

# Spanish Mackerel Informational Document

Mackerel Cobia Advisory Panel  
April 2018



## General Biology

Spanish mackerel (*Scomberomorus maculatus*) are migratory and move into specific areas to spawn and mature at age 1-2 years. They primarily eat other fish species (herring, sardines, and menhaden) and to a lesser extent crustaceans and squid at all life stages (larvae to adult). They are eaten primarily by larger pelagic predators like sharks, tuna, and bottlenose dolphin.

Spanish mackerel is also a pelagic species occurring in depths up to 75 meters (225 feet) but primarily found in depths of 20 meters (60 feet) or less. They occur in coastal zones of the western Atlantic from southern New England to the Florida Keys and throughout the Gulf of Mexico (Collette and Russo 1979). Adults usually are found from the low-tide line to the edge of the continental shelf, and along coastal areas. They inhabit estuarine areas (especially higher salinity areas) during seasonal migrations but are considered rare and infrequent in many Gulf estuaries.

Spawning occurs along the inner continental shelf from April to September (Powell 1975). Eggs and larvae occur most frequently offshore over the inner continental shelf at temperatures between 20°C (68°F) and 32°C (89.6°F) and salinities between 28 and 37 ppt. They are found frequently in water depths from 9 meters (27 feet) to about 84 meters (252 feet) but are most common in < 50 meters (150 feet).

Juveniles are most often found in coastal and estuarine habitats and at temperatures greater than 25°C (77°F) and salinities greater than 10 ppt. Although they occur in waters of varying salinity, juveniles appear to prefer marine salinity levels and generally are not considered estuarine-dependent. Like king mackerel, adult Spanish mackerel are migratory, generally moving from wintering areas of south Florida and Mexico to more northern latitudes in spring and summer. Spanish mackerel generally mature at age 1 to 2 and have a maximum age of approximately 11 years (Powell 1975).

## Stock Status (SEDAR 28)

Gulf and Atlantic Spanish mackerel were assessed in SEDAR 28 (2013c, d). The assessments determined that Gulf and Atlantic Spanish mackerel were **not overfished and were not experiencing overfishing**.

## Management Overview

The CMP FMP was approved in 1982 and implemented by regulations effective in February of 1983. Managed species included king mackerel, Spanish mackerel, and cobia. The FMP treated king and Spanish mackerel as unit stocks in the Atlantic and Gulf of Mexico. The FMP

established allocations for the recreational and commercial sectors harvesting these stocks, and the commercial allocations were divided between net and hook-and-line fishermen.

**Amendment 1:** Implemented in September of 1985. Provided a framework procedure for pre-season adjustment of total allowable catch (TAC). Eliminated commercial allocations among gear users, except purse seines. Established minimum size limits for Spanish mackerel at 12 in fork length (FL) or 14 in total length (TL).

**Amendment 2:** Implemented in July 1987. Recognized two migratory groups. Established commercial (76%) and recreational (24%) allocations for TAC, established April 1<sup>st</sup> to March 31<sup>st</sup> fishing year, established Dade/Monroe county line as the migratory group boundary, and set commercial quotas and bag limits. A bag limit of 4-fish in FL and 10-fish in NC, SC, and GA. Charter boat permits were required.

**Amendment 3:** Implemented in April 1990. Prohibited drift gillnets for coastal pelagic species and purse seines for the overfished migratory groups of mackerels.

**Amendment 4:** Implemented in October 1989. Reallocated Atlantic migratory group Spanish mackerel equally between recreational and commercial fishermen.

**Amendment 5:** Implemented in August 1990. Extended the management area for Atlantic migratory groups of mackerels through the Mid-Atlantic Council's area of jurisdiction. Redefined recreational bag limits as daily limits. Deleted a provision specifying that bag limit caught mackerel may be sold. Size limit for Spanish mackerel is 12" FL or 14" TL. Bag limit is 4-fish from area off FL and 10-fish north of FL.

**Amendment 6:** Implemented in November 1992. Provided for commercial Atlantic Spanish mackerel possession limits. Discontinued the reversion of the bag limit to 0 when the recreational quota is filled. Modified the recreational fishing year to the calendar year. Changed commercial permit requirements to allow qualification in one of three preceding years. Changed all size limits to fork length only. Minimum size limit is 12-inches FL. In northern zone, boats are restricted to possession limits of 3,500 pounds. In southern zone trip limit are 1,500 pounds per vessel per day during April 1 to November 30. From December 1 until 80% of quota is taken: unlimited harvest on Monday, Wednesday, and Friday; 1,500 pounds per vessel per day on Tuesday and Thursday; 500 pounds per vessel per day on Saturday and Sunday. Trip limit 1,000 pounds per vessel per day when 80% of quota is reached.

**Amendment 8:** Implemented March 1998. Established allowable gear in the South Atlantic and Mid-Atlantic areas. Increased the income requirement for a king or Spanish mackerel permit to 25% of earned income or \$10,000 from commercial sale of catch or charter or head boat fishing in one of the three previous calendar years, but allowed for a one-year grace period to qualify under permits that are transferred.

**Amendment 9:** Implemented in April 2000. Allowed the retention and sale of cut-off (damaged), legal-sized king and Spanish mackerel within established trip limits.

**Amendment 10:** Implemented July 2000. Incorporated essential fish habitat provisions for the South Atlantic.

**Amendment 11:** Partially approved in December 1999. Addressed Sustainable Fishery Act Definitions.

**Amendment 15:** Implemented August 2005. Changed the fishing season to March 1<sup>st</sup> through February 28/29<sup>th</sup> for the Atlantic migratory groups of king and Spanish mackerel.

**Amendment 18:** Implemented in January 2012. Established annual catch limits and accountability measures for Gulf and Atlantic migratory groups for cobia, king mackerel, and Spanish mackerel.

**Amendment 19:** Implemented in July 2010. Established coral habitat areas of particular concern (HAPCs).

**Amendment 20A:** Implemented in July 2014. Prohibited sale of recreationally caught king and Spanish mackerel, with an exception for sale of fish caught on for-hire trips on dual-permitted vessels in the Gulf region, and an exception for sale of fish caught in state-permitted tournaments in both the Gulf and Atlantic regions and donated to a state or federally permitted dealer, as long as the proceeds from the dealer sale are donated to charity.

