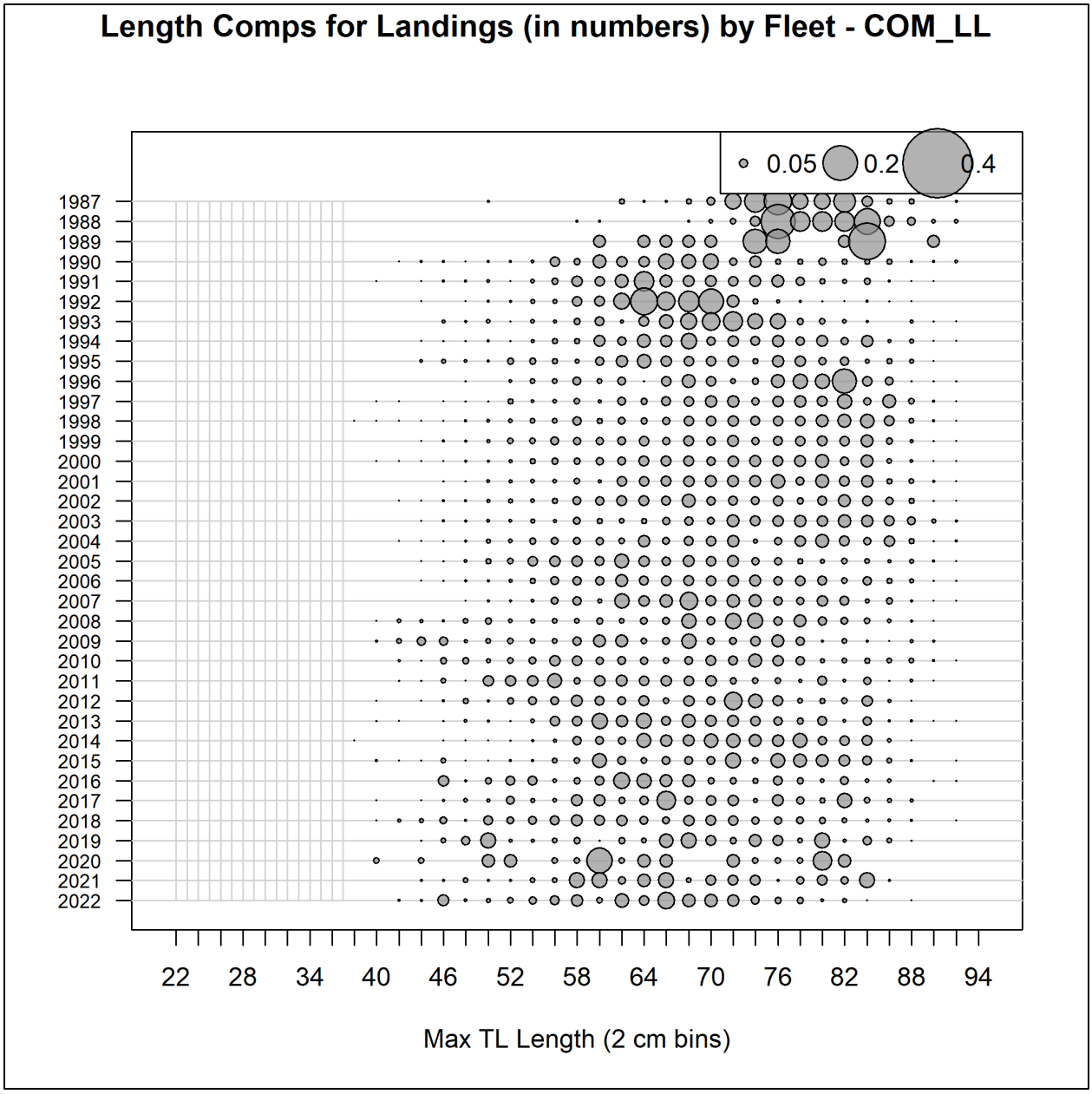


Figure 11. Bubble plot of weighted maximum TL by year for the commercial longline fleet, 1987-2022.

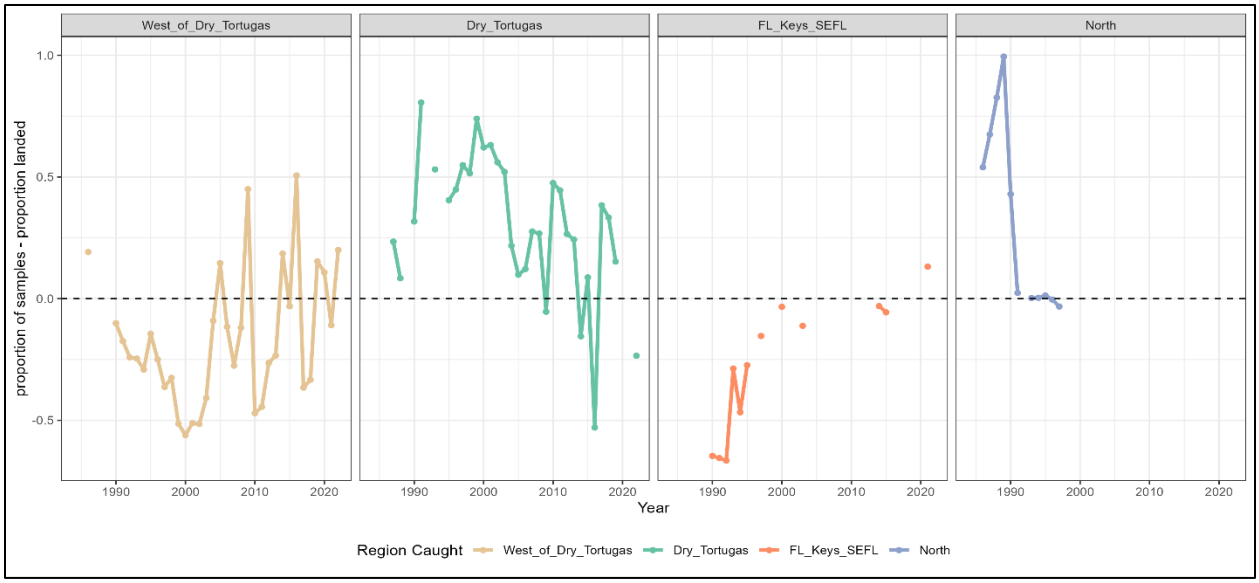


Figure 12. Difference between the proportion of fish sampled versus landed by region for the commercial longline fleet.

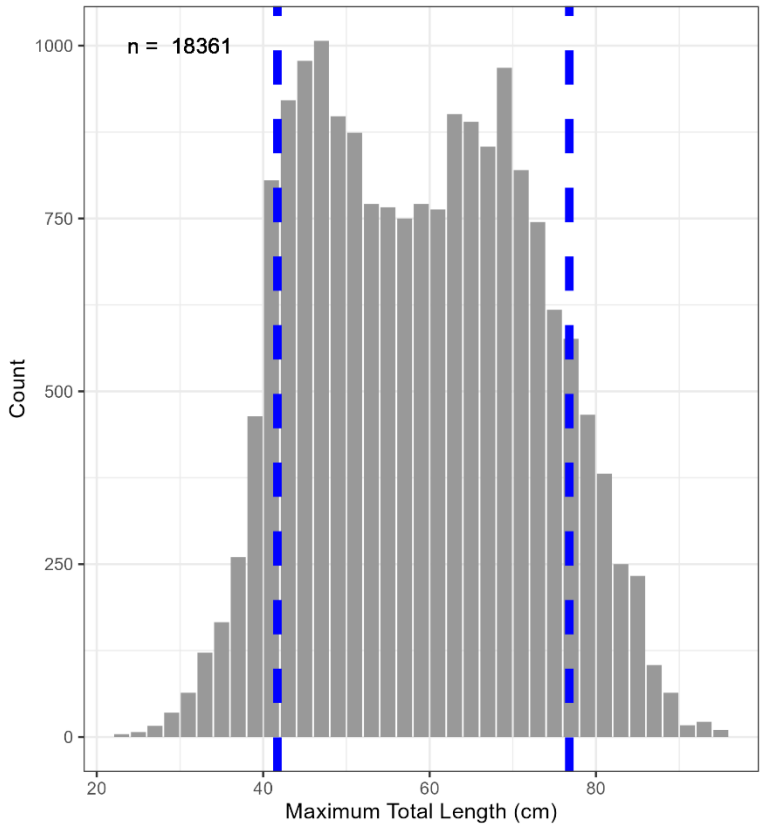


Figure 13. Mutton Snapper maximum total lengths in 2 cm bins sampled (10th and 90th percentiles shown in blue) from commercial landings from all gears except longline sampled by the Trip Interview Program (TIP) and Creel Survey and Biological Sampling Plan (CSBSP) from 1986-2022.

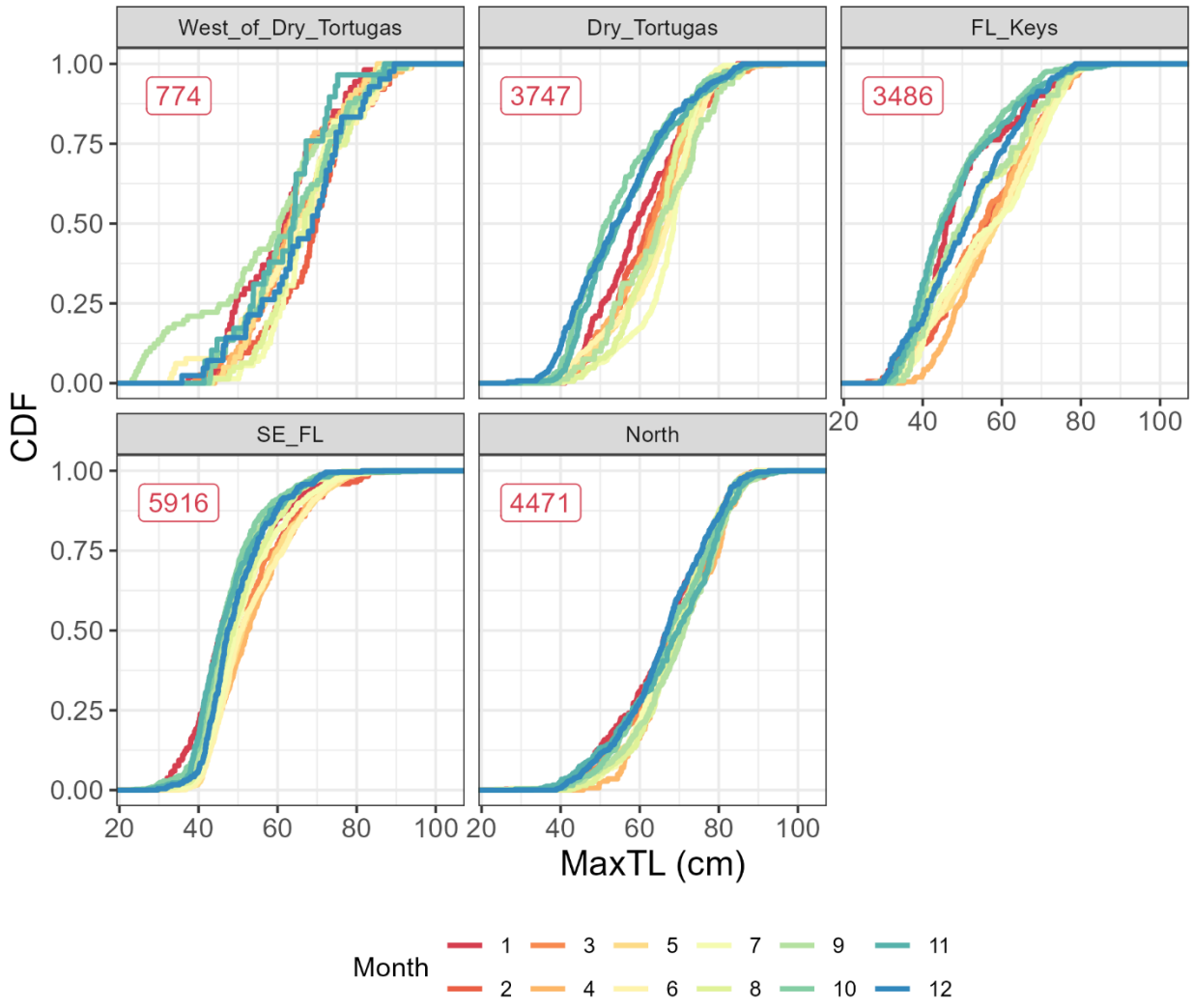


Figure 14. Cumulative Distribution Function (CDF) of Maximum TL measurements by month and region caught by the commercial 'other' fleet. Sample sizes for each region are shown in the upper left corner.

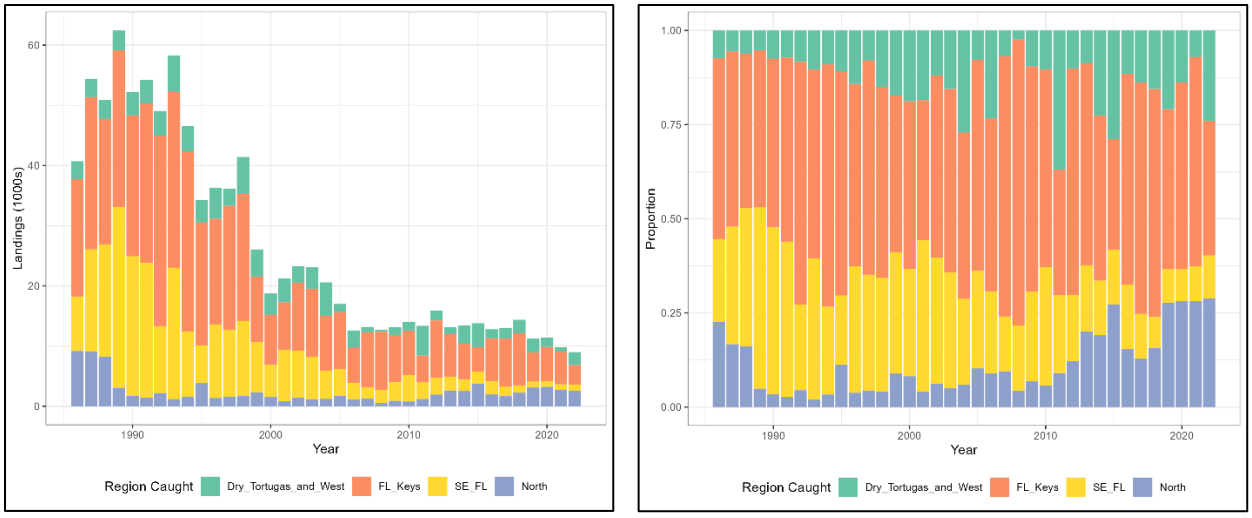


Figure 15. Annual commercial landings by region caught in estimated numbers (1000s, left figure) and proportion (right figure) for 'Other' commercial gears, 1986-2022.

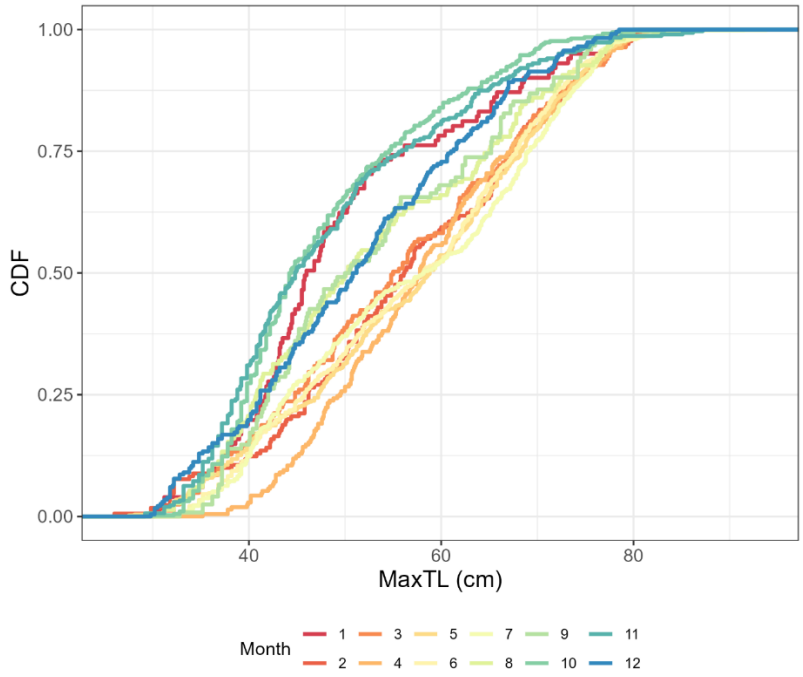


Figure 16. Cumulative Distribution Function (CDF) of Maximum TL measurements of Mutton Snapper caught in the FL Keys by month for the commercial 'other' fleet.

