



Black Sea Bass Fishery Information Document

June 2016

This document provides a brief overview of the biology, stock condition, management system, and fishery performance for black sea bass with an emphasis on 2015, the most recent complete fishing year.

1. Biology

Black sea bass (*Centropristis striata*) are distributed from the Gulf of Maine through the Gulf of Mexico. Adults and juveniles 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 prefer to be near structures such as rocky reefs, coral patches, cobble and rock fields, mussel beds, and shipwrecks. Adults in the Mid-Atlantic show strong site fidelity during the summer but migrate to offshore wintering areas south of New Jersey when water temperatures decrease in the fall. Adults in the South Atlantic and Gulf of Mexico do not migrate during the winter.¹

Black sea bass are protogynous hermaphrodites, meaning that they are all born female but most 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 half of black sea bass are sexually mature by 2 or 3 years of age and about 20 cm (about 8 inches) in length. Most black sea bass greater than 19 cm (about 7.5 inches) are either in a transitional stage between female and male or have fully transitioned to the male stage. Studies have shown that fishing pressure can decrease the age of transition from female to male. Black sea bass reach a maximum size of about 60 cm (about 24 inches) and a maximum age of about 12 years.^{1,2}

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 complex coastal habitats with tautog, hakes, conger eel, sea robins and other migratory fish species. Essential Fish Habitat (EFH) 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. Juvenile and adult black sea bass 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, and monkfish as predators of black sea bass.¹

2. Status of the Stock

The protogynous life history (i.e., transitioning from female to male) and structure-orienting behavior of black sea bass make them a difficult species to assess with traditional analytical stock assessment models. Most stock assessments of Mid-Atlantic species rely heavily on data collected during the NEFSC biannual bottom trawl survey. This survey largely avoids areas with structures that could damage the trawl gear, such as rocky outcroppings and reefs. Black sea bass prefer to

be near such structures and so they are, for the most part, not susceptible to capture by the trawl survey.²

The northern stock of black sea bass (i.e., black sea bass north of Cape Hatteras, North Carolina) was designated as overfished in 2000, and was under a stock rebuilding strategy from 2000 until 2009. In 2009, the stock was declared rebuilt after a 2008 stock assessment indicated that it was not overfished and overfishing was not occurring in 2007. The peer review panel for the assessment approved it for use in management but cautioned that there was “considerable uncertainty with respect to stock status”. The panel recommended that the Council “allow for the sizeable uncertainty in stock status when establishing catch limits”.²

The most recent stock assessment update was completed in July 2012, using data through 2011. The results of this update indicated that the black sea bass stock was not overfished and overfishing was not occurring in 2011. The 2011 stock was estimated to be at 102% of the spawning stock biomass at maximum sustainable yield (SSB_{MSY} ; Figure 1 and Figure 2).³

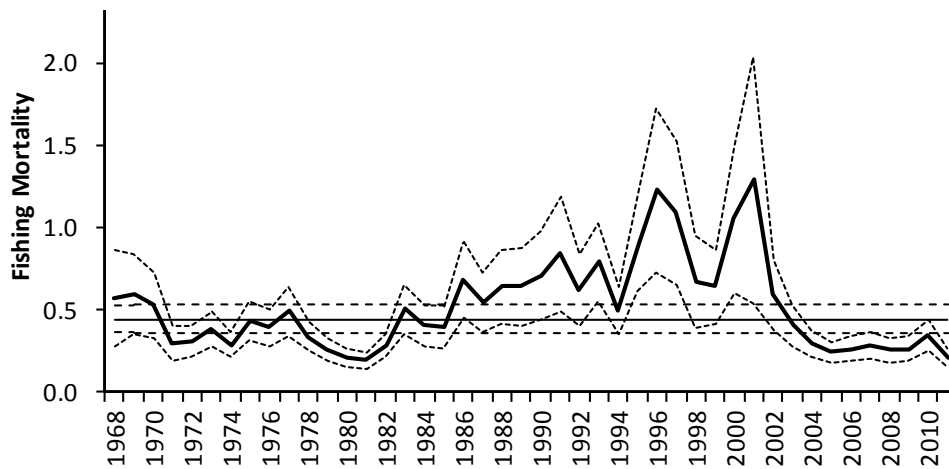


Figure 1: Estimated fishing mortality rate (F; +/- 2 standard deviations) of black sea bass from 1968-2011. Horizontal lines represent F_{MSY} and an 80% confidence interval.³

