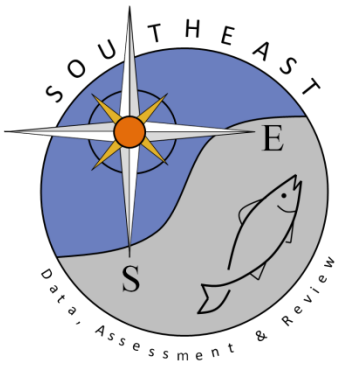
SAFMC Snapper Group Advisory Panel Black Seabass Fishery Performance Report – November 2017

SEDAR56-RD10

18 December 2017



South Atlantic Fishery Management Council
Snapper Grouper Advisory Panel
Black Sea Bass Fishery Performance Report
November 2017

At their November 2017 meeting, the South Atlantic Fishery Management Council's (Council) Snapper Grouper Advisory Panel (AP) reviewed fishery information for black sea bass 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 black sea bass will be provided to the Scientific and Statistical Committee (SSC) to complement material being used in the standard assessment (SEDAR 56) and to inform future management.

Advisory Panel Members:

David Moss (Chairman; Recreational/FL)
Jimmy Hull (Vice-Chairman; Commercial/Dealer/Retail/FL)
Robert Johnson (Charter/FL)
Rusty Hudson (Commercial/FL)
Vincent Bonura (Commercial/FL)
Manny Herrera (Commercial/FL)*
James Freeman (Commercial/FL)*
Greg Mercurio (Charter/FL)*
Richard Gomez (Charter/FL)
David Snyder (Consumer Rep/GA)
Deidra Jeffcoat (Charter/GA)
Gary Manigault Sr. (Charter/SC)
Kerry Marhefka (Commercial/Dealer/SC)
Wayne Mershon (Commercial/Dealer/SC)*
Jim Moring (Recreational/SC)
Jim Atack (Recreational/NC)
Red Munden (Conservation/NC)
Robert Lorenz (Recreational/NC)
Dick Brame (NGO/Recreational/NC)
Robert Freeman (Charter/NC)
Andy Piland (Charter/NC)
Scott Buff (Commercial/NC)
Jack Cox (Commercial/Dealer/NC)
Todd Kellison (At-large/NOAA)
*not in attendance

Fishery Overview

Information on the black sea bass fishery in the South Atlantic region is presented in a Fishery Information Document (Appendix 1) 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.

Stock Observations

Off Ponce Inlet, Florida, commercial fishermen have seen a decline in abundance of black sea bass over the past 5 years. Black sea bass have been historically abundant during winter months or cold-water events. However, the water has remained warm in winter months for the past few years and kept the fish from coming in.

After a peak in abundance caused by higher than average recruitment around 2013, the stock declined. During the time of high abundance, there were two or three brothers who were fishing pots every day and they were responsible for the majority of the black sea bass landings in Florida during that couple of years. This was immediately prior to management changes going

into place for the pot sector (endorsement program went into place in 2013). None of those fishermen have fished for black sea bass in recent years and one of them may be selling his endorsement. This is reflective of the decline in black sea bass abundance off east Florida. However, there are encouraging signs that the stock is rebounding. One AP member reports a dramatic increase in the number of black sea bass on commercial trips (using pots) after the 2017 hurricanes. The fish seem to have come back to areas where abundance had declined. The water was much cooler and darker after the storms.

The black sea bass fishery off North Carolina is healthy. However, it takes longer for catches to ramp up because the water is staying warmer a lot longer. Nowadays, fishermen are seeing good catches in late October/November whereas they used to see comparable harvest starting in September in the mid-2000s.

From the perspective of a diver, the abundance of black sea bass off North Carolina has decreased over the past 2 to 3 years.

Private recreational fishermen in North Carolina have observed that black sea bass over 13 inches are no longer available inshore (inside 12 miles). They are mostly out of reach to the average private angler. This seems to be tied to water temperature not getting low enough during winter months for the fish to move to areas where they used to be available to fishermen.

In terms of observations possibly tied to recruitment, fishermen in Florida report seeing all sizes of black sea bass. They see small black sea bass in stone crab traps in the rivers and there is an abundance of small individuals close to shore in 50 feet of water around Ponce Inlet.
In that area, fishermen have historically observed small black sea bass in the rivers. There is interest to explore whether the red snapper closure has affected the abundance of small black sea bass in the rivers.

Charter captains in Georgia report that the population does not seem as abundant as it was several years ago. They are seeing a lot of small sea bass offshore, which they had not seen until recently, so perhaps that is indicative of a strong year class. They also report encouraging signs that black sea bass are coming back.

Fishermen report a higher abundance of black sea bass on natural reefs than on artificial reefs throughout the region. Off Florida, fishermen have observed black sea bass gorging themselves on small crabs, worms, clams, scallops etc. (even baby turtles) on live bottom areas. On artificial reefs off North Carolina, fishermen report that black sea bass may become momentarily abundant but the fish do not remain there long enough for anglers to have continued access to them.

Asked whether the size of black sea bass being encountered has changed over the past 5 years, fishermen from Florida maintain that it has not. However, the size of fish available to catch is tied to water temperature. Larger individuals are typically encountered during winter. Similarly, off North Carolina, recreational fishermen report that legal sized fish (13 inches and above) are no longer available inside of 12 miles during the winter months (December-January). Larger fish are still there but they remain far offshore (30 miles) because the water inshore stays too

warm in the winter. During the summer of 2017, in 60-90 feet of water (about 18 miles off the beach), there were large numbers of 12.25-inch and 12.75-inch black sea bass that people had to keep throwing back.

Commercial Observations

In Florida, commercial fishermen/dealers report that demand for black sea bass is ever increasing and so is the price.

Off North Carolina, the price of black sea bass has been affected by an increase in the annual catch limit for the species in the Greater Atlantic region trawl fishery. This has caused a decline in the price per pound of large (jumbo) fish but an increase in the price of medium fish partly because trawl fishermen can be selective about the size of fish they target based on the size of their nets. The lack of the medium fish on the market benefits fishermen fishing off North Carolina.

For restaurants, the price for black sea bass has increased over the past 5 years.

A lot of black sea bass pot endorsements have been transferred in recent years when snapper grouper commercial permits changed hands. However, some of the new endorsement holders are opting not to use their endorsements in the winter months because there are other species they can target during that time of the year.

Asked to provide insight into what may have caused commercial landings to decline off of Florida since 2011, a commercial fisherman who operates off Ponce Inlet, Florida, provided information on his black sea bass average catch per trip since 2011 (**Table 1**). After 30 years of fishing for black sea bass, this fisherman is one of the few remaining that use pots to fish for black sea bass off Florida. A sharp decline in average catch per trip based on this fisherman's records is evident from 2013 to 2014. This was partly due to a change in the fishing year and a prohibition on the use of pots in a large area in the South Atlantic to protect migrating whales. This closure prevented many fishermen from targeting black sea bass with pot gear over historical fishing grounds during the winters of 2011 through 2015.

Table 1. Average catch (in pounds) of black sea bass landed in Florida using pot gear from 2011 through 2017 based on a fisherman's records.

Year	Average catch per trip (pounds)
2011	770
2012	774
2013	465
2014	154
2015	112
2016	63
2017*	75

*NOTE: The fisherman who supplied this information stated that black sea bass were plentiful during the 4 trips he took after the 2017 hurricanes that affected the South Atlantic region.

Florida fishermen recount that from about 2009, effort in the black sea bass pot fishery ramped up in response to high abundance. Also at that time, the Council was considering a large area

closure to protect red snapper in Amendment 17A. The area closure did not go into effect, but it may have affected fishermen's behavior, according to an AP member. Many fishermen in Florida started pot fishing at that time because that was one of the only things they thought they would be able to do if the proposed area closure took effect.

