SEDAR 17-DW-05

Preliminary Draft of

SEDAR 17 Data Workshop Vermilion Snapper Report

Commercial Fishery (Section 3)

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Summary. This report serves as an preliminary draft of the Commercial Workgroup deliberations for the SEDAR 17 Data Workshop Report on vermilion snapper. In particular, it presents analyses of NMFS data sets on vermilion snapper obtained from the NMFS website and from the Accumulated Landings System (ALS) of the SEFSC. These data were explored to address questions concerning:

(1) Geographic range: recommend that the northern boundary be the NC/VA line and the southern boundary will be based on dividing commercial catches into Atlantic and Gulf stocks as per SEDAR 15 for red snapper and greater amberjack.
(2) Fishing year: recommend use calendar year
(3) Mis-identification: this was not an issue during the SEDAR 2 assessment
(4) Unclassified snappers: use approach similar to SEDAR 2
(5) Grouping of gear codes: Essentially two gears: Handlines (600-665) and trawls (200-235). Minimal amount of landings from remaining gears can be lumped with handlines.

Subsequent state-specific landings data will be brought to the SEDAR 17 DW, and summarized by the respective states representatives. **State-specific summaries will provide the primary landings data for the vermilion snapper stock assessment.** Any adjustments needed for unclassified snappers will be done at this time. The ALS and other data sources will be used to provide historical landings prior to those available from the individual states. Preliminary annual length compositions by gear were provided by David Gloeckner for incorporation in this report.

The following topics will be addressed during the SEDAR 17 DW: (1) discards estimates by gear (principally handline: 600-660) from commercial logbooks, (2) information on length and age samples, and development of length and age compositions by gear for which sample size was deemed minimally adequate, and (3) research recommendations.

Commercial Fishery

Chair: Douglas Vaughan (NMFS Beaufort); Members: Alan Bianchi (NC DMF), Jack Holland (NC DMF), Fritz Rohde (NC DMF), Robert Wiggers (SC DNR), Julie Califf (GA DNR), Steve Brown (FL FWI), Dave Gloeckner (NMFS Beaufort), Kevin McCarthy (NMFS Miami), Kate Siegfried (NMFS Panama City).

3.1 Overview

Historical commercial landings were explored to address several issues. These issues included: (1) geographic stock boundaries, (2) historical perspective of landings data, (3) gear groupings for pooling landings, (4) mid-identification of species or need to expand unclassified snapper landings, and (5) presentation of landings as gutted or whole weight. Subsequently, commercial landings for the U.S. South Atlantic Vermilion snapper stock were developed for the period 1958 through 2007.

3.2 Commercial Landings

3.2.1 NMFS Website for Commercial Landings

The NMFS website for commercial landings:

http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html

was queried on 12 March 2008 for all vermilion snapper landings along the Atlantic coast by state from 1950-2007. This query produced annual landings (available by gear) from 1958-2006 for Florida (east coast), Georgia, South Carolina, and North Carolina (Figure 3.1). Landings were requested from the NMFS Northeast Regional Office from states north of North Carolina. None were available that were identified as vermilion snapper.

Decision 1. Because no vermilion snapper landings were reported north of North Carolina, the Workgroup recommends using the VA/NC line as the northern boundary for the South Atlantic vermilion snapper stock.

The NMFS website for commercial landings splits Florida into Florida East Coast (Atlantic) and Florida West Coast (Gulf of Mexico). Subsequent data bases post stratify Monroe County (including the Keys) into Atlantic and Gulf of Mexico stocks. More detail on this is provided below.

The NMFS website contains landings back to 1950 for most species. Because the query showed no results for 1950-1957, the presumption is that none exist on this database. Other historical documents do not show commercial landings for vermilion snapper in the South Atlantic prior to 1958.

Decision 2. Because vermilion snapper landings were small prior to the 1970s, the Workgroup concluded that it was unnecessary to extend vermilion snapper landings prior to 1958 (earliest positive landings available), and therefore recommends that estimates of commercial landings be extended back to 1958.

These landings data were summarized by commercial gear, for initial exploration of which gears may be most important for landing vermilion snapper. Based on these data for 1958-2006, various line gears (handlines) accounted for 82.8% of the landings, combined gears for 12.0%, and otter trawls for another 4.5%. Miscellaneous gears made up the remainder (mostly pots & traps). This issue was further investigated with the SEFSC ALS database described next.

3.2.2 **Accumulated Landings System (ALS)**

Historical commercial landings (1962 to present) for the US South Atlantic are maintained as the Accumulated Landings System (ALS) in Miami by the SEFSC. For detailed description of the Accumulated Landing System (ALS), see addendum to this section. These data were made available by Josh Bennett (NMFS Miami). These data permit some refinement in setting the boundary for landings (catches) from Monroe County into South Atlantic and Gulf of Mexico stocks. We used the same approach as in SEDAR 15 for red snapper and greater amberjack. All Florida landings with water body codes 0010, 0019, and 7xxx were considered South Atlantic vermilion snapper regardless of Florida state code (10, 11, or 12). Also included were the undefined water-bodies (0000 and 9999) from ALS state 10 (Atlantic). See maps showing shrimp statistical areas for the Gulf of Mexico and U.S. Atlantic coasts (Figure 3.2) and Florida statistical areas (Figure 3.3).

Decision 3. The Workgroup decided to apply the same approach for dividing vermilion snapper into South Atlantic and Gulf of Mexico stocks by using the same approach as for the recent greater amberjack and red snapper assessments (SEDAR 15).

Vermilion snapper landings by region (Atlantic Florida vs Georgia-North Carolina) are compared in Figure 3.4. Beginning in the late 1970s, landings rose sharply in Georgia and the Carolinas. Landings downloaded from the NMFS website are compared to the ALS landings in Figure 3.5, and to the previously developed commercial landings used in SEDAR 2 and update assessment in Figure 3.6. There is generally close agreement between the NMFS website and the SEFSC ALS databases, especially in the earlier years. Disagreements between the ALS in landings from SEDAR 2 are mostly the result of the adjustments made to the SEDAR 2 landings for unclassified snappers, especially for North Carolina. **The differences found for 2001-2003 need to be investigate.**

For the state of Florida, the ALS contains two databases, one database contains landings by month and gear generally for 1962-2007. However, for the period 1977-1996 gear is listed as by combined gear. The second database (referred to as the Florida General Canvass, FGC) contains gear-specific information for the period 1977-1996, but not corresponding month information. The proportion by gear from the FGC was applied to the “combined gear” landings from the first data set (ALS) for the period 1977-1996.

These data were summarized by gear code to assess the importance of different gears to the vermilion landings. Commercial landings for vermilion snapper were mostly from handlines (almost 98% by weight) based on the historical ALS data (1962-2007) for Atlantic Florida. Similarly, handlines were the dominant fishing gear for commercial

landings from Georgia – North Carolina, accounting for over 93% by weight. However, there were historically important landings from trawls, or almost 6% of the commercial landings by weight from Georgia – North Carolina. These trawl landings were particularly important during the late 1970s and early 1980s (and were banned by Amendment in 1989). Landings by gear are summarized in Figure 3.7. Vermilion snapper commercial landings are summarized by region and gear, 1962-2007, in Table 3.1.

Decision 4. The Workgroup recommends that landings by fishing gear be reduced to two categories, the dominant handline gear and historically important trawl gear. The small percentage from miscellaneous other gears can be pooled with handlines.

The Workgroup also addressed the issues of mis-identification and unclassified snappers. In SEDAR 2, mis-identification was not thought to be an issue.

Decision 5. Does the Workgroup concur?

Vermillion snapper landings are variably recorded to species and as unclassified snappers. Reporting to species is more prevalent in recent years, and the proportion of total snapper landings reported as unclassified declines over time. Total vermillion landings are estimated for each state by combining landings reported to species and a portion of the unclassified snapper landings. In general, the proportion of vermillion landings relative to the total snapper landings reported by species is used as a multiplier to estimate the proportion of vermillion landings in the unclassified category. For years in which there are no landings reported by species, the time series average percent vermillion is used to estimate the portion of vermillion snapper in the unclassified category. Unclassified snapper landings from the ALS database are presented by state (GA-NC) in Figure 3.8, and compared with classified vermilion landings adjusted by proportion to other classified snappers (excluding red snapper) in Figure 3.9.

