UPDATED CATCHES OF ATLANTIC SMALL COASTAL SHARKS

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Summary

This document presents updated commercial and recreational landings of Atlantic small coastal sharks up to 2005. Species-specific information on the geographical distribution of commercial landings and recreational catches is presented along with the different gear types used in the commercial fisheries. Length-frequency information and average weights of the catches in three separate recreational surveys and in the directed shark bottom-longline observer program are also included.

1. Background and Management History

The first Federal fisheries management plan (FMP) for sharks developed by the National Marine Fisheries Service for the Secretary of Commerce was implemented in 1993 (NMFS 1993). The 1993 shark FMP divided Atlantic shark fisheries into three management groups: 1) large coastal sharks (LCS), which included tiger, lemon, smooth hammerhead, scalloped hammerhead, great hammerhead, blacktip, sandbar, dusky, spinner, silky, bull, bignose, Caribbean reef, Galapagos, night, narrowtooth, and nurse sharks; 2) small coastal sharks (SCS), which included Atlantic and Caribbean sharpnose, finetooth, blacknose, bonnethead, smalltail, and Atlantic angel sharks; and 3) pelagic sharks, which included longfin and shortfin mako, blue, porbeagle, thresher, bigeye thresher, oceanic whitetip, sevengill, sixgill, and bigeye sixgill sharks. At that time, the stock assessment indicated that the estimated maximum sustainable yield (MSY) for SCS was 2,590 metric tons (mt) dressed weight (dw). Based on this and landings estimates that indicated fishing mortality was below F_{MSY}, NMFS identified the status of SCS as fully fished. No direct commercial restrictions (e.g., quotas) were implemented although the commercial restrictions for the other shark species affected the SCS fishery (e.g., permits and reporting).

Other than monitoring the landings, few actions were taken for SCS between implementation of the 1993 FMP and a rule in 1997 that established a SCS quota. In June 1996, NMFS convened a stock assessment to examine the status of LCS stocks. This stock

assessment did not include an assessment for small coastal sharks. However, in response to the stock assessment, in 1997, NMFS reduced the recreational retention limit to two LCS, SCS, and pelagic sharks combined per trip with an additional allowance of two Atlantic sharpnose sharks per person per trip. Additionally, due to concerns over increasing SCS landings on a fully fished stock, NMFS established a commercial SCS quota of 1,760 mt dw. As with LCS and pelagic sharks, NMFS split this quota equally between the two fishing seasons (January 1 to June 30 and July 1 to December 31).

In June 1998, NMFS held another LCS stock assessment. As with the 1996 quota, this stock assessment did not examine the status of SCS. Based in part on the results of the 1998 LCS stock assessment, in April 1999, NMFS published the final Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks (1999 FMP; NMFS 1999), which included numerous measures to rebuild or prevent overfishing of Atlantic sharks in commercial and recreational fisheries. The 1999 FMP replaced the 1993 FMP. Several management measures related to SCS that changed in the 1999 FMP included: reducing the commercial SCS quota to 359 mt dw; reducing recreational retention limits for all sharks to one shark per vessel per trip with a 4.5 foot fork length minimum size and one Atlantic sharpnose per person per trip, no minimum size; prohibition of finning for all shark species, and expanding the list of prohibited shark species to include three species of SCS (Caribbean sharpnose, smalltail, and angel shark). Due to litigation by several groups, the reduced quota and several other quota accounting measures were not initially implemented.

The most recent assessment for small coastal sharks was conducted in 2002 (Cortés 2002). Based on the results of the stock assessment, NMFS determined that the SCS complex, Atlantic sharpnose, finetooth, blacknose, and bonnethead sharks were not overfished. Additionally, the SCS complex, Atlantic sharpnose, blacknose, and bonnethead sharks were not experiencing overfishing. However, finetooth sharks were experiencing overfishing. Based in part on these results, NMFS implemented via an emergency rule an annual quota of 326 mt dw for 2003. The emergency rule was an interim measure to maintain the status of sharks pending the re-evaluation of management measures in the context of the rebuilding plan through an amendment to the 1999 FMP.

Based on the 2002 SCS and LCS stock assessments, NMFS re-examined many of the shark management measures in Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks (NMFS 2003). The changes in Amendment 1 affected all aspects of shark management. The final management measures that would affect SCS fishermen included, among other things:

- Using MSY as a basis for setting commercial quotas (the annual SCS complex quota was established at 454 mt dw);
- Establishing regional commercial quotas (North Atlantic, South Atlantic, and Gulf of Mexico);
- Establishing trimester commercial fishing seasons (January through April, May through August, September through December);
- Adjusting the recreational bag and size limits (one shark per vessel per trip with a 4.5 foot fork length minimum size and one Atlantic sharpnose or bonnethead shark per

person per trip, no minimum size);
- Establishing gear restrictions to reduce bycatch or reduce bycatch mortality, establishing a time/area closure off the coast of North Carolina;
- Establishing a mechanism for changing the species on the prohibited species list;
- Updating essential fish habitat identifications for five species of sharks (including one SCS, finetooth sharks); and,
- Changing the administration for issuing permits for display purposes.

In 2003, NMFS began the process to amend the 1999 FMP and consolidate the 1999 FMP with the Atlantic Billfish FMP. This process was completed in 2006 (NMFS 2006). The Consolidated HMS FMP contained numerous actions. The only action directly relevant to SCS was the decision to collect more information (from observer programs, state agencies, and Regional Fishery Management Councils) in order to target the most appropriate management measures to prevent overfishing of finetooth sharks. Additional management measures included: 1) mandatory shark identification workshops for shark vessel owners and operators, as well as for federally permitted shark dealers; and 2) that the 2nd dorsal and anal fins must remain on all sharks through landing. Both measures are designed to improve data collection at the species level.

Estimates of commercial landings and recreational catches for small coastal sharks for the period 1981-2000 were summarized in multiple documents and used in the 2002 small coastal shark stock assessment (Cortés 2002). Subsequent updates of commercial landings and recreational catches were included in various documents (Cortés 2003, 2005; Cortés and Neer 2005), with the most recent update including information up to 2004. The present report provides updated and revised commercial landing and recreational catch histories for the SCS complex and the four individual species that conform the group (Atlantic sharpnose, bonnethead, blacknose and finetooth sharks) for the period 1995-2005 (commercial) and 1981-2005 (recreational). Geographical information (by region and state) on the commercial and recreational catches and a breakdown of the gear used in commercial fisheries is also presented. Length-frequency information and average weights of the catches in three separate recreational surveys and in the directed shark bottom-longline observer program are also included. The commercial landings and recreational catches presented are believed to represent only a small fraction of all catches because SCS are also caught as bycatch and discarded in a variety of fisheries, in particular the shrimp trawl fishery (Cortés 2002).

2. Commercial Landings

Commercial landings estimates of small coastal sharks in U.S waters were obtained from the Southeast Regional general canvass program (also known as Automated Landings Reporting Systems; ALS) and the SEFSC quota monitoring program (also known as Pelagic Dealer Compliance; PDC), which is based on reports from dealers holding permits to land sharks in the southeastern region. Landings in southeastern states reported in the general canvass and quota monitoring data files were combined to define the species composition and volume of landings (see below). The quota monitoring data generally provide a more diverse species listing than the general canvass data, whereas the general canvass data apportion a higher

volume of shark landings as unclassified. The larger reported landing of a given species in the two data sets was taken as the actual landed volume for that species. Additionally, as is done for large coastal sharks, for the state of North Carolina (NC) it was assumed that some "dogfish" might have been assigned to the unclassified sharks category. To adjust for this possibility for the state of NC, the NC unclassified sharks were apportioned between the large coastal, small coastal, pelagic, prohibited, and dogfish categories based on the reported distribution of landings by species and gear for that state. This typically resulted in small amounts of unclassified sharks being categorized as small coastal sharks. Landings reported in the Northeast Regional general canvass program for northeastern states were then added to those from the southeast region to provide total commercial landings. Landings from the northeastern states were of very small magnitude and generally reported as unclassified small coastal sharks. Prior to 1995, commercial landings of SCS were only reported in the general canvass program and were insignificant (< 1 mt in 1991 and 1993, about 7 mt in 1994; Cortés 2000).

Four species of small coastal sharks (Atlantic sharpnose, bonnethead, blacknose, and finetooth) are regularly landed. By species, bonnetheads made up over 50% of all SCS commercial landings in 1995, but were the least important species represented in commercial landings for the remaining years, 1996-2005 (**Figure 1**). Except for 1995, 2000, and 2001, Atlantic sharpnose sharks accounted for over one third of all SCS commercial landings in the remaining years, and about half in 2004-2005, whereas finetooth sharks accounted for over one third of the landings in 1998-2001.

Updated data from the general canvass reveal that most SCS were landed in the South Atlantic region[1] (74-98%; mean=85%) during 1995-2005, with most of the rest being landed in the Gulf of Mexico region[2] (2-26%; mean=11%; **Table 1**). Data from the quota monitoring system (for the southeast region only) for the same period show a similar pattern, with 81-96% (mean=90%) of landings attributed to the South Atlantic region and 10% (mean; range=4-19%) to the Gulf of Mexico region (**Table 1**).

By state, canvass data indicate that Florida's east coast accounted for the vast majority of the landings (56-94%) during 1995-2005, with the west coast of Florida contributing 1-30%, North Carolina always less than 5%, and South Carolina always less than 2%. According to the canvass data, Alabama started landing SCS in 2002 (4%), and the proportion of landings in that state increased in 2003-2005 (19-23%; **Figure 2**). The pattern was similar for Atlantic sharpnose sharks, with Florida's east coast accounting for the vast majority of the landings in any given year (71-93%) during 1995-2005, with the exception of 2003, when Alabama accounted for the majority of the landings (57%). Alabama also accounted for 20-22% of the landings in 2004-2005. North Carolina contributed 4-24% of the total landings, with the highest contributions occurring in 1995 (24%), 2000 (19%) and 2001 (15%; **Figure 3**). For finetooth shark, Florida's east coast also dominated the landings, with Alabama having a sizeable contribution in 2004 (39%) and Florida's west coast contributing 9% in 2005 (**Figure 4**). For blacknose shark, while Florida's east coast also dominated, Florida's west coast had larger contributions than for the other species examined,

[1] The South Atlantic region comprises states between the east coast of Florida and North Carolina.
[2] The Gulf of Mexico region comprises states between the west coast of Florida and Texas.

accounting for 65% of the landings in 1995 and 1-25% during 1996-2005. Alabama also had an important contribution in 2005 (35%; **Figure 5**). Bonnethead landings were almost entirely attributable to Florida, with the contribution of the east coast being much larger than that from the west coast (**Figure 6**).

Data from the quota monitoring program showed very similar patterns of commercial catches by state. For the SCS complex, Florida's east coast also accounted for the vast majority of the landings (73-95%) during 1997-2005, with the west coast of Florida contributing 4-11%, and North Carolina and South Carolina less than 2% on average for the entire time period. According to the quota monitoring data, the proportion of landings in Alabama during 2003-2005 was 6-13% (**Figure 7**). The pattern was similar for Atlantic sharpnose sharks, with Florida's east coast accounting for the vast majority of the landings in any given year (48-96%) during 1995-2005, except for 2003, when Alabama accounted for 33% of the landings. North Carolina contributed 11-13% of the total landings in 2002-2003, and South Carolina 4-7% in 2004-2005 (**Figure 8**). For finetooth shark, Florida's east coast totally dominated the landings (overall mean of 96%), with only Florida's west coast contributing 4-5% in 2000-2001, Georgia contributing 7.5% in 2003, and South Carolina 5-7% in 2004-2005 (**Figure 9**). For blacknose shark, as was the case with the canvass data, while Florida's east coast also dominated, Florida's west coast had larger contributions than for the other species examined, accounting for 10-22% of the landings during 1996-2005 (overall mean of 16%). Alabama's contribution to the landings in 2005 was of the same magnitude as that from Florida's east coast (38 vs. 42%; **Figure 10**). Bonnethead landings were almost entirely attributable to Florida, with the contribution of the east coast being much larger than that from the west coast, and the only other notable contribution to the landings being South Carolina in 2005 (12%; **Figure 11**).

The large number of gear names that appears in the general canvass data was collapsed into a smaller number of categories to facilitate analysis and graphical depiction. The following gear categories were defined: drift gill nets, gillnets (other than drift), other nets (not drift or gillnets), purse seines, otter trawl, other trawl (other than otter trawl), pots and traps, lines (e.g., troll lines, rod and reel), longlines, diving, and other gear (e.g., harpoon, dredge).

Drift gillnets were the dominant gear type catching SCS in the South Atlantic region in all years according to general canvass data (**Figure 12**). In 2005, gillnets became more important. In the Gulf of Mexico region, almost all small coastal sharks landed were caught in longlines in 1995-1997, and were the dominant gear type in 1998, 2000-2002, and 2004-2005, whereas the proportion made up by gillnets increased in 2004 and 2005. Most of the landings from 1995 to 2005 corresponded to the South Atlantic region (**Figure 12**).

The vast majority of Atlantic sharpnose sharks were caught in the South Atlantic region in 1995-2002 (**Figure 13**). Except for 1995, when about 2/3 of the landings corresponded to longline gear, drift gillnets were the dominant type of gear in the South Atlantic region all other years from 1996 to 2005 (**Figure 13**). In the Gulf of Mexico region, the vast majority of Atlantic sharpnose sharks landed were caught in longlines.

Finetooth sharks were also almost exclusively caught in the South Atlantic region, except for 2004 when the Gulf of Mexico region accounted for 40% of the landings (**Figure 14**). On average, over 80% in any single year were caught in drift gillnets, except for 1995 when about 90% of the catch corresponded to longlines, and in 2004 and 2005 when the importance of other gillnets increased.

For the blacknose shark, the South Atlantic region was also the main region of landing, except for 1995, when 65% of the landings corresponded to the Gulf of Mexico region, and 2005, when the Gulf of Mexico region accounted for almost 50% of the landings (**Figure 15**). For the entire period considered (1995-2005), 2/3 of blacknose sharks landed in the South Atlantic region were caught with drift gillnets. The importance of other gillnets also increased in 2005.

Bonnetheads were also predominantly landed in the South Atlantic region each year (**Figure 16**). In that region, gillnets were the main gear in all years, except in 1996 when both gillnets and longlines accounted for about 1/2 of all landings each. There was also a small increase in the importance of other gillnets in 2005.

Landings of small coastal sharks peaked in 1999 and 2001, subsequently decreased from 2002 to 2004, and increased again in 2005. Commercial landings in numbers exceeded recreational harvest in all years since the quota monitoring system was implemented, except for 1995 and 2000 (**Table 2**). Commercial landings in numbers ranged from about 118,000 fish (calculated using average weights predicted from lengths measured in the directed shark fishery observer program; see below) in 1996 to about 223,000 fish in 1999.

Total catch in numbers (excluding bycatch/discards) for the recent period in which both commercial and recreational landings are available (1995-2005) show a general increase from 1995 to 2001, followed by a general decrease from that year to 2005.

3. Bottom-Longline Shark Fishery Observer Program Information

As has been reported in previous documents (e.g., Cortés 2000, Cortés and Neer 2002, Cortés 2003, 2005), information from observer sampling on board commercial shark vessels targeting sharks (formerly run jointly by the Gulf and South Atlantic Fisheries Development Foundation and the University of Florida, then by the University of Florida alone, and presently by the NMFS Panama City Laboratory) was summarized to obtain estimates of the average size of sharks harvested by the commercial fleet. Differences in predicted (obtained by back-transforming from fork lengths) and observed sample weights were reported previously and attributed mainly to the opportunistic nature of weight measures taken during the observer program. This generally resulted in substantially fewer direct weight measurements than length measurements, and almost no weights being taken starting in 1999 (G. Burgess, U. of Florida, pers. comm.). For this update, average weights were calculated from lengths of sharks measured in the program by applying length-weight regressions summarized in SB-III-5 and in other published and unpublished sources. It is assumed that average weights predicted from length are a close approximation to the actual whole weights of sharks caught in the commercial fishery and thus the estimates presented in **Tables 2-6**

and **Tables 7-11** are calculated based on predicted weights (after transforming from whole to dressed weight).

The predicted average weight for the SCS complex for the observed period (1993-2005) ranged from 3.27 lb dw in 1999 (n=2,159) to 4.38 lb dw in 2005 (n=780), but remained stable over the thirteen-year data set (1993-2005; **Figure 17**). The average weight and length of Atlantic sharpnose sharks also remained stable during 1993-2005 (**Figure 18**). Blacknose shark average lengths and weights showed more fluctuation but no trend (**Figure 19**), whereas sample sizes for finetooth sharks and bonnetheads were very low as these species are rarely observed in the program (**Figures 20** and **21**).

Length-frequency distributions of Atlantic sharpnose sharks for 1993-2005 showed that the 70-80 and 80-90 cm FL size classes were the most frequently observed in the majority of the years, indicating that mostly mature individuals are caught by the fishery (**Figure 22**). For blacknose sharks, the 80-90 or 90-100 cm FL size classes dominated in the majority of the years. Both immature and mature individuals appear to be caught by the fishery (**Figure 23**).

4. Recreational Harvest Estimates

Recreational fishing along the U.S. Atlantic and Gulf of Mexico coasts also results in significant harvests of small coastal shark species (SB-III-5). Recreational fishing estimates were obtained, as previously reported, from three data collection programs: the Marine Recreational Fishery Statistics Survey (MRFSS), the NMFS Headboat Survey (HBOAT) operated by the SEFSC Beaufort Laboratory, and the Texas Parks and Wildlife Department Recreational Fishing Survey (TXPWD). During 1998-2005, an average of 79% of the total reported recreational harvest of small coastal sharks came from MRFSS.

By species, Atlantic sharpnose sharks made up 54-78% of all SCS recreational catches during 1995-2005 (**Figure 24**). Bonnetheads were the second-most caught species (15-34%), blacknose sharks were reported caught much less often (2-12%), and finetooth sharks were rarely reported caught during that time period (0.1-6%; **Figure 24**).

The majority of recreational SCS landings in 1981-2005 occurred in the Gulf of Mexico region (annual mean=58%), followed by the South Atlantic region (40%), with the contribution of the mid-Atlantic region[3] being insignificant (1.5%; **Figure 25a**). All individual species were also predominantly taken in the Gulf of Mexico vs. the South Atlantic region. For Atlantic sharpnose shark, the proportion was 55% vs. 45%, 77% vs. 14% for blacknose shark, 66% vs. 35% for bonnethead, and 71% vs. 13% for finetooth sharks (**Figures 25b-e**). The contribution of the mid-Atlantic region was <1% for Atlantic sharpnose and blacknose sharks, 0% for bonnetheads, and 7% for finetooth sharks.

Data from MRFSS revealed that, by state, Florida's west coast was the main area where SCS were reported caught in the Gulf of Mexico region, whereas South Carolina was

[3] The mid-Atlantic region comprises states between Virginia and New York.

the main state in the South Atlantic region up to 1996, after which the east coast of Florida became more important (**Figure 26**). The pattern for Atlantic sharpnose shark showed larger contributions of South Carolina and Mississippi (**Figure 27**). Finetooth sharks were most often reported caught in Mississippi, but there were several years with no reported catches and some years where other states predominated (**Figure 28**). In contrast, blacknose sharks were overwhelmingly reported to have been caught on Florida's west coast almost every single year (**Figure 29**). Florida's west coast in the Gulf of Mexico region, and Florida's east coast and South Carolina in the South Atlantic region were the states where most bonnetheads were reported caught in the MRFSS survey (**Figure 30**).

Data from the Headboat survey revealed that Texas was the main state where SCS were reported caught in the Gulf of Mexico region, and the east coast of Florida in the South Atlantic region (**Figure 31**). The pattern for Atlantic sharpnose shark was very similar to that of the SCS complex (**Figure 32**). Finetooth sharks were almost exclusively caught in Texas (**Figure 33**); blacknose sharks in Texas, the west coast of Florida in some earlier years, and mostly the east coast of Florida in more recent years (**Figure 34**). Bonnetheads were also predominantly caught in Texas, and the west and east coasts of Florida, depending on the year (**Figure 35**).

Recreational harvest of SCS showed a generally increasing, but fluctuating, trend from 1981 to 2005, with the highest catch occurring in 2001, decreasing thereafter to an estimated 123,000 fish in 2005 (**Table 12**; note that the estimates may have changed with respect to those reported in previous documents because the MRFSS estimates are now based on a new methodology that also samples charterboats and the TXPWD survey estimates have recently been revised again for the entire duration of that survey). Harvest of Atlantic sharpnose sharks followed a very similar trend given that this species accounts for the majority of recreational catches of SCS (**Figure 24**). Harvest trend of bonnetheads showed a lot of fluctuation, as did the trends for blacknose and finetooth sharks, which are much less commonly caught (**Figure 24**).

Recreational catch estimates in numbers were greater than those from the commercial sector in 1995 and 2000 only (**Table 2**). The largest differences between commercial and recreational catches occurred in 1997-1999, after which the differences became much more attenuated (**Table 2**).

Length-frequency distributions of individual SCS species measured in each of the three recreational surveys were constructed. For MRFSS, almost all Atlantic sharpnose sharks measured were smaller than 90 cm TL, indicating that the majority of individuals were immature (**Figure 36**). Atlantic sharpnose sharks observed in the Headboat survey during 1986-2005 were larger, indicating that a much higher proportion of mature individuals is caught than in the MRFSS survey (**Figure 37**). The TXPWD survey showed that all size classes of Atlantic sharpnose sharks were represented during 1983-2005 (**Figure 38**).

All size classes of bonnetheads were represented in MRFSS (**Figure 39**). Despite a small sample size, the Headboat survey measurements also suggested that all size classes were represented (**Figure 40**) as did those from the TXPWD survey (**Figure 41**).

The average weight and length of the SCS complex observed in the MRFSS have remained stable over the 25-year data set (1981–2005), even showing an increasing tendency (**Figure 42**). The average weight and length of Atlantic sharpnose sharks was also stable for the period with more observations (1986-2005; **Figure 43**). There was no trend in finetooth or blacknose shark average weight and length, for which sample sizes were small (**Figures 44** and **45**). Bonnethead sharks, with somewhat larger sample sizes, showed more fluctuation, but no trend (**Figure 46**).

The Headboat survey data indicate that the average weight and length of SCS have decreased since 1986-1990, but have remained fairly stable from 1992 to 2005 (**Figure 47**). Data for the Atlantic sharpnose shark mirror that trend since that species is the most frequently observed in that survey (**Figure 48**). There are too few observations to draw any inference for the other three SCS species (**Figures 49-51**).

The average weight and length of the SCS complex observed in the TXPWD survey show an increasing trend from 1983 to 2005 (**Figure 52**). An increasing, but less accentuated, tendency is also observed for Atlantic sharpnose shark (**Figure 53**). There are very few observations to draw any inference for finetooth shark (**Figure 54**) and especially blacknose shark (**Figure 55**). The trend for bonnethead shark also shows an increasing tendency from beginning to end of the time series (**Figure 56**).

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Table 1. Percentage of small coastal shark commercial landings by region from General Canvass Southeast and Northeast data and Quota Monitoring data.

	Canvass					Qms	
Year	**GOM**	**SA**	**MA**	**NA**	**UNK**	**GOM**	**SA**
1997	2.3	77.1	0.0	0.0	20.6	14.1	85.9
1998	3.0	91.8	0.0	0.0	5.2	4.9	95.1
1999	3.0	87.3	0.1	0.0	9.7	4.4	95.6
2000	3.2	96.8	0.0	0.0	0.0	9.7	90.3
2001	2.0	97.9	0.0	0.0	0.1	5.9	94.1
2002	10.7	89.3	0.0	0.0	0.0	4.5	95.5
2003	22.5	77.5	0.0	0.0	0.0	19.4	80.6
2004	25.9	74.1	0.0	0.0	0.0	10.1	89.9
2005	24.3	75.7	0.0	0.0	0.0	16.7	83.3
mean	***10.8***	***85.3***	***0.0***	***0.0***	***3.9***	***10.0***	***90.0***

GOM (Gulf of Mexico) includes Florida west coast to Texas;
SA (South Atlantic) includes Florida east coast to North Carolina;
MA (Mid Atlantic) includes Virginia to New York;
NA (North Atlantic) includes Connecticut to Maine.
UNK (area not reported)

Table 2. Estimates (in thousands of individuals and pounds dressed weight) of total landings for small coastal sharks.

Year	Col 1 Commercial (lb dw)	Col 2 Av. Wt (lb dw)	Col 3 Lb landed/ Av. wt (numbers)	Col 4 Rec. Catches (numbers)	Col 5 Rec. Catches (lb dw)	Col 6 Total (numbers)	Col 7 Total (lb dw)
1995	538.5	3.86	139.6	164.9	414.7	304.4	953.1
1996	484.8	4.09	118.4	114.0	242.7	232.4	727.5
1997	704.9	3.29	214.2	99.4	260.7	313.6	965.6
1998	631.9	3.36	187.9	123.6	328.2	311.5	960.1
1999	727.7	3.27	222.6	112.7	284.7	335.4	1,012.4
2000	593.0	3.52	168.5	199.0	469.3	367.6	1,062.3
2001	724.3	3.29	220.0	212.4	466.0	432.4	1,190.3
2002	615.4	3.54	173.8	153.8	356.7	327.7	972.2
2003	533.1	3.62	147.3	133.7	337.4	281.0	870.5
2004	450.8	3.37	133.9	125.7	273.3	259.6	724.1
2005	608.0	4.38	138.8	122.7	308.4	261.5	916.5

Column 1, commercial landings in lb dw - These data are the landings reported under the established NMFS Cooperative statistics program. (see e.g. document SB-III-6 for a description of this data collection program.) The data are collected in landed or dressed weight.

Column 2, average weights in lb dw - The data for this column are predicted weights from lengths based on the directed shark fishery observer program (Branstetter and Burgess 1997; G. Burgess, U. of Florida, pers. comm.)

Column 3, number of sharks caught and landed commercially (in thousands) - Data in this column are calculated as the ratio of column 1 (lb dw landed) and column 2 (average weight in lb dw).

Column 4, recreational harvest – Estimated catches in numbers (in thousands) updated from the NMFS MRFSS and Headboat surveys and the Texas Parks and Wildlife (TPWD) recreational creel survey.

Column 5, recreational harvest – Estimated catches in lb dw (in thousands) – Data in this column were obtained by multiplying the catch in numbers reported in each of the three recreational surveys (whose sum is given in column 4) by the average weights from these surveys reported in Table 7.

Column 6, total in numbers - The numbers in this column are the sum of columns 3 and 4.

Column 7, total in dressed weight - The numbers in this column are the sum of columns 1 and 5.

Table 3. Estimates of total landings for Atlantic sharpnose shark.

Year	Col 1 Commercial (lb landed)	Col 2 Av. Wt (lb dw)	Col 3 Mt landed/ Av. wt (numbers)	Col 4 Rec. Catches (numbers)	Col 5 Rec. Catches (lb dw)	Col 6 Total (numbers)	Col 7 Total (lb dw)
Atlantic sharpnose							
1995	93,663	3.41	27,437	128,478	354,798	155,915	448,461
1996	165,406	3.37	49,113	73,114	181,871	122,227	347,277
1997	256,562	3.26	78,777	67,675	190,793	146,452	447,355
1998	230,920	3.16	72,977	83,748	255,657	156,725	486,577
1999	244,356	3.18	76,808	69,153	197,407	145,961	441,763
2000	142,511	3.50	40,762	130,727	330,388	171,489	472,899
2001	196,650	3.27	60,136	131,912	309,236	192,048	505,886
2002	213,301	2.98	71,568	88,297	215,810	159,865	429,111
2003	190,960	3.11	61,481	85,299	221,271	146,780	412,231
2004	230,880	3.12	74,024	67,870	168,372	141,894	399,252
2005	363,686	3.39	107,156	80,761	214,893	187,917	578,579

Column 1, commercial landings in lb dw- These data are the landings reported under the established NMFS cooperative statistics program. (See document SB-III-6 for a description of this data collection program.) The data are collected in landed or dressed weight.