Recreational Observations

Recreational landings of black sea bass in the South Atlantic have generally declined since about 2011. Asked to provide possible reasons for the observed decline, fishermen stated that a decline in abundance coupled with a recreational minimum size limit that is too large has caused the drop in landings. However, fishermen from North Carolina stated that there may be a perception that abundance of black sea bass has declined in recent years based on landings; however, environmental factors such as water temperature have contributed to keeping fish away from inshore areas accessible to most anglers. Overall, fishermen agree that too large a minimum size has had an effect on black sea bass recreational landings throughout the South Atlantic region.

In Florida, demand for black sea bass in the charter component has decreased because the recreational minimum size limit is too large.

Off Georgia, the demand for black sea bass has not really changed in recent years but charter vessels stopped targeting them in favor of sheepshead. Demand for black sea bass may have declined somewhat for charter vessels because people are not allowed to keep as many fish as they would like to. Among charter vessels operating in North Carolina, captains agree that their clients do not book a charter to go catch black sea bass; they are part of the "grab bag" that attracts people. However, for every legal sized black sea bass that is kept, 4 or 5 undersized fish are being thrown back (mostly in the 12+ inch range) and this is frustrating for customers.

Observations on management measures

AP members were in agreement that the current commercial minimum size limit of 11 inches is appropriate for the gear being used.

Some AP members stated that managers may want to re-consider apportioning the commercial annual catch limit by gear type (pots & hook-and-line). This has not been an issue recently as the commercial annual catch limit has not been met due to recent changes to regulations. However, if commercial catches increase in the future, there may be a need to re-consider allocating by gear.

Regarding the recreational minimum size limit, AP members agreed that the current 13-inch limit is not appropriate. Some members stated that the current limit decreases access to the fish because the legal-sized fish are too far offshore, beyond the reach of the average private recreational angler. Consequently, the high number of discards in the recreational sector is due to anglers interacting with smaller fish inshore. AP members reiterated that the current recreational minimum size limit has had a large impact on recreational landings throughout the region.

AP members agreed that the annual catch limits (commercial and recreational) are appropriate. It was noted that management typically responds to increases a stock's abundance by increasing

the annual catch limit. Fishermen maintain that this situation played out with black sea bass after the last update to the stock assessment. Now, fishermen are concerned that since recent fishery-independent data show a declining trend in abundance, management will respond by reducing the annual catch limit. Fishermen are critical of this knee-jerk reaction and urge the Council to strive for more stable management, focus on better monitoring, and opt for less dramatic changes in catch levels. They note that fisheries respond to environmental factors that are independent of fishing activity and too often, under the current management approach, fishermen end up paying the price.

Asked whether the mesh size for black sea bass pots should be changed in order to optimize the catch, most AP members agreed the current specifications are appropriate. Off North Carolina, commercial fishermen using pot gear report very few (half a dozen) sub-legal sized fish and low release mortality. While one scientific study showed that a 2.25-inch mesh would optimize commercial catches, fishermen who use pots do not feel the expected improvement in catch justifies the expense of changing the mesh size on their gear. Some fishermen explored the availability and cost of 2.25-inch mesh and found no supplier in the region that could make it readily available at a non-prohibitive cost. The current 2-inch mesh is adequate as long as the commercial minimum size limit does not change.

Regarding the pot area restriction, black sea bass pot fishermen from Florida stated that the regulation has pushed fishermen off their prime fishing grounds.

Environmental/ecological Observations

Off of Ponce Inlet, Florida, fishermen report a lack of cold water over several years. Black sea bass normally migrate inshore during winter months to prime fishing grounds but this movement has not taken place in some time. Fishermen maintain that is also the reason for few observations of Right Whales in that area in recent years.

Warmer than normal water temperature was also cited as the reason for the decline in the numbers of large black sea bass inshore off North Carolina.

There was a period in 2014-2015 where there was a noticeable decline of black sea bass on reefs off Florida. However, fish are now abundant in those areas.

Off east Florida, commercial fishermen report black sea bass spawning primarily from January through March. Off North Carolina, fishermen report large females in spawning condition in March and April.

The habitat range of the black sea bass stock is so large that fishing mortality is a small factor in overall stock abundance. Off Florida, they are caught in crab traps inshore as well as out to 500-600 feet of water. Fishermen maintain that management actions such as minimum size limits have been ineffective in keeping the population healthy. Black sea bass are short-lived animals that become sexually mature at a young age and adapt to changing conditions. Environmental factors are in charge.

Research Recommendations

- Recruitment monitoring with small mesh traps.
- Importance of offshore habitats as nurseries. Recent scientific studies suggest that estuarine nurseries may be more important than offshore ones. However, these data are limited and more research is needed.
- Conduct analyses to establish the appropriate minimum size limit that would achieve MSY before considering minimum size limit changes.
- Fishery independent sampling should be expanded to include winter months to inform year-round fisheries.

Other Observations

Pot fishermen expected to be able to catch lionfish in their pots. However, this has not been the case as lionfish appear to be attracted to traps as habitat. Fishermen in the Florida Keys are catching lionfish in their lobster traps because the traps are left to soak long enough for lionfish to colonize them. However, there has been reluctance to target lionfish with traps because of the potential for increased bycatch. Lionfish continue to be abundant and problematic throughout the South Atlantic region.

Fishermen agree that the fishery-independent index of abundance is very informative of the status of the black sea bass population as Chevron traps are very effective at catching this species in particular. The index shows a recent increase in the abundance of black sea bass and fishermen find this encouraging. However, they note that even though the index showed a large recruitment event around 2011 and now shows abundance to be back down to 1993 levels, this does not necessarily mean the South Atlantic black sea bass stock is in trouble. It may simply mean that recruitment has slowed down (at least in areas where the survey operates). Further, as recruitment success is based on environmental factors, it is worth considering that the current overabundance of red snapper and lionfish may be impacting black sea bass recruitment.

Bottom temperature measurements are taken during chevron trap deployments (one CTD cast for every 6 traps) but not directly on the trap itself. In the Mid-Atlantic and New England regions, there is evidence of northward shifts in species' distributions over the recent past. Shelf waters in that area have been warming over the past couple of decades. However, according to SEAMAP trawl data in the South Atlantic region, there have not been similar changes in species' distributions as is regions further north, and water temperatures over the shelf break have been stable over the past couple decades (caveat is those are temperatures are measured during September-October every year). There has not been research to look at inter-annual variability in water temperatures and how it may have affected abundance of black sea bass.

APPENDIX 1
Attachment 2b
TAB 07_A02b_SG_BlackSeaBassFPRInfoDoc_forSGAP

Black Sea Bass – Advisory Panel Information Document

November 2017

Biology

Black sea bass, *Centropristis striata*, occur in the Western Atlantic, from Maine to northeastern Florida, and in the eastern Gulf of Mexico. The Gulf of Mexico black sea bass are considered a separate subspecies and thus, managed as its own stock. Early studies suggesting separate populations of black sea bass north and south of Cape Hatteras, North Carolina (Wenner et al. 1986), prompted management as two separate stocks: Mid-Atlantic and South Atlantic. More recent studies support this separation (McCartney and Burton 2011; McCartney et al 2013). Tagging studies also point to minimal movement of adult black sea bass in the South Atlantic region (SEDAR 25 2011).

Black sea bass are common around rock jetties and on rocky bottoms in shallow water (Robins and Ray 1986) at depths from 7-394 ft (2-120 m) where they feed primarily on shrimp, crabs, and fish (Sedberry 1988). Most adults occur at depths from 66-197 ft (20-60 m) (Vaughan et al. 1995).