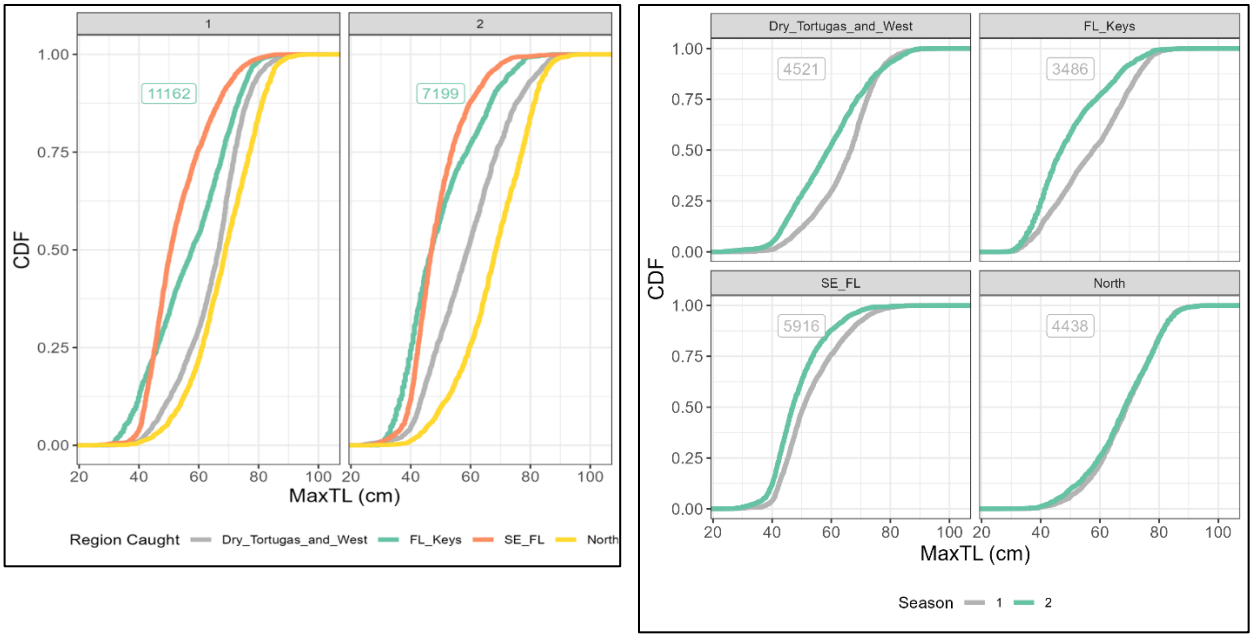


Figure 17. Cumulative Distribution Function (CDF) of Maximum TL measurements of Mutton Snapper by region per season (left figure) and by season per region (right figure) for the commercial 'other' fleet.

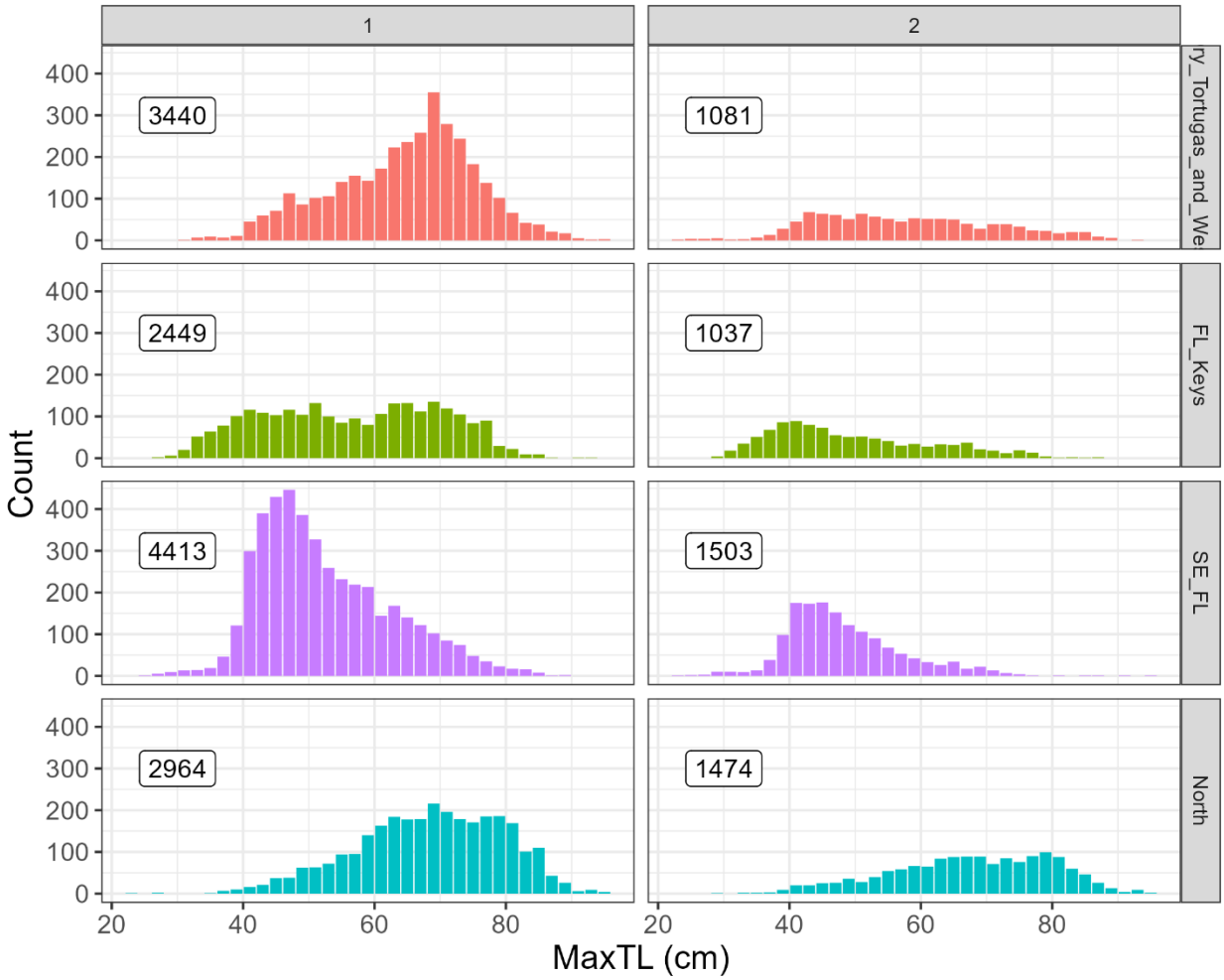


Figure 18. Histogram of Maximum TL measurements (in two cm bins) by season (season 1: Jan – Aug, season 2: Sep-Dec) and grouped region caught by the commercial 'other' fleet. The number measured by region and season is shown in the upper left.

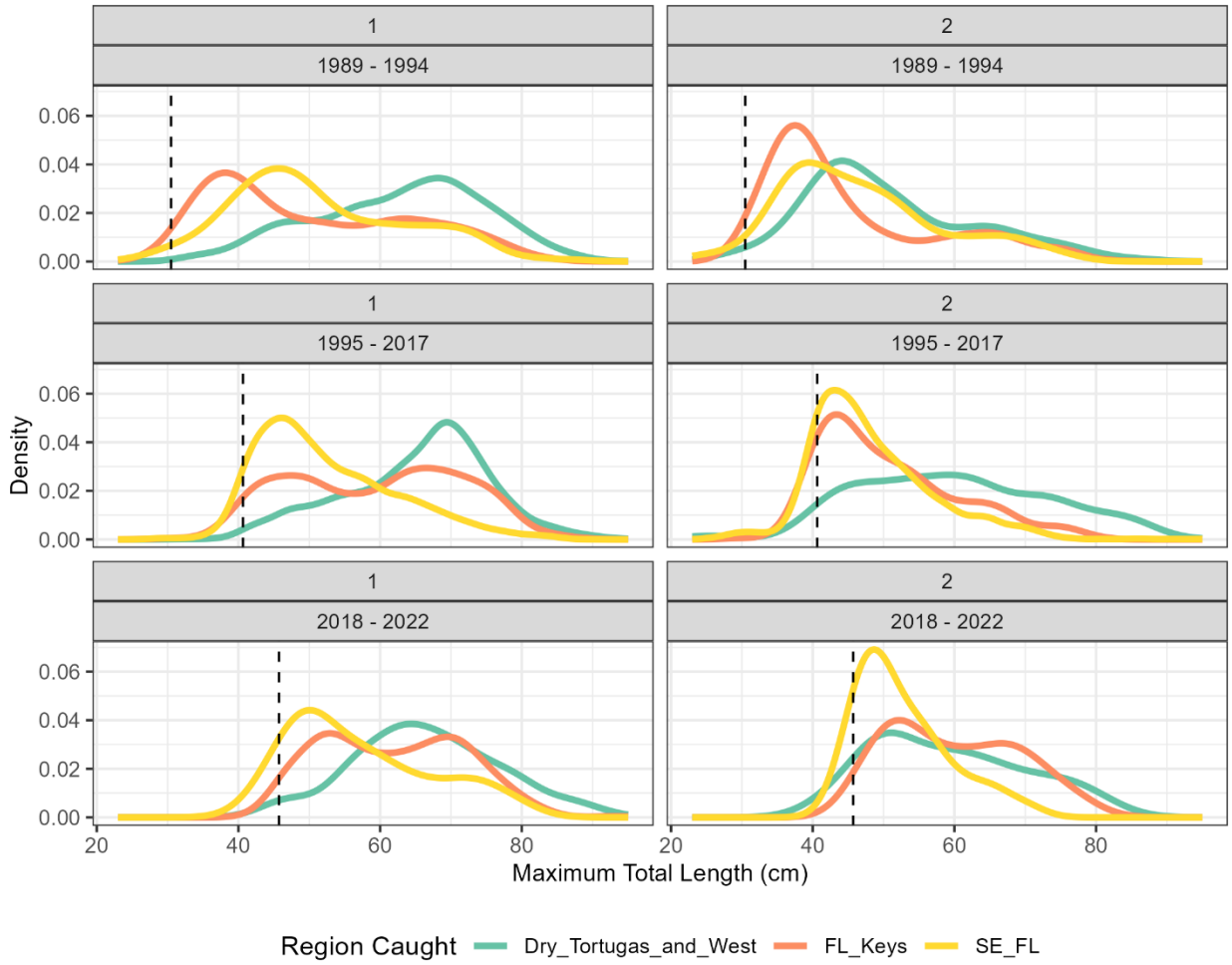


Figure 19. Density of Maximum TL measurements (in two cm bins) caught in the Dry Tortugas and West, FL Keys, and SE FL regions by time period (corresponding to changes in minimum size limits in the South Atlantic) and season (season 1: Jan – Aug, season 2: Sep-Dec) for the commercial 'Other' fleet. Minimum size limits per time period are shown by black dashed lines.

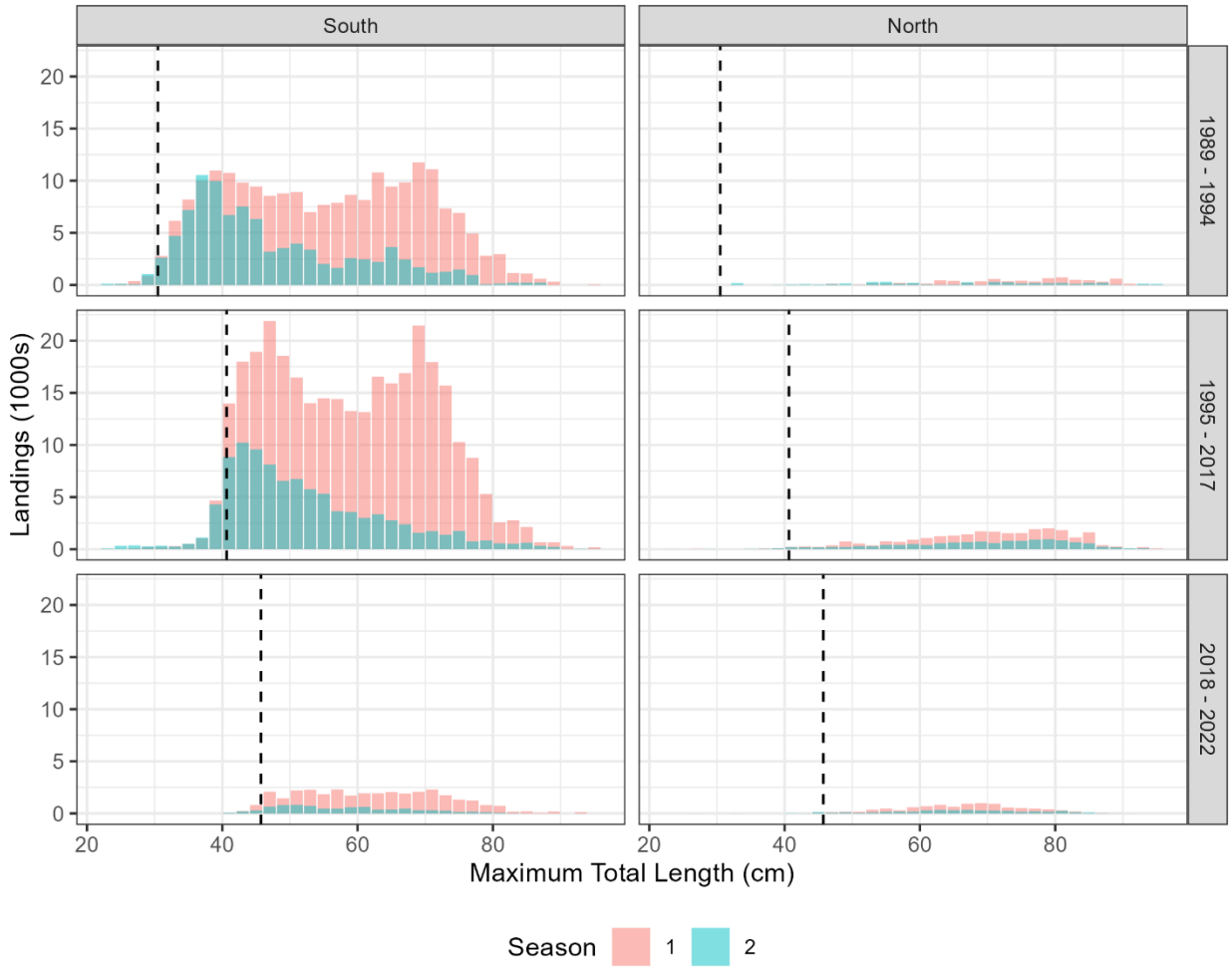


Figure 20. Landings at length (in two cm bins) by grouped region, time period (corresponding to changes in minimum size limits in the South Atlantic) and season (season 1: Jan – Aug, season 2: Sep-Dec) for the commercial 'Other' fleet. Minimum size limits per time period are shown by black dashed lines.