Column 2, average weights in lb dw - The data for this column are predicted weights from lengths based on the directed shark fishery observer program (Branstetter and Burgess 1997; G. Burgess, U. of Florida, pers. comm.).

Column 3, number of sharks caught and landed commercially - Data in this column are calculated as the ratio of column 1 (lb landed) and column 2 (average weight in lb dw).

Column 4, recreational harvest – Estimated catches in numbers updated from the NMFS MRFSS and Headboat surveys and the Texas Parks and Wildlife (TPWD) recreational creel survey.

Column 5, recreational harvest – Estimated catches in lb dw – Data in this column were obtained by multiplying the catch in numbers reported in each of the three recreational surveys (whose sum is given in column 4) by the average weights from these surveys reported in Table 8. Whenever average weight was missing for a given year, the geometric mean of the values for the surrounding years was used.

Column 6, total in numbers - The numbers in this column are the sum of columns 3 and 4.

Column 7, total in dressed weight - The numbers in this column are the sum of columns 1 and 5.

Table 4. Estimates of total landings for blacknose shark.

Year	Col 1 Commercial (lb landed)	Col 2 Av. Wt (lb dw)	Col 3 Mt landed/ Av. wt (numbers)	Col 4 Rec. Catches (numbers)	Col 5 Rec. Catches (lb dw)	Col 6 Total (numbers)	Col 7 Total (lb dw)
Blacknose							
1995	96,487	6.16	15,672	2,954	8,945	18,626	105,432
1996	144,433	6.02	23,981	12,414	15,982	36,395	160,415
1997	202,781	4.63	43,792	11,079	19,764	54,871	222,545
1998	119,689	5.13	23,345	10,523	23,207	33,868	142,896
1999	137,619	4.74	29,057	6,139	6,066	35,196	143,685
2000	178,083	3.82	46,603	10,410	15,562	57,013	193,645
2001	160,990	4.53	35,568	15,445	19,619	51,013	180,609
2002	144,615	5.04	28,681	11,438	17,479	40,119	162,094
2003	131,511	5.72	22,995	6,615	11,189	29,610	142,700
2004	68,108	4.88	13,945	15,261	21,920	29,206	90,028
2005	111,152	6.06	18,326	7,548	16,301	25,874	127,453

Column 1, commercial landings in lb dw- These data are the landings reported under the established NMFS cooperative statistics program. (See document SB-III-6 for a description of this data collection program.) The data are collected in landed or dressed weight.

Column 2, average weights in lb dw - The data for this column are predicted weights from lengths based on the directed shark fishery observer program (Branstetter and Burgess 1997; G. Burgess, U. of Florida, pers. comm.).

Column 3, number of sharks caught and landed commercially - Data in this column are calculated as the ratio of column 1 (lb landed) and column 2 (average weight in lb dw).

Column 4, recreational harvest – Estimated catches in numbers updated from the NMFS MRFSS and Headboat surveys and the Texas Parks and Wildlife (TPWD) recreational creel survey.

Column 5, recreational harvest – Estimated catches in lb dw – Data in this column were obtained by multiplying the catch in numbers reported in each of the three recreational surveys (whose sum is given in column 4) by the average weights from these surveys reported in Table 9. Whenever average weight was missing for a given year, the geometric mean of the values for the surrounding years was used.

Column 6, total in numbers - The numbers in this column are the sum of columns 3 and 4.

Column 7, total in dressed weight - The numbers in this column are the sum of columns 1 and 5.

Table 5. Estimates of total landings for bonnethead shark.

Year	Col 1 Commercial (lb landed)	Col 2 Av. Wt (lb dw)	Col 3 Mt landed/ Av. wt (numbers)	Col 4 Rec. Catches (numbers)	Col 5 Rec. Catches (lb dw)	Col 6 Total (numbers)	Col 7 Total (lb dw)
Bonnethead							
1995	295,026	4.28	68,964	32,112	41,036	101,076	336,062
1996	78,638	6.15	12,796	22,519	34,098	35,315	112,736
1997	75,787	4.81	15,752	14,995	30,942	30,747	106,729
1998	13,949	5.26	2,650	29,065	49,171	31,715	63,120
1999	58,150	5.07	11,471	37,341	76,197	48,812	134,347
2000	69,411	3.98	17,452	56,436	92,988	73,888	162,399
2001	63,461	3.12	20,337	59,017	131,821	79,354	195,282
2002	36,553	0.92	39,779	51,048	127,518	90,827	164,071
2003	38,614	3.71	10,408	40,066	118,845	50,474	157,459
2004	29,402	3.65	8,062	42,295	69,298	50,357	98,700
2005	33,295	2.71	12,275	31,215	70,017	43,490	103,312

Column 1, commercial landings in lb dw- These data are the landings reported under the established NMFS cooperative statistics program. (See document SB-III-6 for a description of this data collection program.) The data are collected in landed or dressed weight.

Column 2, average weights in lb dw - The data for this column are predicted weights from lengths based on the directed shark fishery observer program (Branstetter and Burgess 1997; G. Burgess, U. of Florida, pers. comm.). For bonnethead, an average weight was not available for 2000 and the geometric mean of the values for 1999 and 2001 was assumed for that year.

Column 3, number of sharks caught and landed commercially - Data in this column are calculated as the ratio of column 1 (lb landed) and column 2 (average weight in lb dw).

Column 4, recreational harvest – Estimated catches in numbers updated from the NMFS MRFSS and Headboat surveys and the Texas Parks and Wildlife (TPWD) recreational creel survey.

Column 5, recreational harvest – Estimated catches in lb dw – Data in this column were obtained by multiplying the catch in numbers reported in each of the three recreational surveys (whose sum is given in column 4) by the average weights from these surveys reported in Table 10. Whenever average weight was missing for a given year, the geometric mean of the values for the surrounding years was used.

Column 6, total in numbers - The numbers in this column are the sum of columns 3 and 4.

Column 7, total in dressed weight - The numbers in this column are the sum of columns 1 and 5.

Table 6. Estimates of total landings for finetooth sharks.

Year	Col 1 Commercial (lb landed)	Col 2 Av. Wt (lb dw)	Col 3 Mt landed/ Av. wt (numbers)	Col 4 Rec. Catches (numbers)	Col 5 Rec. Catches (lb dw)	Col 6 Total (numbers)	Col 7 Total (lb dw)
Finetooth							
1995	50,193	14.31	3,508	847	3,003	4,355	53,196
1996	94,134	11.42	8,240	1,584	2,376	9,824	96,510
1997	169,733	12.91	13,143	5,633	21,609	18,776	191,342
1998	267,224	12.91	20,692	147	1,190	20,839	268,414
1999	285,230	12.91	22,086	78	338	22,164	285,568
2000	202,572	12.91	15,686	1,390	5,186	17,076	207,758
2001	303,184	12.91	23,476	6,628	12,023	30,104	315,207
2002	185,120	14.60	12,681	3,027	6,546	15,708	191,666
2003	163,407	11.26	14,515	1,758	3,579	16,273	166,986
2004	121,036	8.18	14,804	285	1,995	15,089	123,031
2005	98,644	13.14	7,506	3,164	6,901	10,670	105,545

Column 1, commercial landings in lb dw- These data are the landings reported under the established NMFS cooperative statistics program. (See document SB-III-6 for a description of this data collection program.) The data are collected in landed or dressed weight.

Column 2, average weights in lb dw - The data for this column are predicted weights from lengths based on the directed shark fishery observer program (Branstetter and Burgess 1997; G. Burgess, U. of Florida, pers. comm.). For the finetooth shark, average weights were not available for 1997-2001 and the geometric mean of the values for 1996 and 2002 was assumed for those years.

Column 3, number of sharks caught and landed commercially - Data in this column are calculated as the ratio of column 1 (lb landed) and column 2 (average weight in lb dw).

Column 4, recreational harvest – Estimated catches in numbers updated from the NMFS MRFSS and Headboat surveys and the Texas Parks and Wildlife (TPWD) recreational creel survey.

Column 5, recreational harvest – Estimated catches in lb dw – Data in this column were obtained by multiplying the catch in numbers reported in each of the three recreational surveys (whose sum is given in column 4) by the average weights from these surveys reported in Tables 11. Whenever average weight was missing for a given year, the geometric mean of the values for the surrounding years was used.

Column 6, total in numbers - The numbers in this column are the sum of columns 3 and 4.

Column 7, total in dressed weight - The numbers in this column are the sum of columns 1 and 5.

Table 7. Average weights (lb dw) of the **SCS complex** predicted from lengths recorded in the bottom-longline observer program (BLLOP) and three recreational surveys (MRFSS, HBOAT, and TXPWD). Standard errors of the mean (SE) and sample size (n) are indicated. Data for sample sizes <10 are in italics.

	BLLOP			MRFSS			HBOAT			TXPWD		
Year	Av. Wt	SE	n	Av. wt	SE	n	Av. wt	SE	n	Av. wt	SE	n
1981				1.68	0.17	18						
1982				1.83	0.34	36						
1983				1.67	0.57	14				2.70	0.21	76
1984				1.49	0.56	16	*3.36*	*0.69*	*2*	2.24	0.18	109
1985				1.87	0.23	19				3.26	0.10	304
1986				1.96	0.13	68	3.94	0.08	251	3.18	0.11	202
1987				2.11	0.13	53	4.71	0.03	759	2.73	0.12	223
1988				2.17	0.11	83	4.60	0.02	1,031	2.94	0.08	382
1989				1.99	0.25	31	4.61	0.04	612	2.92	0.12	195
1990				1.98	0.14	44	4.51	0.06	468	2.32	0.10	170
1991				1.91	0.10	66	4.01	0.07	259	2.37	0.13	147
1992				2.01	0.06	220	3.36	0.05	603	3.20	0.15	201
1993	3.43	0.08	16	1.90	0.11	74	3.61	0.05	521	3.04	0.16	107
1994	4.58	0.13	242	2.49	0.16	128	3.38	0.05	512	2.74	0.13	175
1995	3.86	0.03	2,605	2.32	0.14	91	3.65	0.05	715	3.39	0.16	149
1996	4.09	0.04	1,674	1.70	0.11	74	4.25	0.04	540	3.57	0.11	222
1997	3.29	0.02	1,589	2.23	0.14	92	3.87	0.05	444	3.90	0.21	175
1998	3.36	0.02	1,996	1.97	0.14	97	3.94	0.03	903	3.84	0.14	217
1999	3.27	0.02	2,159	2.06	0.09	170	3.85	0.04	837	3.65	0.16	141
2000	3.52	0.02	698	2.05	0.05	371	3.89	0.04	736	3.20	0.14	197
2001	3.29	0.02	1,419	1.95	0.04	340	3.90	0.03	859	3.44	0.13	154
2002	3.54	0.04	1,439	2.07	0.06	289	3.61	0.02	979	3.40	0.16	144
2003	3.62	0.03	2,388	2.24	0.07	242	3.73	0.03	726	3.94	0.14	127
2004	3.37	0.02	2,582	1.88	0.05	209	3.39	0.04	324	3.59	0.16	129
2005	4.38	0.08	780	2.23	0.05	207	3.39	0.04	433	3.85	0.16	142

Table 8. Average weights (lb dw) of **Atlantic sharpnose sharks** predicted from lengths recorded in the bottom-longline observer program (BLLOP) and three recreational surveys (MRFSS, HBOAT, and TXPWD). Standard errors of the mean (SE) and sample size (n) are indicated. Data for sample sizes <10 are in italics.

	BLLOP			MRFSS			HBOAT			TXPWD		
Year	Av. Wt	SE	n	Av. wt	SE	n	Av. wt	SE	n	Av. wt	SE	n
1981				2.08	0.08	13						
1982				1.13	0.20	17						
1983				*1.57*	*0.39*	*2*				3.45	0.24	40
1984				1.18	0.58	10				2.19	0.24	53
1985				*2.06*	*0.34*	*6*				3.66	0.10	247
1986				2.17	0.13	35	3.90	0.08	244	3.55	0.12	149
1987				2.26	0.13	42	4.69	0.03	753	2.80	0.12	168
1988				2.23	0.10	59	4.60	0.02	1,031	3.38	0.09	257
1989				1.84	0.27	25	4.73	0.03	578	3.41	0.14	122
1990				1.87	0.13	19	4.47	0.05	464	2.34	0.12	126
1991				1.91	0.09	62	4.02	0.07	254	2.42	0.18	82
1992				1.97	0.07	167	3.32	0.05	588	3.64	0.12	158
1993	3.44	0.08	16	1.86	0.14	44	3.58	0.05	508	3.73	0.19	69
1994	2.95	0.07	109	2.26	0.09	91	3.78	0.05	504	2.93	0.16	118
1995	3.41	0.01	2,184	2.56	0.14	62	3.64	0.05	703	3.47	0.18	94
1996	3.37	0.01	1,224	1.93	0.10	46	4.26	0.04	537	3.86	0.11	169
1997	3.26	0.01	1,550	2.34	0.16	65	3.83	0.05	437	3.77	0.13	129
1998	3.16	0.02	1,795	2.08	0.15	59	3.95	0.03	899	4.11	0.11	160
1999	3.18	0.01	2,040	2.15	0.08	130	3.85	0.04	835	3.77	0.16	96
2000	3.50	0.01	650	2.09	0.04	307	3.89	0.04	736	3.16	0.14	141
2001	3.27	0.02	1,386	1.96	0.04	272	3.90	0.03	859	3.51	0.12	124
2002	2.98	0.02	1,049	1.99	0.05	201	3.61	0.92	977	3.48	0.12	117
2003	3.11	0.02	1,921	2.12	0.05	186	3.74	0.03	720	4.16	0.11	98
2004	3.12	0.01	2,216	2.01	0.05	140	3.40	0.04	321	3.64	0.14	93
2005	3.39	0.03	496	2.24	0.04	167	3.40	0.04	429	3.76	0.12	100

Table 9. Average weights (lb dw) of **blacknose sharks** predicted from lengths recorded in the bottom-longline observer program (BLLOP) and three recreational surveys (MRFSS, HBOAT, and TXPWD). Standard errors of the mean (SE) and sample size (n) are indicated. Data for sample sizes <10 are in italics.

	BLLOP			MRFSS			HBOAT			TXPWD		
Year	Av. wt	SE	n	Av. wt	SE	N	Av. wt	SE	n	Av. wt	SE	n
1981												
1982												
1983				*2.13*	*1.29*	*6*						
1984				*0.62*		*1*						
1985				*2.62*		*1*						
1986				1.26	0.27	11	*3.89*	*0.14*	*2*			
1987				*0.73*	*0.24*	*4*						
1988				*1.03*	*0.26*	*9*						
1989							1.32	0.13	14			
1990												
1991												
1992				*1.64*	*0.33*	*8*						
1993				*1.64*	*0.31*	*6*				*5.20*		*1*
1994	5.92	0.16	132	2.77	0.52	13						
1995	6.16	0.12	406	*2.98*	*0.96*	*4*	*1.83*		*1*	*5.17*	*1.03*	*2*
1996	6.02	0.08	414	1.29	0.32	10	*5.41*		*1*			
1997	4.63	0.36	38	*1.78*	*0.47*	*8*						
1998	5.13	0.14	197	2.21	2.41	11	*2.29*	*0.51*	*4*			
1999	4.74	0.23	116	0.90	0.25	12	*0.16*		*1*	*4.61*	*0.50*	*2*
2000	3.82	0.13	48	1.51	0.26	13				*7.19*	*0.06*	*2*
2001	4.53	0.27	27	1.32	0.24	18						
2002	5.04	0.12	387	1.53	0.27	16	*3.25*	*1.55*	*2*	*7.13*		*1*
2003	5.72	0.08	462	1.69	0.26	10	*2.07*	*0.69*	*3*			
2004	4.88	0.11	356	1.45	0.20	21	*2.77*	*0.03*	*2*	*3.80*	*0.11*	*3*
2005	6.07	0.17	281	*2.20*	*0.23*	*7*	*2.09*	*1.08*	*2*	*5.79*	*1.08*	*4*

Table 10. Average weights (lb dw) of **bonnetheads** predicted from lengths recorded in the bottom-longline observer program (BLLOP) and three recreational surveys (MRFSS, HBOAT, and TXPWD). Standard errors of the mean (SE) and sample size (n) are indicated. Data for sample sizes <10 are in italics.

	BLLOP			MRFSS			HBOAT			TXPWD		
Year	Av. wt	SE	n	Av. wt	SE	n	Av. wt	SE	n	Av. wt	SE	n
1981				*0.64*	*0.20*	*5*						
1982				2.46	0.58	19						
1983				*1.24*	*0.47*	*6*				1.43	0.14	29
1984				*2.29*	*1.42*	*5*	*3.36*	*0.69*	*2*	2.26	0.30	34
1985				1.72	0.32	12				1.43	0.10	54
1986				*3.18*	*0.64*	*8*	*3.99*	*0.77*	*3*	2.04	0.20	51
1987				*1.98*	*0.38*	*7*	*2.36*	*0.16*	*2*	2.52	0.30	55
1988				*1.66*	*0.60*	*5*				1.88	0.10	104
1989				*2.63*	*0.63*	*6*	*1.99*	*0.76*	*3*	2.16	0.16	68
1990				2.05	0.23	25	*6.73*	*2.11*	*3*	2.28	0.21	43
1991				*1.88*	*0.89*	*4*	*4.25*	*1.64*	*4*	2.26	0.19	59
1992				2.28	0.16	42	4.81	0.24	14	1.12	0.09	33
1993				1.95	0.33	12	4.63	0.49	13	1.93	0.18	22
1994	*5.37*		*1*	2.28	0.43	16	*3.29*	*0.15*	*6*	2.55	0.24	42
1995	4.28	0.66	12	1.25	0.27	20	4.69	0.59	11	2.12	0.20	35
1996	6.15	0.26	33	1.39	0.32	16	*0.62*	*0.03*	*2*	2.80	0.29	43
1997	*4.81*		*1*	*2.04*	*0.62*	*9*				2.37	0.26	37
1998	*5.26*	*0.93*	*4*	1.66	0.32	27				2.78	0.39	54
1999	*5.07*	*1.26*	*3*	2.02	0.35	26	*4.67*		*1*	3.35	0.39	43
2000				1.62	0.18	42				2.97	0.35	45
2001	*3.12*	*0.35*	*6*	2.22	0.22	38				3.18	0.41	30
2002	*0.92*	*0.43*	*2*	2.50	0.24	58				1.93	0.41	20
2003	*3.71*	*0.05*	*3*	2.97	0.27	42	*2.90*	*0.53*	*3*	2.99	0.47	27
2004	*3.65*	*0.34*	*9*	1.63	0.14	43	*2.99*		*1*	2.33	0.29	26
2005	*2.71*		*1*	2.22	0.32	26	*2.16*	*0.00*	*2*	3.34	0.47	31

Table 11. Average weights (lb dw) of **finetooth sharks** predicted from lengths recorded in the bottom-longline observer program (BLLOP) and the three recreational surveys (MRFSS, HBOAT, and TXPWD). Standard errors of the mean (SE) and sample size (n) are indicated. Data for sample sizes <10 are in italics.

	BLLOP			MRFSS			HBOAT			TXPWD		
Year	Av. wt	SE	n	Av. wt	SE	n	Av. wt	SE	n	Av. wt	SE	n
1981												
1982												
1983										*3.62*	*1.20*	*7*
1984										2.32	0.47	22
1985										*2.23*	*0.67*	*5*
1986				1.29	0.20	14	*3.62*	*1.20*	*7*	*4.72*	*2.88*	*2*
1987							*9.35*	*1.01*	*4*			
1988				3.05	0.53	10				2.93	0.64	21
1989							3.84	0.63	17	*1.41*	*0.33*	*5*
1990							*14.97*		*1*	*1.56*		*1*
1991							*1.21*		*1*	*2.66*	*0.29*	*6*
1992				*1.58*	*0.72*	*3*	*2.60*		*1*	3.13	1.91	10
1993				2.09	0.24	12				1.32	0.13	15
1994				*5.02*	*1.89*	*8*	*6.70*	*0.19*	*2*	1.77	0.17	15
1995	*14.31*	*6.14*	*3*	*3.01*	*0.50*	*5*				5.26	0.69	18
1996	*11.42*	*4.23*	*3*	*1.16*	*0.12*	*2*				2.11	0.53	10
1997				2.02	0.19	10	*5.99*	*0.59*	*7*	*12.12*	*2.16*	*9*
1998										*8.89*	*3.00*	*3*
1999				*4.08*	*0.13*	*2*						
2000				*3.66*	*0.74*	*9*				2.97	0.35	45
2001				1.81	0.26	12						
2002	*14.60*		*1*	2.02	0.22	14				*6.04*	*2.48*	*6*
2003	*11.26*	*3.34*	*2*	*1.93*	*0.59*	*4*				*5.91*	*3.47*	*2*
2004	*8.18*		*1*	*2.40*	*0.51*	*5*				*7.49*	*1.21*	*7*
2005	*13.14*	*1.08*	*2*	*2.16*	*0.24*					*6.31*	*1.32*	*7*

Table 12. Estimates of total annual recreational catches in numbers of small coastal sharks (as a complex and by species).

Year	All SCS	Atlantic sharpnose	Blacknose	Bonnethead	Finetooth
1981	82,759	43,490	0	39,269	0
1982	67,647	40,656	0	26,115	0
1983	87,399	50,170	14,233	22,925	71
1984	57,342	37,539	844	15,418	1,572
1985	62,885	37,994	1,918	22,607	366
1986	111,425	45,392	3,308	50,474	11,845
1987	98,947	46,792	15,382	26,527	17
1988	172,684	103,375	15,971	30,986	22,352
1989	104,757	65,058	1,793	37,901	5
1990	96,977	45,233	3,345	48,317	82
1991	143,845	134,905	8	8,837	95
1992	111,829	85,972	5,199	18,692	1,944
1993	93,562	67,719	2,875	19,798	3,170
1994	140,473	101,774	14,464	20,524	3,103
1995	164,884	128,478	2,954	32,112	847
1996	114,007	73,114	12,414	22,519	1,584
1997	99,382	67,675	11,079	14,995	5,633
1998	123,593	83,748	10,523	29,065	147
1999	112,715	69,153	6,139	37,341	78
2000	199,043	130,727	10,410	56,436	1,390
2001	212,442	131,912	15,445	59,017	6,628
2002	153,810	88,297	11,438	51,048	3,027
2003	133,738	85,299	6,615	40,066	1,758
2004	125,711	67,870	15,261	42,295	285
2005	122,688	80,761	7,548	31,215	3,164

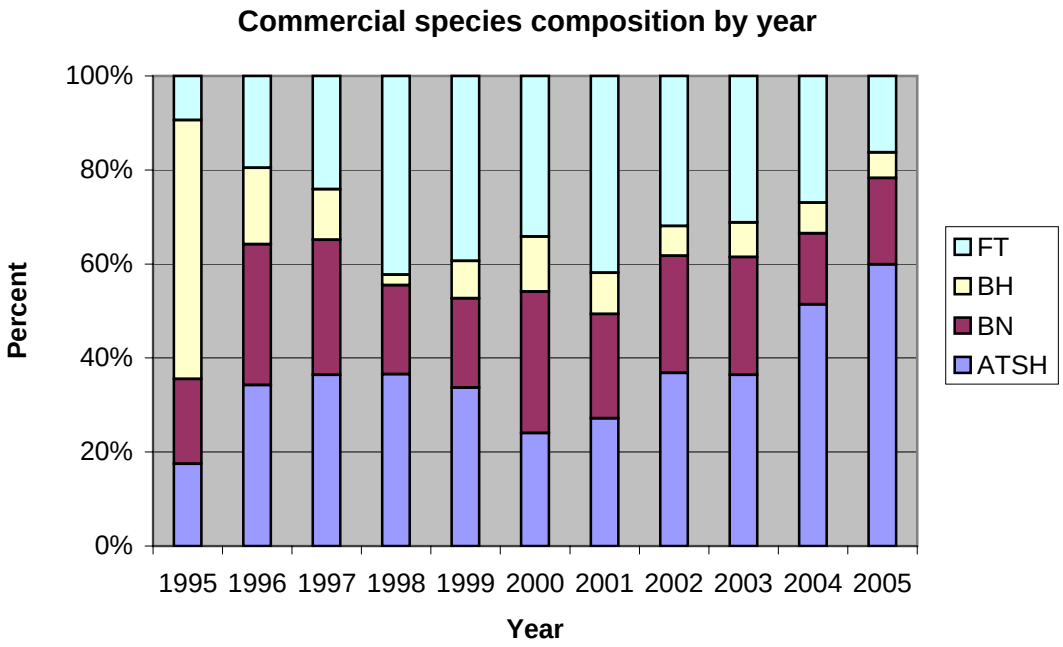


Figure 1. Species composition of small coastal sharks landed commercially (data from the general canvass and quota monitoring programs).

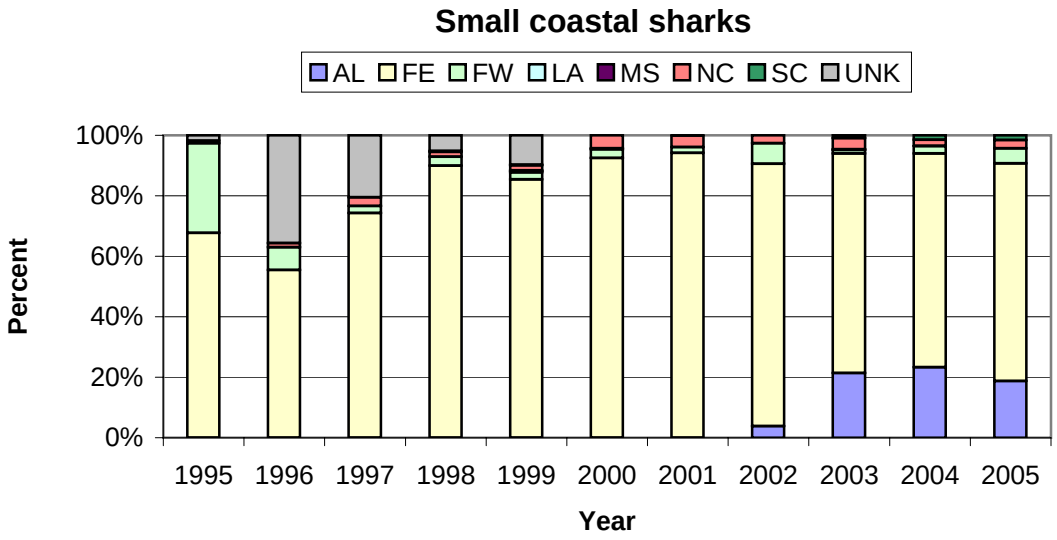


Figure 2. Commercial landings of small coastal sharks by state (canvass data).