**Amendment 20B:** Implemented in March 2015. Created a transit provision for areas closed to king mackerel. Established Northern and Southern zones with separate commercial quotas for Atlantic king and Spanish mackerel.

**Amendment 21:** Implemented in January 2012. Addressed recreational fishing measures in South Carolina Special Management Zones (SMZs).

**Amendment 22:** Implemented in January 2014. Required weekly electronic reporting for headboats in the South Atlantic.

**Amendment 23:** Implemented in August 2014. Required Atlantic king mackerel and Spanish mackerel permit holders to sell to a federal dealer; required weekly electronic reporting for federal dealers.

**Framework Amendment 1:** Implemented in December 2014. Updated the ACLs for Gulf and Atlantic Spanish mackerel.

**Framework Amendment 2:** Implemented in August 2015. Modified the quota and trip limit system for commercial harvest of Atlantic migratory group Spanish mackerel in the Southern Zone (3,500 pounds for the Southern Zone. When 75% of adjusted Southern Zone quota is met or projected to be met, the trip limit would be reduced to 1,500 pounds. When 100% of adjusted Southern Zone quota is met or projected to be met, the trip limit is reduced to 500 pounds until the end of the fishing year or until the Southern Zone commercial quota is met or projected to be

met, at which time the commercial sector in the Southern Zone would be closed to harvest of Spanish mackerel).

**Framework Amendment 5:** Implemented in August 2017. Removed the restriction on fishing for or retaining the recreational bag and possession limits of king and Spanish mackerel on a vessel with a Federal commercial permit for king or Spanish mackerel when commercial harvest of king or Spanish mackerel in a zone or region is closed.

## Fishery Performance

The following summary of Spanish mackerel landings was prepared using various data sources, including:

**ALS:** The Accumulated Landings System (ALS) is the system used by the Southeast Fisheries Science Center (SEFSC) to track commercial landings in the South Atlantic. It includes commercial dealer reports. These data are provided to the Council each year.

**SEFSC:** These are the recreational data, which are a combination of the Marine Recreational Information Program (MRIP) survey data and the Southeast Region Headboat Survey (SRHS) data. The MRIP data are provided to the SEFSC in numbers and are subsequently converted to weight using a method unique to the Southeast Region. These data are transmitted to the Council each year.

**MRIP:** These are the recreational data collected directly by the Marine Recreational Information Program (MRIP). Landings are estimated from intercepted trips and a separate phone survey for effort. The SEFSC uses a different methodology to convert the recreational catch in numbers to weight than MRIP does. Headboat landings are not collected through MRIP but through the SRHS mentioned above.

**ACCSP:** In addition to submitting reports to the SEFSC, commercial dealers and fishermen submit reports to the Atlantic Coastal Cooperative Statistics Program (ACCSP). The commercial value information (reported by dealers) presented below were obtained from ACCSP.

To access an online tool displaying data presented in this summary, [click here](#).

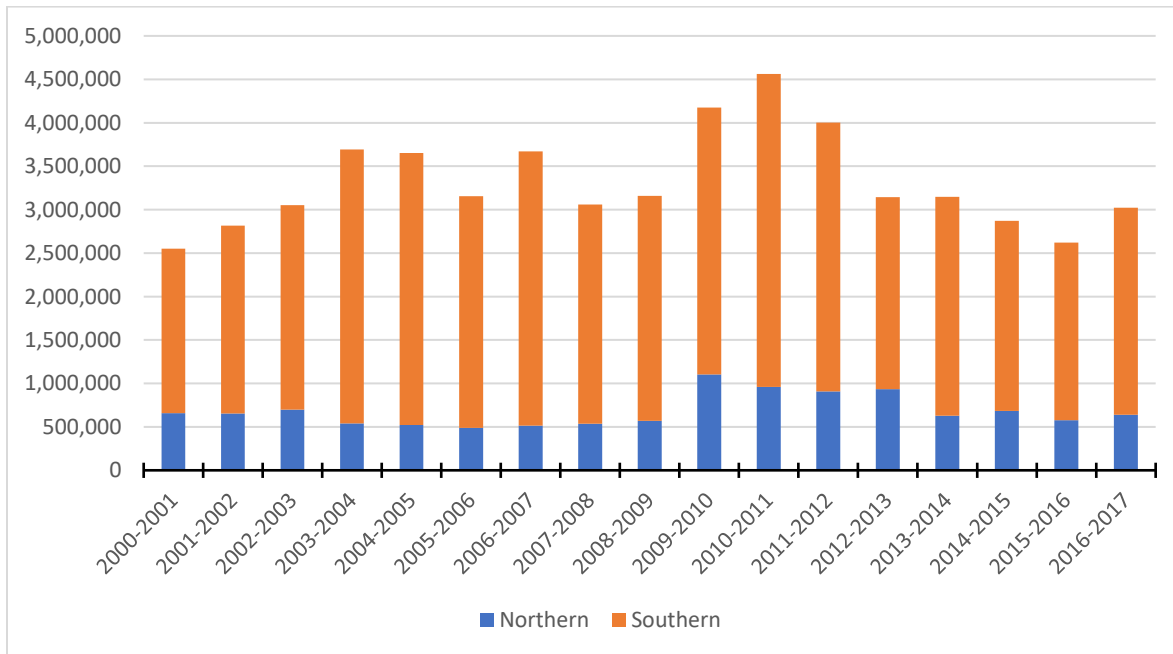
## Commercial Sector

Commercial landings of Atlantic migratory group Spanish mackerel in pounds (as reported) from 2000 through 2016 by zone are presented in **Table 1**. Data were not yet available for January and February of 2017. Those landings were estimated by taking the average landings in each month for the most recent three years of available data (2014, 2015, 2016). Landings by zone are presented graphically in **Figure 1** and total landings relative to the quota/ACL are shown in **Figure 2**. Landings are presented by zone to maintain confidentiality. The Northern zone includes North Carolina and the Mid-Atlantic states. The Southern Zone includes South Carolina, Georgia, and Florida.