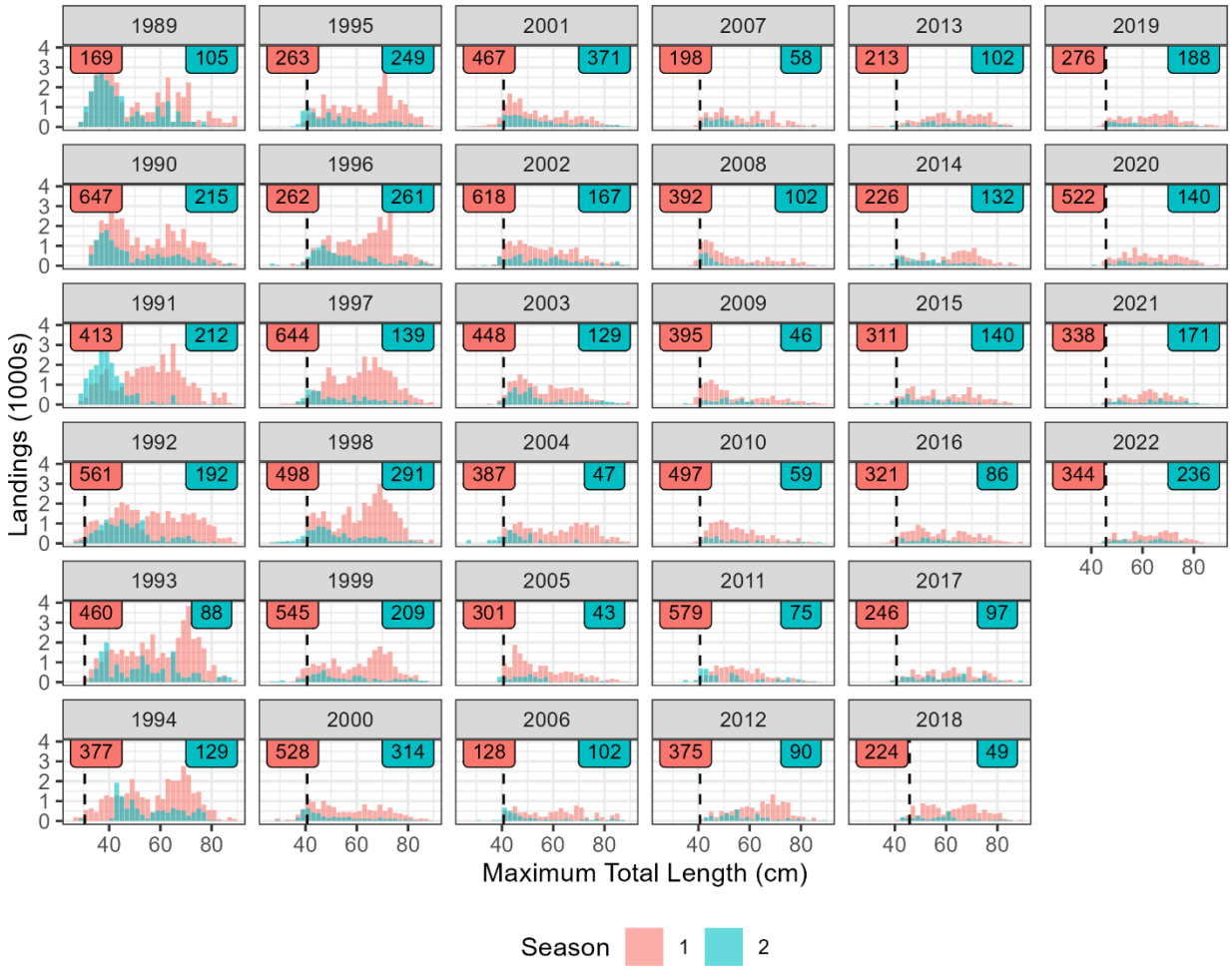


Figure 21. Landings at length (in two cm bins) by year, 1989 – 2022, and season (season 1: Jan – Aug, season 2: Sep-Dec) for the commercial 'Other' fleet.

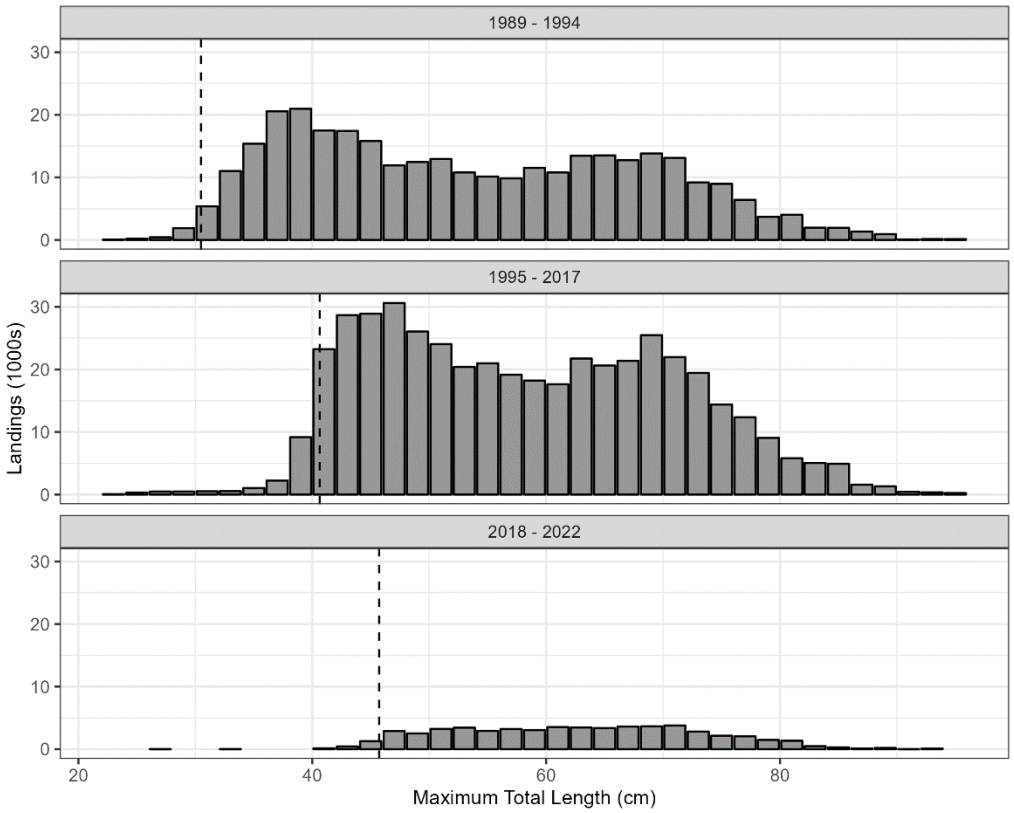


Figure 22. Landings at length (in two cm bins) for the commercial 'Other' fleet by time period. Minimum size limits per time period are shown by black dashed lines.

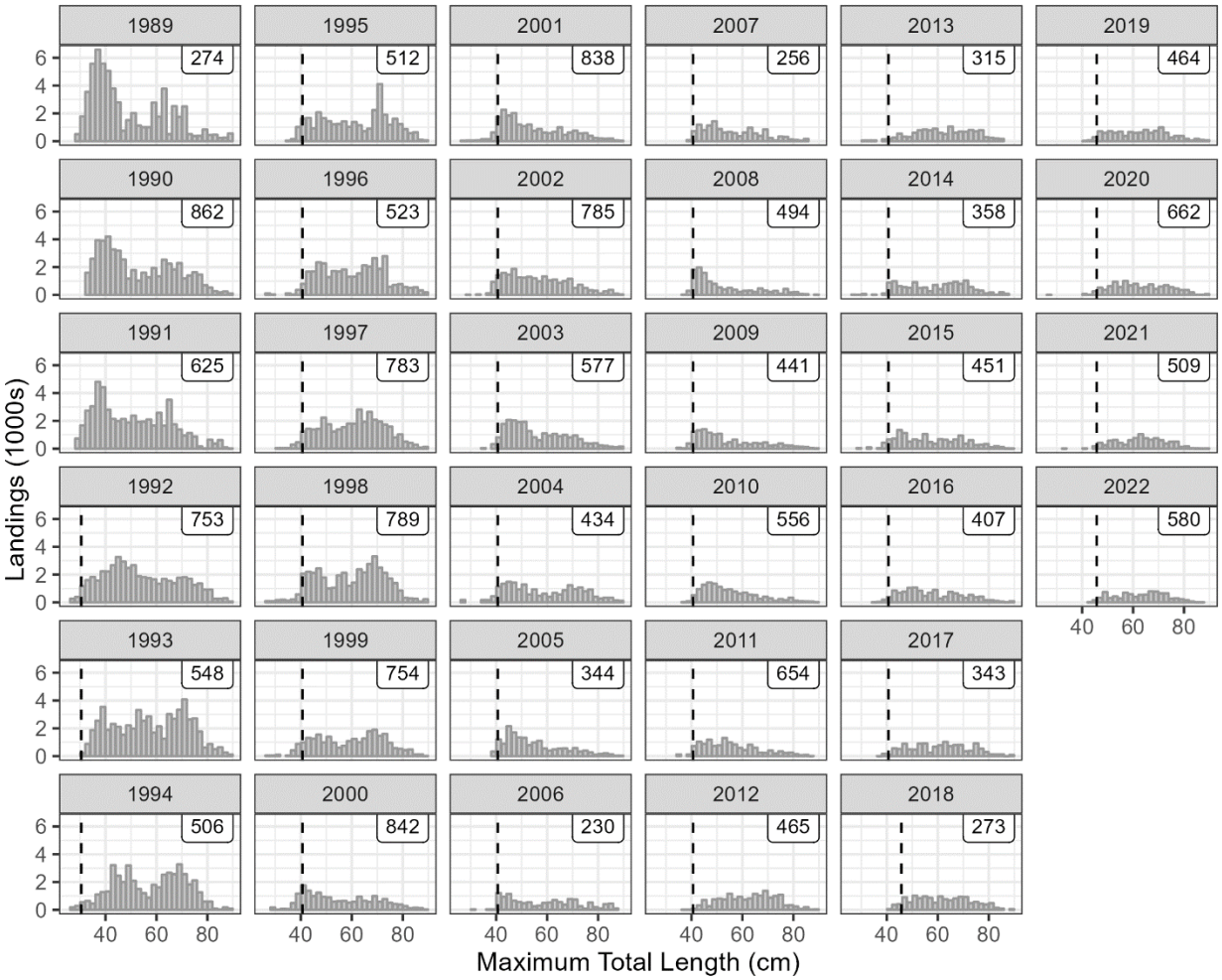


Figure 23. Landings at length (in two cm bins) for the commercial 'Other' fleet by year, 1989 – 2022. The black dashed line indicates the minimum size limit in the South Atlantic.

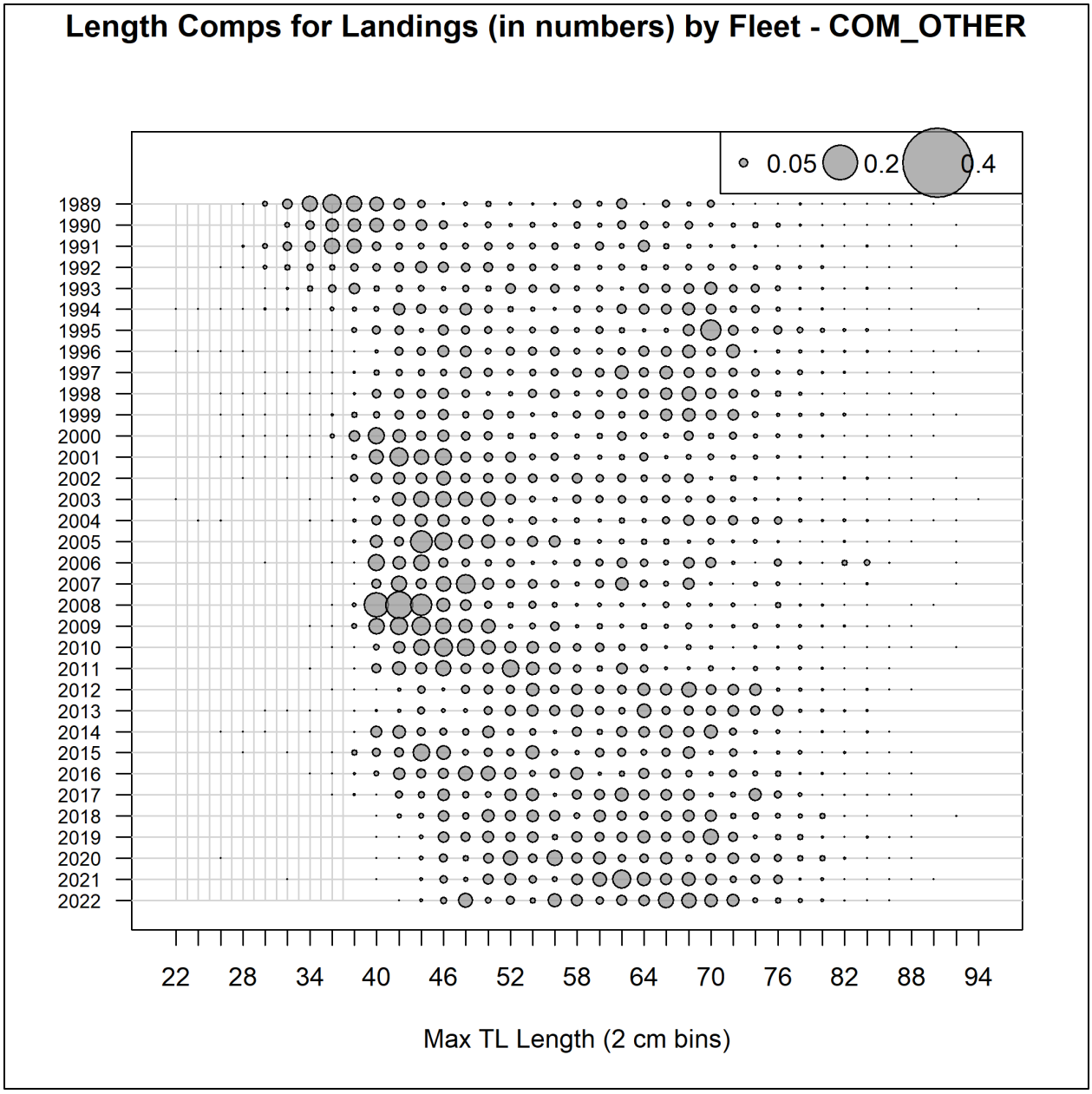


Figure 24. Bubble plot of weighted maximum TL by year for the commercial ‘other’ fleet, 1989-2022.