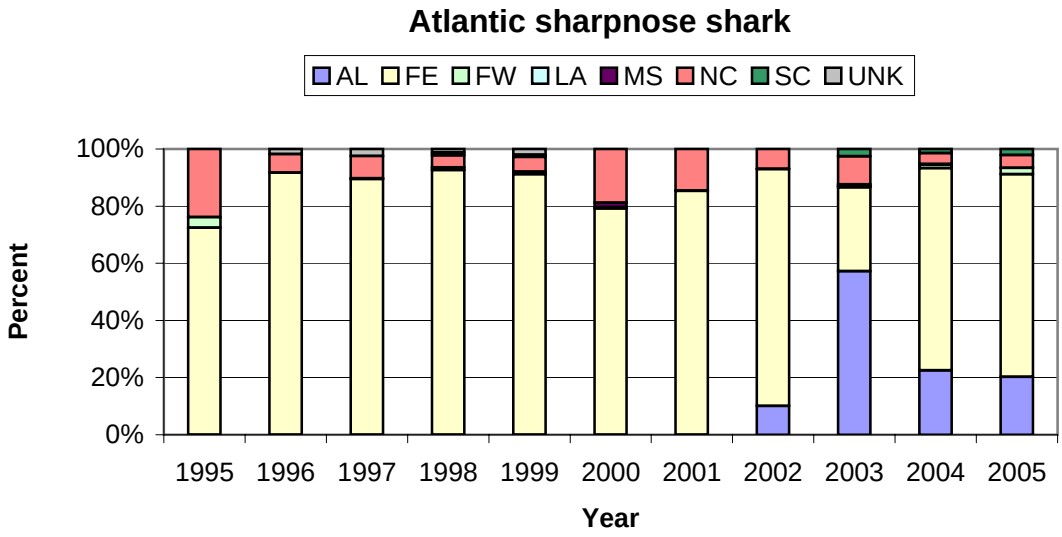


Figure 3. Commercial landings of Atlantic sharpnose sharks by state (canvass data).

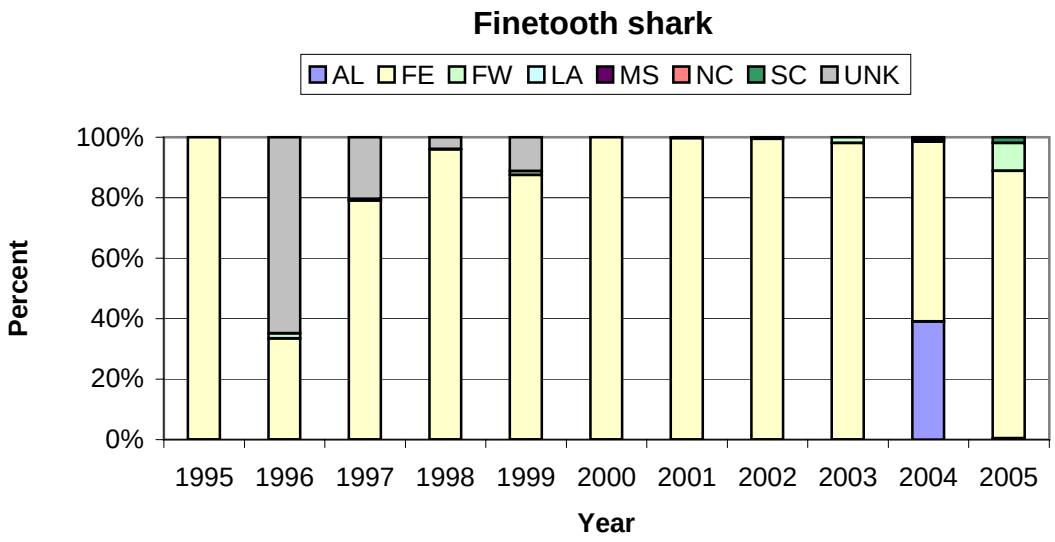


Figure 4. Commercial landings of finetooth sharks by state (canvass data).

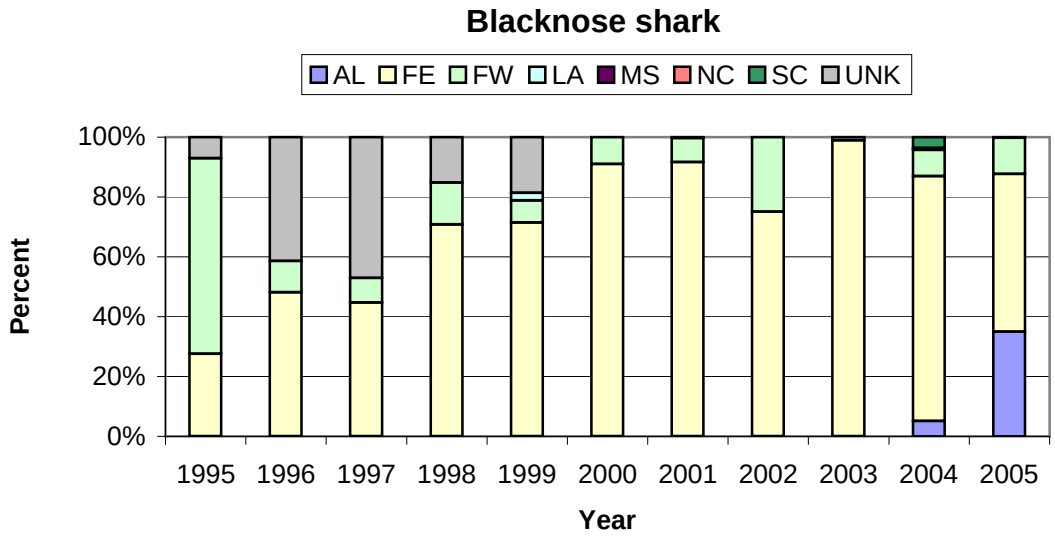


Figure 5. Commercial landings of blacknose sharks by state (canvass data).

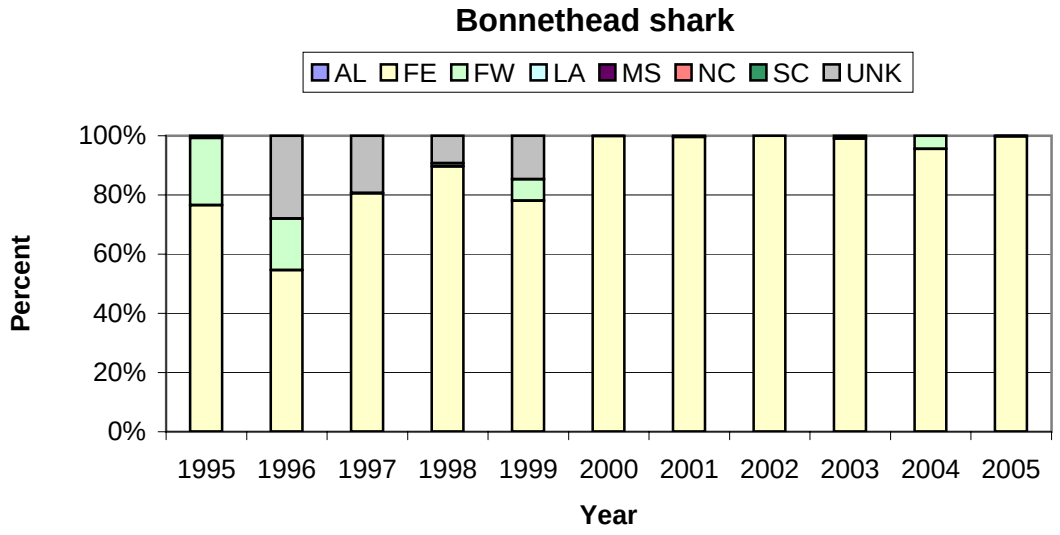


Figure 6. Commercial landings of bonnethead sharks by state (canvass data).

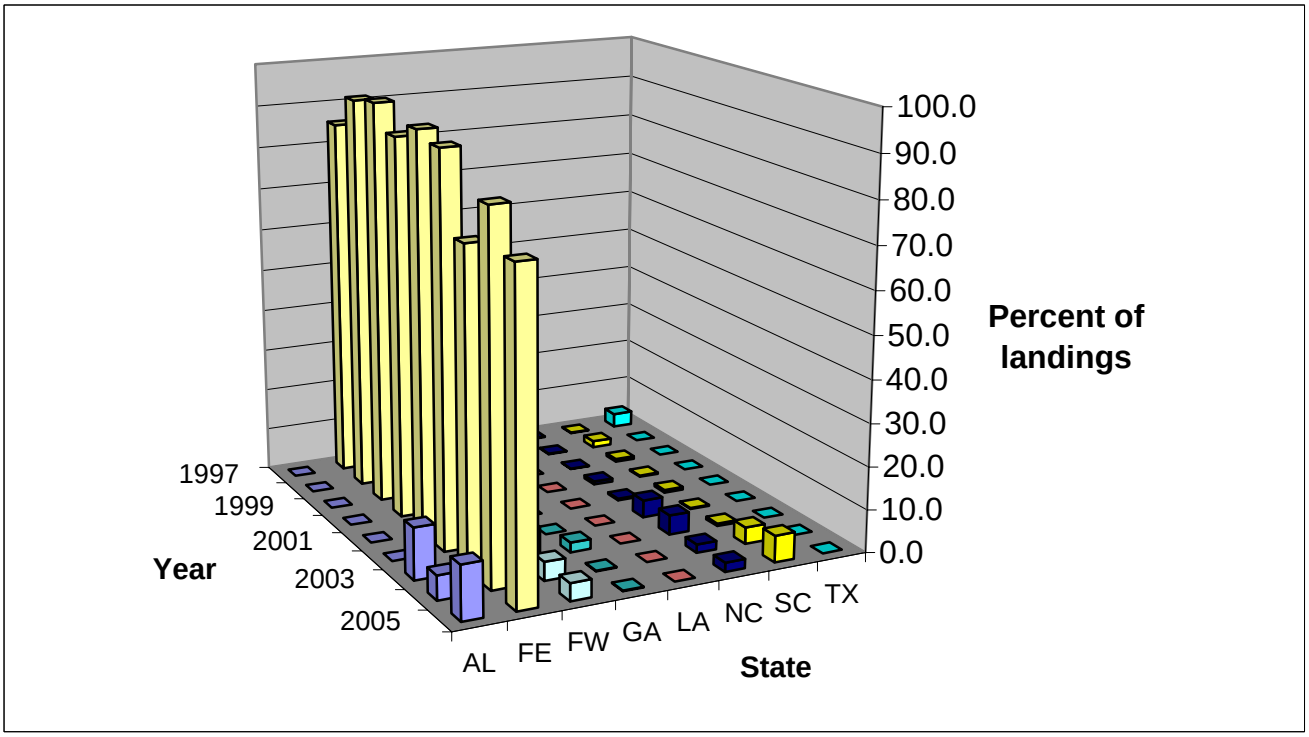


Figure 7. Percent of landings by state for the **SCS complex** from the Southeast Quota Monitoring Program (1997 - 2005).

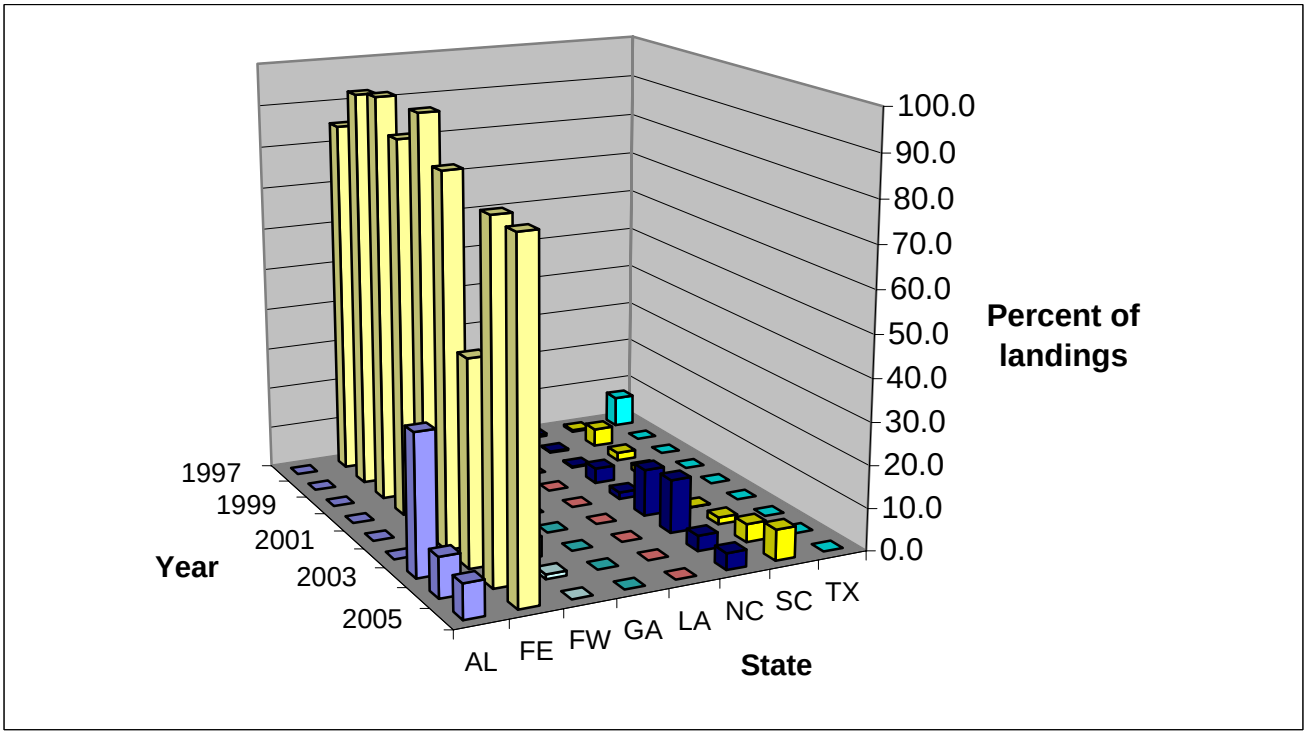


Figure 8. Percent of landings by state for **Atlantic sharpnose sharks** from the Southeast Quota Monitoring Program (1997 - 2005).

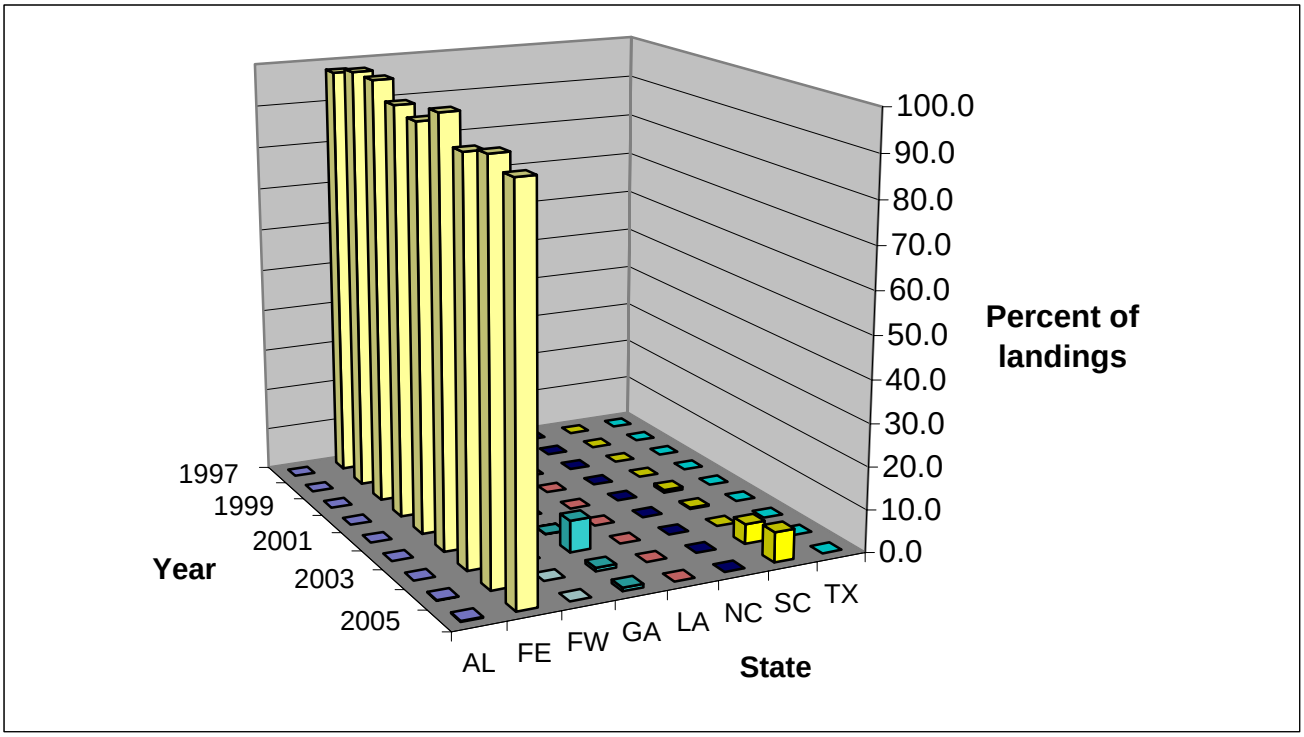


Figure 9. Percent of landings by state for **finetooth sharks** from the Southeast Quota Monitoring Program (1997 - 2005).

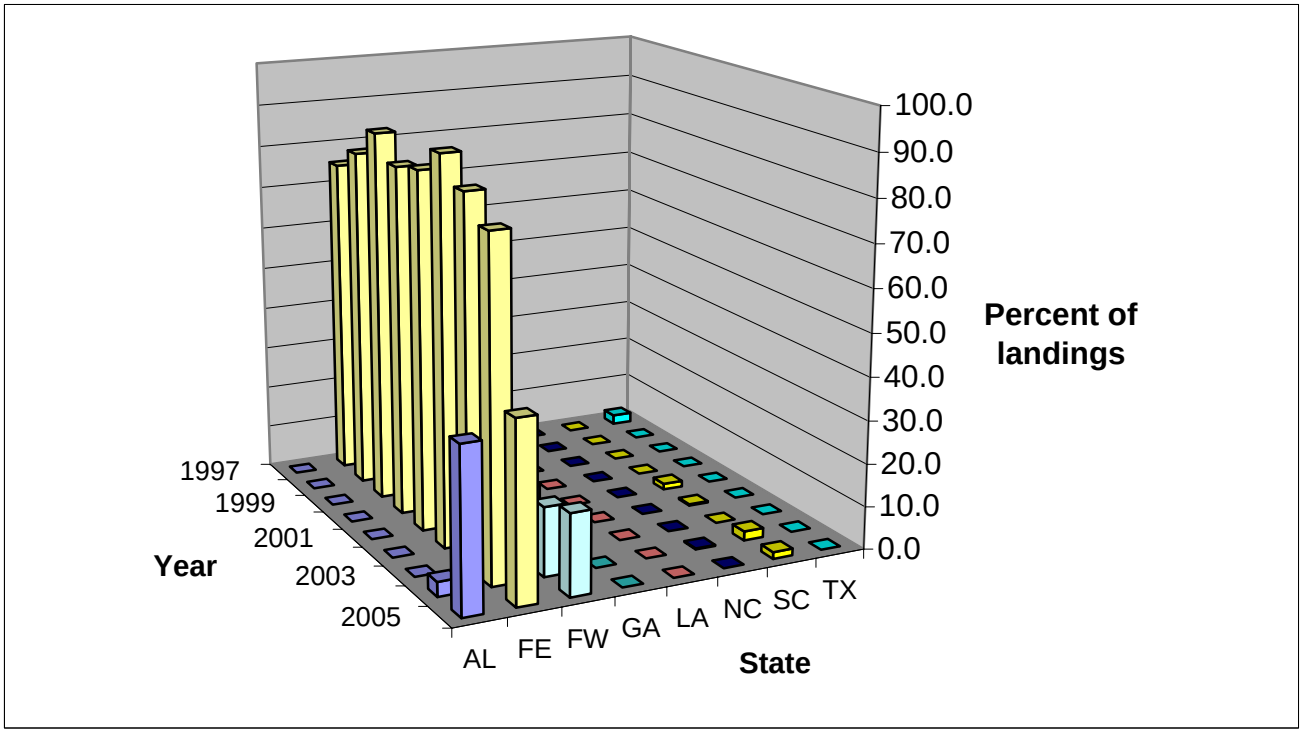


Figure 10. Percent of landings by state for **blacknose sharks** from the Southeast Quota Monitoring Program (1997 - 2005).

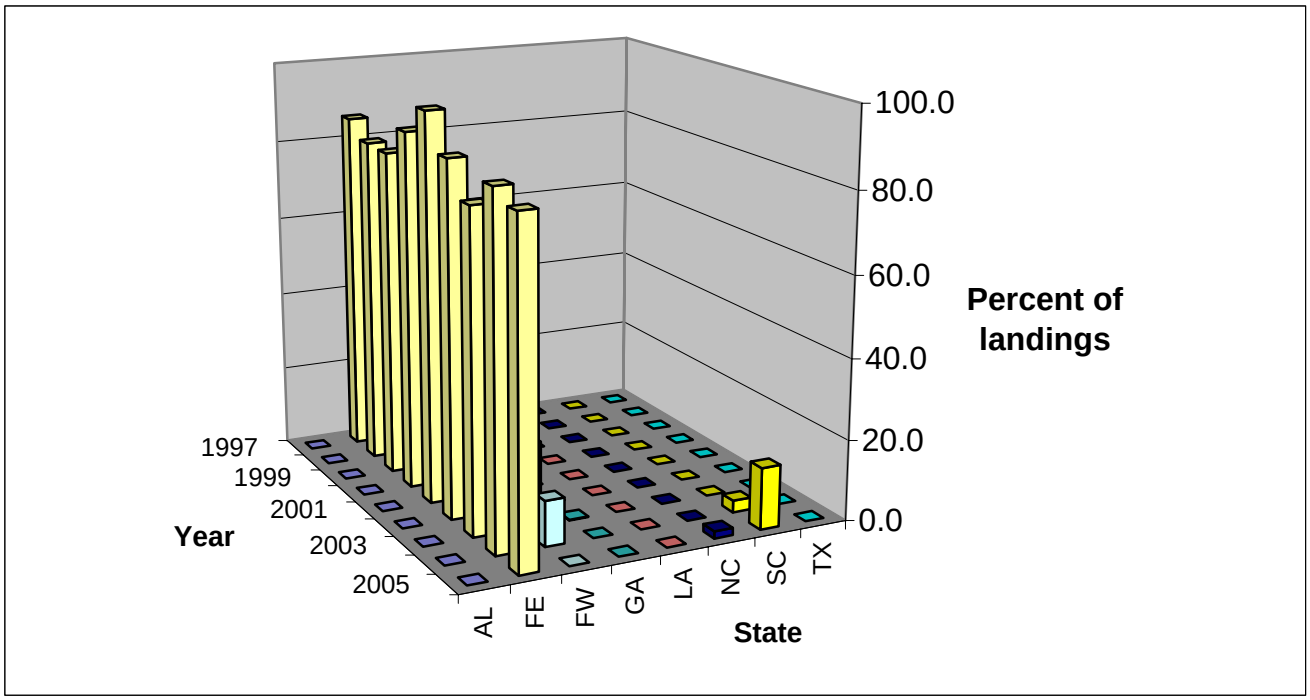
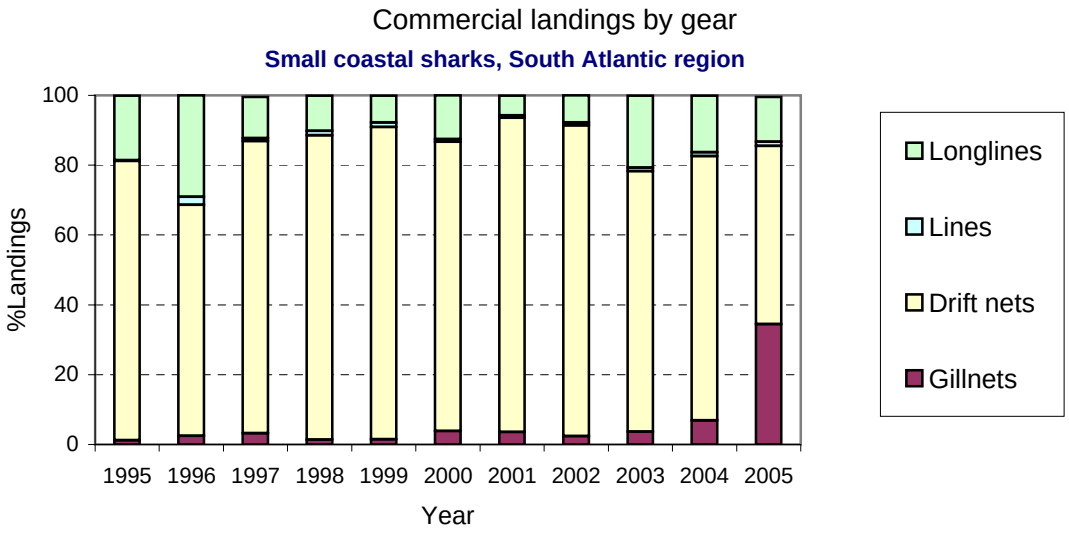


Figure 11. Percent of landings by state for **bonnethead sharks** from the Southeast Quota Monitoring Program (1997 - 2005).



