



## **Black Sea Bass Fishery Information Document**

**June 2020**

This document provides a brief overview of the biology, stock condition, management system, and fishery performance for black sea bass (*Centropristis striata*) with an emphasis on 2019. Data sources include unpublished National Marine Fisheries Service (NMFS) fisheries-independent trawl survey data, commercial fish dealer reports, vessel trip reports (VTRs), permit data, and Marine Recreational Information Program (MRIP) data. All data should be considered preliminary. For more resources on black sea bass management, including previous Fishery Information Documents, please visit <http://www.mafmc.org/sf-s-bsb>.

### **Key Facts**

- Black sea bass are not overfished and overfishing is not occurring, according to the most recent stock assessment which included data through 2018. Incorporation of a revised time series of MRIP data and data on the large 2015 year class both contributed to an increase in estimated stock biomass compared to the previous assessment.
- In 2019, about 3.53 million pounds of black sea bass were landed by commercial fishermen, a slight increase from 2018. Commercial fish dealers paid an average of \$3.41 per pound of black sea bass, a slight decrease from 2018.
- Recreational fishermen harvested an estimated 8.61 million pounds of black sea bass in 2019, a 9% increase from 2018. Anglers fishing from private vessels accounted for 79% of black sea bass harvest (in numbers of fish) in 2019.

### **Basic Biology**

Black sea bass are distributed from the Gulf of Maine through the Gulf of Mexico. Genetic studies have identified three stocks within that region. This document focuses on the stock from the Gulf of Maine through Cape Hatteras, North Carolina.

Adult and juvenile black sea bass are mostly found on the continental shelf. Young of the year (i.e., fish less than one year old) can be found in estuaries. Adults show strong site fidelity during the summer and prefer to be near structures such as rocky reefs, coral patches, cobble and rock fields, mussel beds, and shipwrecks. Black sea bass migrate to offshore wintering areas starting in the fall. During the winter, young of the year are distributed across the shelf and adults and juveniles are found near the shelf edge. During the fall, adults and juveniles off New York and north move offshore and travel along the shelf edge to as far south as Virginia. Most return to northern inshore areas by May. Black sea bass off New Jersey to Maryland travel southeast to the shelf edge during the late fall. Black sea bass off Virginia and Maryland travel a shorter distance due east to the shelf edge, which is closer to shore than in areas to the north.<sup>1,2</sup>

Black sea bass are protogynous hermaphrodites, meaning they are born female and some later transition to males, usually around 2-5 years of age. Male black sea bass are either of the dominant or subordinate type. Dominant males are larger than subordinate males and develop a bright blue nuchal hump during the spawning season. About 25% of black sea bass are male at 15 cm (about 6 inches), with increasing proportions of males at larger sizes until about 50 cm, when about 70-80% of black sea bass are male. Results from a simulation model highlight the importance of subordinate males in spawning success. This increases the resiliency of the population to exploitation compared to other species with a more typical protogynous life history. About half of black sea bass are sexually mature by 2 years of age and 21 cm (about 8 inches) in length. Black sea bass reach a maximum size of about 60 cm (about 24 inches) and a maximum age of about 12 years.<sup>2,3</sup>

Black sea bass in the mid-Atlantic spawn in nearshore continental shelf areas at depths of 20-50 meters. Spawning usually takes place between April and October. During the summer, adult black sea bass share habitats with tautog, hakes, conger eel, sea robins and other migratory fish species. Essential fish habitat for black sea bass consists of pelagic waters, structured habitat, rough bottom, shellfish, sand, and shell, from the Gulf of Maine through Cape Hatteras, North Carolina. Juveniles and adults mostly feed on crustaceans, small fish, and squid. The Northeast Fisheries Science Center (NEFSC) food habits database lists spiny dogfish, Atlantic angel shark, skates, spotted hake, summer flounder, windowpane flounder, and monkfish as predators of black sea bass.<sup>1</sup>