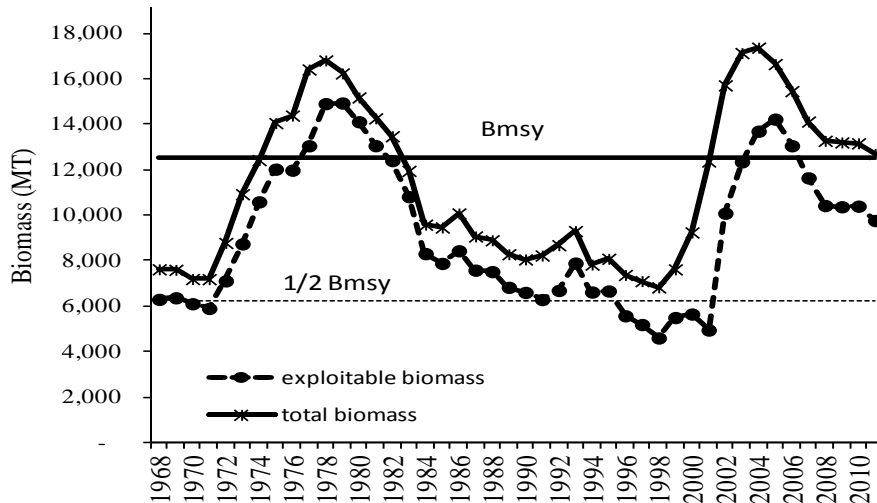


Figure 2: Estimated black sea bass total and exploitable biomass, 1968-2011. B_{MSY} is the biomass target, and $\frac{1}{2} B_{MSY}$ is the minimum biomass threshold, below which the stock is considered overfished.³

The Mid-Atlantic Fishery Management Council’s (Council’s) Scientific and Statistical Committee (SSC) did not accept the Overfishing Limit (OFL) derived from this assessment, and has used alternative methods to recommend catch limits for black sea bass for several years. A benchmark stock assessment is currently scheduled for December 2016.

3. Management System and Overall Fishery Performance

The Council and the Atlantic States Marine Fisheries Commission (Commission) work cooperatively to develop fishery regulations for black sea bass from Maine through Cape Hatteras, NC. The Council and Commission work in conjunction with the National Marine Fisheries Service (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, also known as the Exclusive Economic Zone or EEZ). The management unit for black sea bass includes U.S. waters from Cape Hatteras, North Carolina to the U.S.-Canadian border.

The Council has managed back sea bass since 1997 when it amended the Summer Flounder and Scup Fishery Management Plan (FMP) to include black sea bass. The original FMP and subsequent amendments and frameworks are available at: 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, minimum fish sizes, gear regulations, permit requirements, and other provisions as prescribed by the FMP. The Council allocates 49% of the total allowable landings of black sea bass to the commercial fishery as a commercial quota and 51% of allowable landings to the recreational fishery as a recreational harvest limit.

The Council’s SSC recommends annual Acceptable Biological Catch (ABC) levels for black sea bass, which are then approved by the Council and Commission and submitted to NMFS for final approval and implementation. The ABC is divided into commercial and recreational Annual Catch Limits (ACLs), based on the landings allocation prescribed in the FMP and the recent distribution

of discards between the commercial and recreational fisheries. The Council first implemented recreational and commercial ACLs, with a system of overage accountability, in 2012. Both the ABC and the ACLs are catch limits (i.e., include both projected landings and discards), while the commercial quota and the recreational harvest limit are landing limits. Table 1 shows black sea bass catch and landings limits from 2007 through 2017, as well as commercial and recreational landings through 2015.