Region=SA Gear	%landings (all years combined)
Otter trawl	0.01
Gillnets	5.9
Drift nets	79.1
Lines	1.0
Longlines	13.9
Other	0.01
Unknown	0.04

	%landings		
Year	SA	GOM	UNK
1995	68.5	29.7	1.8
1996	56.9	7.5	35.7
1997	77.1	2.3	20.6
1998	91.8	3.0	5.2
1999	87.4	3.0	9.7
2000	96.8	3.2	0.0
2001	97.9	2.0	0.1
2002	89.4	10.6	0.0
2003	77.8	22.2	0.0
2004	74.2	25.8	0.0
2005	76.2	23.8	0.0

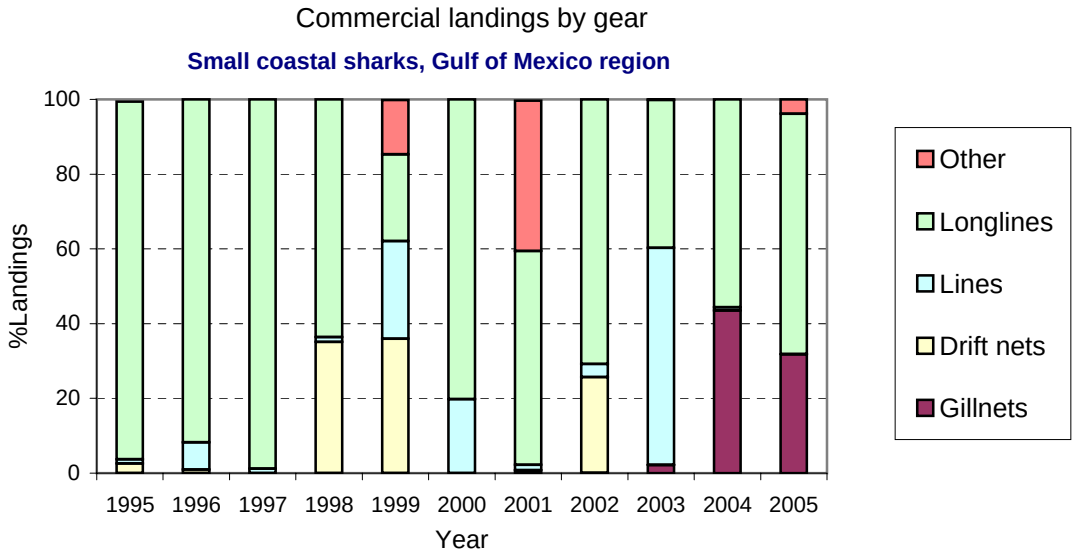
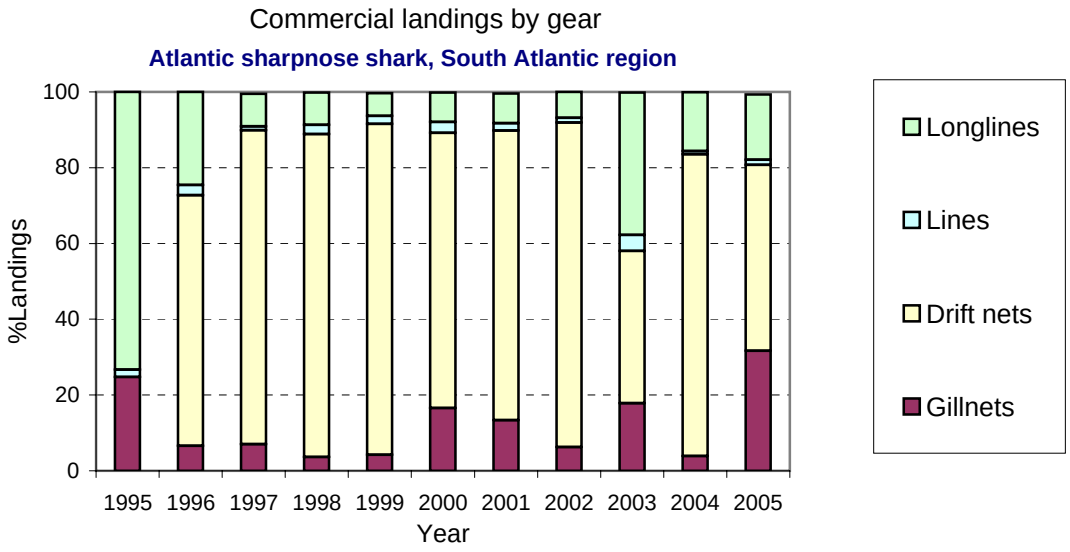


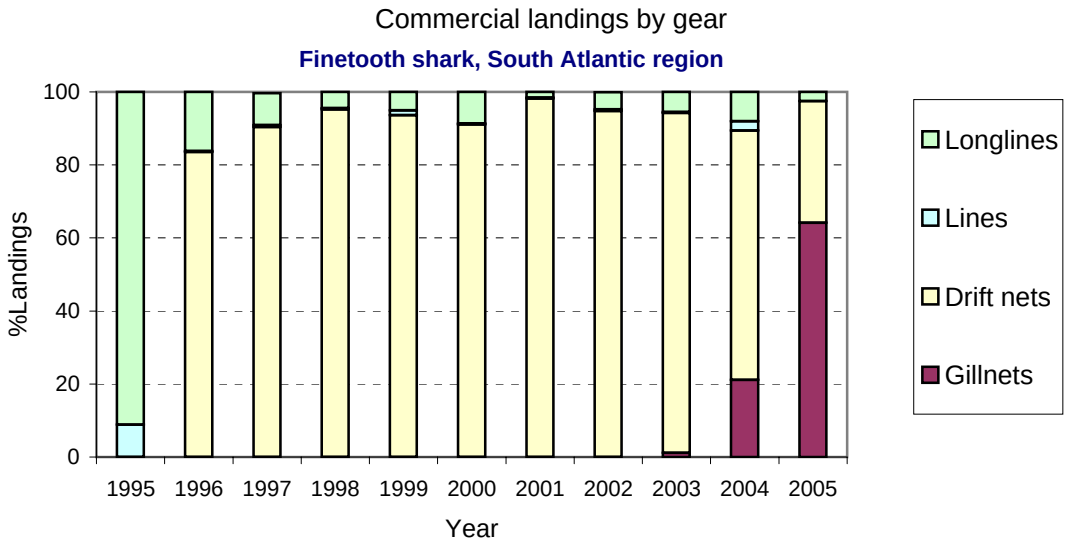
Figure 12. Commercial landings of small coastal sharks by region and gear type (canvass data).



Region=SA Gear	%landings (all years combined)
Otter trawl	0.1
Gillnets	12.3
Drift nets	65.9
Lines	2.1
Longlines	19.4
Other	0.02
Diving	0.03
Unknown	0.1

	%landings		
Year	SA	GOM	UNK
1995	96.3	3.7	0.0
1996	98.2	0.0	1.8
1997	97.4	0.2	2.4
1998	97.9	0.9	1.2
1999	97.1	0.9	2.0
2000	98.0	2.0	0.0
2001	99.9	0.1	0.0
2002	89.8	10.2	0.0
2003	41.9	58.1	0.0
2004	76.0	24.0	0.0
2005	77.5	22.5	0.0

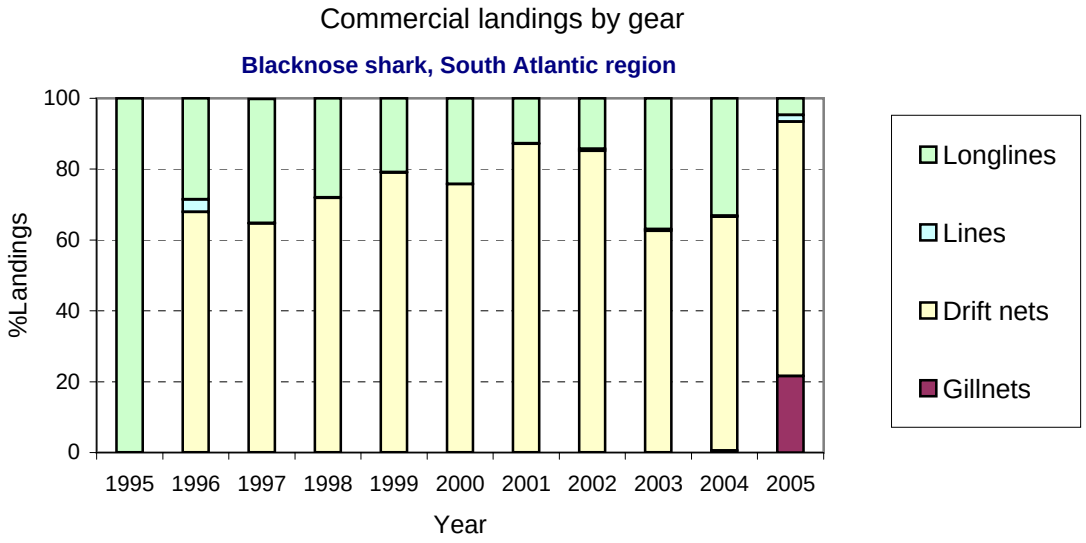
Figure 13. Commercial landings of Atlantic sharpnose shark by region and gear type (canvass data).



Region=SA Gear	%landings (all years combined)
Other nets	0.004
Otter trawl	0.03
Gillnets	7.9
Drift nets	76.5
Lines	1.4
Longlines	14.2
Other	0.004

	%landings		
Year	SA	GOM	UNK
1995	100.0	0.0	0.0
1996	33.4	1.7	64.9
1997	79.0	0.6	20.4
1998	95.9	0.2	3.9
1999	87.5	1.3	11.2
2000	100.0	0.0	0.0
2001	99.7	0.2	0.1
2002	99.4	0.6	0.0
2003	98.1	1.9	0.0
2004	60.1	39.9	0.0
2005	90.3	9.7	0.0

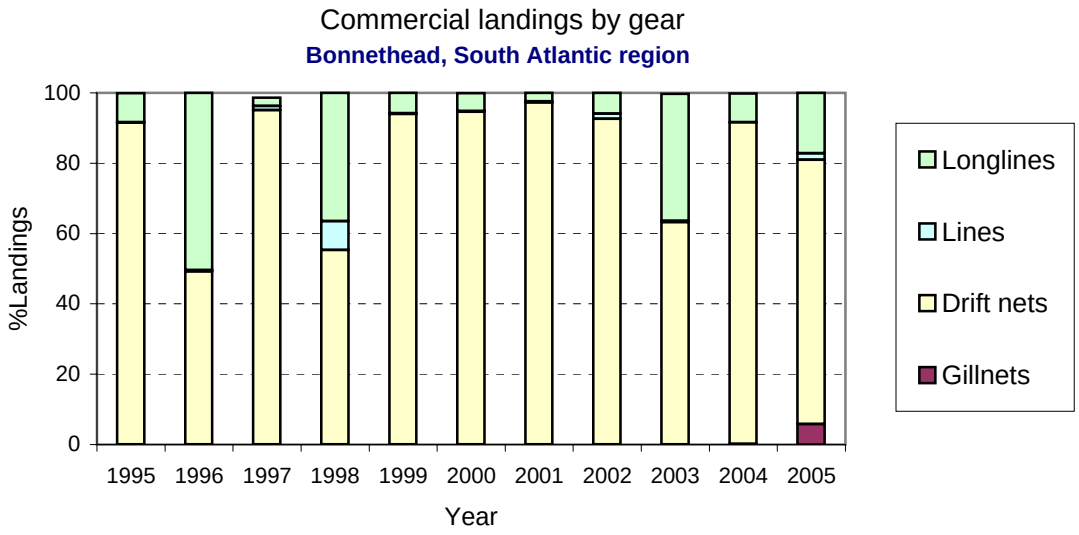
Figure 14. Commercial landings of finetooth shark by region and gear type (canvass data).



Region=SA Gear	%landings (all years combined)
Gillnets	2.0
Drift nets	66.6
Lines	0.7
Longlines	30.8

	%landings		
Year	SA	GOM	UNK
1995	27.6	65.3	7.1
1996	48.1	10.5	41.3
1997	44.7	8.2	47.1
1998	70.7	14.1	15.2
1999	71.5	9.9	18.6
2000	91.0	9.0	0.0
2001	91.7	8.0	0.3
2002	75.1	24.9	0.0
2003	86.6	13.4	0.0
2004	85.6	14.4	0.0
2005	52.9	47.1	0.0

Figure 15. Commercial landings of blacknose shark by region and gear type (canvass data).



Region=SA Gear	%landings (all years combined)
Other nets	0.04
Otter trawl	0.1
Gillnets	0.5
Drift nets	81.8
Lines	1.3
Longlines	16.2
Other	0.02

	%landings		
Year	SA	GOM	UNK
1995	76.5	22.7	0.7
1996	54.6	17.4	28.0
1997	80.6	0.1	19.3
1998	89.7	1.0	9.3
1999	78.0	7.3	14.7
2000	99.9	0.1	0.0
2001	99.6	0.4	0.0
2002	100.0	0.0	0.0
2003	99.0	1.0	0.0
2004	95.6	4.4	0.0
2005	100.0	0.0	0.0

Figure 16. Commercial landings of bonnethead sharks by region and gear type (canvass data).

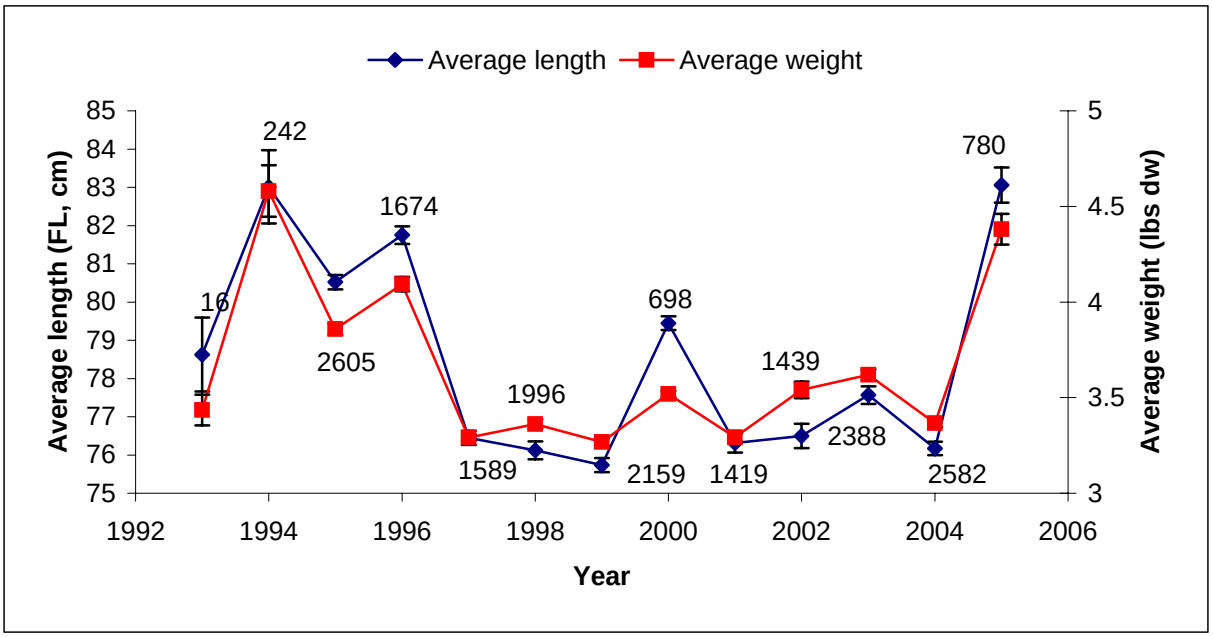


Figure 17: Average length (FL, cm) and weight (lbs dw) for the **SCS complex** from the bottom longline observer program (1993 - 2005).

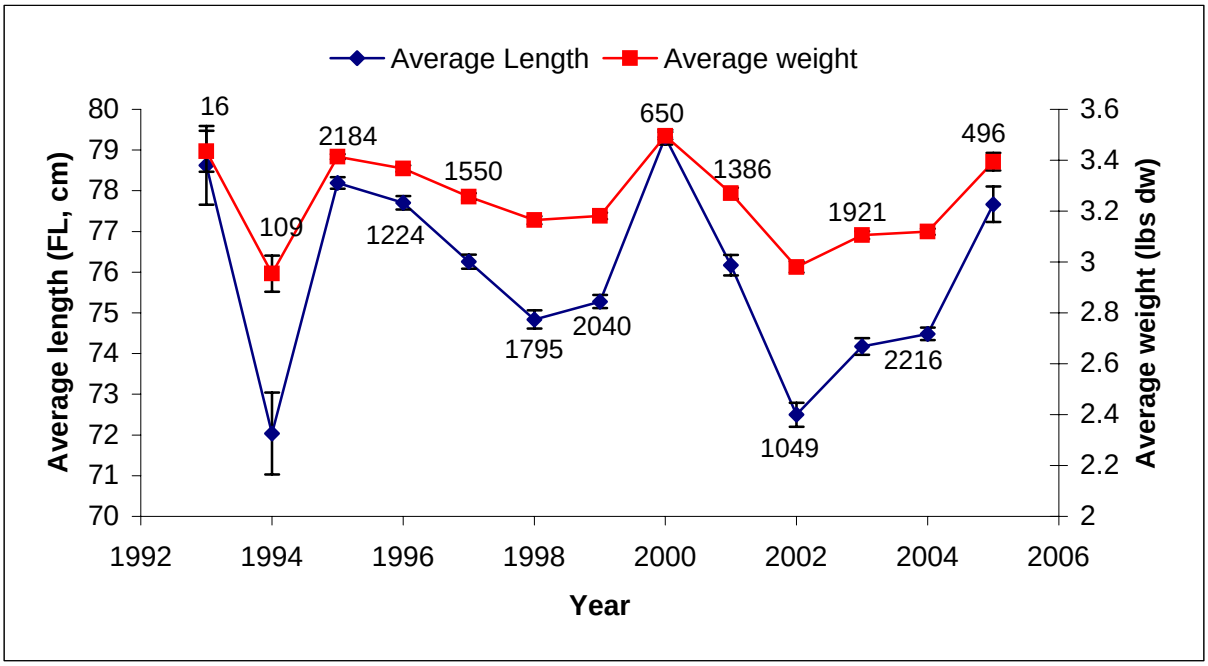


Figure 18: Average length (FL, cm) and weight (lbs dw) for **Atlantic sharpnose sharks** from the bottom longline observer program (1993 - 2005).

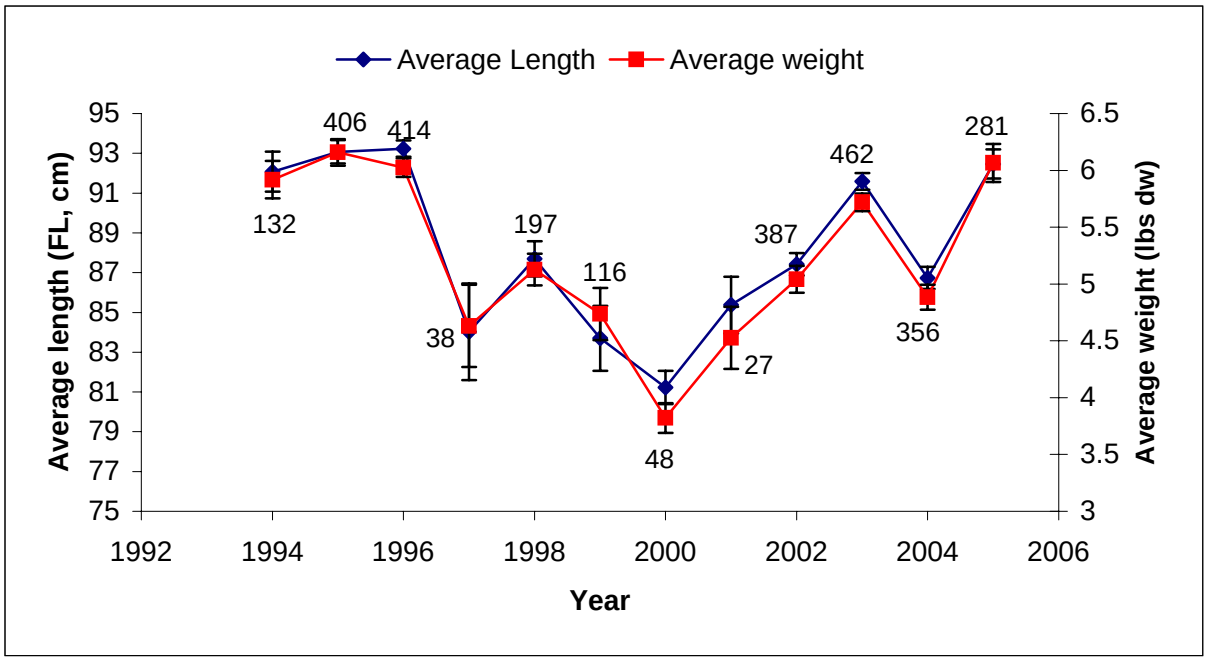


Figure 19: Average length (FL, cm) and weight (lbs dw) for **blacknose sharks** from the bottom longline observer program (1993 - 2005).

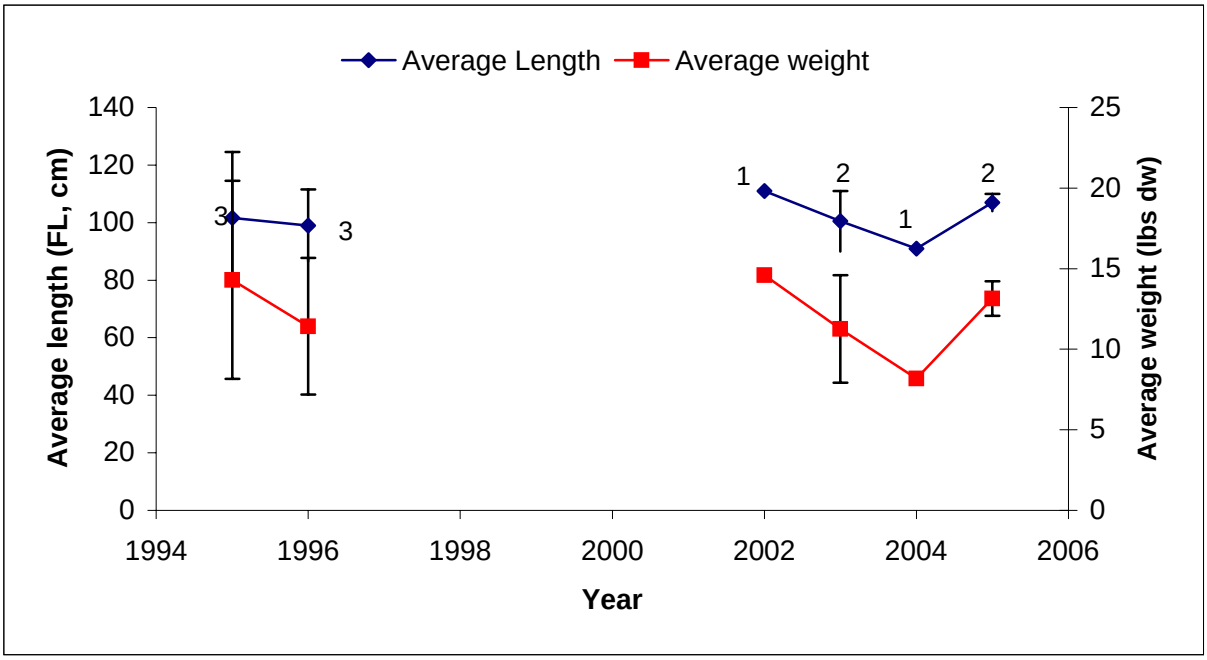


Figure 20: Average length (FL, cm) and weight (lbs dw) for **finetooth sharks** from the bottom longline observer program (1993 - 2005).

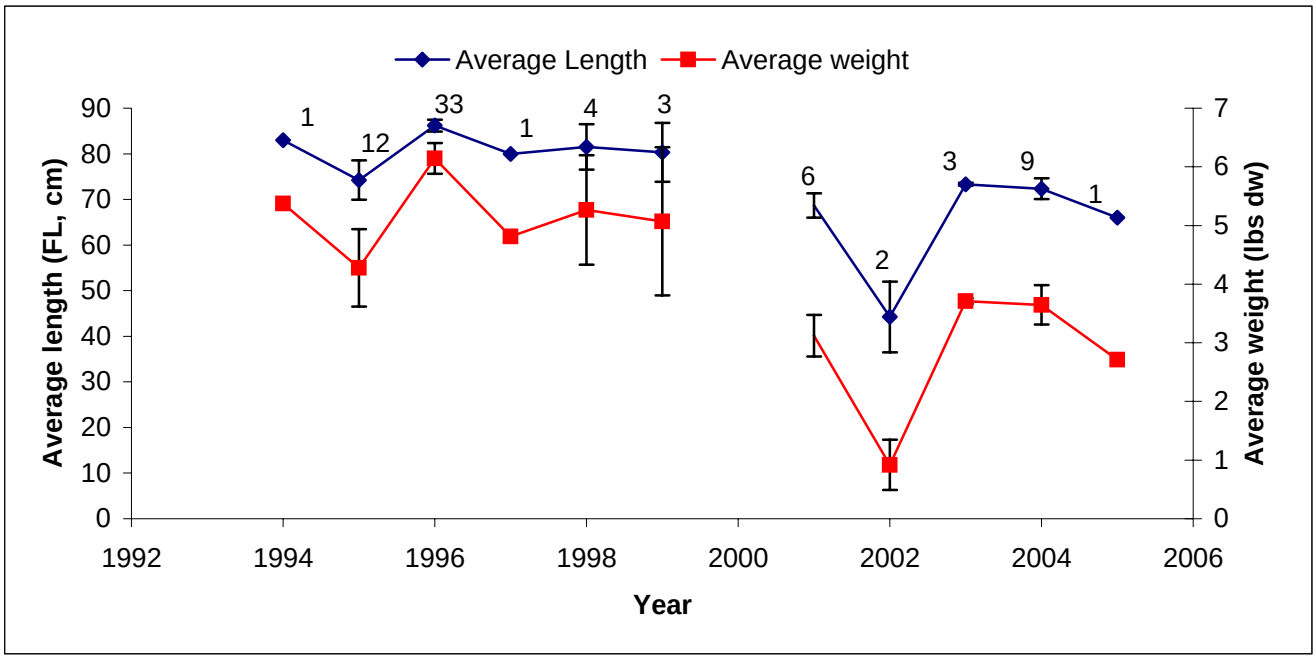


Figure 21: Average length (FL, cm) and weight (lbs dw) for **bonnethead sharks** from the bottom longline observer program (1993 - 2005).

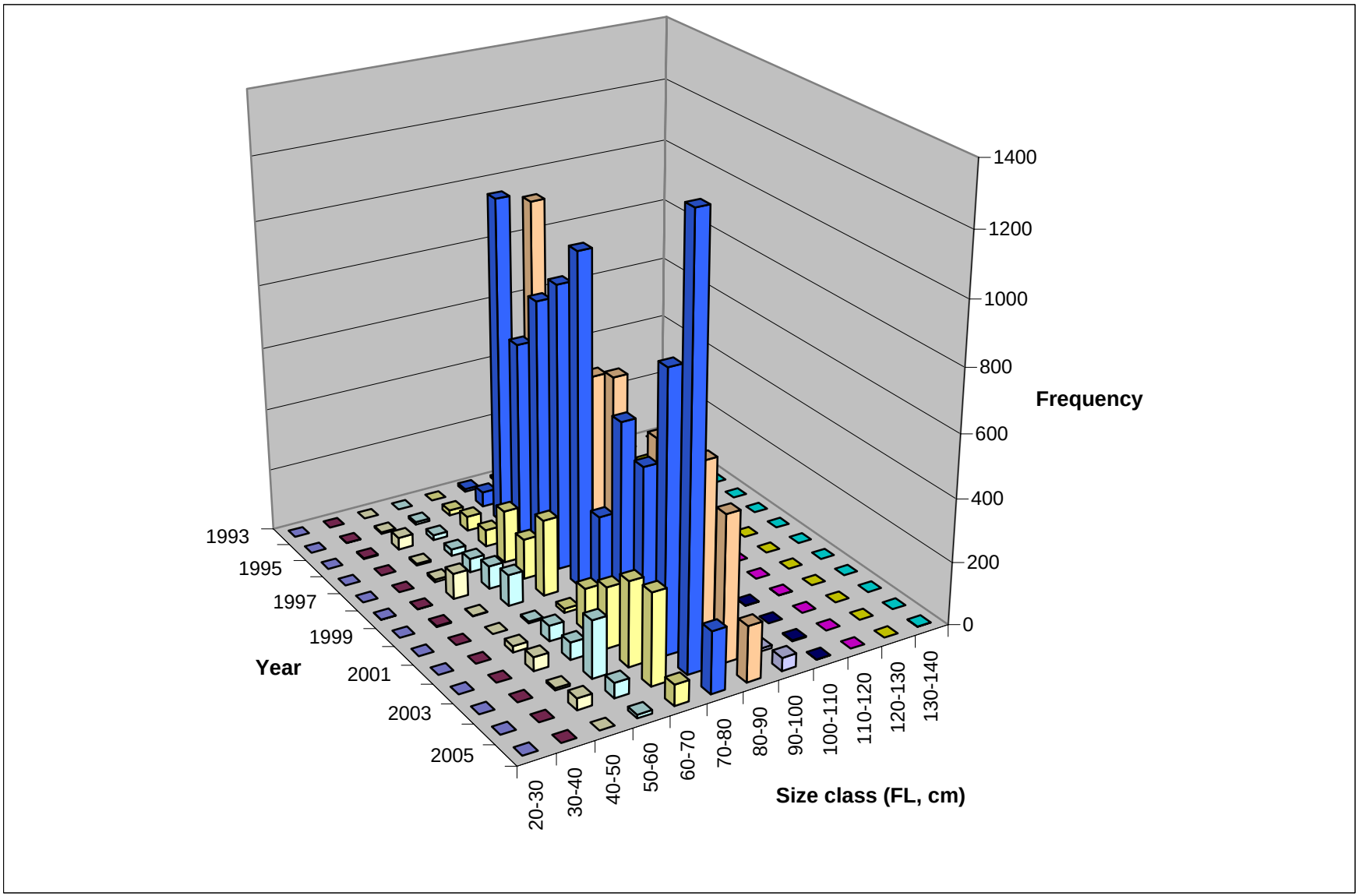


Figure 22. Length frequencies of **Atlantic sharpnose sharks** observed in the Bottom Longline Observer Program (1993 - 2005). Size at 50% for females is 60.5 cm FL in the South Atlantic and 64.2 cm FL in the Gulf of Mexico.