Black sea bass change sex from female to male (protogyny). The minimum size and age of maturity for females studied off the southeastern U.S. coast is 10 cm (3.6 in) standard length (SL) and age 0. All females are mature by 18 cm (7.1 in) SL and age three (McGovern et al. 2002). Wenner et al. (1986) reported that spawning occurs from March through May in the South Atlantic Bight. McGovern et al. (2002) indicated that black sea bass females are in spawning condition during March-July, with a peak during March through May (McGovern et al. 2002). Some spawning also occurs during September and November. Spawning takes place in the evening (McGovern et al. 2002). McGovern et al. (2002) noted that the size at maturity and the size at transition of black sea bass was smaller in the 1990s than during the early 1980s. Black sea bass appear to compensate for the loss of larger males by changing sex at smaller sizes and younger ages.

Females dominate the first five year classes. Individuals over the age of five are more commonly males. Black sea bass live for at least 10 years. Maximum reported size is 26 inches (66.0 cm) total length and 7.9 pounds (3.6 kg) (McGovern et al. 2002).

Stock Status

An update to the black sea bass assessment was conducted in 2013 with data through 2012. Most of the data sources were simply updated with the two additional years of observations available since the SEDAR 25 (2011). The SEDAR 25 Update (2013) concluded that black sea bass were **not overfished** and **overfishing was not occurring**. The spawning stock biomass (SSB) in 2012 was estimated to be slightly above the spawning stock biomass at maximum sustainable yield (SSB_{MSY}), indicating that the stock was rebuilt. The Scientific and Statistical Committee(SSC) provided an overfishing limit (OFL) and acceptable biological catch (ABC)

values for three years and requested that an assessment update be available in time to provide ABC and OFL recommendations for 2016 and beyond. At that time, the SSC noted estimates of ABC over the next few years exceed the equilibrium estimates of maximum sustainable yield (MSY) from the base run of the assessment model. This was determined to be largely due to recent recruitment being higher than expected average recruitment and a slightly greater stock biomass than the biomass expected at maximum sustainable yield (MSY) conditions. The SSC stated that sustainability of ABCs above equilibrium MSY would depend on recruitment conditions in the future.

The SEDAR 56 assessment was originally scheduled to take place over a series of webinars from February to August 2017. However, the SEDAR Steering Committee approved delaying completion of the SEDAR 56 assessment and advancing the terminal year of the assessment to 2016. The SEDAR 56 schedule was revised to accommodate the change in terminal year with webinars running through February 2018.

Management Overview

The Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 1983) established a management regime for the fishery for snappers, groupers and related reef species under the area of authority of the South Atlantic Fishery Management Council and the territorial seas of the states, extending from the North Carolina/Virginia border through the Atlantic side of the Florida Keys. In the case of the sea basses (black sea bass, bank sea bass, and rock sea bass), the fishery management unit/management regime applies only from Cape Hatteras, North Carolina south.

The original FMP (effective 8/31/83) specified an 8-inch total length (TL) minimum size limit for black sea bass and a 4-inch trawl mesh size.

Amendment 4 to the Snapper Grouper FMP (SAFMC 1991) established a 10-year rebuilding program for black sea bass beginning in 1991. The amendment also prohibited fish traps, entanglement nets, and longline gear within 50 fathoms and allowed the use of black sea bass pots north of Cape Canaveral, Florida.

In 1999, Amendment 9 (SAFMC 1998) established a 10-inch TL minimum size limit for both recreational and commercial sectors and a 20-fish per person per day recreational bag limit for black sea bass. The amendment also required escape vents and escape panels with degradable hinges and fasteners in black sea bass pots and specified minimum dimensions of an escape vent opening.

Amendment 13C to the Snapper Grouper FMP (SAFMC 2006) put in place substantial management modifications affecting black sea bass including:

- a step-wise decrease over a three-year period in the commercial quota starting with 477,000 pounds gutted weight in year 1 to 309,000 pounds gutted weight in year 3 with harvest and/or possession limited to the bag limit after the quota was reached (no sale);
- at least a 2” mesh for the entire back panel of black sea bass pots;

- a step-wise decrease in the recreational allocation over a three-year period starting with 633,000 pounds gutted weight in year 1to 409,000 pounds gutted weight in year 3;
- An increase in the recreational minimum size limit from 10 inches to 11 inches TL in year 1 and to 12 inches TL in year 2 to approximate the level of harvest allocated to the recreational sector;
- a reduction in the recreational bag limit from 20 to 15 black sea bass per person per day; and
- a change in the fishing year from the calendar year to June 1 through May 31 (both sectors).

In 2008, the Council established a 10-year rebuilding schedule and a rebuilding strategy for black sea bass (Amendment 15A) and, in 2011 (Amendment 17B; SAFMC 2010), defined the existing commercial and recreational quotas (specified through Amendment 13C) as annual catch limits (ACLs) to meet the mandates of the 2007 Magnuson-Stevens Act reauthorization. In addition, Amendment 17B specified accountability measures to ensure the ACLs would not be exceeded and to correct for any landings overages. Also, in 2011, the recreational bag limit was reduced from 15 to 5 fish per person per day (Regulatory Amendment 9; SAFMC 2011).

To cap effort in the commercial pot fishery, the Council implemented an endorsement program for black sea bass pots in 2012 through implementation of Amendment 18A (SAFMC 2012). The amendment established:

- eligibility criteria that resulted in the issuance of 32 black sea bass pot endorsements in the South Atlantic region south of Cape Hatteras;
- a 35-pot limit for endorsement holders;
- a requirement to bring pots back to shore at the conclusion of each trip;
- a 1,000-pound gutted weight commercial trip limit;
- an increase in the commercial minimum size limit from 10 inches TL to 11 inches TL; and
- an increase in the recreational minimum size limit from 12 inches TL to 13 inches TL.

The increase in the recreational minimum size limit was expected to slow down the rate of harvest because the ACL was being met very quickly resulting in early closures. For the commercial sector the minimum size limit was set at 11 inches because of concerns that a larger minimum size limit would increase mortality of undersized fish in pots.

In response to a stock assessment update (SEDAR 25 2013 Update) that indicated the black sea bass stock was no longer overfished and overfishing was not occurring, the Council revised fishing levels increasing the commercial ACL over a three-year period to 640,063 pounds gutted weight and the recreational ACL to 848,455 pounds gutted weight (1,001,177 pounds whole weight) (Regulatory Amendment 19; SAFMC 2013). These fishing levels have remained in place until the present. In addition, the amendment implemented an annual closure on the use of black sea bass pots from November 1 through April 30. This was in response to concerns over gear interactions with North Atlantic right whales.

In 2014, Regulatory Amendment 14 (SAFMC 2014) changed the commercial fishing year from June 1 through May 31, to January 1 through December 31. For the recreational sector, fishing year changed from the calendar year to April 1 through March 31. In addition, a trip limit of 300 pounds (whole weight) was specified for the hook-and-line component of the commercial sector from January 1 through Aril 30, when the use of black sea bass pots is prohibited. The amendment retained the 1,180-pound whole weight (1,000 pounds gutted weight) trip limit for the remainder of the commercial fishing year (May 1 through October 31) for both pots and hook-and-line gear.

In 2016, the Council increased the recreational bag limit from 5 to 7 fish per person per day (Regulatory Amendment 25; SAFMC 2016a) and revised the area where fishing for black sea bass pots from November 1 through April 30 is prohibited (Regulatory Amendment 16; SAFMC 2016b). Additional markings for pot gear were also required.