Total black sea bass landings (commercial and recreational) peaked in 1986, when approximately 15.8 million pounds of black sea bass were landed. About 6.40 million pounds of black sea bass were landed by commercial and recreational fishermen from Maine through North Carolina in 2015 (Figure 3).^{4,5}

Table 1: Summary of catch limits, landings limits, and landings for commercial and recreational black sea bass fisheries and landings from Maine through Cape Hatteras, NC 2007 through 2017.

Management measures	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 ^c
ABC (mil. lb) ^a	--	--	--	4.50	4.50	4.50	5.50	5.50	5.50	6.67	6.67
Commercial ACL (mil. lb) ^a	--	--	--	--	--	1.98	2.60	2.60	2.60	3.15	3.15
Commercial quota (mil. lb) ^b	2.38	2.03	1.09	1.76	1.71	1.71	2.17	2.17	2.21	2.71	2.71
Commercial landings (mil. lb)	2.29	1.93	1.18	1.68	1.69	1.72	2.26	2.18	2.34 ^e	--	--
% of commercial quota landed	96%	95%	108%	95%	99%	101%	104%	100%	106%	--	--
Recreational ACL (mil. lb) ^a	--	--	--	--	--	1.86	2.90	2.90	2.90	3.52	3.52
Recreational harvest limit (mil. lb) ^b	2.47	2.11	1.14	1.83	1.78	1.32	2.26	2.26	2.33	2.82	2.82
Recreational landings (mil. lb) ^d	2.18	2.03	2.56	3.19	1.17	3.19	2.46	3.60	3.97	--	--
% of recreational limit harvested	88%	96%	225%	174%	66%	242%	109%	159%	170%	--	--

^a The ABC is the annual Acceptable Biological Catch for the entire black sea bass fishery, and is divided into sector-specific Annual Catch Limits (ACLs) for the commercial and recreational fisheries. The ABC and ACLs include both landings and discards.

^b Commercial quotas and recreational harvest limits reflect the removal of projected discards from the sector-specific ACLs. For 2006-2014, these limits are also adjusted for Research Set Aside (RSA). Quotas and harvest limits for 2015-2016 do not reflect an adjustment for RSA due to the suspension of the program in 2014.

^c Currently implemented; subject to change based on SSC review and subsequent Council and Commission review.

^d Excludes landings south of Cape Hatteras, North Carolina.

^e Preliminary.

