

**2005 REVIEW OF THE FISHERY MANAGEMENT PLAN
FOR SPANISH MACKEREL**
(Scomberomorus maculatus)

Prepared by

Spanish Mackerel Plan Review Team

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**2005 REVIEW OF THE ASMFC FISHERY MANAGEMENT PLAN
FOR SPANISH MACKEREL
(*Scomberomorus maculatus*)**

I. Status of the Plan

The federal *Fishery Management Plan for the Coastal Migratory Pelagic Resources* (1983 and subsequent amendments) and the Atlantic States Marine Fisheries Commission's *Fishery Management Plan (FMP) for Spanish Mackerel* (1990) manage Atlantic group Spanish mackerel in the state and federal Atlantic waters south of the New York/Connecticut border through the east coast of Florida. The states of Florida through New York, excluding Pennsylvania, have a declared interest in the Commission's FMP for Spanish mackerel. The goals of the Commission's Spanish Mackerel FMP are to complement federal management in state waters, to conserve the Atlantic Group Spanish mackerel resource throughout its range, and to achieve compatible management among the states that harvest Spanish mackerel. The Commission's Spanish Mackerel FMP objectives are to: (1) allow recovery of overfished populations and stabilize the stock at a level to produce maximum sustainable yield (MSY); (2) achieve compatible management throughout the range of the stock; (3) provide a flexible management system responsive to changes in the fishery and/or information; (4) promote cooperative interstate research and comprehensive monitoring activities and establish mandatory, timely reporting for quota monitoring; (5) minimize disruption of traditional fisheries and markets; and (6) minimize waste in the fishery.

Atlantic Group Spanish mackerel are managed on the basis of the annual recommendations of the joint Gulf of Mexico and South Atlantic Fishery Management Council's Mackerel Stock Assessment Panel (MSAP), an appointed technical group which reviews the stock assessments and makes annual determinations of Acceptable Biological Catch (ABC). The South Atlantic Fishery Management Council (SAFMC) determines needed annual adjustments to regulatory measures for Atlantic Group Spanish mackerel, including Total Allowable Catch (TAC), bag limits, size limits, and trip limits. SAFMC deliberations are assisted by a Mackerel Committee that includes representatives from the Mid-Atlantic Council and a fishermen Advisory Panel with South Atlantic and Mid-Atlantic representation. A Plan Review Team (PRT) comprised of Council, Commission, and State representatives annually reviews the status of implementation of the interstate FMP and reports to the Commission's South Atlantic State/Federal Fisheries Management Board. The South Atlantic Board serves as the Commission's Spanish Mackerel Management Board and reports to the Commission's Interstate Fishery Management Plan (ISFMP) Policy Board. The ASMFC FMP for Spanish mackerel is a flexible document intended to track the federal FMP; thus, the SAFMC has the lead on Atlantic Group Spanish mackerel management.

The consensus of the Spanish Mackerel PRT is that the goal of the Commission's FMP and its management objectives continue to be valid. The South Atlantic and most Mid-Atlantic states have completely implemented the current requirements of the interstate Spanish mackerel plan.

II. Status of the Stocks

The Mackerel Stock Assessment Panel (MSAP) conducted a full stock assessment for Atlantic Group Spanish mackerel in 2003, which included data through the 2001/2002 fishing year; projected landings through 2002/2003 also were included. Estimated fishing mortality for Atlantic Group Spanish mackerel has been below F_{MSY} and F_{OY} since 1995. Estimated stock abundance has increased steadily since 1995 and is now at a high for the analysis period. Stock biomass has increased from about 19 million to 24 million fish. Probabilities that the Spanish mackerel is overfished are less than 1% and that overfishing has occurred in the most recent fishing year of the assessment are 3%; therefore the MSAP concluded that Atlantic Group Spanish mackerel were not overfished and overfishing did not occur in 2002/2003. Although all measures of stock status are well within desirable ranges, the median estimate of MSY dropped from 6.4 million pounds in the last full assessment in 1998 to 5.2 million pounds in the 2003 assessment. Much of the decline is believed to be due to the lower estimates of recruitment between the 2003 and the 1998 assessments. The MSAP recommended ABC as the median estimate of catch at F 40% SPR, which is 6.7 million pounds (20th –80th percentile range = 5.2-8.4 million pounds).

The Council staff presented the 2003 MSAP stock assessment and a variety of management options to the South Atlantic Council. The Council voted to defer framework action on Spanish mackerel until after the stock assessment. Therefore the existing regulation of a TAC of 7.04 million pounds remained in effect for the 2005/2006 fishing year. The estimate of landings for the 2000/2001 fishing year was 5.08 million pounds, well below the TAC of 7.04 million pounds. If the fishery developed greater capacity and TAC was realized at a level of 7.04 million pounds for several years, fishing mortality rates would increase and eventually may exceed F 30% SPR. Consequently, fishing at this level over time would eventually reduce spawning stock biomass to a level below that which is capable of producing MSY on a continuing basis.