Decision 6. [Need for adjustments for unclassified snapper; if so, then describe by state in next section]

3.2.3 Commercial Landings Developed from State Databases

Decision 7. [To use whole or gutted weight and any conversions as needed]

Commercial landings in whole weight were developed based on classified Vermilion snapper by the Working Group from each state by gear for 1962-2006. [These sections need to describe how data prepared including state-specific adjustments made for unclassified snappers]

Florida – summary prepared by Steve Brown.
Georgia – summary prepared by Julie Califf
South Carolina – summary prepared by Robert Wiggers
North Carolina – summary prepared by Alan Bianchi.

[Annual landings in appropriate units by region and gear to be summarized in Tables and Figures]

[Paragraph on converting landings in weight to landings in numbers based on TIP sampling, including sample size criterion used to pool across years or even states and years]

3.3. Commercial Price

Price per pound was estimated for vermilion snapper sold in the South Atlantic states from the ALS database for the years 1962 through 2006. The Producer Price Index (PPI) for "prepared fresh fish and other seafood" was obtained from the U.S. Bureau of Labor Statistics website (data.bls.gov), available since 1965. The PPI, like the CPI, is an index that reflects inflation. But the difference here is that the PPI reflects the costs associated with bringing the product to market. In other words, this PPI reflects more closely the changed in costs to fishermen and processors such as trip costs. Using 1965 as base year, observed price per pound was adjusted to obtain inflation-adjusted values for the price per pound. Unadjusted and adjusted price per pound are compared in Figures 3.10. The actual price the fishermen received noted a general upwards trend from approximately $0.23 on average in 1965 to $2.77 per pound in 2007.The PPI-calculated values held the value of one dollar constant throughout the time series, and show an actual decline over time. The PPI-adjusted value for 2007 was $0.19.

3.4. Commercial Discards

[Summary of report developed by Kevin McCarthy will be added during the SEDAR 17 DW]

3.5 Biological Sampling

Length frequency data were extracted from the TIP Online database. Data from the VA/NC line through Monroe County in FL were included in the extraction. Those data from Monroe County that were attributable to the Gulf were deleted from the data. All lengths were converted to TL in mm using conversions derived from the Life History Group. We had no conversions for standard length, so these were deleted. Lengths were converted to cm and assigned to 1 cm length bins with a floor of 0.6 cm and a ceiling of 0.5 cm.

3.5.1 Sampling Intensity Length

Annual sample sizes are summarized in Table 3.2 by gear, and state for length data available for vermilion snapper in the U.S. South Atlantic from the TIP data base.

Length/Age Distribution

Annual length compositions are created for each commercial gear using the following approach for weighting lengths across individual trips and by state:

- Trips: expand lengths by trip catch in numbers,
- State: expand lengths by landings in numbers.

Unweighted annual length compositions of vermilion snapper for three commercial gears (handlines, trawls, and other) are summarized in Figures 3.11 – 3.13.

[Summary paragraph summarizing sampling for ages (Table 3.3) and annual figures by gear to be supplied by Beaufort Laboratory & SC MARMAP Program]

3.5.3 Adequacy for characterizing lengths

[Discussion of sampling adequacy for lengths]

3.6 Research Recommendations for Vermilion snapper

[To be developed during SEDAR 17 DW]

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Addendum to Commercial Landings (Section 3.2):

NMFS SEFIN Accumulated Landings (ALS)

Information on the quantity and value of seafood products caught by fishermen in the U.S. has been collected as early as the late1890s. Fairly serious collection activity began in the 1920s. The data set maintained by the Southeast Fisheries Science Center (SEFSC) in the SEFIN database management system is a continuous data set that begins in 1962.

In addition to the quantity and value, information on the gear used to catch the fish, the area where the fishing occurred and the distance from shore are also recorded. Because the quantity and value data are collected from seafood dealers, the information on gear and fishing location are estimated and added to the data by data collection specialists. In some states, this ancillary data are not available.

Commercial landings statistics have been collected and processed by various organizations during the 1962-to-present period that the SEFIN data set covers. During the 16 years from 1962 through 1978, these data were collected by port agents employed by the Federal government and stationed at major fishing ports in the southeast. The program was run from the Headquarters Office of the Bureau of Commercial Fisheries in Washington DC. Data collection procedures were established by Headquarters and the data were submitted to Washington for processing and computer storage. In 1978, the responsibility for collection and processing were transferred to the SEFSC.

In the early 1980s, the NMFS and the state fishery agencies within the Southeast began to develop a cooperative program for the collection and processing of commercial fisheries statistics. With the exception of two counties, one in Mississippi and one in Alabama, all of the general canvass statistics are collected by the fishery agency in the respective state and provided to the SEFSC under a comprehensive Cooperative Statistics Program (CSP).

The purpose of this documentation is to describe the current collection and processing procedures that are employed for the commercial fisheries statistics maintained in the SEFIN database.

1960 - Late 1980s
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Although the data processing and database management responsibility were transferred from the Headquarters in Washington DC to the SEFSC during this period, the data collection procedures remained essentially the same. Trained data collection personnel, referred to as fishery reporting specialists or port agents, were stationed at major fishing ports throughout the Southeast Region. The data collection procedures for commercial landings included two parts.

The primary task for the port agents was to visit all seafood dealers or fish houses within their assigned areas at least once a month to record the pounds and value for each species or product type that were purchased or handled by the dealer or fish house. The agents summed the landings and value data and submitted these data in monthly reports to their area supervisors. All of the monthly data were submitted in essentially the same form.

The second task was to estimate the quantity of fish that were caught by specific types of gear and the location of the fishing activity. Port agents provided this gear/area information for all of the landings data that they collected. The objective was to have gear and area information assigned to all monthly commercial landings data.

There are two problems with the commercial fishery statistics that were collected from seafood dealers. First, dealers do not always record the specific species that are caught and second, fish or shellfish are not always purchased at the same location where they are unloaded, i.e., landed.

Dealers have always recorded fishery products in ways that meet their needs, which sometimes make it ambiguous for scientific uses. Although the port agents can readily identify individual species, they usually were not at the fish house when fish were being unloaded and thus, could not observe and identify the fish.

The second problem is to identify where the fish were landed from the information recorded by the dealers on their sales receipts. The NMFS standard for fisheries statistics is to associate commercial statistics with the location where the product was first unloaded, i.e., landed, at a shore-based facility. Because some products are unloaded at a dock or fish house and purchased and transported to another dealer, the actual 'landing' location may not be apparent from the dealers' sales receipts. Historically, communications between individual port agents and the area supervisors were the primary source of information that was available to identify the actual unloading location.

Cooperative Statistics Program

In the early 1980s, it became apparent that the collection of commercial fisheries statistics was an activity that was conducted by both the Federal government and individual state fishery agencies. Plans and negotiations were initiated to develop a program that would provide the fisheries statistics that are needed for management by both Federal and state agencies. By the mid- 1980s, formal cooperative agreements had been signed between the NMFS/SEFSC and each of the eight coastal states in the southeast, Puerto Rico and the US Virgin Islands.

Initially, the data collection procedures that were used by the states under the cooperative agreements were essentially the same as the historical NMFS procedures. As the states developed their data collection programs, many of them promulgated legislation that authorized their fishery agencies to collect fishery statistics. Many of the state statutes include mandatory data submission by seafood dealers.

Because the data collection procedures (regulations) are different for each state, the type and detail of data varies throughout the Region. The commercial landings database maintained in SEFIN contains a standard set of data that is consistent for all states in the Region.

A description of the data collection procedures and associated data submission requirements for each state follows.

Florida

Prior to 1986, commercial landings statistics were collected by a combination of monthly mail submissions and port agent visits. These procedures provided quantity and value, but did not provide information on gear, area or distance from shore. Because of the large number of dealers, port agents were not able to provide the gear, area and distance information for monthly data. This information, however, is provided for annual summaries of the quantity and value and known as the Florida Annual Canvas data (see below).