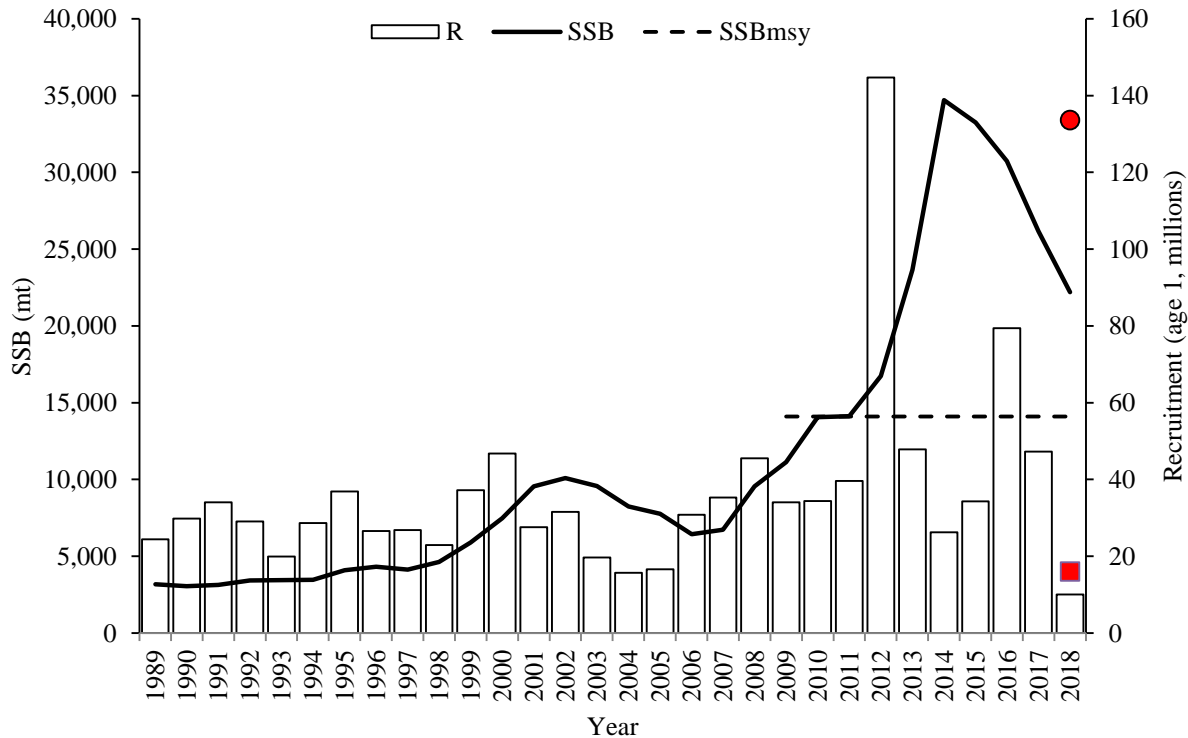
### **Status of the Stock**

A black sea bass operational stock assessment was peer reviewed and accepted in August 2019. It incorporated fishery data and fishery-independent survey data through 2018, including revised MRIP data for 1989-2018. The assessment concluded that the black sea bass stock north of Cape Hatteras, North Carolina was not overfished and overfishing was not occurring in 2018. Spawning stock biomass in 2018 was estimated to be 2.4 times the target level. The average fishing mortality rate on fully selected ages 6-7 fish in 2018 was 9% below the fishing mortality threshold reference point, meaning that overfishing was not occurring in 2018 (Table 1). Figure 1 and Figure 2 show the time series of estimated spawning stock biomass, recruitment, fishing mortality, and catch from the most recent stock assessment. The values for fishing mortality and spawning stock biomass were adjusted for 2018 only to account for retrospective bias in the model.<sup>4</sup>

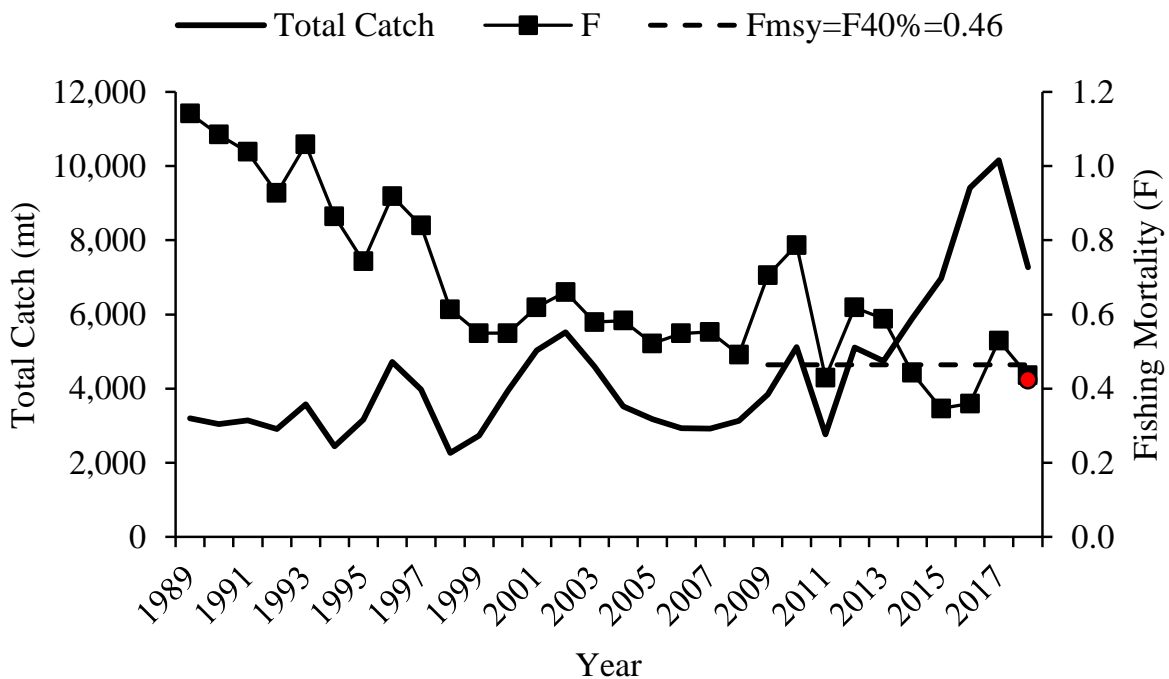
The 2011 year class (i.e., those fish spawned in 2011) was estimated to be the largest in the time series at 144.7 million fish. The 2015 year class was the second largest at 79.4 million fish. The 2011 year class had a major impact on recent stock dynamics and was much more prevalent off Massachusetts through New York compared to New Jersey and south. The large 2015 year class is more evenly between the northern (ME-NY) and southern (NJ-NC) states. Recruitment of the 2017 year class as age 1 in 2018 was estimated at 16.0 million fish, well below the 1989-2018 average of 36 million fish (Figure 1).<sup>4</sup> Recruitment estimates for 2018-2020 are not yet available.