The PRT believes harvest reductions are due to management measures in state and federal waters as well as the recreational fishery targeting other species. The low level of harvest in relation to the stock size is encouraging for stock rebuilding, which is reflected in the increase in transitional SPR. Cooperative State/Federal management has achieved a successful stock recovery.

III. Status of the Fishery

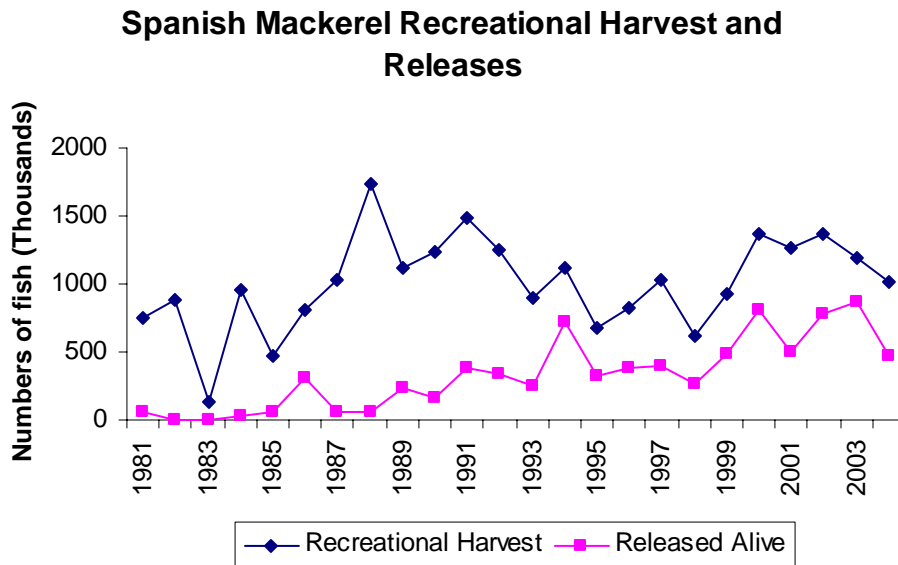
Spanish mackerel remains an important recreational and commercial fishery in South Atlantic waters and is gaining importance in the Mid-Atlantic states. Trip limits implemented in state and federal waters off Florida continue to prevent premature closure of the commercial fishery before the end of the fishing year.

The July 1, 1995 net ban affected commercial landings in Florida, and changed the characteristics of the fishery. Since 1995 the commercial landings coastwide have been below 4 million pounds. In 2004 the landings were approximately 3.6 million pounds, a slight increase from the 3.3 million pounds landed in 2003. Prosecuted predominantly in state waters from

Virginia to Florida, the majority of the commercial fishery for Spanish mackerel occurs in Florida and North Carolina (Table 1). Less than 1% of the total commercial landings occurred north of Virginia.

The number of Spanish mackerel harvested by the recreational fishery increased in recent years after reaching a low in 1998 (table 2). The 2004 recreational harvest in numbers of fish and pounds was slightly below the previous four years, with approximately 1 million fish landed (1.6 million pounds). North Carolina and Florida continue to account for the majority of recreational landings in both number and weight (Tables 2 & 3). The number of recreational releases of Spanish mackerel in 2004 was 468,884 fish, a decrease from the previous five years (Table 4, Figure 1).

Figure 1:



IV. Status of Assessment Advice

The Mackerel Stock Assessment Panel conducted a quantitative stock assessment in May 2003. The status of the Atlantic Spanish mackerel stock was evaluated using an age-based sequential virtual population analysis (VPA). The South Atlantic Fishery Management Council, inclusive of members of the South Atlantic Board, internally reviewed and endorsed the assessment. The SAFMC review process is accomplished by the Scientific and Statistical Committee and the Mackerel Advisory Panel.

V. Status of Research and Monitoring

The National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) continues to monitor length and weight at age and size frequencies, fishing mortality and migration; collect age data and catch per unit effort by area, season, fishery, and gear; monitor shrimp trawl bycatch; investigate methods to predict year class strength; calculate estimates of recruitment, and develop conservation gear to reduce bycatch. The NMFS is also collecting discard data through a bycatch logbook in the mackerel and snapper-grouper fisheries. The Gulf and South Atlantic Fisheries Development Foundation and several states (North Carolina, South Carolina, Georgia, and Florida) have evaluated finfish bycatch in the southeastern shrimp trawl fishery, including bycatch of Spanish mackerel. The South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP) conducts an ongoing, fishery independent Shallow Trawl survey from Cape Hatteras to Cape Canaveral. Sampling in 2003 produced 941 Spanish mackerel that weighted a total of 130 kg. The density of individuals of Spanish mackerel in 2003 decreased from the levels observed in 2001 and 2002 (SC DNR, 2003).

Abundance trends continue to be monitored primarily through fishery-dependent sources. The states and the SEFSC, through the cooperative commercial statistics collection program and the Marine Recreational Fishery Statistics Survey (MRFSS), monitor catch data. The commercial catch is monitored most intensively in the winter and early spring by the state of Florida and the NMFS as the commercial quota is approached.