Fishery-independent Trends

Abundance of black sea bass in the South Atlantic region is tracked independent of landings by the Southeast Reef Fish Survey (SERFS). The survey has been operating in the region since 1978. **Figure 1** shows the relative catch per unit effort (CPUE) of black sea bass since 1990 in surveys conducted through the Marine Resources Monitoring, Assessment and Prediction (MARMAP) program, the Southeast Area Monitoring and Assessment Program (SEAMAP) and the Southeast Fishery Independent Survey (SEFIS). Sampling for these surveys is conducted at various stations in the South Atlantic using an array of gear (i.e., chevron traps, rod and reel, bottom longlines) and video cameras. Survey data indicate that abundance of black sea bass has declined since 2011 (**Figure 1**)

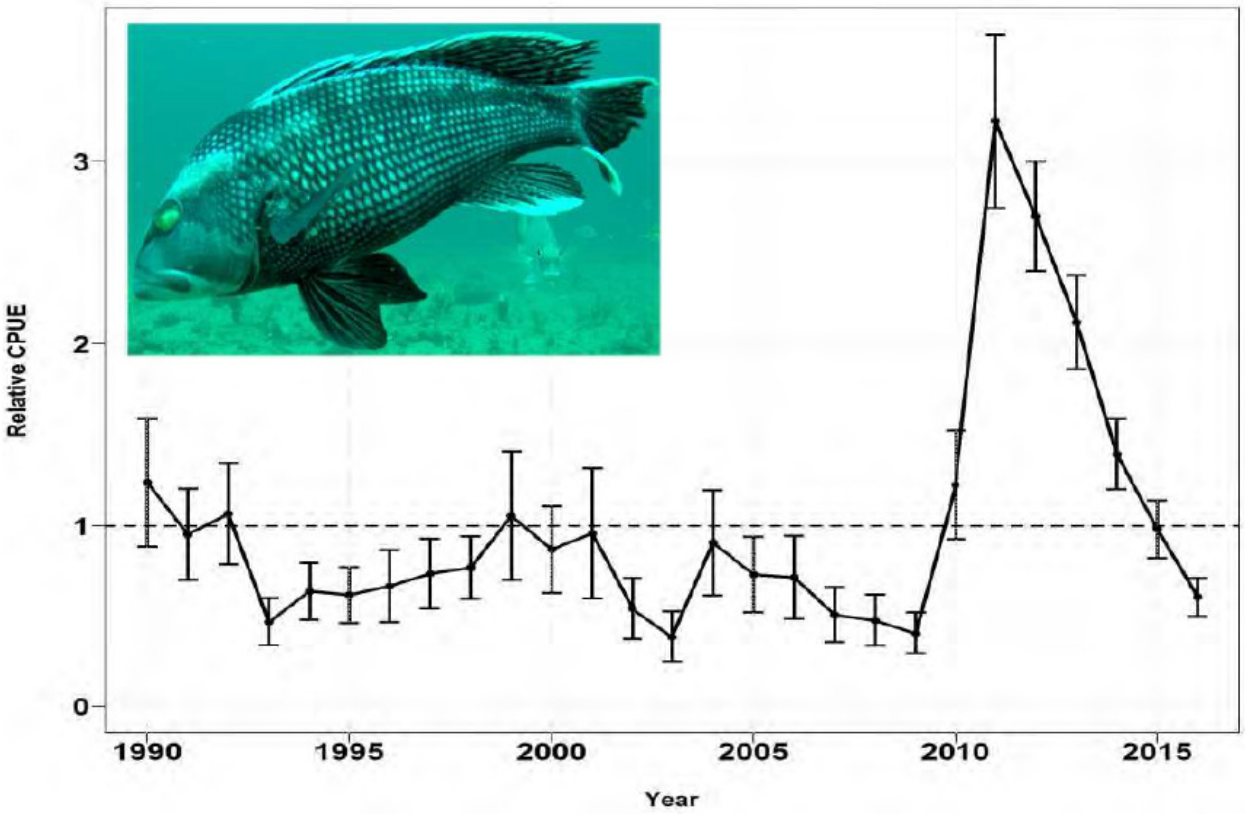


Figure 1. Relative catch per unit effort of black sea bass in fishery-independent surveys in the South Atlantic region, 1990-2016.

Fishery Performance

The following summary of black sea bass landings was prepared using various data sources as detailed below:

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 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.

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 landings and value information (reported by dealers) for 2016 presented below were obtained from ACCSP.

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.

Commercial Landings

Commercial landings in pounds whole weight (lbs ww) from 2000 through 2016 by state are presented in **Table 1**. Landings by state are presented graphically in **Figure 1** and total landings relative to ACLs are shown in **Figure 2**. Due to the limited number of commercial fishermen landing black seas bass in Georgia, Georgia landings were combined with South Carolina landings to prevent issues with confidentiality.

Table 1. South Atlantic black sea bass total commercial landings (lbs ww) and quota/ACL (where applicable) from 2000 through 2016, by state. Data for Georgia and South Carolina were aggregated due to confidentiality concerns.

South Atlantic Black Sea Bass Commercial Landings (lbs ww)						
Year	**Source**	**FL**	**GA + SC**	**NC**	**Total Comm**	**Comm Quota/ACL**
2000	ALS	2,993	83,238	414,281	500,512	
2001	ALS	4,560	92,785	477,134	574,479	
2002	ALS	7,694	58,736	431,332	497,762	
2003	ALS	6,027	101,367	476,507	583,901	
2004	ALS	8,772	218,852	506,371	733,995	
2005	ALS	7,603	121,595	321,866	451,064	
2006	ALS	9,045	88,304	443,572	540,921	563,300
2007	ALS	7,680	114,918	277,471	400,069	498,800
2008	ALS	9,437	133,125	275,777	418,339	364,210
2009	ALS	48,015	172,367	437,971	658,353	364,210
2010	ALS	91,196	99,609	292,883	483,688	364,210
2011	ALS	134,616	99,663	173,684	407,963	364,210
2012	ALS	72,013	117,749	194,782	384,544	364,210
2013	ALS	55,374	162,796	241,412	459,582	780,020
2014	ALS	28,112	125,034	316,428	469,574	780,020
2015	ALS	11,414	13,463	226,327	251,204	780,020
2016	*ACCSP*[1]	*10,341*	*54,224*	*421,169*	*485,734*	*755,275*

[1] 2016 data are from the ACCSP data warehouse. This differs from previous year's landings, which present landings in the SEFSC's Accumulated Landings System (ALS). It is unknown how comparable these two data sources are, therefore caution should be used when consulting these data.