**Table 1:** Black sea bass biological reference points from the 2019 operational stock assessment.<sup>4</sup>

Reference Points and terminal year SSB and F estimates	2019 operational stock assessment Data through 2018
$SSB_{MSY \text{ proxy}} = SSB_{40\%}$ (biomass target)	31.07 mil lb / 14,092 mt
$\frac{1}{2} SSB_{MSY}$ (biomass threshold defining an overfished state)	15.53 mil lb / 7,046 mt
<b>Terminal year SSB</b>	73.65 mil lb / 33,407 mt (2018). Adjusted for retrospective bias. 240% of $SSB_{MSY}$ .
$F_{MSY \text{ proxy}} = F_{40\%}$ (threshold defining overfishing)	0.46
<b>Terminal year F</b>	0.42 (2018). Adjusted for retrospective bias. Fully selected ages 6-7. 9% below $F_{MSY}$ .



**Figure 1:** Black sea bass spawning stock biomass (solid line) and recruitment (bars), 1989 - 2018, and biomass reference point (dashed line) from the 2019 operational stock assessment. The red circle is the retro-adjusted spawning stock biomass value for 2018. The red square is the retro-adjusted recruitment value for 2018. These values were adjusted only for 2018. The adjustments were made to correct for retrospective bias in the assessment model. The adjusted spawning stock biomass estimate should be used for comparison against the reference point. The stock is overfished when spawning stock biomass is below this reference point.<sup>4</sup>



**Figure 2:** Fishing mortality rate (F) on black sea bass ages 6-7, the  $F_{MSY}$  proxy reference point from the 2019 operational stock assessment, and total catch, 1989-2018. The red circle is the retro-adjusted fishing mortality rate for 2018. This adjustment was made to correct for retrospective bias present in the assessment model and is used as the estimate to compare to the reference point. Overfishing is occurring when the fishing mortality rate exceeds this reference point.<sup>4</sup>

## Management System and Fishery Performance

### *Management*

The Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission (Commission) work cooperatively to develop commercial and recreational fishery regulations for black sea bass from Maine through Cape Hatteras, North Carolina. The Council and Commission work in conjunction with NMFS, which serves as the federal implementation and enforcement entity. This cooperative management endeavor was developed because a significant portion of the catch is taken from both state waters (0-3 miles offshore) and federal waters (3-200 miles offshore). This joint management program began in 1996 with the approval of amendment 9 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP). The original FMP and subsequent amendments and framework adjustments are available at: [www.mafmc.org/fisheries/fmp/sf-s-bsb](http://www.mafmc.org/fisheries/fmp/sf-s-bsb).

Commercial and recreational black sea bass fisheries are managed using catch and landings limits, commercial quotas, recreational harvest limits (RHLs), minimum fish sizes, open and closed seasons, gear regulations, permit requirements, and other provisions.

The Council's Scientific and Statistical Committee (SSC) recommends annual Acceptable Biological Catch (ABC) levels for black sea bass. The Council and Commission must either approve the ABC recommended by the SSC or approve a lower ABC. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the landings allocations

prescribed in the FMP (i.e., 49% commercial, 51% recreational) and the recent distribution of discards between the commercial and recreational fisheries. The Council and Commission are currently developing an amendment to consider revising these allocation percentages.<sup>5</sup>

The Council and Commission also approve commercial and recreational annual catch targets (ACTs), which are set equal to or less than the respective ACLs to account for management uncertainty. To date, the black sea bass ACTs have always been set equal to the ACLs. The ABC, ACLs, and ACTs are catch limits which account for both landings and discards, while the commercial quota and RHL are landing limits. The commercial quota and RHL are calculated by subtracting expected discards from the respective ACTs.

Table 2 shows black sea bass catch and landings limits from 2010 through 2021, as well as commercial and recreational landings through 2019. Total landings (commercial and recreational) peaked in 2017 at 15.5 million pounds. About 12.15 million pounds of black sea bass were landed by commercial and recreational fishermen from Maine through Cape Hatteras, North Carolina in 2019 (Figure 3).<sup>6,7</sup>

In July 2018, MRIP released revisions to their time series of recreational catch and landings estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology, including a transition from a telephone-based effort survey to a mail-based effort survey. The revised estimates of catch and landings are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall black sea bass catch and harvest estimates. The RHLs and other management measures through 2019 were based on the previous MRIP estimates and should not be compared against the revised MRIP estimates. The revised MRIP estimates were incorporated into the 2019 operational stock assessment and were used to derive the catch and landings limits for 2020-2021.

**Table 2:** Summary of catch and landings limits, and landings for commercial and recreational black sea bass fisheries from Maine through Cape Hatteras, NC 2010 through 2021. All values are in millions of pounds unless otherwise noted.