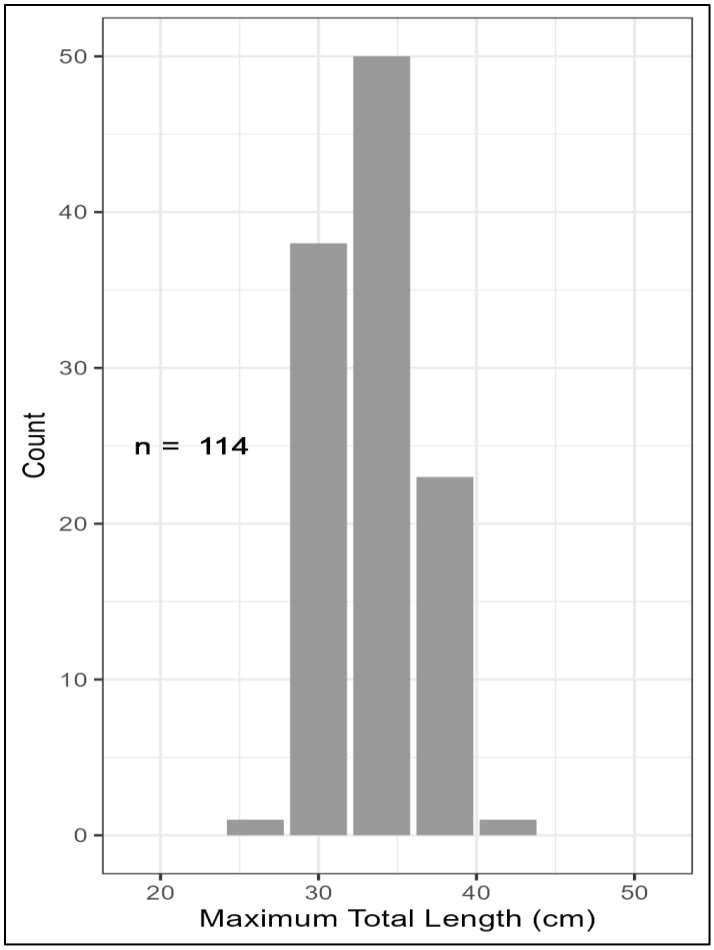
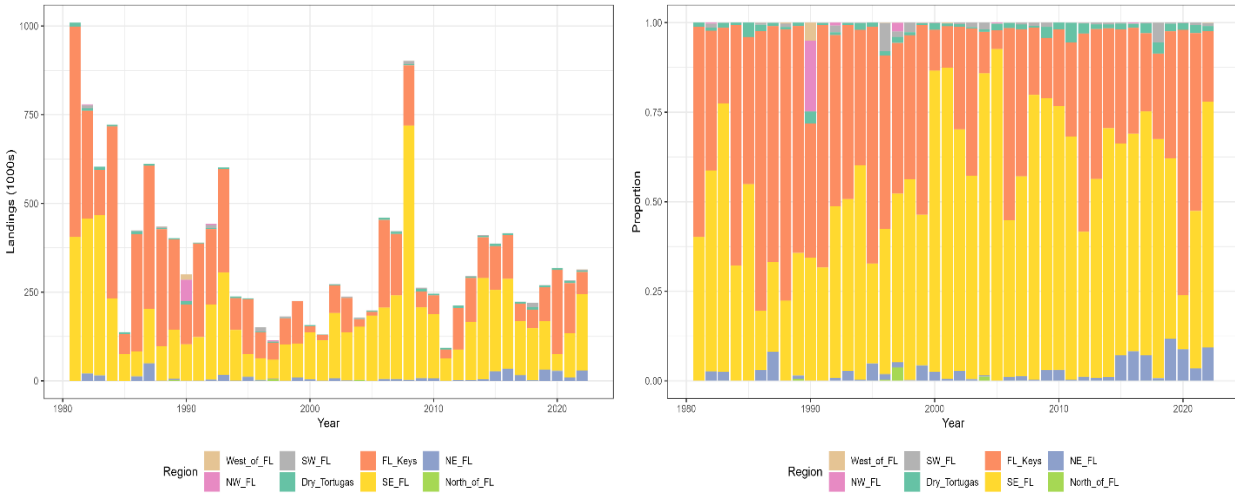


Figure 25. Sampled release lengths from non-longline commercial vessels by at-sea observer programs, 2009-2021.



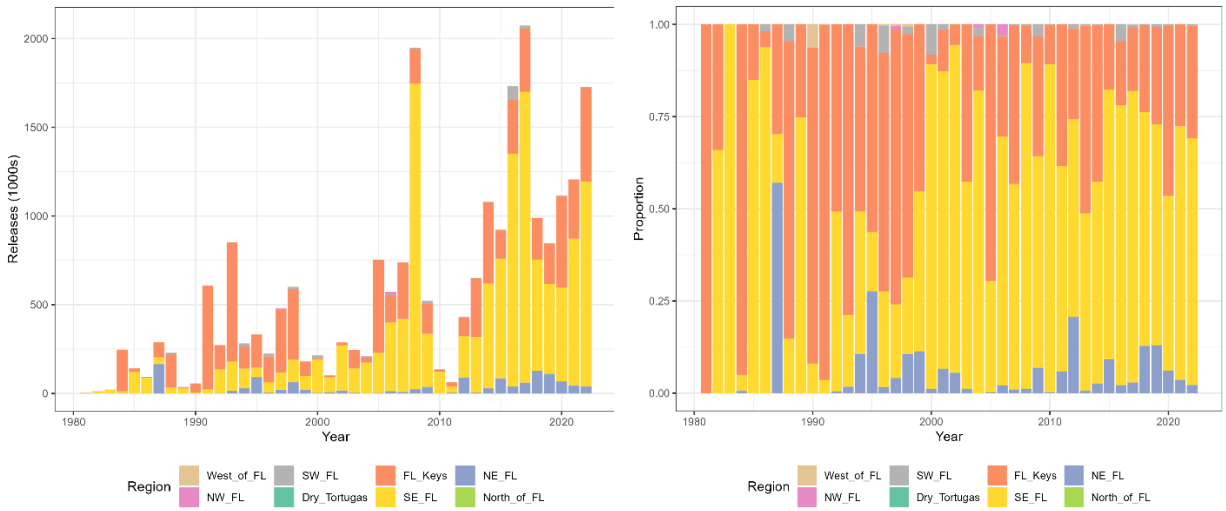
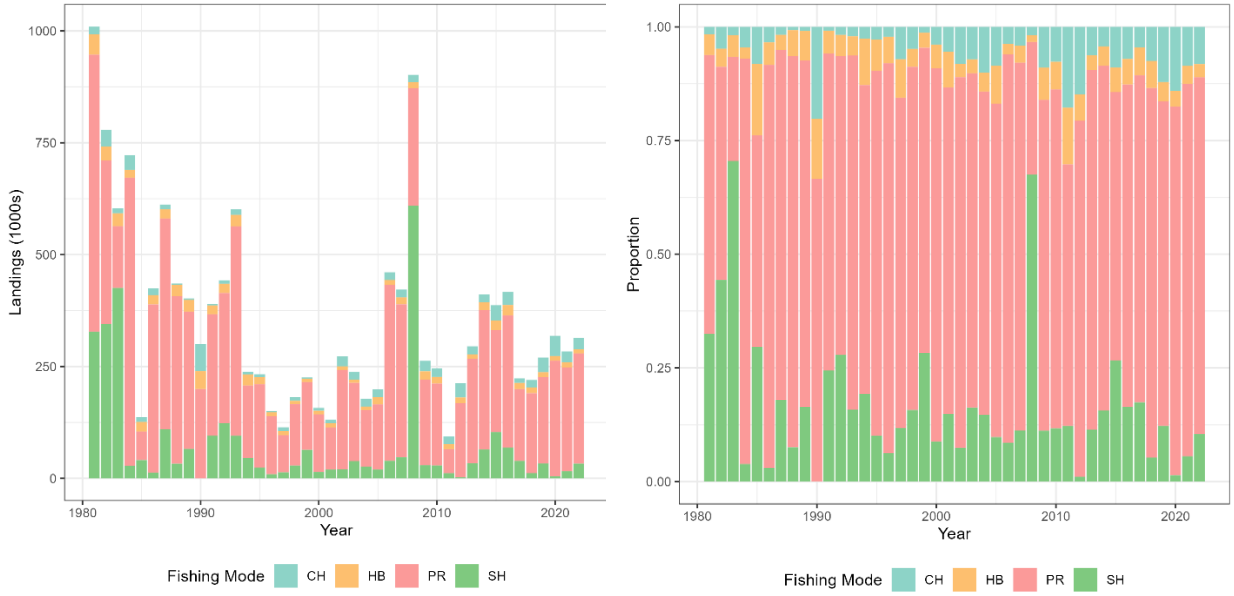


Figure 26. Annual recreational landings (top) and live releases (bottom) by region caught for headboat (HB) and shore (SH) modes and region landed for private (PR) and charter (CH) modes, 1981-2022. Estimates of live releases by region from the headboat fishery are available from 2004-2022.



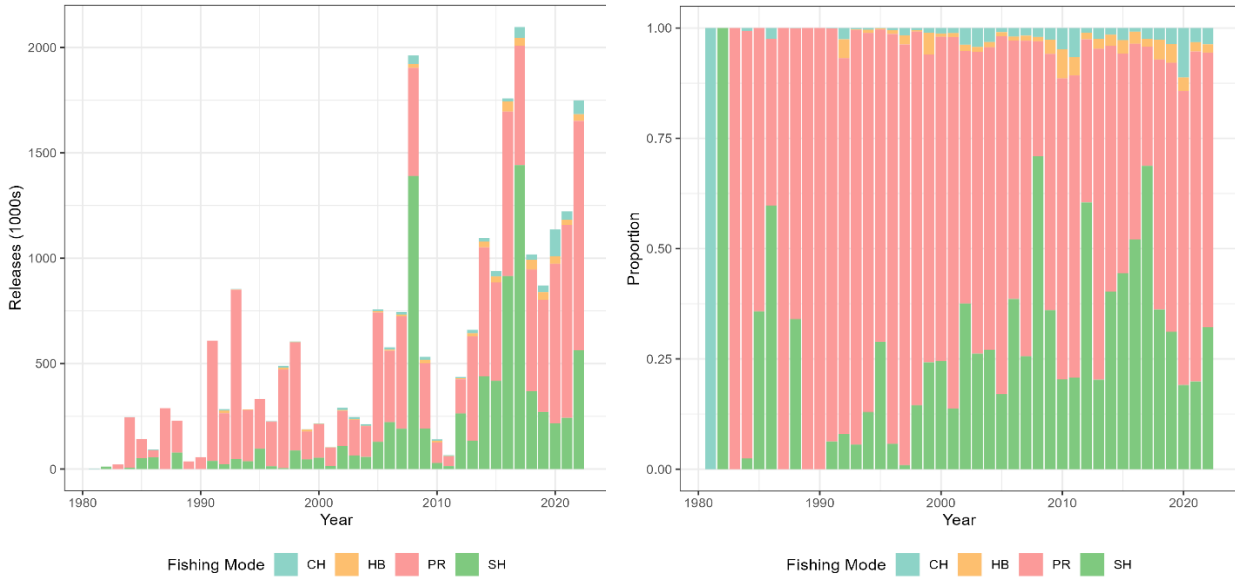


Figure 27. Annual recreational landings (top) and live releases (bottom) by fishing mode: headboat (HB), shore (SH), private (PR), and charter (CH) mode, 1981-2022. Estimates of live releases from the headboat fishery are available from 1992-2022.

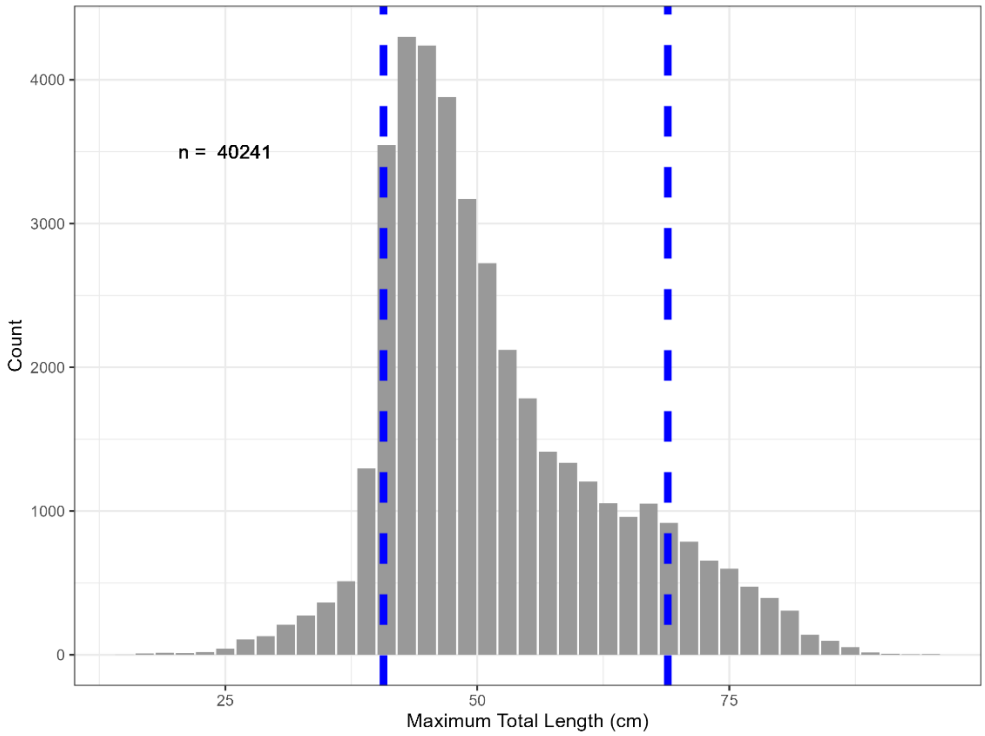


Figure 28. Mutton Snapper maximum total lengths in 2 cm bins sampled (10th and 90th percentiles shown in blue) from recreational landings from 1981-2022.

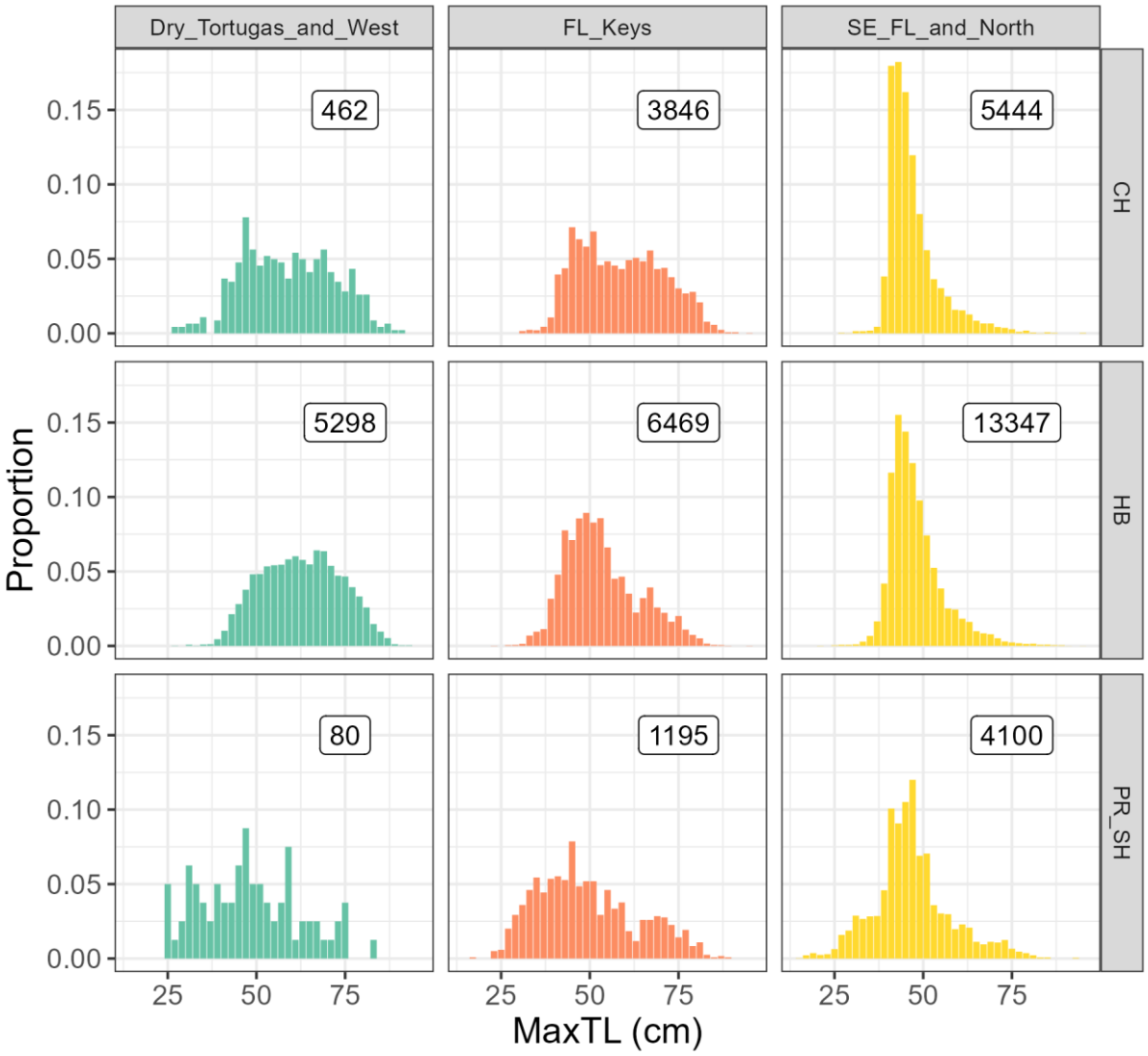


Figure 29. Relative frequency of Maximum TL measurements (in two cm bins) by recreational fishing modes and regions. The number measured by region and mode is shown in the upper left.

