Mackerel Cobia Advisory Panel
King Mackerel Fishery Performance Report
April 2018

At their April 2018 meeting, the South Atlantic Fishery Management Council's (Council) Mackerel Cobia Advisory Panel (MC AP) and Cobia Sub-Panel (Sub-Panel) reviewed fishery information for Atlantic migratory group king mackerel (Atlantic king mackerel) and developed this fishery performance report (FPR). The purpose of the FPR is to assemble information from AP members' experience and observations on the water and in the marketplace to complement scientific and landings data. The FPR for Atlantic king mackerel will be provided to the Scientific and Statistical Committee (SSC) and the Socio-Economic Panel (SEP) to complement material being used in stock assessments and to inform future management.

Advisory Panel Members:

Ira Laks (Chairman; Charter/FL)
Stephen Swann (Vice-Chairman; Recreational/FL)
Stephen Donalson (Recreational/FL)
Steve English (Commercial/FL)
Skip Feller (Mid-Atlantic Liaison/VA)
Ryan Howard (Charter/GA)
Bill Kelly (Commercial/FL)
Keith Bowen (Commercial/FL)
Robert Olsen (Recreational/SC)
Greg Peralta (Recreational/SC)
Gary Robinson (Commercial/FL)
Tom Roller (Charter/NC)
Randy McKinley (Commercial/NC)
Chris Elkins (NGO/NC)

Sub-Panel Members:

Wes Blow (Recreational/VA)
Collins Doughtie (Recreational/SC)
Bill Gorham (Recreational/NC)
Bill Weeks (Recreational/GA)
Patrick Link (Recreational/VA)

Fishery Overview:

Summary information on the Atlantic king mackerel fishery is presented in a Fishery Information Document (**Appendix A**) intended to provide an overview of several aspects of the fishery including life history of the species, stock status, management overview, and trends in landings and fishery economics for both the commercial and recreational (for-hire and private) sectors. The information was provided as background to elicit the discussion presented in this Fishery Performance Report. The Fishery Information Document presents data from 2000 through 2016.

Quotations from the discussion of this Fishery Performance Report are included throughout the document in italics. The full meeting minutes from the discussion can be found in **Appendix B** and should be referred to for additional detail on the information summarized below.

Observations on Stock Abundance:

North Carolina
In northeastern North Carolina, fishermen haven't seen an abundance of king mackerel since

approximately 2010. However, over the last three years small juvenile king mackerel have been showing up inshore. The summer king mackerel fishery has been improving and the fall fishery is beginning to catch larger king mackerel. In 2017, fish of all size classes were seen coming off the docks.

In southeastern North Carolina king mackerel are no longer found along the beaches. However, in the winter king mackerel can easily be caught offshore near Frying Pan Tower. In previous years January, February and March were the best months to target king mackerel; however, seasonality of the fishery has changed, with April now seeing the highest landings.

In recent years, charter fishermen throughout North Carolina have regularly encountered juvenile king mackerel mixed in with Spanish mackerel.

South Carolina and Georgia
Fishermen in South Carolina indicated that, since 2010, king mackerel appear to be migrating to certain spots offshore as opposed to remaining inshore. These fish are harder to target than fish found in the inlets which has resulted in lower landings. However, in 2017, a fisherman saw a large population of small king mackerel off Charleston from approximately mid-June through September.

Florida
In Florida, fishermen indicate that the abundance of king mackerel has increased in recent years, particularly off the beaches and in areas where king mackerel haven't been seen in the last five years. Additionally, each year fishermen have seen more small fish enter the fishery. This contrasts with six years ago when no small fish were present in the fishery. Fishermen noted that this kind of cycle was common for king mackerel.

In northeastern Florida, sharks are a big problem during the spring run of king mackerel and this might contribute to lower landings.

Observations on Fish Size:

Florida
In northeastern Florida, king mackerel have appeared smaller throughout the last few years. However, the first few months of the winter commercial fishery, fishermen typically see larger fish. Larger king mackerel can also be caught from the Cape using live bait, however they have become harder to catch due to interaction with sandbar sharks.

Observations on Effort Shifts:

North Carolina
In southeastern North Carolina, commercial effort for king mackerel often follows the commercial effort for snapper grouper species as well as the market price.

South Carolina and Georgia
Charter captains in Georgia will rarely target king mackerel alone, instead they combine a king mackerel trip with one targeting snapper grouper species. In recent years, a decline in available

bait has discouraged charter fishermen from making these offshore trips.

Florida
During the winter (December through March) commercial effort shifts from northeastern Florida to southwestern Florida. This shift in effort is the result of higher trip limits in southwestern Florida. Commercial fishermen will be able to land more fish at the same price they would receive in northeastern Florida. Additionally, the winds in northeastern Florida make it challenging to get out on the water. For fishermen that are operating in the Jupiter, Florida area, it takes the same amount of time to reach the Gulf or the Cape and with the higher trip limit, it makes more sense for them to head to the Gulf.

In the summer months the trolling fleet that operates out of Jupiter, Florida will move to the Gulf of Mexico and fish off the Florida panhandle throughout the fall months.

In South Florida, the key driver of commercial effort is the abundance of king mackerel. In years of high availability, fishermen are quick to jump into the commercial fishery.

The number of king mackerel tournaments in Florida is starting to increase. There is a lot of money invested into the vessels that compete in those tournaments and they represent a significant amount of effort in the fishery.

Observations on Recruitment and Spawning:

South Carolina and Georgia
In the past few years fishermen report seeing more 20-inch to 24-inch king mackerel along beaches in South Carolina and Georgia.

Florida
Recruitment along the coast of Florida has improved over the last three to four years, and fishermen targeting Spanish mackerel using gillnets along the Cape will regularly catch juvenile king mackerel. Fish in spawning condition are now seen throughout March, which is earlier than usual.

Observations on Price and Demand:

North Carolina
In southeastern North Carolina, it can be challenging to get a decent price for king mackerel throughout the winter. Prices for black sea bass, triggerfish, and vermillion snapper are often better than those for king mackerel. April is when prices for king mackerel are the highest, and those fish are shipped up to Canada. Over the past few years demand from the northern markets has increased and the price stayed around $2.50-pound.

Charter trips in North Carolina rarely target king mackerel alone, but if they are available to catch in addition to other species, more charter trips will be booked.

South Carolina and Georgia
King mackerel is rarely seen at fish markets in South Carolina.

Florida

King mackerel caught in Florida are typically sold to the Caribbean or to northern markets, such as Boston, New York and Canada. Demand for king mackerel often spikes during Lent, and fish will be sent to markets along the northeastern corridor to locations with large Catholic populations. Additionally, king mackerel are sold to institutions with cafeterias.

Timing for the Gulf and Atlantic king mackerel fisheries plays a significant role in the market price available in Florida. When the king mackerel fisheries on the east coast and west coast of Florida overlap, the average market price is much lower.