Management measure	2010 <sup>a</sup>	2011 <sup>a</sup>	2012 <sup>a</sup>	2013 <sup>a</sup>	2014 <sup>a</sup>	2015 <sup>a</sup>	2016 <sup>b</sup>	2017 <sup>c</sup>	2018 <sup>c</sup>	2019 <sup>c</sup>	2020&2021 <sup>c</sup>
ABC	4.50	4.50	4.50	5.50	5.50	5.50	6.67	10.47	8.94	8.94	15.07
Commercial ACL	--	--	1.98	2.60	2.60	2.60	3.15	5.09	4.35	4.35	6.98
Commercial quota <sup>d</sup>	1.76	1.71	1.71	2.17	2.17	2.21	2.71	4.12	3.52	3.52	5.58
Commercial landings	1.73	1.69	1.72	2.26	2.40	2.38	2.59	4.01	3.46	3.53	--
% of commercial quota landed	98%	99%	101%	104%	111%	108%	96%	97%	98%	100%	--
Recreational ACL	--	--	1.86	2.90	2.90	2.90	3.52	5.38	4.59	4.59	8.09
RHL <sup>d</sup>	1.83	1.78	1.32	2.26	2.26	2.33	2.82	4.29	3.66	3.66	5.81
Recreational landings, old MRIP estimates	3.19	1.17	3.18	2.46	3.67	3.79	5.19	4.16	3.82	--	--
% of RHL harvested (old MRIP estimates) <sup>e</sup>	174%	66%	241%	109%	162%	163%	184%	97%	104%	--	--
Recreational landings, revised MRIP estimates	8.07	3.27	7.04	5.69	7.24	9.06	12.05	11.50	7.92	8.61	--

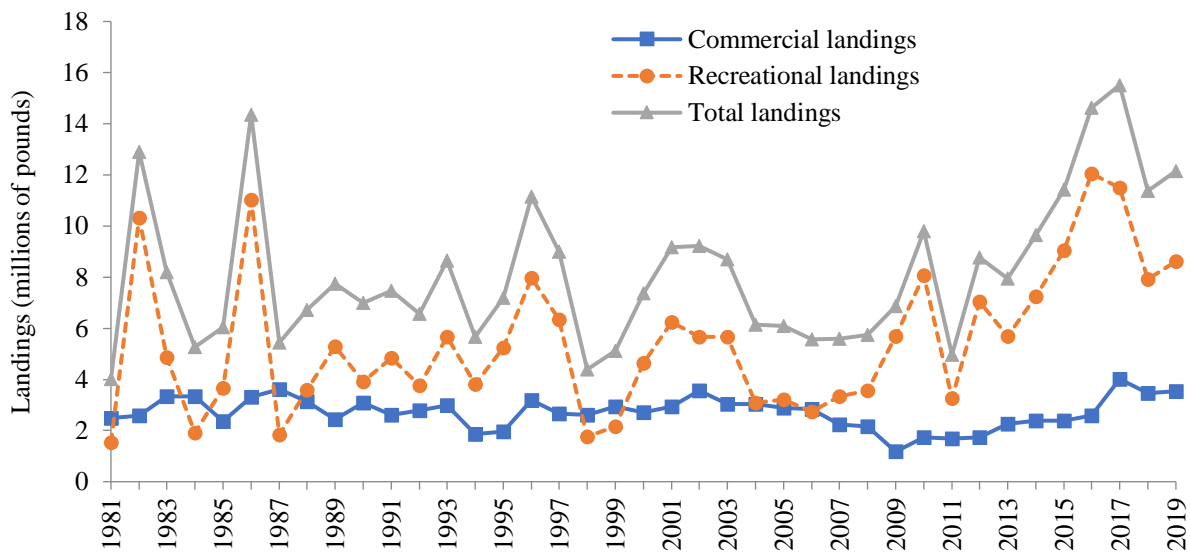
<sup>a</sup> Measures in 2010-2015 were based on a constant catch approach used by the Council's SSC to set the ABC.

<sup>b</sup> Measures in 2016 were based on ABC that was set using a data poor management strategy evaluation approach.

<sup>c</sup> Measures in 2017-2021 were set based on a peer reviewed and approved stock assessment. The 2020-2021 measures are based on a stock assessment update that incorporated the revised time series of MRIP data. The 2021 measures are subject to revision by the SSC, the Council, and the Commission.

<sup>d</sup> The commercial quotas and RHLs for 2006-2014 account for deductions for the Research Set Aside program.

<sup>e</sup> The percent of RHL harvested is based on a comparison of the RHL to the previous or old MRIP estimates. The RHLs did not account for the new MRIP estimates, which were released in July 2018 and were not incorporated into a stock assessment until 2019; therefore, it would be inappropriate to compare past RHLs to the revised MRIP estimates.



**Figure 3:** Commercial and recreational black sea bass landings in millions of pounds from Maine through Cape Hatteras, North Carolina, 1981-2019. Recreational landings are based on the revised MRIP estimates.<sup>6,7</sup>

### ***Commercial Fishery***

Commercial black sea bass landings peaked in 2017 at 4.01 million pounds, and were at their lowest in 2009, when 1.18 million pounds were landed (Figure 3). About 3.53 million pounds of black sea bass were landed by commercial fishermen in 2019, very close to the commercial quota of 3.52 million pounds (Table 2).<sup>7</sup>

Black sea bass are a valuable commercial species. Total ex-vessel value averaged \$12.40 million per year during 2017-2019. In some fisheries, ex-vessel price tends to decrease with increases in landings. However, during 2010-2019, the opposite occurred for black sea bass. During these years, the average annual ex-vessel black sea bass price per pound tended to increase with increases in landings (Figure 4).<sup>6</sup> Landings have generally increased over time as the quotas increased; therefore, the relationship between price and landings could reflect increased market demand over time rather than a causal relationship between price and landings. This is not to say that sudden increases of black sea bass on the market do not cause decreases in price. Some fishermen and dealers have said that temporary price drops can occur at both the local and regional levels due to increases in the coastwide quota, state-specific seasonal openings, or individual trawl trips with high landings, all of which can be inter-related. These sudden price drops are often temporary and the price usually rises again.