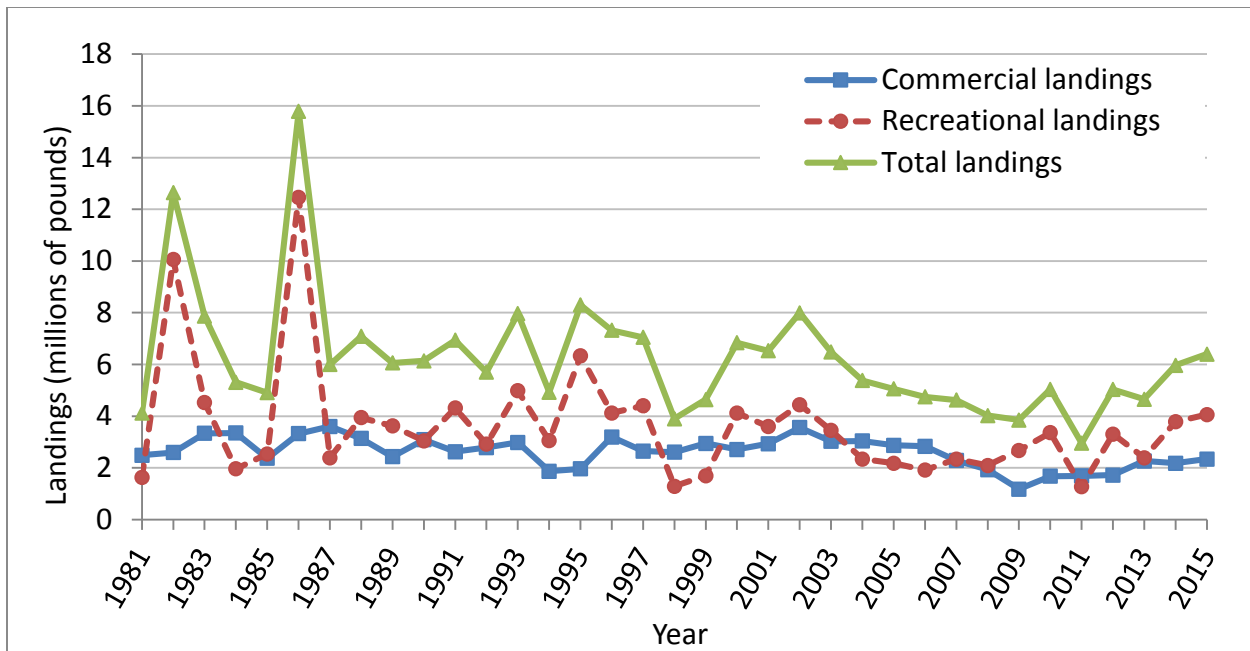


Figure 3: Commercial and recreational black sea bass landings in millions of pounds from Maine through North Carolina, 1981-2015.^{4,5}

4. Commercial Black Sea Bass Measures and Fishery Performance

Commercial landings of black sea bass peaked in 1987 at 3.61 million pounds, and reached a low of 1.17 million pounds in 2009 (Figure 3). In 2015, commercial fishermen landed approximately 2.34 million pounds of black sea bass (corresponding to 106% of the commercial quota).⁴

A moratorium permit is required to fish commercially for black sea bass in federal waters. In 2015, 697 vessels held federal commercial black sea bass permits.⁶

The minimum commercial size limit for black sea bass of 11 inches total length has been in place since 2002. The Commission divides the black sea bass commercial quota among the states based on the allocation percentages given in Table 2, and states set measures to achieve their state-specific commercial quotas.

Table 2: Allocation of commercial black sea bass quota among states established in 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

In 2015, about 68% of the commercial black sea bass caught by federal permit holders from Maine to North Carolina was caught with bottom otter trawl gear. About 18% were caught with fish pots and traps, 8% in offshore lobster traps, and about 3% with hand lines. Other gear types accounted for less than 1% each of total commercial landings.⁷

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 target black sea bass commercially must have two escape vents with degradable hinges in the section known as 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.

Vessel trip report (VTR) data suggest that statistical area 616 was responsible for the largest percentage of commercial black sea bass catch in 2015. Most of the trips during which black sea bass were caught took place in statistical area 537 (Table 3, Figure 4).⁷

Table 3: Statistical areas that accounted for at least 5% of the total commercial black sea bass catch in 2015, with associated number of trips.⁷

Statistical Area	Percent of 2015	
	Commercial Black Sea Bass Catch	Number of Trips
616	35%	452
613	11%	662
621	10%	226
537	9%	791