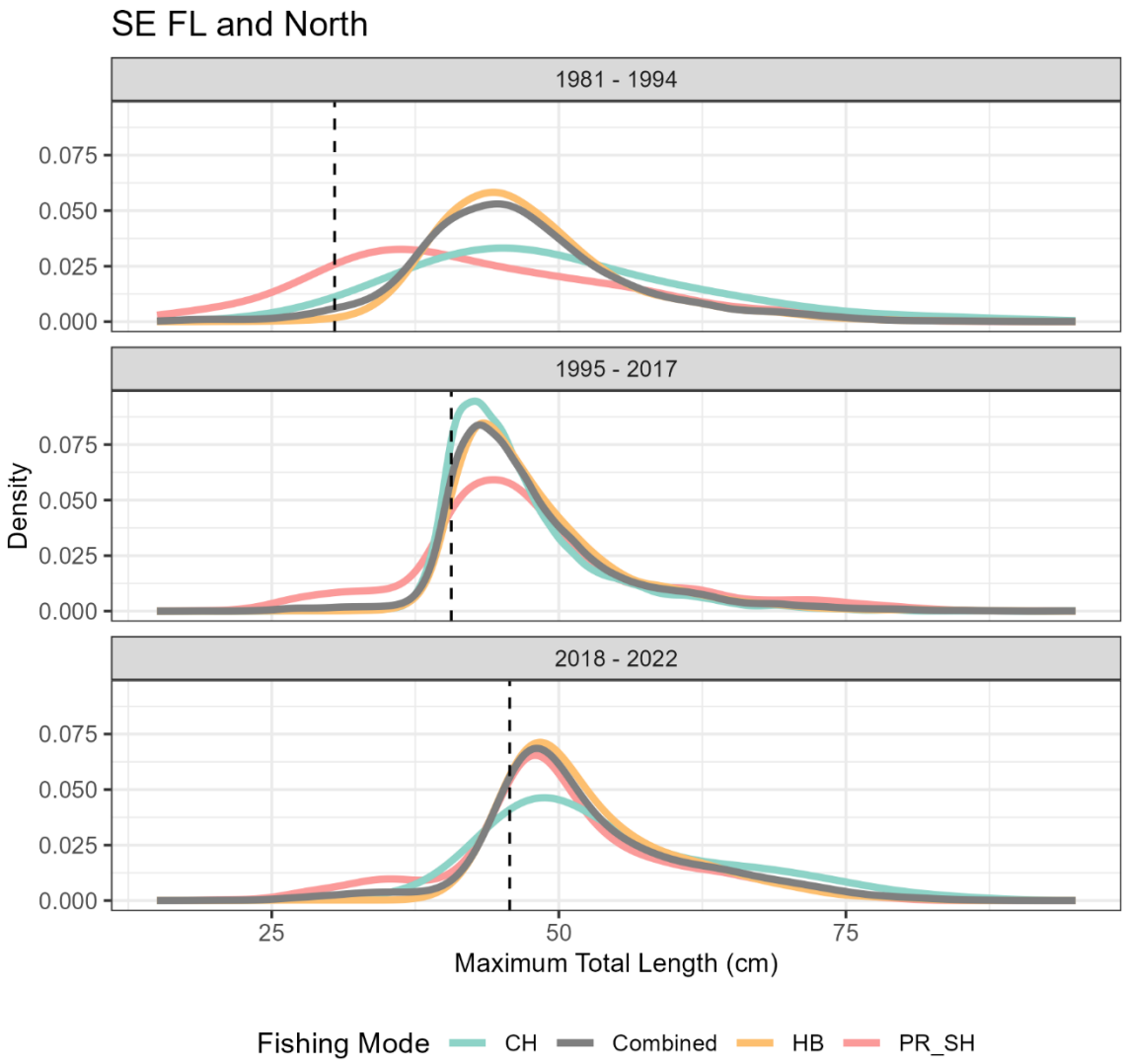


Figure 30. Density of Maximum TL measurements (in two cm bins) by recreational fishing modes and time period in the SE FL and North region. The density of lengths of all modes combined is shown by the grey line.

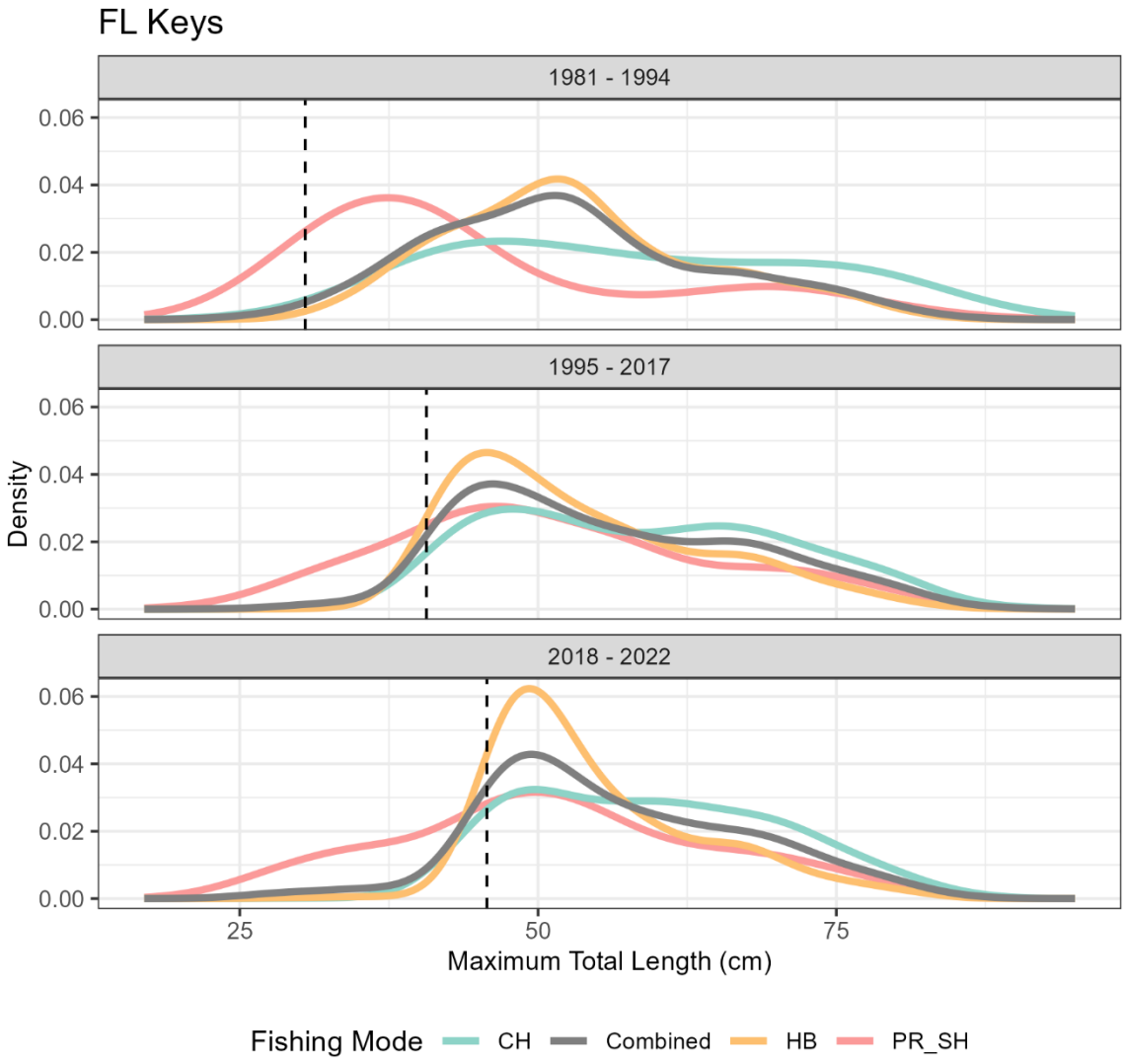


Figure 31. Density of Maximum TL measurements (in two cm bins) by recreational fishing modes and time period in the FL Keys. The density of lengths of all modes combined is shown by the grey line.

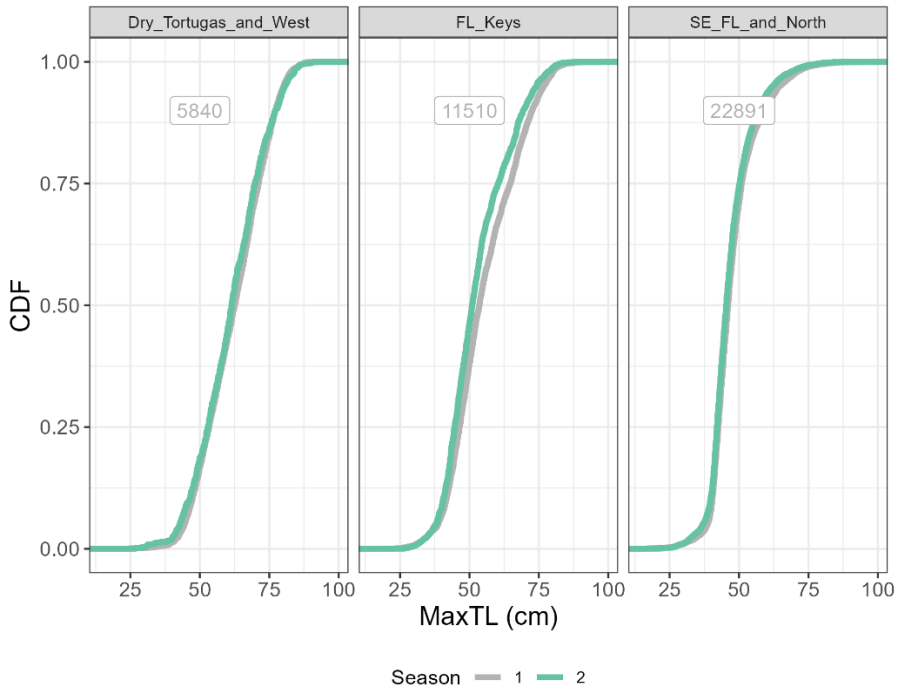


Figure 32. Cumulative Distribution Function (CDF) of Maximum TL measurements of Mutton Snapper by region per season for the recreational fishery.

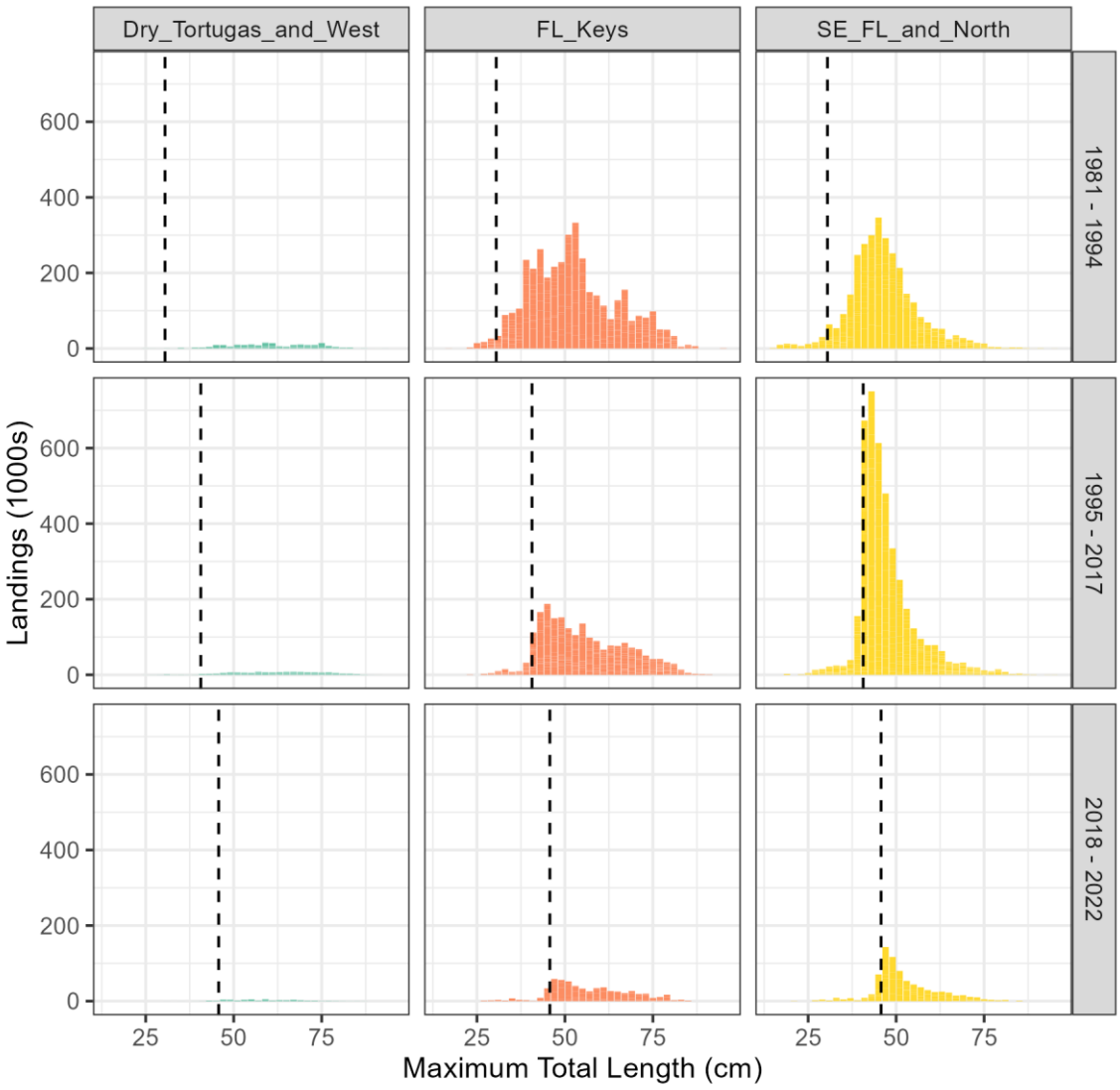


Figure 33. Landings at length (in two cm bins) for the recreational fleet by region and time period. Minimum size limits in the South Atlantic per time period are shown by black dashed lines.