Beginning in 1986, mandatory reporting by all seafood dealers was implemented by the State of Florida. The State requires that a report (ticket) be completed and submitted to the State for every trip. Dealers have to report the type of gear as well as the quantity (pounds) purchased for each species. Information on the area of catch can also be provided on the tickets for individual trips. As of 1986 the ALS system relies solely on the Florida trip ticket data to create the ALS landings data for all species other than shrimp.

Georgia

Prior to 1977, the National Marine Fisheries Service collected commercial landings data Georgia. From 1977 to 2001 state port agents visited dealers and docks to collect the information on a regular basis. Compliance was mandatory for the fishing industry. To collect more timely and accurate data, Georgia initiated a trip ticket program in 1999, but the program was not fully implemented to allow complete coverage until 2001. All sales of seafood products landed in Georgia must be recorded on a trip ticket at the time of the sale. Both the seafood dealer and the seafood harvester are responsible for insuring the ticket is completed in full.

South Carolina

Prior to 1972, commercial landings data were collected by various federal fisheries agents based in South Carolina, either U.S. Fish or Wildlife or National Marine Fisheries Service personnel. In 1972, South Carolina began collecting landings data from coastal dealers in cooperation with federal agents. Mandatory

monthly landings reports on forms supplied by the Department are required from all licensed wholesale dealers in South Carolina. Until fall of 2003, those reports were summaries collecting species, pounds landed, disposition (gutted or whole) and market category, gear type and area fished; since September 2003, landings have been reported by a mandatory trip ticket system collecting landings by species, disposition and market category, pounds landed, ex-vessel prices with associated effort data to include gear type and amount, time fished, area fished, vessel and fisherman information.

South Carolina began collecting TIP length frequencies in 1983 as part of the Cooperative Statistics Program. Target species and length quotas were supplied by NMFS and sampling targets of 10% of monthly commercial trips by gear were set to collect those species and length frequencies. In 2005, South Carolina began collecting age structures (otoliths) in addition to length frequencies, using ACCSP funding to supplement CSP funding.

North Carolina

The National Marine Fisheries Service prior to 1978 collected commercial landings data for North Carolina. Port agents would conduct monthly surveys of the state's major commercial seafood dealers to determine the commercial landings for the state. Starting in 1978, the North Carolina Division of Marine Fisheries entered into a cooperative program with the National Marine Fisheries Service to maintain the monthly surveys of North Carolina's major commercial seafood dealers and to obtain data from more dealers.

The North Carolina Division of Marine Fisheries Trip Ticket Program (NCTTP) began on 1 January 1994. The NCTTP was initiated due to a decrease in cooperation in reporting under the voluntary NMFS/North Carolina Cooperative Statistics Program in place prior to 1994, as well as an increase in demand for complete and accurate trip-level commercial harvest statistics by fisheries managers. The detailed data obtained through the NCTTP allows for the calculation of effort (i.e. trips, licenses, participants, vessels) in a given fishery that was not available prior to 1994 and provides a much more detailed record of North Carolina's seafood harvest.

NMFS SEFIN Annual Canvas Data for Florida

The Florida Annual Data files from 1976 – 1996 represent annual landings by county (from dealer reports) which are broken out on a percentage estimate by species, gear, area of capture, and distance from shore. These estimates are submitted by Port agents, which were assigned responsibility for the particular county, from interviews and discussions from dealers and fishermen collected through out the year. The estimates are processed against the annual landings totals by county on a percentage basis to create the estimated proportions of catch by the gear, area and distance from shore. (The sum of percentages for a given Year, State, County, Species combination will equal 100.)

Area of capture considerations: ALS is considered to be a commercial landings data base which reports where the marine resource was landed. With the advent of some State trip ticket programs as the data source the definition is more loosely applied. As such one cannot assume reports from the ALS by State or county will accurately inform you of Gulf vs South Atlantic vs Foreign catch. To make that determination you must consider the area of capture.

Table 3.1. Vermilion snapper commercial landings (pounds whole weight) for the US South Atlantic (Atlantic Florida – North Carolina) from the NMFS Website, 1958-1961, and from the SEFSC Accumulated Landings System (ALS), 1962-2007. Landings represent classified vermilion snapper only, no adjustment for unclassified snappers.

	Atlantic Florida				Georgia - North Carolina				Grand
Year	Lines	Trawls	Other	Total	Lines	Trawls	Other	Total	Total
1958	200			200				0	200
1959	1,300			1,300				0	1,300
1960	1,800			1,800				0	1,800
1961	19,900			19,900		25,000		25,000	44,900
1962	6,100	1,100	0	7,200	5,100	43,200	0	48,300	55,500
1963	11,700	0	0	11,700	10,000	0	0	10,000	21,700
1964	6,700	0	0	6,700	300	0	0	300	7,000
1965	20,100	0	0	20,100	2,500	100	0	2,600	22,700
1966	3,500	0	0	3,500	0	0	0	0	3,500
1967	14,600	0	0	14,600	0	0	0	0	14,600
1968	32,900	0	0	32,900	0	0	0	0	32,900
1969	31,700	0	0	31,700	600	0	0	600	32,300
1970	20,100	0	0	20,100	0	0	0	0	20,100
1971	51,700	0	0	51,700	9,900	0	0	9,900	61,600
1972	67,900	0	0	67,900	3,001	0	12,145	15,146	83,046
1973	83,400	0	0	83,400	515	2,000	3,146	5,661	89,061
1974	102,400	0	0	102,400	2,048	0	767	2,815	105,215
1975	194,400	0	0	194,400	999	759	0	1,758	196,158
1976	151,500	0	0	151,500	47,957	6,877	0	54,834	206,334
1977	147,653	0	0	147,653	57,799	7,548	90	65,437	213,090
1978	114,991	0	0	114,991	145,727	1,089	0	146,816	261,807
1979	147,238	0	0	147,238	169,508	56,360	0	225,868	373,106
1980	107,312	7,702	0	115,014	247,494	256,666	0	504,160	619,174
1981	59,186	3,385	0	62,571	249,994	207,165	168	457,327	519,898
1982	61,691	7,626	0	69,317	341,618	200,882	37	542,537	611,854
1983	81,868	196	0	82,064	323,610	147,580	754	471,944	554,008
1984	94,028	21,280	0	115,308	474,211	100,372	265	574,848	690,156
1985	130,557	14,973	596	146,126	714,225	8,793	286	723,304	869,430
1986	109,950	0	475	110,425	688,469	10,150	2,579	701,198	811,623
1987	91,751	0	0	91,751	554,309	23,944	5,981	584,234	675,985
1988	125,139	0	5,004	130,143	687,900	92,028	1,642	781,570	911,713
1989	210,080	0	9,687	219,767	920,336	0	11,437	931,773	1,151,540
1990	287,014	0	7,338	294,352	980,612	0	38,237	1,018,849	1,313,201
1991	233,541	6	4,111	237,658	1,134,395	0	38,118	1,172,513	1,410,171
1992	153,831	0	4,218	158,049	586,679	3	46	586,728	744,777
1993	167,774	0	1,109	168,883	700,157	0	5,336	705,493	874,376
1994	227,856	0	1,918	229,774	737,316	0	994	738,310	968,084
1995	261,933	7	4,595	266,535	683,801	0	1,196	684,997	951,532
1996	186,074	3	524	186,601	570,603	0	771	571,374	757,975
1997	118,997	0	548	119,545	648,715	0	1,400	650,115	769,660
1998	87,704	1,134	643	89,481	629,040	28	679	629,747	719,228
1999	94,306	0	526	94,832	797,378	0	1,198	798,576	893,408
2000	157,424	0	1,625	159,049	1,226,952	0	497	1,227,449	1,386,498
2001	192,172	0	3,193	195,365	1,193,882	41,803	11,508	1,247,193	1,442,558
2002	175,484	0	838	176,322	925,624	28,224	27,284	981,132	1,157,454
2003	115,722	0	7,136	122,858	493,100	33,088	16,806	542,994	665,852

2004	171,918	367	2,213	174,498	943,496	0	1,843	945,339	1,119,837
2005	140,842	2	3,359	144,203	974,943	1,843	3,525	980,311	1,124,514
2006	160,746	0	5,736	166,482	678,291	0	1,240	679,531	846,013
2007	196,629	0	20,817	217,446	561,093	27	1,329	562,449	779,895

Table 3.2. Vermilion snapper lengths sampled from the commercial fishery and available in the TIP data base, 1980-2008.