In northeastern Florida there has been an increase in trolling effort in the spring king mackerel fishery because sharks are less likely to interfere with fishing activity.

Demand for charter/headboat trips is tied to the economy. The 2008 recession and recent increases in fuel prices have had a negative effect on demand for recreational trips. It is not affordable to go offshore and target king mackerel. Additionally, fewer individuals are purchasing vessels and tournaments are seeing a decline in participating. This trend has been improving in recent years.

Observations on Community Dependence:

North Carolina

In North Carolina the number of fish houses has decreased in recent years and many have been replaced by other development. As a result, it has becoming challenging to find somewhere to sell your catch or tie up your vessel.

In northeastern North Carolina, inlets are not always well maintained, and this has made it challenging for commercial and recreational fishermen to participate in the king mackerel fishery, as well as other offshore fisheries.

Florida

Many small communities in Florida, and throughout the South Atlantic, are struggling to maintain generational commercial fishermen. In Florida, there are several small communities found within larger communities that are very dependent on the king mackerel fishery. Fishermen often participate in multiple fisheries throughout the year to bring in a livable income. A single community may not be reliant on one species alone, but if a single species is removed it gets harder for fishermen make ends meet. This is especially true for king mackerel in Florida, which is important to different communities during various times of the year.

In northeastern Florida, king mackerel is a critical component of the recreational fishery, especially in the summer months. There are several tournaments that occur in the area, as well as businesses that were built around providing for the king mackerel fishery (for example, lure manufacturers).

Throughout the state of Florida, it has become a challenge to find somewhere to tie up your vessel and sell your catch. Often you must travel to multiple places to transfer your fish or get

ice. This lack of infrastructure has a substantial impact on fishing communities, by adding additional travel time and cost to their trips.

As a result of these changes in infrastructure, the commercial king mackerel fishery in Florida in now a primarily a trailer boat fishery. Smaller trailer boats are ideal because finding a place to dock is not as much of an issue and the fishermen can be mobile based on where king mackerel fishing is best at the time.

Observations on Management Measures:

MC AP members generally agreed that the 24-inch minimum size for king mackerel was appropriate. It was noted that fishermen rely on the scientific community to determine what size regulations are necessary to preserve the king mackerel stock and spawning fish.

MC AP members were comfortable with the current annual catch limit (ACL) split between the recreational and commercial sectors, which is 62.9% and 37.1%, respectively. Neither sector has come close the reaching their ACL in recent years and MC AP members felt there were plenty of fish to go around. Additionally, MC AP members were comfortable with the commercial ACL split between the Atlantic Northern Zone and the Atlantic Southern Zone, which is currently, 23.4% and 76.96%, respectively.

Currently, there is a split season for the commercial king mackerel fishery in the Atlantic Southern Zone. Season 1 is allocated 60% of the commercial southern zone quota and Season 2 is allocated 40% of the quota. MC AP members felt that Season 1 should be allocated 70% of the quota. A higher percentage in Season 1 would prevent the fishery from being shut down if landings were high during March and April.

Several MC AP members were in favor of suggesting that the South Atlantic Council consider limited entry in the for-hire fleet. It was thought that a limited entry system would be more appropriate given the for-hire reporting requirements that are going to be implemented. Limited-entry would also improve enforcement, reduce the number of boats that operate without federal for-hire permits, and professionalize the fleet. This is especially relevant in Florida where dockside enforcement can be challenging. Other MC AP members were concerned about how a limited-entry system would affect new participants looking to get into the for-hire fishery.

MC AP members also suggested that current trip limits in the Atlantic Southern Zone be switched to pounds as opposed to the number of fish. A trip limit in the range of 500-pounds to 600-pounds was suggested. The suggested trip limit would be helpful during the winter months when commercial fishermen are only able to make a few trips because of the weather. Some MC AP members expressed concern about the size of the fish that would be harvested and wanted to make sure changes wouldn't result in too many small king mackerel being harvested.

Environmental Observations:

<u>Florida</u>
In the summer months, if the thermoclines remain in northeastern Florida, fewer fish will be available. Additionally, in years where there is a significant amount of upwelling along the

Florida coast, king mackerel can be challenging to catch because they seek out warmer water. This was especially evident in 2010, when upwelling was occurring commercial fishermen could go out of three days and only catch 20 to 30 king mackerel.

Beach renourishment projects have a negative impact on baitfish, which drives king mackerel away from the beach. Additionally, the sand for renourishment is often gathered from offshore shoals where baitfish would congregate at night.

MC AP members from all states expressed concern about water quality. When water quality along the coast is poor, king mackerel, as well as baitfish, move farther offshore. This has the potential to change commercial and recreational fishing dynamics. As coastal populations increase, water quality issues are likely to increase as well. Freshwater releases into the Saint Lucie River have had a negative effect on the presence of king mackerel. Over the last few years, releases have shut down king mackerel fishing for two weeks during September. Hurricanes can also result in a decrease in water quality and negatively affect the availability of king mackerel.

MC AP members expressed concerns about future dredging projects planned for Saint Augustine, Jacksonville, and the Savannah River. In addition to decreasing water quality, dredging projects can modify the shape of inlets and change the behavior of king mackerel and bait fish.

An increase in the population of sharks and goliath grouper has made it challenging to harvest king mackerel using live bait.

Appendix A. King Mackerel Informational Document

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General Biology

King mackerel (*Scomberomorus cavalla*) is a marine pelagic species that is found throughout the western Atlantic from the Gulf of Maine to Brazil, including the Gulf and Caribbean Sea, and from the shore to 200 m (656 ft) depths. The habitat of adults is the coastal waters out to the edge of the continental shelf. Within that area, the occurrence of king mackerel is governed by temperature and salinity. They are seldom found in water temperatures less than 20°C; salinity preference varies, but they generally prefer high salinity, but less than 36 parts per thousand (ppt).

Adults are migratory, and the Coastal Migratory Pelagics Fishery Management Plan recognizes two migratory groups (Gulf and Atlantic). Typically, adult king mackerel are found in the southern climates (south Florida and extreme south Texas/Mexico) in the winter and farther north in the summer; however, some king mackerel overwinter in deeper waters off the mouth of the Mississippi River, and off the coast of North Carolina. Food availability and water temperature are likely causes of these migratory patterns. King mackerel live up to 26 years for females and 23 years for males (Brooks and Ortiz 2004).

Adults are known to spawn in areas of low turbidity, with salinity and temperatures of approximately 30 ppt and 27°C, respectively. There are major spawning areas off Louisiana and Texas in the Gulf (McEachran and Finucane 1979); and off the Carolinas, Cape Canaveral, and Miami in the western Atlantic (Wollam 1970; Schekter 1971; Mayo 1973). Spawning occurs generally from May through October with peak spawning in September (McEachran and Finucane 1979). Eggs are believed to be released and fertilized continuously during these months. Fifty percent of females are sexually mature between 450 to 499 mm (17.7 to 19.6 inches standard length (SL) in length and most are mature by the time they are 800 mm (35.4 inches SL, or by about age 4. Fifty percent of males are sexually mature at age 3, at a length of 718 mm SL (28.3 inches). Females in U.S. waters, between the sizes of 446 – 1,489 mm SL (17.6 to 58.6 inches) are estimated to release 69,000 – 12,200,000 eggs throughout the spawning season.