**Table 1.** Atlantic migratory group Spanish mackerel total commercial landings (pounds) and ACL 2000 through 2016, by zone. From 2000-2004 the fishing year started on April 1<sup>st</sup>. In subsequent years, the fishing year started on March 1<sup>st</sup>.

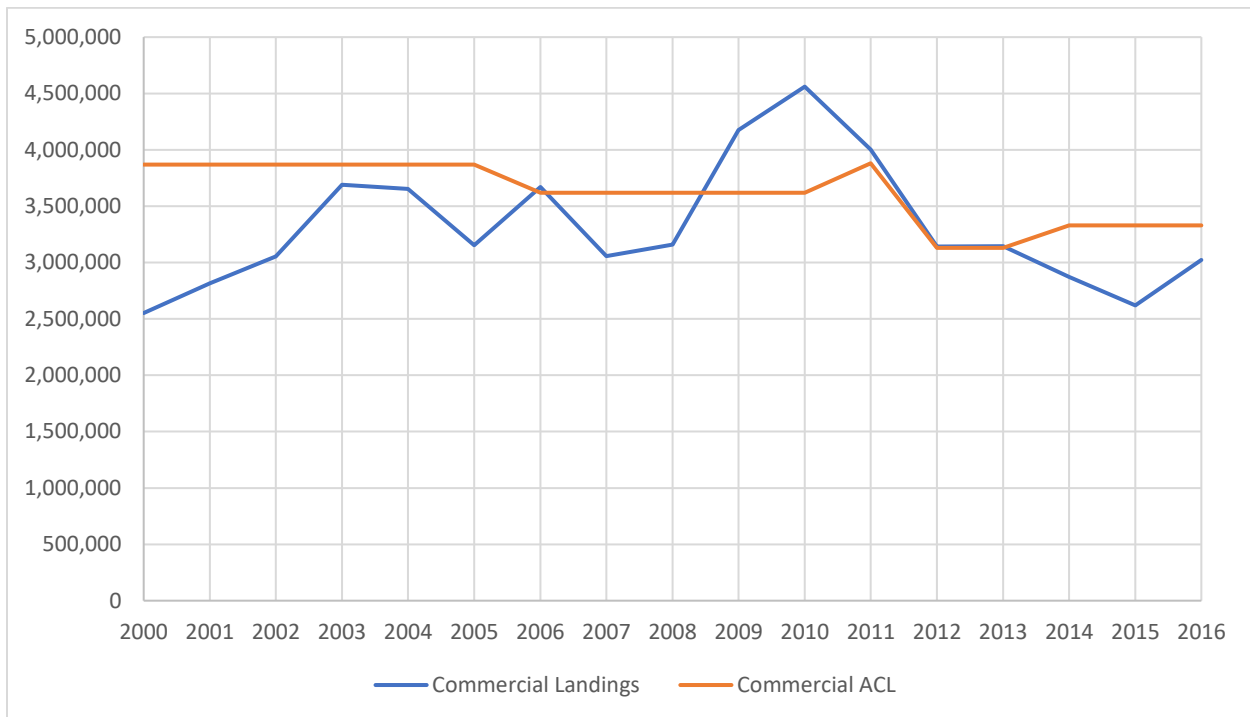
Year	Fishing Year	Northern Zone	Southern Zone	Total	Commercial ACL
2000	2000-2001	659,325	1,892,607	2,551,932	3,870,000
2001	2001-2002	653,490	2,162,003	2,815,493	3,870,000
2002	2002-2003	698,828	2,354,067	3,052,895	3,870,000
2003	2003-2004	539,797	3,151,738	3,691,535	3,870,000
2004	2004-2005	522,576	3,129,649	3,652,225	3,870,000
2005	2005-2006	486,676	2,667,777	3,154,453	3,870,000
2006	2006-2007	515,388	3,156,272	3,671,660	3,620,000
2007	2007-2008	537,230	2,520,826	3,058,056	3,620,000
2008	2008-2009	568,592	2,591,622	3,160,214	3,620,000
2009	2009-2010	1,101,977	3,073,997	4,175,974	3,620,000
2010	2010-2011	959,621	3,600,921	4,560,542	3,620,000
2011	2011-2012	906,885	3,095,993	4,002,878	3,880,660
2012	2012-2013	934,187	2,208,754	3,142,941	3,130,000
2013	2013-2014	628,668	2,517,549	3,146,217	3,130,000
2014	2014-2015	682,167	2,189,814	2,871,981	3,330,000
2015	2015-2016	575,920	2,043,861	2,619,781	3,330,000
2016	2016-2017	639,846	2,381,927	3,021,773	3,330,000

Source: ALS



**Figure 1.** Commercial landings (pounds) of Atlantic migratory group Spanish mackerel from 2000 through the 2016, by zone. From 2000-2004 the fishing year started on April 1<sup>st</sup>. In subsequent years, the fishing year started on March 1<sup>st</sup>.