Sum of FREQ_SUM	GEAR			
YEAR	HANDLINES	OTHER	TRAWL	Grand Total
1983	391			391
1984	7937	39	196	8172
1985	9730	70		9800
1986	7881	7	650	8538
1987	7112	203	616	7931
1988	5557	20	692	6269
1989	5620	5		5625
1990	5840	167		6007
1991	9445	1080		10525
1992	5931	230		6161
1993	7989	297		8286
1994	7424	64		7488
1995	12989	257		13246
1996	6708	10		6718
1997	6679	114	64	6857
1998	6632	12		6644
1999	11798	163		11961
2000	18436	276		18712
2001	17974	60		18034
2002	12002	22		12024
2003	11680	297		11977
2004	13400	58		13458
2005	8578	26		8604
2006	11054	70		11124
2007	6656	113		6769
2008	496	16		512
Grand Total	225939	3676	2218	231833

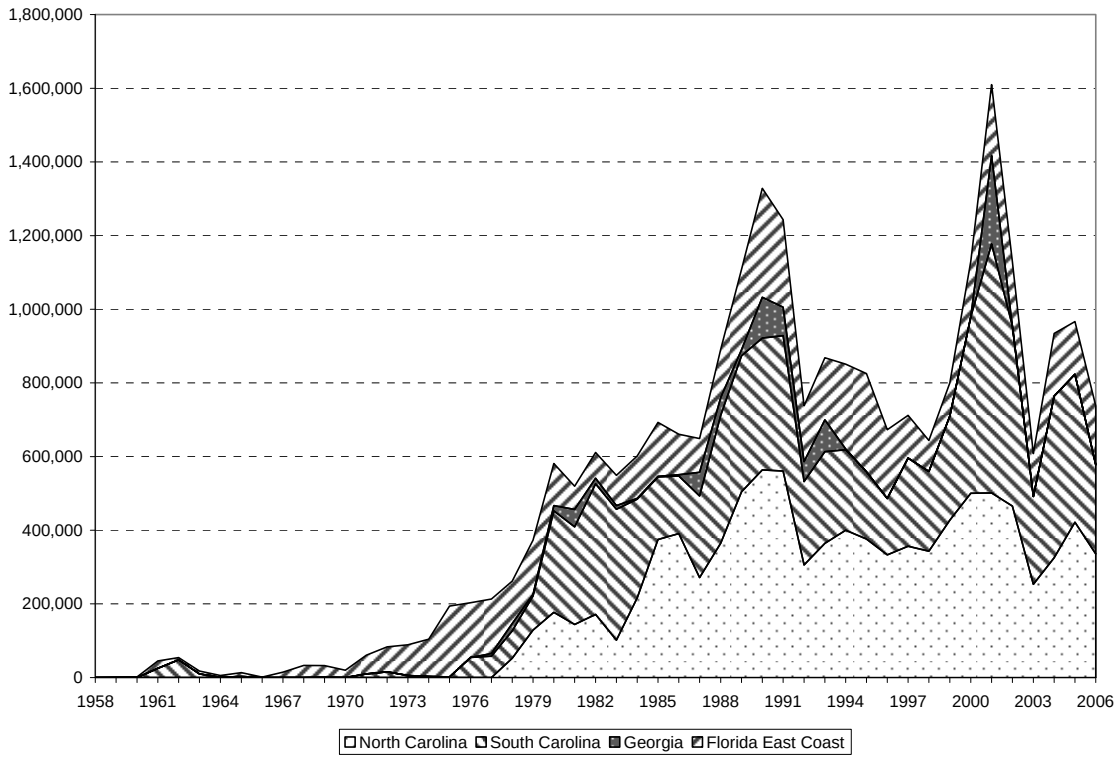

Figure 3.1. Vermilion snapper landings (pounds whole weight) by state from the U.S. South Atlantic, 1958-2007. Vermilion snapper landings data were downloaded from the NMFS website for commercial landings.

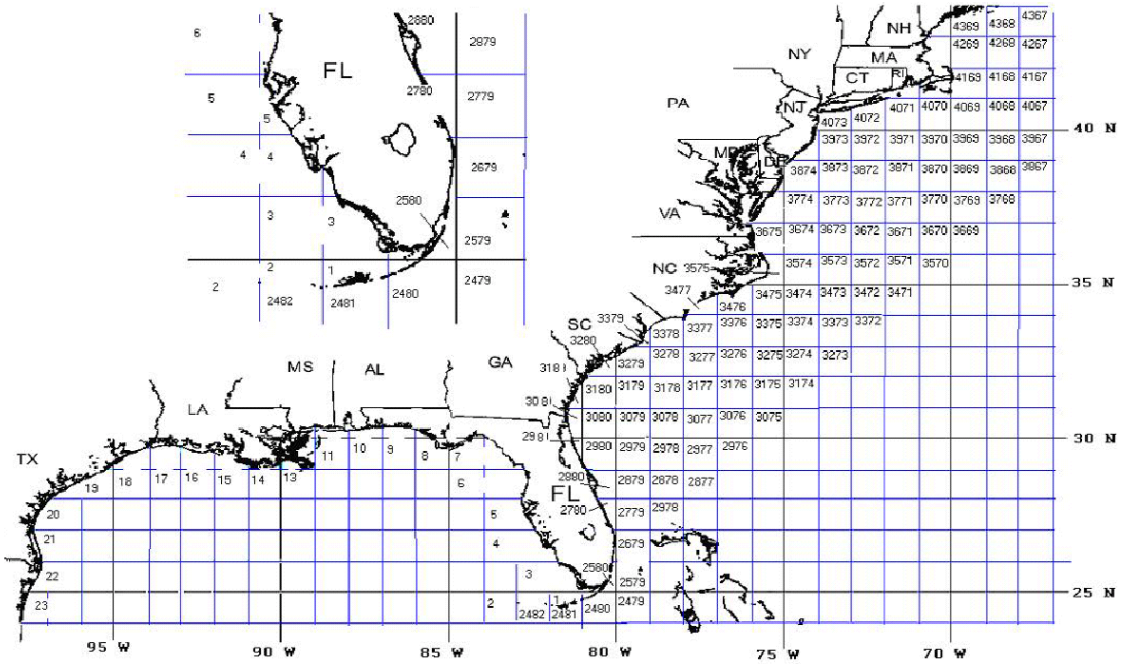

Figure 3.2. Map of U.S. Atlantic and Gulf coast with shrimp area designations.

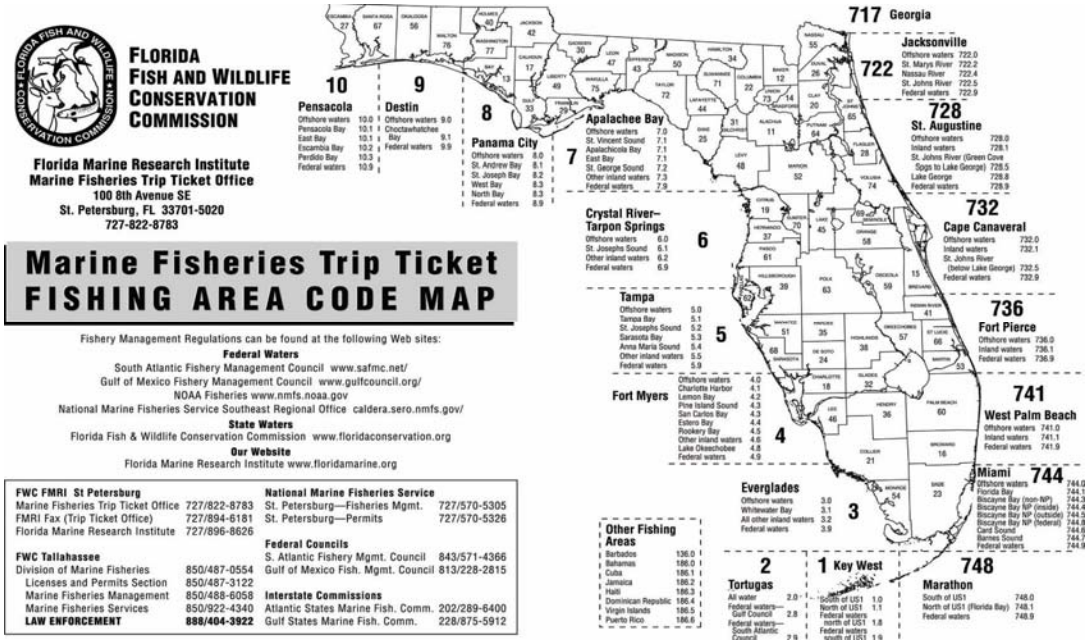

Figure 3.3. Map showing marine fisheries trip ticket fishing area code map for Florida.