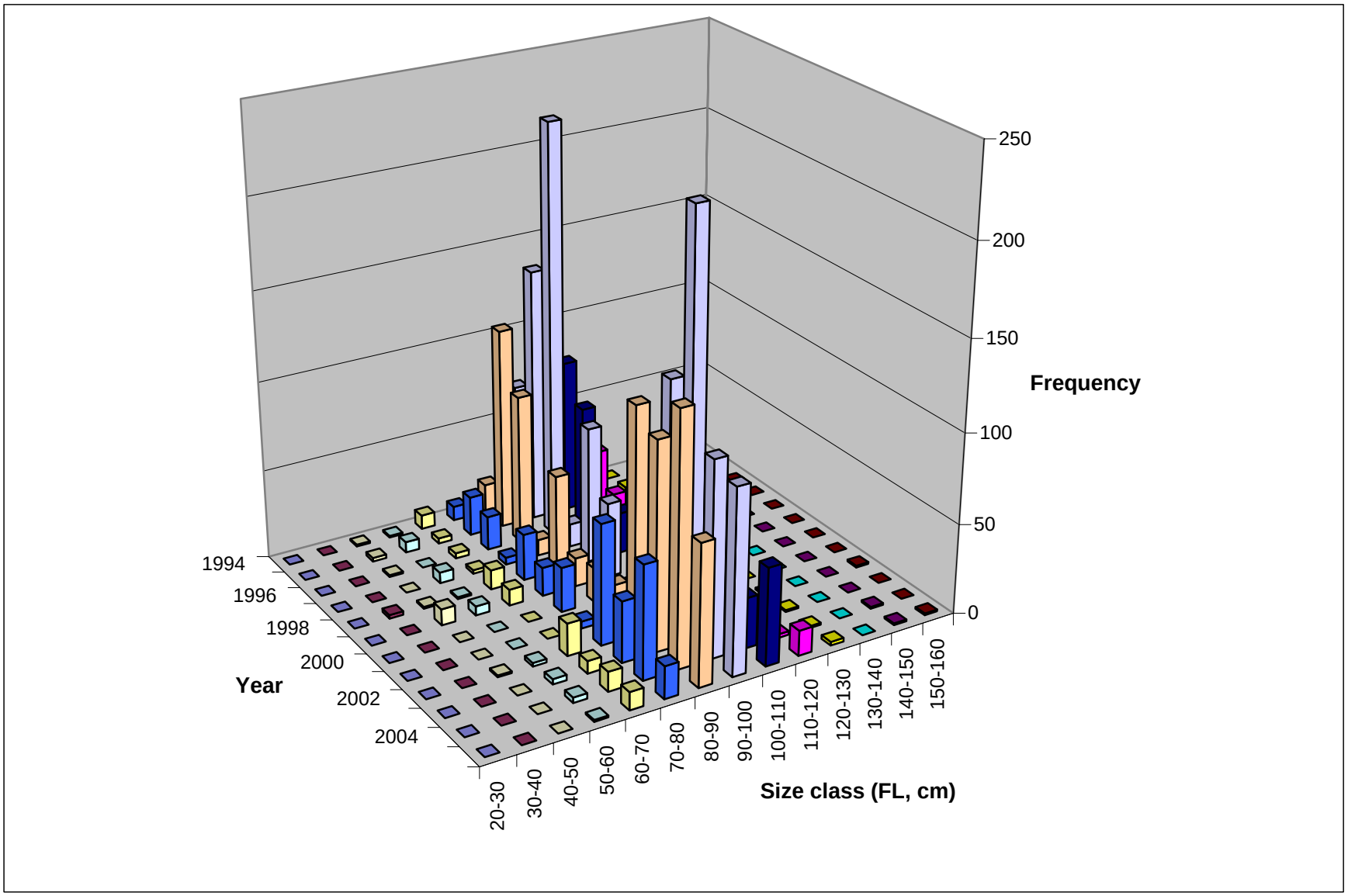


Figure 23. Length frequencies of **blacknose sharks** observed in the Bottom Longline Observer Program (1993 - 2005). Size at 50% maturity for females is 91 cm FL for areas combined.

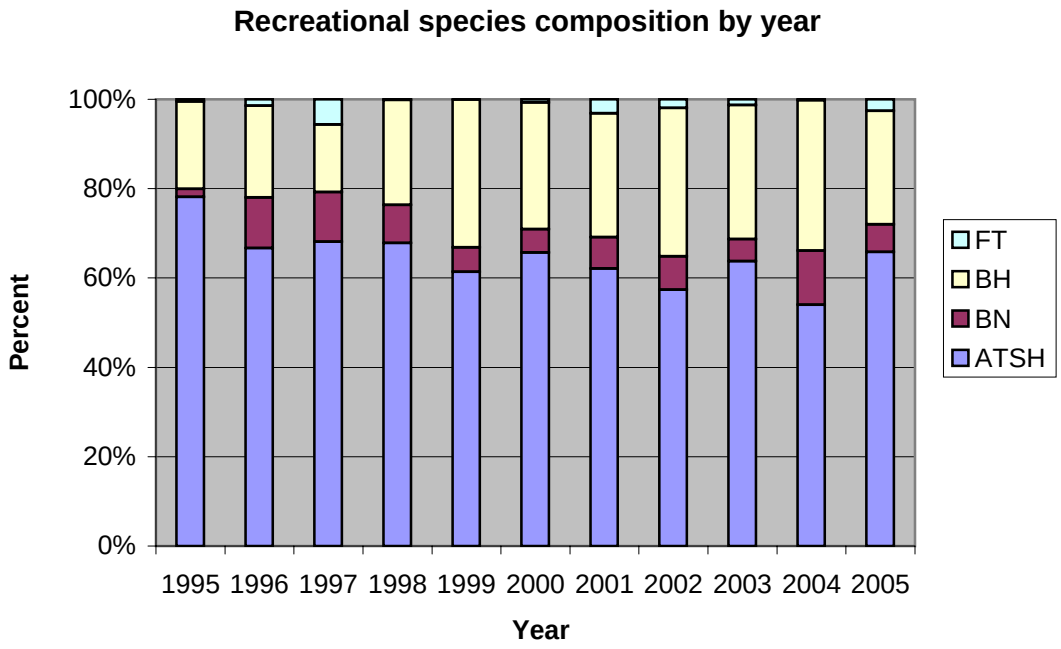


Figure 24. Species composition of small coastal sharks caught recreationally (data from MRFSS, Headboat, and TXPWD surveys).

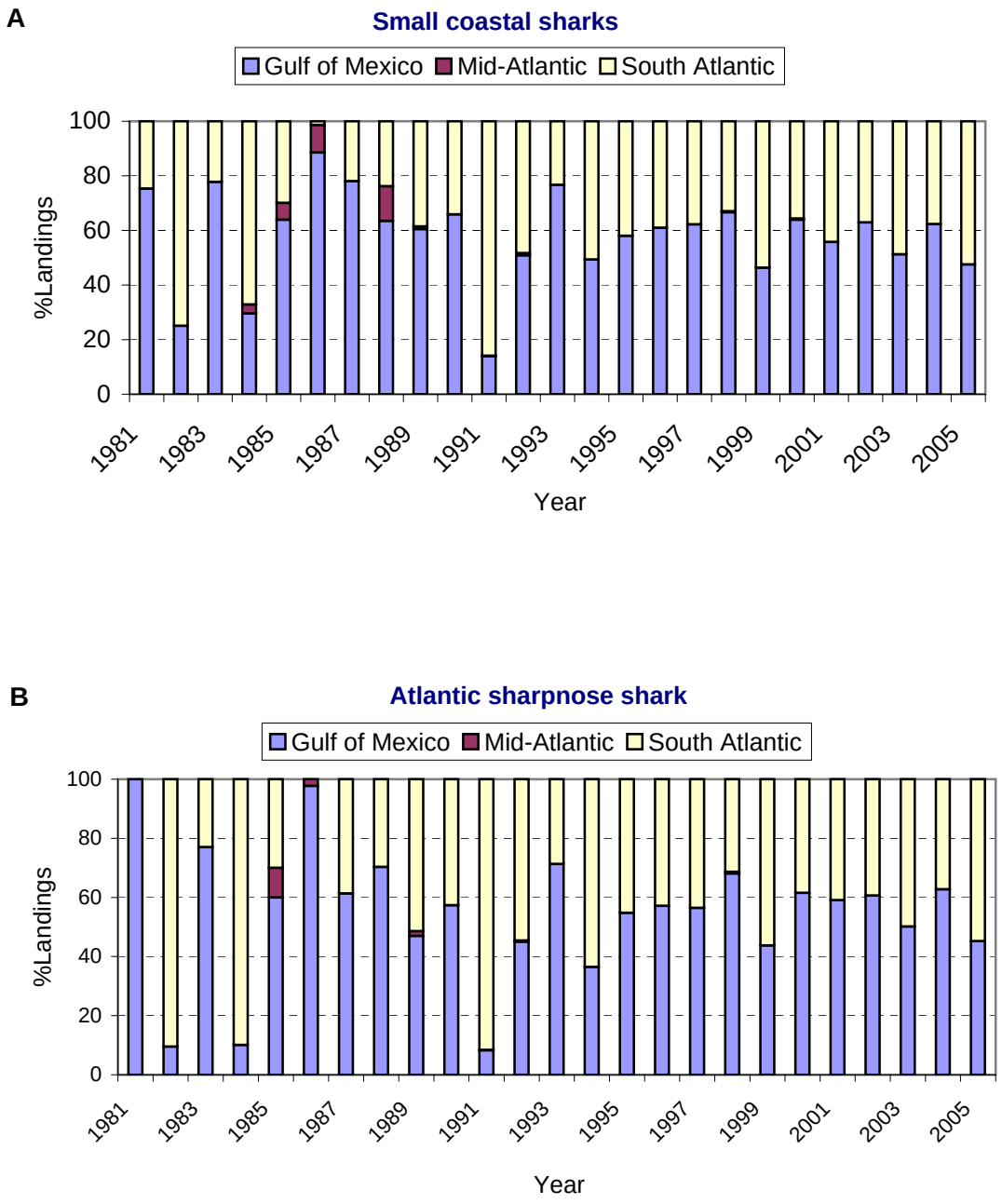
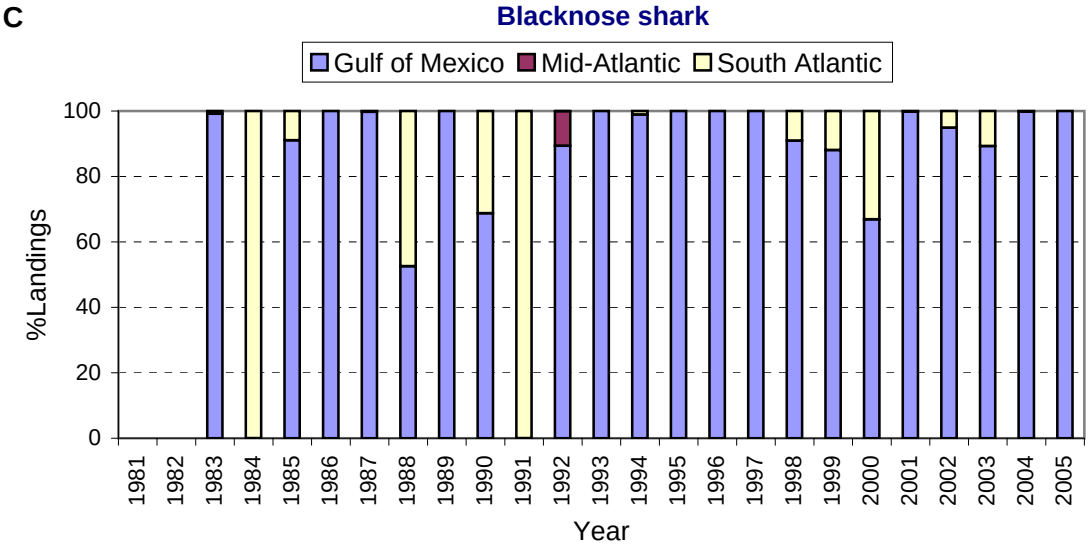


Figure 25. Recreational catches of small coastal sharks by region. A) is for the complex, B) for Atlantic sharpnose, C) for blacknose, D) for bonnethead, and E) for finetooth shark.

C



D

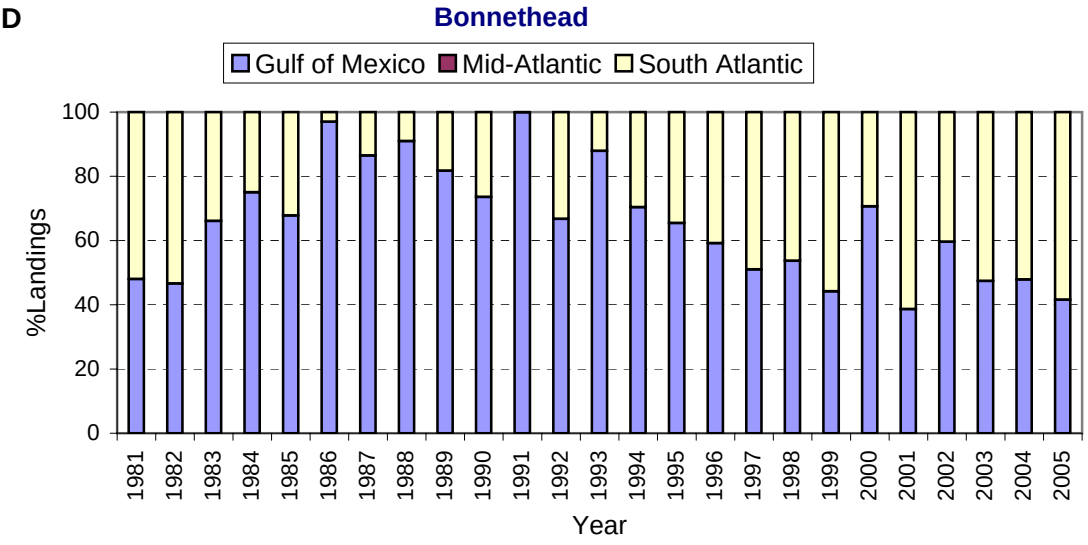


Figure 25 (continued).

E

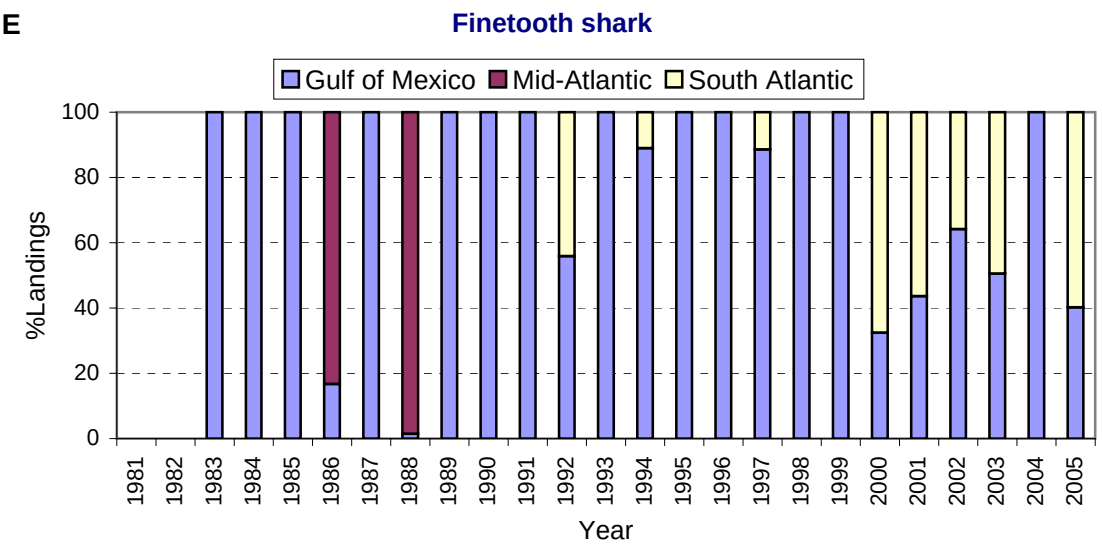


Figure 25 (continued).

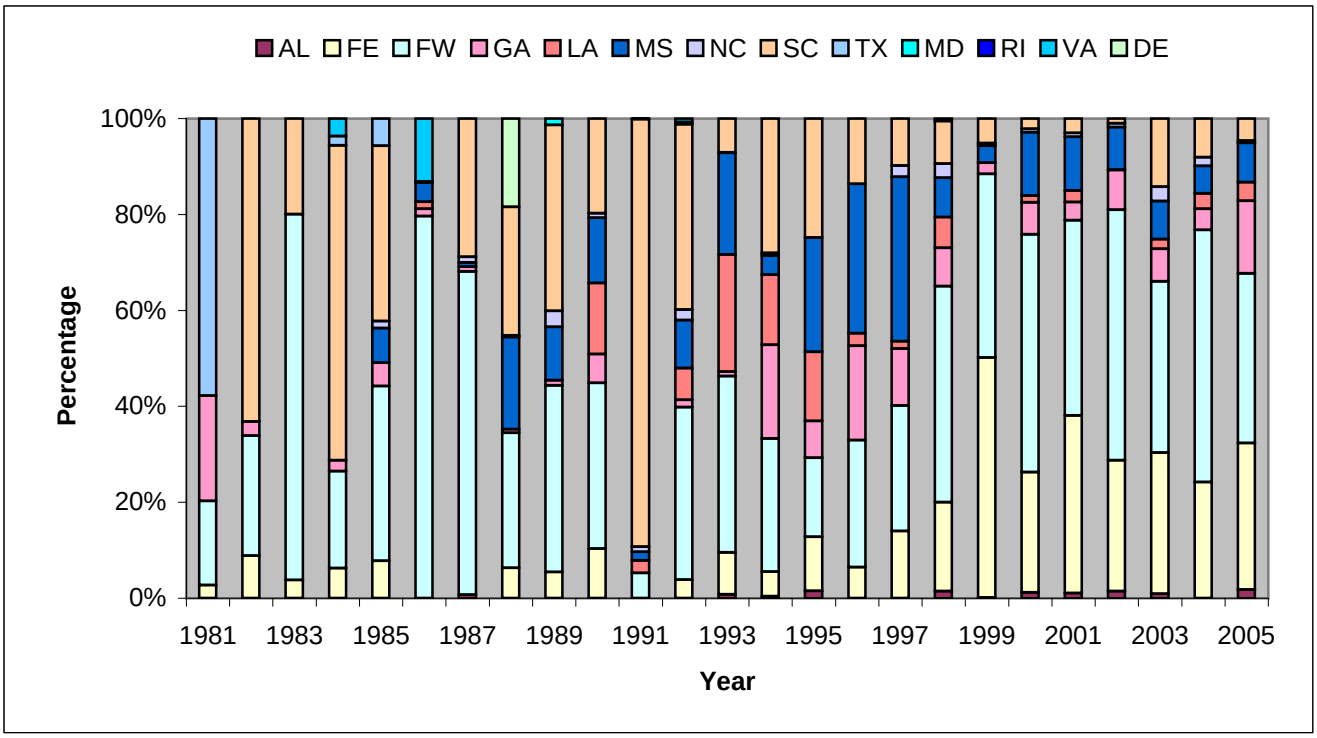


Figure 26. Percentage of landings by state of the **SCS complex** from MRFSS (1981 - 2005).

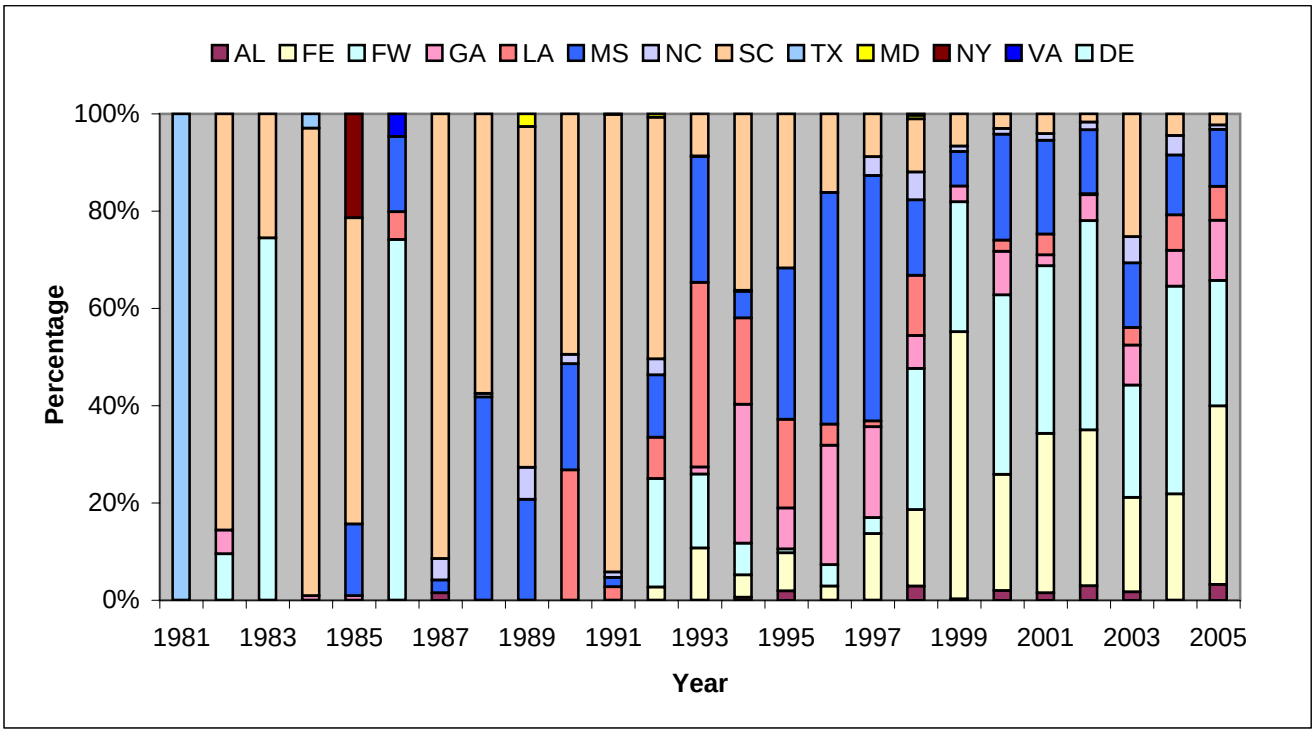


Figure 27. Percentage of landings by state of **Atlantic sharpnose sharks** from MRFSS (1981 - 2005).

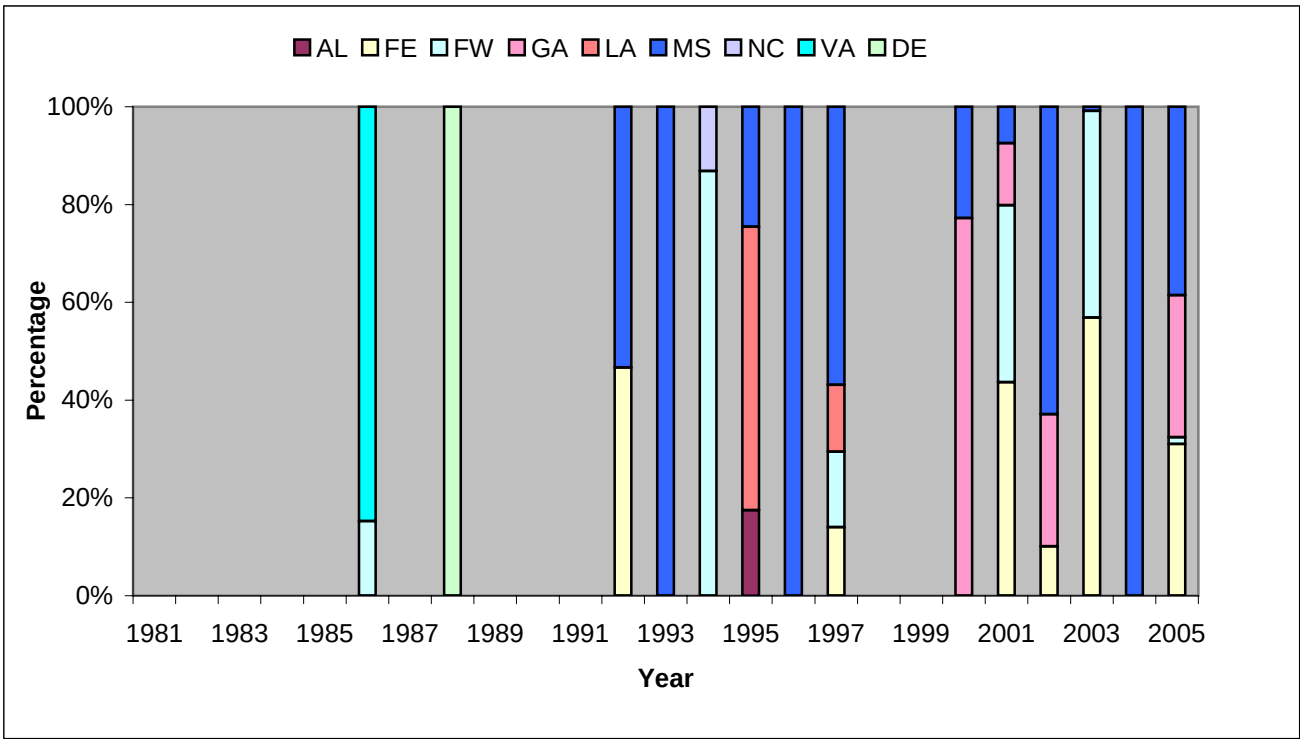


Figure 28. Percentage of landings by state of **finetooth sharks** from MRFSS (1981 - 2005).