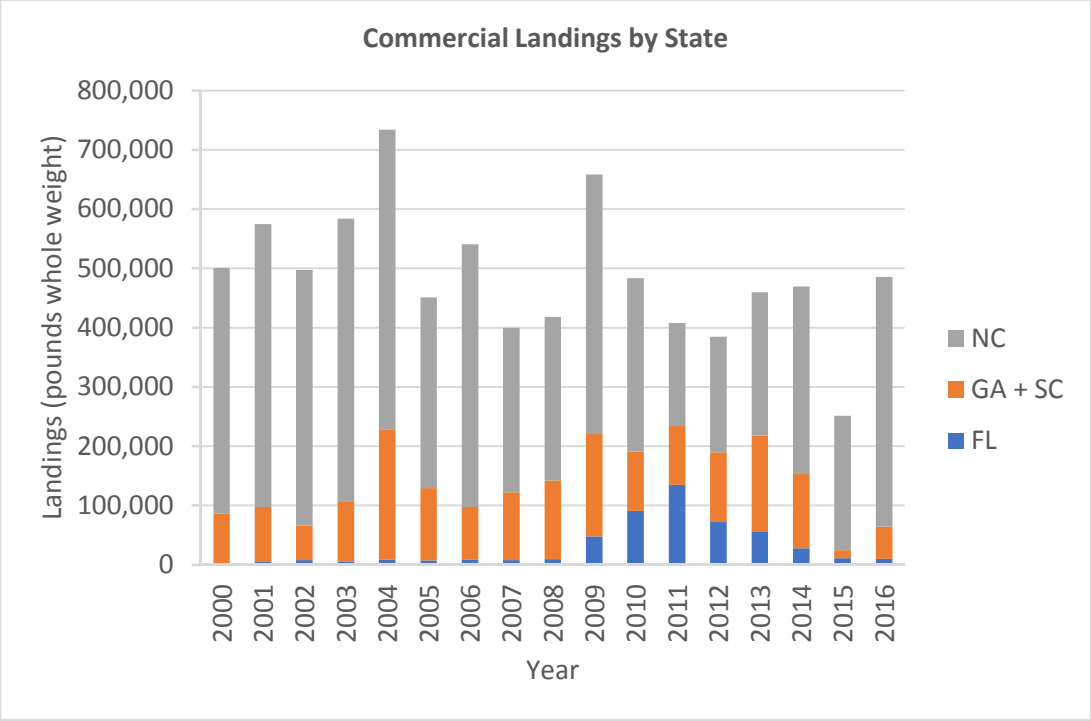


Figure 1. Commercial landings (pounds whole weight) of black sea bass in the South Atlantic region (south of Cape Hatteras) from 2000 through 2016 by state. Data for Georgia and South Carolina were aggregated due to confidentiality concerns.

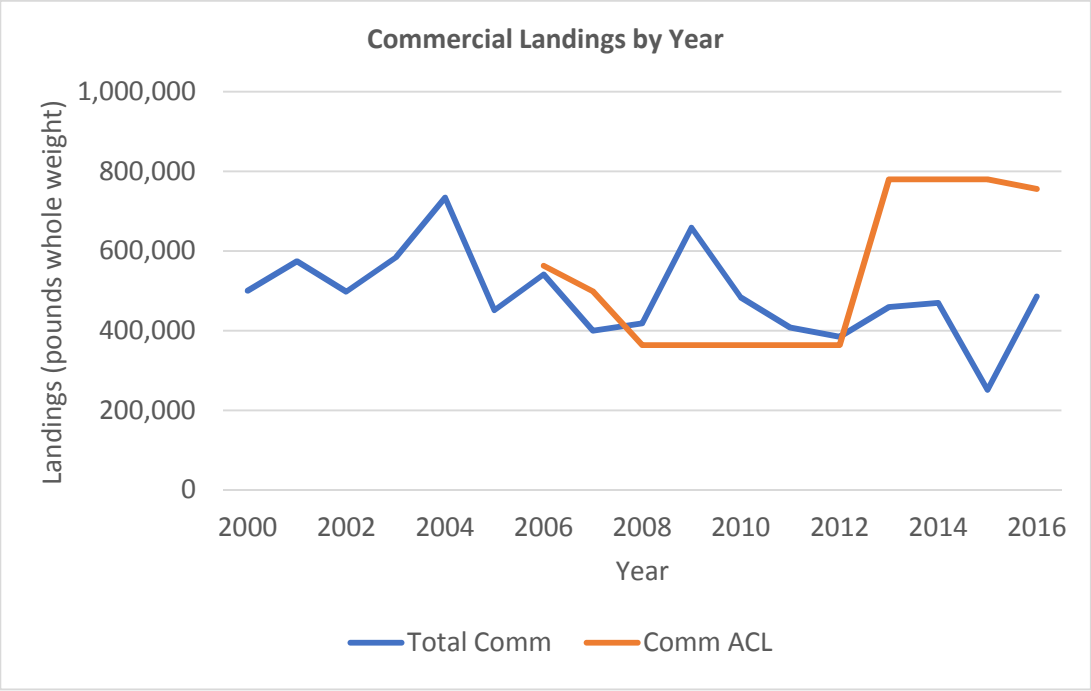


Figure 2. Commercial landings (pounds whole weight) of black sea bass in the South Atlantic region (south of Cape Hatteras) from 2000 through 2016 (blue line). Quotas/commercial ACLs are shown since 2006, when first implemented (orange line).

North Carolina has dominated commercial landings of black sea bass in the South Atlantic (south of Cape Hatteras) since 2000 whereas black sea bass commercial landings in Florida were essentially non-existent until about 2009, increased to a peak in 2011 and declined thereafter (**Figure 1**).

Black sea bass commercial landings since 2000 have been between 400,000 and 600,000 pounds whole weight (lbs ww). Landings exceeded the commercial quota from 2008 through 2010 and the ACL in 2011 and 2012. Since then, commercial landings have been below the ACL (**Figure 2**) and generally increased as the ACL increased. However, landings in 2015 were well below the ACL.

Figure 3 and **Figure 4** show the seasonality of commercial landings. **Figure 3** displays the average monthly commercial landings from 2000 through 2007, the period prior to Amendment 15A when the commercial ACL constrained the harvest. **Figure 4** shows landings from 2008 through 2016.

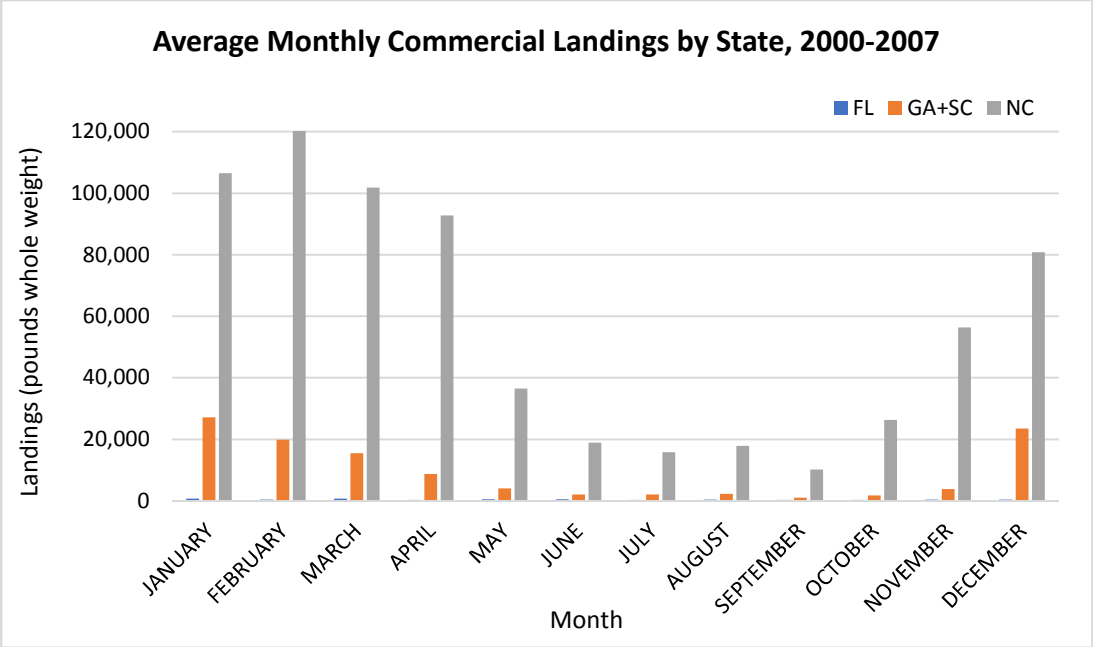


Figure 3. Average monthly commercial landings (pounds whole weight) of black sea bass in the South Atlantic region (south of Cape Hatteras) by state from 2000 through 2007. Data for Georgia and South Carolina were aggregated due to confidentiality concerns. Source: ACCSP.