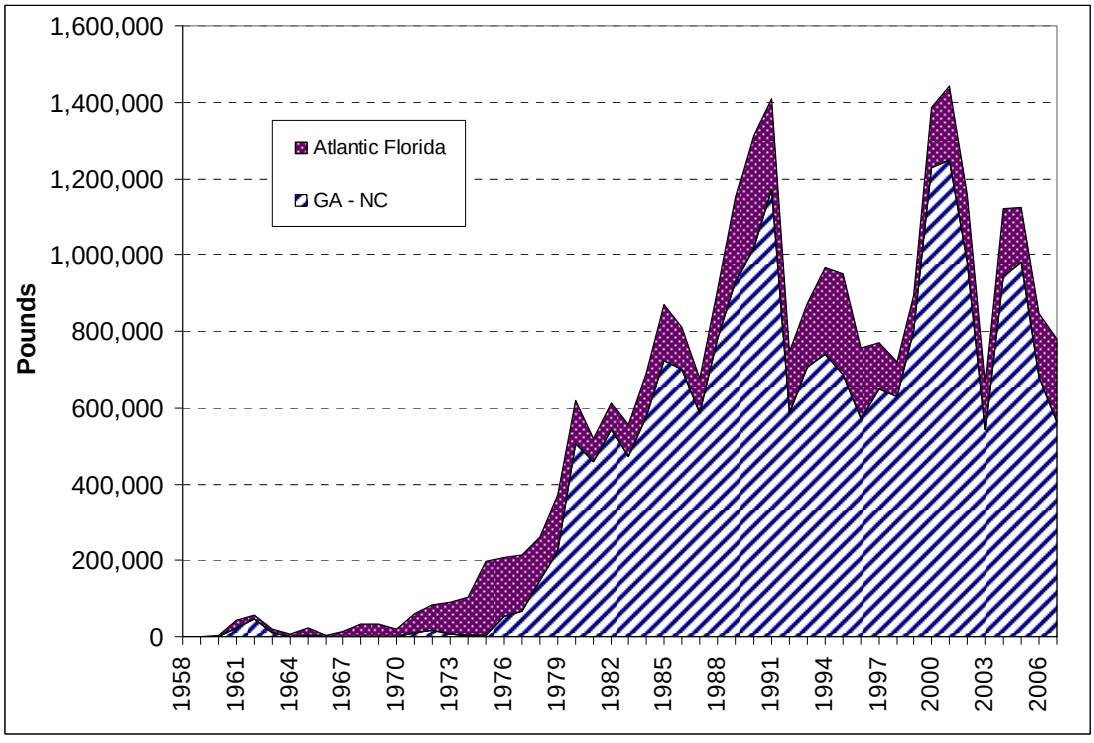

Figure 3.4. Vermilion snapper landings (pounds whole weight) by region from the U.S. South Atlantic, 1958-2007. Data for 1958-1961 are from NMFS website and data for 1962-2007 are from the ALS database.

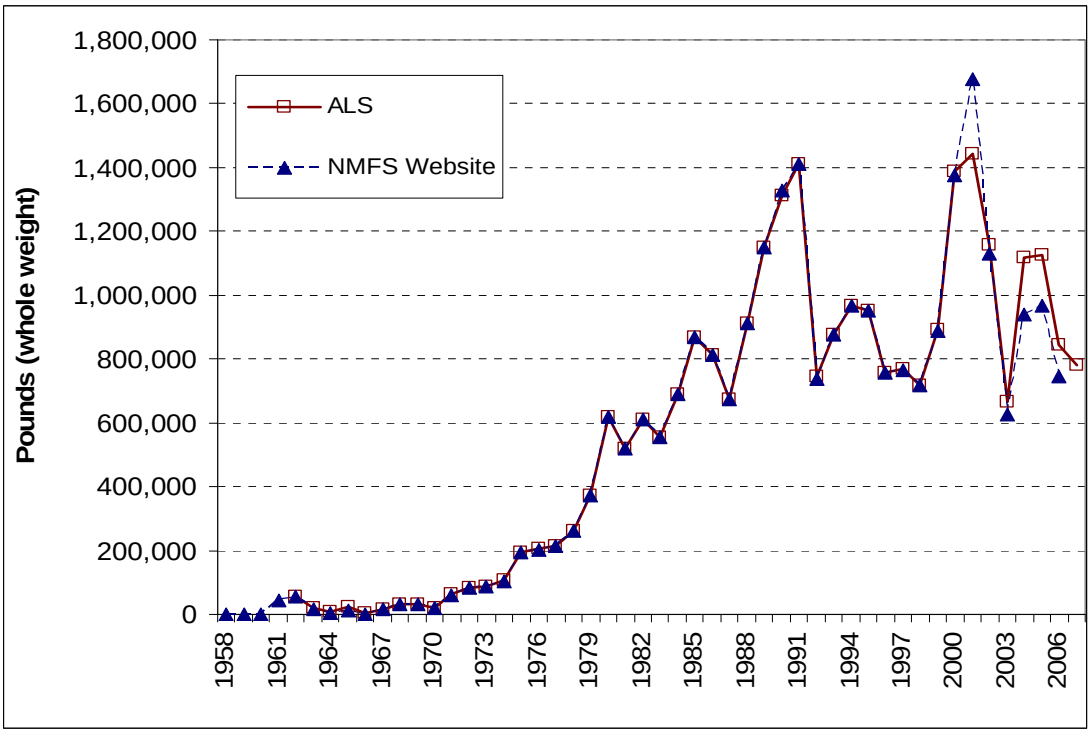

Figure 3.5. Vermilion snapper landings (pounds whole weight) compared by source: (1) NMFS website for commercial landings (1958-2006), and (2) SEFSC ALS database (1962-2007).

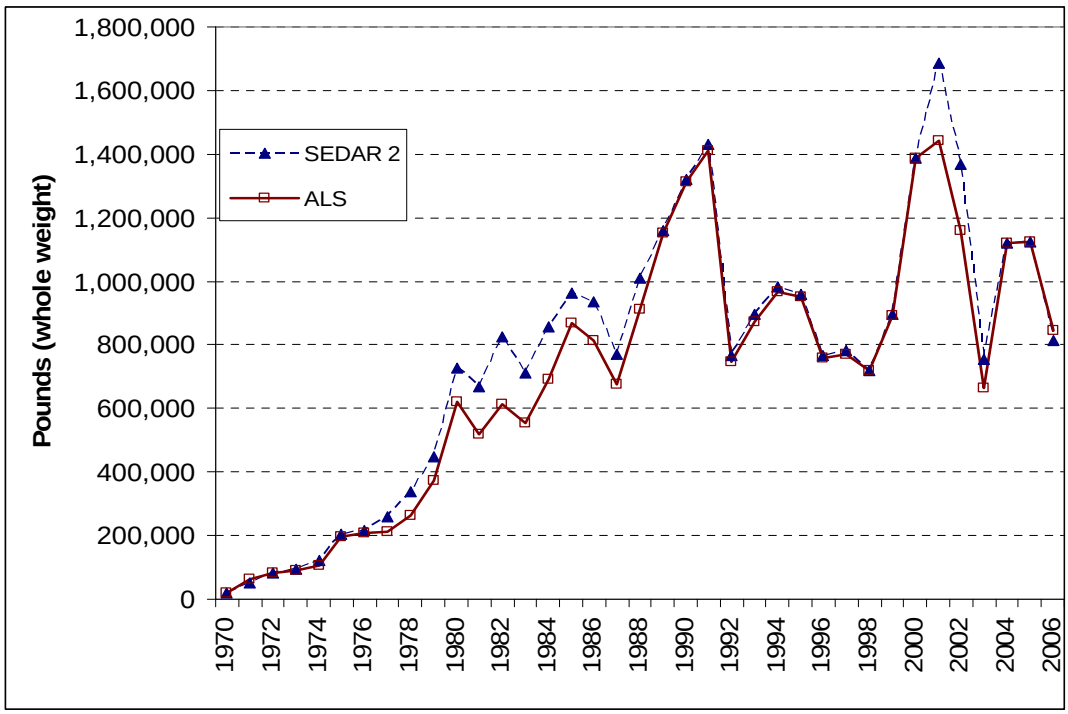

Figure 3.6. Vermilion snapper landings (pounds whole weight) compared by source: (1) SEDAR 2 Update (adjusted for unclassified snappers), and (2) SEFSC ALS database (unadjusted for unclassified snappers), 1970-2006.