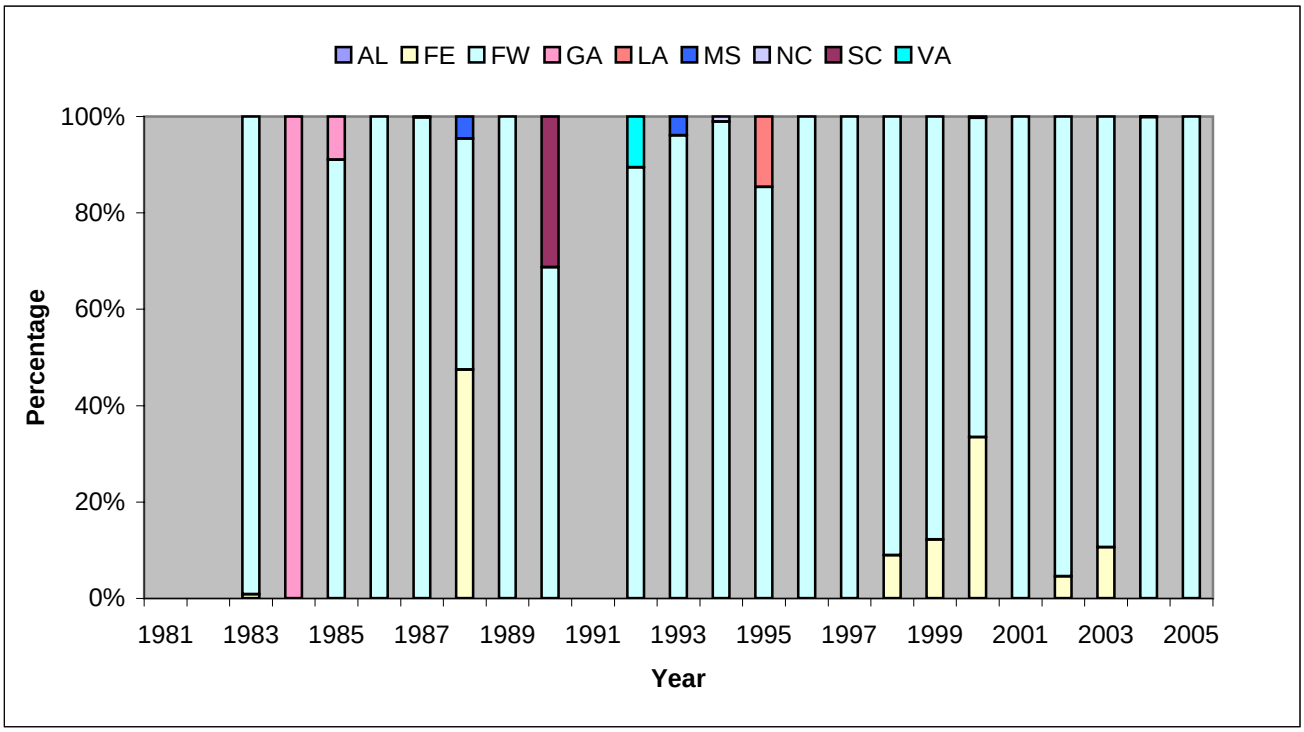


Figure 29. Percentage of landings by state of **blacknose sharks** from MRFSS (1981 - 2005).

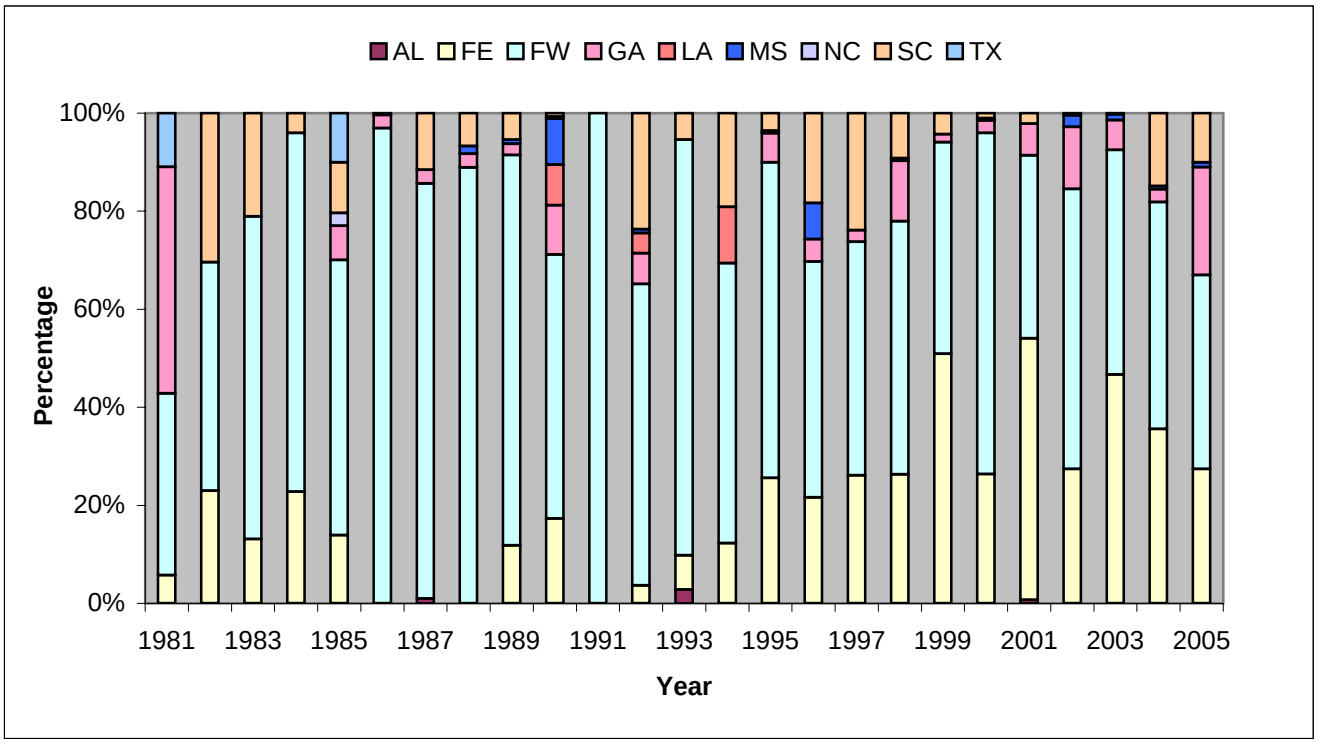


Figure 30. Percentage of landings by state of **bonnethead sharks** from MRFSS (1981 - 2005)

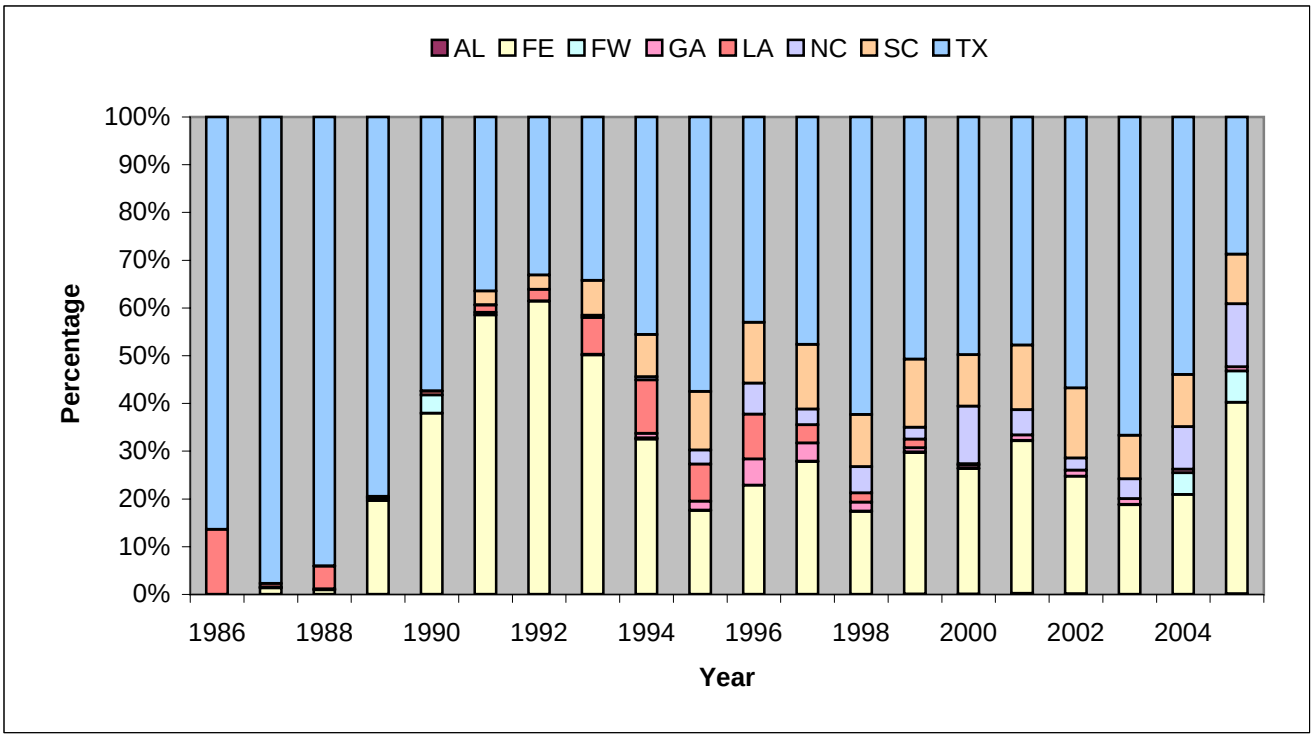


Figure 31. Percentage of landings by state of the **SCS complex** from the headboat recreational survey (1986 - 2005).

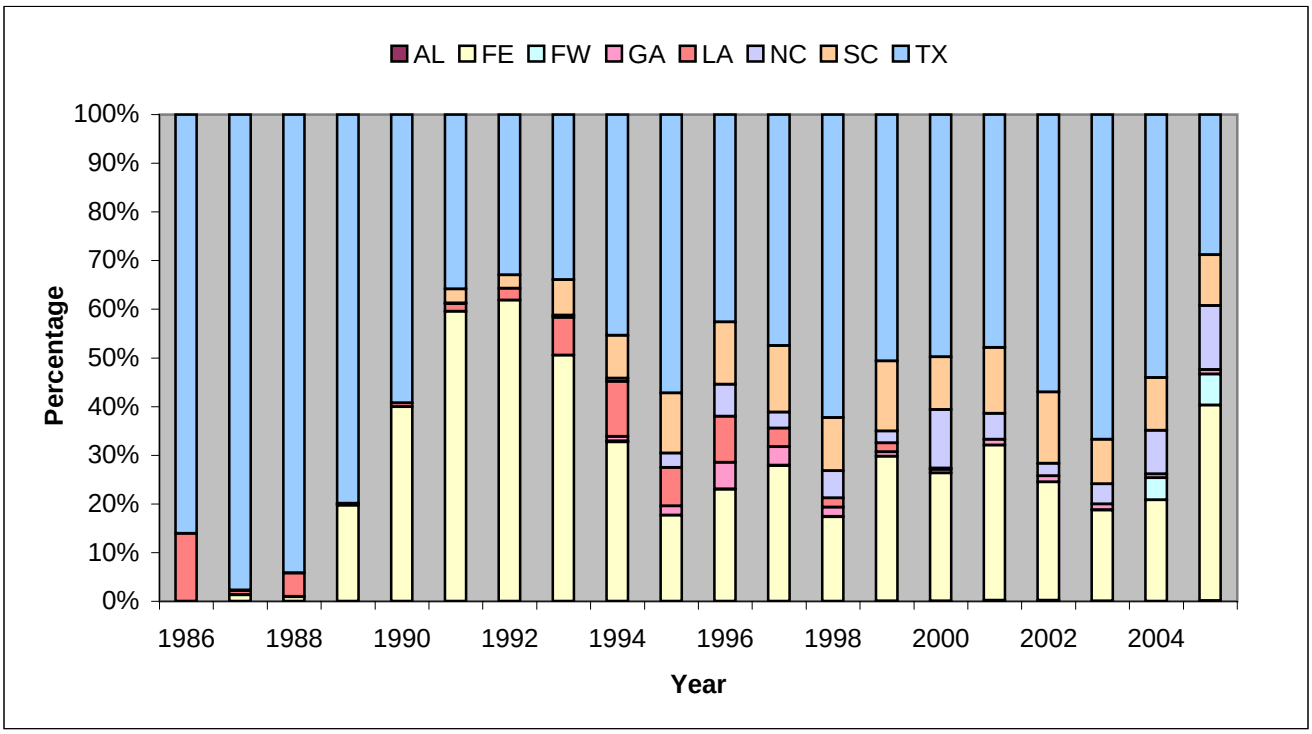


Figure 32. Percentage of landings by state of **Atlantic sharpnose sharks** from the headboat recreational survey (1986 - 2005).

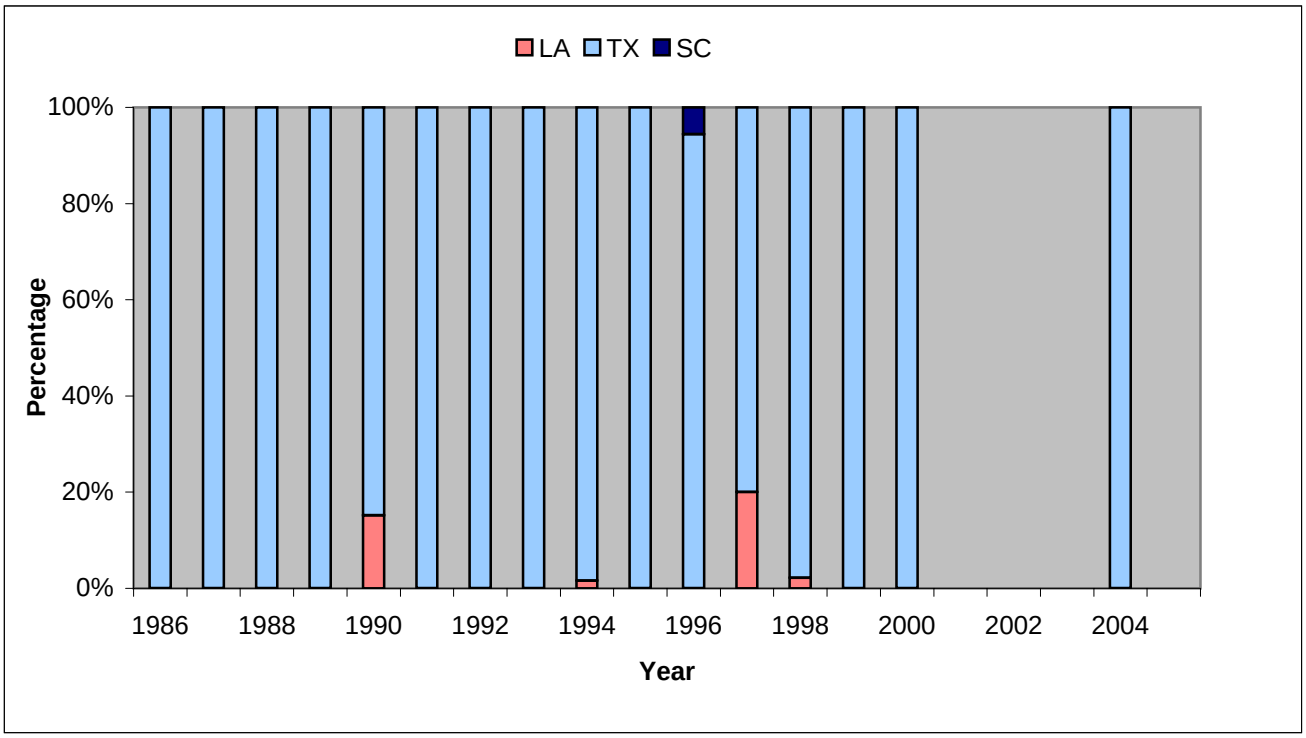


Figure 33. Percentage of landings by state of **finetooth sharks** from the headboat recreational survey (1986 - 2005).

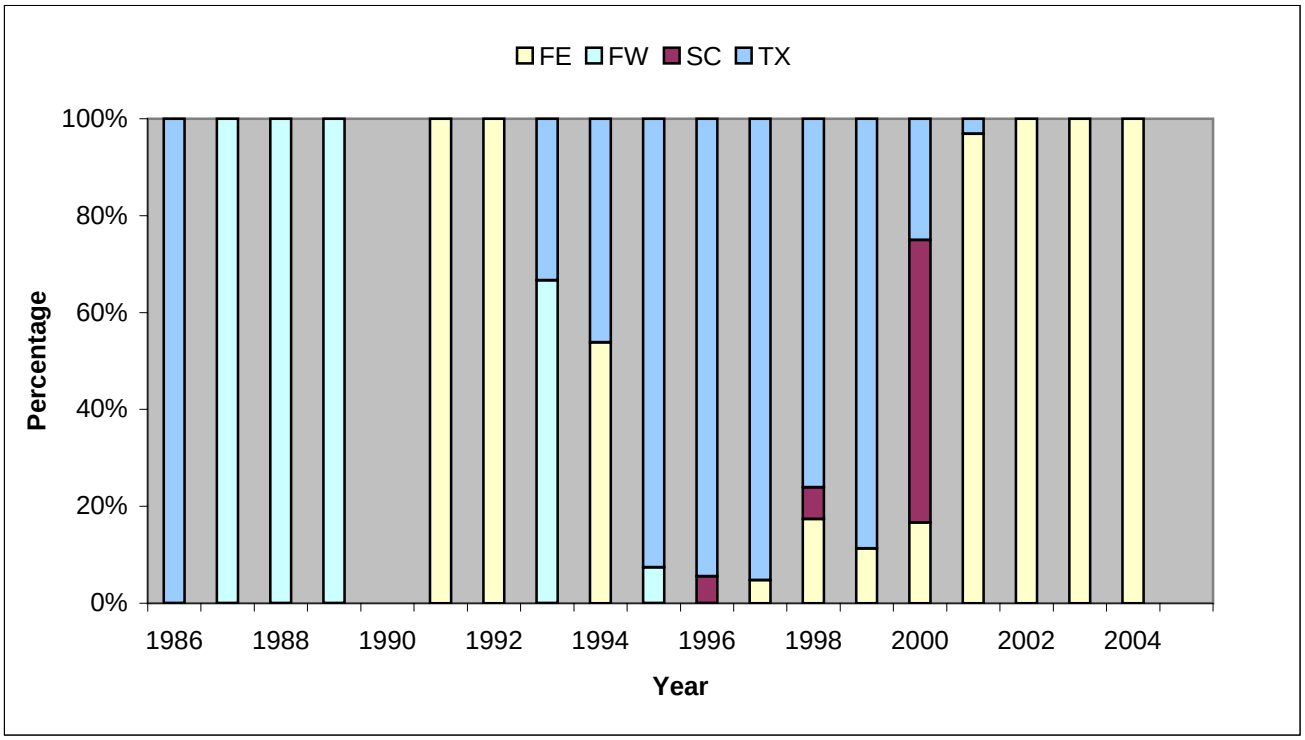


Figure 34. Percentage of landings by state of **blacknose sharks** from the headboat recreational survey (1986 - 2005).

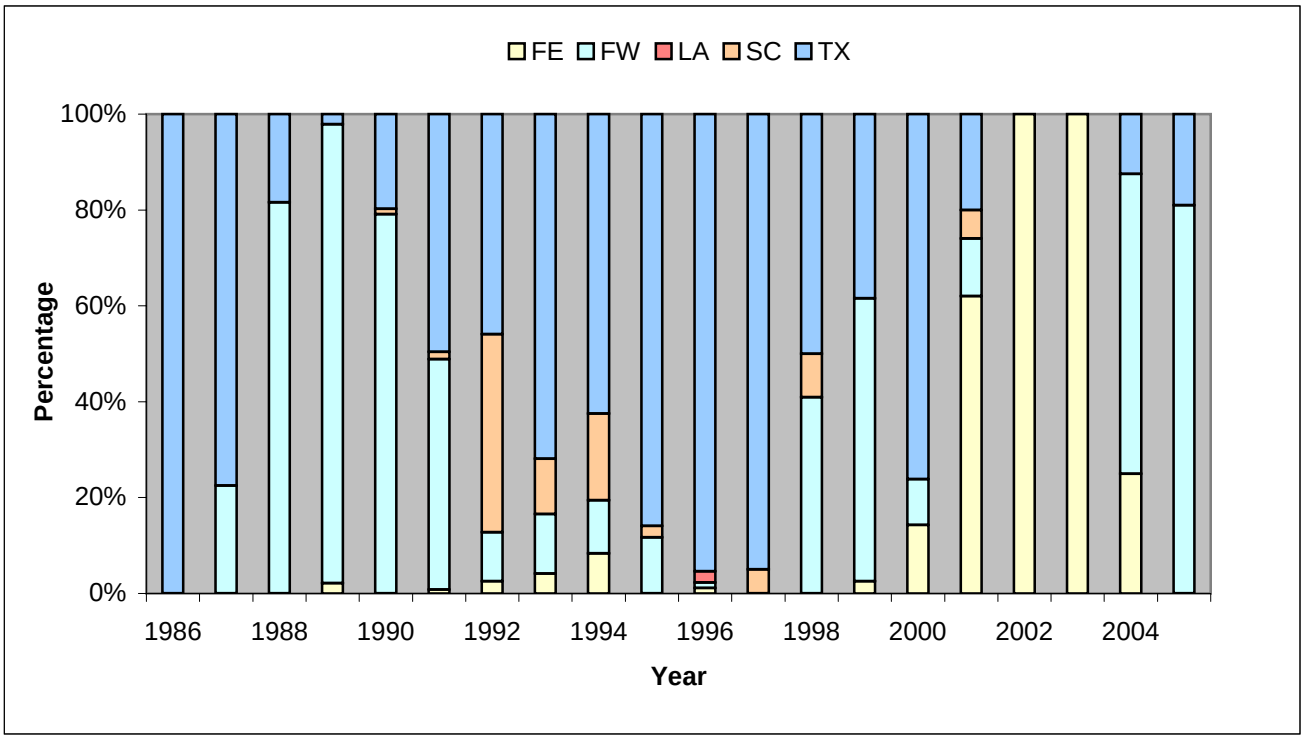


Figure 35. Percentage of landings by state of **bonnethead sharks** from the headboat recreational survey (1986 - 2005).

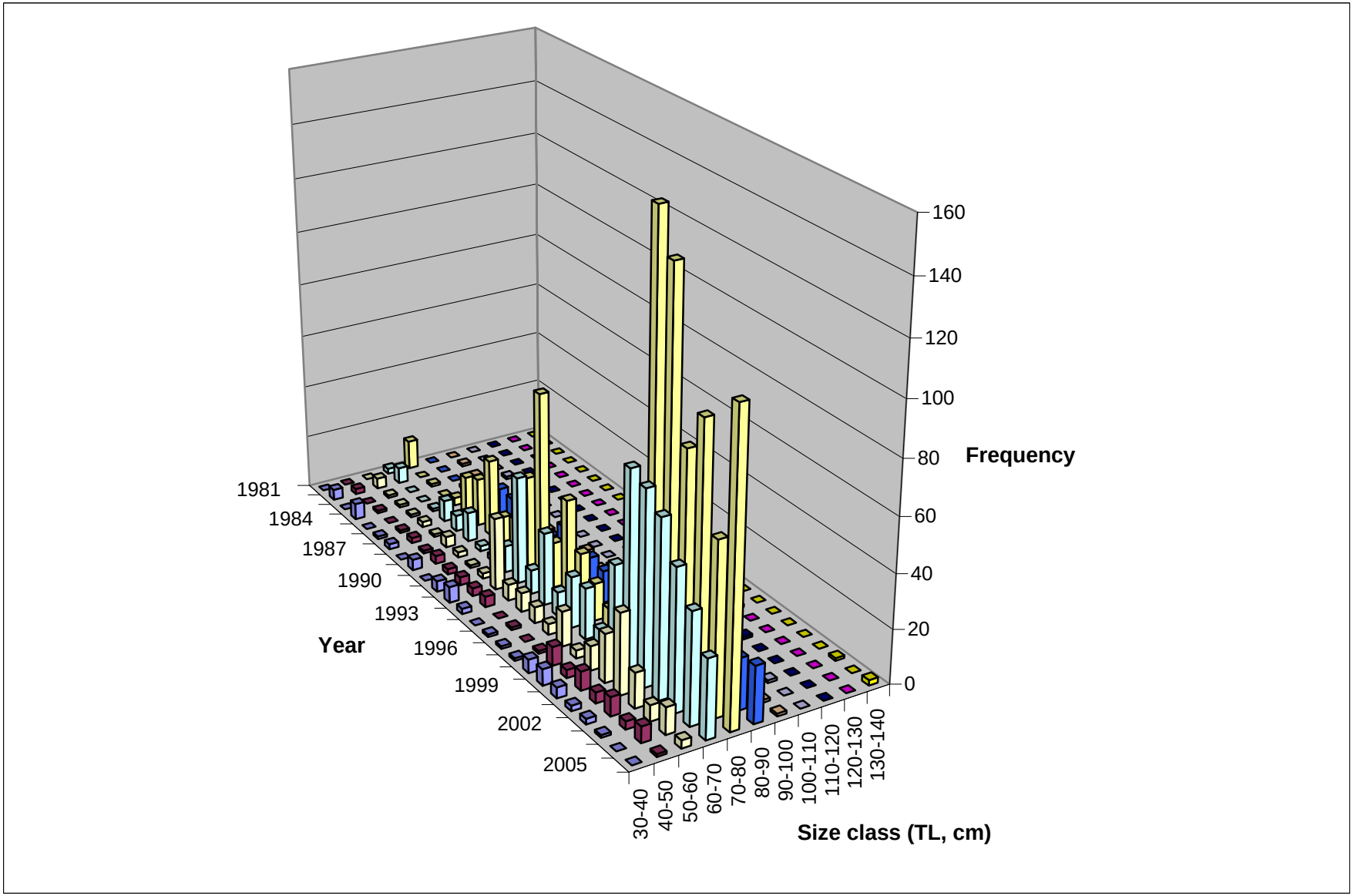


Figure 36. Length frequencies of **Atlantic sharpnose sharks** observed in the MRFSS program (1981 - 2005). Size at 50% maturity for females is 71.5 cm TL in the South Atalntic and 75.8 cm TL in the Gulf of Mexico.

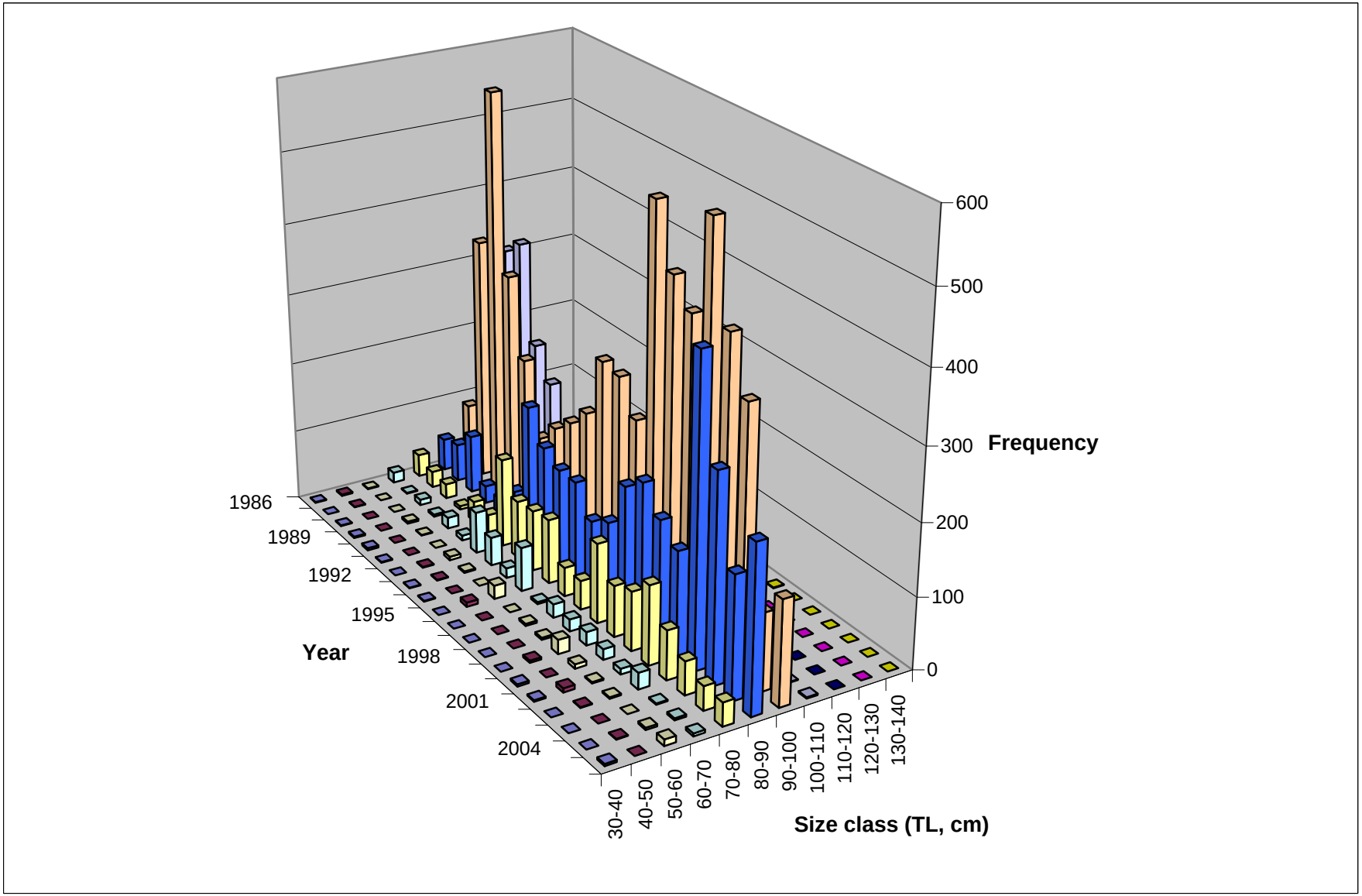


Figure 37. Length frequencies of **Atlantic sharpnose sharks** observed in the Headboat recreational survey (1986 - 2005). Size at 50% maturity for females is 71.5 cm TL in the South Atlantic and 75.8 cm TL in the Gulf of Mexico.