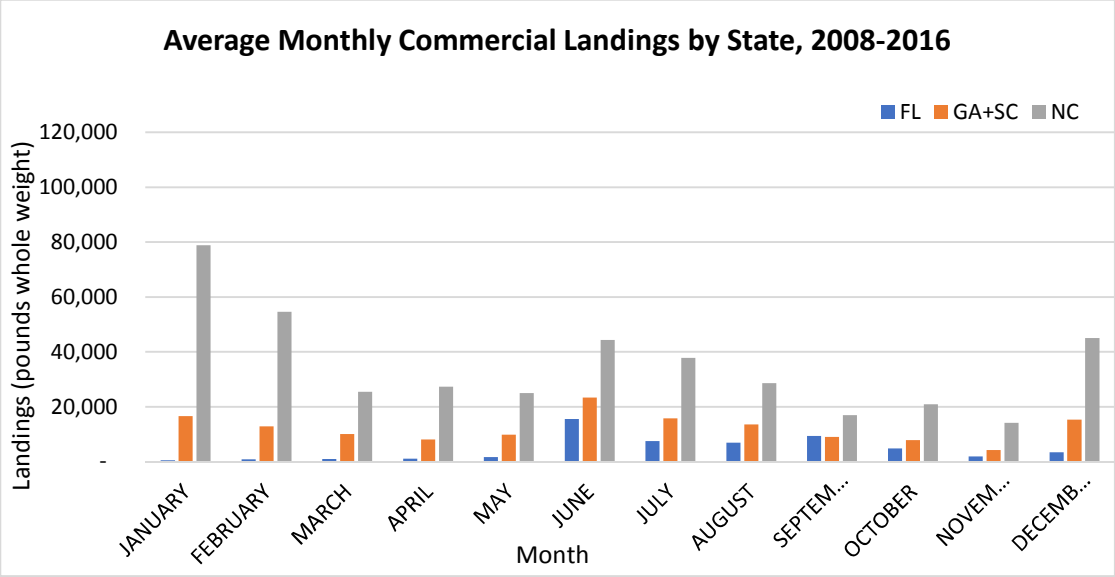


Figure 4. Average monthly commercial landings (pounds whole weight) of black sea bass in the South Atlantic region (south of Cape Hatteras) by state from 2008 through 2016. Data for Georgia and South Carolina were aggregated due to confidentiality concerns. Source: ACCSP.

When landings are examined on a monthly basis, a shift in the seasonality of the fishery is evident: landings primarily occurred in the winter and spring prior to 2008 (**Figure 3**) whereas a predominance in landings in the summer months takes place subsequently (**Figure 4**). This seasonal change in the fishery is likely reflective of the management actions that altered the ACL, accountability measures, fishing year, and the sea bass pot fishery.

Recreational Landings

Recreational landings in pounds whole weight (lbs ww) from 2000 through 2016 by state are presented in **Table 2**. Landings by state are presented graphically in **Figure 5** and total landings relative to ACLs are shown in **Figure 6**. **Figure 7** shows the seasonality of recreational black sea bass landings by displaying average recreational harvest of black seabass by 2-month wave for the same time period. Directed effort, which includes recreational trips that either harvested or targeted black sea bass, is shown in **Figure 8** for the South Atlantic Region annually.

Table 2. South Atlantic black sea bass total recreational landings (lbs ww) and quota/ACL (where applicable) from 2000 through 2016, by state.

South Atlantic Black Sea Bass Recreational Landings (lbs ww)							
Year	**Source**	**FL**	**GA**	**SC**	**NC**	**Total Rec**	**Rec Quota/ACL**
2000	SEFSC	94,929	42,589	114,652	158,312	410,481	
2001	SEFSC	142,772	112,585	192,244	224,203	671,804	
2002	SEFSC	107,092	23,771	140,481	144,108	415,451	
2003	SEFSC	115,368	106,521	121,335	167,678	510,902	
2004	SEFSC	273,993	86,083	332,480	428,509	1,121,065	
2005	SEFSC	245,755	81,366	127,918	378,469	833,509	
2006	SEFSC	221,854	75,812	266,309	146,883	710,857	746,700

South Atlantic Black Sea Bass Recreational Landings (lbs ww)							
Year	**Source**	**FL**	**GA**	**SC**	**NC**	**Total Rec**	**Rec Quota/ACL**
2007	SEFSC	185,524	49,716	205,487	266,498	707,225	661,200
2008	SEFSC	122,270	99,817	144,378	98,472	464,937	482,790
2009	SEFSC	185,855	33,939	93,181	161,440	474,415	482,790
2010	SEFSC	267,262	30,339	354,440	232,507	884,549	482,790
2011	SEFSC	270,693	63,422	132,762	137,801	604,678	482,790
2012	SEFSC	136,835	19,957	199,175	160,051	516,017	482,790
2013	SEFSC	131,667	108,411	70,249	103,436	413,762	1,033,980
2014	SEFSC	180,347	58,371	171,377	150,701	560,796	1,033,980
2015	SEFSC	92,174	58,754	78,345	144,757	374,030	1,033,980
2016	*MRIP*[1]	*170,217*	*10,396*	*39,792*	*128,012*	*348,417*	*1,001,177*

[1] Data from the MRIP website. 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. Caution should be used when consulting these data.

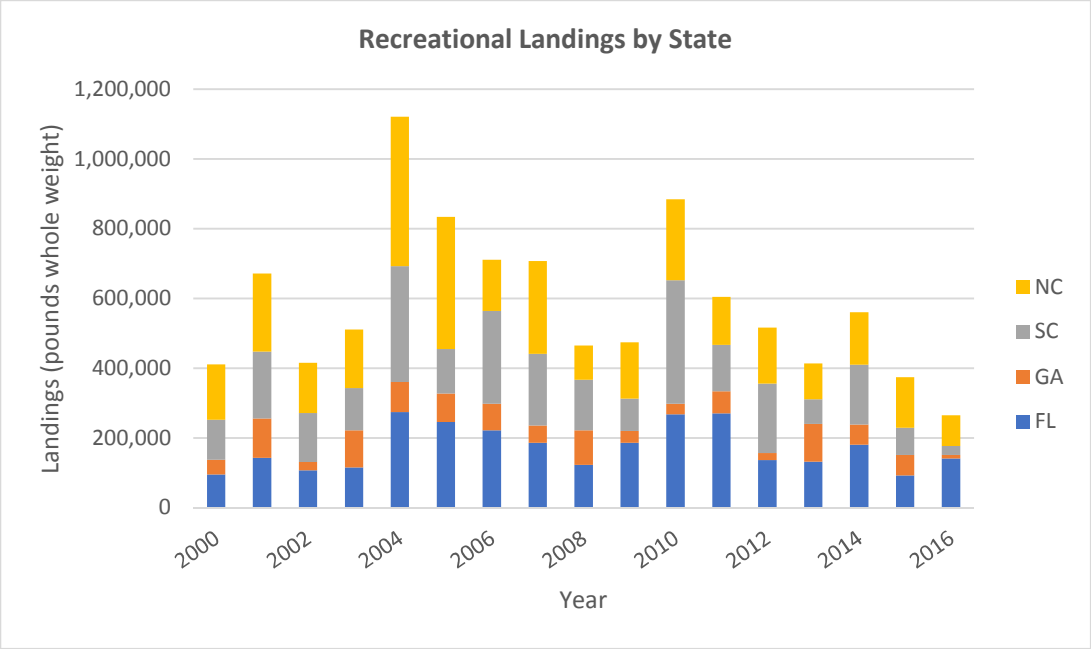


Figure 5. Recreational landings (pounds whole weight) of black sea bass in the South Atlantic region (south of Cape Hatteras) from 2000 through 2016 by state. Data for 2016 are from the Marine Recreational Information Program (MRIP) whereas data for prior years are from the Accumulated Landings System (ALS).