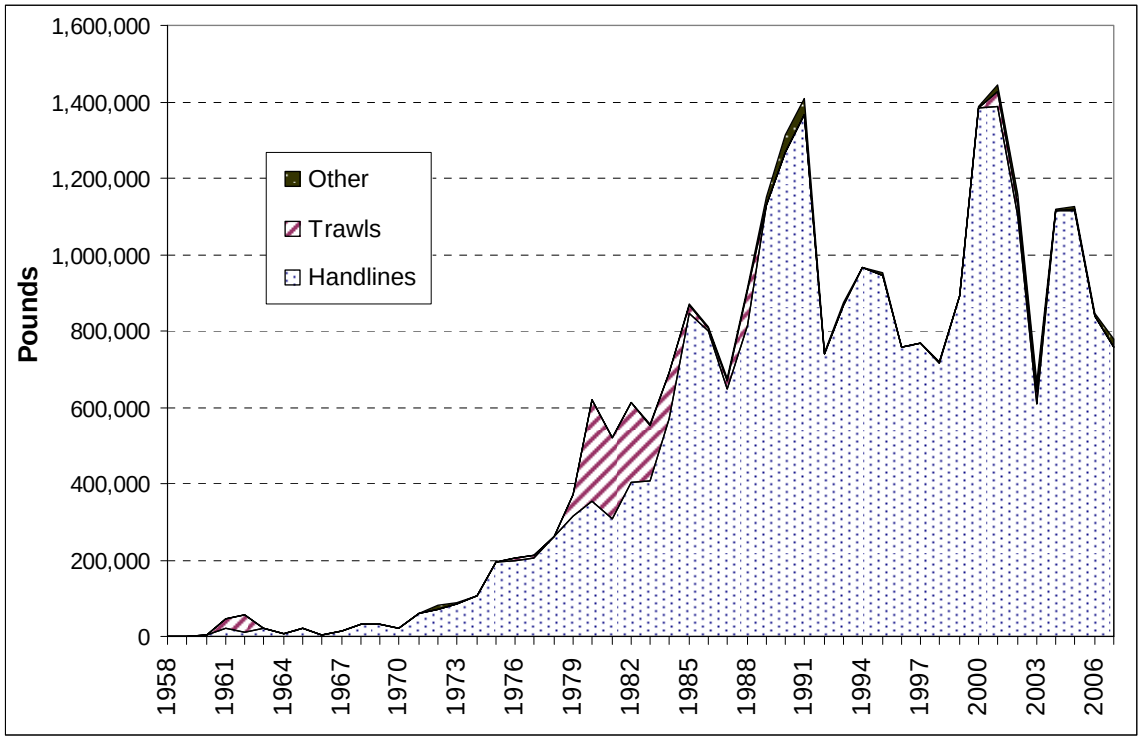

Figure 3.7. Vermilion snapper landings (pounds whole weight) by gear from the U.S. South Atlantic, 1962-2007.

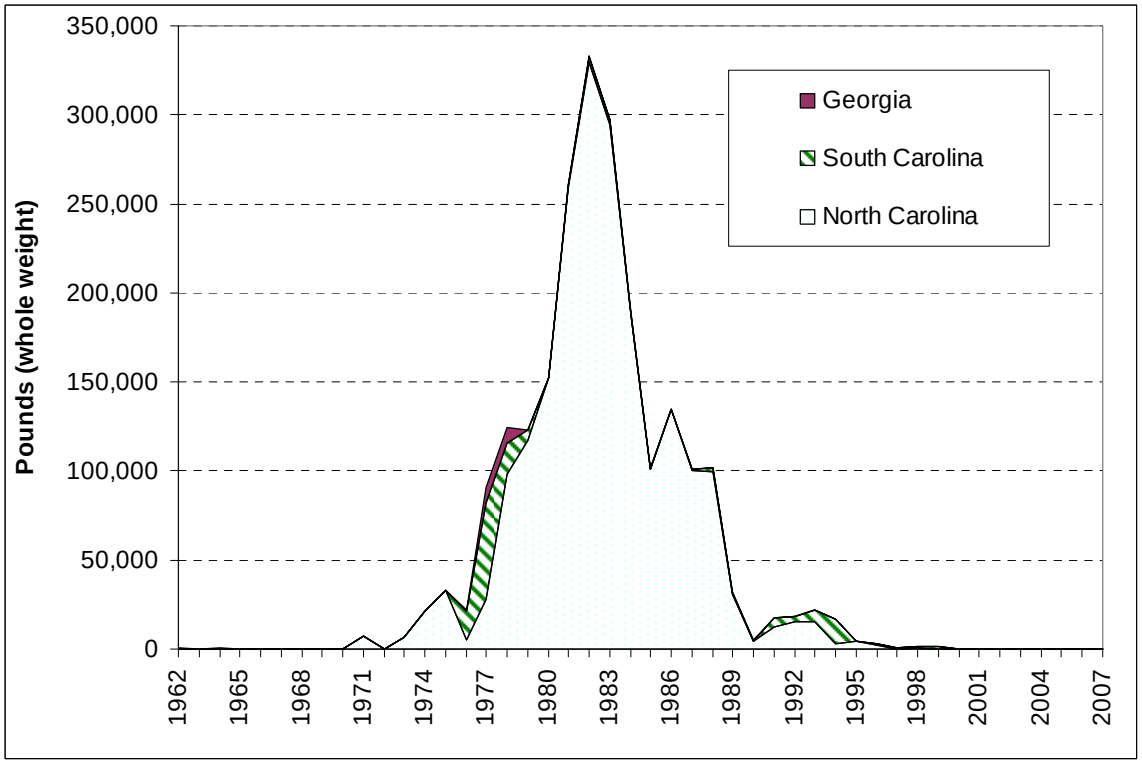

Figure 3.8. Unclassified snapper commercial landings by state (Georgia – North Carolina) from the ALS database, 1962-2007.