Larvae of king mackerel have been found in waters with temperatures between 26 – 31° C (79 – 88° F). This larval developmental stage has a short duration. King mackerel can grow up to 0.54 – 1.33 mm SL (0.02 to 0.05 inches) per day. This shortened larval stage decreases the vulnerability of the larvae and is related to the increased metabolism of this fast-swimming species. Juveniles are generally found closer to shore than adults and occasionally in estuaries.

Stock Status (SEDAR 38)

Both the Gulf and Atlantic migratory groups of king mackerel were assessed by the Southeast Data, Assessment, and Review (SEDAR) process in SEDAR 38 (2014). The SEDAR 38

assessment determined the Gulf and Atlantic migratory groups of king mackerel were **not overfished and were not experiencing overfishing**. Recruitment has been lower in recent years for the Atlantic migratory group, which could be due to physical and/or biological oceanographic variables (e.g., changes in water temperature, timing of upwelling events, changes in current patterns [eddies, gyres, current proximity to shore]), anthropogenic influences, or some combination thereof. The acceptable biological catch (ABC) for the Atlantic migratory group set in Coastal Migratory Pelagics (CMP) Amendment 26 considered this recent potential decline in Atlantic migratory group recruitment. There is no evidence of a similar decline in recruitment for the Gulf migratory group.

Management Overview

Original FMP: Implemented in February 1983. The management unit includes king mackerel, Spanish mackerel, and cobia; treated king and Spanish mackerel as unit stocks in the Atlantic and Gulf.

Amendment 1: Implemented in September 1985. Recognized separate Atlantic and Gulf migratory groups of king mackerel, and established fishing permits and bag limits for king mackerel. Eliminated commercial allocations among gear users except purse seines, which were allowed 6% of the commercial allocation of TAC.

Amendment 2: Implemented in July 1987. Required charter boat permits. TAC for overfished stocks must be set below the upper range of acceptable biological catch (ABC). Prohibited using purse seines on overfished stocks.

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

Amendment 5: Implemented in August 1990. Extended the management area for Atlantic migratory groups of mackerels through the Mid-Atlantic Council's jurisdiction. Re-defined recreational bag limits as daily limits, and deleted a provision specifying that bag limit catch of mackerel may be sold. Established a minimum size of 12" FL or 14" TL for king mackerel.

Amendment 6: Implemented in November 1992. Provided for rebuilding overfished stocks of mackerels within specific periods and provided for biennial assessments and seasonal adjustments. Changed commercial permit requirements to allow qualification in one of three preceding years. Discontinued the reversion of the bag limit to zero when the recreational quota is filled. Modified the recreational fishing year to the calendar year, changed the minimum size limit for king mackerel to 20" FL, and changed all size limit measures to fork length only.

Amendment 7: Implemented in November 1994. Equally divided the Gulf commercial allocation in the Eastern Zone at the Dade-Monroe County line in Florida. The sub-allocation for the area from Monroe County through Western Florida is equally divided between commercial hook-and-line and net gear users.

Amendment 8: Implemented March 1998. Established a moratorium on commercial king mackerel permits until no later than October 15, 2000, with a qualification date for initial participation of October 16, 1995. 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. Legalized retention of up to five cut-off (damaged) king mackerel on vessels with commercial trip limits.

Amendment 9: Implemented in April 2000. Established a moratorium on the issuance of commercial king mackerel gillnet endorsements and allow re-issuance of gillnet endorsements to only those vessels that: 1) had a commercial mackerel permit with a gillnet endorsement on or before the moratorium control date and had landings of king mackerel using a gillnet in one of the two most recent fishing years. Allowed the retention and sale of 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 12: Implemented October 2000. Extended the commercial king mackerel permit moratorium to October 15, 2005, or until replaced with a license limitation, limited access, and/or individual fishing quota or individual transferable quota system, whichever occurs first.

Amendment 15: Implemented August 2005. Established an indefinite limited access program for the commercial king mackerel fishery in the EEZ under the jurisdiction of the Gulf, South Atlantic, and Mid-Atlantic Councils. Changed the fishing season to March 1st through February 28/29th for the Atlantic 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.

Amendment 26: Implemented in May 2017. Updated the Gulf and Atlantic king mackerel ACLs based on SEDAR 30. Modified the stock boundary between the Gulf and Atlantic migratory groups of king mackerel to be at the Dade/Monroe County Line in southeastern Florida, with the Gulf Council managing king mackerel to that line year-round. Allowed bag limit sales on Atlantic king mackerel in the small coastal shark gillnet fishery. Increased the recreational bag limit from 2-fish per person per day to 3-fish per person per day, other than off Florida. Revised the commercial trip limits for Atlantic king 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 king 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 Regional 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 king 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 to the Miami-Dade/Monroe County line.

Table 1. Atlantic migratory group king mackerel total commercial landings (pounds) and ACL from 2000 through 2016, by zone. From 2000 – 2004 the fishing year started on April 1st. In subsequent years, the fishing year started on March 1st.

Year	Fishing Year	Northern Zone	Southern Zone	Total	Commercial ACL
2000	2000-2001	938,450	1,134,405	2,072,855	3,710,000
2001	2001-2002	931,693	1,032,175	1,963,868	3,710,000
2002	2002-2003	776,905	920,437	1,697,342	3,710,000
2003	2003-2004	592,179	1,111,588	1,703,767	3,710,000
2004	2004-2005	1,130,669	1,654,559	2,785,228	3,710,000
2005	2005-2006	1,064,574	1,056,247	2,120,821	3,710,000
2006	2006-2007	1,203,579	1,728,423	2,932,002	3,710,000
2007	2007-2008	1,104,806	1,512,482	2,617,288	3,710,000
2008	2008-2009	953,502	2,131,515	3,085,017	3,710,000
2009	2009-2010	785,993	2,742,710	3,528,703	3,710,000
2010	2010-2011	294,231	3,015,315	3,309,546	3,710,000
2011	2011-2012	433,267	1,610,460	2,043,727	3,880,660
2012	2012-2013	310,039	1,027,161	1,337,200	3,880,660
2013	2013-2014	368,491	705,667	1,074,158	3,880,660
2014	2014-2015	486,952	836,421	1,323,373	3,880,660
2015	2015-2016	415,671	822,668	1,238,339	3,880,660
2016	2016-2017	425,806	951,710	1,377,517	6,500,000