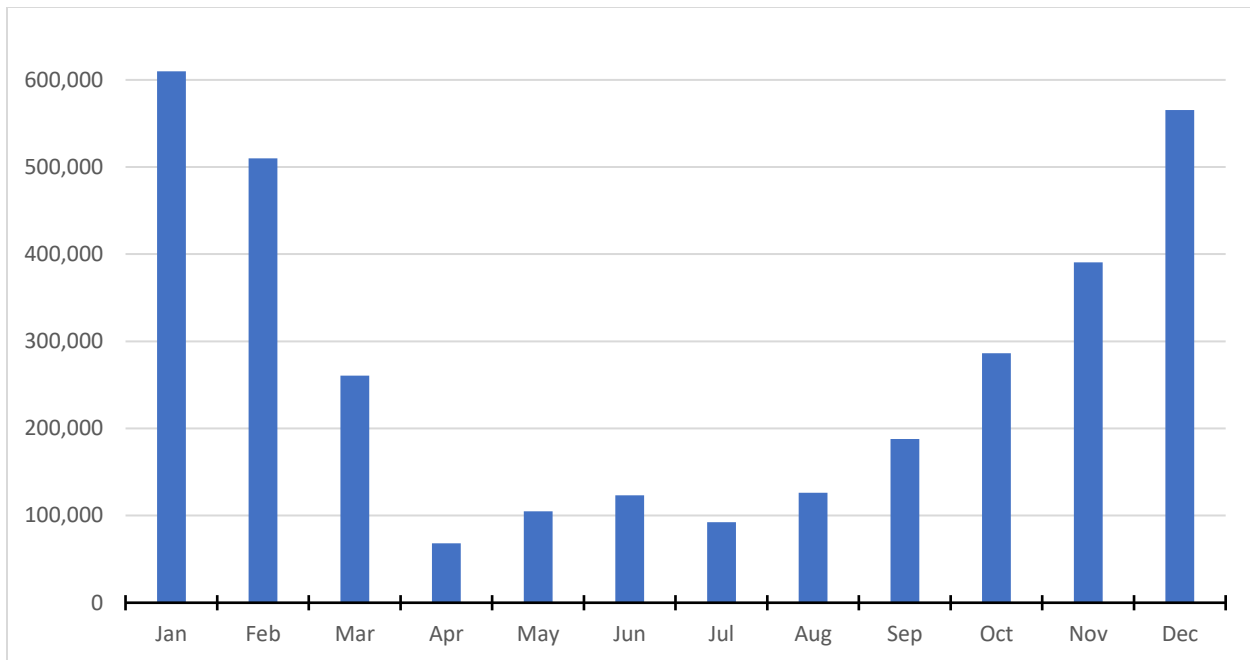
Source: ALS



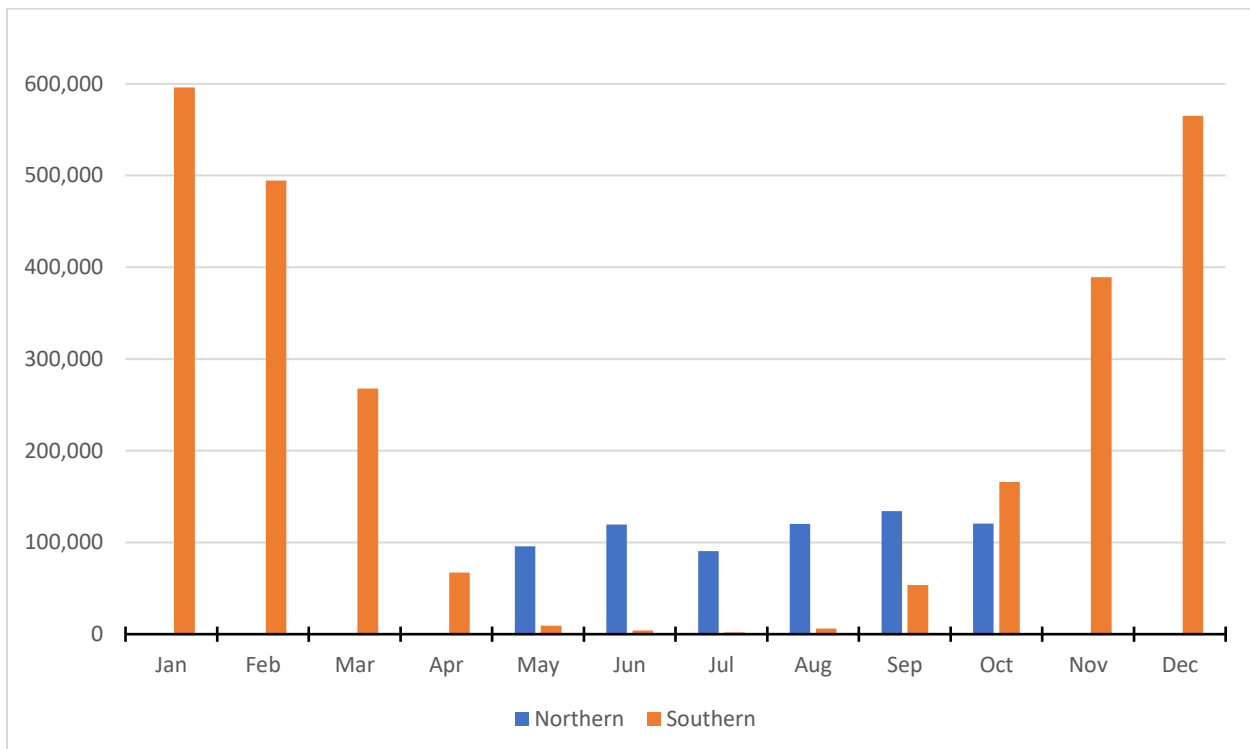
**Figure 2.** Commercial landings (pounds) of Atlantic migratory group Spanish mackerel from 2000 through 2016 (blue line) and quota/commercial ACL (orange line). From 2000-2004 the fishing year started on April 1<sup>st</sup>. In subsequent years, the fishing year started on March 1<sup>st</sup>.  
Source: ALS

Atlantic Spanish mackerel commercial landings since 2000 have ranged from a low of 2,551,932 pounds in 2000 to a high of 4,560,542 pounds in 2010 (**Table 1**). The majority of Atlantic Spanish mackerel landed commercially in the Northern Zone are landed in the North Carolina. Southern Zone commercial landings are primarily from Florida. Over the time period examined, landings have generally fluctuated. After peaking in 2010, commercial landings of Atlantic Spanish mackerel decreased until 2015. Generally, landings over the time period have averaged around 3.3 million pounds (**Figures 1 & 2**).

**Figures 3** and **4** show the seasonality and distribution of commercial landings, respectively. **Figure 3** displays the average monthly commercial landings of Atlantic Spanish mackerel from 2000 through 2016. **Figure 4** displays the same information by zone. The commercial fishery for Atlantic Spanish mackerel occurs mainly during the winter in the Southern Zone. In the Northern Zone, the commercial fishery occurs mainly in the summer. Commercial landings of Atlantic Spanish mackerel peak annually during the month of January in the Southern Zone and during the month of September in the Northern Zone (**Figure 4**). **Figure 4** shows that Atlantic Spanish mackerel are primarily harvested in the Southern Zone.