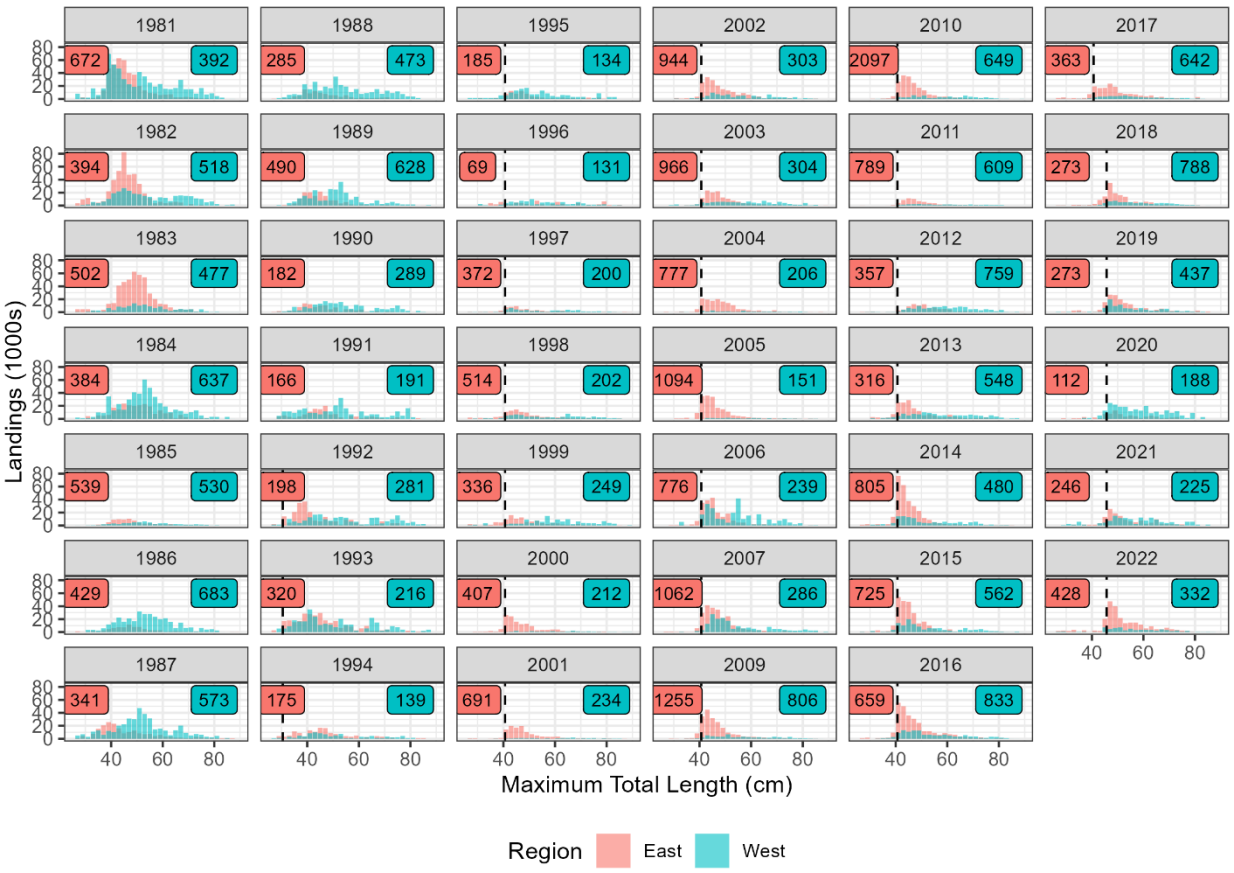


Figure 34. Landings at length (in two cm bins) by year, 1981 – 2007 and 2009-2022, and grouped region for the recreational fleet.

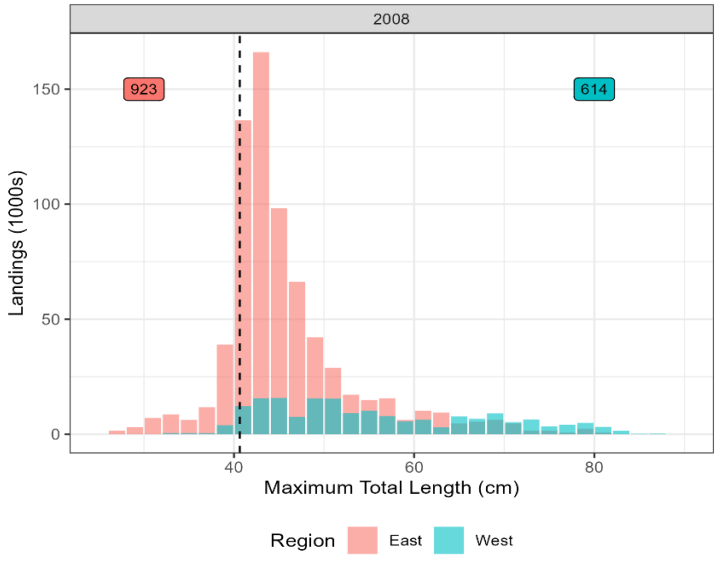


Figure 35. Landings at length (in two cm bins) by grouped region in 2008 for the recreational fleet.

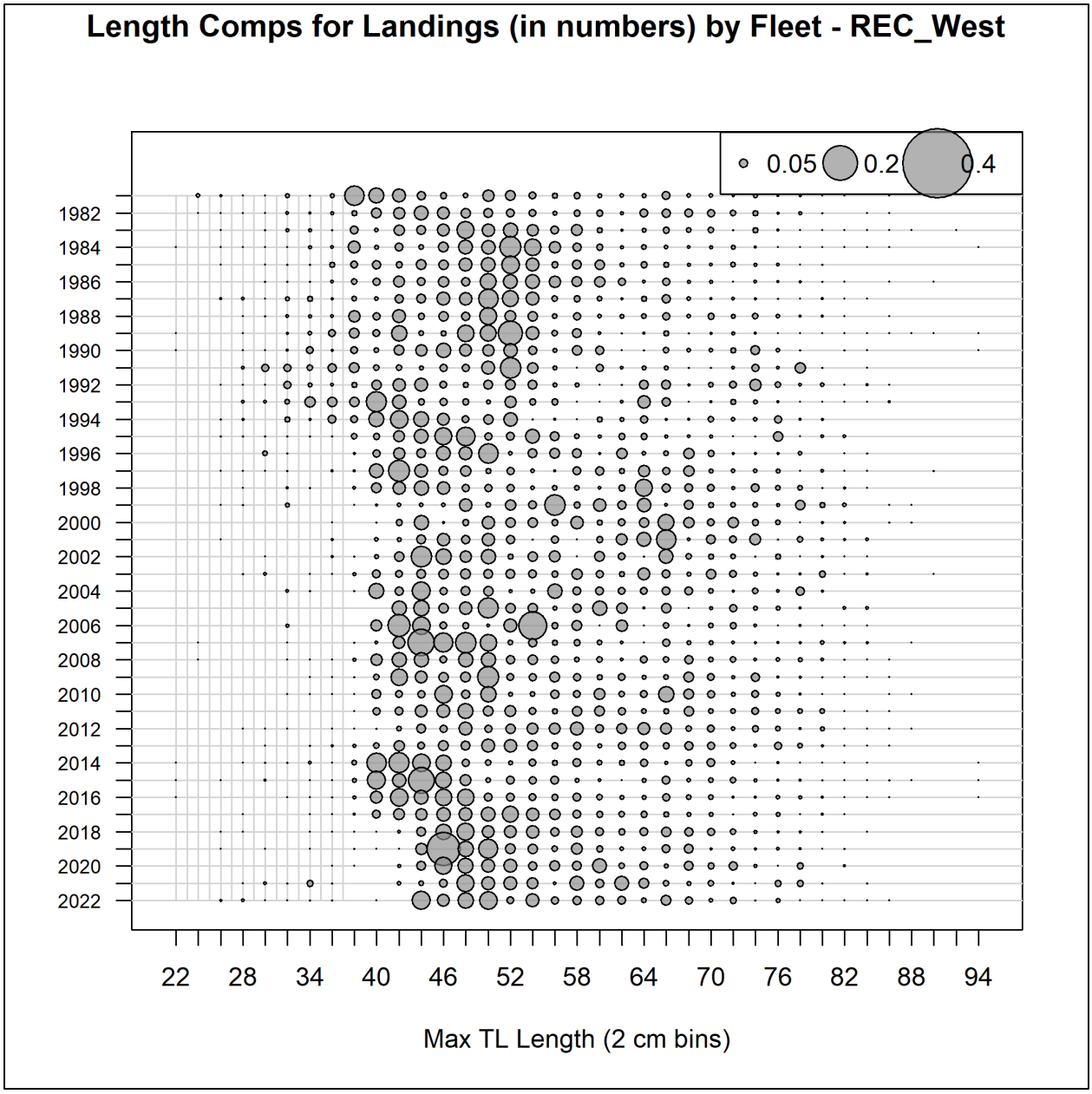


Figure 36. Bubble plot of weighted maximum TL by year for the Rec West fleet, 1981-2022.

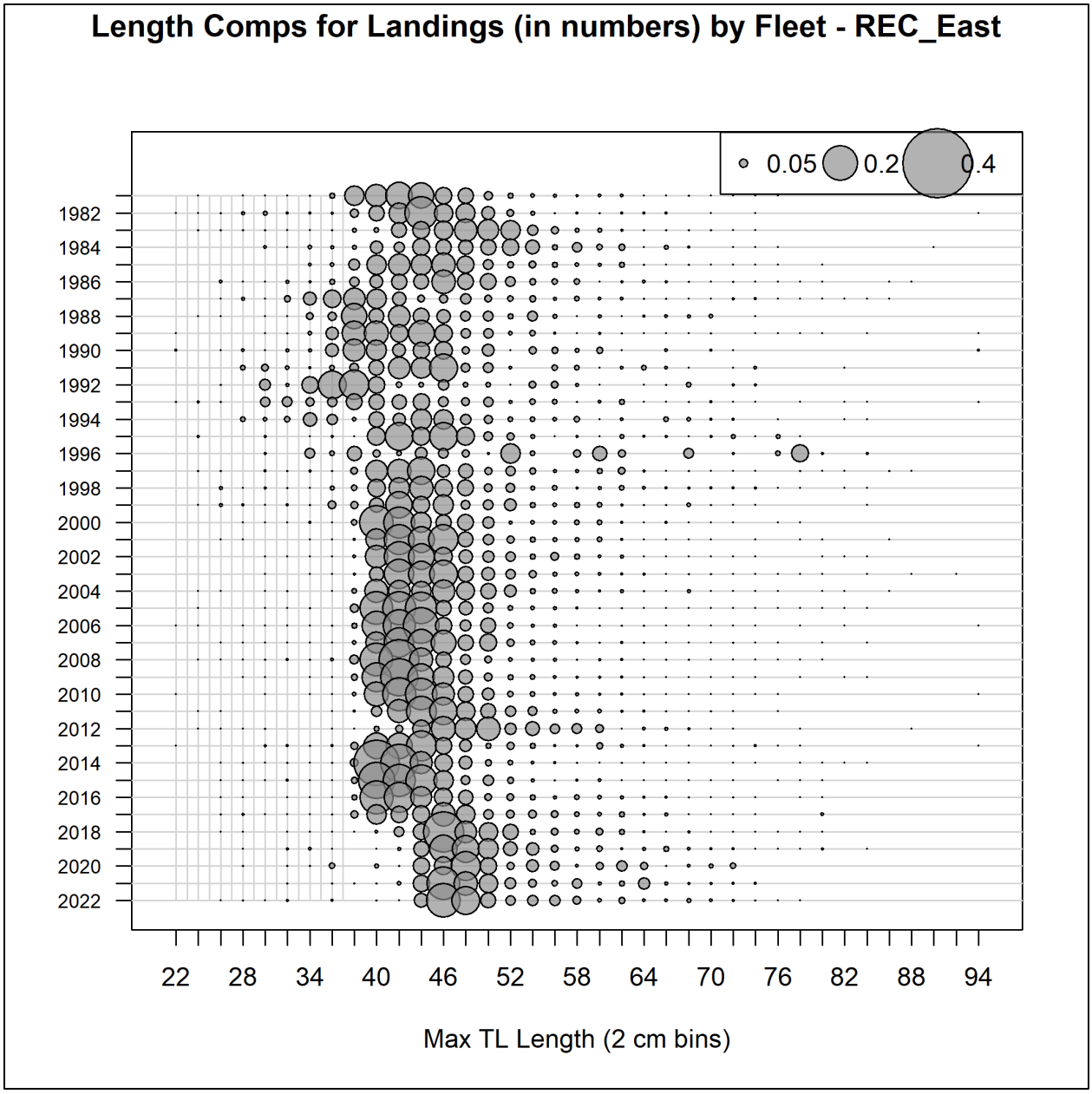


Figure 37. Bubble plot of weighted maximum TL by year for the Rec East fleet, 1981-2022.

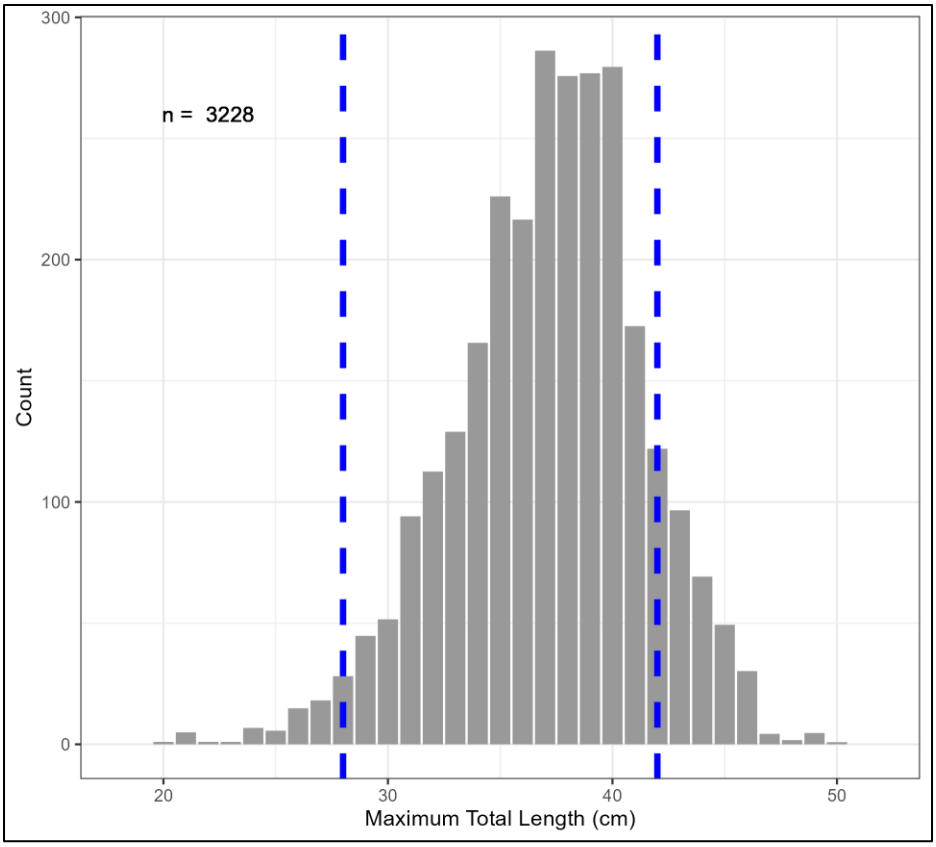


Figure 38. Mutton Snapper maximum total lengths in 2 cm bins sampled (10th and 90th percentiles shown in blue) from recreational releases from 2005-2022.