Source: ALS

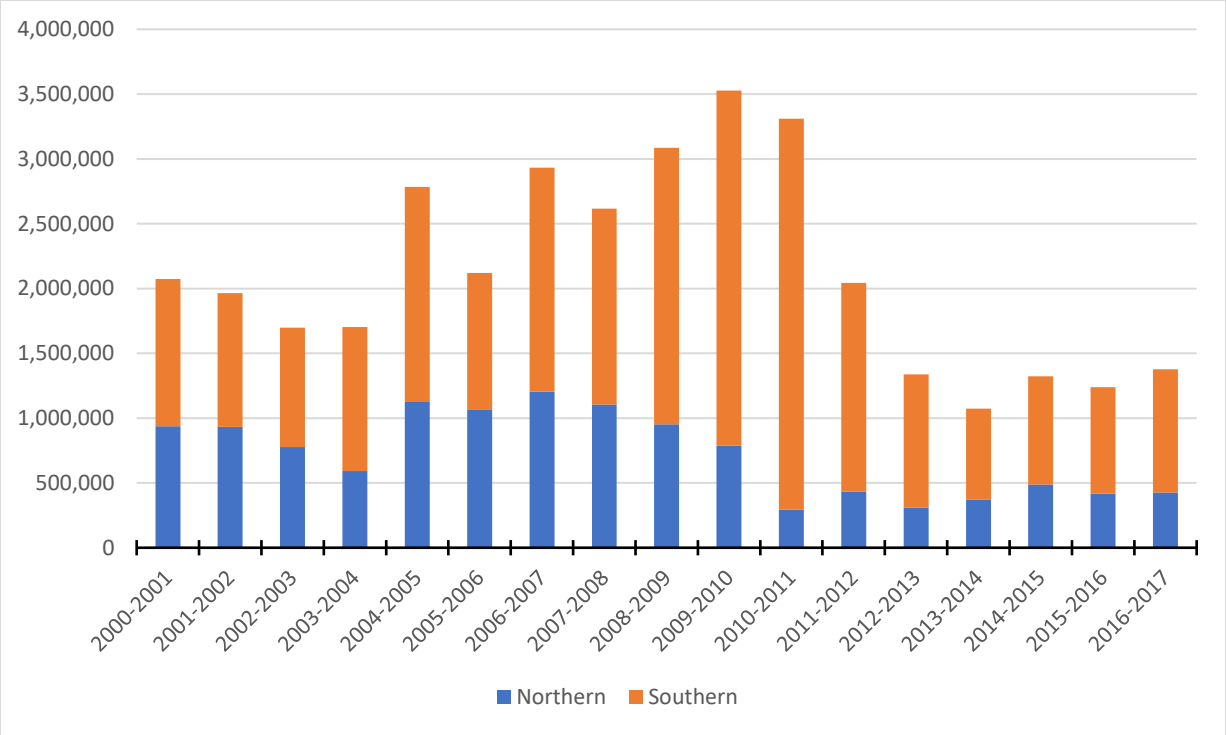

Figure 1. Commercial landings (pounds) of Atlantic migratory group king mackerel from 2000 through 2016, by zone. From 2000-2004 the fishing year started on April 1st. In subsequent years, the fishing year started on March 1st.
Source: ALS

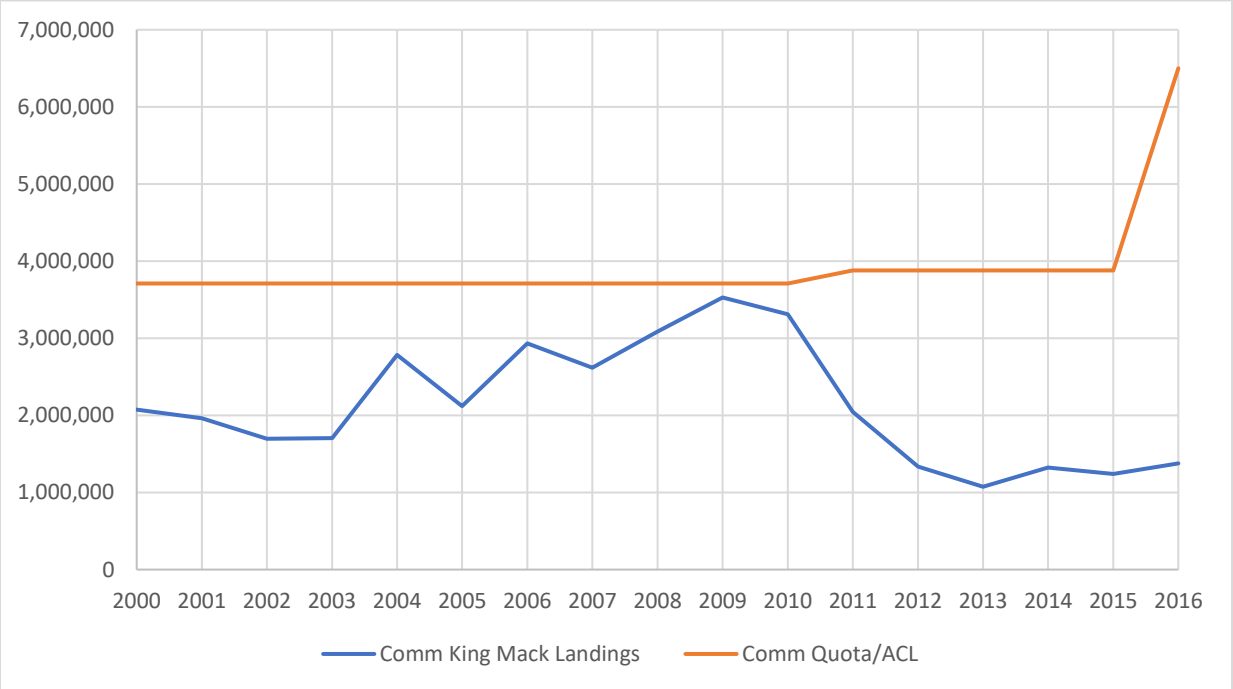

Figure 2. Commercial landings (pounds) of Atlantic migratory group king mackerel from 2000 through 2016 (blue line) and commercial ACL (orange line). From 2000-2004 the fishing year started on April 1st. In subsequent years, the fishing year started on March 1st.
Source: ALS

Atlantic king mackerel commercial landings since 2000 have ranged from a low of 1,074,158 pounds in 2013 to a high of 3,528,703 pounds in 2009 (**Table 1**). The majority of Atlantic king mackerel landed commercially in the Northern Zone are landed in North Carolina. Southern Zone commercial landings are primarily from Florida. Over the time period examined, landings have generally fluctuated. After peaking in 2009, commercial landings of Atlantic king mackerel decreased until 2014, when landings continued around 1.3 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 king mackerel from 2000 through 2016. **Figure 4** displays the same information by zone. The commercial fishery for Atlantic king mackerel occurs mainly during late-spring and summer in the Southern Zone. In the Northern Zone, the commercial fishery occurs mainly in the late-fall/early-winter. Commercial landings of Atlantic king mackerel peak annually during the month of May in the Southern Zone and during the month of November in the Northern Zone (**Figure 4**).