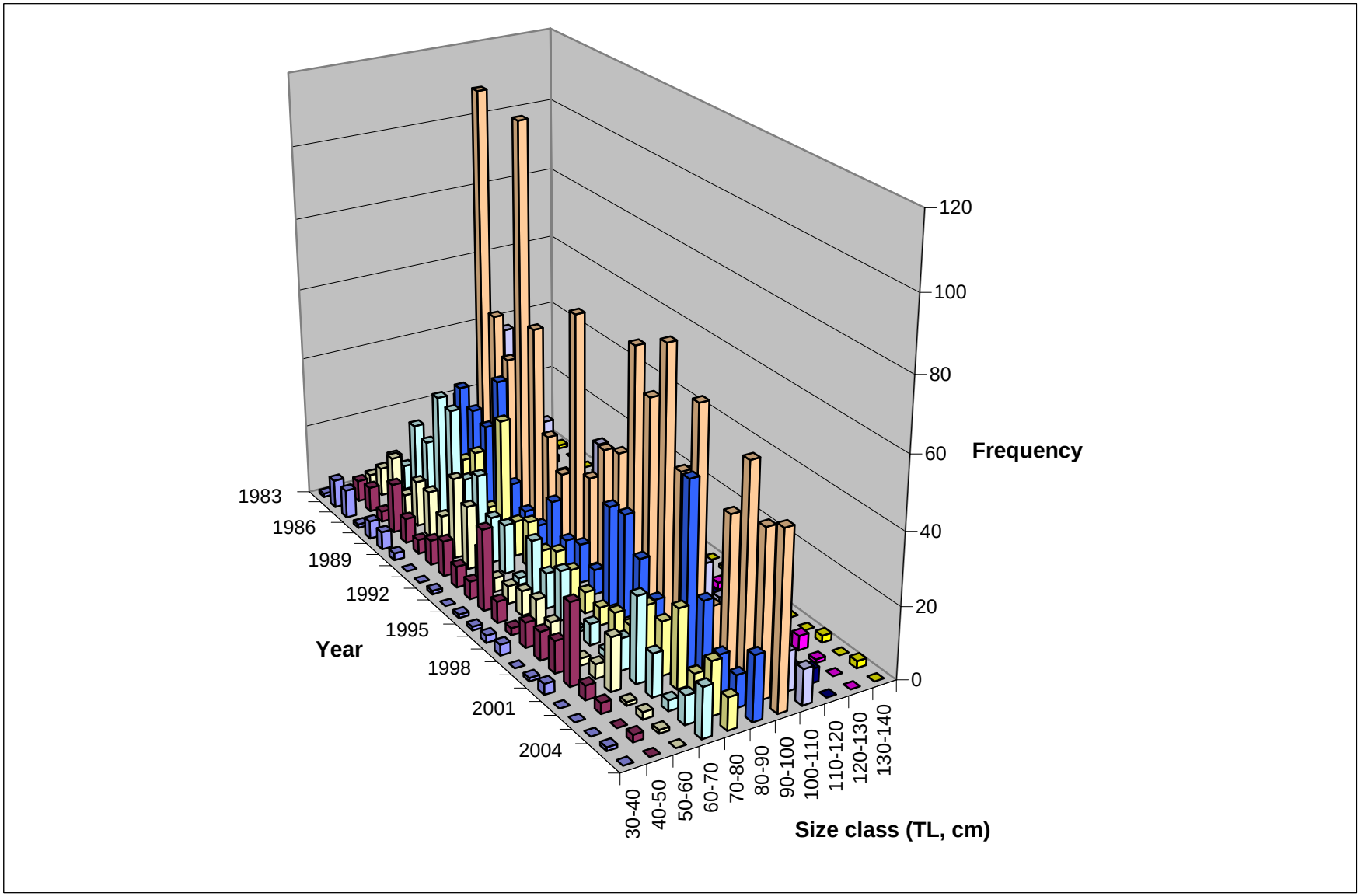


Figure 38. Length frequencies of **Atlantic sharpnose sharks** observed in the TXPWD recreational survey (1983 - 2005). Size at 50% maturity for femlaes in the Gulf of Mexico is 75.8 cm TL.

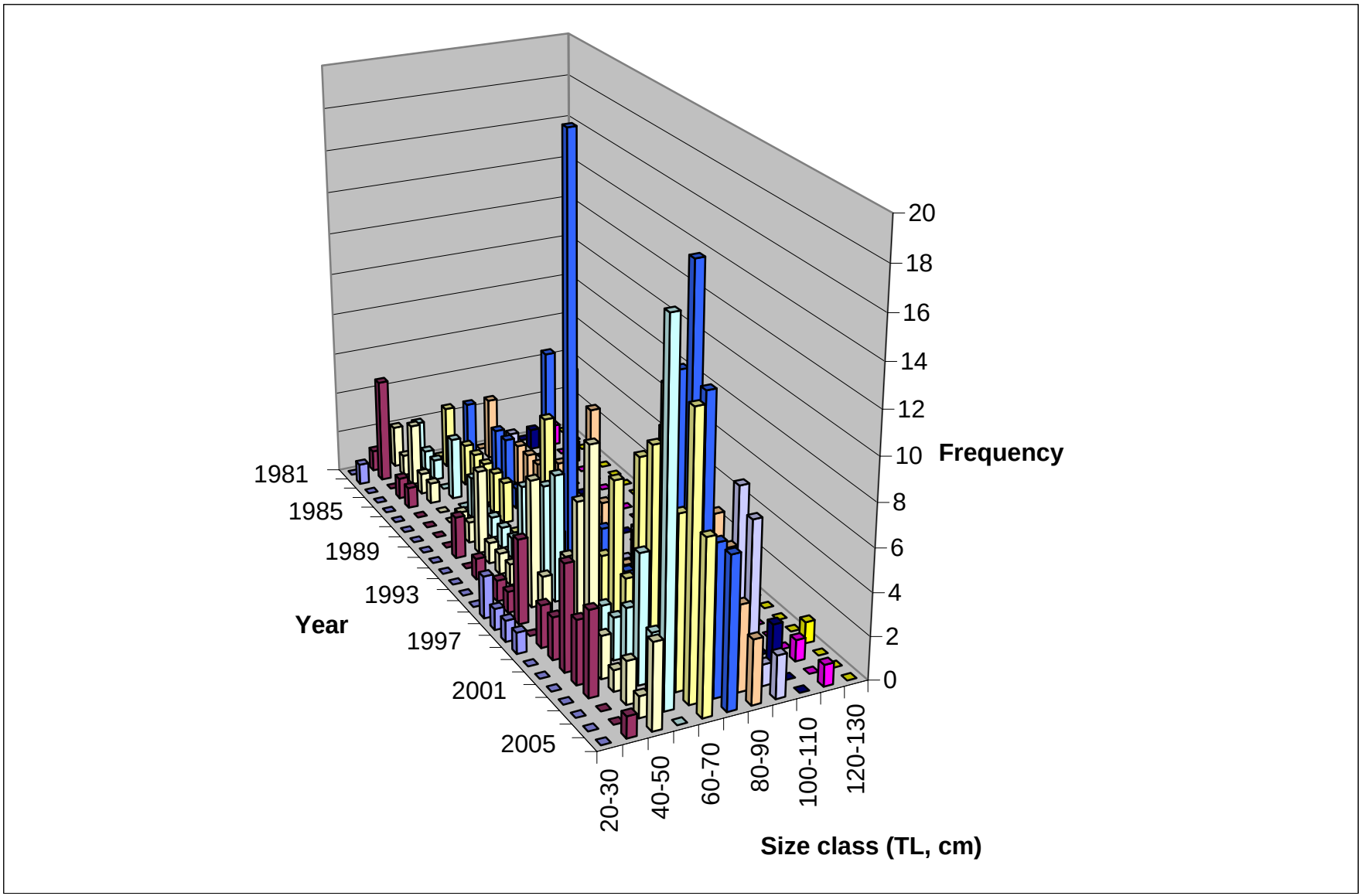


Figure 39. Length frequencies of **bonnethead sharks** observed in MRFSS program (1981 - 2005). Size of 50% maturity for females is 82.1 cm TL.

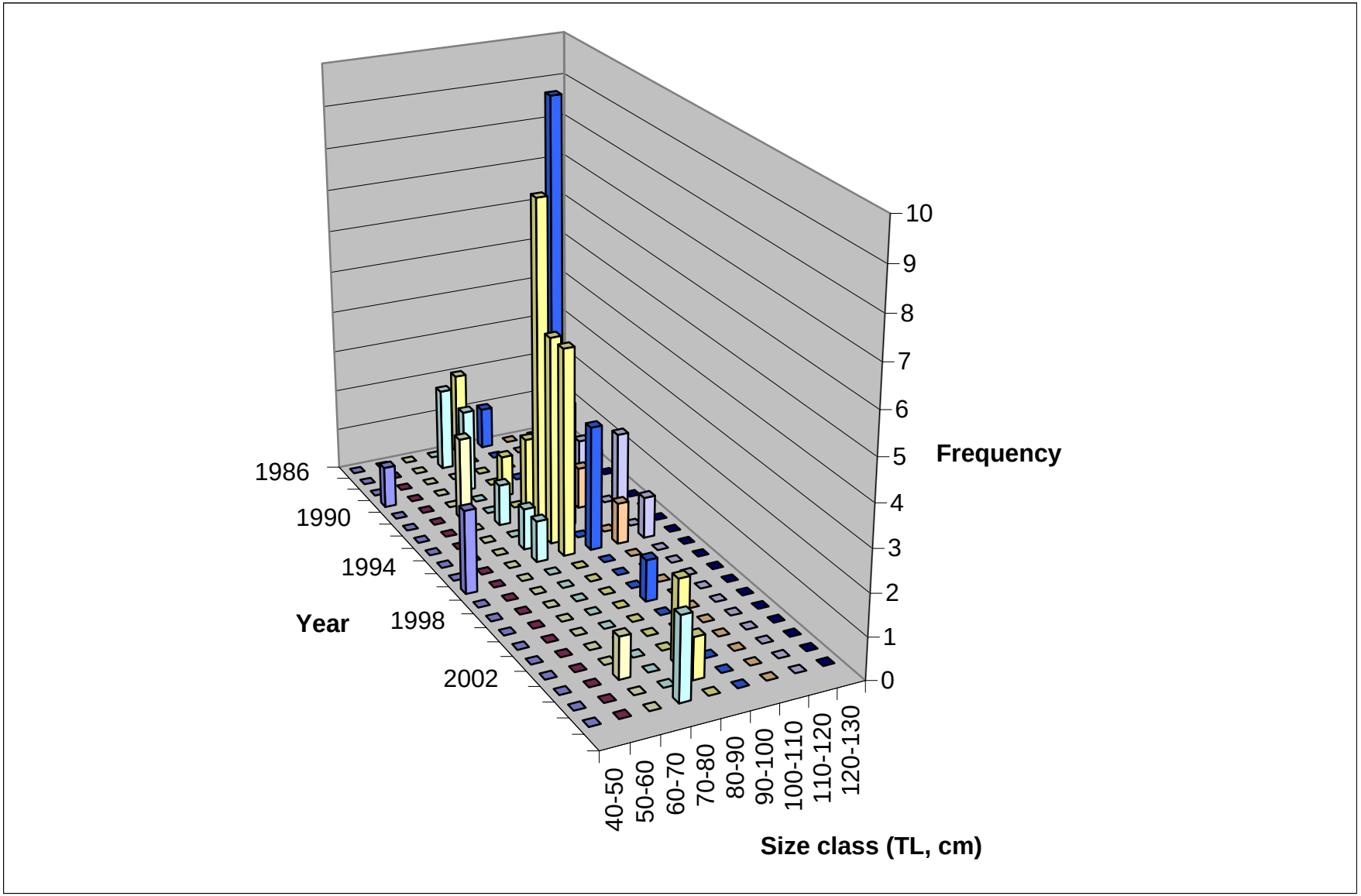


Figure 40. Length frequencies of **bonnethead sharks** observed in the Headboat recreational survey (1986 - 2005). Size at 50% maturity for females is 82.1 cm TL.

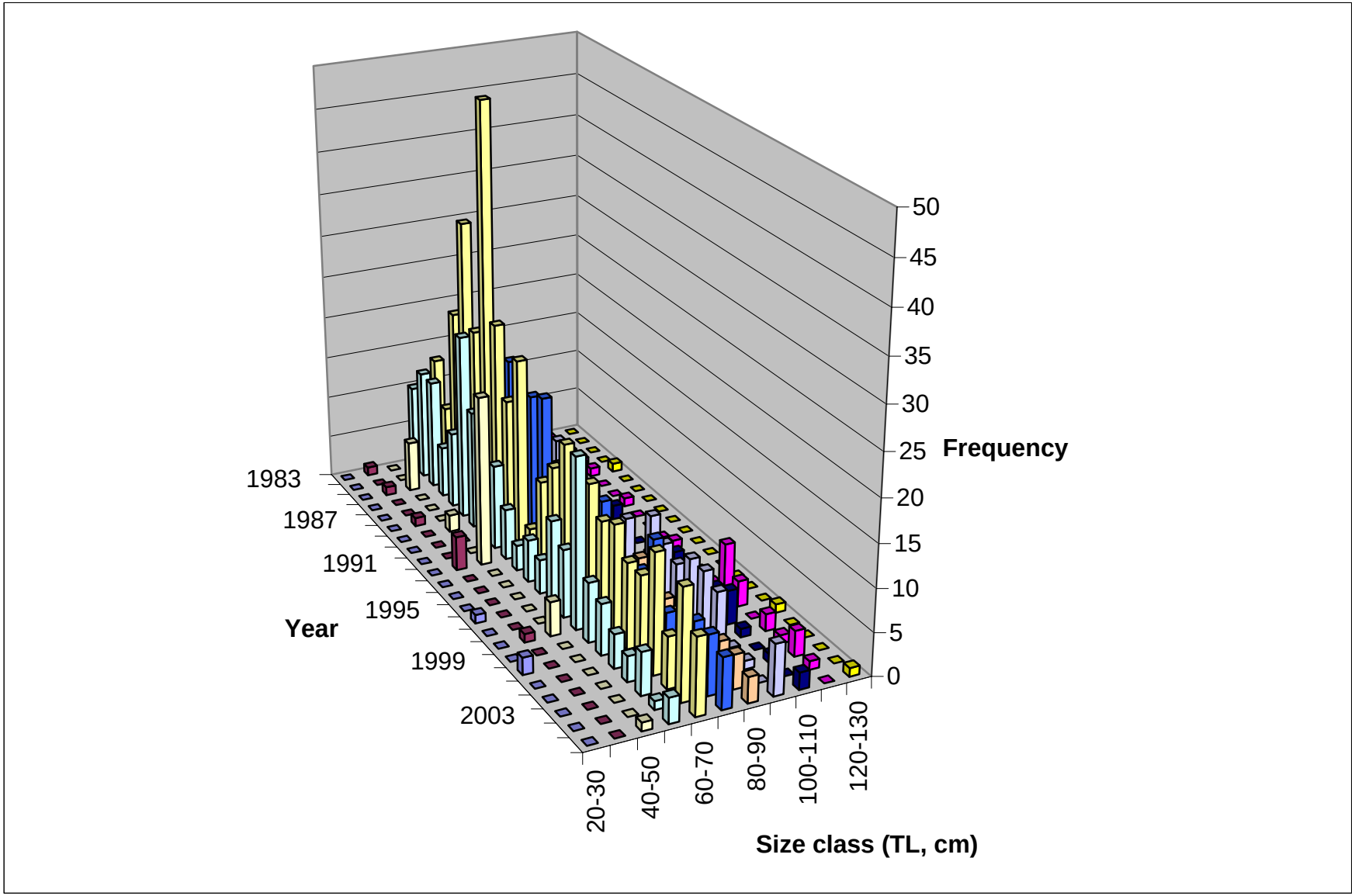


Figure 41. Length frequencies of **bonnethead sharks** observed in the TXPWD recreational survey (1983 - 2005). Size at 50% maturity for femlaes in the Gulf of Mexico is 82.1 cm TL.

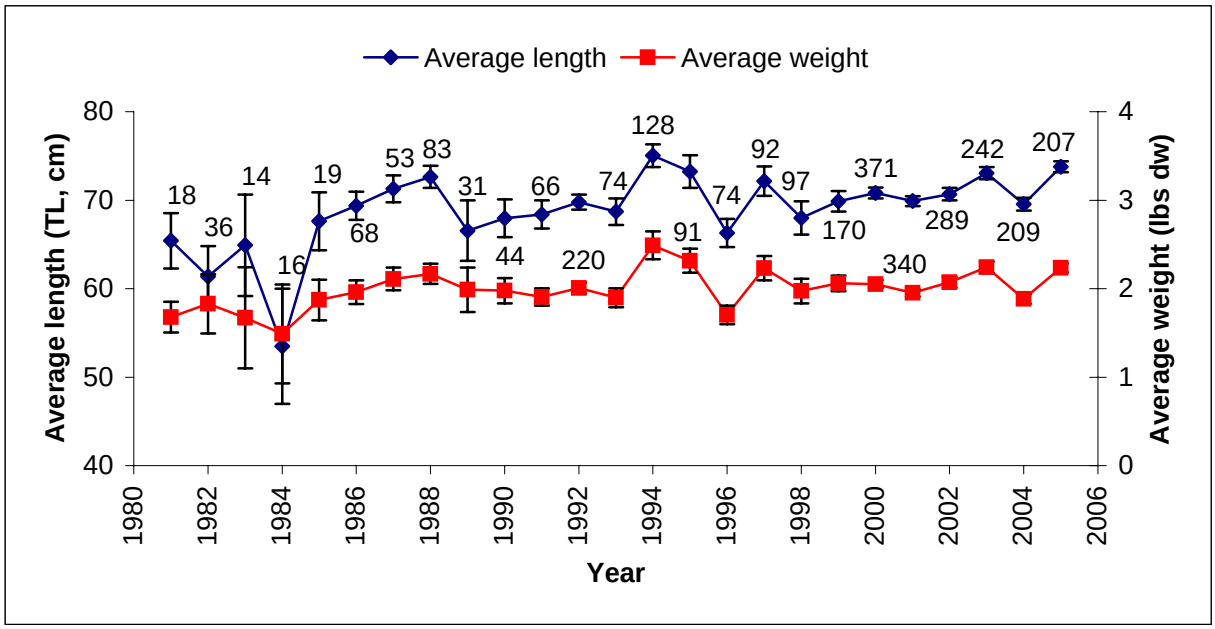


Figure 42: Average length (TL, cm) and weight (lbs dw) for the **SCS complex** from the MRFSS program (1981 - 2005).

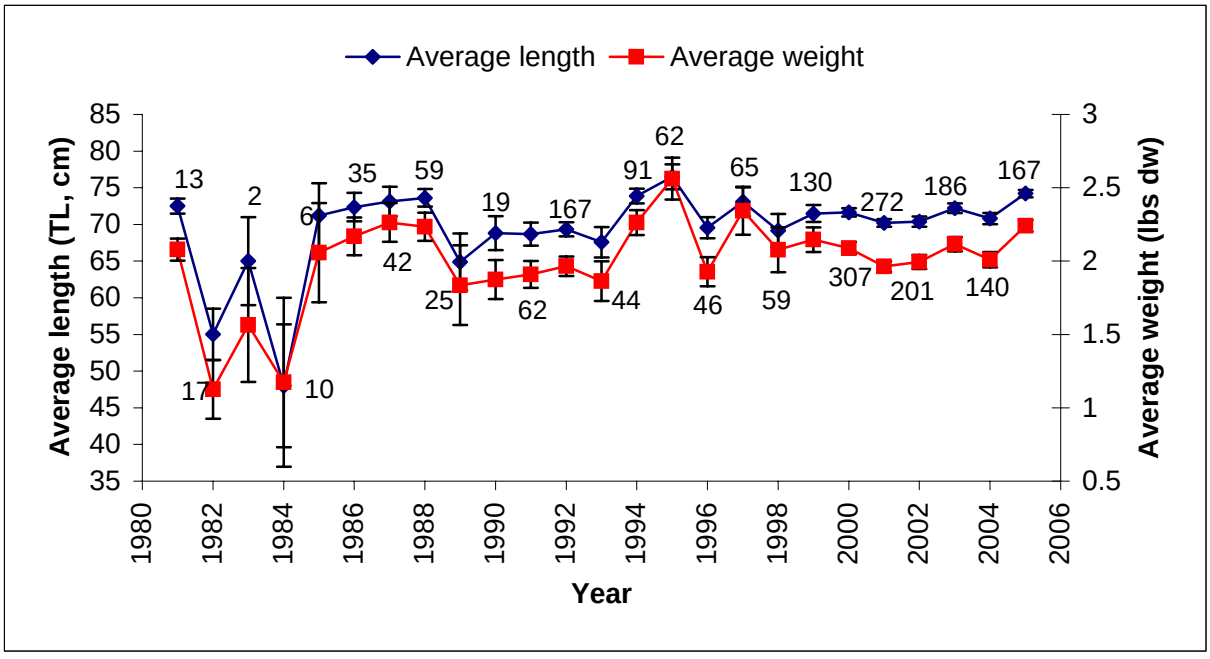


Figure 43: Average length (TL, cm) and weight (lbs dw) for **Atlantic sharpnose sharks** from the MRFSS program (1981 - 2005).

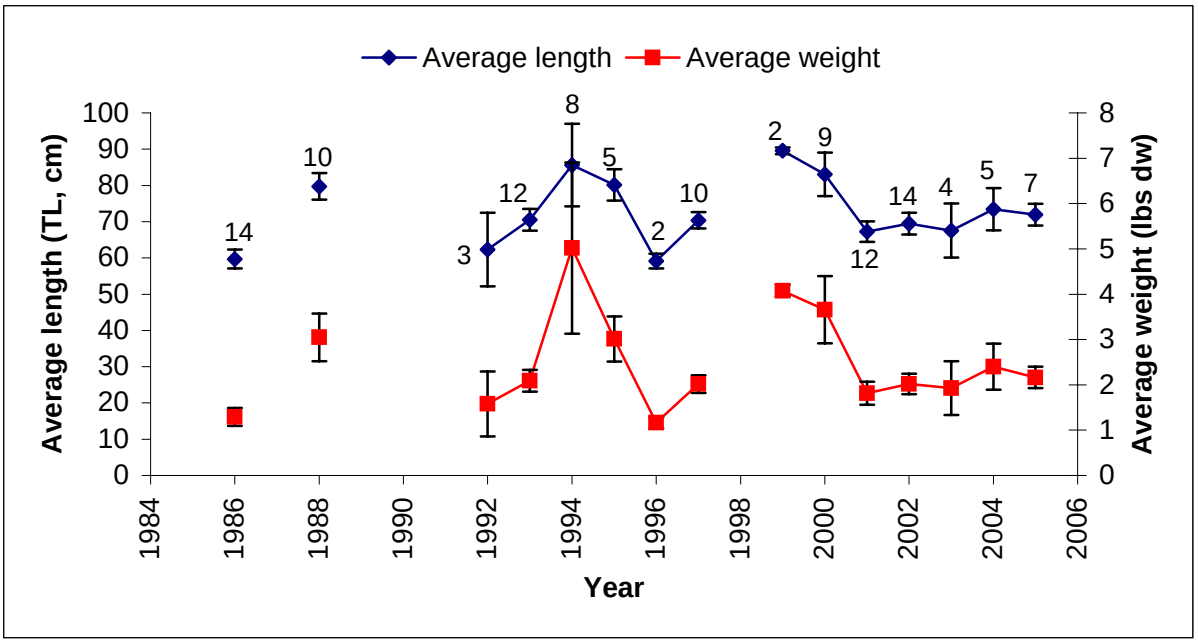


Figure 44: Average length (TL, cm) and weight (lbs dw) for **finetooth sharks** from the MRFSS program (1981 - 2005).

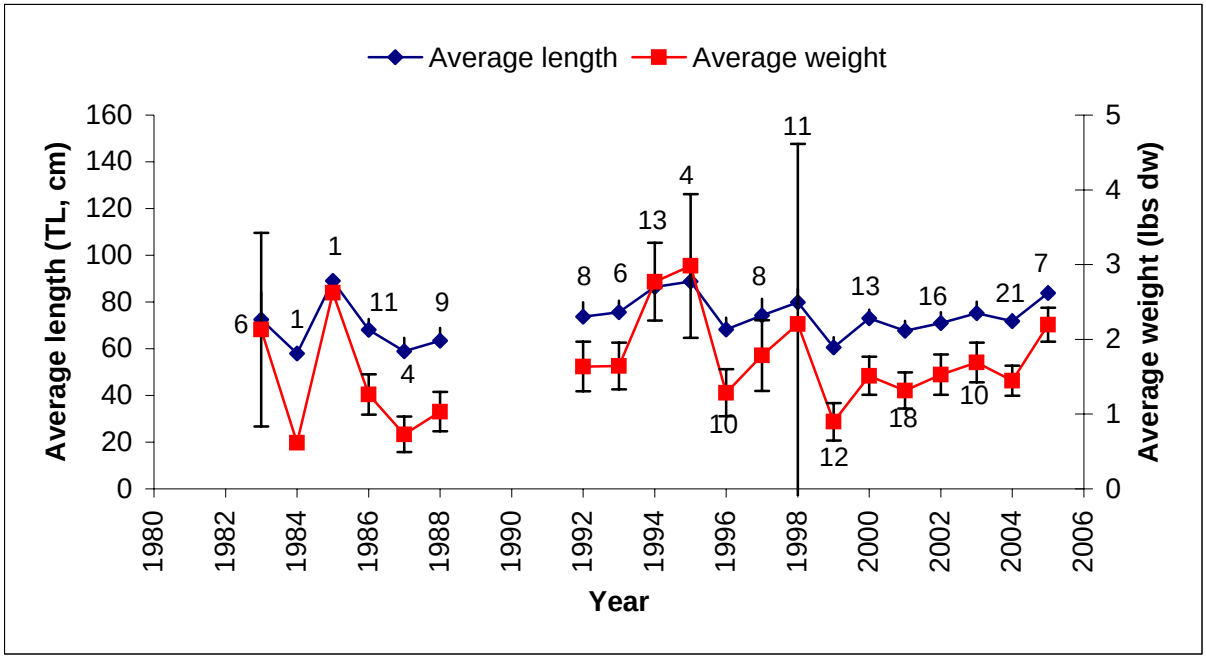


Figure 45: Average length (TL, cm) and weight (lbs dw) for **blacknose sharks** from the MRFSS program (1981 - 2005).