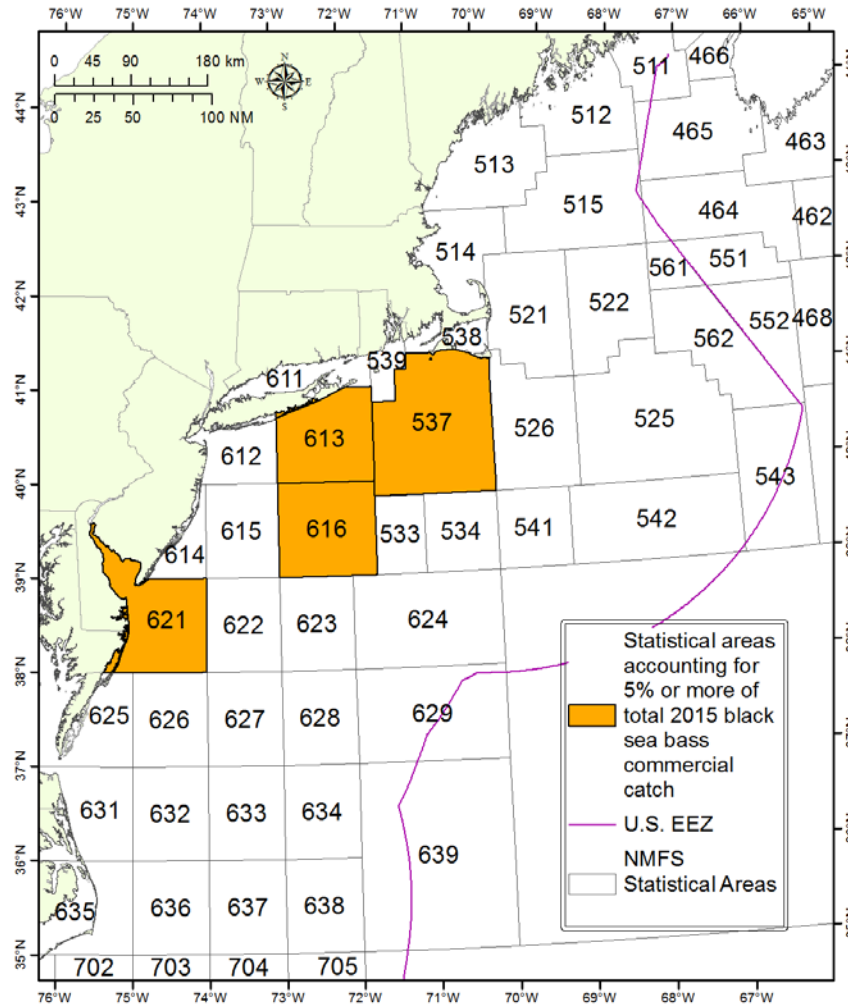


Figure 4: NMFS Statistical Areas, highlighting those that each accounted for more than 5% of the commercial black sea bass catch in 2015.⁷

Over the past two decades, total black sea bass ex-vessel value (adjusted to 2015 dollars to account for inflation) from Maine to North Carolina has ranged from a low of \$3.42 million in 1994 to a high of \$8.96 million in 2006. Black sea bass reached its lowest adjusted average annual price per pound in 1996, at \$1.83 (\$1.16 in 1994 dollars), and its highest adjusted average annual price per pound in 2009, at \$3.36 (\$3.05 in 2009 dollars; Figure 5).⁴

In 2015, 2.34 million pounds of black sea bass were landed in the commercial fishery, generating \$7.84 million in revenues at an average price of \$3.35 per pound (Figure 5).⁴