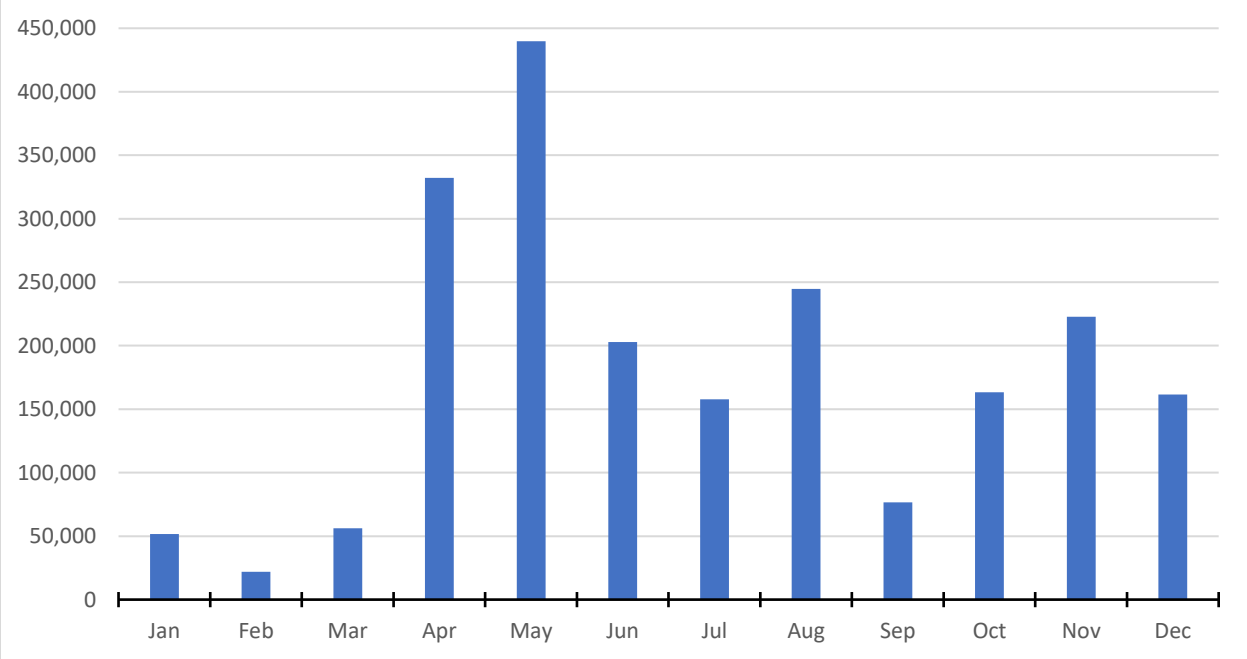

Figure 3. Average monthly commercial landings (pounds) of Atlantic migratory group king mackerel, 2000-2016.
Source: ALS

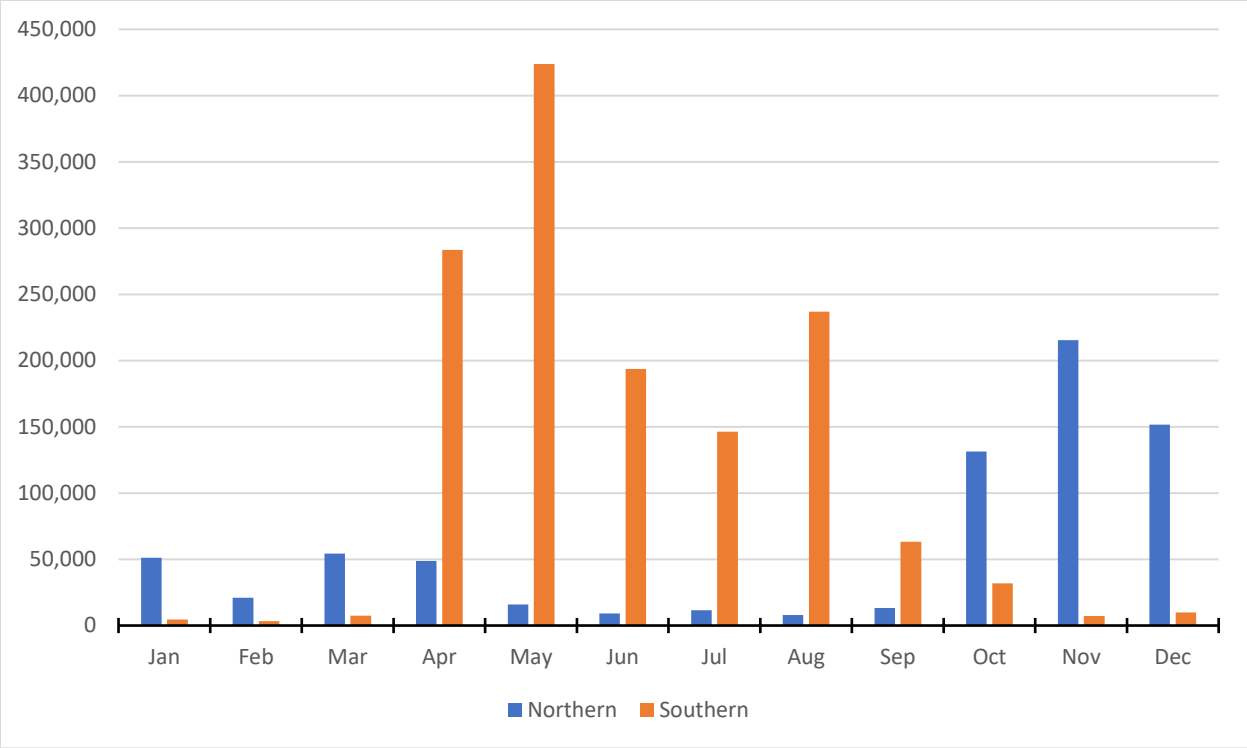

Figure 4. Average monthly commercial landings (pounds) of Atlantic migratory group king mackerel by zone from 2000 through 2016.
Source: ALS

Recreational Sectors

Recreational landings of Atlantic migratory group king 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 king mackerel have ranged from a low of 1,218,955 pounds whole weight in 2013 to a high of almost 7,032,662 pounds in 2007 (**Table 2**). In terms of geographical distribution, like commercial landings, recreational landings of Atlantic king 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 king mackerel recreational landings in peaked in the Northern Zone in 2001 and in the Southern Zone in 2007. (**Figure 5**). Total landings by year are shown in **Figure 6**. The recreational ACL for Atlantic king mackerel was specified in 2012 using the SEDAR 16 (2008) stock assessment and revised in Amendment 26 based on the results from SEDAR 38 (2014). Recreational landings of Atlantic king mackerel have not exceeded the recreational ACL since it was established in 2012.