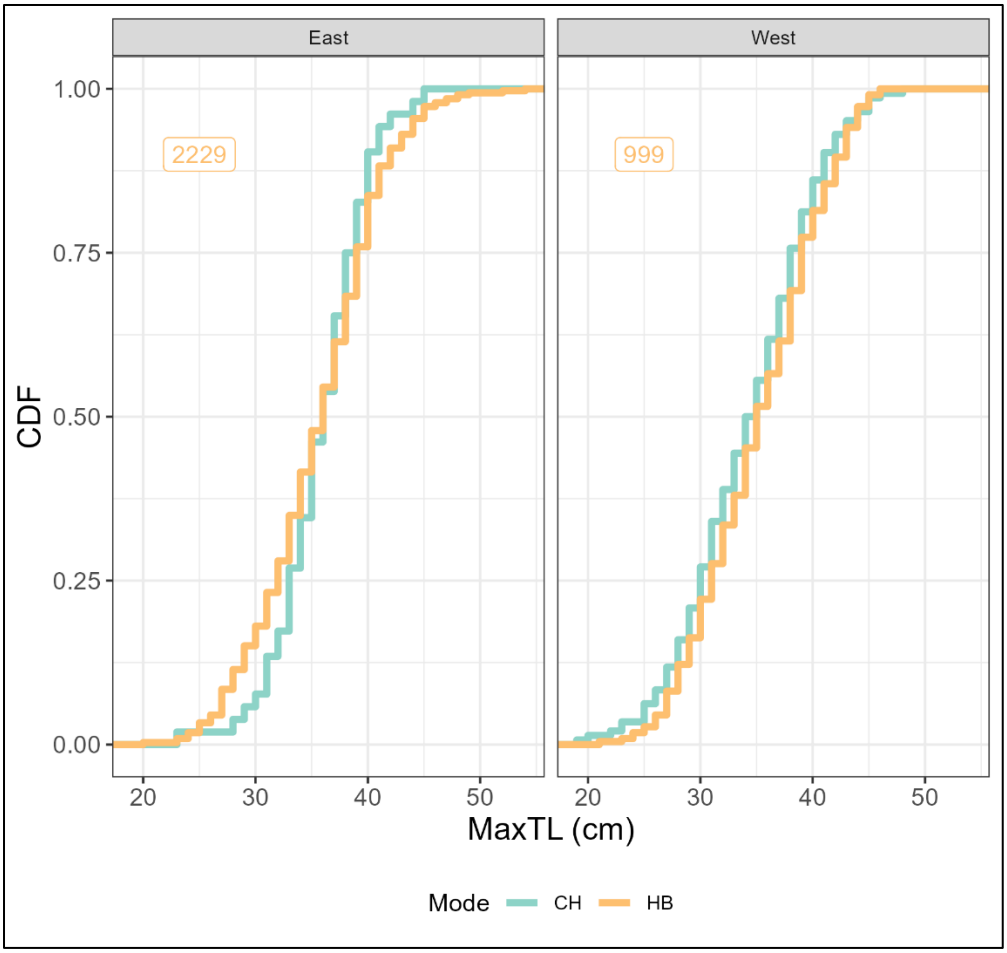


Figure 39. Cumulative Distribution Function (CDF) of Maximum TL measurements of released Mutton Snapper by fishing mode (CH – charter, HB- headboat) per region.

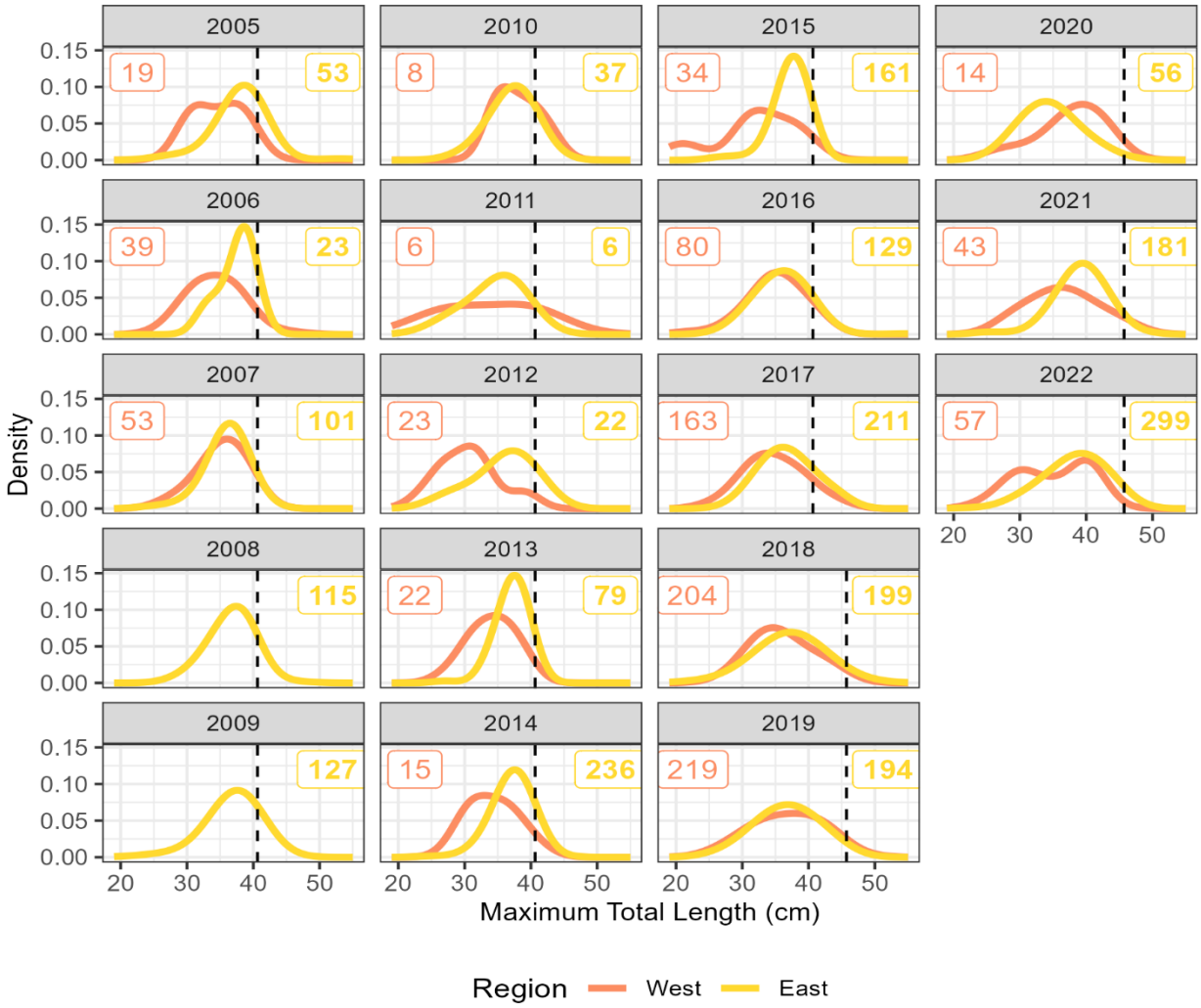


Figure 40. Density of Maximum TL measurements (in two cm bins) of released Mutton Snapper by region and year for charter and headboat recreational fishing modes.

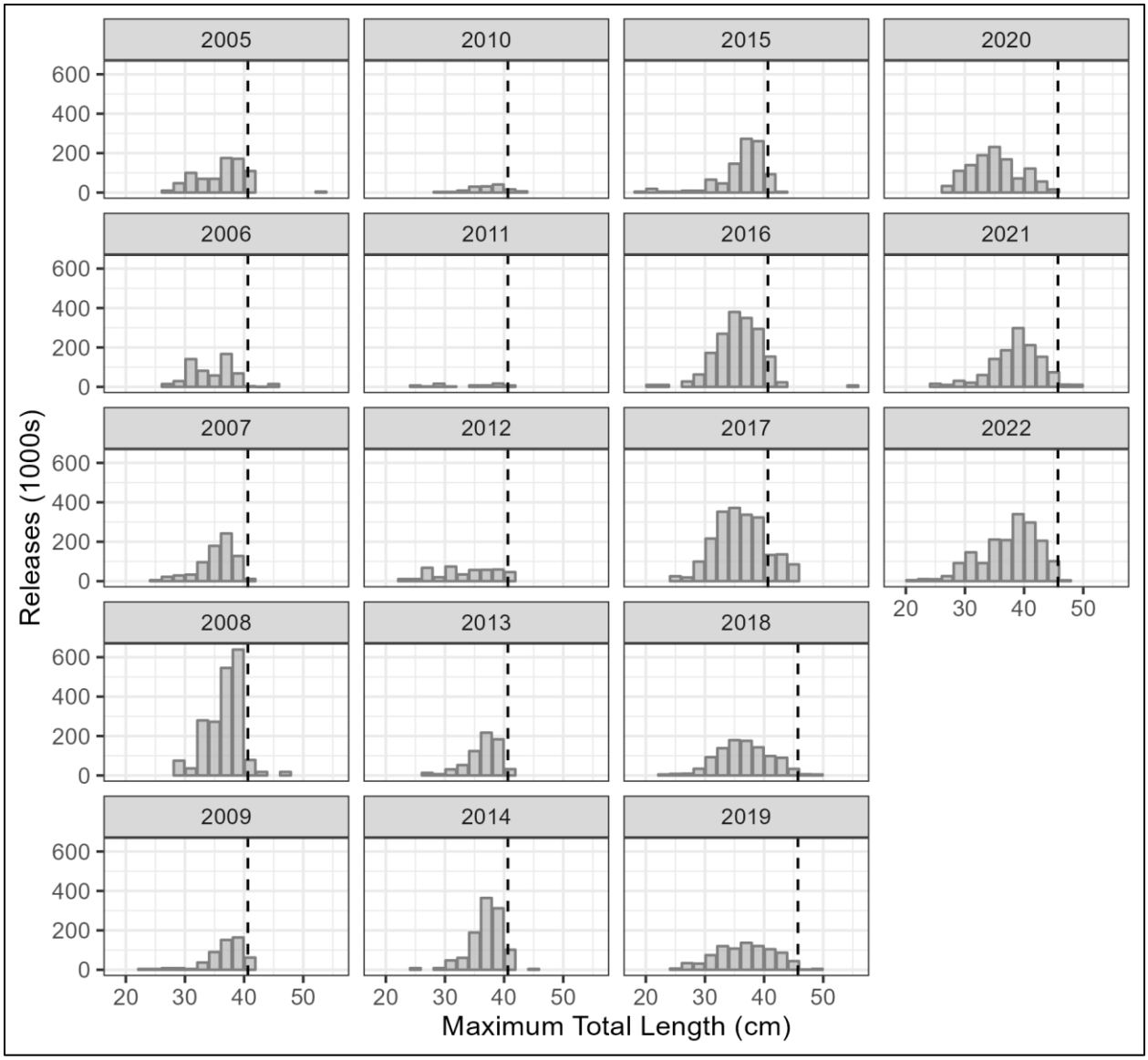


Figure 41. Releases at length (in two cm bins) by year, 2005-2022 applied to both Rec East and Rec West fleets. The minimum size limit in the South Atlantic is shown by the black dashed line.

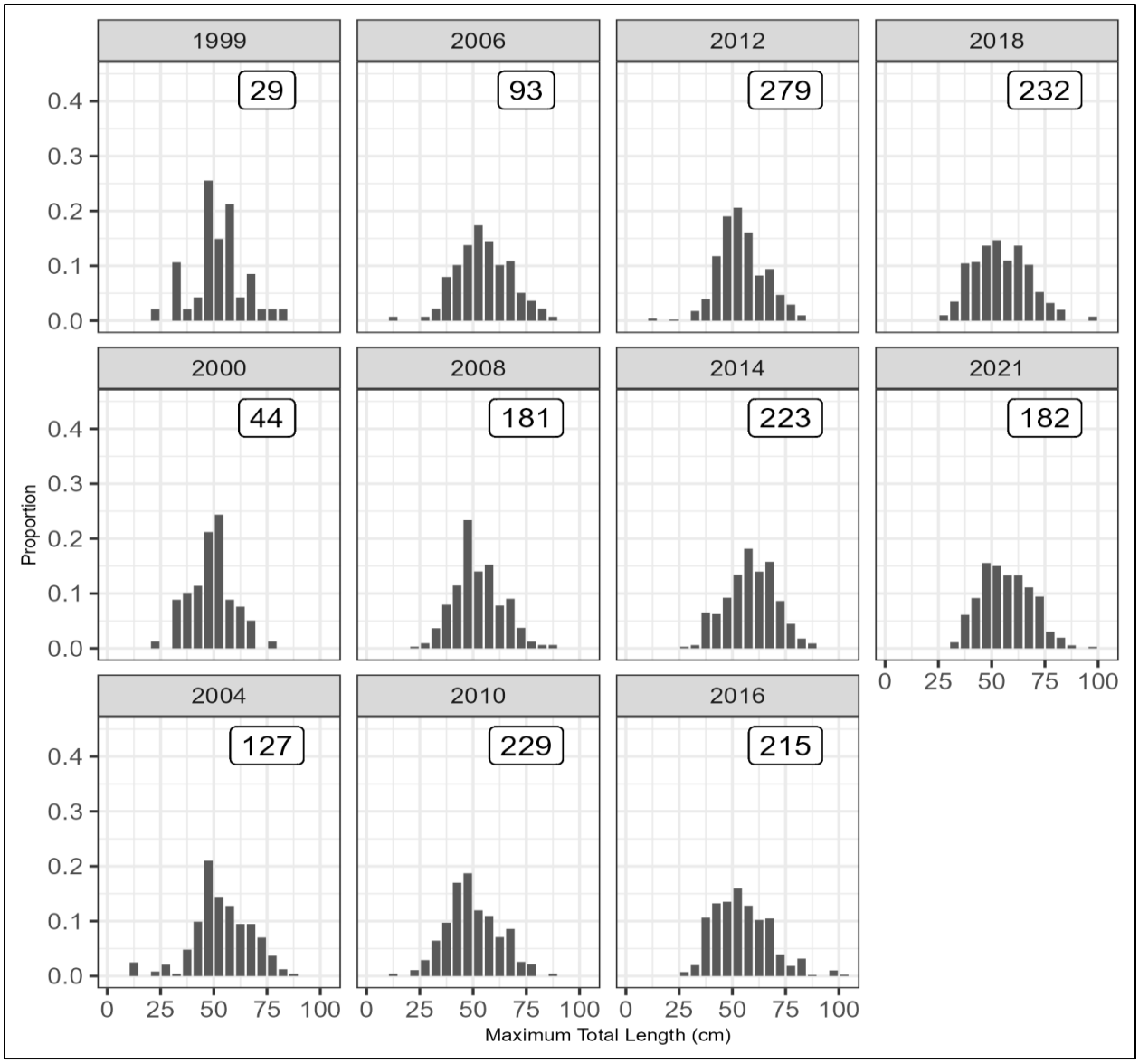


Figure 42. Maximum total lengths in 5 cm bins from the RVC Dry Tortugas survey weighted by the CPUE, 1999-2021.

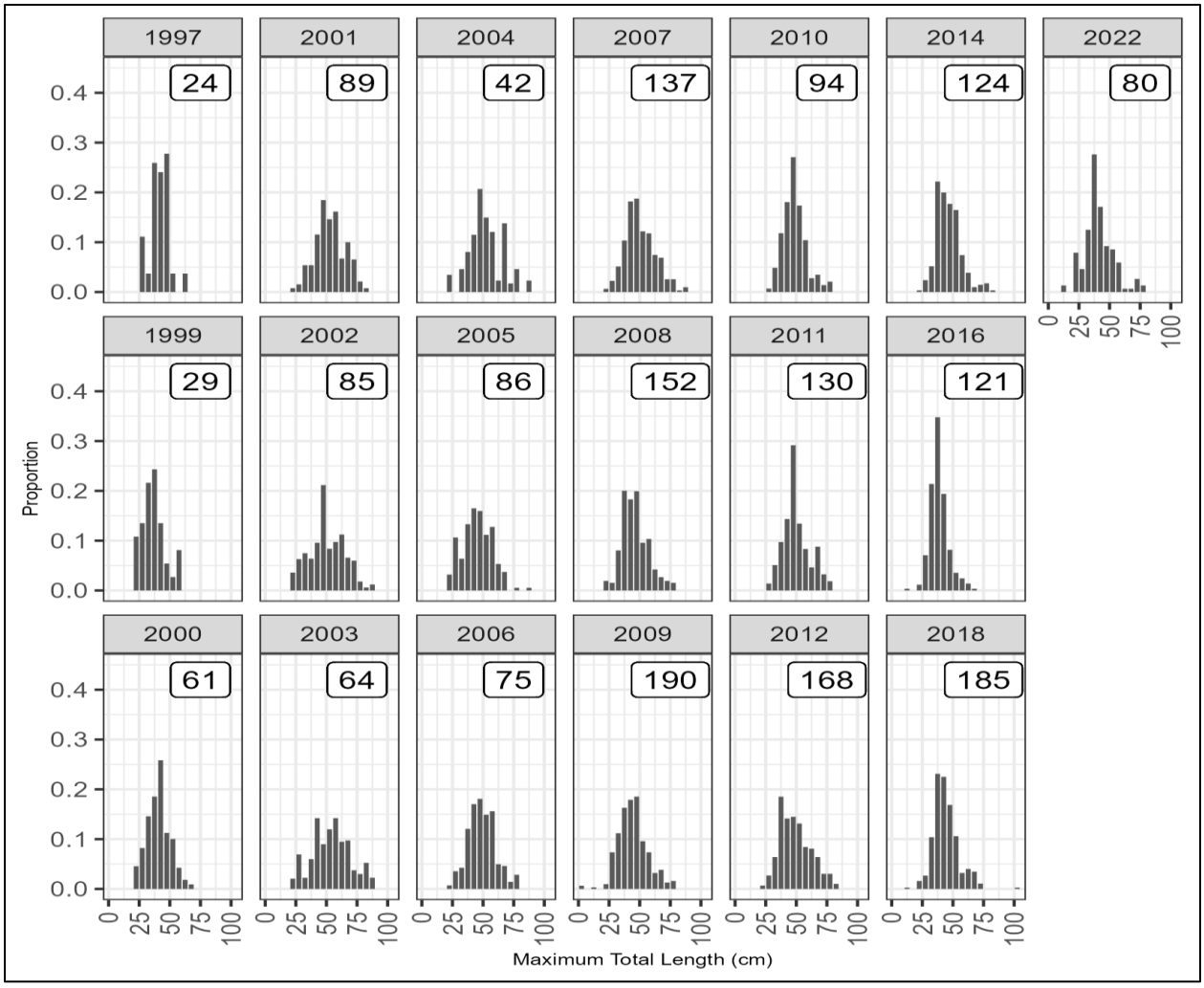


Figure 43. Maximum total lengths in 5 cm bins from the RVC FL Keys survey weighted by the CPUE, 1997-2022.