**Figure 3.** Average monthly commercial landings (pounds) of Atlantic migratory group Spanish mackerel, 2000-2016.  
Source: ALS



**Figure 4.** Average monthly commercial landings (pounds) of Atlantic migratory group Spanish mackerel by zone from 2000 through 2016.  
Source: ALS

## Recreational Sectors

Recreational landings of Atlantic migratory group Spanish mackerel in pounds whole weight from 2000 through 2016 by zone are presented in **Table 2**. Landings by zone are presented graphically in **Figure 5**. Recreational landings of Atlantic Spanish mackerel have ranged from a low of 857,098 pounds whole weight in 2015 to a high of 2,014,442 pounds in 2000 (**Table 2**). In terms of geographical distribution, like commercial landings, recreational landings of Atlantic Spanish mackerel can be attributed to mainly to North Carolina in the Northern Zone and Florida in the Southern Zone. During the time period examined, Atlantic Spanish mackerel recreational landings peaked in the Northern Zone in 2009 and in the Southern Zone in 2000.

(**Figure 5**). Total landings by year are shown in **Figure 6**. The recreational ACL for Atlantic Spanish mackerel was specified in 2012 and revised in CMP Framework Amendment 1 based on the results from SEDAR 28 (2012). Recreational landings of Atlantic Spanish mackerel have not exceeded the recreational ACL since it was established in 2012.

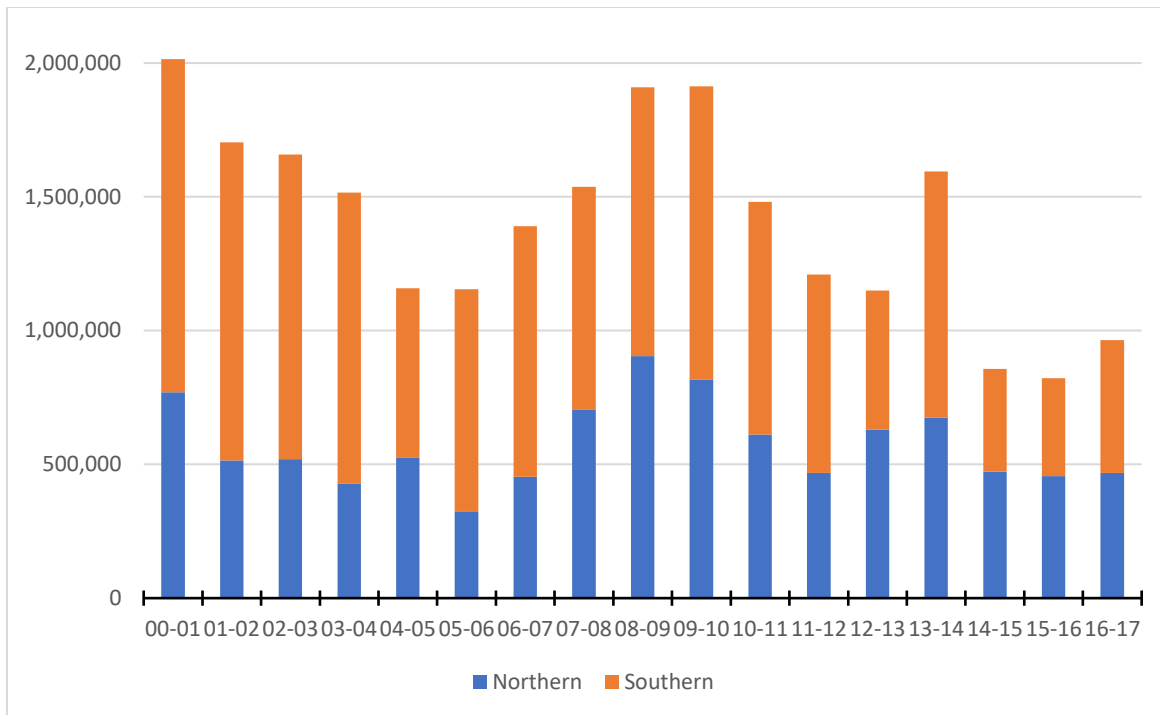
**Table 2.** Atlantic migratory group Spanish mackerel total recreational landings (pounds whole weight) and recreational ACL (where applicable) from 2000 through 2016, by zone. From 2000-2004 the fishing year started on April 1<sup>st</sup>. In subsequent years, the fishing year started on March 1<sup>st</sup>.

Year	Fishing Year	Northern Zone	Southern Zone	Total	Recreational ACL
2000	2000-2001	769,444	1,244,998	2,014,442	
2001	2001-2002	514,972	1,189,090	1,704,062	
2002	2002-2003	519,328	1,139,406	1,658,735	
2003	2003-2004	428,718	1,086,739	1,515,458	
2004	2004-2005	524,006	633,792	1,157,798	
2005	2005-2006	325,071	830,020	1,155,090	
2006	2006-2007	453,937	936,097	1,390,033	
2007	2007-2008	703,802	833,398	1,537,200	
2008	2008-2009	904,626	1,005,373	1,909,999	
2009	2009-2010	816,978	1,095,918	1,912,896	
2010	2010-2011	611,204	870,029	1,481,233	
2011	2011-2012	468,388	741,479	1,209,867	
2012	2012-2013	629,732	519,743	1,149,475	2,560,000
2013	2013-2014	674,871	920,040	1,594,911	2,560,000
2014	2014-2015	472,333	384,764	857,098	2,727,000
2015	2015-2016	456,027	365,802	821,829	2,727,000
2016 <sup>1</sup>	2016-2017	468,113	495,821	963,934	2,727,000

Source: SEFSC

<sup>1</sup>The data for Wave 1 of fishing year 2016/2017 (January/February) are from MRIP. They do not include headboat data and they do not use the SEFSC's weight conversion methodology, which differs from the MRIP methodology for converting numbers to weight.