Table 2. Atlantic migratory group king 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 1st. In subsequent years, the fishing year started on March 1st.

Year	Fishing Year	Northern Zone	Southern Zone	Total	Recreational ACL
2000	00-01	2,049,717	4,198,788	6,248,505	-
2001	01-02	2,372,855	2,698,190	5,071,045	-
2002	02-03	821,531	3,848,430	4,669,960	-
2003	03-04	994,765	3,911,701	4,906,467	-
2004	04-05	1,637,051	3,686,172	5,323,222	-
2005	05-06	1,215,454	2,359,139	3,574,593	-
2006	06-07	1,451,577	3,836,739	5,288,316	-
2007	07-08	2,289,456	4,743,206	7,032,662	-
2008	08-09	824,933	3,220,707	4,045,640	-
2009	09-10	959,103	3,142,072	4,101,175	-
2010	10-11	364,958	2,201,706	2,566,664	-
2011	11-12	172,644	1,602,456	1,775,100	-
2012	12-13	315,714	1,426,640	1,742,355	6,580,000
2013	13-14	301,687	917,268	1,218,955	6,580,000
2014	14-15	393,240	1,140,487	1,533,727	6,580,000
2015	15-16	375,754	992,801	1,368,554	6,580,000
2016[1]	16-17	483,952	1,611,636	2,095,588	6,580,000

Source: SEFSC

[1]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.

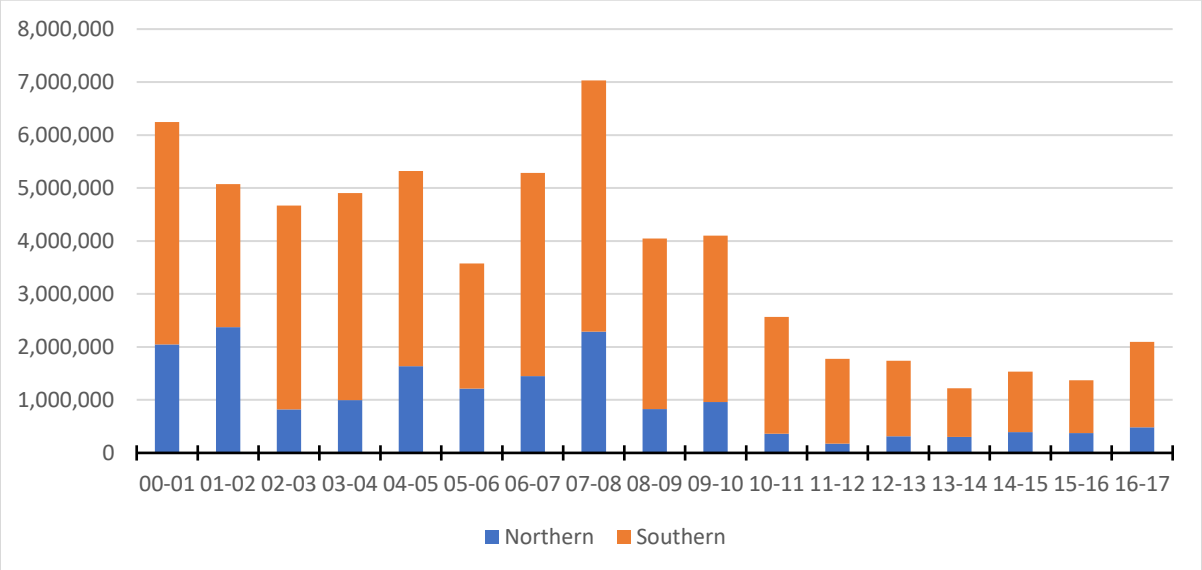

Figure 5. Recreational landings (pounds whole weight) of Atlantic migratory group king mackerel by zone from 2000 through 2016. From 2000-2004 the fishing year started on April 1st. In subsequent years, the fishing year started on March 1st.

Source: SEFSC

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

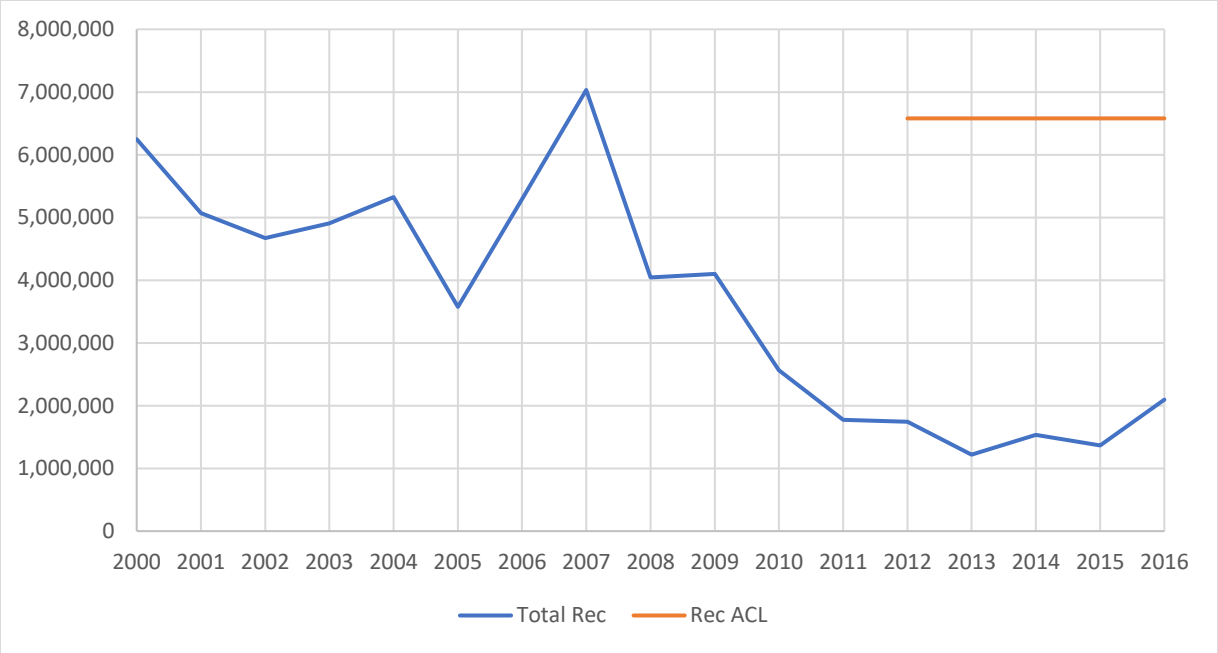

Figure 6. Total recreational landings (pounds whole weight) of Atlantic migratory group king mackerel from 2000 through 2016 (blue line). Recreational ACL (red line) is shown since 2012, when first implemented. From 2000- 2004 the fishing year started on April 1st. In subsequent years, the fishing year started on March 1st.
Source: SEFSC
Note: The data for Wave 1 of fishing year 2016/2017 (January/February) are from MRIP.