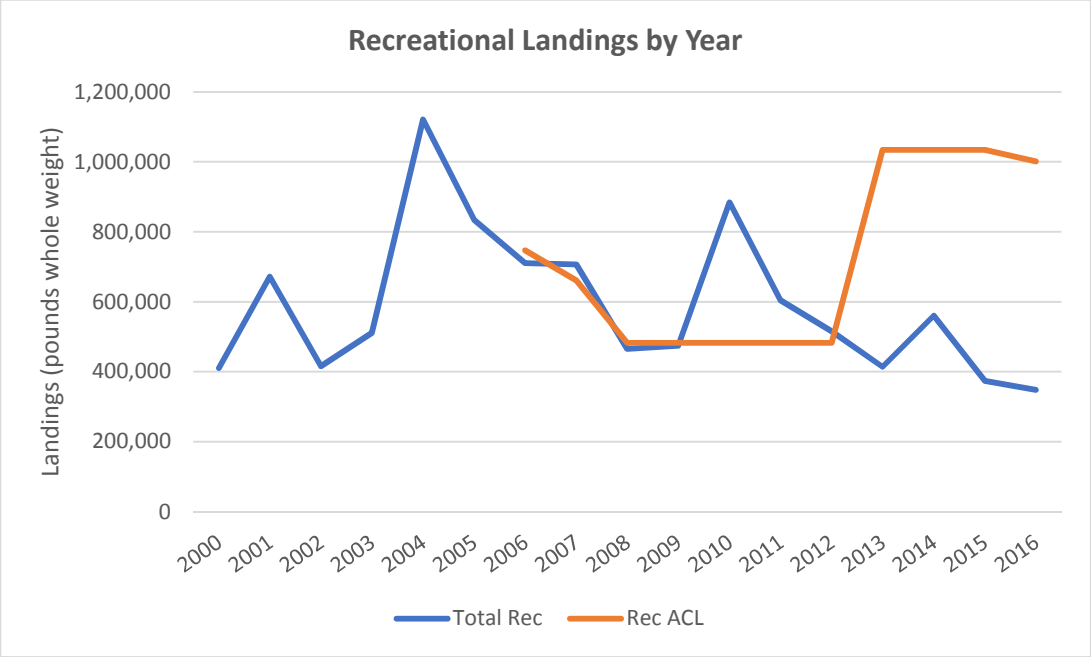


Figure 6. Recreational landings (pounds whole weight) of black sea bass in the South Atlantic region (south of Cape Hatteras) from 2000 through 2016 (blue line). Quotas/recreational ACLs are shown since 2006, when first implemented (orange line).

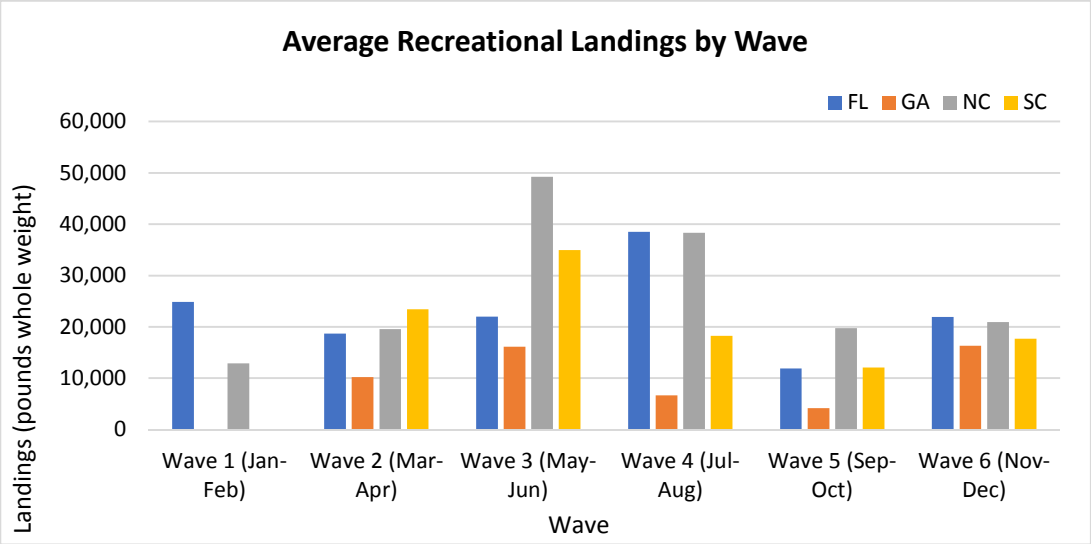


Figure 7. Average recreational landings of black sea bass in the South Atlantic region by wave and by state from 2000 through 2016. Source: ACCSP.

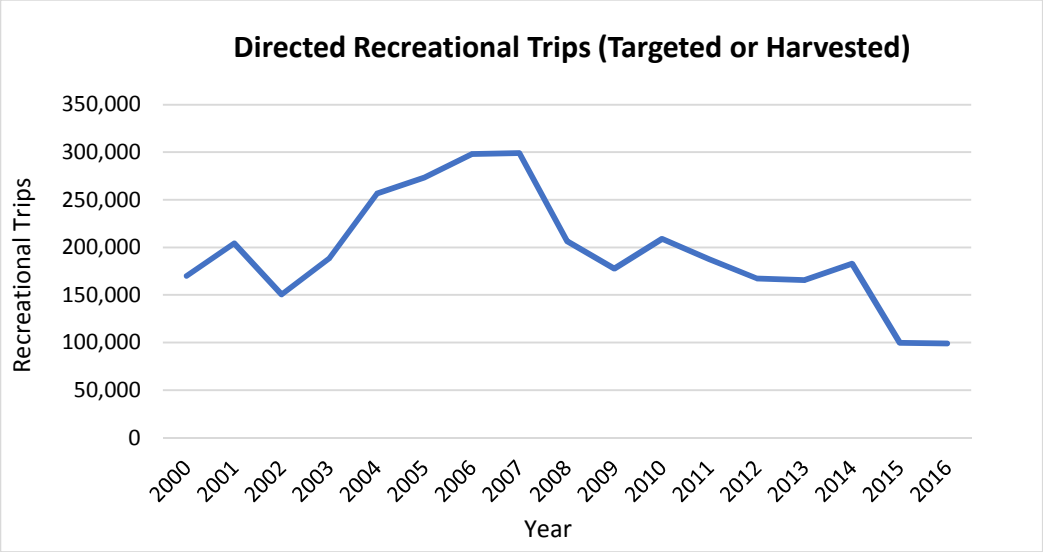


Figure 8. Directed recreational trips (targeted or harvest) for black sea bass in the South Atlantic region (south of Cape Hatteras) from 2000 through 2016. Source: ACCSP.

Recreational landings of black sea bass have been more evenly distributed among South Atlantic states than commercial landings. Peaks occurred in 2004-2005 and 2010-2011 (**Figure 5**). A declining trend in recreational landings is evident since 2010, when landings exceeded the recreational quota by the largest amount (**Figure 6**). Although the ACL increased substantially in 2013, a subsequent increase in recreational landings has not occurred (**Figure 6**). In general, recreational landings of black seabass peak during the summer months (**Figure 7**). Overall, directed effort for black sea bass has generally decreased since 2007 (**Figure 8**).

Discards

The number of black sea bass discarded has generally increased since 2009 in the private and charter modes of the recreational fishery (**Figure 9**). The commercial and headboat components of the fishery, on the other hand, contribute very little to the number of discards. Release mortality for black sea bass is 1% for commercial pot gear and 7% for commercial and recreational hook-and line gear (SEDAR 25 Update 2013). A recent study to examine release mortality of black sea bass off coastal North Carolina (Rudershausen et al. 2014) using internal anchor tags reported an 19% release mortality for black sea bass sampled using hook-and-line gear in 65 to 115 feet of water (20-35 meters), and 14% for fish sampled using traps (pots) in 36 to 95 feet (11-29 meters).