According to federal VTR data, statistical area 616, which includes important fishing areas near Hudson Canyon, was responsible for the largest percentage of commercial black sea bass catch (landings and discards) in 2019 (i.e., 39%). Statistical area 621, off southern New Jersey, Delaware, and Maryland accounted for the second highest proportion of catch (9%), followed by statistical area 622 off Delaware (8%), statistical area 615 off New Jersey (7%), and statistical area 537, south of Massachusetts and Rhode Island (5%; Table 3, Figure 5). Statistical area 611, in Long Island Sound, and statistical area 539, off Rhode Island, had the highest number of trips

which reported black sea bass catch on federal VTRs in 2019 (over 1,500 trips each); however they each accounted for less than 5% of total black sea bass catch.<sup>8</sup>

In 2019, most commercial black sea bass landings from state and federally-permitted vessels occurred in New Jersey (20%) and Virginia (18%).<sup>7</sup> The percentage of landings by state is driven by and closely matches the state-by-state commercial quota allocations managed by the Commission (Table 4). States set measures to achieve their state-specific commercial quotas. The Council and Commission are currently developing a management action to consider if these state allocations should be modified.<sup>9</sup>

At least 100,000 pounds of black sea bass were landed in each of 10 ports in 7 states from Maine through North Carolina in 2019. These 10 ports collectively accounted for over 66% of all commercial black sea bass landings in 2019 (Table 5).<sup>7</sup> Detailed community profiles developed by the NEFSC Social Science Branch can be found at [www.mafmc.org/communities/](http://www.mafmc.org/communities/).

Over 189 federally-permitted dealers from Maine through North Carolina purchased black sea bass in 2019. More dealers bought black sea bass in New York than in any other state (Table 6).<sup>7</sup>

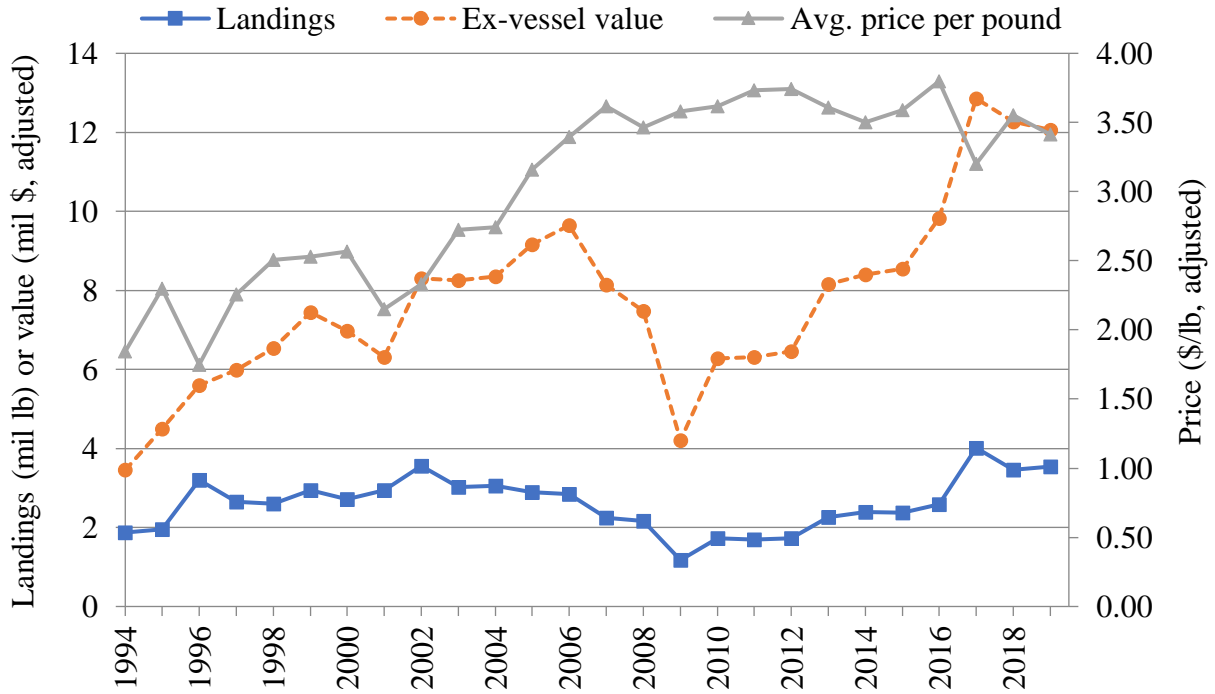
A moratorium permit is required to fish commercially for black sea bass in federal waters. In 2019, 657 federal commercial black sea bass permits were issued.<sup>10</sup>

A minimum commercial black sea bass size limit of 11 inches total length has been in place in federal waters since 2002. There is no federal waters black sea bass possession limit; however, states set possession limits for state waters.