VI. Status of Management Measures

In June of 2003, the SAFMC voted to defer action until after the next stock assessment is completed, therefore the existing regulations will stay in place. The Total Allowable Catch (TAC) for FY 2005-06 is 7.04 million pounds. The TAC is allocated on a 55:45 basis between the commercial fishery (3.87 million lbs) and the recreational fishery (3.17 million lbs). Trip limits for the commercial fishery in federal waters remain unchanged for vessels from Georgia through New York, with a year-round 3,500-pound daily possession/landing limit. The January 2000 Framework modified the trip limits for the Southern Zone (south of the Florida/ Georgia border) based on the amount of commercial quota which is available on December 1 of each year. From December 1 until 75% of the adjusted allocation is taken, no trip limits are in place on Monday through Friday, but are limited to 1,500 pounds on Saturday and Sunday. Once 75% of the adjusted allocation is taken, vessels are limited to 1,500 pounds per day for all days. When 100% of the adjusted allocation is taken, vessels are limited to 500 pounds per day until the end of the season (March 31). The adjusted allocation compensates for the estimated catch of 500 pounds per vessel per day to the end of the season. The timing of the fishing year (April 1-March 31) is such that it is unlikely the commercial quota will affect any of the mid-Atlantic states.

The commercial fishery coastwide has been predominately in state waters; however, the Florida net ban, which became effective on July 1, 1995, shifted the bulk of the commercial harvest off Florida into federal waters. States are also beginning to implement effort controls. In 1997-1999,

North Carolina implemented a two-year moratorium on the issuance of new commercial licenses. Starting in July 1999, North Carolina capped the number and has strict income-related eligibility requirements for new licenses. Maryland capped its commercial licenses at the existing number for a five-year period beginning in 1997. Virginia delayed entry for two-years into its gill net fishery. New York has a restrictive period for commercial licensing of non-residents and an income-related eligibility requirement associated with certain fisheries.

VII. Implementation of FMP Compliance Requirements as of October 1, 2005.

Since adoption of the interstate Spanish Mackerel FMP in 1990, southern and mid-Atlantic states have responded to the plan's recommendations through implementation of bag limits, size limits, commercial trip limits, and/or provisions for seasonal closures (Table 5) to complement the Council's measures for federal waters. In February, 1994, the South Atlantic State/Federal Fishery Management Board determined the following measures of the Commission's Spanish Mackerel FMP to be mandatory for compliance with the interstate plan: quota closures, 10 fish bag limit, 12-inch fork length minimum size, 3.5-inch minimum stretch mesh size for the directed gill net fishery, and commercial trip limits or landing restrictions (3,500 lb/trip from Georgia through New York; incremental trip limits in Florida). The date for compliance was March 20, 1995. All nine states with a declared interest have achieved full regulatory compliance with the interstate plan. The recovery of the Spanish mackerel fishery throughout its historical range continues to benefit from management measures in state (Florida, in particular) and federal waters. The bag limit was increased to 15 fish through a regulatory adjustment on August 2, 2000.

VIII. Recommendations

Management and Regulatory Recommendations

1. In order to prevent disruption of traditional fisheries and avoid user conflicts, it is recommended that states with commercial Spanish mackerel fisheries north of Florida maintain the trip limits as specified in the SAFMC FMP.
2. States should be considered *de minimis* with regard to trip and landing limits (SAFMC FMP measure 8.6.8) if their landings are less than five percent (5%) of the target commercial quota. If a state's landings are five percent or greater of the target commercial quota, the state should implement the required trip or landing limits in the next fishing year. Any state with *de minimis* status should provide monitoring reports for their commercial fishery on a timely enough basis to prevent quota overages.

Amendments

In light of the mandatory nature of state regulatory requirements implied as a result of federal action, it is preferable that the Commission has a mechanism to independently affirm those measures. This can be accomplished through:

- an amendment to the ASMFC plan to incorporate a framework mechanism for tracking the federal FMPs adjustments to TACs, bag limits, size limits, trip limits, and other regulatory measures; or
- a joint federal/interstate FMP for Spanish mackerel; or
- by a state law that automatically tracks federal regulations.

Given limited resources, the latter is probably the most efficient mechanism to accomplish complementary state/federal management of Spanish mackerel, with the South Atlantic Fishery Management Council remaining as the lead agency. Until an amendment or joint plan is feasible, southern and mid-Atlantic states should remain actively involved in the joint councils' regulatory processes for Atlantic Group Spanish mackerel.