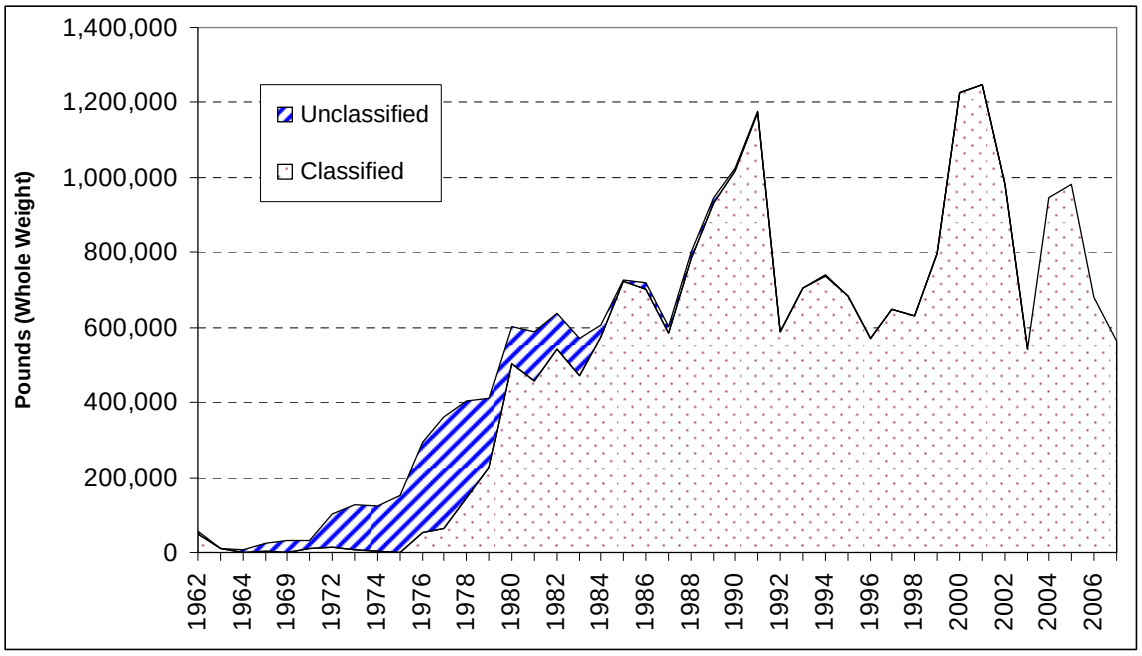

Figure 3.9. Vermilion landings for Georgia – North Carolina, including both classified vermilion landings and adjusted landings from unclassified snappers from the SEFSC ALS database, 1962-2007. Adjustments were made by state from all classified snappers (excluding red snappers).

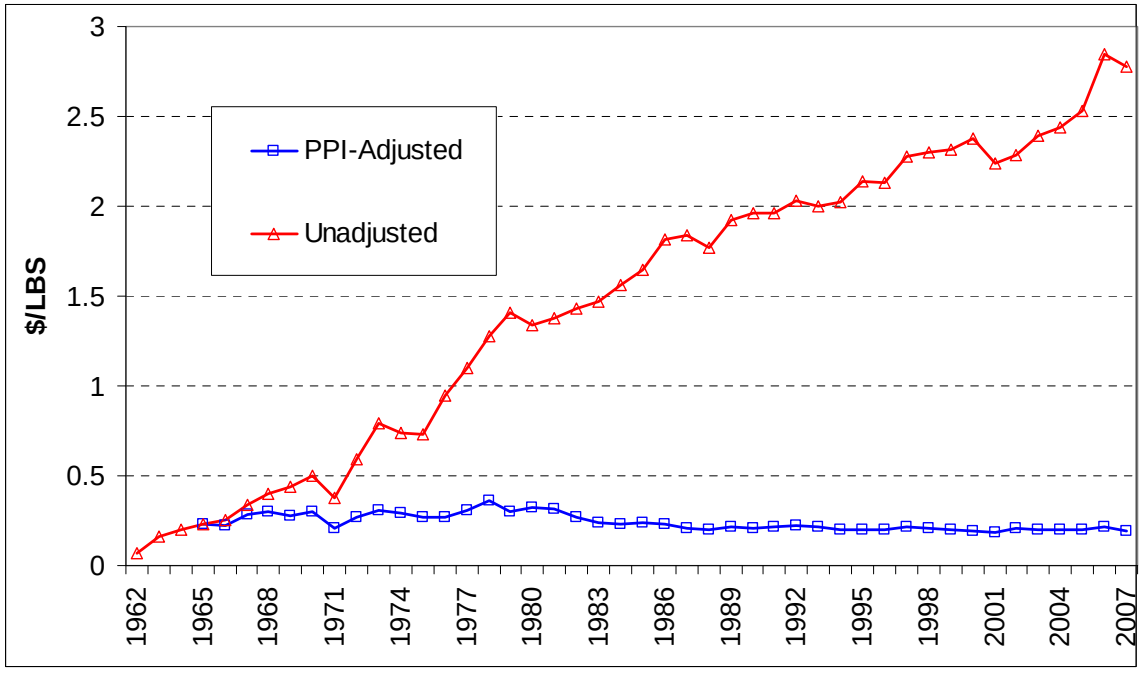

Figure 3.10. U.S. South Atlantic vermilion snapper, price per pound (whole weight), unadjusted and adjusted for inflation from the SEFSC ALS database, 1962-2007. Adjustment to price is by producer price index (PPI) using 1965 as base year.

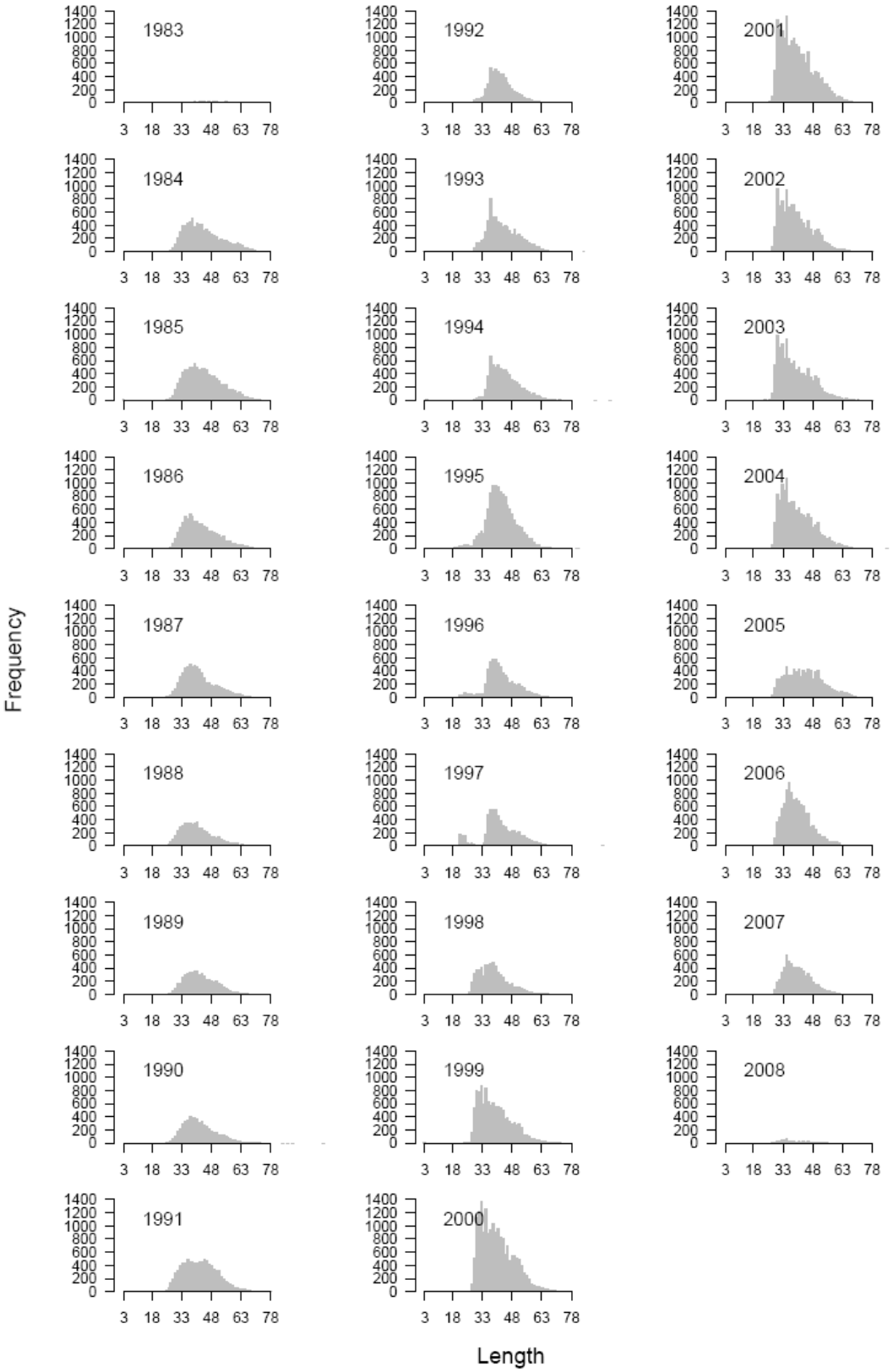

Figure 3.11. Vermilion snapper length frequencies (number at length, TL-cm) by year for commercial handline gear in the South Atlantic.