Average recreational landings of Atlantic king mackerel by zone and by 2-month wave (as reported through the MRIP) are shown in **Figure 7**. As expected, the majority of Atlantic king mackerel landings in the Southern Zone occur in Wave 3 (May-June) and Wave 4 (July-August). Majority of Atlantic king mackerel landings in the Northern Zone occur during Wave 5 (September-October) (**Figure 7**). Directed (target or harvest) Atlantic king mackerel recreational trips are summarized in **Figure 8**. The number of directed trips for Atlantic king mackerel show a decreasing trend from 2007 through 2011, followed by an increasing trend from 2012 through 2016. (**Figure 8**).

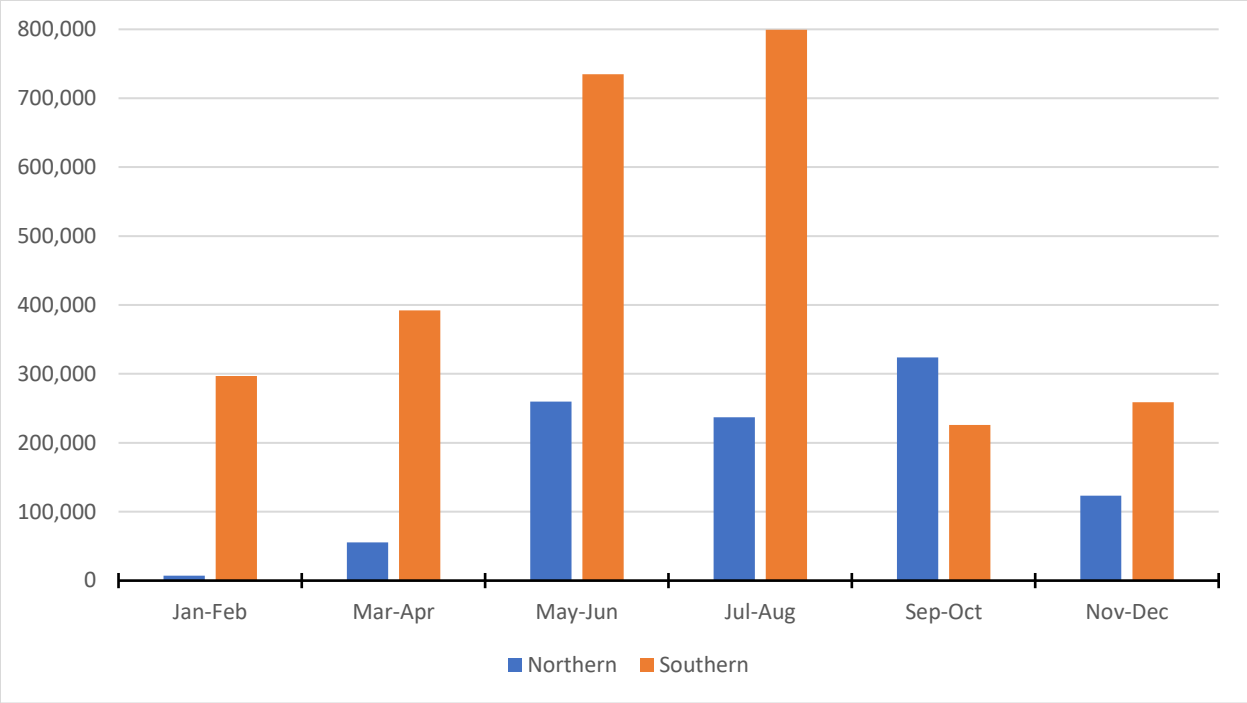

Figure 7. Average recreational landings of Atlantic migratory group king mackerel by wave and by zone from 2000 through 2016.
Source: SEFSC
Note: The data for Wave 1 of fishing year 2016/2017 (January/February) are from MRIP.