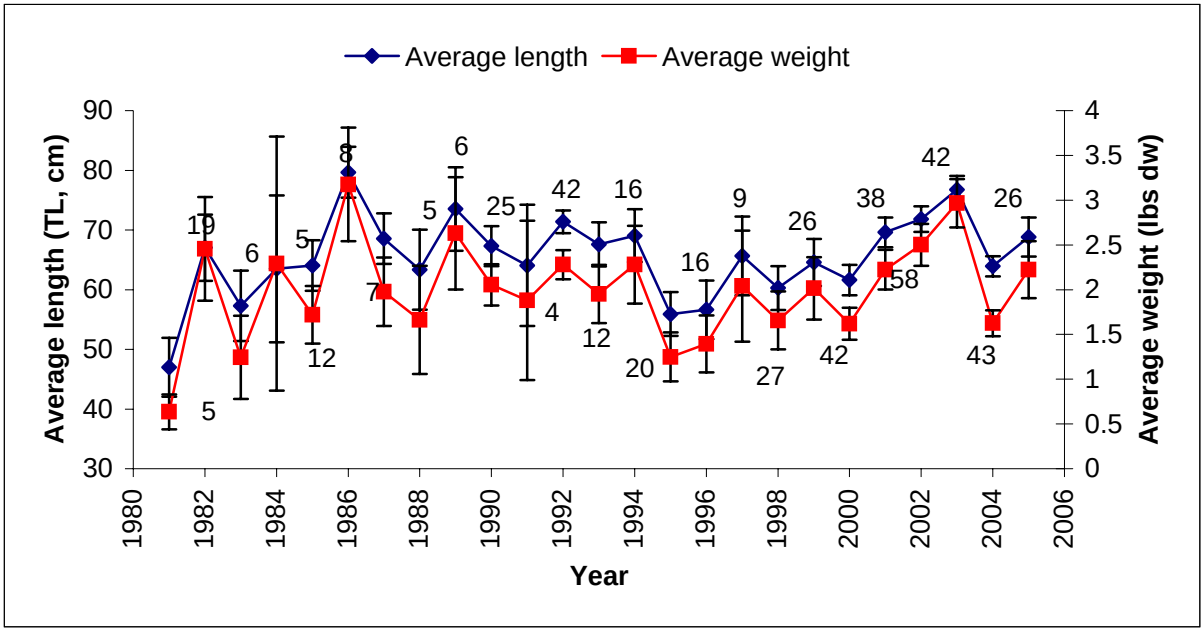


Figure 46: Average length (TL, cm) and weight (lbs dw) for **bonnethead sharks** from MRFSS program (1981 - 2005).

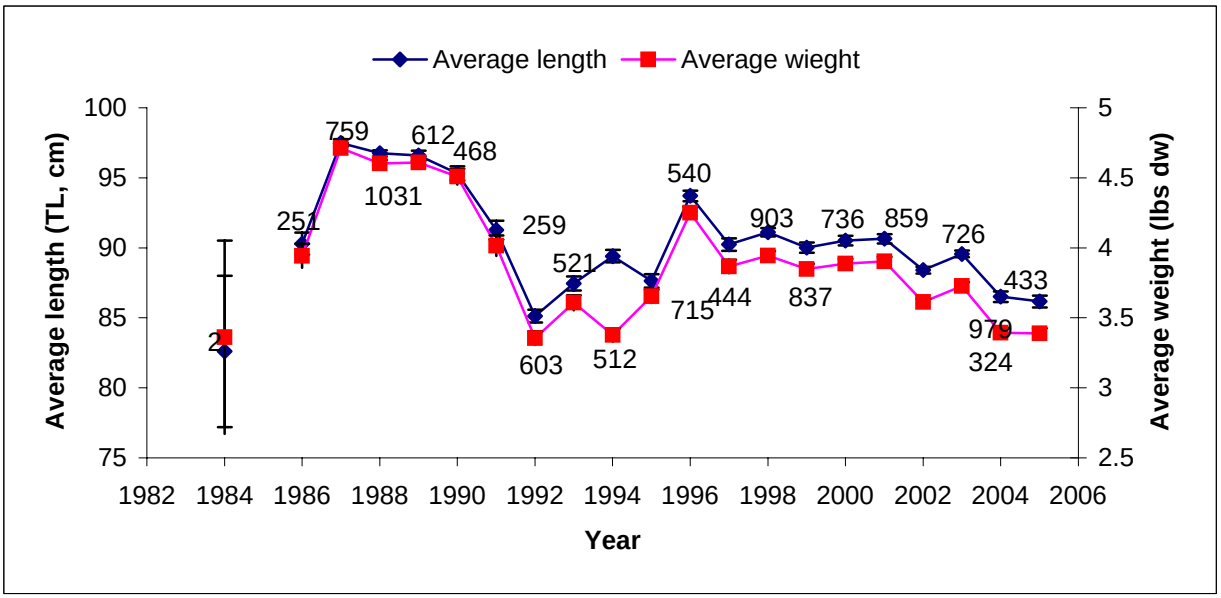


Figure 47: Average length (TL, cm) and weight (lbs dw) for the **SCS complex** from the Headboat recreational survey program (1984 - 2005).

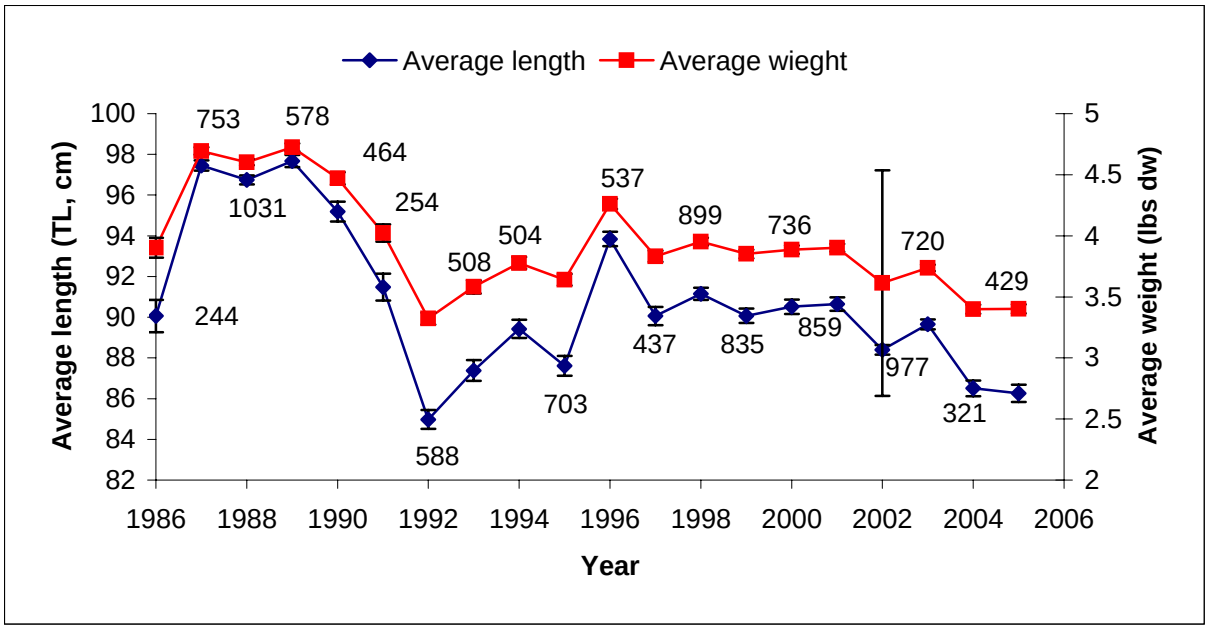


Figure 48: Average length (TL, cm) and weight (lbs dw) for **Atlantic sharpnose sharks** from the Headboat recreational survey program (1984 - 2005).

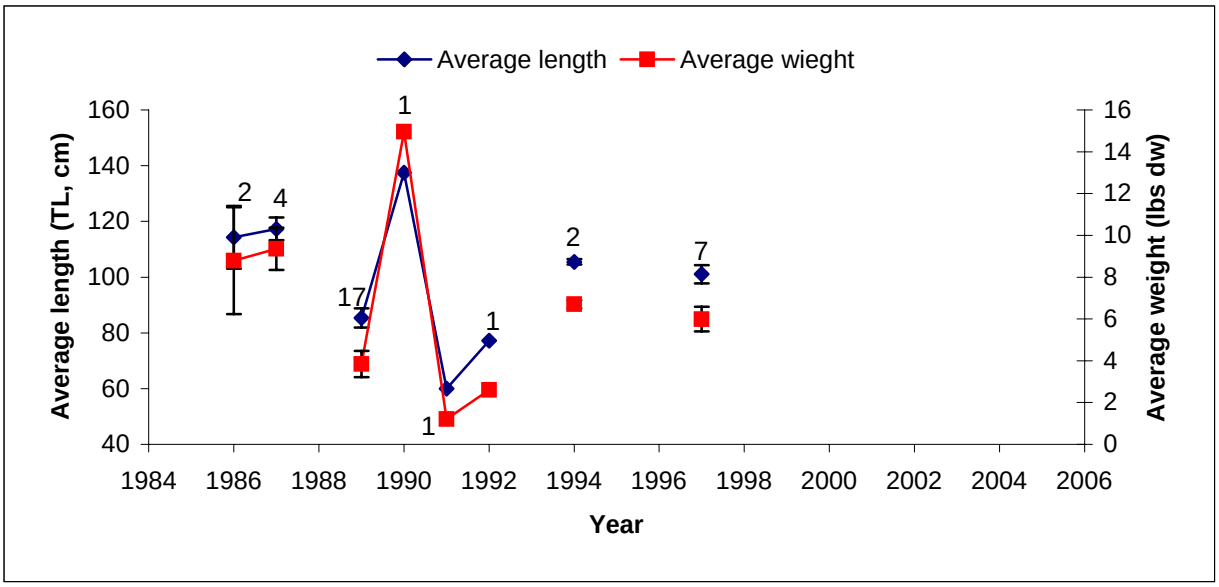


Figure 49: Average length (TL, cm) and weight (lbs dw) for **finetooth sharks** from the Headboat recreational survey program (1984 - 2005).

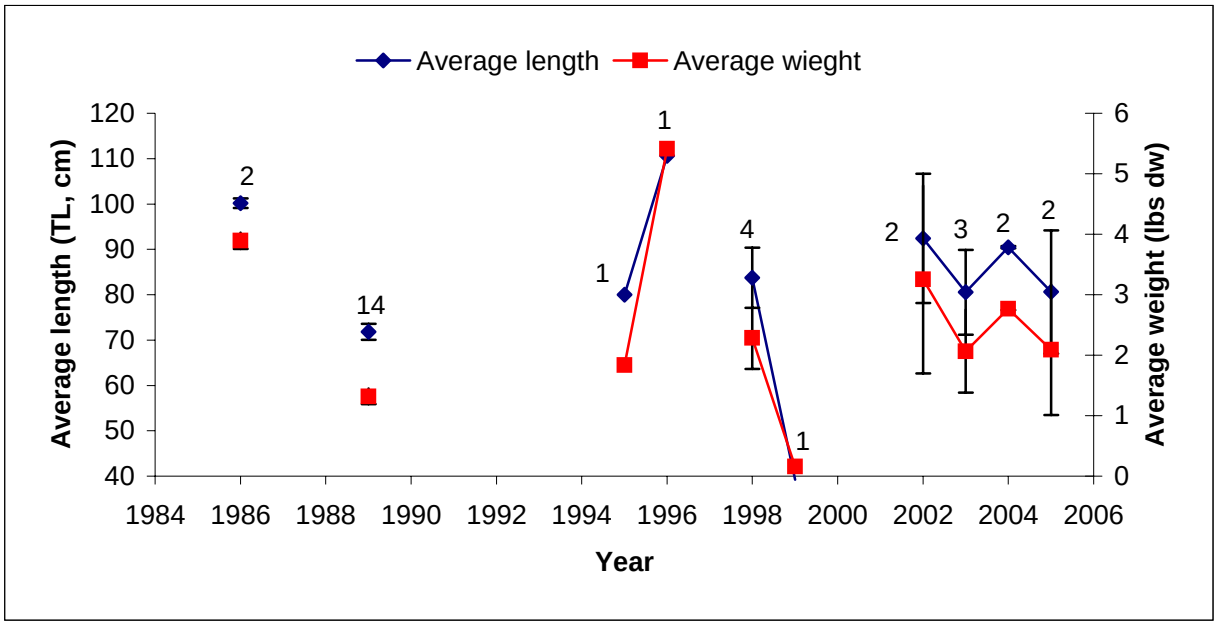


Figure 50: Average length (TL, cm) and weight (lbs dw) for **blacknose sharks** from the Headboat recreational survey program (1984 - 2005).

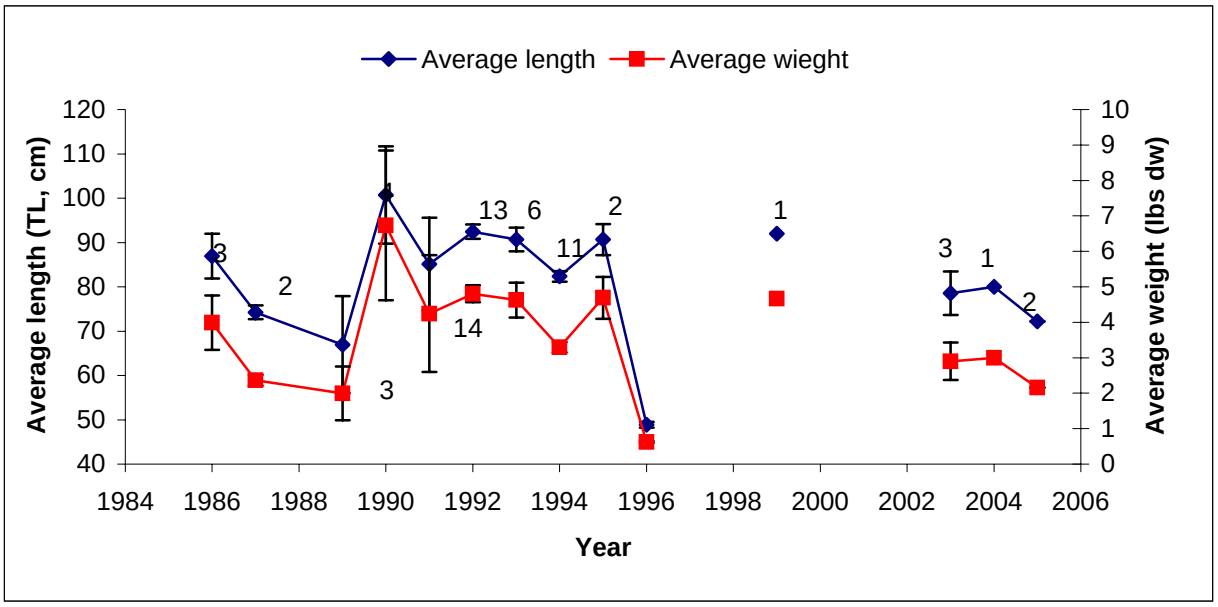


Figure 51: Average length (TL, cm) and weight (lbs dw) for **bonnethead sharks** from the Headboat recreational survey program (1984 - 2005).

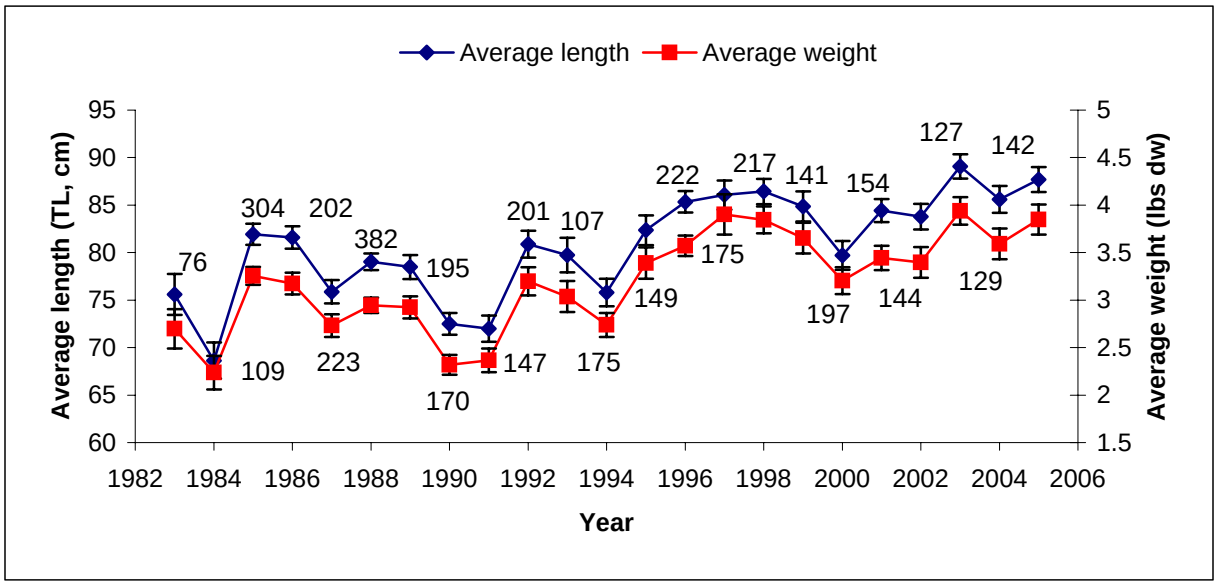


Figure 52: Average length (TL, cm) and weight (lbs dw) for the **SCS complex** from the TXPWD recreational survey program (1983 - 2005).

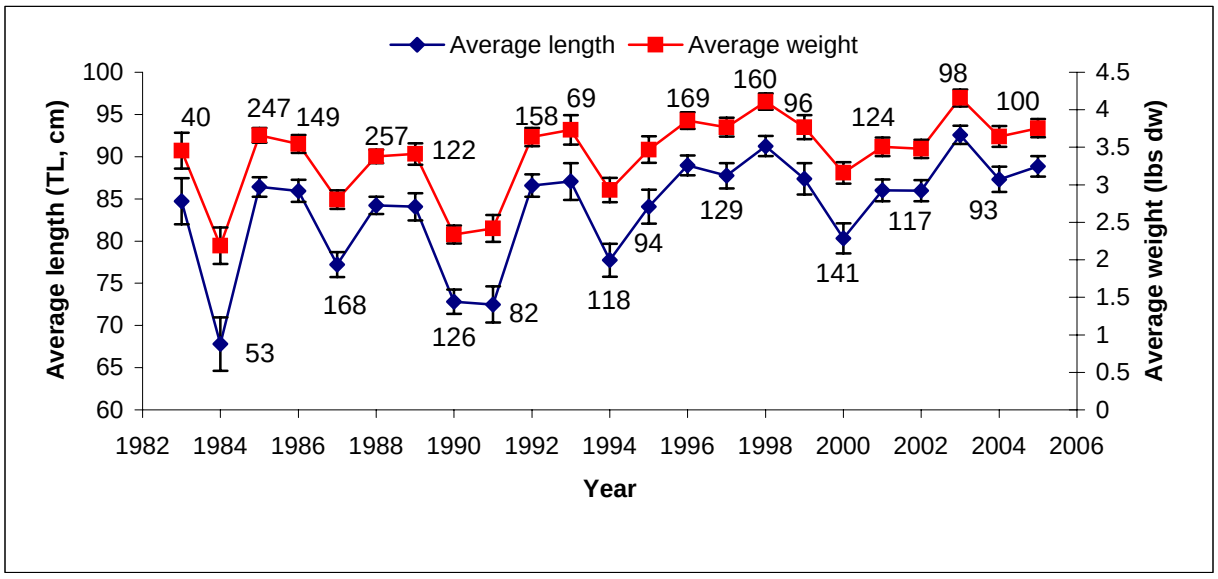


Figure 53: Average length (TL, cm) and weight (lbs dw) for **Atlantic sharpnose sharks** from the TXPWD recreational survey program (1983 - 2005).

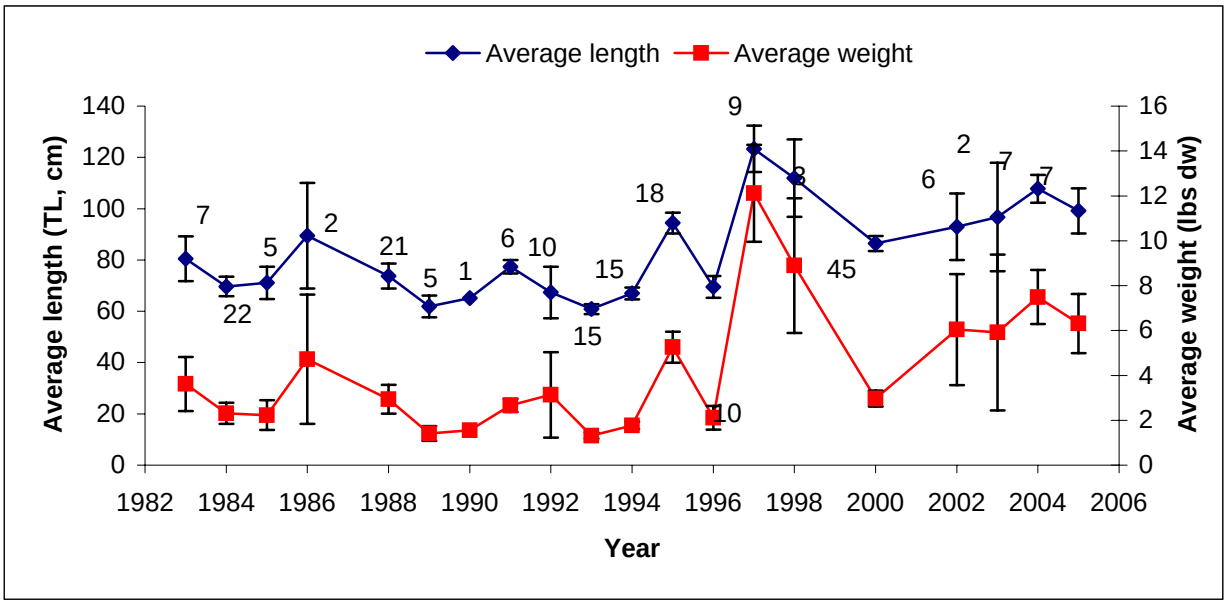


Figure 54: Average length (TL, cm) and weight (lbs dw) for **finetooth sharks** from the TXPWD recreational survey program (1983 - 2005).

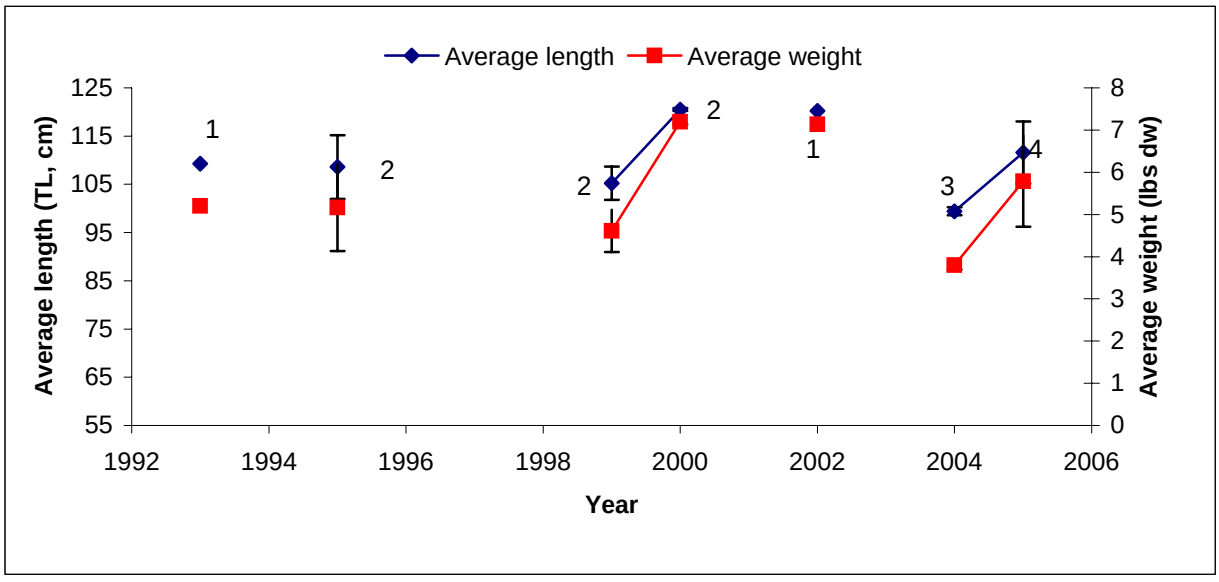


Figure 55: Average length (TL, cm) and weight (lbs dw) for **blacknose sharks** from the TXPWD recreational survey program (1983 - 2005).

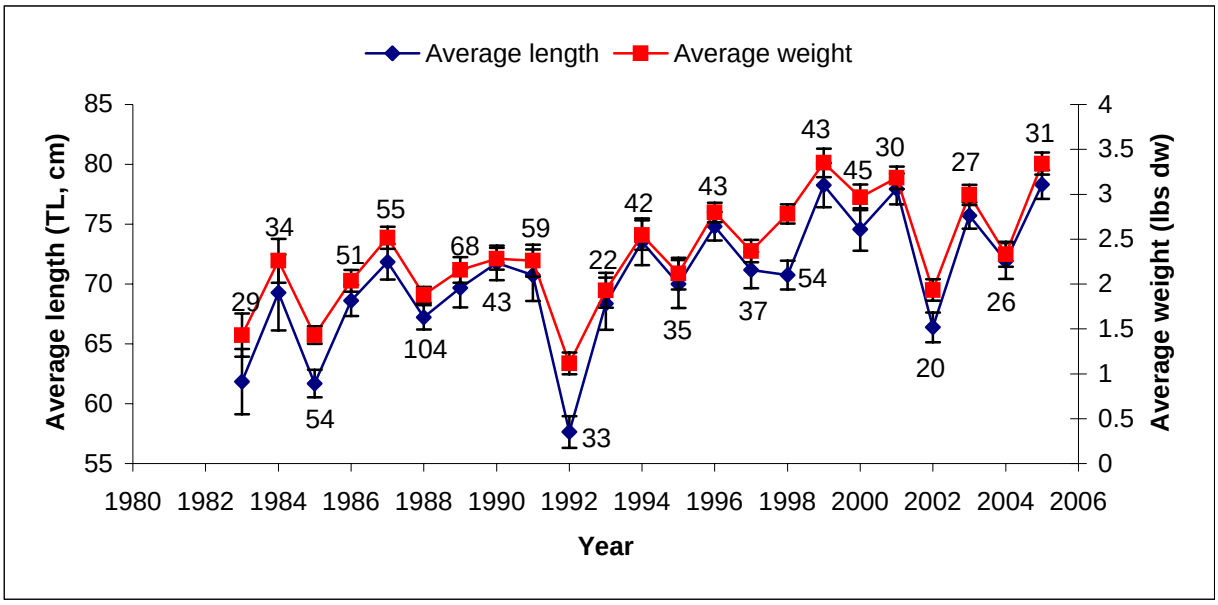


Figure 56: Average length (TL, cm) and weight (lbs dw) for **bonnethead sharks** from the TXPWD recreational survey program (1983 - 2005).