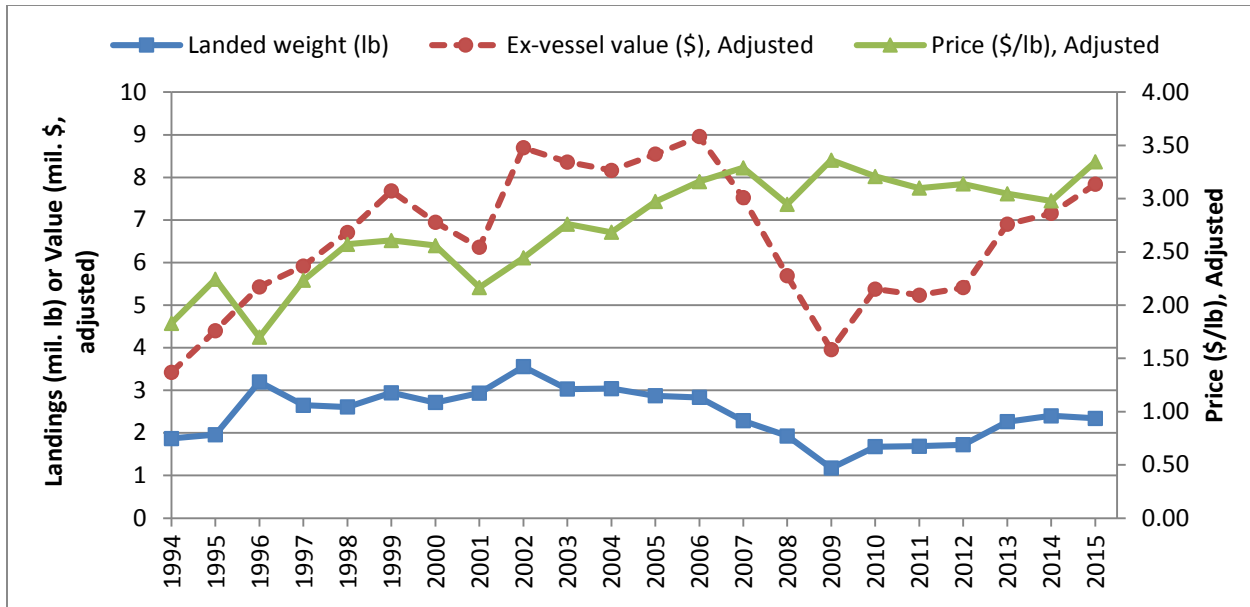


Figure 5: Landings, ex-vessel value, and price for black sea bass, from Maine through North Carolina, 1994-2015. Ex-vessel value and price are adjusted to real 2015 dollars.⁴

At least 100,000 pounds of black sea bass were landed in each of eight ports in seven east coast states in 2015. These seven ports accounted for 56% of all commercial black sea bass landings in 2015 (Table 4).⁴ Detailed community profiles developed by the NEFSC Social Science Branch can be found at www.mafmc.org/communities/.

Table 4: Ports reporting at least 100,000 lb of black sea bass landings in 2015, and corresponding percentage of total 2015 commercial black sea bass landings.⁴

Port name	Pounds of black sea bass landed	% of total commercial black sea bass landed	Number of vessels landing black sea bass
PT. PLEASANT, NJ	249,383	11	34
OCEAN CITY, MD	209,803	9	10
POINT JUDITH, RI	169,180	7	135
HAMPTON, VA	165,692	7	38
CAPE MAY, NJ	165,072	7	38
BEAUFORT, NC	135,711	6	40
NEW BEDFORD, MA	118,191	5	42
INDIAN RIVER, DE	105,482	5	3

209 federally-permitted dealers from Maine through North Carolina bought black sea bass in 2015. More dealers bought black sea bass in New York than in any other state (Table 5). All dealers purchased approximately \$7.84 million worth of black sea bass in 2015.⁴

Table 5: Dealers, by state, who reported buying black sea bass in 2015. C = confidential.⁴

State	MA	RI	CT	NY	NJ	DE	MD	VA	NC
Number of dealers	33	31	14	50	28	3	7	17	26

5. Recreational Black Sea Bass Measures and Fishery Performance

Black sea bass support a sizable recreational fishery in the Mid-Atlantic region. Most recreational black sea bass landings occur in state waters when the fish migrate inshore during the warm summer months.

The Council develops coast-wide regulations for the recreational black sea bass fishery in federal waters, including a minimum size, a possession limit, and open seasons (Table 6). The Commission and member states develop recreational black sea bass regulations in state waters (Table 7).

Table 6: Federal recreational measures for black sea bass, north of Cape Hatteras, NC, 2006 through 2016.