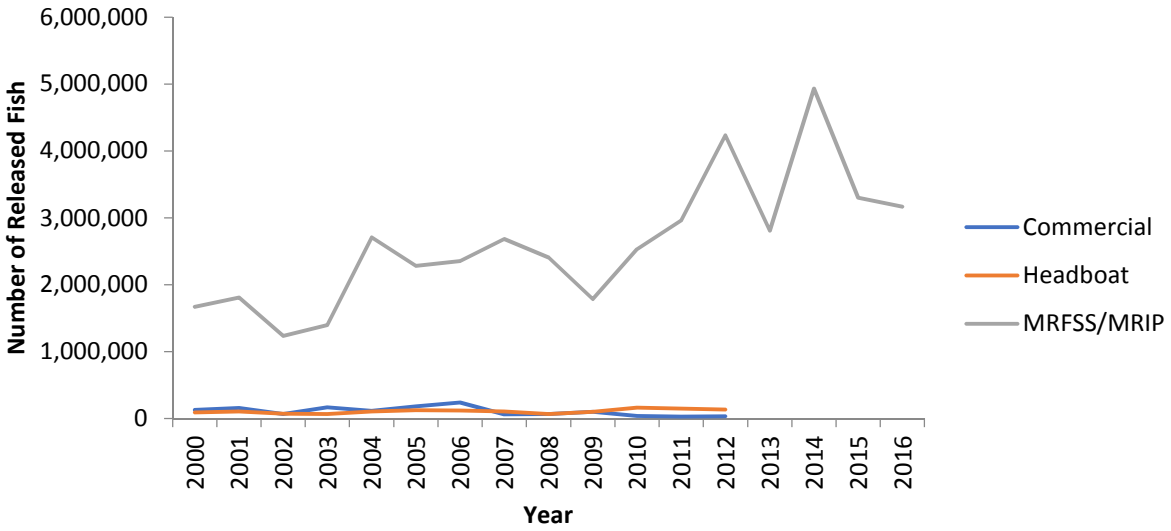


Figure 9. Number of black sea bass by component of the snapper grouper fishery. Number of fish released from the commercial and headboat component were pulled from SEDAR 25 Update (2013) as well as 2000 to 2003 for MRFSS/MRIP, which used the MRFSS estimation method to calculate number of released fish. MRFSS/MRIP from 2004 to 2016 used the MRIP estimation method to calculate number of released fish, and data were pulled from the MRIP website for black sea bass caught south of Cape Hatteras.

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, it is clear that the economic performance of the recreational black sea bass fishery has fluctuated over time with peaks in the mid and late 2000s. Since approximately 2010, recreational harvest and effort have generally decreased in the recreational black sea bass fishery, with the economic value and impacts of the fishery likely decreasing as well.

Changing focus to the commercial sector, **Figure 10** shows the average inflation adjusted price per pound for black sea bass regionally and state by state (in 2016 dollars) from 2000 through 2016. Total ex-vessel value for black seabass in the South Atlantic Region is presented in **Figure 11** in both nominal and inflation adjusted figures. Over the timeframe, the price per pound for black sea bass has generally increased with the overall ex-vessel value fluctuating from year to year with no apparent trend. Although 2016 landings are preliminary at this time, based on currently available data, 2016 saw the highest ex-vessel value for commercial black seabass landings at $1.54 million.

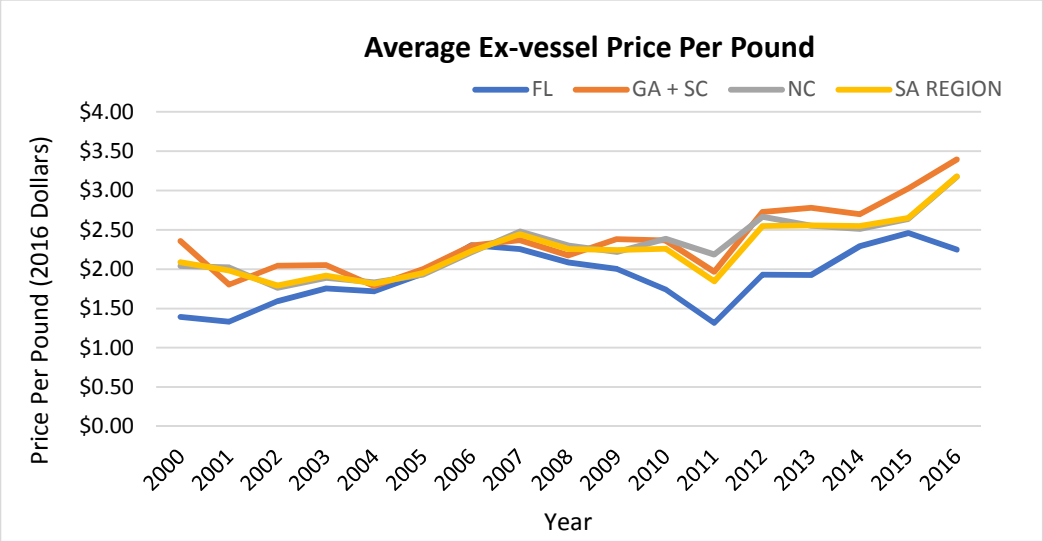


Figure 10. Average ex-vessel price per pound (2016 dollars) by state for commercial black sea bass landings from 2000 through 2016. Data for Georgia and South Carolina were aggregated due to confidentiality concerns. Inflation adjustments use the U.S. GDP deflator. Sources: U.S. Bureau of Economic Analysis and ACCSP.

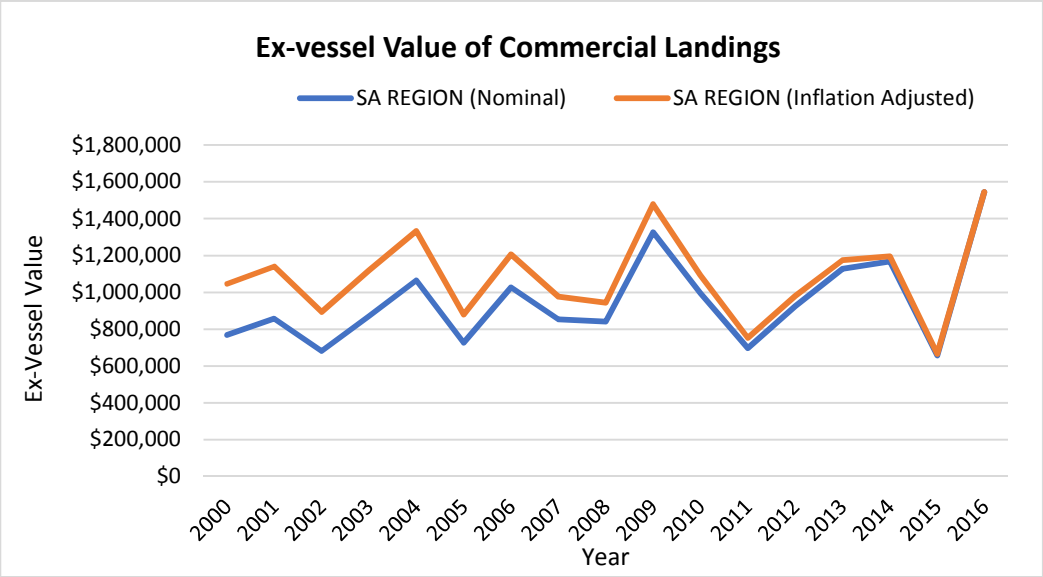


Figure 11. Nominal and inflation adjusted (2016 dollars) ex-vessel value of commercial black sea bass landings from 2000 through 2016. Inflation adjustments use the U.S. GDP deflator. Sources: U.S. Bureau of Economic Analysis and ACCSP.

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