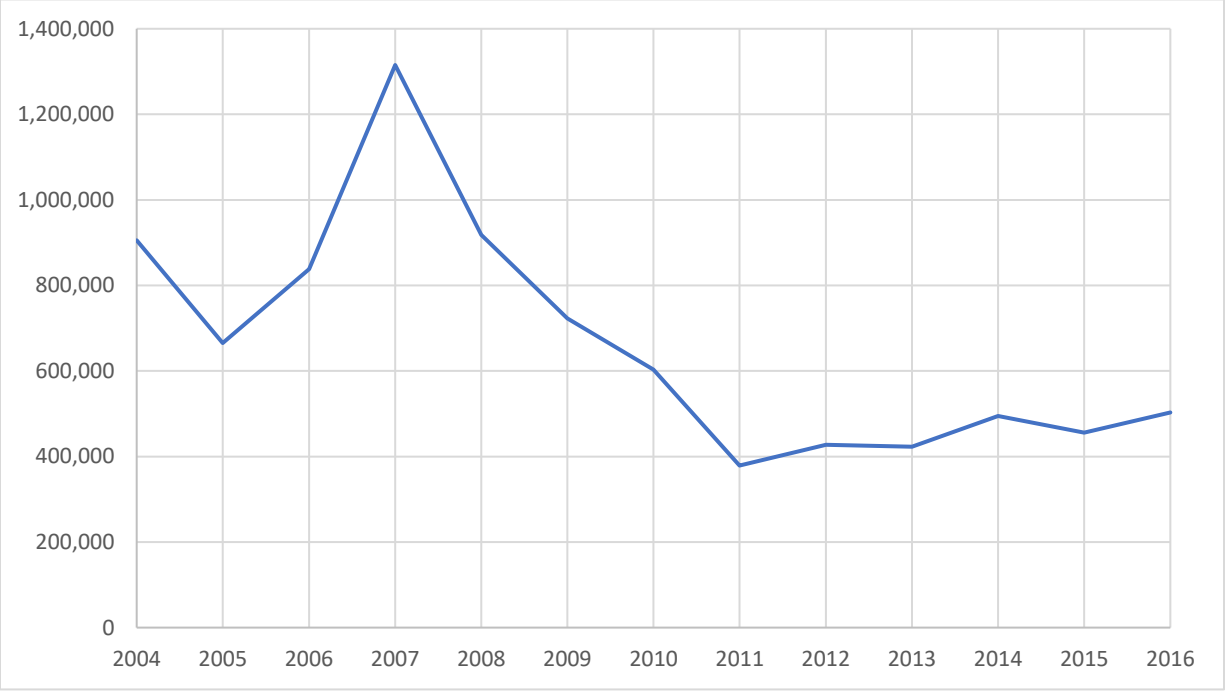

Figure 8. Directed Atlantic migratory group king mackerel recreational trips (targeted or harvest) from 2000 through 2016. From 2000-2004 the fishing year started on April 1st. In subsequent years, the fishing year started on March 1st.
Source: SEFSC
Note: The data for Wave 1 of fishing year 2016/2017 (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. Using the estimated recreational harvest (**Figure 6**) or effort (**Figure 8**) as a proxy for the economic performance of the fishery, the economic performance of the recreational king mackerel fishery has been downward, hitting its peak in 2007/08 and then tapering off. Since approximately 2012/13, recreational harvest and effort seem to have stabilized and have even shown an upward trend, with the economic value and impacts of the fishery likely reflecting the same pattern. Regardless, out of the approximate 60 species of finfish that the South Atlantic Fishery Management Council (SAFMC) manages, king mackerel accounted for the fifth most directed (harvest or target) trips and the third highest recreational landings in 2016. This indicates that king mackerel are 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 king mackerel regionally and state by state (in 2016 dollars) from 2000/01 through 2015/16. Total ex-vessel value for king mackerel in the South Atlantic and Mid-Atlantic Region is presented in **Figure 10** in inflation adjusted figures (2016 dollars). The ex-vessel price per pound for king 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 2010/11 at approximately $9 million (2016 dollars), with the ex-vessel value considerably lower at $6.1 million in 2015/16 (2016 dollars). In relation to the approximate 60 species of finfish that the South Atlantic Fishery Management Council manages, king mackerel accounted for the highest ex-vessel value of any species in 2016, signifying that king mackerel is of great economic importance to the commercial sector.

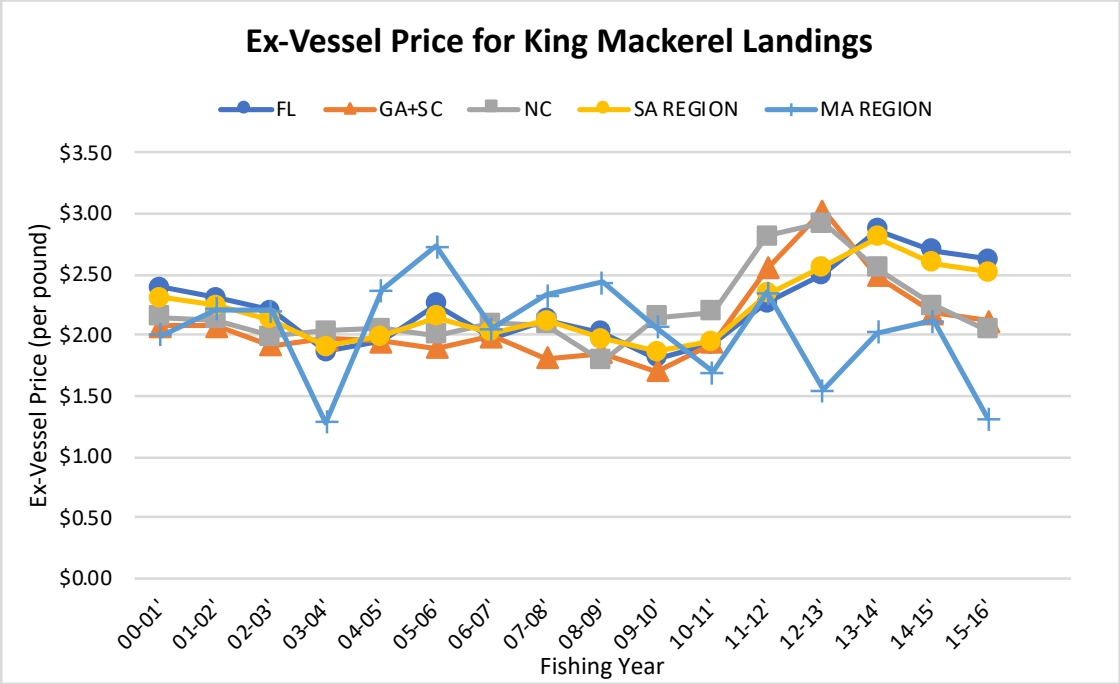

Figure 9. Average annual ex-vessel price per pound (2016 dollars) by state for commercial king mackerel landings in the South Atlantic and Mid-Atlantic Regions from fishing year 2000-2001 through 2015-2016. Data for Georgia and South Carolina were aggregated due to confidentiality concerns. Inflation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

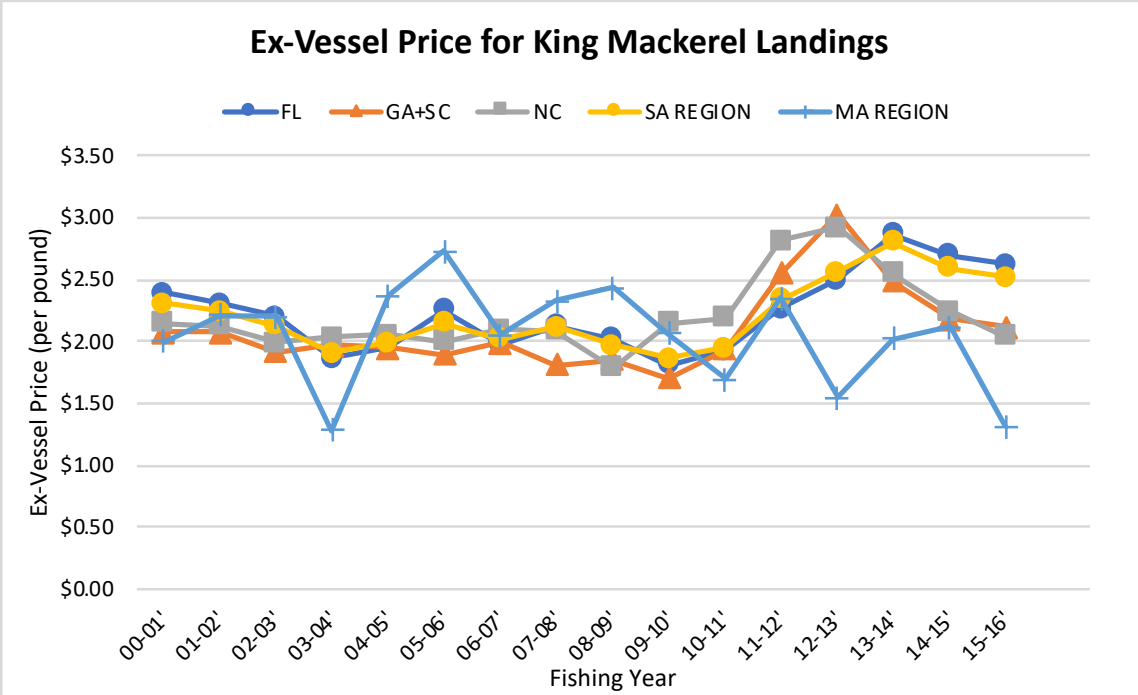

Figure 10. Weight and inflation adjusted (2016 dollars) ex-vessel value of commercial king mackerel landings in the South Atlantic and Mid-Atlantic Regions from fishing year 2000-2001 through 2015-2016. Inflation adjustments use the U.S. GDP deflator.
Sources: U.S. Bureau of Economic Analysis and ACCSP.

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