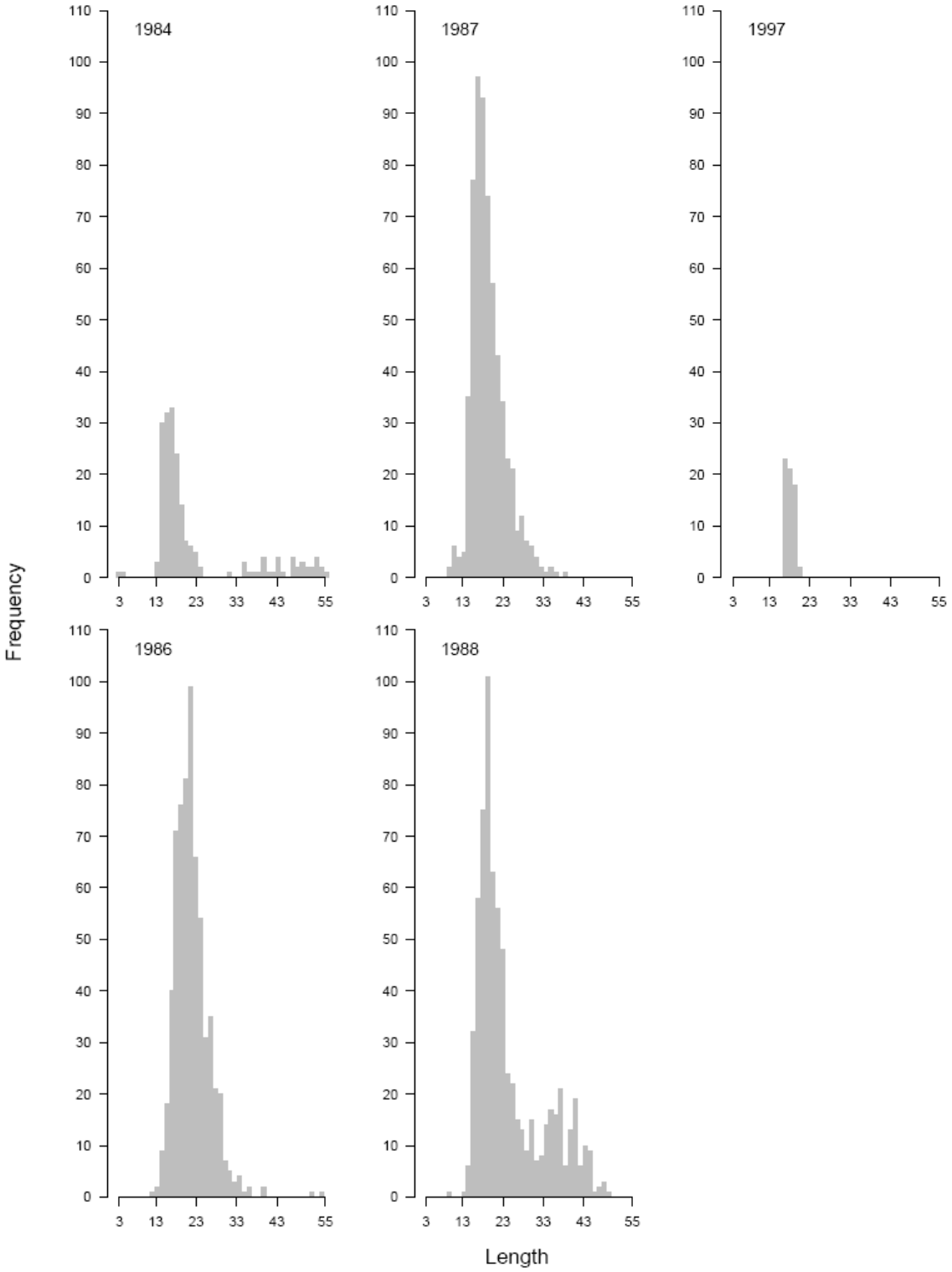

Figure 3.12. Vermilion snapper length frequencies (number at length, TL-cm) by year for commercial trawl gear in the South Atlantic.

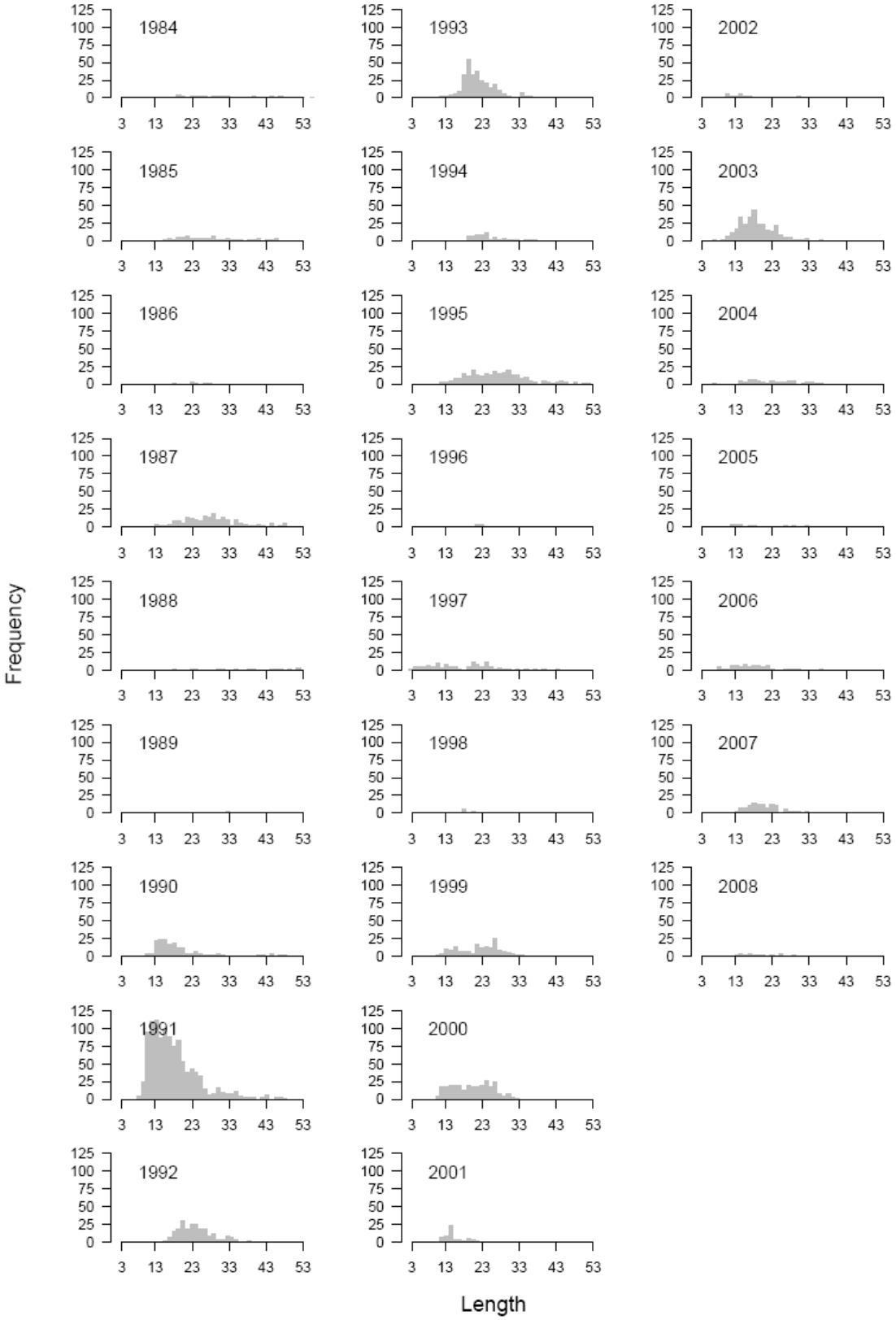

Figure 3.13. Vermilion snapper length frequencies (number at length, TL-cm) by year for other commercial gears in the South Atlantic.