State and federal dealer data, coupled with federal VTR data, indicate that at least 57% of commercial black sea bass landings in 2019 were caught with bottom otter trawl gear. At least 22% was caught with fish or lobster pots/traps, at least 13% with hand lines, and 1% with gill nets. Seven percent of commercial landings in 2019 were associated with an unknown gear type; this includes landings from state-only permitted vessels which do not submit federal VTRs. Other gear types each accounted for 1% or less of total commercial catch in 2019.<sup>11</sup>

Any federally-permitted vessel which uses otter trawl gear and catches more than 500 pounds of black sea bass from January through March, or more than 100 pounds from April through December, must use nets with a minimum mesh size of 4.5-inch diamond mesh applied throughout the codend for at least 75 continuous meshes forward of the end of the net. Pots and traps used to commercially harvest black sea bass must have two escape vents with degradable hinges in the parlor. The escape vents must measure 1.375 inches by 5.75 inches if rectangular, 2 inches by 2 inches if square, or have a diameter of 2.5 inches if circular.



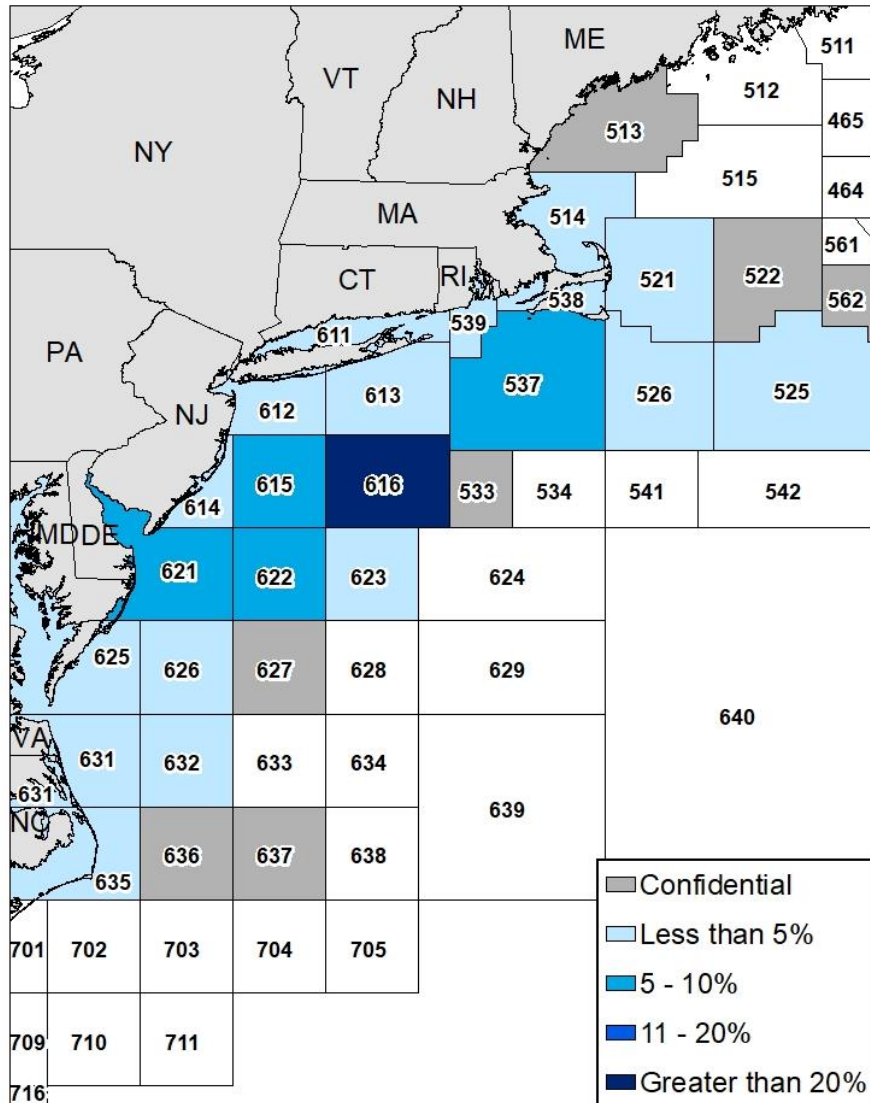


**Figure 4:** Landings, ex-vessel value, and average price for black sea bass, ME-NC, 1994-2019. Ex-vessel value and price are inflation-adjusted to 2019 dollars using the Gross Domestic Product Price Deflator.<sup>7</sup>

**Table 3:** Statistical areas that accounted for at least 5% of the total commercial black sea bass catch in 2019 based on federal VTRs, with associated number of trips.<sup>8</sup>

Statistical Area	Percent of 2019 Commercial Black Sea Bass Catch	Number of Trips
616	39%	761
621	10%	332
622	8%	104
615	7%	175
537	5%	774

### 2019 Commercial Black Sea Bass Catch - VTRs



**Figure 5:** Proportion of black sea bass catch by statistical area in 2019 based on federal VTR data. Statistical areas marked “confidential” are associated with fewer than three vessels and/or dealers. Statistical areas with confidential data collectively accounted for less than 1% of commercial catch reported on VTRs in 2019. The amount of catch that was not reported on federal VTRs (e.g., catch from vessels permitted to fish only in state waters) is unknown. Northeast Fisheries Science Center Data (“AA tables”) suggest that 20% of total commercial landings (state and federal) in 2019 were not associated with a statistical area reported on federal VTRs.<sup>8,11</sup>

**Table 4:** Allocation of commercial black sea bass quota among states under the Commission’s FMP.

State	Allocation (percent)
Maine	0.5
New Hampshire	0.5
Massachusetts	13.0
Rhode Island	11.0
Connecticut	1.0
New York	7.0
New Jersey	20.0
Delaware	5.0
Maryland	11.0
Virginia	20.0
North Carolina	11.0
Total	100