Prioritized Research and Monitoring Recommendations

High Priority

- Length, sex, age, and CPUE data are needed for improved stock assessment accuracy. Simulations on CPUE trends should be explored and impacts on VPA and assessment results determined. Data collection is needed for all states, particularly those north of North Carolina.
- Evaluation of weight and especially length at age of Spanish mackerel.
- Development of fishery-independent methods to monitor stock size of Atlantic Spanish mackerel (consider aerial surveys used in south Florida waters).
- More timely reporting of mid-Atlantic catches for quota monitoring.
- Provide better estimates of recruitment, natural mortality rates, fishing mortality rates, and standing stock. Specific information should include an estimate of total amount caught and distribution of catch by area, season, and type of gear.
- Develop methodology for predicting year class strength and determination of the relationship between larval abundance and subsequent year class strength.
- Commission and member states should support and provide the identified data & input needed to improve the SAFMC's SEDAR process.
- The full implementation of ecosystem-based management and the implementation of monitoring /research efforts needed to support ecosystem-based management needs should be conducted.

Medium Priority

- Yield per recruit analyses should be conducted relative to alternative selective fishing patterns.
- Determine the bycatch of Spanish mackerel in the directed shrimp fishery in Atlantic Coastal waters (partially met: Branstetter, 1997; Ottley et al., 1998; Gaddis et al., 2001;Page et al., 2004).
- Evaluate potential bias of the lack of appropriate stratification of the data used to generate age-length keys for Atlantic and Gulf Spanish mackerel.

- Evaluate CPUE indices related to standardization methods and management history, with emphasis on greater temporal and spatial resolution in estimates of CPUE.
- Consideration of MRFSS add-ons or other mechanisms for collection of socioeconomic data for recreational and commercial fisheries.
- Determine normal Spanish mackerel migration routes and changes therein, as well as the climatic or other factors responsible for changes in the environmental and habitat conditions which may affect the habitat and availability of stocks.
- Determine the relationship, if any, between migration of prey species (i.e., engraulids, clupeids, carangids), and migration patterns of the Spanish mackerel stock.

Low Priority

- Final identification of Spanish mackerel stocks through multiple research techniques.
- Complete research on the application of assessment and management models relative to dynamic species such as Spanish mackerel.
- Delineation of spawning areas and areas of larval abundance through temporal and spatial sampling.

List of References

- Branstetter, S. 1997. Final implementation of high-priority objectives of a bycatch reduction research program for the Gulf of Mexico and South Atlantic shrimp fishery. NMFS 93-SER-059.
- Gaddis, G., D. Haymans, J.L. Music, Jr., and J. Page. 2001. Interstate fisheries management planning and implementation. Final Report. Award No. NA86FG0116. USDOC/NOAA/NMFS. Atlantic Coastal Fisheries Management Act (P.L. 103-206).
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- South Carolina Marine Resources Division (SC DNR). 2003. Results of Trawling Efforts in the Coastal Habitat in the South Atlantic Bight, 2003. South Carolina Department of Natural Resources. Charleston, SC, 89 pp.

Table 1. Commercial landings by calendar year (in pounds) of Spanish mackerel along the Atlantic coast, 1960-2004 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