Measure	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Min. size (inches, total length)	12	12	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Possession limit	25	25	25	25	25	25	25	20	15	15	15
Open season	1/1-12/31	1/1-12/31	1/1-12/31	1/1-10/5	5/22-10/11 and 11/1-12/31	5/22-10/11 and 11/1-12/31	5/19-10/14 and 11/1-12/31	5/19-10/14 and 11/1-12/31	5/19-9/18 and 10/18-12/31	5/15-9/21 and 10/22-12/31	5/15-9/21 and 10/22-12/31

Table 7: State waters black sea bass recreational fishing measures in 2016.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21; October 18-December 31
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	15	5 fish	May 21-August 31
Rhode Island	15	3 fish	June 24- August 31
		7 fish	September 1-December 31
Connecticut (Private & Shore)	15	5 fish	May 1-December 31
CT Authorized Party/Charter Monitoring Program Vessels		8 fish	
New York	15	3 fish	June 27-August 31
		8 fish	September 1-October 31
		10 fish	November 1-December 31
New Jersey	12.5	10 fish	May 23-June 19
		2 fish	July 1-August 31
	13	15 fish	October 22-December 31
Delaware	12.5	15 fish	May 15-September 21; October 22-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 15-September 21; October 22-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31

Note: Table updated June 23, 2016 with adjusted measures for New York and New Jersey.

Recreational data for 2004 and later are available from the Marine Recreational Information Program (MRIP). For years prior to 2004, recreational data were generated by the Marine Recreational Fishery Statistics Survey (MRFSS). Recreational black sea bass catch and landings peaked in 1986 when an estimated 29.17 million fish were caught and 21.90 million fish were landed by recreational fishermen from Maine to North Carolina. Recreational catch reached a low of 4.33 million fish in 1984. Recreational landings were at their lowest in 2011, when 0.88 million fish were landed. In 2015, MRIP data indicate that an estimated 4.06 million pounds of black sea bass were landed recreationally from Maine through North Carolina (Table 8). After removing landings south of Cape Hatteras, NC, 3.97 million lb of black sea bass were landed within the management unit, corresponding to 170% of the 2015 recreational harvest limit (Table 1).⁵

For-hire vessels carrying passengers in federal waters must obtain a federal party/charter permit. In 2015, 778 party and charter boats held federal recreational black sea bass permits. Many of these vessels also hold recreational permits for summer flounder and scup.⁶

Table 8: Estimated recreational black sea bass catch and landings from 1981 through 2015 from Maine through North Carolina (includes all of North Carolina).⁵

Year	Catch (number of fish)	Landings (number of fish)	Landings (pounds)
1981	5,301,348	2,733,750	1,628,139
1982	11,615,231	10,248,983	10,054,471
1983	8,707,192	5,631,227	4,530,079
1984	4,330,229	2,491,418	1,960,747
1985	7,130,724	4,216,197	2,540,387
1986	29,167,025	21,903,996	12,460,972
1987	5,911,821	3,467,358	2,391,586
1988	9,363,219	4,059,955	3,944,821
1989	7,000,165	4,649,296	3,620,736
1990	9,621,910	4,268,748	3,047,000
1991	11,223,688	5,458,091	4,316,030
1992	8,296,406	3,868,783	2,914,114
1993	9,451,482	6,196,565	4,984,681
1994	7,688,152	3,570,859	3,053,645
1995	14,480,955	6,886,784	6,338,873
1996	8,437,326	3,764,283	4,125,270
1997	11,087,564	4,867,509	4,399,446
1998	5,699,352	1,259,016	1,289,734
1999	7,757,756	1,411,845	1,696,562
2000	17,667,038	3,755,431	4,121,841
2001	14,625,914	3,005,864	3,595,547
2002	15,079,530	3,421,298	4,442,306
2003	12,648,934	3,392,385	3,448,658
2004	8,884,113	1,925,075	2,340,493
2005	8,358,481	1,488,509	2,180,548
2006	8,728,865	1,392,447	1,910,654
2007	9,600,503	1,629,635	2,337,695
2008	11,102,022	1,341,748	2,092,144
2009	9,875,065	1,908,941	2,672,332
2010	11,133,225	2,334,671	3,360,986
2011	5,794,359	880,667	1,266,719
2012	14,552,937	1,945,888	3,305,124
2013	11,157,610	1,322,116	2,518,525
2014	12,047,341	2,151,516	3,736,039
2015	11,537,525	2,439,436	4,059,317