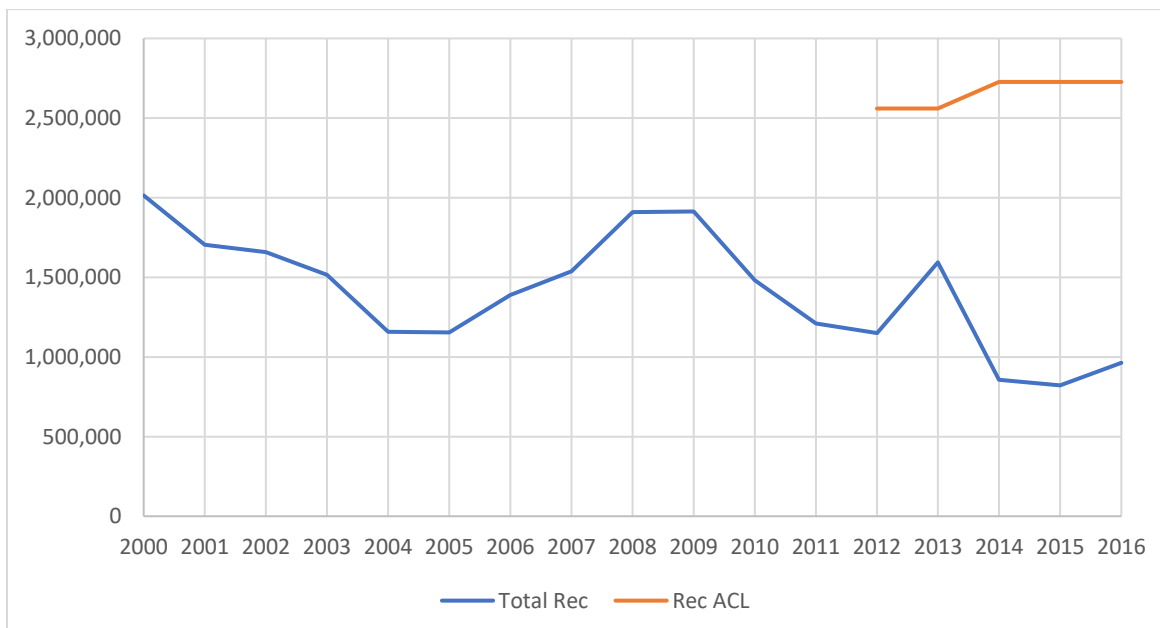




**Figure 5.** Recreational landings (pounds whole weight) of Atlantic migratory group Spanish mackerel by zone from 2000 through 2016. From 2000-2004 the fishing year started on April 1<sup>st</sup>. In subsequent years, the fishing year started on March 1<sup>st</sup>.

Source: SEFSC

Note: The data for Wave 1 of fishing year 2016/2017 (January/February) are from MRIP.

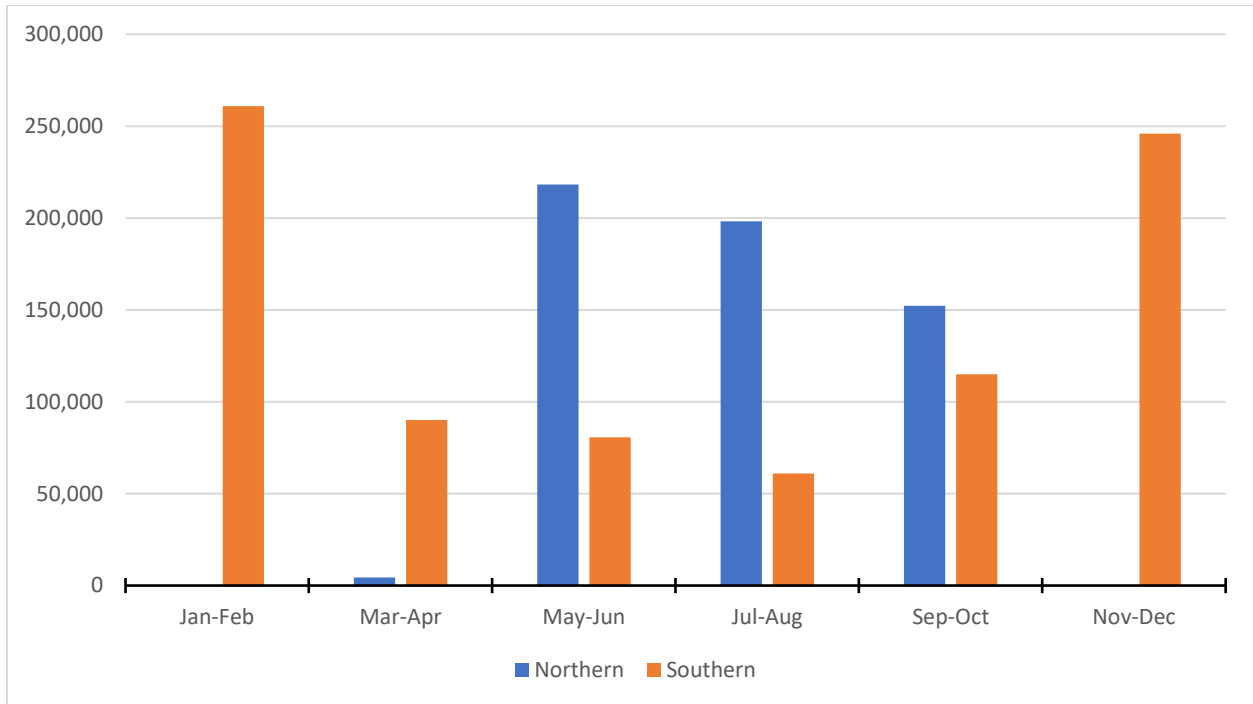


**Figure 6.** Total recreational landings (pounds whole weight) of Atlantic migratory group Spanish mackerel from 2000 through 2016 (blue line). Recreational ACL (red line) is shown since 2012, when first implemented. From 2000- 2004 the fishing year started on April 1<sup>st</sup>. In subsequent years, the fishing year started on March 1<sup>st</sup>.

Source: SEFSC

Note: The data for Wave 1 of fishing year 2016/2017 (January/February) are from MRIP.