**Table 5:** Ports reporting at least 100,000 pounds of black sea bass landings in 2019, associated number of vessels, and percentage of total commercial landings.<sup>7</sup>

Port name	Pounds of black sea bass landed	% of total commercial black sea bass landed	Number of vessels landing black sea bass
POINT PLEASANT, NJ	395,691	11%	40
OCEAN CITY, MD	369,507	10%	8
POINT JUDITH, RI	284,176	8%	315
HAMPTON, VA	266,307	8%	32
NEW BEDFORD, MA	217,593	6%	192
NEWPORT NEWS, VA	188,542	5%	17
BEAUFORT, NC	163,148	5%	52
CAPE MAY, NJ	161,095	5%	32
MONTAUK, NY	159,324	5%	126
CHINCOTEAGUE, VA	113,229	3%	8

**Table 6:** Number of dealers, by state, reporting purchases of black sea bass in 2019.<sup>7</sup>

State	ME	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of dealers	C	29	30	12	48	29	C	5	16	20

## ***Recreational Fishery***

The Council develops coast-wide regulations for the recreational black sea bass fishery in federal waters, including a minimum fish size limit, a possession limit, and open and closed seasons (Table 7). The Commission and member states develop recreational measures in state waters (Table 8).

As previously described, the revised time series of MRIP estimates for black sea bass catch, harvest, and effort are substantially higher than the previous estimates, largely due to increased estimates for private anglers. Information presented in this section is based on the revised estimates.

Between 1981 and 2019, recreational catch of black sea bass from Maine through Cape Hatteras, NC was lowest in 1984 at 4.73 million fish and was highest in 2017 at 41.19 million fish. Recreational harvest in weight was highest in 2016 at 12.05 million pounds; however, harvest in numbers of fish was highest in 1986 at 19.28 million fish. Recreational harvest in weight was lowest in 1981 at 1.53 million pounds, while harvest in numbers of fish was lowest in 1998 at 1.56 million fish.<sup>6</sup>

In 2019, an estimated 4.38 million black sea bass, at about 8.61 million pounds, were harvested by recreational anglers from Maine through Cape Hatteras, North Carolina (Figure 3, Table 9).<sup>6</sup> Harvest prior to 2020 should not be compared against the respective RHLs as the RHLs prior to 2020 do not account for the recent changes in the MRIP estimation methodology.

In 2019, 62% of black sea bass harvested by recreational fishermen from Maine through North Carolina (in numbers of fish) were caught in state waters and about 38% in federal waters (Table 10). Most of the recreational harvest in 2019 was landed in New York (36%), followed by New Jersey (19%), Massachusetts, Rhode Island, and Connecticut (12 each%; Table 11).<sup>6</sup>

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2019, 812 vessels held a federal party/charter permit.<sup>10</sup>

About 79% of the recreational black sea bass harvest in 2019 came from anglers fishing on private or rental boats, about 18% from anglers aboard party or charter boats, and 3% from anglers fishing from shore (Table 12).<sup>6</sup>

**Table 7:** Federal black sea bass recreational measures, Maine - Cape Hatteras, NC, 2007 - 2020.

<b>Year</b>	<b>Min. size</b>	<b>Bag limit</b>	<b>Open season</b>
2007-2008	12"	25	Jan 1 - Dec 31
2009	12.5"	25	Jan 1 - Oct 5
2010-2011	12.5"	25	May 22 - Oct 11; Nov 1 - Dec 31
2012	12.5"	25	May 19 - Oct 14; Nov 1 - Dec 31
2013	12.5"	20	Jan 1 - Feb 28; May 19 - Oct 14; Nov 1 - Dec 31
2014	12.5"	15	May 19 - Sept 18; Oct 18 - Dec 31
2015-2017	12.5"	15	May 15 - Sept 21; Oct 22 - Dec 31
2018-2020	12.5"	15	Feb 1 - 28; May 15 - Dec 31

**Table 8:** State waters black sea bass recreational measures in 2018-2020. Measures were the same across all years unless otherwise noted.

State	Min. Size	Bag Limit	Open Season
Maine	13"	10 fish	May 19 - Sept 21; Oct 18 - Dec 31
New Hampshire	13"	10 fish	Jan 1 - Dec 31
Massachusetts	15"	5 fish	2018: May 19 - Sept 12
			2019 & 2020: May 18 - Sept 8
Rhode Island	15"	3 fish	Jun 24 - Aug 31
		7 fish	Sept 1 - Dec 31
Connecticut private & shore	15"	5 fish	May 19 - Dec 31
CT authorized party/charter monitoring program vessels	15"	5 fish	May 19 - Aug 31
		7 fish	Sept 1 - Dec 31
New York	15"	3 fish	Jun 23 - Aug 31
		7 fish	Sept 1 - Dec 31
New Jersey	12.5"	10 fish	May 15 - Jun 22
		2 fish	Jul 1 - Aug 31
		10 fish	Oct 8 - Oct 31
	13"	15 fish	Nov 1 - Dec 31
Delaware	12.5"	15 fish	May 15 - Dec 31
Maryland	12.5"	15 fish	May 15 - Dec 31
Virginia	12.5"	15 fish	2018: Feb 1 - 28; May 15 - Dec 31
			2019: Feb 1-28; May 15-31; June 22-Dec 31
			2020: Feb 1 - 28; May 29 - Dec 31
North Carolina, North of Cape Hatteras (35° 15'N)	12.5	15 fish	2018: Feb 1 - 28; May 15 - Dec 31
			2019: Feb 1 - 28; May 17 - Dec 31
			2020: Feb 1 - 28; May 17 - TBD