| Year | ME | MA | RI | NY | NJ | MD | VA | NC | SC | GA | FLEC | Total |
|--------------|--------------|---------------|---------------|----------------|----------------|----------------|------------------|-------------------|----------------|---------------|--------------------|--------------------|
| 1960 | | | | | | | 19,900 | 118,500 | 6,100 | | 2,282,300 | 2,426,800 |
| 1961 | | | 400 | | | 200 | 122,600 | 133,600 | 4,000 | | 3,158,300 | 3,419,100 |
| 1962 | | | | | | | 14,600 | 83,200 | 13,300 | 300 | 2,578,300 | 2,689,700 |
| 1963 | | | | | | | 79,300 | 135,300 | 8,300 | 900 | 2,123,400 | 2,347,200 |
| 1964 | | | | | 100 | | 33,100 | 78,300 | 2,500 | | 2,002,200 | 2,116,200 |
| 1965 | | | 300 | | | 1,000 | 73,300 | 117,200 | 13,300 | 600 | 2,900,900 | 3,106,600 |
| 1966 | | | | | 100 | 400 | 141,900 | 78,500 | 1,300 | 1,300 | 2,181,300 | 2,404,800 |
| 1967 | | | | | 200 | 3,600 | 26,300 | 72,700 | 2,500 | 2,000 | 1,801,500 | 1,908,800 |
| 1968 | | | | | 100 | 1,700 | 58,500 | 68,900 | 8,200 | 600 | 4,406,500 | 4,544,500 |
| 1969 | | 100 | | | | 1,200 | 123,000 | 88,600 | 3,800 | | 2,358,800 | 2,575,500 |
| 1970 | | | 200 | | 200 | 1,100 | 200,100 | 63,300 | 1,800 | 400 | 3,574,400 | 3,841,500 |
| 1971 | | | 100 | | 100 | 900 | 51,000 | 95,200 | 4,000 | 300 | 2,581,800 | 2,733,400 |
| 1972 | | | | | 100 | 400 | 22,700 | 96,300 | 5,200 | 4,700 | 3,369,000 | 3,498,400 |
| 1973 | | | | | 100 | 200 | 50,000 | 64,200 | 4,100 | 4,900 | 3,203,000 | 3,326,500 |
| 1974 | | | | | 1,700 | 100 | 24,000 | 73,300 | 2,000 | 500 | 2,346,100 | 2,447,700 |
| 1975 | | | 900 | 400 | 4,500 | 400 | 61,600 | 48,900 | 9,800 | 5,800 | 5,144,800 | 5,277,100 |
| 1976 | | | | 600 | 1,400 | 400 | 79,600 | 30,500 | 3,600 | 3,000 | 9,588,600 | 9,707,700 |
| 1977 | | | | | 400 | | 21,100 | 46,100 | 100 | 1,800 | 10,987,300 | 11,056,800 |
| 1978 | | | | | 100 | 100 | 1,600 | 39,851 | 608 | 211 | 5,510,538 | 5,553,008 |
| 1979 | | | | | | | 700 | 12,721 | 150 | 2,201 | 4,885,628 | 4,901,400 |
| 1980 | | | | 100 | 600 | | 8,300 | 75,306 | 6,769 | 1,491 | 9,811,053 | 9,903,619 |
| 1981 | | | | 500 | 500 | | 3,500 | 51,639 | | 518 | 4,174,432 | 4,231,089 |
| 1982 | | | | 1,000 | 200 | | 12,700 | 189,217 | 1,081 | 745 | 3,758,603 | 3,963,546 |
| 1983 | | 2,600 | 2,600 | 600 | 100 | | 3,500 | 41,336 | 706 | | 5,947,102 | 5,998,544 |
| 1984 | | | | 300 | 100 | | 10,000 | 127,467 | 1,321 | | 2,397,373 | 2,536,561 |
| 1985 | | | | 100 | | | 15,300 | 173,186 | 847 | | 3,244,980 | 3,434,413 |
| 1986 | | 600 | | 3,200 | 1,500 | | 168,400 | 232,197 | 6,375 | 1,335 | 4,003,738 | 4,417,388 |
| 1987 | 3,300 | 16,000 | 4,900 | 16,600 | 24,000 | 4,800 | 251,200 | 504,063 | 961 | 255 | 3,497,135 | 4,323,508 |
| 1988 | | | 3,400 | 19,200 | 16,900 | 4,300 | 291,600 | 438,222 | 1,029 | 726 | 3,071,687 | 3,847,797 |
| 1989 | | 12,400 | 8,900 | 17,700 | 24,100 | 10,400 | 354,400 | 589,383 | 1,605 | | 2,853,177 | 3,873,290 |
| 1990 | | 6,585 | 5,530 | 24,329 | 28,336 | 43,411 | 491,651 | 838,914 | 384 | 491 | 1,979,081 | 3,420,126 |
| 1991 | | 19,698 | 9,530 | 149,321 | 77,151 | 62,688 | 447,127 | 858,808 | 444 | 197 | 2,986,871 | 4,612,258 |
| 1992 | | 608 | 2,277 | 31,873 | 51,751 | 37,930 | 271,313 | 738,362 | 1,952 | 71 | 2,022,961 | 3,159,098 |
| 1993 | | 5 | 2,843 | 42,063 | 23,036 | 9,445 | 335,688 | 589,868 | 480 | 95 | 3,891,979 | 4,895,502 |
| 1994 | | 3,273 | 893 | 124,733 | 19,915 | 3,363 | 376,818 | 531,355 | 362 | | 3,099,780 | 4,160,492 |
| 1995 | | | 12,419 | 9,136 | 2,153 | 3,089 | 168,732 | 402,197 | | | 3,064,926 | 3,662,654 |
| 1996 | | | 2,523 | 17,980 | 40,821 | | 283,750 | 401,546 | | | 2,244,667 | 2,991,287 |
| 1997 | | 15 | 86 | 31,107 | 12,122 | 3,033 | 164,639 | 766,901 | | | 2,269,289 | 3,247,192 |
| 1998 | | 71 | 109 | 37,238 | 13,242 | 13,204 | 121,109 | 372,440 | | | 2,498,400 | 3,055,813 |
| 1999 | | 2,407 | 276 | 47,831 | 17,144 | 21,604 | 251,626 | 459,120 | | | 1,529,939 | 2,329,947 |
| 2000 | | | 188 | 35,825 | 11,757 | 26,607 | 168,679 | 659,431 | | | 1,667,581 | 2,570,068 |
| 2001 | | 3,634 | 20,052 | 13,851 | 9,401 | 18,899 | 178,610 | 653,491 | | | 2,115,782 | 3,013,724 |
| 2002 | | | 65 | 18,741 | 11,196 | 20,725 | 102,417 | 698,172 | | | 1,993,169 | 2,844,485 |
| 2003 | | 514 | 366 | 18,339 | 5,432 | 5,239 | 103,401 | 456,794 | | | 2,740,769 | 3,330,854 |
| 2004 | | 198 | 5,971 | 16,921 | 3,060 | 4,881 | 66,979 | 456,243 | | 6 | 3,084,712 | 3,638,971 |
| Total | 3,300 | 68,708 | 84,828 | 679,588 | 403,617 | 305,318 | 5,856,339 | 12,850,830 | 118,974 | 35,442 | 156,933,852 | 177,344,934 |