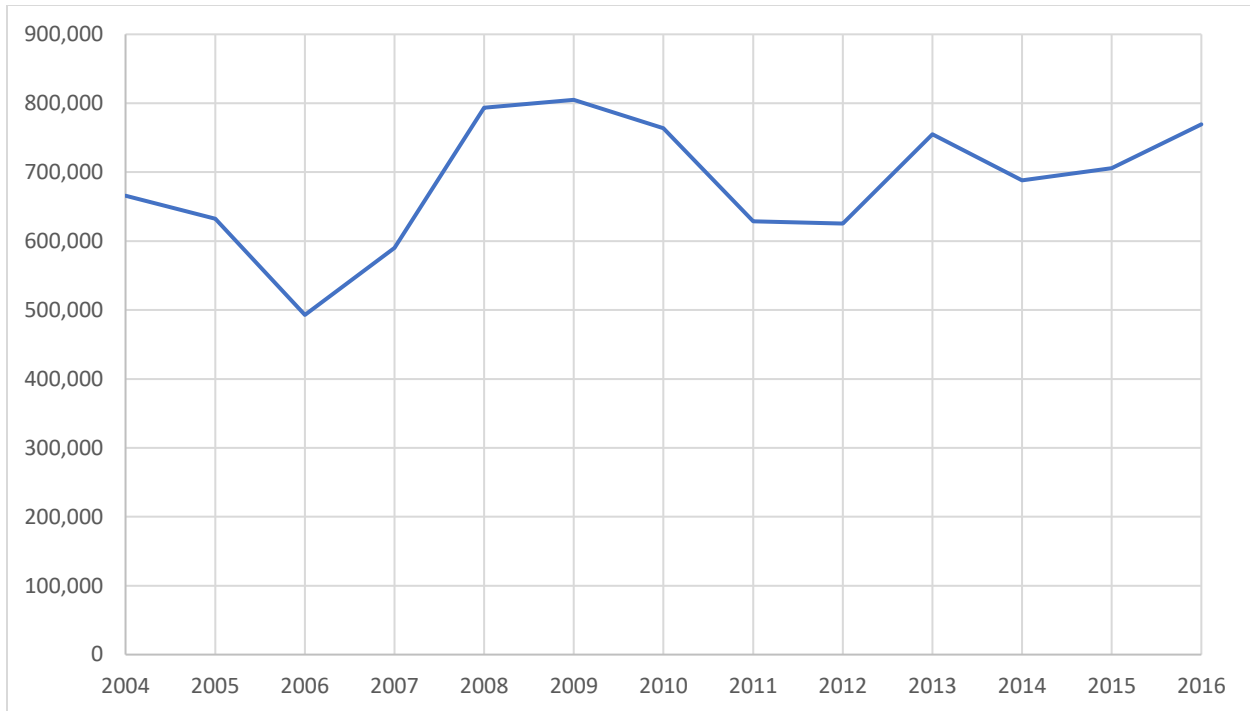
Average recreational landings of Atlantic Spanish mackerel by zone and by 2-month wave (as reported through the MRIP) are shown in **Figure 7**. As expected, the majority of Atlantic Spanish mackerel landings in the Southern Zone occur in Wave 1 (January-February) and Wave 6 (November-December). Majority of Atlantic Spanish mackerel landings in the Northern Zone occur during Wave 3 (May-June) (**Figure 7**). Directed (target or harvest) Atlantic Spanish mackerel recreational trips are summarized in **Figure 8**. The number of directed trips for Atlantic Spanish mackerel an increasing trend from 2007 to 2009, then again from 2012 to 2016 (**Figure 8**).



**Figure 7.** Average recreational landings of Atlantic migratory group Spanish mackerel by wave and by zone from 2000 through 2016.

Source: SEFSC

Note: The data for Wave 1 of fishing year 2016/2017 (January/February) are from MRIP.



**Figure 8.** Directed Atlantic migratory group Spanish mackerel recreational trips (targeted or harvest) from 2000 through 2016. From 2000-2004 the fishing year started on April 1<sup>st</sup>. In subsequent years, the fishing year started on March 1<sup>st</sup>.

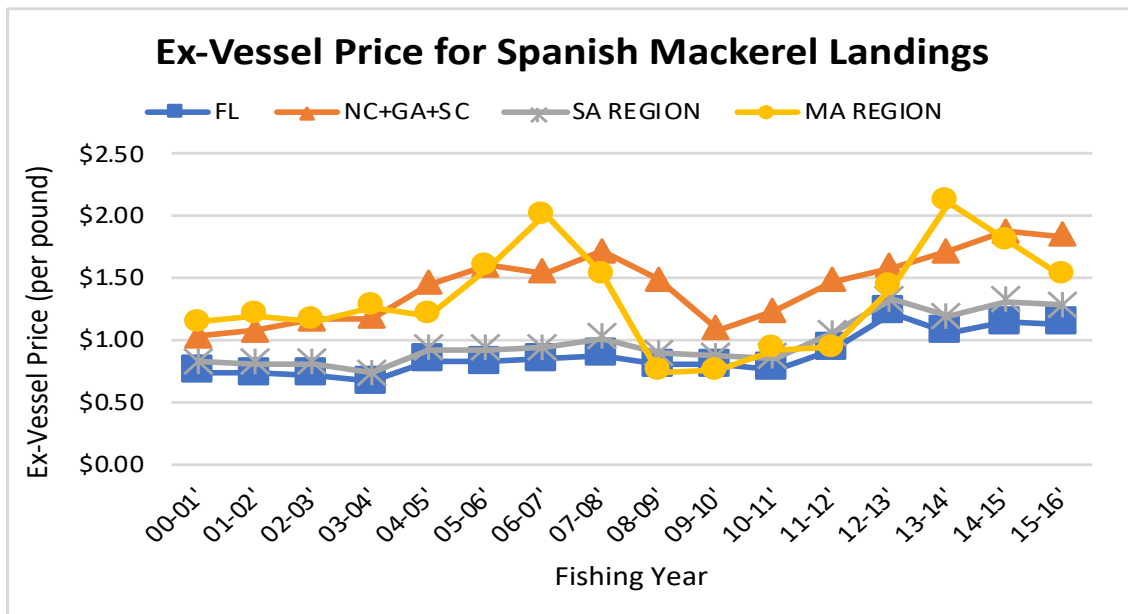
Source: SEFSC

Note: The data for Wave 1 of fishing year 2016/2017 (January/February) are from MRIP.