In 2015, about 71% of black sea bass landed by recreational fishermen were caught in state waters, and about 29% in federal waters (Table 9). The majority of black sea bass were landed in Massachusetts, New York, and New Jersey. These three states accounted for about 70% of all recreational landings from Maine to North Carolina in 2015 (Table 10).⁵

Table 9: Estimated percentage of black sea bass recreational landings (in numbers of fish) in state vs. federal waters, from Maine through North Carolina, 2006 through 2015.⁵

Year	State waters	Federal waters
2006	34.9%	65.1%
2007	34.8%	65.2%
2008	60.3%	39.7%
2009	67.5%	32.5%
2010	72.1%	27.9%
2011	63.8%	36.2%
2012	72.6%	27.4%
2013	66.6%	33.4%
2014	61.9%	38.1%
2015	70.5%	29.5%
2006-2015 average	66.3%	33.7%
2013-2015 average	60.5%	39.5%

Table 10: State-by-state contribution (as a percentage) to total recreational landings of black sea bass (in number of fish), Maine through North Carolina, in 2014 and 2015.⁵

State	2014	2015
Maine	0.0%	0.0%
New Hampshire	0.0%	0.0%
Massachusetts	21.2%	14.0%
Rhode Island	10.0%	9.6%
Connecticut	18.9%	13.7%
New York	19.7%	42.2%
New Jersey	21.8%	12.7%
Delaware	1.1%	0.9%
Maryland	3.2%	2.4%
Virginia	0.7%	1.6%
North Carolina	3.5%	2.8%

MRIP data indicate that about 63% of recreational black sea bass landings in 2015 were caught by anglers fishing on private or rental boats, about 37% from anglers aboard party or charter boats, and less than 1% from shore (Table 11).⁵

Table 11: The number of black sea bass landed (in numbers of fish) by recreational fishing mode, Maine through North Carolina, 1981-2015.⁵

Year	Shore	Party/charter	Private/rental
1981	452,103	1,440,169	841,478
1982	81,445	8,104,204	2,063,334
1983	222,012	4,005,707	1,403,508
1984	98,227	1,128,294	1,264,897
1985	163,448	2,393,049	1,659,700
1986	1,021,525	16,695,387	4,187,084
1987	71,956	1,157,243	2,238,159
1988	140,754	1,691,300	2,227,901
1989	237,970	1,991,672	2,419,654
1990	289,378	2,268,915	1,710,455
1991	250,675	2,586,145	2,621,271
1992	45,369	2,043,190	1,780,224
1993	54,676	4,579,662	1,562,227
1994	243,347	2,005,883	1,321,629
1995	275,982	5,197,231	1,413,571
1996	70,523	2,631,733	1,062,027
1997	8,337	3,950,336	908,836
1998	7,073	777,874	474,069
1999	19,231	621,354	771,260
2000	177,489	1,797,702	1,780,240
2001	14,035	1,826,852	1,164,977
2002	16,618	2,066,232	1,338,448
2003	10,760	2,073,132	1,308,493
2004	9,462	698,453	1,217,160
2005	13,110	605,932	869,467
2006	49,080	730,749	612,618
2007	9,865	909,869	709,901
2008	9,447	479,682	852,619
2009	23,992	442,107	1,442,842
2010	6,096	519,529	1,809,046
2011	8,177	310,760	561,730
2012	6,443	701,777	1,237,668
2013	12,246	274,269	1,035,601
2014	20,065	745,301	1,386,150
2015	3,285	1,095,157	1,340,994
% of Total, 1981-2015	3%	59%	60%
% of Total, 2011-2015	1%	36%	64%

References

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⁶ Unpublished NMFS permit data.

⁷ Unpublished NMFS Vessel Trip Report (VTR) data.