Table 2. Recreational harvest (numbers of A + B1 fish) of Spanish mackerel by state, 1981-2004 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

| Year | MA | RI | CT | NY | NJ | DE | MD | VA | NC | SC | GA | FLEC | Total |
|--------------|---------------|--------------|--------------|---------------|---------------|--------------|----------------|------------------|-------------------|------------------|----------------|------------------|-----------|
| 1981 | 4,277 | | | | | | | | 231,744 | 25,058 | 1,786 | 485,395 | 748,260 |
| 1982 | | | | | | | | | 694,420 | 21,092 | 408 | 173,649 | 889,569 |
| 1983 | | | | | | | | | 6,156 | 3,279 | 2,109 | 117,532 | 129,076 |
| 1984 | | | | | | | | | 618,313 | 79,855 | 3,718 | 248,048 | 949,934 |
| 1985 | | | | | | | | | 344,965 | 36,606 | 4,809 | 84,226 | 470,606 |
| 1986 | | | | | 1,479 | | 457 | 6,942 | 431,021 | 147,358 | 25,257 | 195,385 | 807,899 |
| 1987 | | | | 1,417 | | | 8,036 | 1,520 | 815,920 | 65,846 | 20,925 | 118,184 | 1,031,848 |
| 1988 | | | | | | | | 101,691 | 1,312,070 | 82,136 | 4,403 | 233,582 | 1,733,882 |
| 1989 | | 320 | | 1,010 | 22,067 | | | 73,236 | 679,360 | 121,115 | 7,444 | 213,665 | 1,118,217 |
| 1990 | | 403 | | 1,726 | 2,495 | 319 | 1,355 | 63,821 | 821,334 | 81,375 | 31,567 | 225,263 | 1,229,658 |
| 1991 | 7,071 | 78 | 4,173 | 7,608 | 25,071 | 2,054 | 41,250 | 68,102 | 676,717 | 132,198 | 2,391 | 517,290 | 1,484,003 |
| 1992 | 0 | | | 1,325 | 10,549 | 210 | 4,847 | 71,265 | 701,974 | 62,546 | 25,736 | 370,809 | 1,249,261 |
| 1993 | 188 | | | 2,681 | 3,457 | | 43,050 | 73,832 | 451,523 | 92,621 | 12,979 | 219,458 | 899,789 |
| 1994 | | | | 0 | 7,910 | | 43,710 | 145,872 | 535,949 | 113,991 | 15,235 | 252,668 | 1,115,335 |
| 1995 | | | | 0 | 0 | | 26,216 | 86,899 | 285,882 | 34,355 | 16,726 | 226,334 | 676,412 |
| 1996 | | | | | 1,172 | | | 69,399 | 355,036 | 134,282 | 16,948 | 245,085 | 821,922 |
| 1997 | | | | | | 0 | | 68,517 | 585,765 | 101,067 | 28,396 | 246,885 | 1,030,630 |
| 1998 | | | | | 4,046 | 186 | 3,633 | 33,140 | 239,052 | 65,584 | 28,002 | 244,235 | 617,878 |
| 1999 | | 438 | | 0 | 1,335 | 226 | 1,220 | 75,972 | 476,019 | 27,477 | 9,007 | 327,621 | 919,315 |
| 2000 | 1,528 | | | 4,453 | 923 | 0 | 15,219 | 71,249 | 671,353 | 28,283 | 20,545 | 547,315 | 1,360,868 |
| 2001 | 2,561 | | | 802 | 0 | 0 | 8,025 | 29,590 | 400,706 | 43,501 | 11,013 | 774,065 | 1,270,263 |
| 2002 | | | | | | | 0 | 17,433 | 401,982 | 24,235 | 1,927 | 926,600 | 1,372,177 |
| 2003 | 3,373 | | | | | | 6,975 | 17,063 | 349,170 | 24,879 | 11,235 | 778,434 | 1,191,129 |
| 2004 | 1,365 | | | | 1,485 | | 8,304 | 20,497 | 312,235 | 142,886 | 7,838 | 525,963 | 1,020,573 |
| Total | 20,363 | 1,239 | 4,173 | 21,022 | 81,989 | 2,995 | 212,297 | 1,096,040 | 12,398,666 | 1,691,625 | 310,404 | 8,297,691 | |