**Table 9:** Estimated recreational black sea bass catch and harvest from Maine through Cape Hatteras, North Carolina, 2010-2019, based on the revised MRIP estimates.<sup>6</sup>

<b>Year</b>	<b>Catch (millions of fish)</b>	<b>Harvest (millions of fish)</b>	<b>Harvest (millions of pounds)</b>	<b>% of catch retained</b>
2010	26.42	5.10	8.07	19%
2011	12.47	1.78	3.27	14%
2012	34.95	3.69	7.04	11%
2013	25.78	3.02	5.69	12%
2014	23.89	3.97	7.24	17%
2015	24.11	4.94	9.06	20%
2016	35.80	5.84	12.05	16%
2017	41.19	5.70	11.50	14%
2018	24.99	3.99	7.92	16%
2019	32.32	4.38	8.61	14%

**Table 10:** Estimated percentage of black sea bass recreational harvest (in numbers of fish) in state and federal waters, from Maine through North Carolina, 2010-2019, based on the revised MRIP estimates.<sup>6</sup>

<b>Year</b>	<b>State waters</b>	<b>Federal waters</b>
2010	64%	36%
2011	65%	35%
2012	69%	31%
2013	67%	33%
2014	68%	32%
2015	69%	31%
2016	59%	41%
2017	40%	60%
2018	61%	39%
2019	62%	38%
<b>2010-2019 average</b>	<b>61%</b>	<b>39%</b>
<b>2017-2019 average</b>	<b>53%</b>	<b>47%</b>

**Table 11:** State-by-state contribution to total recreational harvest of black sea bass (in number of fish), Maine through Cape Hatteras, North Carolina, 2017 - 2019, based on the revised MRIP estimates.<sup>6</sup>

State	2017	2018	2019	2017-2019 average
Maine	0%	0%	0%	0%
New Hampshire	0%	0%	0%	0%
Massachusetts	10%	17%	12%	13%
Rhode Island	6%	18%	12%	11%
Connecticut	9%	10%	12%	10%
New York	43%	21%	36%	35%
New Jersey	26%	26%	19%	24%
Delaware	2%	2%	1%	2%
Maryland	3%	4%	3%	3%
Virginia	2%	2%	5%	3%
North Carolina	<1%	<1%	<1%	<1%

**Table 12:** Percent of total recreational black sea bass harvest (in numbers of fish) by recreational fishing mode, Maine through Cape Hatteras, North Carolina, 2010-2019, based on the revised MRIP estimates.<sup>6</sup>

Year	Shore	Party/charter	Private/rental	Total Number of Fish in Millions
2010	1%	10%	90%	5,101,763
2011	3%	17%	80%	1,782,517
2012	1%	19%	80%	3,690,190
2013	2%	9%	89%	3,021,533
2014	3%	19%	78%	3,974,874
2015	0%	22%	78%	4,941,538
2016	4%	9%	88%	5,841,461
2017	1%	9%	90%	5,704,071
2018	1%	12%	87%	3,992,626
2019	3%	18%	79%	4,377,491
<b>2010-2019 average</b>	<b>2%</b>	<b>14%</b>	<b>84%</b>	<b>4,242,806</b>

## References

- <sup>1</sup> Drohan, A.F., J. P. Manderson, D. B. Packer. 2007. Essential fish habitat source document: black sea bass, *Centropristis striata*, life history and habitat characteristics, 2nd edition. NOAA Technical Memorandum NMFS NE 200..
- <sup>2</sup> Northeast Fisheries Science Center. 2017. 62nd Northeast Regional Stock Assessment Workshop (62nd SAW) Assessment Report. Northeast Fisheries Science Center Reference Doc. 17-03. 822 p. Available at: <https://www.nefsc.noaa.gov/publications/crd/crd1703/>
- <sup>3</sup> Blaylock, J. and G.R. Shepherd. 2016. Evaluating the vulnerability of an atypical protogynous hermaphrodite to fishery exploitation: results from a population model for black sea bass (*Centropristis striata*). *Fishery Bulletin* 114(4): 476-489.
- <sup>4</sup> Northeast Fisheries Science Center. 2019. Prepublication copy of the August 2019 operational stock assessment report prepared for the Council and the SSC. Available at: <http://www.mafmc.org/ssc-meetings/2019/september-9-11>
- <sup>5</sup> More information on the Summer Flounder, Scup, and Black Sea Bass Commercial/Recreational Allocation Amendment is available at: <https://www.mafmc.org/actions/sfsbsb-allocation-amendment>.
- <sup>6</sup> Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division. Accessed June 18, 2020. Available at: <https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index>
- <sup>7</sup> Unpublished NMFS commercial fish dealer data (i.e., “DERS”), which include both state and federal dealer data).
- <sup>8</sup> Unpublished NMFS VTR data.
- <sup>9</sup> More information on the Black Sea Bass Commercial State Allocation Amendment/Addendum is available at: <https://www.mafmc.org/actions/bsb-commercial-allocation>.
- <sup>10</sup> Unpublished NMFS permit data.
- <sup>11</sup> Unpublished NEFSC commercial fish dealer data (i.e., “AA tables”), which include both state and federal dealer data).