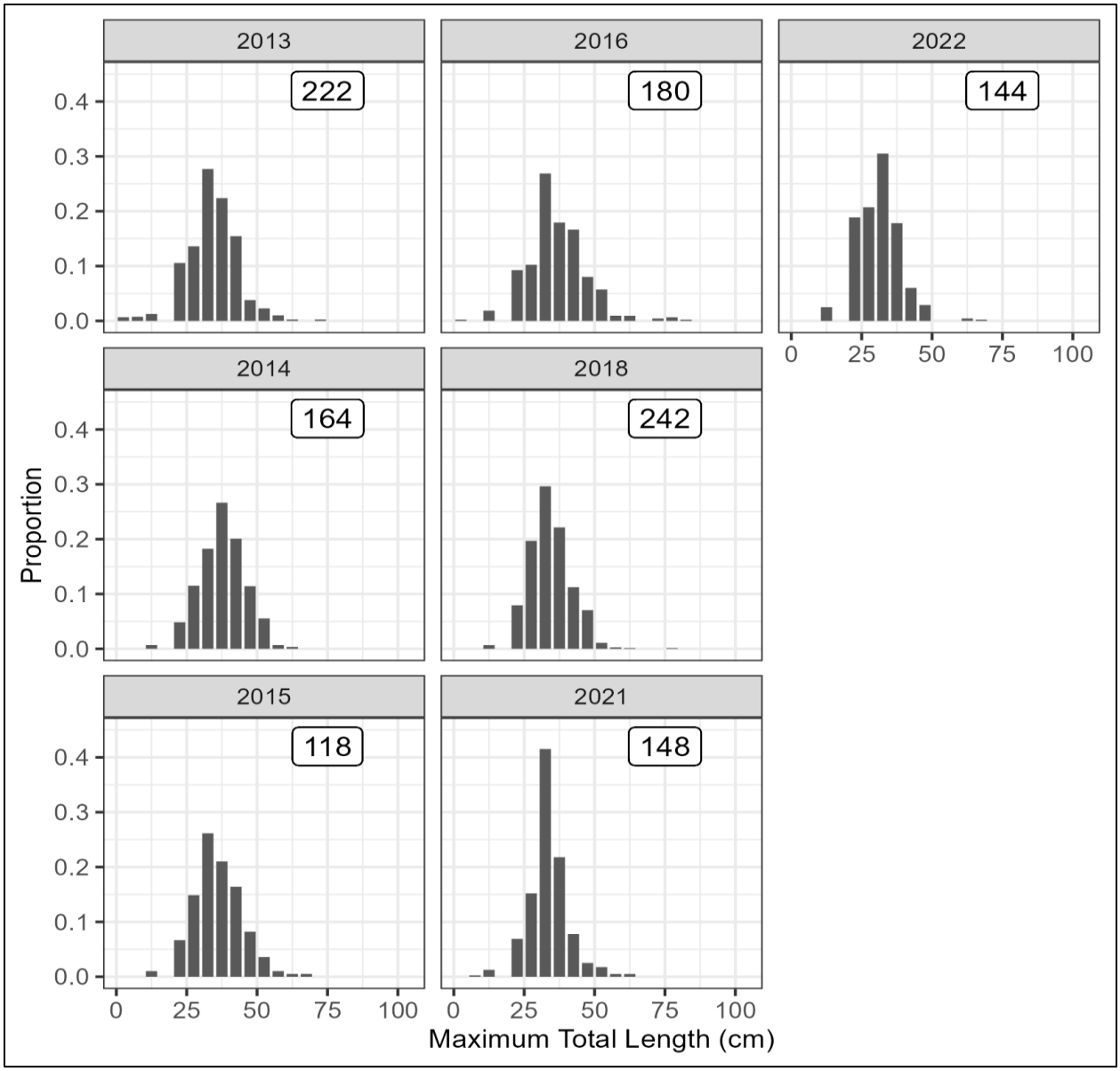


Figure 44. Maximum total lengths in 5 cm bins from the RVC SE FL (i.e., SEFCRI) survey weighted by the CPUE, 2013-2022.

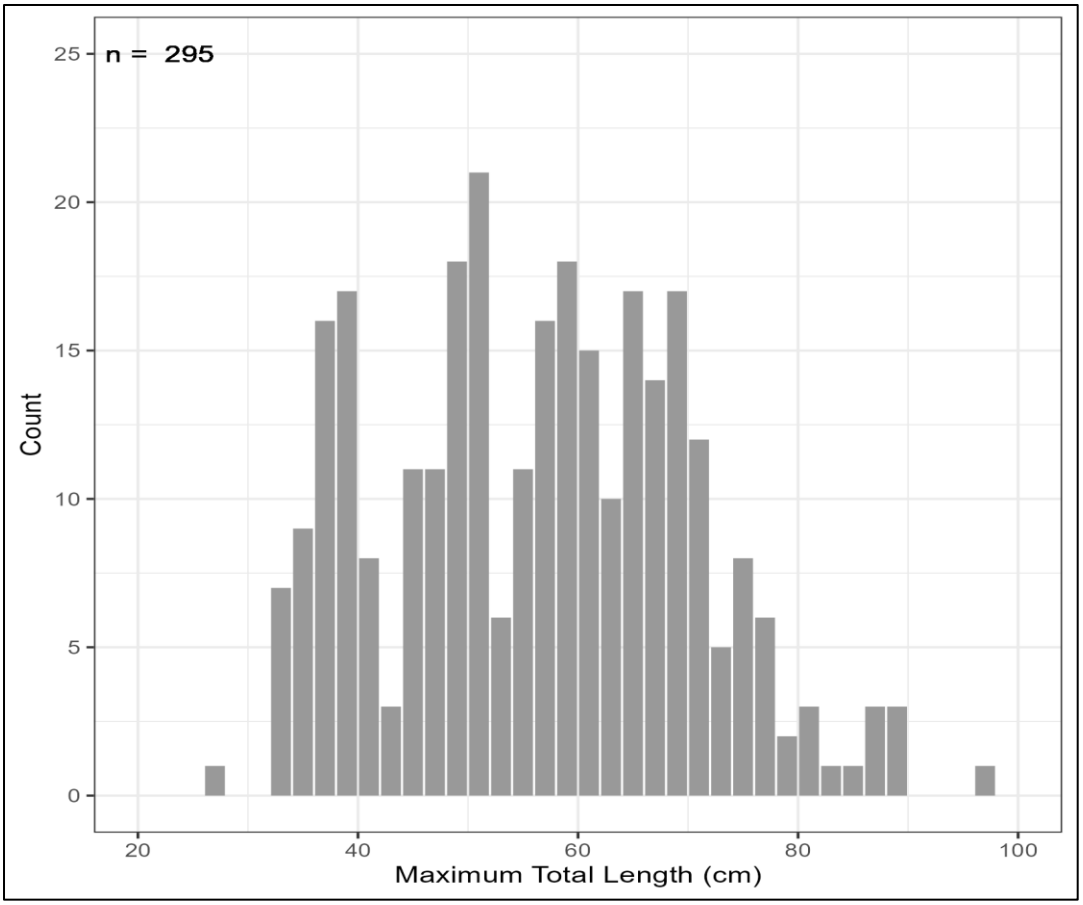


Figure 45. Histogram of Maximum total lengths in 2 cm bins from the Combined GOM Video Index, 2004-2021.

Supplementary Material

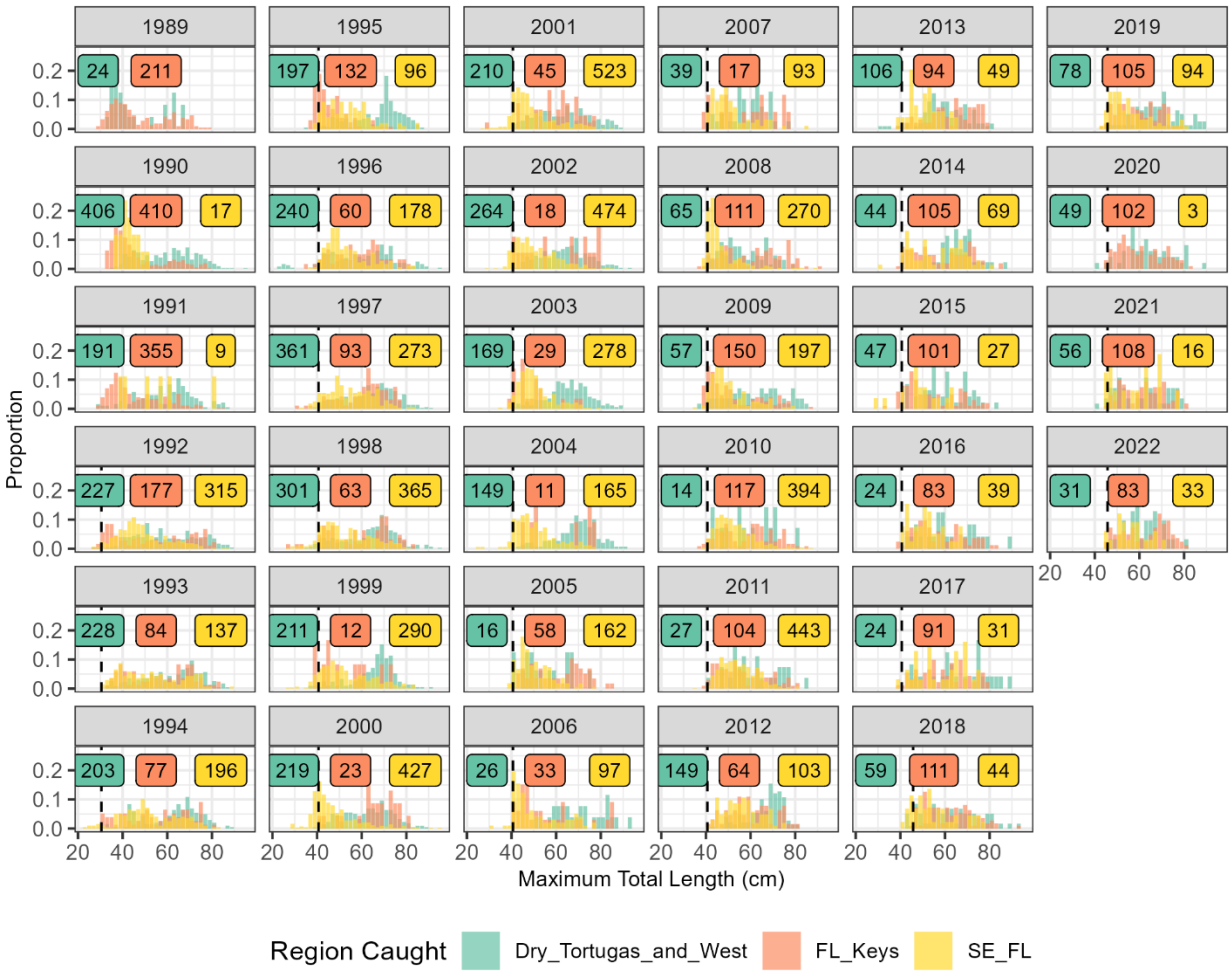


Figure S1. Sampling proportions of maximum TL 2 cm bins for the Dry Tortugas and West, FL Keys, and SE FL regions for 'Other' commercial gears during season 1, 1989-2022.

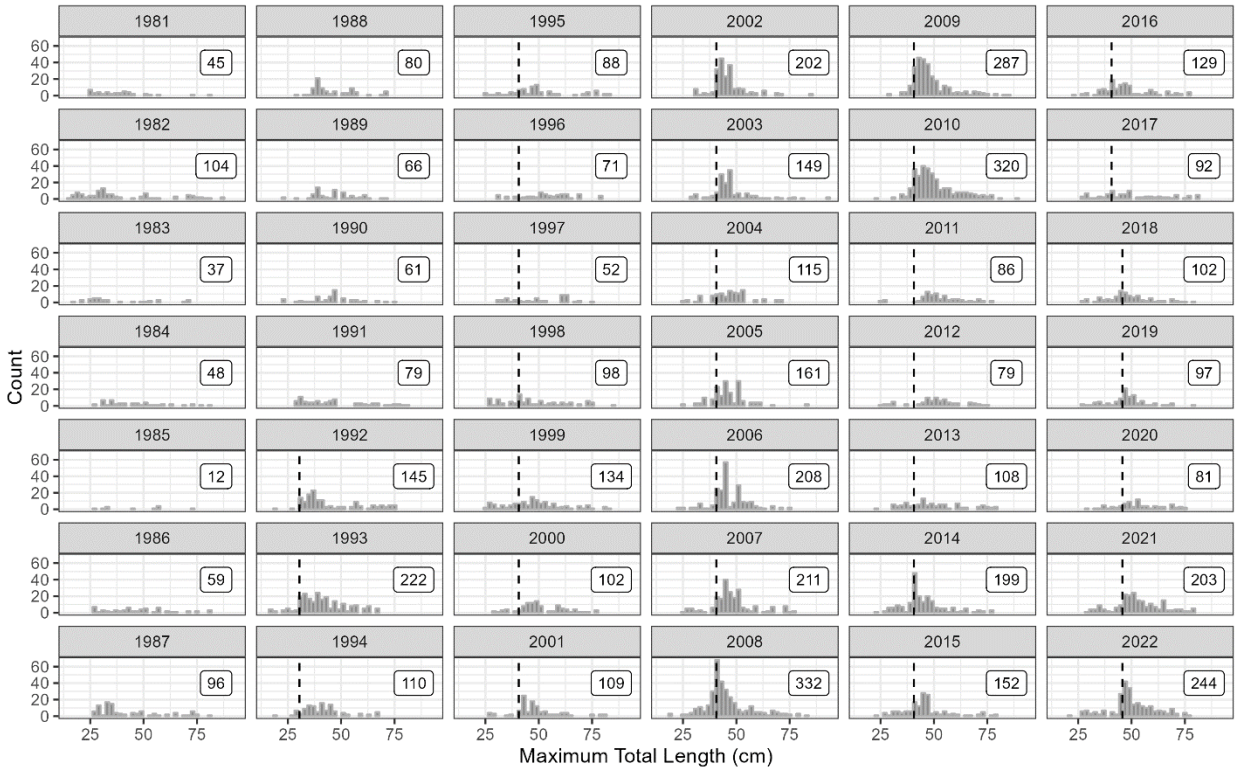


Figure S2. Histogram of sampled maximum TL (in 2 cm bins) for the Private/Shore mode by year. The black dashed line indicates the minimum size limit in the South Atlantic.