Table 3. Recreational harvest (pounds of A + B1 fish) of Spanish mackerel along the Atlantic coast, 1981-2004 (source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

| Year | MA | RI | NY | CT | NJ | DE | MD | VA | NC | SC | GA | FLEC | Total |
|--------------|---------------|--------------|---------------|---------------|----------------|--------------|----------------|------------------|-------------------|------------------|----------------|-------------------|-----------|
| 1981 | 0 | | | | | | | | 423,801 | 53,292 | 4,306 | 808,808 | 1,290,207 |
| 1982 | | | | | | | | | 928,201 | 29,546 | 483 | 251,115 | 1,209,345 |
| 1983 | | | | | | | | | 14,725 | 8,274 | 4,198 | 199,331 | 226,528 |
| 1984 | | | | | | | | | 848,537 | 116,083 | 5,540 | 427,501 | 1,397,661 |
| 1985 | | | | | | | | | 507,545 | 34,445 | 3,547 | 152,113 | 697,650 |
| 1986 | | | | | 2,500 | | 1,008 | 9,709 | 639,105 | 256,157 | 47,941 | 251,673 | 1,208,093 |
| 1987 | | | 2,890 | | | | 14,345 | 2,011 | 1,296,732 | 117,053 | 40,681 | 230,725 | 1,704,437 |
| 1988 | | | | | | | | 160,407 | 2,136,806 | 140,896 | 5,141 | 656,047 | 3,099,297 |
| 1989 | | 847 | 3,560 | | 35,415 | | | 81,107 | 877,911 | 197,982 | 6,162 | 303,485 | 1,506,469 |
| 1990 | | 0 | 2,332 | | 3,320 | 470 | 1,790 | 86,932 | 1,084,167 | 153,932 | 45,748 | 346,585 | 1,725,276 |
| 1991 | 26,327 | 251 | 19,612 | 16,958 | 36,096 | 3,062 | 57,249 | 72,708 | 1,056,524 | 291,717 | 3,717 | 887,777 | 2,471,998 |
| 1992 | 0 | | 3,880 | | 16,526 | 302 | 9,634 | 76,411 | 947,065 | 145,451 | 79,818 | 669,160 | 1,948,247 |
| 1993 | 580 | | 7,590 | | 5,280 | | 68,757 | 93,272 | 664,815 | 135,287 | 22,209 | 439,555 | 1,437,345 |
| 1994 | | | 0 | | 8,613 | | 44,969 | 160,610 | 588,035 | 152,836 | 66,949 | 350,679 | 1,372,691 |
| 1995 | | | 0 | | 0 | | 34,705 | 110,433 | 329,466 | 40,995 | 12,072 | 302,632 | 830,303 |
| 1996 | | | | | 0 | | | 80,505 | 385,922 | 184,655 | 31,856 | 413,687 | 1,096,625 |
| 1997 | | | | | | 0 | | 22,233 | 862,497 | 143,297 | 37,877 | 400,148 | 1,466,052 |
| 1998 | | | | | 9,189 | 379 | 5,725 | 57,467 | 305,630 | 106,209 | 112,562 | 408,872 | 1,006,033 |
| 1999 | | 1,303 | 0 | | 2,207 | 240 | 1,715 | 79,601 | 469,258 | 44,917 | 10,031 | 578,123 | 1,187,395 |
| 2000 | 5,053 | | 10,798 | | 1,118 | 0 | 20,642 | 83,296 | 671,616 | 30,543 | 47,137 | 946,395 | 1,816,598 |
| 2001 | 10,351 | | 1,168 | | 0 | 0 | 14,526 | 42,046 | 499,829 | 46,945 | 23,056 | 1,232,506 | 1,870,427 |
| 2002 | | | | | | | 0 | 12,163 | 475,742 | 47,057 | 4,795 | 1,475,232 | 2,014,989 |
| 2003 | 0 | | | | | | 9,762 | 22,031 | 446,052 | 29,107 | 34,855 | 1,006,345 | 1,548,152 |
| 2004 | | | | | 2,983 | | 13,783 | 28,285 | 565,352 | 145,784 | 11,777 | 905,429 | 1,673,393 |
| Total | 42,311 | 2,401 | 51,830 | 16,958 | 123,247 | 4,453 | 298,610 | 1,281,227 | 17,025,333 | 2,652,460 | 662,458 | 13,643,923 | |

Table 4. Recreational releases (B2) of Spanish mackerel along the Atlantic coast, 1981-2004
(source: pers. comm. NMFS, Fish. Stats. & Econ. Div.).