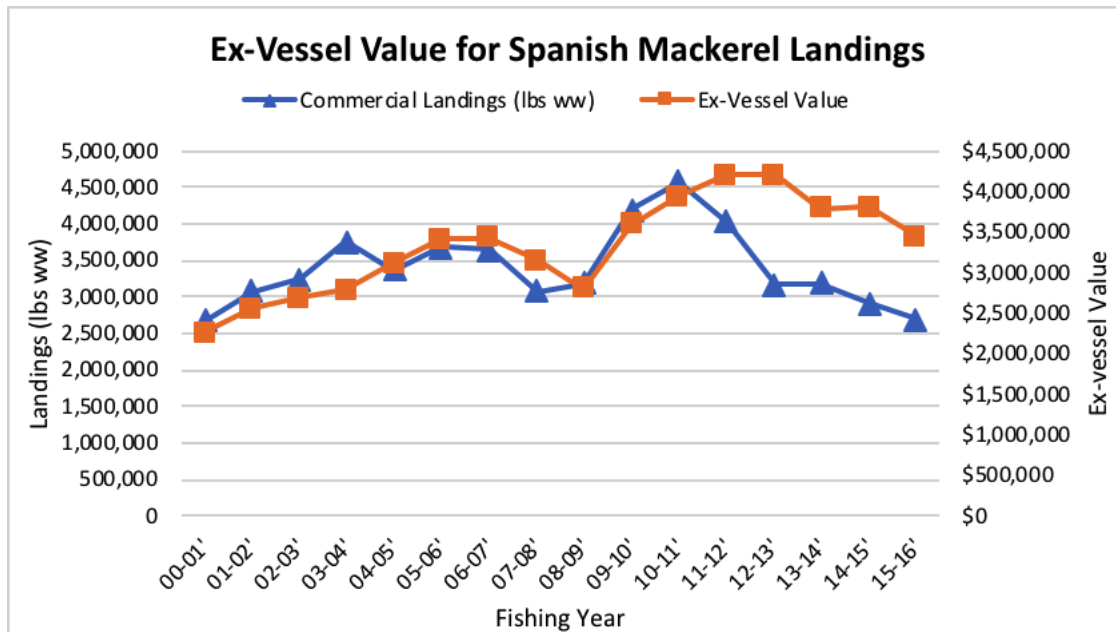
## Economic Performance

Metrics that are often readily available to evaluate economic trends for the commercial sector on a species by species basis (such as price per pound or ex-vessel value) are not available for the recreational sector. Nevertheless, trends in harvest and effort are often linked to economic trends in a recreational fishery, with harvest often being associated with economic value and effort (the number of fishing trips) being associated with both value and economic impacts (i.e. jobs, income, business sales). As such, trends in harvest and effort can be used to broadly evaluate likely trends in the economic performance of a recreational fishery. Examining recreational effort (**Figure 8**) from 2004/05 through 2015/16, the economic performance of the recreational Spanish mackerel fishery has been upward, hitting its peak in 2009/10 and remaining relatively high. When examining recreational harvest over the same time period (**Figure 6**), the opposite trend is apparent, with harvest peaking in 2008/09 and generally decreasing through 2015/16. Since economic impacts are often associated with fishing effort and economic value is often linked to harvest, it is possible that the recreational Spanish mackerel fishery has exhibited an increasing trend in economic impacts and a decreasing trend in economic value. Regardless, out of the approximate 60 species of finfish that the South Atlantic Fishery Management Council manages, Spanish mackerel accounted for the most directed (harvest or target) trips and fifth highest recreational landings in 2016, signaling that the species is among the most economically important species for the recreational sector.

Changing focus to the commercial sector, **Figure 9** shows the average inflation adjusted price per pound for Spanish mackerel regionally and state by state (in 2016 dollars) from 2000/01 through 2015/16. Total ex-vessel value for Spanish mackerel in the South Atlantic and Mid-Atlantic Region is presented in **Figure 10** in inflation adjusted figures (2016 dollars). For the South Atlantic Region, the ex-vessel price per pound for Spanish mackerel was fairly flat until the 2010/11 fishing year, after which prices tended to increase and remain higher. The overall ex-vessel value peaked in 2012/13 at approximately \$4.2 million (2016 dollars), with the ex-vessel value decreasing to \$3.8 million in 2015/16 (2016 dollars). In relation to the approximate 60 species of finfish that the South Atlantic Fishery Management Council manages, Spanish mackerel accounted for the third highest ex-vessel value of any species in 2016, indicating that the species is of great economic importance to the commercial sector.



**Figure 9.** Average annual ex-vessel price per pound (2016 dollars) by state for commercial Atlantic migratory group Spanish mackerel landings in the South Atlantic and Mid-Atlantic Regions from fishing year 2000-2001 through 2015-2016. Data for Georgia and South Carolina were aggregated with that for North Carolina due to confidentiality concerns. Inflation adjustments use the U.S. GDP deflator. Sources: U.S. Bureau of Economic Analysis and ACCSP.



**Figure 10.** Weight and inflation adjusted (2016 dollars) ex-vessel value of commercial Spanish mackerel landings in the South Atlantic and Mid-Atlantic Regions from fishing year 2000-2001 through 2015-2016. Inflation adjustments use the U.S. GDP deflator. Sources: U.S. Bureau of Economic Analysis and ACCSP.

## References

- Collette, B.B. and J.L. Russo. 1979. An introduction to the Spanish mackerels, genus *Scomberomorus*. p. 3-16. In E.L. Nakumua and H.R. Bullis (eds.) Proceedings of the Mackerel Colloquium. Gulf States Marine Fisheries Commission No. 4.
- Powell, D. 1975. Age, growth, and reproduction in Florida stocks of Spanish mackerel, *Scomberomorus maculatus*. Florida Department of Natural Resources. Florida Marine Resources Publication No. 5.
- SEDAR 28. 2012. Southeast Data, Assessment, and Review Stock Assessment of South Atlantic Spanish Mackerel and Cobia. Available at: [http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=28](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=28)