| Year | MA | RI | CT | NY | NJ | DE | MD | VA | NC | SC | GA | FLEC | Total |
|--------------|--------------|----------|----------|---------------|---------------|--------------|---------------|----------------|------------------|------------------|---------------|------------------|---------|
| 1981 | 0 | | | | | | | | 5,616 | 0 | 0 | 56,374 | 61,990 |
| 1982 | | | | | | | | | 0 | 0 | 0 | 6,613 | 6,613 |
| 1983 | | | | | | | | | 0 | 0 | 515 | 4,929 | 5,444 |
| 1984 | | | | | | | | | 2,931 | 1,300 | 0 | 21,797 | 26,028 |
| 1985 | | | | | | | | | 27,753 | 3,862 | 0 | 23,316 | 54,931 |
| 1986 | | | | | 0 | | 0 | 74 | 280,252 | 7,879 | 605 | 20,469 | 309,279 |
| 1987 | | | | 0 | | | 0 | 13,947 | 28,136 | 5,506 | 2,916 | 7,197 | 57,702 |
| 1988 | | | | | | | | 0 | 17,413 | 27,019 | 2,456 | 18,334 | 65,222 |
| 1989 | | 0 | | 0 | 0 | | | 10,286 | 64,749 | 73,983 | 391 | 83,682 | 233,091 |
| 1990 | | 0 | | 257 | 0 | 0 | 0 | 21,094 | 76,940 | 26,929 | 0 | 35,520 | 160,740 |
| 1991 | 859 | 0 | 0 | 0 | 2,674 | 1,092 | 1,747 | 28,777 | 133,601 | 19,331 | 57 | 190,602 | 378,740 |
| 1992 | 586 | | | 0 | 0 | 0 | 0 | 18,072 | 180,235 | 15,515 | 3,859 | 113,062 | 331,329 |
| 1993 | 584 | | | 0 | 1,160 | | 2,684 | 70,081 | 81,927 | 15,966 | 0 | 74,052 | 246,454 |
| 1994 | | | | 1,059 | 50,743 | | 0 | 91,832 | 241,082 | 207,055 | 0 | 136,041 | 727,812 |
| 1995 | | | | 7,297 | 1,269 | | 1,562 | 24,467 | 145,845 | 14,159 | 2,594 | 129,469 | 326,662 |
| 1996 | | | | | 0 | | | 28,951 | 103,067 | 83,543 | 139 | 167,411 | 383,111 |
| 1997 | | | | | | 338 | | 22,658 | 140,704 | 62,356 | 0 | 168,815 | 394,871 |
| 1998 | | | | | 0 | 0 | 1,075 | 49,429 | 80,700 | 32,087 | 7,351 | 87,804 | 258,446 |
| 1999 | | 0 | | 1,415 | 2,670 | 0 | 0 | 36,276 | 205,870 | 46,400 | 495 | 185,106 | 478,232 |
| 2000 | 667 | | | 0 | 0 | 608 | 1,656 | 82,227 | 300,384 | 47,273 | 16,479 | 353,042 | 802,336 |
| 2001 | 2,271 | | | 1,657 | 4,907 | 825 | 7,265 | 30,158 | 160,591 | 9,711 | 3,188 | 285,738 | 506,311 |
| 2002 | | | | | | | 4,449 | 9,923 | 196,967 | 9,206 | 8,641 | 554,743 | 783,929 |
| 2003 | 0 | | | | | | 6,994 | 20,539 | 164,787 | 223,116 | 6,501 | 442,119 | 864,056 |
| 2004 | 2,899 | | | | 0 | | 769 | 13,222 | 122,475 | 113,605 | 3,527 | 212,386 | 468,883 |
| Total | 7,866 | 0 | 0 | 11,685 | 63,423 | 2,863 | 28,201 | 572,013 | 2,762,025 | 1,045,801 | 59,714 | 3,378,621 | |

Table 5. Summary of current (October 2005) State Regulations for Spanish mackerel.

| State | Recreational | Commercial | Notes |
|--------------|---------------------|-------------------|--|
| NY | 14"; 15 fish | 14" | 3,500 lb. commercial possession limit/vessel |
| NJ | 14"; 10 fish | 14" TL | |
| DE | 14" TL; 10 fish | no fishery | |
| MD | 14"; 15 fish | 14" | Declaration allowing regulation through framework; gill net mesh sizes for Chesapeake Bay |
| PRFC | 14"; 15 fish | 14" | |
| VA | 14" TL; 15 fish | 14" TL | Size limit exemption for pound net fishery; closure when quota reached; 3,500 lb. trip limit |
| NC | 12" FL; 15 fish | 12" FL | 3,500 lb. commercial trip limit (Spanish and king mackerel combined); finfish excluder devices required in shrimp trawls. Purse gill net prohibition. |
| SC | 12" FL; 15 fish | 12" FL | Federal commercial harvest restrictions apply; federal permit required to exceed bag limit; state license required to land/sell. |
| GA | 12" FL; 15 fish | 12" FL | Commercial landings from state waters limited to bag limits; gillnets/longline gear prohibited in state waters; state waters closed December 1 - March 15 for harvest of Spanish mackerel; commercial landings (3,500 lb. trip limit) from EEZ by federally permitted vessels allowed throughout year as long as the federal quota remains open. |
| FL | 12" FL; 15 fish | 12" FL | 3½ " minimum mesh size, 600 yd. maximum length net; Commercial daily trip limits: 1,500 lb. April 1 - November 30; December 1 until 75% of adjusted quota reached - unlimited harvest Mon-Fri, 1,500 lb. per vessel/day Sat-Sun; >75% adjusted quota until quota filled - 1,500 lb. per vessel/day; > 100% of adjusted quota - 500 lb. per vessel/day. |